Module 11: Solutions to Recommended Exercises

TMA4268 Statistical Learning V2024

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Problem 1

a)

It is a 4-4-4-3 feedforward neural network with an extra bias node in both the input and the two hidden layers. It can be written in the following form

$$y_c(\mathbf{x}) = \phi_o(\beta_{0c} + \sum_{m=1}^{4} \beta_{mc} z_m) = \phi_o(\beta_{0c} + \sum_{m=1}^{4} \beta_{mc} \phi_{h*}(\gamma_{0m} + \sum_{l=1}^{4} \gamma_{lm} \phi_h(\alpha_{0l} + \sum_{j=1}^{4} \alpha_{jl} x_j))).$$

b)

It is not clear wheter the network has 3 input nodes, or 2 input nodes plus one bias node (both would lead to the same representation). The hidden layer has 4 nodes, but no bias node, and the output layer consists of two nodes. This can be used for regression with two responses. If we have a classifiation problem with two classes then we usually use only one output node, but is is possible to use softmax activation for two classes, but that is very uncommon. Remember that for a binary outcome, we would usually only use one output node that encodes for the probability to be in one of the two classes.

c)

When the hidden layer has a linear activation the model is only linear in the original covariates, so adding the extra hidden layer will not add non-linearity to the model. The feedforward model may find latent structure in the data in the hidden layer. In general, however, we would then recommend to directly use logistic regression, because you then end up with a model that is easier to interpret.

d)

This is possible because the neural network is fitted using iterative methods. But, there is not one unique solutions here, and the network will benefit greatly by adding some sort of regulariztion, like weight decay and early stopping.

Problem 2

a)

This is a feedforward network with 10 input nodes plus a bias node, a hidden layer with 5 nodes plus a bias node, and a single node in the output layer. The hidden layer has a ReLU activiation function, whereas the output layer has a linear activation function.

The number of the estimated parameters are $(10 + 1) * 5 + (5 + 1) = 61$.

b)

Feedforward network with two hidden layers. Input layer has 4 nodes and no bias term, the first hidden layer has 10 nodes and ReLU activation and a bias node, the second hidden layer has 5 nodes plus a bias node and ReLU activiation. One node in output layer with sigmoid activiation.

The number of estimated parameters are $4 * 10 + (10 + 1) * 5 + (5 + 1) = 101$.

c)

In module 7 we had an additive model of non-linear function, and interactions would be added manually (i.e., explicitly). Each coefficient estimated would be rather easy to interpret. For neural nets we know that with one hidden layer and squashing type activation we can fit any function (regression), but may need many nodes - and then the interpretation might not be so easy. Interactions are automatically handled with the non-linear function of sums.

Problem 3

```
# load
boston_housing <- dataset_boston_housing()
x_train <- boston_housing$train$x
y_train <- boston_housing$train$y
x_test <- boston_housing$test$x
y_test <- boston_housing$test$y

# preprocess
mean <- apply(x_train, 2, mean)
std <- apply(x_train, 2, sd)
x_train <- scale(x_train, center = mean, scale = std)
x_test <- scale(x_test, center = mean, scale = std)
```

1. Load and preprocess data

a)

```
model_r <- keras_model_sequential() %>%
  layer_dense(units = 64, activation = "relu", input_shape = 13) %>%
```

```
  layer_dense(units = 32, activation = "relu") %>%
  layer_dense(units = 1)

summary(model_r)
```

2. Define the model

```
## Model: "sequential"
## _________________________________________________________________________
##  Layer (type)                       Output Shape                    Param #
## =========================================================================
##  dense_2 (Dense)                    (None, 64)                      896
##  dense_1 (Dense)                    (None, 32)                      2080
##  dense (Dense)                      (None, 1)                       33
## =========================================================================
## Total params: 3009 (11.75 KB)
## Trainable params: 3009 (11.75 KB)
## Non-trainable params: 0 (0.00 Byte)
## _________________________________________________________________________
```

```
model_r %>% compile(
  loss = "mean_squared_error",
  optimizer = optimizer_adam(learning_rate = 0.001),  # adam is the most common optimizer for its robus
  metrics = c("mean_absolute_error")
)
```

3. Compile

```
history <- model_r %>% fit(
  x_train, y_train,
  epochs = 100,
  batch_size = 64,
  validation_data = list(x_test, y_test)
)
```

4. Train the model

```
## Epoch 1/100
## 7/7 - 0s - loss: 591.4245 - mean_absolute_error: 22.5526 - val_loss: 605.6512 - val_mean_absolute_er
## Epoch 2/100
## 7/7 - 0s - loss: 566.7512 - mean_absolute_error: 22.0383 - val_loss: 580.8715 - val_mean_absolute_er
## Epoch 3/100
## 7/7 - 0s - loss: 543.2000 - mean_absolute_error: 21.5355 - val_loss: 555.7230 - val_mean_absolute_er
## Epoch 4/100
## 7/7 - 0s - loss: 518.8730 - mean_absolute_error: 21.0124 - val_loss: 529.4138 - val_mean_absolute_er
## Epoch 5/100
## 7/7 - 0s - loss: 493.5142 - mean_absolute_error: 20.4462 - val_loss: 500.3448 - val_mean_absolute_er
```

```
## Epoch 6/100
## 7/7 - 0s - loss: 464.3993 - mean_absolute_error: 19.7884 - val_loss: 467.4223 - val_mean_absolute_er
## Epoch 7/100
## 7/7 - 0s - loss: 431.2065 - mean_absolute_error: 18.9995 - val_loss: 428.9861 - val_mean_absolute_er
## Epoch 8/100
## 7/7 - 0s - loss: 392.8644 - mean_absolute_error: 18.0309 - val_loss: 385.1244 - val_mean_absolute_er
## Epoch 9/100
## 7/7 - 0s - loss: 348.3909 - mean_absolute_error: 16.8506 - val_loss: 338.2389 - val_mean_absolute_er
## Epoch 10/100
## 7/7 - 0s - loss: 302.5974 - mean_absolute_error: 15.5003 - val_loss: 288.7630 - val_mean_absolute_er
## Epoch 11/100
## 7/7 - 0s - loss: 254.0225 - mean_absolute_error: 13.9334 - val_loss: 239.9599 - val_mean_absolute_er
## Epoch 12/100
## 7/7 - 0s - loss: 207.9179 - mean_absolute_error: 12.2353 - val_loss: 193.9640 - val_mean_absolute_er
## Epoch 13/100
## 7/7 - 0s - loss: 165.2670 - mean_absolute_error: 10.5176 - val_loss: 154.0949 - val_mean_absolute_er
## Epoch 14/100
## 7/7 - 0s - loss: 130.4507 - mean_absolute_error: 9.0250 - val_loss: 122.8171 - val_mean_absolute_erro
## Epoch 15/100
## 7/7 - 0s - loss: 104.6206 - mean_absolute_error: 7.8334 - val_loss: 100.5750 - val_mean_absolute_erro
## Epoch 16/100
## 7/7 - 0s - loss: 85.7066 - mean_absolute_error: 6.9720 - val_loss: 85.1973 - val_mean_absolute_error
## Epoch 17/100
## 7/7 - 0s - loss: 73.0923 - mean_absolute_error: 6.3658 - val_loss: 74.0587 - val_mean_absolute_error
## Epoch 18/100
## 7/7 - 0s - loss: 62.9293 - mean_absolute_error: 5.8875 - val_loss: 65.8368 - val_mean_absolute_error
## Epoch 19/100
## 7/7 - 0s - loss: 55.8522 - mean_absolute_error: 5.5436 - val_loss: 59.0718 - val_mean_absolute_error
## Epoch 20/100
## 7/7 - 0s - loss: 49.8876 - mean_absolute_error: 5.2034 - val_loss: 53.4683 - val_mean_absolute_error
## Epoch 21/100
## 7/7 - 0s - loss: 44.7168 - mean_absolute_error: 4.8904 - val_loss: 49.0011 - val_mean_absolute_error
## Epoch 22/100
## 7/7 - 0s - loss: 40.7337 - mean_absolute_error: 4.6083 - val_loss: 45.0362 - val_mean_absolute_error
## Epoch 23/100
## 7/7 - 0s - loss: 37.3720 - mean_absolute_error: 4.3577 - val_loss: 41.9657 - val_mean_absolute_error
## Epoch 24/100
## 7/7 - 0s - loss: 34.7448 - mean_absolute_error: 4.1677 - val_loss: 39.6055 - val_mean_absolute_error
## Epoch 25/100
## 7/7 - 0s - loss: 32.7903 - mean_absolute_error: 4.0227 - val_loss: 37.5802 - val_mean_absolute_error
## Epoch 26/100
## 7/7 - 0s - loss: 31.2241 - mean_absolute_error: 3.8966 - val_loss: 35.9607 - val_mean_absolute_error
## Epoch 27/100
## 7/7 - 0s - loss: 30.0017 - mean_absolute_error: 3.8077 - val_loss: 34.6564 - val_mean_absolute_error
## Epoch 28/100
## 7/7 - 0s - loss: 28.8609 - mean_absolute_error: 3.7258 - val_loss: 33.6404 - val_mean_absolute_error
## Epoch 29/100
## 7/7 - 0s - loss: 27.9937 - mean_absolute_error: 3.6743 - val_loss: 32.6976 - val_mean_absolute_error
## Epoch 30/100
## 7/7 - 0s - loss: 27.1598 - mean_absolute_error: 3.6214 - val_loss: 31.8503 - val_mean_absolute_error
## Epoch 31/100
## 7/7 - 0s - loss: 26.4744 - mean_absolute_error: 3.5777 - val_loss: 31.0966 - val_mean_absolute_error
## Epoch 32/100
## 7/7 - 0s - loss: 25.7893 - mean_absolute_error: 3.5343 - val_loss: 30.3430 - val_mean_absolute_error
```

```
## Epoch 33/100
## 7/7 - 0s - loss: 25.1951 - mean_absolute_error: 3.4956 - val_loss: 29.6956 - val_mean_absolute_error
## Epoch 34/100
## 7/7 - 0s - loss: 24.6088 - mean_absolute_error: 3.4572 - val_loss: 29.1772 - val_mean_absolute_error
## Epoch 35/100
## 7/7 - 0s - loss: 24.0600 - mean_absolute_error: 3.4230 - val_loss: 28.6886 - val_mean_absolute_error
## Epoch 36/100
## 7/7 - 0s - loss: 23.5496 - mean_absolute_error: 3.3873 - val_loss: 28.1202 - val_mean_absolute_error
## Epoch 37/100
## 7/7 - 0s - loss: 22.9863 - mean_absolute_error: 3.3516 - val_loss: 27.7218 - val_mean_absolute_error
## Epoch 38/100
## 7/7 - 0s - loss: 22.4984 - mean_absolute_error: 3.3114 - val_loss: 27.1967 - val_mean_absolute_error
## Epoch 39/100
## 7/7 - 0s - loss: 22.0299 - mean_absolute_error: 3.2668 - val_loss: 26.7040 - val_mean_absolute_error
## Epoch 40/100
## 7/7 - 0s - loss: 21.5479 - mean_absolute_error: 3.2306 - val_loss: 26.2801 - val_mean_absolute_error
## Epoch 41/100
## 7/7 - 0s - loss: 21.0611 - mean_absolute_error: 3.2057 - val_loss: 26.0624 - val_mean_absolute_error
## Epoch 42/100
## 7/7 - 0s - loss: 20.6786 - mean_absolute_error: 3.1844 - val_loss: 25.8200 - val_mean_absolute_error
## Epoch 43/100
## 7/7 - 0s - loss: 20.2928 - mean_absolute_error: 3.1533 - val_loss: 25.4696 - val_mean_absolute_error
## Epoch 44/100
## 7/7 - 0s - loss: 19.8463 - mean_absolute_error: 3.1197 - val_loss: 25.1919 - val_mean_absolute_error
## Epoch 45/100
## 7/7 - 0s - loss: 19.5150 - mean_absolute_error: 3.0976 - val_loss: 25.0948 - val_mean_absolute_error
## Epoch 46/100
## 7/7 - 0s - loss: 19.1844 - mean_absolute_error: 3.0807 - val_loss: 25.1361 - val_mean_absolute_error
## Epoch 47/100
## 7/7 - 0s - loss: 18.6815 - mean_absolute_error: 3.0478 - val_loss: 24.6882 - val_mean_absolute_error
## Epoch 48/100
## 7/7 - 0s - loss: 18.3251 - mean_absolute_error: 3.0119 - val_loss: 24.3126 - val_mean_absolute_error
## Epoch 49/100
## 7/7 - 0s - loss: 17.9905 - mean_absolute_error: 2.9769 - val_loss: 24.0002 - val_mean_absolute_error
## Epoch 50/100
## 7/7 - 0s - loss: 17.7341 - mean_absolute_error: 2.9500 - val_loss: 23.8215 - val_mean_absolute_error
## Epoch 51/100
## 7/7 - 0s - loss: 17.3445 - mean_absolute_error: 2.9178 - val_loss: 23.6567 - val_mean_absolute_error
## Epoch 52/100
## 7/7 - 0s - loss: 17.0629 - mean_absolute_error: 2.8877 - val_loss: 23.7455 - val_mean_absolute_error
## Epoch 53/100
## 7/7 - 0s - loss: 16.7693 - mean_absolute_error: 2.8722 - val_loss: 23.7141 - val_mean_absolute_error
## Epoch 54/100
## 7/7 - 0s - loss: 16.4352 - mean_absolute_error: 2.8474 - val_loss: 23.6351 - val_mean_absolute_error
## Epoch 55/100
## 7/7 - 0s - loss: 16.1861 - mean_absolute_error: 2.8231 - val_loss: 23.4384 - val_mean_absolute_error
## Epoch 56/100
## 7/7 - 0s - loss: 15.9574 - mean_absolute_error: 2.7984 - val_loss: 23.1246 - val_mean_absolute_error
## Epoch 57/100
## 7/7 - 0s - loss: 15.6721 - mean_absolute_error: 2.7760 - val_loss: 23.2536 - val_mean_absolute_error
## Epoch 58/100
## 7/7 - 0s - loss: 15.4521 - mean_absolute_error: 2.7686 - val_loss: 23.5842 - val_mean_absolute_error
## Epoch 59/100
## 7/7 - 0s - loss: 15.1925 - mean_absolute_error: 2.7585 - val_loss: 23.6644 - val_mean_absolute_error
```

```
## Epoch 60/100
## 7/7 - 0s - loss: 14.9595 - mean_absolute_error: 2.7346 - val_loss: 23.5271 - val_mean_absolute_error
## Epoch 61/100
## 7/7 - 0s - loss: 14.6769 - mean_absolute_error: 2.7048 - val_loss: 23.6209 - val_mean_absolute_error
## Epoch 62/100
## 7/7 - 0s - loss: 14.4790 - mean_absolute_error: 2.6912 - val_loss: 23.6261 - val_mean_absolute_error
## Epoch 63/100
## 7/7 - 0s - loss: 14.2611 - mean_absolute_error: 2.6694 - val_loss: 23.3023 - val_mean_absolute_error
## Epoch 64/100
## 7/7 - 0s - loss: 14.0296 - mean_absolute_error: 2.6434 - val_loss: 22.9915 - val_mean_absolute_error
## Epoch 65/100
## 7/7 - 0s - loss: 13.8618 - mean_absolute_error: 2.6200 - val_loss: 22.6169 - val_mean_absolute_error
## Epoch 66/100
## 7/7 - 0s - loss: 13.6691 - mean_absolute_error: 2.6038 - val_loss: 22.4747 - val_mean_absolute_error
## Epoch 67/100
## 7/7 - 0s - loss: 13.5073 - mean_absolute_error: 2.5868 - val_loss: 22.4149 - val_mean_absolute_error
## Epoch 68/100
## 7/7 - 0s - loss: 13.3240 - mean_absolute_error: 2.5712 - val_loss: 22.4854 - val_mean_absolute_error
## Epoch 69/100
## 7/7 - 0s - loss: 13.1749 - mean_absolute_error: 2.5678 - val_loss: 22.7879 - val_mean_absolute_error
## Epoch 70/100
## 7/7 - 0s - loss: 13.0346 - mean_absolute_error: 2.5589 - val_loss: 22.6893 - val_mean_absolute_error
## Epoch 71/100
## 7/7 - 0s - loss: 12.8724 - mean_absolute_error: 2.5412 - val_loss: 22.4853 - val_mean_absolute_error
## Epoch 72/100
## 7/7 - 0s - loss: 12.7122 - mean_absolute_error: 2.5265 - val_loss: 22.4139 - val_mean_absolute_error
## Epoch 73/100
## 7/7 - 0s - loss: 12.6028 - mean_absolute_error: 2.5202 - val_loss: 22.4801 - val_mean_absolute_error
## Epoch 74/100
## 7/7 - 0s - loss: 12.4670 - mean_absolute_error: 2.5050 - val_loss: 22.3512 - val_mean_absolute_error
## Epoch 75/100
## 7/7 - 0s - loss: 12.3669 - mean_absolute_error: 2.4982 - val_loss: 22.4228 - val_mean_absolute_error
## Epoch 76/100
## 7/7 - 0s - loss: 12.2056 - mean_absolute_error: 2.4826 - val_loss: 22.3551 - val_mean_absolute_error
## Epoch 77/100
## 7/7 - 0s - loss: 12.1096 - mean_absolute_error: 2.4632 - val_loss: 21.9798 - val_mean_absolute_error
## Epoch 78/100
## 7/7 - 0s - loss: 11.9742 - mean_absolute_error: 2.4552 - val_loss: 22.1852 - val_mean_absolute_error
## Epoch 79/100
## 7/7 - 0s - loss: 11.8408 - mean_absolute_error: 2.4475 - val_loss: 22.3474 - val_mean_absolute_error
## Epoch 80/100
## 7/7 - 0s - loss: 11.7379 - mean_absolute_error: 2.4474 - val_loss: 22.8439 - val_mean_absolute_error
## Epoch 81/100
## 7/7 - 0s - loss: 11.6280 - mean_absolute_error: 2.4459 - val_loss: 22.9884 - val_mean_absolute_error
## Epoch 82/100
## 7/7 - 0s - loss: 11.5473 - mean_absolute_error: 2.4348 - val_loss: 22.5779 - val_mean_absolute_error
## Epoch 83/100
## 7/7 - 0s - loss: 11.4000 - mean_absolute_error: 2.4092 - val_loss: 22.5357 - val_mean_absolute_error
## Epoch 84/100
## 7/7 - 0s - loss: 11.3210 - mean_absolute_error: 2.3995 - val_loss: 22.6141 - val_mean_absolute_error
## Epoch 85/100
## 7/7 - 0s - loss: 11.2358 - mean_absolute_error: 2.3980 - val_loss: 22.8136 - val_mean_absolute_error
## Epoch 86/100
## 7/7 - 0s - loss: 11.1383 - mean_absolute_error: 2.3893 - val_loss: 22.6560 - val_mean_absolute_error
```

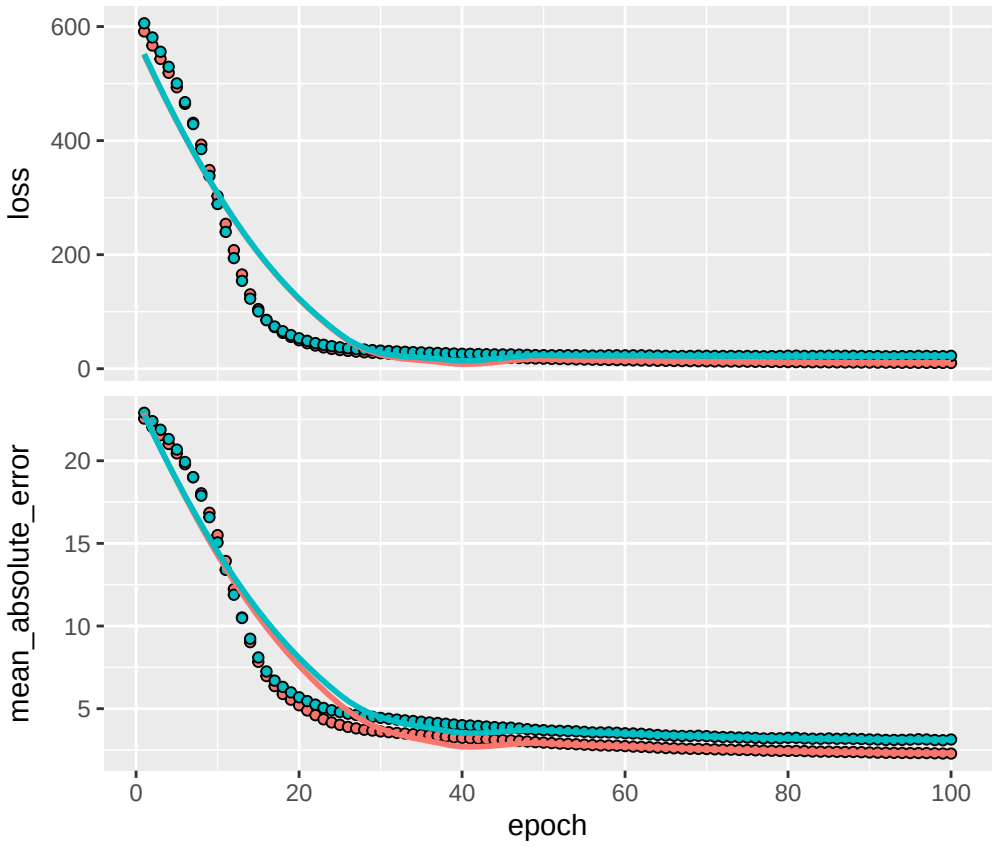
```
## Epoch 87/100
## 7/7 - 0s - loss: 11.0458 - mean_absolute_error: 2.3803 - val_loss: 22.7351 - val_mean_absolute_error
## Epoch 88/100
## 7/7 - 0s - loss: 10.9746 - mean_absolute_error: 2.3823 - val_loss: 22.7186 - val_mean_absolute_error
## Epoch 89/100
## 7/7 - 0s - loss: 10.8742 - mean_absolute_error: 2.3683 - val_loss: 22.5039 - val_mean_absolute_error
## Epoch 90/100
## 7/7 - 0s - loss: 10.8299 - mean_absolute_error: 2.3508 - val_loss: 22.1738 - val_mean_absolute_error
## Epoch 91/100
## 7/7 - 0s - loss: 10.7413 - mean_absolute_error: 2.3383 - val_loss: 22.1692 - val_mean_absolute_error
## Epoch 92/100
## 7/7 - 0s - loss: 10.6984 - mean_absolute_error: 2.3323 - val_loss: 21.8958 - val_mean_absolute_error
## Epoch 93/100
## 7/7 - 0s - loss: 10.6070 - mean_absolute_error: 2.3290 - val_loss: 21.9501 - val_mean_absolute_error
## Epoch 94/100
## 7/7 - 0s - loss: 10.5301 - mean_absolute_error: 2.3237 - val_loss: 22.0552 - val_mean_absolute_error
## Epoch 95/100
## 7/7 - 0s - loss: 10.4687 - mean_absolute_error: 2.3165 - val_loss: 22.1982 - val_mean_absolute_error
## Epoch 96/100
## 7/7 - 0s - loss: 10.4502 - mean_absolute_error: 2.3160 - val_loss: 22.5382 - val_mean_absolute_error
## Epoch 97/100
## 7/7 - 0s - loss: 10.3663 - mean_absolute_error: 2.3148 - val_loss: 22.5010 - val_mean_absolute_error
## Epoch 98/100
## 7/7 - 0s - loss: 10.2973 - mean_absolute_error: 2.2999 - val_loss: 22.1223 - val_mean_absolute_error
## Epoch 99/100
## 7/7 - 0s - loss: 10.2481 - mean_absolute_error: 2.2874 - val_loss: 22.0322 - val_mean_absolute_error
## Epoch 100/100
## 7/7 - 0s - loss: 10.1588 - mean_absolute_error: 2.2849 - val_loss: 22.6407 - val_mean_absolute_error
```

```
scores <- model_r %>% evaluate(x_test, y_test, verbose = 0)

cat("Test loss (MSE):", scores[[1]], "\n",
    "Test mean absolute error (MAE):", scores[[2]], "\n")
```

5. Test

```
## Test loss (MSE): 22.64074
##  Test mean absolute error (MAE): 3.136051
```

```
plot(history)
```



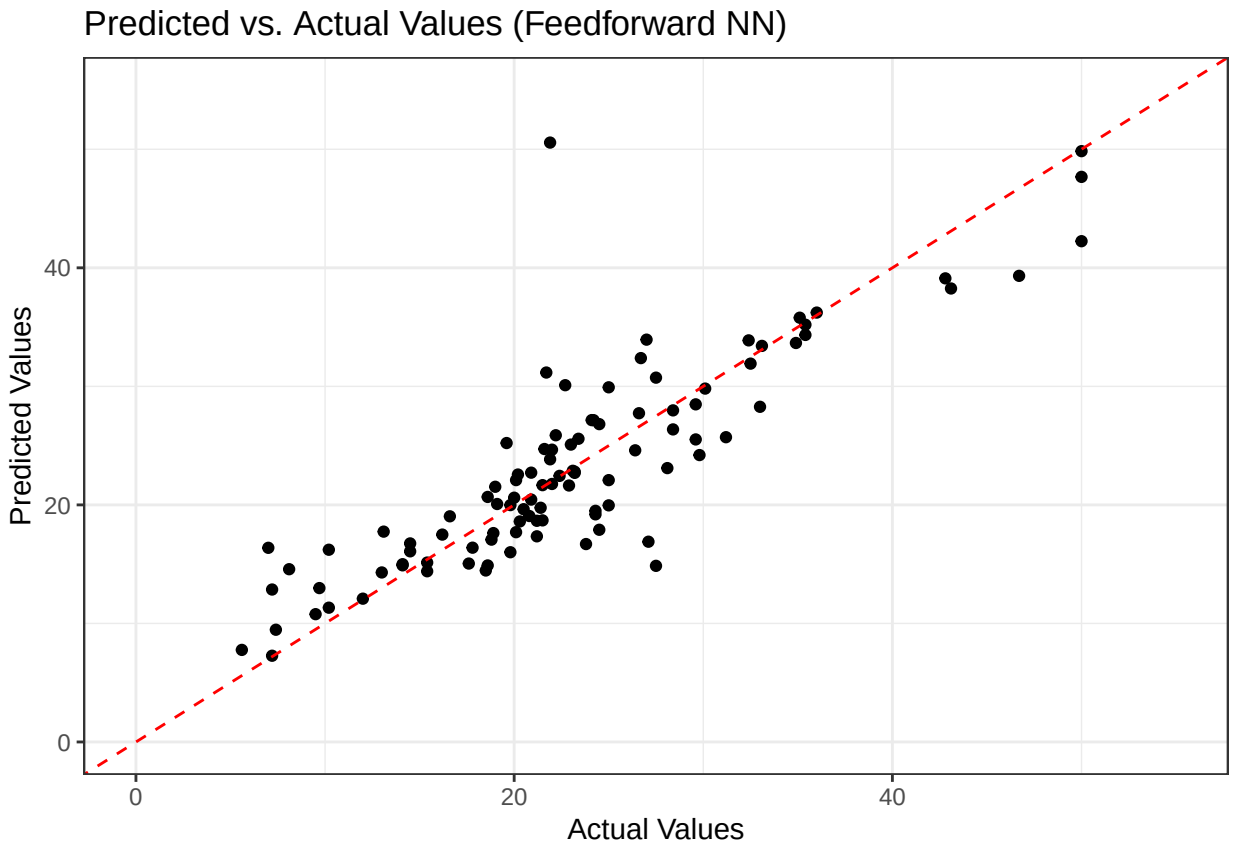
Plot training history

```
predictions <- model_r %>% predict(x_test)
```

Additional plot: confusion matrix

```
## 4/4 - 0s - 50ms/epoch - 12ms/step
```

```
plot_df <- data.frame(Predicted = predictions, Actual = y_test)
ggplot(plot_df, aes(x = Actual, y = Predicted)) +
  geom_point() +
  geom_abline(slope = 1, intercept = 0, color = "red", linetype = "dashed") +
  theme_bw() +
  xlab("Actual Values") +
  ylab("Predicted Values") +
  ggtitle("Predicted vs. Actual Values (Feedforward NN)") +
  xlim(0, 55) +
  ylim(0, 55)
```



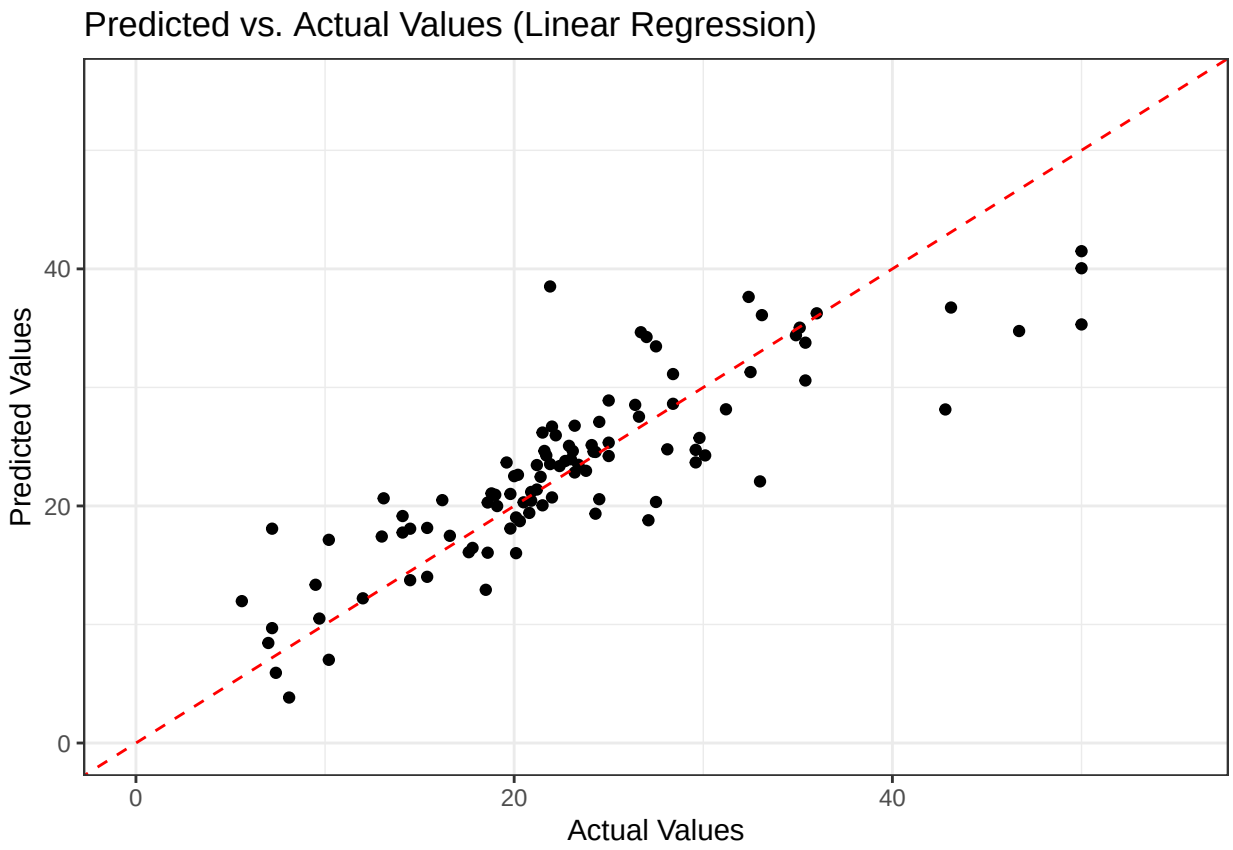
b)

```r
# Fit a linear regression model
linear_model <- lm(y_train ~ ., data = as.data.frame(cbind(x_train, y_train)))

# Make predictions on the test set
predictions <- predict(linear_model, as.data.frame(x_test))

# Calculate the mean squared error and mean absolute error
mse <- mean((y_test - predictions)^2)
mae <- mean(abs(y_test - predictions))

cat("=== [Feedforward Neural Network] === \n", "Test loss (MSE):", scores[[1]],
    "\n",
    "Test mean absolute error (MAE):", scores[[2]],
    "\n",
    "==================================== \n\n",
    "=== [Linear Regression] === \n",
    "Test loss (MSE):", mse, "\n",
    "Test mean absolute error (MAE):", mae, "\n",
    "============================\n\n")
```

Comparison to a Linear Regression Model

```
## === [Feedforward Neural Network] ===
##  Test loss (MSE): 22.64074
##  Test mean absolute error (MAE): 3.136051
##  ====================================
##
##  === [Linear Regression] ===
##  Test loss (MSE): 23.1956
##  Test mean absolute error (MAE): 3.464186
##  ============================
```

```r
plot_df <- data.frame(Predicted = predictions, Actual = y_test)
ggplot(plot_df, aes(x = Actual, y = Predicted)) +
  geom_point() +
  geom_abline(slope = 1, intercept = 0, color = "red", linetype = "dashed") +
  theme_bw() +
  xlab("Actual Values") +
  ylab("Predicted Values") +
  ggtitle("Predicted vs. Actual Values (Linear Regression)") +
  xlim(0, 55) +
  ylim(0, 55)
```



c)

- The feedforward neural network (FNN) demonstrates superior performance compared to the linear model. However, the FNN comes with reduced interpretability and increased complexity. As a result, some may prefer the simpler and more interpretable linear model.

```
keras::k_clear_session()
```

Problem 4: Convolutional Neural Network (CNN)

Problem 4.1: Image Classification with CNN

```
cifar10 <- dataset_cifar10()
x_train <- cifar10$train$x / 255
y_train <- to_categorical(cifar10$train$y, num_classes = 10)
x_test <- cifar10$test$x / 255
y_test <- to_categorical(cifar10$test$y, num_classes = 10)
```

1. Load and preprocess data

a)

```
model_c <- keras_model_sequential() %>%
  layer_conv_2d(filters = 32, kernel_size = c(3, 3), activation = "relu", input_shape = c(32, 32, 3)) %
  layer_max_pooling_2d(pool_size = c(2, 2)) %>%
  layer_conv_2d(filters = 64, kernel_size = c(3, 3), activation = "relu") %>%
  layer_max_pooling_2d(pool_size = c(2, 2)) %>%
  layer_flatten() %>%
  layer_dense(units = 64, activation = "relu") %>%
  layer_dense(units = 10, activation = "softmax")

summary(model_c)
```

2. Define the model

```
## Model: "sequential"
## _________________________________________________________________________
##  Layer (type)                       Output Shape                    Param #
## =========================================================================
##  conv2d_1 (Conv2D)                  (None, 30, 30, 32)              896
##  max_pooling2d_1 (MaxPooling2D)     (None, 15, 15, 32)              0
##  conv2d (Conv2D)                    (None, 13, 13, 64)              18496
##  max_pooling2d (MaxPooling2D)       (None, 6, 6, 64)                0
##  flatten (Flatten)                  (None, 2304)                    0
##  dense_1 (Dense)                    (None, 64)                      147520
##  dense (Dense)                      (None, 10)                      650
## =========================================================================
## Total params: 167562 (654.54 KB)
## Trainable params: 167562 (654.54 KB)
## Non-trainable params: 0 (0.00 Byte)
## _________________________________________________________________________
```

```
model_c %>% compile(
  loss = "categorical_crossentropy",
  optimizer = optimizer_adam(learning_rate = 0.001),  # adam is the most common optimizer for its robus
  metrics = c("accuracy")
)
```

3. Compile

```
history <- model_c %>% fit(
  x_train, y_train,
  epochs = 20,
  batch_size = 32,
  validation_data = list(x_test, y_test)
)
```

4. Train the model

```
## Epoch 1/20
## 1563/1563 - 17s - loss: 1.4729 - accuracy: 0.4720 - val_loss: 1.1898 - val_accuracy: 0.5803 - 17s/epo
## Epoch 2/20
## 1563/1563 - 16s - loss: 1.1087 - accuracy: 0.6143 - val_loss: 1.1204 - val_accuracy: 0.6116 - 16s/epo
## Epoch 3/20
## 1563/1563 - 16s - loss: 0.9802 - accuracy: 0.6587 - val_loss: 1.0001 - val_accuracy: 0.6495 - 16s/epo
## Epoch 4/20
## 1563/1563 - 16s - loss: 0.9017 - accuracy: 0.6850 - val_loss: 0.9472 - val_accuracy: 0.6732 - 16s/epo
## Epoch 5/20
## 1563/1563 - 17s - loss: 0.8361 - accuracy: 0.7107 - val_loss: 0.9326 - val_accuracy: 0.6850 - 17s/epo
## Epoch 6/20
## 1563/1563 - 17s - loss: 0.7827 - accuracy: 0.7292 - val_loss: 0.9123 - val_accuracy: 0.6952 - 17s/epo
## Epoch 7/20
## 1563/1563 - 17s - loss: 0.7314 - accuracy: 0.7454 - val_loss: 0.9279 - val_accuracy: 0.6905 - 17s/epo
## Epoch 8/20
## 1563/1563 - 18s - loss: 0.6843 - accuracy: 0.7584 - val_loss: 0.9108 - val_accuracy: 0.7005 - 18s/epo
## Epoch 9/20
## 1563/1563 - 18s - loss: 0.6448 - accuracy: 0.7743 - val_loss: 0.9157 - val_accuracy: 0.6991 - 18s/epo
## Epoch 10/20
## 1563/1563 - 18s - loss: 0.6054 - accuracy: 0.7859 - val_loss: 0.9201 - val_accuracy: 0.7056 - 18s/epo
## Epoch 11/20
## 1563/1563 - 17s - loss: 0.5683 - accuracy: 0.8014 - val_loss: 0.9617 - val_accuracy: 0.6997 - 17s/epo
## Epoch 12/20
## 1563/1563 - 17s - loss: 0.5362 - accuracy: 0.8124 - val_loss: 0.9472 - val_accuracy: 0.7068 - 17s/epo
## Epoch 13/20
## 1563/1563 - 17s - loss: 0.5012 - accuracy: 0.8225 - val_loss: 1.0843 - val_accuracy: 0.6843 - 17s/epo
## Epoch 14/20
## 1563/1563 - 17s - loss: 0.4722 - accuracy: 0.8336 - val_loss: 1.0236 - val_accuracy: 0.6961 - 17s/epo
## Epoch 15/20
## 1563/1563 - 17s - loss: 0.4438 - accuracy: 0.8425 - val_loss: 1.0553 - val_accuracy: 0.7010 - 17s/epo
## Epoch 16/20
## 1563/1563 - 18s - loss: 0.4139 - accuracy: 0.8520 - val_loss: 1.0685 - val_accuracy: 0.7004 - 18s/epo
```

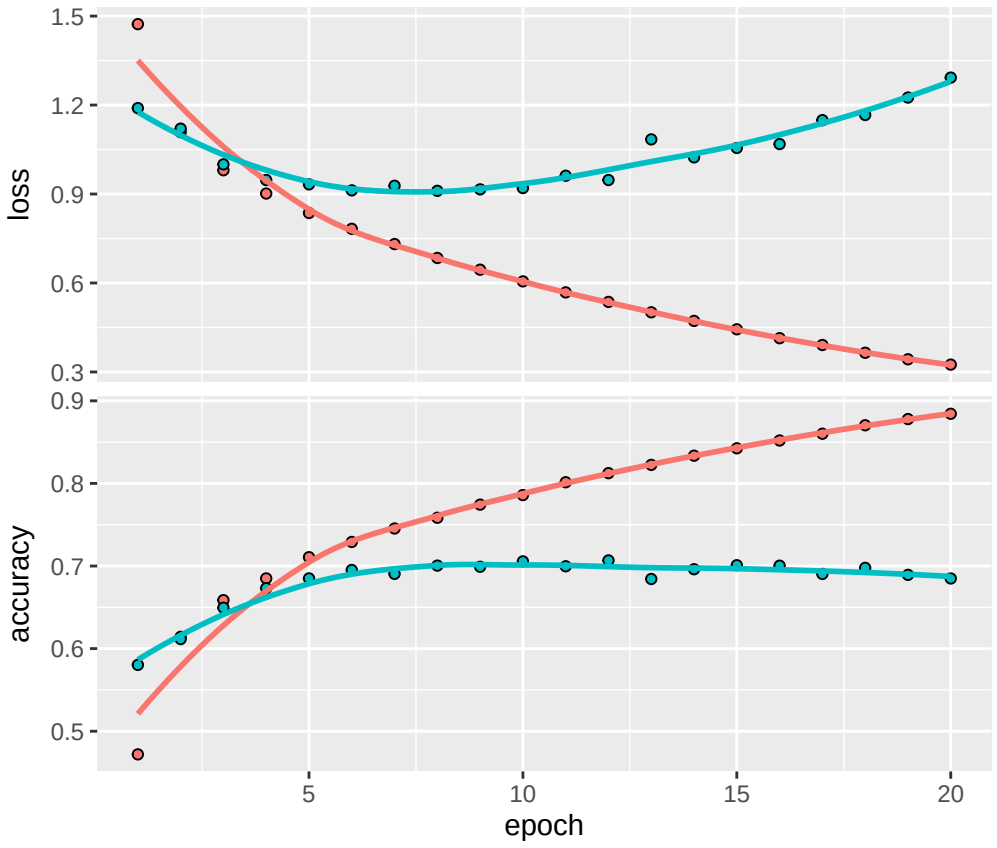
```
## Epoch 17/20
## 1563/1563 - 17s - loss: 0.3910 - accuracy: 0.8602 - val_loss: 1.1492 - val_accuracy: 0.6904 - 17s/epo
## Epoch 18/20
## 1563/1563 - 17s - loss: 0.3647 - accuracy: 0.8704 - val_loss: 1.1666 - val_accuracy: 0.6978 - 17s/epo
## Epoch 19/20
## 1563/1563 - 16s - loss: 0.3427 - accuracy: 0.8779 - val_loss: 1.2253 - val_accuracy: 0.6893 - 16s/epo
## Epoch 20/20
## 1563/1563 - 16s - loss: 0.3249 - accuracy: 0.8843 - val_loss: 1.2926 - val_accuracy: 0.6849 - 16s/epo
```

```
scores <- model_c %>% evaluate(x_test, y_test, verbose = 0)

cat("Test loss:", scores[[1]], "\n",
    "Test accuracy:", scores[[2]], "\n")
```

5. Test

```
## Test loss: 1.292574
##  Test accuracy: 0.6849
```

```
plot(history)
```



Plot training history

```
library(caret)
predictions <- model_c %>% predict(x_test)%>% k_argmax()
```

Additional plot: confusion matrix

```
## 313/313 - 1s - 1s/epoch - 4ms/step
```

```
y_true <- cifar10$test$y
confusion_matrix <- confusionMatrix(factor(as.vector(predictions)), factor(y_true))
print(confusion_matrix$table)
```

```
##           Reference
## Prediction   0   1   2   3   4   5   6   7   8   9
##          0 648  14  42  11  10   7   3   8  66  19
##          1  21 775   7   5   1   4   3   2  30  57
##          2 104  15 590  71  72  58  60  40  26  11
##          3  23   8  61 476  59 122  66  30  24  17
##          4  45   5  95  84 703  65  65  99  24  12
##          5  16   9  91 230  54 670  49  95  20  17
##          6  12   9  53  54  36  17 732   5   9   3
##          7  17   7  34  39  52  40   8 693   3  18
##          8  45  19  12   9   6   3   6   3 738  22
##          9  69 139  15  21   7  14   8  25  60 824
```

b)

The exact misclassification rate should be slightly different for each run. A misclassification rate is calculated as (number of misclassified samples / total number of samples).

Problem 4.2: Improving the test accuarcy with data augmentation techniques

```
# 1) Load and preprocess data
cifar10 <- dataset_cifar10()
x_train <- cifar10$train$x / 255
y_train <- to_categorical(cifar10$train$y, num_classes = 10)
x_test <- cifar10$test$x / 255
y_test <- to_categorical(cifar10$test$y, num_classes = 10)

# 2) Define the model
model_ca <- keras_model_sequential() %>%
  layer_conv_2d(filters = 32, kernel_size = c(3, 3), activation = "relu", input_shape = c(32, 32, 3)) %
  layer_max_pooling_2d(pool_size = c(2, 2)) %>%
  layer_conv_2d(filters = 64, kernel_size = c(3, 3), activation = "relu") %>%
  layer_max_pooling_2d(pool_size = c(2, 2)) %>%
  layer_flatten() %>%
  layer_dense(units = 64, activation = "relu") %>%
  layer_dense(units = 10, activation = "softmax")
```

```r
# 3) Compile
model_ca %>% compile(
  loss = "categorical_crossentropy",
  optimizer = optimizer_adam(learning_rate = 0.001),
  metrics = c("accuracy")
)

# 4) Data augmentation
datagen <- image_data_generator(
  rotation_range = 10,
  width_shift_range = 0.1,
  height_shift_range = 0.1,
  horizontal_flip = TRUE
)

# Compute the data generator internal statistics
datagen %>% fit_image_data_generator(x_train)

# 5) Train the model with data augmentation
batch_size = 64
train_generator <- flow_images_from_data(x = x_train, y = y_train, generator = datagen, batch_size = ba

history <- model_ca %>% fit_generator(
  generator = train_generator,
  steps_per_epoch = as.integer(nrow(x_train) / batch_size),
  epochs = 20,
  validation_data = list(x_test, y_test)
)
```

```
## Epoch 1/20
##
##   1/781 [..............................] - ETA: 6:36 - loss: 2.3153 - accuracy: 0.0781
##   3/781 [..............................] - ETA: 24s - loss: 2.3130 - accuracy: 0.0781
##   5/781 [..............................] - ETA: 23s - loss: 2.3124 - accuracy: 0.0844
##   7/781 [..............................] - ETA: 23s - loss: 2.3120 - accuracy: 0.0804
##   9/781 [..............................] - ETA: 22s - loss: 2.3047 - accuracy: 0.0885
##  11/781 [..............................] - ETA: 23s - loss: 2.3022 - accuracy: 0.0952
##  13/781 [..............................] - ETA: 23s - loss: 2.2972 - accuracy: 0.1058
##  15/781 [..............................] - ETA: 23s - loss: 2.2942 - accuracy: 0.1156
##  17/781 [..............................] - ETA: 23s - loss: 2.2907 - accuracy: 0.1250
##  19/781 [..............................] - ETA: 23s - loss: 2.2873 - accuracy: 0.1390
##  21/781 [..............................] - ETA: 23s - loss: 2.2838 - accuracy: 0.1376
##  23/781 [..............................] - ETA: 23s - loss: 2.2768 - accuracy: 0.1433
##  25/781 [..............................] - ETA: 23s - loss: 2.2710 - accuracy: 0.1450
##  27/781 [>.............................] - ETA: 23s - loss: 2.2616 - accuracy: 0.1539
##  29/781 [>.............................] - ETA: 23s - loss: 2.2554 - accuracy: 0.1546
##  31/781 [>.............................] - ETA: 23s - loss: 2.2461 - accuracy: 0.1593
##  33/781 [>.............................] - ETA: 22s - loss: 2.2414 - accuracy: 0.1596
##  35/781 [>.............................] - ETA: 22s - loss: 2.2328 - accuracy: 0.1679
##  37/781 [>.............................] - ETA: 22s - loss: 2.2252 - accuracy: 0.1723
##  39/781 [>.............................] - ETA: 22s - loss: 2.2188 - accuracy: 0.1767
##  41/781 [>.............................] - ETA: 22s - loss: 2.2131 - accuracy: 0.1784
##  43/781 [>.............................] - ETA: 22s - loss: 2.2066 - accuracy: 0.1806
```

```
##  45/781 [>.............................] - ETA: 22s - loss: 2.1973 - accuracy: 0.1882
##  47/781 [>.............................] - ETA: 22s - loss: 2.1899 - accuracy: 0.1905
##  49/781 [>.............................] - ETA: 22s - loss: 2.1844 - accuracy: 0.1910
##  51/781 [>.............................] - ETA: 21s - loss: 2.1762 - accuracy: 0.1945
##  53/781 [=>............................] - ETA: 21s - loss: 2.1709 - accuracy: 0.1969
##  55/781 [=>............................] - ETA: 21s - loss: 2.1661 - accuracy: 0.1980
##  57/781 [=>............................] - ETA: 21s - loss: 2.1647 - accuracy: 0.1990
##  59/781 [=>............................] - ETA: 21s - loss: 2.1583 - accuracy: 0.2010
##  61/781 [=>............................] - ETA: 21s - loss: 2.1539 - accuracy: 0.2029
##  63/781 [=>............................] - ETA: 21s - loss: 2.1512 - accuracy: 0.2051
##  65/781 [=>............................] - ETA: 21s - loss: 2.1450 - accuracy: 0.2082
##  67/781 [=>............................] - ETA: 21s - loss: 2.1420 - accuracy: 0.2094
##  69/781 [=>............................] - ETA: 20s - loss: 2.1383 - accuracy: 0.2097
##  71/781 [=>............................] - ETA: 20s - loss: 2.1336 - accuracy: 0.2110
##  73/781 [=>............................] - ETA: 20s - loss: 2.1276 - accuracy: 0.2138
##  75/781 [=>............................] - ETA: 20s - loss: 2.1223 - accuracy: 0.2163
##  78/781 [=>............................] - ETA: 20s - loss: 2.1177 - accuracy: 0.2171
##  80/781 [==>...........................] - ETA: 20s - loss: 2.1138 - accuracy: 0.2178
##  83/781 [==>...........................] - ETA: 20s - loss: 2.1083 - accuracy: 0.2184
##  85/781 [==>...........................] - ETA: 20s - loss: 2.1030 - accuracy: 0.2202
##  87/781 [==>...........................] - ETA: 20s - loss: 2.1002 - accuracy: 0.2213
##  89/781 [==>...........................] - ETA: 20s - loss: 2.0958 - accuracy: 0.2237
##  91/781 [==>...........................] - ETA: 19s - loss: 2.0898 - accuracy: 0.2260
##  93/781 [==>...........................] - ETA: 19s - loss: 2.0860 - accuracy: 0.2268
##  96/781 [==>...........................] - ETA: 19s - loss: 2.0791 - accuracy: 0.2295
##  98/781 [==>...........................] - ETA: 19s - loss: 2.0754 - accuracy: 0.2318
## 100/781 [==>...........................] - ETA: 19s - loss: 2.0686 - accuracy: 0.2339
## 102/781 [==>...........................] - ETA: 19s - loss: 2.0658 - accuracy: 0.2348
## 104/781 [==>...........................] - ETA: 19s - loss: 2.0615 - accuracy: 0.2368
## 107/781 [===>..........................] - ETA: 19s - loss: 2.0554 - accuracy: 0.2393
## 109/781 [===>..........................] - ETA: 19s - loss: 2.0525 - accuracy: 0.2401
## 111/781 [===>..........................] - ETA: 19s - loss: 2.0501 - accuracy: 0.2401
## 113/781 [===>..........................] - ETA: 19s - loss: 2.0472 - accuracy: 0.2409
## 115/781 [===>..........................] - ETA: 18s - loss: 2.0438 - accuracy: 0.2427
## 117/781 [===>..........................] - ETA: 18s - loss: 2.0417 - accuracy: 0.2431
## 119/781 [===>..........................] - ETA: 18s - loss: 2.0386 - accuracy: 0.2438
## 121/781 [===>..........................] - ETA: 18s - loss: 2.0347 - accuracy: 0.2463
## 123/781 [===>..........................] - ETA: 18s - loss: 2.0302 - accuracy: 0.2473
## 125/781 [===>..........................] - ETA: 18s - loss: 2.0270 - accuracy: 0.2494
## 127/781 [===>..........................] - ETA: 18s - loss: 2.0227 - accuracy: 0.2505
## 130/781 [===>..........................] - ETA: 18s - loss: 2.0190 - accuracy: 0.2529
## 132/781 [====>.........................] - ETA: 18s - loss: 2.0162 - accuracy: 0.2543
## 134/781 [====>.........................] - ETA: 18s - loss: 2.0139 - accuracy: 0.2554
## 136/781 [====>.........................] - ETA: 18s - loss: 2.0105 - accuracy: 0.2565
## 138/781 [====>.........................] - ETA: 18s - loss: 2.0070 - accuracy: 0.2585
## 140/781 [====>.........................] - ETA: 18s - loss: 2.0029 - accuracy: 0.2599
## 142/781 [====>.........................] - ETA: 18s - loss: 1.9988 - accuracy: 0.2621
## 144/781 [====>.........................] - ETA: 17s - loss: 1.9962 - accuracy: 0.2617
## 146/781 [====>.........................] - ETA: 17s - loss: 1.9937 - accuracy: 0.2623
## 148/781 [====>.........................] - ETA: 17s - loss: 1.9924 - accuracy: 0.2638
## 150/781 [====>.........................] - ETA: 17s - loss: 1.9888 - accuracy: 0.2653
## 152/781 [====>.........................] - ETA: 17s - loss: 1.9874 - accuracy: 0.2659
## 154/781 [====>.........................] - ETA: 17s - loss: 1.9858 - accuracy: 0.2668
## 156/781 [====>.........................] - ETA: 17s - loss: 1.9844 - accuracy: 0.2675
```

```
## 158/781 [=====>........................] - ETA: 17s - loss: 1.9833 - accuracy: 0.2686
## 160/781 [=====>........................] - ETA: 17s - loss: 1.9816 - accuracy: 0.2695
## 162/781 [=====>........................] - ETA: 17s - loss: 1.9804 - accuracy: 0.2693
## 164/781 [=====>........................] - ETA: 17s - loss: 1.9786 - accuracy: 0.2706
## 166/781 [=====>........................] - ETA: 17s - loss: 1.9770 - accuracy: 0.2715
## 168/781 [=====>........................] - ETA: 17s - loss: 1.9756 - accuracy: 0.2727
## 170/781 [=====>........................] - ETA: 17s - loss: 1.9728 - accuracy: 0.2742
## 172/781 [=====>........................] - ETA: 17s - loss: 1.9707 - accuracy: 0.2748
## 174/781 [=====>........................] - ETA: 17s - loss: 1.9683 - accuracy: 0.2756
## 177/781 [=====>........................] - ETA: 16s - loss: 1.9646 - accuracy: 0.2777
## 179/781 [=====>........................] - ETA: 16s - loss: 1.9612 - accuracy: 0.2790
## 181/781 [=====>........................] - ETA: 16s - loss: 1.9591 - accuracy: 0.2797
## 183/781 [======>.......................] - ETA: 16s - loss: 1.9572 - accuracy: 0.2802
## 185/781 [======>.......................] - ETA: 16s - loss: 1.9549 - accuracy: 0.2809
## 187/781 [======>.......................] - ETA: 16s - loss: 1.9535 - accuracy: 0.2814
## 189/781 [======>.......................] - ETA: 16s - loss: 1.9505 - accuracy: 0.2826
## 191/781 [======>.......................] - ETA: 16s - loss: 1.9466 - accuracy: 0.2842
## 193/781 [======>.......................] - ETA: 16s - loss: 1.9443 - accuracy: 0.2849
## 196/781 [======>.......................] - ETA: 16s - loss: 1.9406 - accuracy: 0.2856
## 198/781 [======>.......................] - ETA: 16s - loss: 1.9367 - accuracy: 0.2869
## 200/781 [======>.......................] - ETA: 16s - loss: 1.9333 - accuracy: 0.2880
## 202/781 [======>.......................] - ETA: 16s - loss: 1.9298 - accuracy: 0.2894
## 204/781 [======>.......................] - ETA: 16s - loss: 1.9264 - accuracy: 0.2909
## 206/781 [======>.......................] - ETA: 16s - loss: 1.9224 - accuracy: 0.2926
## 208/781 [======>.......................] - ETA: 16s - loss: 1.9200 - accuracy: 0.2935
## 210/781 [=======>......................] - ETA: 16s - loss: 1.9172 - accuracy: 0.2950
## 212/781 [=======>......................] - ETA: 15s - loss: 1.9151 - accuracy: 0.2956
## 215/781 [=======>......................] - ETA: 15s - loss: 1.9128 - accuracy: 0.2965
## 217/781 [=======>......................] - ETA: 15s - loss: 1.9090 - accuracy: 0.2985
## 219/781 [=======>......................] - ETA: 15s - loss: 1.9087 - accuracy: 0.2991
## 221/781 [=======>......................] - ETA: 15s - loss: 1.9066 - accuracy: 0.2996
## 223/781 [=======>......................] - ETA: 15s - loss: 1.9053 - accuracy: 0.2997
## 225/781 [=======>......................] - ETA: 15s - loss: 1.9053 - accuracy: 0.3000
## 228/781 [=======>......................] - ETA: 15s - loss: 1.9045 - accuracy: 0.3006
## 230/781 [=======>......................] - ETA: 15s - loss: 1.9025 - accuracy: 0.3012
## 232/781 [=======>......................] - ETA: 15s - loss: 1.8999 - accuracy: 0.3023
## 234/781 [=======>......................] - ETA: 15s - loss: 1.8983 - accuracy: 0.3027
## 236/781 [========>.....................] - ETA: 15s - loss: 1.8963 - accuracy: 0.3034
## 238/781 [========>.....................] - ETA: 15s - loss: 1.8953 - accuracy: 0.3040
## 241/781 [========>.....................] - ETA: 15s - loss: 1.8939 - accuracy: 0.3047
## 243/781 [========>.....................] - ETA: 15s - loss: 1.8925 - accuracy: 0.3051
## 245/781 [========>.....................] - ETA: 14s - loss: 1.8911 - accuracy: 0.3059
## 247/781 [========>.....................] - ETA: 14s - loss: 1.8895 - accuracy: 0.3062
## 249/781 [========>.....................] - ETA: 14s - loss: 1.8885 - accuracy: 0.3067
## 251/781 [========>.....................] - ETA: 14s - loss: 1.8877 - accuracy: 0.3071
## 253/781 [========>.....................] - ETA: 14s - loss: 1.8854 - accuracy: 0.3084
## 255/781 [========>.....................] - ETA: 14s - loss: 1.8837 - accuracy: 0.3091
## 258/781 [========>.....................] - ETA: 14s - loss: 1.8811 - accuracy: 0.3104
## 260/781 [========>.....................] - ETA: 14s - loss: 1.8792 - accuracy: 0.3113
## 262/781 [=========>....................] - ETA: 14s - loss: 1.8772 - accuracy: 0.3122
## 264/781 [=========>....................] - ETA: 14s - loss: 1.8757 - accuracy: 0.3129
## 266/781 [=========>....................] - ETA: 14s - loss: 1.8737 - accuracy: 0.3137
## 268/781 [=========>....................] - ETA: 14s - loss: 1.8715 - accuracy: 0.3141
## 270/781 [=========>....................] - ETA: 14s - loss: 1.8697 - accuracy: 0.3155
```

```
## 272/781 [=========>....................] - ETA: 14s - loss: 1.8681 - accuracy: 0.3157
## 274/781 [=========>....................] - ETA: 14s - loss: 1.8672 - accuracy: 0.3164
## 276/781 [=========>....................] - ETA: 14s - loss: 1.8664 - accuracy: 0.3171
## 278/781 [=========>....................] - ETA: 14s - loss: 1.8647 - accuracy: 0.3178
## 280/781 [=========>....................] - ETA: 14s - loss: 1.8633 - accuracy: 0.3186
## 282/781 [=========>....................] - ETA: 14s - loss: 1.8615 - accuracy: 0.3191
## 284/781 [=========>....................] - ETA: 13s - loss: 1.8607 - accuracy: 0.3193
## 286/781 [=========>....................] - ETA: 13s - loss: 1.8590 - accuracy: 0.3200
## 288/781 [==========>...................] - ETA: 13s - loss: 1.8583 - accuracy: 0.3203
## 290/781 [==========>...................] - ETA: 13s - loss: 1.8563 - accuracy: 0.3214
## 292/781 [==========>...................] - ETA: 13s - loss: 1.8541 - accuracy: 0.3219
## 294/781 [==========>...................] - ETA: 13s - loss: 1.8514 - accuracy: 0.3227
## 296/781 [==========>...................] - ETA: 13s - loss: 1.8498 - accuracy: 0.3236
## 298/781 [==========>...................] - ETA: 13s - loss: 1.8488 - accuracy: 0.3238
## 300/781 [==========>...................] - ETA: 13s - loss: 1.8468 - accuracy: 0.3245
## 302/781 [==========>...................] - ETA: 13s - loss: 1.8449 - accuracy: 0.3251
## 304/781 [==========>...................] - ETA: 13s - loss: 1.8424 - accuracy: 0.3260
## 307/781 [==========>...................] - ETA: 13s - loss: 1.8400 - accuracy: 0.3266
## 309/781 [==========>...................] - ETA: 13s - loss: 1.8384 - accuracy: 0.3269
## 311/781 [==========>...................] - ETA: 13s - loss: 1.8368 - accuracy: 0.3273
## 313/781 [===========>..................] - ETA: 13s - loss: 1.8350 - accuracy: 0.3280
## 315/781 [===========>..................] - ETA: 13s - loss: 1.8328 - accuracy: 0.3286
## 317/781 [===========>..................] - ETA: 13s - loss: 1.8305 - accuracy: 0.3297
## 319/781 [===========>..................] - ETA: 13s - loss: 1.8287 - accuracy: 0.3302
## 321/781 [===========>..................] - ETA: 13s - loss: 1.8272 - accuracy: 0.3309
## 323/781 [===========>..................] - ETA: 13s - loss: 1.8253 - accuracy: 0.3319
## 325/781 [===========>..................] - ETA: 12s - loss: 1.8236 - accuracy: 0.3325
## 327/781 [===========>..................] - ETA: 12s - loss: 1.8216 - accuracy: 0.3331
## 329/781 [===========>..................] - ETA: 12s - loss: 1.8203 - accuracy: 0.3336
## 331/781 [===========>..................] - ETA: 12s - loss: 1.8187 - accuracy: 0.3347
## 334/781 [===========>..................] - ETA: 12s - loss: 1.8170 - accuracy: 0.3351
## 336/781 [===========>..................] - ETA: 12s - loss: 1.8148 - accuracy: 0.3357
## 338/781 [===========>..................] - ETA: 12s - loss: 1.8131 - accuracy: 0.3366
## 340/781 [============>.................] - ETA: 12s - loss: 1.8118 - accuracy: 0.3374
## 342/781 [============>.................] - ETA: 12s - loss: 1.8106 - accuracy: 0.3378
## 344/781 [============>.................] - ETA: 12s - loss: 1.8095 - accuracy: 0.3382
## 346/781 [============>.................] - ETA: 12s - loss: 1.8080 - accuracy: 0.3388
## 348/781 [============>.................] - ETA: 12s - loss: 1.8060 - accuracy: 0.3398
## 350/781 [============>.................] - ETA: 12s - loss: 1.8041 - accuracy: 0.3407
## 352/781 [============>.................] - ETA: 12s - loss: 1.8024 - accuracy: 0.3414
## 354/781 [============>.................] - ETA: 12s - loss: 1.8009 - accuracy: 0.3419
## 356/781 [============>.................] - ETA: 12s - loss: 1.8001 - accuracy: 0.3422
## 358/781 [============>.................] - ETA: 12s - loss: 1.7991 - accuracy: 0.3428
## 360/781 [============>.................] - ETA: 12s - loss: 1.7980 - accuracy: 0.3431
## 362/781 [============>.................] - ETA: 11s - loss: 1.7966 - accuracy: 0.3438
## 363/781 [============>.................] - ETA: 11s - loss: 1.7962 - accuracy: 0.3441
## 366/781 [=============>................] - ETA: 11s - loss: 1.7933 - accuracy: 0.3451
## 368/781 [=============>................] - ETA: 11s - loss: 1.7919 - accuracy: 0.3454
## 370/781 [=============>................] - ETA: 11s - loss: 1.7905 - accuracy: 0.3459
## 372/781 [=============>................] - ETA: 11s - loss: 1.7896 - accuracy: 0.3464
## 374/781 [=============>................] - ETA: 11s - loss: 1.7881 - accuracy: 0.3468
## 376/781 [=============>................] - ETA: 11s - loss: 1.7869 - accuracy: 0.3473
## 378/781 [=============>................] - ETA: 11s - loss: 1.7853 - accuracy: 0.3480
## 380/781 [=============>................] - ETA: 11s - loss: 1.7842 - accuracy: 0.3483
```

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## 381/781 [============>.............] - ETA: 11s - loss: 1.7835 - accuracy: 0.3485
## 383/781 [============>.............] - ETA: 11s - loss: 1.7831 - accuracy: 0.3489
## 385/781 [============>.............] - ETA: 11s - loss: 1.7814 - accuracy: 0.3497
## 387/781 [============>.............] - ETA: 11s - loss: 1.7796 - accuracy: 0.3503
## 389/781 [============>.............] - ETA: 11s - loss: 1.7789 - accuracy: 0.3504
## 391/781 [=============>.............] - ETA: 11s - loss: 1.7783 - accuracy: 0.3504
## 393/781 [=============>.............] - ETA: 11s - loss: 1.7780 - accuracy: 0.3508
## 395/781 [=============>.............] - ETA: 11s - loss: 1.7766 - accuracy: 0.3513
## 397/781 [=============>.............] - ETA: 11s - loss: 1.7751 - accuracy: 0.3517
## 399/781 [=============>.............] - ETA: 11s - loss: 1.7748 - accuracy: 0.3519
## 401/781 [=============>.............] - ETA: 11s - loss: 1.7741 - accuracy: 0.3525
## 403/781 [=============>.............] - ETA: 10s - loss: 1.7730 - accuracy: 0.3529
## 406/781 [=============>.............] - ETA: 10s - loss: 1.7714 - accuracy: 0.3536
## 409/781 [=============>.............] - ETA: 10s - loss: 1.7702 - accuracy: 0.3539
## 411/781 [=============>.............] - ETA: 10s - loss: 1.7694 - accuracy: 0.3542
## 414/781 [=============>.............] - ETA: 10s - loss: 1.7682 - accuracy: 0.3546
## 416/781 [=============>.............] - ETA: 10s - loss: 1.7669 - accuracy: 0.3548
## 418/781 [==============>............] - ETA: 10s - loss: 1.7657 - accuracy: 0.3553
## 420/781 [==============>............] - ETA: 10s - loss: 1.7640 - accuracy: 0.3559
## 422/781 [==============>............] - ETA: 10s - loss: 1.7626 - accuracy: 0.3566
## 424/781 [==============>............] - ETA: 10s - loss: 1.7616 - accuracy: 0.3571
## 426/781 [==============>............] - ETA: 10s - loss: 1.7606 - accuracy: 0.3576
## 428/781 [==============>............] - ETA: 10s - loss: 1.7598 - accuracy: 0.3576
## 430/781 [==============>............] - ETA: 10s - loss: 1.7587 - accuracy: 0.3580
## 432/781 [==============>............] - ETA: 10s - loss: 1.7573 - accuracy: 0.3586
## 434/781 [==============>............] - ETA: 10s - loss: 1.7559 - accuracy: 0.3593
## 436/781 [==============>............] - ETA: 9s - loss: 1.7552 - accuracy: 0.3593
## 439/781 [==============>............] - ETA: 9s - loss: 1.7537 - accuracy: 0.3600
## 441/781 [==============>............] - ETA: 9s - loss: 1.7522 - accuracy: 0.3607
## 443/781 [===============>...........] - ETA: 9s - loss: 1.7511 - accuracy: 0.3611
## 445/781 [===============>...........] - ETA: 9s - loss: 1.7497 - accuracy: 0.3617
## 447/781 [===============>...........] - ETA: 9s - loss: 1.7485 - accuracy: 0.3622
## 449/781 [===============>...........] - ETA: 9s - loss: 1.7477 - accuracy: 0.3624
## 451/781 [===============>...........] - ETA: 9s - loss: 1.7463 - accuracy: 0.3627
## 453/781 [===============>...........] - ETA: 9s - loss: 1.7463 - accuracy: 0.3627
## 455/781 [===============>...........] - ETA: 9s - loss: 1.7452 - accuracy: 0.3630
## 457/781 [===============>...........] - ETA: 9s - loss: 1.7442 - accuracy: 0.3636
## 459/781 [===============>...........] - ETA: 9s - loss: 1.7440 - accuracy: 0.3636
## 461/781 [===============>...........] - ETA: 9s - loss: 1.7422 - accuracy: 0.3644
## 464/781 [===============>...........] - ETA: 9s - loss: 1.7414 - accuracy: 0.3647
## 466/781 [===============>...........] - ETA: 9s - loss: 1.7408 - accuracy: 0.3647
## 468/781 [===============>...........] - ETA: 8s - loss: 1.7401 - accuracy: 0.3650
## 470/781 [================>..........] - ETA: 8s - loss: 1.7391 - accuracy: 0.3653
## 472/781 [================>..........] - ETA: 8s - loss: 1.7385 - accuracy: 0.3656
## 474/781 [================>..........] - ETA: 8s - loss: 1.7379 - accuracy: 0.3659
## 476/781 [================>..........] - ETA: 8s - loss: 1.7377 - accuracy: 0.3663
## 478/781 [================>..........] - ETA: 8s - loss: 1.7372 - accuracy: 0.3666
## 480/781 [================>..........] - ETA: 8s - loss: 1.7370 - accuracy: 0.3667
## 483/781 [================>..........] - ETA: 8s - loss: 1.7362 - accuracy: 0.3670
## 486/781 [================>..........] - ETA: 8s - loss: 1.7354 - accuracy: 0.3672
## 488/781 [================>..........] - ETA: 8s - loss: 1.7340 - accuracy: 0.3676
## 490/781 [================>..........] - ETA: 8s - loss: 1.7332 - accuracy: 0.3682
## 492/781 [================>..........] - ETA: 8s - loss: 1.7327 - accuracy: 0.3682
## 495/781 [================>..........] - ETA: 8s - loss: 1.7309 - accuracy: 0.3688
```

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## 497/781 [==================>...........] - ETA: 8s - loss: 1.7304 - accuracy: 0.3689
## 499/781 [==================>...........] - ETA: 8s - loss: 1.7298 - accuracy: 0.3692
## 501/781 [==================>...........] - ETA: 8s - loss: 1.7290 - accuracy: 0.3697
## 503/781 [==================>...........] - ETA: 7s - loss: 1.7282 - accuracy: 0.3700
## 506/781 [==================>...........] - ETA: 7s - loss: 1.7272 - accuracy: 0.3701
## 508/781 [==================>...........] - ETA: 7s - loss: 1.7263 - accuracy: 0.3703
## 510/781 [==================>...........] - ETA: 7s - loss: 1.7254 - accuracy: 0.3709
## 512/781 [==================>...........] - ETA: 7s - loss: 1.7247 - accuracy: 0.3710
## 514/781 [==================>...........] - ETA: 7s - loss: 1.7242 - accuracy: 0.3711
## 516/781 [==================>...........] - ETA: 7s - loss: 1.7235 - accuracy: 0.3715
## 518/781 [==================>...........] - ETA: 7s - loss: 1.7230 - accuracy: 0.3716
## 520/781 [==================>...........] - ETA: 7s - loss: 1.7221 - accuracy: 0.3718
## 522/781 [===================>..........] - ETA: 7s - loss: 1.7211 - accuracy: 0.3722
## 524/781 [===================>..........] - ETA: 7s - loss: 1.7202 - accuracy: 0.3725
## 526/781 [===================>..........] - ETA: 7s - loss: 1.7190 - accuracy: 0.3732
## 528/781 [===================>..........] - ETA: 7s - loss: 1.7182 - accuracy: 0.3735
## 530/781 [===================>..........] - ETA: 7s - loss: 1.7173 - accuracy: 0.3738
## 532/781 [===================>..........] - ETA: 7s - loss: 1.7163 - accuracy: 0.3743
## 534/781 [===================>..........] - ETA: 7s - loss: 1.7155 - accuracy: 0.3746
## 536/781 [===================>..........] - ETA: 7s - loss: 1.7152 - accuracy: 0.3748
## 538/781 [===================>..........] - ETA: 6s - loss: 1.7145 - accuracy: 0.3749
## 540/781 [===================>..........] - ETA: 6s - loss: 1.7136 - accuracy: 0.3755
## 542/781 [===================>..........] - ETA: 6s - loss: 1.7127 - accuracy: 0.3757
## 544/781 [===================>..........] - ETA: 6s - loss: 1.7123 - accuracy: 0.3759
## 546/781 [===================>..........] - ETA: 6s - loss: 1.7117 - accuracy: 0.3762
## 548/781 [====================>.........] - ETA: 6s - loss: 1.7112 - accuracy: 0.3764
## 550/781 [====================>.........] - ETA: 6s - loss: 1.7109 - accuracy: 0.3765
## 552/781 [====================>.........] - ETA: 6s - loss: 1.7097 - accuracy: 0.3769
## 554/781 [====================>.........] - ETA: 6s - loss: 1.7088 - accuracy: 0.3774
## 557/781 [====================>.........] - ETA: 6s - loss: 1.7084 - accuracy: 0.3776
## 559/781 [====================>.........] - ETA: 6s - loss: 1.7074 - accuracy: 0.3777
## 562/781 [====================>.........] - ETA: 6s - loss: 1.7059 - accuracy: 0.3784
## 564/781 [====================>.........] - ETA: 6s - loss: 1.7054 - accuracy: 0.3787
## 566/781 [====================>.........] - ETA: 6s - loss: 1.7044 - accuracy: 0.3791
## 568/781 [====================>.........] - ETA: 6s - loss: 1.7036 - accuracy: 0.3794
## 570/781 [====================>.........] - ETA: 6s - loss: 1.7028 - accuracy: 0.3797
## 572/781 [====================>.........] - ETA: 6s - loss: 1.7018 - accuracy: 0.3799
## 575/781 [=====================>........] - ETA: 5s - loss: 1.7016 - accuracy: 0.3801
## 577/781 [=====================>........] - ETA: 5s - loss: 1.7006 - accuracy: 0.3806
## 579/781 [=====================>........] - ETA: 5s - loss: 1.6999 - accuracy: 0.3808
## 582/781 [=====================>........] - ETA: 5s - loss: 1.6988 - accuracy: 0.3812
## 584/781 [=====================>........] - ETA: 5s - loss: 1.6981 - accuracy: 0.3818
## 586/781 [=====================>........] - ETA: 5s - loss: 1.6975 - accuracy: 0.3820
## 589/781 [=====================>........] - ETA: 5s - loss: 1.6966 - accuracy: 0.3822
## 591/781 [=====================>........] - ETA: 5s - loss: 1.6958 - accuracy: 0.3826
## 593/781 [=====================>........] - ETA: 5s - loss: 1.6955 - accuracy: 0.3828
## 595/781 [=====================>........] - ETA: 5s - loss: 1.6951 - accuracy: 0.3830
## 597/781 [=====================>........] - ETA: 5s - loss: 1.6943 - accuracy: 0.3832
## 599/781 [======================>.......] - ETA: 5s - loss: 1.6937 - accuracy: 0.3832
## 601/781 [======================>.......] - ETA: 5s - loss: 1.6935 - accuracy: 0.3834
## 603/781 [======================>.......] - ETA: 5s - loss: 1.6928 - accuracy: 0.3836
## 605/781 [======================>.......] - ETA: 5s - loss: 1.6918 - accuracy: 0.3840
## 607/781 [======================>.......] - ETA: 4s - loss: 1.6913 - accuracy: 0.3844
## 609/781 [======================>.......] - ETA: 4s - loss: 1.6904 - accuracy: 0.3846
```

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## 611/781 [=====================>.......] - ETA: 4s - loss: 1.6900 - accuracy: 0.3847
## 613/781 [=====================>.......] - ETA: 4s - loss: 1.6895 - accuracy: 0.3848
## 616/781 [=====================>.......] - ETA: 4s - loss: 1.6883 - accuracy: 0.3852
## 618/781 [=====================>.......] - ETA: 4s - loss: 1.6876 - accuracy: 0.3856
## 620/781 [=====================>.......] - ETA: 4s - loss: 1.6867 - accuracy: 0.3858
## 622/781 [=====================>.......] - ETA: 4s - loss: 1.6863 - accuracy: 0.3858
## 624/781 [=====================>.......] - ETA: 4s - loss: 1.6857 - accuracy: 0.3858
## 626/781 [=====================>......] - ETA: 4s - loss: 1.6850 - accuracy: 0.3859
## 628/781 [=====================>......] - ETA: 4s - loss: 1.6840 - accuracy: 0.3863
## 631/781 [=====================>......] - ETA: 4s - loss: 1.6833 - accuracy: 0.3865
## 633/781 [=====================>......] - ETA: 4s - loss: 1.6822 - accuracy: 0.3871
## 635/781 [=====================>......] - ETA: 4s - loss: 1.6817 - accuracy: 0.3875
## 637/781 [=====================>......] - ETA: 4s - loss: 1.6805 - accuracy: 0.3881
## 639/781 [=====================>......] - ETA: 4s - loss: 1.6799 - accuracy: 0.3883
## 641/781 [=====================>......] - ETA: 4s - loss: 1.6795 - accuracy: 0.3885
## 643/781 [=====================>......] - ETA: 3s - loss: 1.6785 - accuracy: 0.3890
## 645/781 [=====================>......] - ETA: 3s - loss: 1.6773 - accuracy: 0.3894
## 647/781 [=====================>......] - ETA: 3s - loss: 1.6766 - accuracy: 0.3896
## 649/781 [=====================>......] - ETA: 3s - loss: 1.6751 - accuracy: 0.3901
## 651/781 [=====================>.....] - ETA: 3s - loss: 1.6748 - accuracy: 0.3902
## 653/781 [=====================>.....] - ETA: 3s - loss: 1.6741 - accuracy: 0.3904
## 655/781 [=====================>.....] - ETA: 3s - loss: 1.6737 - accuracy: 0.3906
## 657/781 [=====================>.....] - ETA: 3s - loss: 1.6726 - accuracy: 0.3910
## 659/781 [=====================>.....] - ETA: 3s - loss: 1.6721 - accuracy: 0.3912
## 661/781 [=====================>.....] - ETA: 3s - loss: 1.6719 - accuracy: 0.3914
## 663/781 [=====================>.....] - ETA: 3s - loss: 1.6715 - accuracy: 0.3916
## 665/781 [=====================>.....] - ETA: 3s - loss: 1.6707 - accuracy: 0.3917
## 667/781 [=====================>.....] - ETA: 3s - loss: 1.6701 - accuracy: 0.3919
## 669/781 [=====================>.....] - ETA: 3s - loss: 1.6701 - accuracy: 0.3919
## 671/781 [=====================>.....] - ETA: 3s - loss: 1.6695 - accuracy: 0.3921
## 673/781 [=====================>.....] - ETA: 3s - loss: 1.6688 - accuracy: 0.3924
## 675/781 [=====================>.....] - ETA: 3s - loss: 1.6680 - accuracy: 0.3926
## 677/781 [======================>....] - ETA: 2s - loss: 1.6673 - accuracy: 0.3928
## 679/781 [======================>....] - ETA: 2s - loss: 1.6668 - accuracy: 0.3928
## 681/781 [======================>....] - ETA: 2s - loss: 1.6660 - accuracy: 0.3931
## 683/781 [======================>....] - ETA: 2s - loss: 1.6653 - accuracy: 0.3935
## 685/781 [======================>....] - ETA: 2s - loss: 1.6653 - accuracy: 0.3936
## 687/781 [======================>....] - ETA: 2s - loss: 1.6643 - accuracy: 0.3939
## 689/781 [======================>....] - ETA: 2s - loss: 1.6632 - accuracy: 0.3945
## 691/781 [======================>....] - ETA: 2s - loss: 1.6624 - accuracy: 0.3946
## 693/781 [======================>....] - ETA: 2s - loss: 1.6614 - accuracy: 0.3950
## 695/781 [======================>....] - ETA: 2s - loss: 1.6609 - accuracy: 0.3952
## 697/781 [======================>....] - ETA: 2s - loss: 1.6598 - accuracy: 0.3957
## 699/781 [======================>....] - ETA: 2s - loss: 1.6595 - accuracy: 0.3959
## 701/781 [======================>....] - ETA: 2s - loss: 1.6588 - accuracy: 0.3960
## 703/781 [======================>...] - ETA: 2s - loss: 1.6584 - accuracy: 0.3962
## 705/781 [======================>...] - ETA: 2s - loss: 1.6582 - accuracy: 0.3962
## 707/781 [======================>...] - ETA: 2s - loss: 1.6576 - accuracy: 0.3964
## 709/781 [======================>...] - ETA: 2s - loss: 1.6571 - accuracy: 0.3966
## 712/781 [======================>...] - ETA: 1s - loss: 1.6560 - accuracy: 0.3968
## 714/781 [======================>...] - ETA: 1s - loss: 1.6558 - accuracy: 0.3970
## 716/781 [======================>...] - ETA: 1s - loss: 1.6554 - accuracy: 0.3971
## 718/781 [======================>...] - ETA: 1s - loss: 1.6546 - accuracy: 0.3974
## 720/781 [======================>...] - ETA: 1s - loss: 1.6540 - accuracy: 0.3976
```

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## 723/781 [=========================>...] - ETA: 1s - loss: 1.6537 - accuracy: 0.3977
## 725/781 [=========================>...] - ETA: 1s - loss: 1.6527 - accuracy: 0.3981
## 727/781 [=========================>...] - ETA: 1s - loss: 1.6523 - accuracy: 0.3982
## 729/781 [=========================>..] - ETA: 1s - loss: 1.6519 - accuracy: 0.3982
## 731/781 [=========================>..] - ETA: 1s - loss: 1.6517 - accuracy: 0.3984
## 733/781 [=========================>..] - ETA: 1s - loss: 1.6517 - accuracy: 0.3986
## 735/781 [=========================>..] - ETA: 1s - loss: 1.6508 - accuracy: 0.3987
## 737/781 [=========================>..] - ETA: 1s - loss: 1.6502 - accuracy: 0.3990
## 739/781 [=========================>..] - ETA: 1s - loss: 1.6498 - accuracy: 0.3991
## 741/781 [=========================>..] - ETA: 1s - loss: 1.6494 - accuracy: 0.3992
## 743/781 [=========================>..] - ETA: 1s - loss: 1.6485 - accuracy: 0.3995
## 745/781 [=========================>..] - ETA: 1s - loss: 1.6480 - accuracy: 0.3997
## 747/781 [=========================>..] - ETA: 0s - loss: 1.6473 - accuracy: 0.4001
## 749/781 [=========================>..] - ETA: 0s - loss: 1.6465 - accuracy: 0.4002
## 751/781 [=========================>..] - ETA: 0s - loss: 1.6461 - accuracy: 0.4003
## 753/781 [=========================>..] - ETA: 0s - loss: 1.6461 - accuracy: 0.4003
## 755/781 [==========================>.] - ETA: 0s - loss: 1.6455 - accuracy: 0.4005
## 757/781 [==========================>.] - ETA: 0s - loss: 1.6452 - accuracy: 0.4007
## 759/781 [==========================>.] - ETA: 0s - loss: 1.6446 - accuracy: 0.4009
## 761/781 [==========================>.] - ETA: 0s - loss: 1.6437 - accuracy: 0.4013
## 763/781 [==========================>.] - ETA: 0s - loss: 1.6429 - accuracy: 0.4015
## 765/781 [==========================>.] - ETA: 0s - loss: 1.6431 - accuracy: 0.4014
## 767/781 [==========================>.] - ETA: 0s - loss: 1.6427 - accuracy: 0.4017
## 769/781 [==========================>.] - ETA: 0s - loss: 1.6417 - accuracy: 0.4021
## 772/781 [==========================>.] - ETA: 0s - loss: 1.6406 - accuracy: 0.4025
## 774/781 [==========================>.] - ETA: 0s - loss: 1.6400 - accuracy: 0.4027
## 776/781 [==========================>.] - ETA: 0s - loss: 1.6393 - accuracy: 0.4030
## 778/781 [==========================>.] - ETA: 0s - loss: 1.6384 - accuracy: 0.4033
## 780/781 [==========================>.] - ETA: 0s - loss: 1.6376 - accuracy: 0.4036
## 781/781 [==============================] - 24s 30ms/step - loss: 1.6370 - accuracy: 0.4039 - val_loss
## Epoch 2/20
##
##   1/781 [..............................] - ETA: 42s - loss: 1.5956 - accuracy: 0.4375
##   3/781 [..............................] - ETA: 19s - loss: 1.5641 - accuracy: 0.4323
##   6/781 [..............................] - ETA: 19s - loss: 1.4964 - accuracy: 0.4479
##   8/781 [..............................] - ETA: 19s - loss: 1.4404 - accuracy: 0.4590
##  11/781 [..............................] - ETA: 18s - loss: 1.4123 - accuracy: 0.4702
##  13/781 [..............................] - ETA: 19s - loss: 1.4142 - accuracy: 0.4663
##  15/781 [..............................] - ETA: 19s - loss: 1.4069 - accuracy: 0.4750
##  17/781 [..............................] - ETA: 19s - loss: 1.3976 - accuracy: 0.4761
##  19/781 [..............................] - ETA: 19s - loss: 1.3920 - accuracy: 0.4852
##  21/781 [..............................] - ETA: 19s - loss: 1.3949 - accuracy: 0.4851
##  23/781 [..............................] - ETA: 19s - loss: 1.3979 - accuracy: 0.4864
##  26/781 [..............................] - ETA: 19s - loss: 1.3909 - accuracy: 0.4898
##  28/781 [>.............................] - ETA: 20s - loss: 1.3826 - accuracy: 0.4972
##  30/781 [>.............................] - ETA: 20s - loss: 1.3800 - accuracy: 0.4969
##  32/781 [>.............................] - ETA: 20s - loss: 1.3889 - accuracy: 0.4941
##  34/781 [>.............................] - ETA: 20s - loss: 1.3818 - accuracy: 0.4954
##  36/781 [>.............................] - ETA: 20s - loss: 1.3914 - accuracy: 0.4926
##  38/781 [>.............................] - ETA: 20s - loss: 1.3962 - accuracy: 0.4889
##  40/781 [>.............................] - ETA: 20s - loss: 1.3982 - accuracy: 0.4867
##  42/781 [>.............................] - ETA: 19s - loss: 1.3955 - accuracy: 0.4881
##  44/781 [>.............................] - ETA: 19s - loss: 1.3971 - accuracy: 0.4879
##  46/781 [>.............................] - ETA: 19s - loss: 1.3890 - accuracy: 0.4912
```

```
##  49/781 [>.............................] - ETA: 19s - loss: 1.3829 - accuracy: 0.4914
##  52/781 [>.............................] - ETA: 19s - loss: 1.3828 - accuracy: 0.4912
##  54/781 [=>............................] - ETA: 19s - loss: 1.3862 - accuracy: 0.4897
##  56/781 [=>............................] - ETA: 19s - loss: 1.3896 - accuracy: 0.4904
##  58/781 [=>............................] - ETA: 19s - loss: 1.3881 - accuracy: 0.4904
##  60/781 [=>............................] - ETA: 19s - loss: 1.3863 - accuracy: 0.4926
##  62/781 [=>............................] - ETA: 19s - loss: 1.3836 - accuracy: 0.4944
##  64/781 [=>............................] - ETA: 19s - loss: 1.3835 - accuracy: 0.4951
##  66/781 [=>............................] - ETA: 19s - loss: 1.3861 - accuracy: 0.4950
##  68/781 [=>............................] - ETA: 19s - loss: 1.3856 - accuracy: 0.4958
##  70/781 [=>............................] - ETA: 19s - loss: 1.3878 - accuracy: 0.4957
##  72/781 [=>............................] - ETA: 19s - loss: 1.3864 - accuracy: 0.4956
##  74/781 [=>............................] - ETA: 19s - loss: 1.3869 - accuracy: 0.4945
##  76/781 [=>............................] - ETA: 19s - loss: 1.3872 - accuracy: 0.4944
##  79/781 [==>...........................] - ETA: 18s - loss: 1.3877 - accuracy: 0.4940
##  82/781 [==>...........................] - ETA: 18s - loss: 1.3829 - accuracy: 0.4942
##  84/781 [==>...........................] - ETA: 18s - loss: 1.3878 - accuracy: 0.4925
##  86/781 [==>...........................] - ETA: 18s - loss: 1.3875 - accuracy: 0.4918
##  89/781 [==>...........................] - ETA: 18s - loss: 1.3869 - accuracy: 0.4924
##  91/781 [==>...........................] - ETA: 18s - loss: 1.3881 - accuracy: 0.4910
##  94/781 [==>...........................] - ETA: 18s - loss: 1.3891 - accuracy: 0.4911
##  96/781 [==>...........................] - ETA: 18s - loss: 1.3894 - accuracy: 0.4910
##  98/781 [==>...........................] - ETA: 18s - loss: 1.3880 - accuracy: 0.4910
## 100/781 [==>...........................] - ETA: 18s - loss: 1.3879 - accuracy: 0.4904
## 102/781 [==>...........................] - ETA: 18s - loss: 1.3845 - accuracy: 0.4909
## 104/781 [==>...........................] - ETA: 18s - loss: 1.3811 - accuracy: 0.4930
## 106/781 [===>..........................] - ETA: 18s - loss: 1.3839 - accuracy: 0.4921
## 108/781 [===>..........................] - ETA: 18s - loss: 1.3837 - accuracy: 0.4924
## 110/781 [===>..........................] - ETA: 18s - loss: 1.3845 - accuracy: 0.4918
## 112/781 [===>..........................] - ETA: 18s - loss: 1.3852 - accuracy: 0.4910
## 114/781 [===>..........................] - ETA: 18s - loss: 1.3870 - accuracy: 0.4902
## 116/781 [===>..........................] - ETA: 17s - loss: 1.3853 - accuracy: 0.4911
## 118/781 [===>..........................] - ETA: 17s - loss: 1.3837 - accuracy: 0.4923
## 120/781 [===>..........................] - ETA: 17s - loss: 1.3847 - accuracy: 0.4915
## 122/781 [===>..........................] - ETA: 17s - loss: 1.3855 - accuracy: 0.4912
## 124/781 [===>..........................] - ETA: 17s - loss: 1.3867 - accuracy: 0.4907
## 126/781 [===>..........................] - ETA: 17s - loss: 1.3869 - accuracy: 0.4905
## 128/781 [===>..........................] - ETA: 17s - loss: 1.3877 - accuracy: 0.4905
## 130/781 [===>..........................] - ETA: 17s - loss: 1.3864 - accuracy: 0.4918
## 133/781 [====>.........................] - ETA: 17s - loss: 1.3865 - accuracy: 0.4926
## 135/781 [====>.........................] - ETA: 17s - loss: 1.3886 - accuracy: 0.4926
## 137/781 [====>.........................] - ETA: 17s - loss: 1.3889 - accuracy: 0.4925
## 139/781 [====>.........................] - ETA: 17s - loss: 1.3893 - accuracy: 0.4923
## 141/781 [====>.........................] - ETA: 17s - loss: 1.3901 - accuracy: 0.4920
## 143/781 [====>.........................] - ETA: 17s - loss: 1.3918 - accuracy: 0.4917
## 145/781 [====>.........................] - ETA: 17s - loss: 1.3903 - accuracy: 0.4920
## 147/781 [====>.........................] - ETA: 17s - loss: 1.3904 - accuracy: 0.4919
## 149/781 [====>.........................] - ETA: 17s - loss: 1.3897 - accuracy: 0.4919
## 151/781 [====>.........................] - ETA: 17s - loss: 1.3904 - accuracy: 0.4919
## 154/781 [====>.........................] - ETA: 17s - loss: 1.3914 - accuracy: 0.4919
## 156/781 [====>.........................] - ETA: 16s - loss: 1.3924 - accuracy: 0.4919
## 158/781 [=====>........................] - ETA: 16s - loss: 1.3937 - accuracy: 0.4915
## 160/781 [=====>........................] - ETA: 16s - loss: 1.3926 - accuracy: 0.4920
## 162/781 [=====>........................] - ETA: 16s - loss: 1.3952 - accuracy: 0.4910
```

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## 164/781 [=====>.....................] - ETA: 16s - loss: 1.3955 - accuracy: 0.4908
## 166/781 [=====>.....................] - ETA: 16s - loss: 1.3950 - accuracy: 0.4916
## 168/781 [=====>.....................] - ETA: 16s - loss: 1.3963 - accuracy: 0.4912
## 170/781 [=====>.....................] - ETA: 16s - loss: 1.3968 - accuracy: 0.4913
## 172/781 [=====>.....................] - ETA: 16s - loss: 1.3969 - accuracy: 0.4915
## 174/781 [=====>.....................] - ETA: 16s - loss: 1.3965 - accuracy: 0.4916
## 176/781 [=====>.....................] - ETA: 16s - loss: 1.3953 - accuracy: 0.4924
## 178/781 [=====>.....................] - ETA: 16s - loss: 1.3943 - accuracy: 0.4929
## 181/781 [=====>.....................] - ETA: 16s - loss: 1.3946 - accuracy: 0.4930
## 183/781 [======>....................] - ETA: 16s - loss: 1.3942 - accuracy: 0.4934
## 186/781 [======>....................] - ETA: 16s - loss: 1.3937 - accuracy: 0.4935
## 188/781 [======>....................] - ETA: 16s - loss: 1.3937 - accuracy: 0.4937
## 190/781 [======>....................] - ETA: 16s - loss: 1.3929 - accuracy: 0.4942
## 192/781 [======>....................] - ETA: 16s - loss: 1.3932 - accuracy: 0.4946
## 194/781 [======>....................] - ETA: 15s - loss: 1.3940 - accuracy: 0.4948
## 196/781 [======>....................] - ETA: 15s - loss: 1.3952 - accuracy: 0.4942
## 198/781 [======>....................] - ETA: 15s - loss: 1.3958 - accuracy: 0.4938
## 200/781 [======>....................] - ETA: 15s - loss: 1.3939 - accuracy: 0.4945
## 202/781 [======>....................] - ETA: 15s - loss: 1.3945 - accuracy: 0.4943
## 204/781 [======>....................] - ETA: 15s - loss: 1.3945 - accuracy: 0.4942
## 206/781 [======>....................] - ETA: 15s - loss: 1.3941 - accuracy: 0.4947
## 208/781 [======>....................] - ETA: 15s - loss: 1.3944 - accuracy: 0.4946
## 210/781 [=======>...................] - ETA: 15s - loss: 1.3947 - accuracy: 0.4944
## 212/781 [=======>...................] - ETA: 15s - loss: 1.3945 - accuracy: 0.4950
## 214/781 [=======>...................] - ETA: 15s - loss: 1.3942 - accuracy: 0.4952
## 216/781 [=======>...................] - ETA: 15s - loss: 1.3942 - accuracy: 0.4956
## 218/781 [=======>...................] - ETA: 15s - loss: 1.3938 - accuracy: 0.4954
## 220/781 [=======>...................] - ETA: 15s - loss: 1.3948 - accuracy: 0.4948
## 222/781 [=======>...................] - ETA: 15s - loss: 1.3949 - accuracy: 0.4947
## 224/781 [=======>...................] - ETA: 15s - loss: 1.3948 - accuracy: 0.4950
## 226/781 [=======>...................] - ETA: 15s - loss: 1.3937 - accuracy: 0.4949
## 228/781 [=======>...................] - ETA: 15s - loss: 1.3959 - accuracy: 0.4942
## 230/781 [=======>...................] - ETA: 15s - loss: 1.3957 - accuracy: 0.4939
## 232/781 [=======>...................] - ETA: 15s - loss: 1.3957 - accuracy: 0.4938
## 234/781 [=======>...................] - ETA: 15s - loss: 1.3962 - accuracy: 0.4935
## 236/781 [========>..................] - ETA: 15s - loss: 1.3957 - accuracy: 0.4941
## 238/781 [========>..................] - ETA: 14s - loss: 1.3953 - accuracy: 0.4940
## 240/781 [========>..................] - ETA: 14s - loss: 1.3953 - accuracy: 0.4943
## 243/781 [========>..................] - ETA: 14s - loss: 1.3945 - accuracy: 0.4952
## 245/781 [========>..................] - ETA: 14s - loss: 1.3934 - accuracy: 0.4957
## 247/781 [========>..................] - ETA: 14s - loss: 1.3929 - accuracy: 0.4959
## 249/781 [========>..................] - ETA: 14s - loss: 1.3922 - accuracy: 0.4964
## 251/781 [========>..................] - ETA: 14s - loss: 1.3928 - accuracy: 0.4961
## 253/781 [========>..................] - ETA: 14s - loss: 1.3929 - accuracy: 0.4962
## 255/781 [========>..................] - ETA: 14s - loss: 1.3921 - accuracy: 0.4964
## 257/781 [========>..................] - ETA: 14s - loss: 1.3918 - accuracy: 0.4963
## 259/781 [========>..................] - ETA: 14s - loss: 1.3912 - accuracy: 0.4967
## 262/781 [=========>.................] - ETA: 14s - loss: 1.3914 - accuracy: 0.4967
## 264/781 [=========>.................] - ETA: 14s - loss: 1.3907 - accuracy: 0.4971
## 266/781 [=========>.................] - ETA: 14s - loss: 1.3900 - accuracy: 0.4972
## 268/781 [=========>.................] - ETA: 14s - loss: 1.3890 - accuracy: 0.4973
## 270/781 [=========>.................] - ETA: 14s - loss: 1.3893 - accuracy: 0.4970
## 272/781 [=========>.................] - ETA: 14s - loss: 1.3902 - accuracy: 0.4966
## 274/781 [=========>.................] - ETA: 13s - loss: 1.3891 - accuracy: 0.4966
```

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## 276/781 [=========>....................] - ETA: 13s - loss: 1.3893 - accuracy: 0.4964
## 278/781 [=========>....................] - ETA: 13s - loss: 1.3907 - accuracy: 0.4962
## 280/781 [=========>....................] - ETA: 13s - loss: 1.3909 - accuracy: 0.4960
## 282/781 [=========>....................] - ETA: 13s - loss: 1.3900 - accuracy: 0.4962
## 284/781 [=========>....................] - ETA: 13s - loss: 1.3897 - accuracy: 0.4962
## 286/781 [=========>....................] - ETA: 13s - loss: 1.3900 - accuracy: 0.4959
## 288/781 [==========>...................] - ETA: 13s - loss: 1.3887 - accuracy: 0.4970
## 290/781 [==========>...................] - ETA: 13s - loss: 1.3887 - accuracy: 0.4971
## 292/781 [==========>...................] - ETA: 13s - loss: 1.3886 - accuracy: 0.4974
## 294/781 [==========>...................] - ETA: 13s - loss: 1.3876 - accuracy: 0.4977
## 297/781 [==========>...................] - ETA: 13s - loss: 1.3871 - accuracy: 0.4981
## 299/781 [==========>...................] - ETA: 13s - loss: 1.3864 - accuracy: 0.4982
## 302/781 [==========>...................] - ETA: 13s - loss: 1.3870 - accuracy: 0.4975
## 304/781 [==========>...................] - ETA: 13s - loss: 1.3872 - accuracy: 0.4978
## 306/781 [==========>...................] - ETA: 13s - loss: 1.3877 - accuracy: 0.4980
## 309/781 [==========>...................] - ETA: 13s - loss: 1.3871 - accuracy: 0.4984
## 311/781 [==========>...................] - ETA: 12s - loss: 1.3859 - accuracy: 0.4990
## 313/781 [===========>..................] - ETA: 12s - loss: 1.3853 - accuracy: 0.4991
## 315/781 [===========>..................] - ETA: 12s - loss: 1.3859 - accuracy: 0.4997
## 317/781 [===========>..................] - ETA: 12s - loss: 1.3867 - accuracy: 0.4992
## 319/781 [===========>..................] - ETA: 12s - loss: 1.3864 - accuracy: 0.4995
## 321/781 [===========>..................] - ETA: 12s - loss: 1.3873 - accuracy: 0.4989
## 323/781 [===========>..................] - ETA: 12s - loss: 1.3876 - accuracy: 0.4986
## 325/781 [===========>..................] - ETA: 12s - loss: 1.3879 - accuracy: 0.4987
## 327/781 [===========>..................] - ETA: 12s - loss: 1.3878 - accuracy: 0.4988
## 329/781 [===========>..................] - ETA: 12s - loss: 1.3867 - accuracy: 0.4993
## 331/781 [===========>..................] - ETA: 12s - loss: 1.3869 - accuracy: 0.4996
## 333/781 [===========>..................] - ETA: 12s - loss: 1.3872 - accuracy: 0.4995
## 335/781 [===========>..................] - ETA: 12s - loss: 1.3885 - accuracy: 0.4988
## 337/781 [===========>..................] - ETA: 12s - loss: 1.3881 - accuracy: 0.4990
## 339/781 [============>.................] - ETA: 12s - loss: 1.3879 - accuracy: 0.4990
## 341/781 [============>.................] - ETA: 12s - loss: 1.3880 - accuracy: 0.4989
## 343/781 [============>.................] - ETA: 12s - loss: 1.3879 - accuracy: 0.4989
## 346/781 [============>.................] - ETA: 12s - loss: 1.3871 - accuracy: 0.4995
## 348/781 [============>.................] - ETA: 12s - loss: 1.3879 - accuracy: 0.4991
## 351/781 [============>.................] - ETA: 11s - loss: 1.3881 - accuracy: 0.4992
## 353/781 [============>.................] - ETA: 11s - loss: 1.3878 - accuracy: 0.4993
## 355/781 [============>.................] - ETA: 11s - loss: 1.3871 - accuracy: 0.4995
## 357/781 [============>.................] - ETA: 11s - loss: 1.3876 - accuracy: 0.4994
## 359/781 [============>.................] - ETA: 11s - loss: 1.3878 - accuracy: 0.4993
## 361/781 [============>.................] - ETA: 11s - loss: 1.3878 - accuracy: 0.4997
## 364/781 [============>.................] - ETA: 11s - loss: 1.3881 - accuracy: 0.4996
## 366/781 [=============>................] - ETA: 11s - loss: 1.3876 - accuracy: 0.4997
## 368/781 [=============>................] - ETA: 11s - loss: 1.3873 - accuracy: 0.4996
## 370/781 [=============>................] - ETA: 11s - loss: 1.3870 - accuracy: 0.4996
## 372/781 [=============>................] - ETA: 11s - loss: 1.3870 - accuracy: 0.4998
## 374/781 [=============>................] - ETA: 11s - loss: 1.3872 - accuracy: 0.4997
## 376/781 [=============>................] - ETA: 11s - loss: 1.3869 - accuracy: 0.4998
## 378/781 [=============>................] - ETA: 11s - loss: 1.3863 - accuracy: 0.5002
## 380/781 [=============>................] - ETA: 11s - loss: 1.3863 - accuracy: 0.5005
## 382/781 [=============>................] - ETA: 11s - loss: 1.3862 - accuracy: 0.5000
## 384/781 [=============>................] - ETA: 11s - loss: 1.3863 - accuracy: 0.5002
## 386/781 [=============>................] - ETA: 10s - loss: 1.3859 - accuracy: 0.5003
## 388/781 [=============>................] - ETA: 10s - loss: 1.3854 - accuracy: 0.5004
```

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## 390/781 [============>.............] - ETA: 10s - loss: 1.3859 - accuracy: 0.5004
## 392/781 [============>.............] - ETA: 10s - loss: 1.3861 - accuracy: 0.5005
## 394/781 [============>.............] - ETA: 10s - loss: 1.3857 - accuracy: 0.5005
## 396/781 [============>.............] - ETA: 10s - loss: 1.3858 - accuracy: 0.5004
## 398/781 [============>.............] - ETA: 10s - loss: 1.3852 - accuracy: 0.5006
## 400/781 [============>.............] - ETA: 10s - loss: 1.3845 - accuracy: 0.5010
## 402/781 [============>.............] - ETA: 10s - loss: 1.3848 - accuracy: 0.5010
## 404/781 [============>.............] - ETA: 10s - loss: 1.3839 - accuracy: 0.5016
## 406/781 [============>.............] - ETA: 10s - loss: 1.3833 - accuracy: 0.5017
## 408/781 [============>.............] - ETA: 10s - loss: 1.3828 - accuracy: 0.5020
## 410/781 [============>.............] - ETA: 10s - loss: 1.3832 - accuracy: 0.5018
## 412/781 [============>.............] - ETA: 10s - loss: 1.3823 - accuracy: 0.5021
## 414/781 [============>.............] - ETA: 10s - loss: 1.3824 - accuracy: 0.5022
## 416/781 [============>.............] - ETA: 10s - loss: 1.3823 - accuracy: 0.5022
## 418/781 [============>.............] - ETA: 10s - loss: 1.3818 - accuracy: 0.5029
## 420/781 [=============>............] - ETA: 9s - loss: 1.3815 - accuracy: 0.5028
## 422/781 [=============>............] - ETA: 9s - loss: 1.3814 - accuracy: 0.5031
## 424/781 [=============>............] - ETA: 9s - loss: 1.3806 - accuracy: 0.5034
## 426/781 [=============>............] - ETA: 9s - loss: 1.3804 - accuracy: 0.5033
## 429/781 [=============>............] - ETA: 9s - loss: 1.3798 - accuracy: 0.5034
## 431/781 [=============>............] - ETA: 9s - loss: 1.3797 - accuracy: 0.5034
## 433/781 [=============>............] - ETA: 9s - loss: 1.3797 - accuracy: 0.5034
## 435/781 [=============>............] - ETA: 9s - loss: 1.3796 - accuracy: 0.5036
## 437/781 [=============>............] - ETA: 9s - loss: 1.3790 - accuracy: 0.5039
## 439/781 [=============>............] - ETA: 9s - loss: 1.3795 - accuracy: 0.5036
## 442/781 [=============>............] - ETA: 9s - loss: 1.3791 - accuracy: 0.5037
## 444/781 [==============>...........] - ETA: 9s - loss: 1.3793 - accuracy: 0.5037
## 446/781 [==============>...........] - ETA: 9s - loss: 1.3786 - accuracy: 0.5039
## 448/781 [==============>...........] - ETA: 9s - loss: 1.3780 - accuracy: 0.5042
## 450/781 [==============>...........] - ETA: 9s - loss: 1.3777 - accuracy: 0.5044
## 452/781 [==============>...........] - ETA: 9s - loss: 1.3779 - accuracy: 0.5044
## 454/781 [==============>...........] - ETA: 9s - loss: 1.3780 - accuracy: 0.5043
## 456/781 [==============>...........] - ETA: 8s - loss: 1.3776 - accuracy: 0.5044
## 458/781 [==============>...........] - ETA: 8s - loss: 1.3772 - accuracy: 0.5045
## 460/781 [==============>...........] - ETA: 8s - loss: 1.3769 - accuracy: 0.5047
## 462/781 [==============>...........] - ETA: 8s - loss: 1.3769 - accuracy: 0.5048
## 464/781 [==============>...........] - ETA: 8s - loss: 1.3762 - accuracy: 0.5053
## 466/781 [==============>...........] - ETA: 8s - loss: 1.3752 - accuracy: 0.5057
## 469/781 [===============>..........] - ETA: 8s - loss: 1.3754 - accuracy: 0.5055
## 471/781 [===============>..........] - ETA: 8s - loss: 1.3750 - accuracy: 0.5059
## 474/781 [===============>..........] - ETA: 8s - loss: 1.3743 - accuracy: 0.5065
## 476/781 [===============>..........] - ETA: 8s - loss: 1.3740 - accuracy: 0.5066
## 478/781 [===============>..........] - ETA: 8s - loss: 1.3735 - accuracy: 0.5067
## 480/781 [===============>..........] - ETA: 8s - loss: 1.3733 - accuracy: 0.5071
## 482/781 [===============>..........] - ETA: 8s - loss: 1.3726 - accuracy: 0.5074
## 484/781 [===============>..........] - ETA: 8s - loss: 1.3724 - accuracy: 0.5074
## 486/781 [===============>..........] - ETA: 8s - loss: 1.3727 - accuracy: 0.5077
## 488/781 [===============>..........] - ETA: 8s - loss: 1.3725 - accuracy: 0.5078
## 490/781 [===============>..........] - ETA: 8s - loss: 1.3718 - accuracy: 0.5082
## 492/781 [===============>..........] - ETA: 7s - loss: 1.3713 - accuracy: 0.5084
## 494/781 [===============>..........] - ETA: 7s - loss: 1.3709 - accuracy: 0.5086
## 496/781 [================>.........] - ETA: 7s - loss: 1.3705 - accuracy: 0.5087
## 498/781 [================>.........] - ETA: 7s - loss: 1.3703 - accuracy: 0.5086
## 500/781 [================>.........] - ETA: 7s - loss: 1.3705 - accuracy: 0.5086
```

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## 502/781 [==================>...........] - ETA: 7s - loss: 1.3704 - accuracy: 0.5086
## 504/781 [==================>...........] - ETA: 7s - loss: 1.3705 - accuracy: 0.5086
## 506/781 [==================>...........] - ETA: 7s - loss: 1.3707 - accuracy: 0.5084
## 508/781 [==================>...........] - ETA: 7s - loss: 1.3700 - accuracy: 0.5088
## 510/781 [==================>...........] - ETA: 7s - loss: 1.3704 - accuracy: 0.5088
## 512/781 [==================>...........] - ETA: 7s - loss: 1.3702 - accuracy: 0.5088
## 514/781 [==================>...........] - ETA: 7s - loss: 1.3703 - accuracy: 0.5089
## 516/781 [==================>...........] - ETA: 7s - loss: 1.3705 - accuracy: 0.5087
## 518/781 [==================>...........] - ETA: 7s - loss: 1.3706 - accuracy: 0.5089
## 520/781 [==================>...........] - ETA: 7s - loss: 1.3709 - accuracy: 0.5091
## 522/781 [===================>..........] - ETA: 7s - loss: 1.3706 - accuracy: 0.5091
## 524/781 [===================>..........] - ETA: 7s - loss: 1.3699 - accuracy: 0.5095
## 526/781 [===================>..........] - ETA: 7s - loss: 1.3697 - accuracy: 0.5098
## 528/781 [===================>..........] - ETA: 6s - loss: 1.3697 - accuracy: 0.5098
## 530/781 [===================>..........] - ETA: 6s - loss: 1.3698 - accuracy: 0.5096
## 532/781 [===================>..........] - ETA: 6s - loss: 1.3695 - accuracy: 0.5098
## 535/781 [===================>..........] - ETA: 6s - loss: 1.3681 - accuracy: 0.5104
## 537/781 [===================>..........] - ETA: 6s - loss: 1.3683 - accuracy: 0.5105
## 539/781 [===================>..........] - ETA: 6s - loss: 1.3684 - accuracy: 0.5105
## 541/781 [===================>..........] - ETA: 6s - loss: 1.3681 - accuracy: 0.5105
## 543/781 [===================>..........] - ETA: 6s - loss: 1.3678 - accuracy: 0.5104
## 546/781 [===================>..........] - ETA: 6s - loss: 1.3677 - accuracy: 0.5105
## 548/781 [====================>.........] - ETA: 6s - loss: 1.3672 - accuracy: 0.5107
## 550/781 [====================>.........] - ETA: 6s - loss: 1.3667 - accuracy: 0.5109
## 552/781 [====================>.........] - ETA: 6s - loss: 1.3665 - accuracy: 0.5112
## 554/781 [====================>.........] - ETA: 6s - loss: 1.3659 - accuracy: 0.5114
## 556/781 [====================>.........] - ETA: 6s - loss: 1.3658 - accuracy: 0.5117
## 559/781 [====================>.........] - ETA: 6s - loss: 1.3653 - accuracy: 0.5118
## 562/781 [====================>.........] - ETA: 6s - loss: 1.3644 - accuracy: 0.5120
## 565/781 [====================>.........] - ETA: 5s - loss: 1.3641 - accuracy: 0.5123
## 567/781 [====================>.........] - ETA: 5s - loss: 1.3637 - accuracy: 0.5125
## 569/781 [====================>.........] - ETA: 5s - loss: 1.3639 - accuracy: 0.5123
## 571/781 [====================>.........] - ETA: 5s - loss: 1.3639 - accuracy: 0.5122
## 573/781 [=====================>........] - ETA: 5s - loss: 1.3636 - accuracy: 0.5124
## 575/781 [=====================>........] - ETA: 5s - loss: 1.3632 - accuracy: 0.5124
## 578/781 [=====================>........] - ETA: 5s - loss: 1.3631 - accuracy: 0.5122
## 580/781 [=====================>........] - ETA: 5s - loss: 1.3627 - accuracy: 0.5122
## 582/781 [=====================>........] - ETA: 5s - loss: 1.3628 - accuracy: 0.5123
## 584/781 [=====================>........] - ETA: 5s - loss: 1.3628 - accuracy: 0.5123
## 587/781 [=====================>........] - ETA: 5s - loss: 1.3624 - accuracy: 0.5123
## 589/781 [=====================>........] - ETA: 5s - loss: 1.3625 - accuracy: 0.5124
## 591/781 [=====================>........] - ETA: 5s - loss: 1.3623 - accuracy: 0.5123
## 594/781 [=====================>........] - ETA: 5s - loss: 1.3618 - accuracy: 0.5126
## 595/781 [=====================>........] - ETA: 5s - loss: 1.3619 - accuracy: 0.5126
## 598/781 [=====================>........] - ETA: 5s - loss: 1.3617 - accuracy: 0.5127
## 600/781 [======================>.......] - ETA: 4s - loss: 1.3618 - accuracy: 0.5127
## 602/781 [======================>.......] - ETA: 4s - loss: 1.3623 - accuracy: 0.5125
## 605/781 [======================>.......] - ETA: 4s - loss: 1.3618 - accuracy: 0.5127
## 607/781 [======================>.......] - ETA: 4s - loss: 1.3614 - accuracy: 0.5128
## 610/781 [======================>.......] - ETA: 4s - loss: 1.3613 - accuracy: 0.5128
## 612/781 [======================>.......] - ETA: 4s - loss: 1.3613 - accuracy: 0.5129
## 614/781 [======================>.......] - ETA: 4s - loss: 1.3613 - accuracy: 0.5128
## 617/781 [======================>.......] - ETA: 4s - loss: 1.3610 - accuracy: 0.5128
## 619/781 [======================>.......] - ETA: 4s - loss: 1.3610 - accuracy: 0.5129
```

```
## 621/781 [=====================>.......] - ETA: 4s - loss: 1.3605 - accuracy: 0.5130
## 624/781 [=====================>.......] - ETA: 4s - loss: 1.3603 - accuracy: 0.5129
## 627/781 [======================>......] - ETA: 4s - loss: 1.3600 - accuracy: 0.5130
## 629/781 [======================>......] - ETA: 4s - loss: 1.3600 - accuracy: 0.5131
## 631/781 [======================>......] - ETA: 4s - loss: 1.3598 - accuracy: 0.5131
## 634/781 [======================>......] - ETA: 4s - loss: 1.3599 - accuracy: 0.5129
## 636/781 [======================>......] - ETA: 3s - loss: 1.3604 - accuracy: 0.5128
## 639/781 [======================>......] - ETA: 3s - loss: 1.3600 - accuracy: 0.5130
## 641/781 [======================>......] - ETA: 3s - loss: 1.3600 - accuracy: 0.5131
## 643/781 [======================>......] - ETA: 3s - loss: 1.3606 - accuracy: 0.5128
## 646/781 [======================>......] - ETA: 3s - loss: 1.3602 - accuracy: 0.5131
## 648/781 [======================>......] - ETA: 3s - loss: 1.3602 - accuracy: 0.5130
## 651/781 [=======================>.....] - ETA: 3s - loss: 1.3602 - accuracy: 0.5129
## 653/781 [=======================>.....] - ETA: 3s - loss: 1.3600 - accuracy: 0.5129
## 655/781 [=======================>.....] - ETA: 3s - loss: 1.3597 - accuracy: 0.5129
## 657/781 [=======================>.....] - ETA: 3s - loss: 1.3597 - accuracy: 0.5130
## 659/781 [=======================>.....] - ETA: 3s - loss: 1.3599 - accuracy: 0.5129
## 662/781 [=======================>.....] - ETA: 3s - loss: 1.3606 - accuracy: 0.5128
## 665/781 [=======================>.....] - ETA: 3s - loss: 1.3606 - accuracy: 0.5129
## 668/781 [=======================>.....] - ETA: 3s - loss: 1.3602 - accuracy: 0.5131
## 670/781 [=======================>.....] - ETA: 3s - loss: 1.3594 - accuracy: 0.5133
## 673/781 [=======================>.....] - ETA: 2s - loss: 1.3594 - accuracy: 0.5132
## 675/781 [=======================>.....] - ETA: 2s - loss: 1.3593 - accuracy: 0.5134
## 677/781 [========================>....] - ETA: 2s - loss: 1.3591 - accuracy: 0.5136
## 680/781 [========================>....] - ETA: 2s - loss: 1.3593 - accuracy: 0.5136
## 682/781 [========================>....] - ETA: 2s - loss: 1.3592 - accuracy: 0.5136
## 684/781 [========================>....] - ETA: 2s - loss: 1.3594 - accuracy: 0.5136
## 687/781 [========================>....] - ETA: 2s - loss: 1.3599 - accuracy: 0.5133
## 689/781 [========================>....] - ETA: 2s - loss: 1.3599 - accuracy: 0.5132
## 691/781 [========================>....] - ETA: 2s - loss: 1.3596 - accuracy: 0.5132
## 694/781 [========================>....] - ETA: 2s - loss: 1.3592 - accuracy: 0.5135
## 696/781 [========================>....] - ETA: 2s - loss: 1.3592 - accuracy: 0.5137
## 698/781 [========================>....] - ETA: 2s - loss: 1.3589 - accuracy: 0.5138
## 701/781 [========================>....] - ETA: 2s - loss: 1.3590 - accuracy: 0.5137
## 703/781 [=========================>...] - ETA: 2s - loss: 1.3588 - accuracy: 0.5136
## 705/781 [=========================>...] - ETA: 2s - loss: 1.3588 - accuracy: 0.5135
## 708/781 [=========================>...] - ETA: 2s - loss: 1.3588 - accuracy: 0.5135
## 710/781 [=========================>...] - ETA: 1s - loss: 1.3590 - accuracy: 0.5136
## 713/781 [=========================>...] - ETA: 1s - loss: 1.3581 - accuracy: 0.5139
## 716/781 [=========================>...] - ETA: 1s - loss: 1.3581 - accuracy: 0.5140
## 718/781 [=========================>...] - ETA: 1s - loss: 1.3584 - accuracy: 0.5139
## 720/781 [=========================>...] - ETA: 1s - loss: 1.3580 - accuracy: 0.5141
## 722/781 [=========================>...] - ETA: 1s - loss: 1.3581 - accuracy: 0.5142
## 724/781 [=========================>...] - ETA: 1s - loss: 1.3579 - accuracy: 0.5142
## 727/781 [=========================>...] - ETA: 1s - loss: 1.3578 - accuracy: 0.5142
## 729/781 [==========================>..] - ETA: 1s - loss: 1.3581 - accuracy: 0.5142
## 731/781 [==========================>..] - ETA: 1s - loss: 1.3575 - accuracy: 0.5145
## 733/781 [==========================>..] - ETA: 1s - loss: 1.3570 - accuracy: 0.5147
## 735/781 [==========================>..] - ETA: 1s - loss: 1.3564 - accuracy: 0.5150
## 737/781 [==========================>..] - ETA: 1s - loss: 1.3559 - accuracy: 0.5152
## 740/781 [==========================>..] - ETA: 1s - loss: 1.3554 - accuracy: 0.5153
## 742/781 [==========================>..] - ETA: 1s - loss: 1.3554 - accuracy: 0.5154
## 744/781 [==========================>..] - ETA: 1s - loss: 1.3551 - accuracy: 0.5155
## 746/781 [==========================>..] - ETA: 0s - loss: 1.3545 - accuracy: 0.5157
```

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## 749/781 [===========================>..] - ETA: 0s - loss: 1.3536 - accuracy: 0.5161
## 751/781 [===========================>..] - ETA: 0s - loss: 1.3532 - accuracy: 0.5163
## 754/781 [===========================>..] - ETA: 0s - loss: 1.3530 - accuracy: 0.5163
## 756/781 [===========================>.] - ETA: 0s - loss: 1.3527 - accuracy: 0.5164
## 758/781 [===========================>.] - ETA: 0s - loss: 1.3524 - accuracy: 0.5165
## 761/781 [===========================>.] - ETA: 0s - loss: 1.3521 - accuracy: 0.5168
## 763/781 [===========================>.] - ETA: 0s - loss: 1.3518 - accuracy: 0.5168
## 765/781 [===========================>.] - ETA: 0s - loss: 1.3517 - accuracy: 0.5167
## 768/781 [===========================>.] - ETA: 0s - loss: 1.3512 - accuracy: 0.5168
## 770/781 [===========================>.] - ETA: 0s - loss: 1.3510 - accuracy: 0.5169
## 772/781 [===========================>.] - ETA: 0s - loss: 1.3507 - accuracy: 0.5171
## 775/781 [===========================>.] - ETA: 0s - loss: 1.3502 - accuracy: 0.5173
## 777/781 [===========================>.] - ETA: 0s - loss: 1.3498 - accuracy: 0.5174
## 780/781 [===========================>.] - ETA: 0s - loss: 1.3494 - accuracy: 0.5176
## 781/781 [==============================] - 22s 29ms/step - loss: 1.3494 - accuracy: 0.5176 - val_loss
## Epoch 3/20
##
##   1/781 [..............................] - ETA: 29s - loss: 1.2699 - accuracy: 0.5156
##   3/781 [..............................] - ETA: 24s - loss: 1.3176 - accuracy: 0.5052
##   6/781 [..............................] - ETA: 20s - loss: 1.2585 - accuracy: 0.5495
##   9/781 [..............................] - ETA: 21s - loss: 1.2684 - accuracy: 0.5469
##  12/781 [..............................] - ETA: 19s - loss: 1.2727 - accuracy: 0.5469
##  14/781 [..............................] - ETA: 20s - loss: 1.2575 - accuracy: 0.5558
##  16/781 [..............................] - ETA: 20s - loss: 1.2444 - accuracy: 0.5645
##  19/781 [..............................] - ETA: 20s - loss: 1.2396 - accuracy: 0.5633
##  21/781 [..............................] - ETA: 20s - loss: 1.2363 - accuracy: 0.5692
##  23/781 [..............................] - ETA: 20s - loss: 1.2365 - accuracy: 0.5693
##  26/781 [..............................] - ETA: 20s - loss: 1.2323 - accuracy: 0.5643
##  28/781 [>.............................] - ETA: 19s - loss: 1.2383 - accuracy: 0.5664
##  30/781 [>.............................] - ETA: 19s - loss: 1.2458 - accuracy: 0.5625
##  33/781 [>.............................] - ETA: 19s - loss: 1.2485 - accuracy: 0.5573
##  35/781 [>.............................] - ETA: 19s - loss: 1.2455 - accuracy: 0.5571
##  37/781 [>.............................] - ETA: 19s - loss: 1.2464 - accuracy: 0.5579
##  40/781 [>.............................] - ETA: 19s - loss: 1.2546 - accuracy: 0.5527
##  42/781 [>.............................] - ETA: 19s - loss: 1.2533 - accuracy: 0.5551
##  45/781 [>.............................] - ETA: 19s - loss: 1.2591 - accuracy: 0.5538
##  47/781 [>.............................] - ETA: 19s - loss: 1.2575 - accuracy: 0.5515
##  49/781 [>.............................] - ETA: 19s - loss: 1.2513 - accuracy: 0.5520
##  51/781 [>.............................] - ETA: 19s - loss: 1.2517 - accuracy: 0.5542
##  54/781 [=>............................] - ETA: 19s - loss: 1.2542 - accuracy: 0.5567
##  56/781 [=>............................] - ETA: 19s - loss: 1.2530 - accuracy: 0.5566
##  58/781 [=>............................] - ETA: 19s - loss: 1.2542 - accuracy: 0.5574
##  61/781 [=>............................] - ETA: 19s - loss: 1.2588 - accuracy: 0.5551
##  63/781 [=>............................] - ETA: 19s - loss: 1.2534 - accuracy: 0.5570
##  66/781 [=>............................] - ETA: 19s - loss: 1.2544 - accuracy: 0.5573
##  69/781 [=>............................] - ETA: 18s - loss: 1.2505 - accuracy: 0.5595
##  71/781 [=>............................] - ETA: 18s - loss: 1.2512 - accuracy: 0.5583
##  73/781 [=>............................] - ETA: 18s - loss: 1.2501 - accuracy: 0.5597
##  75/781 [=>............................] - ETA: 18s - loss: 1.2496 - accuracy: 0.5606
##  77/781 [=>............................] - ETA: 18s - loss: 1.2505 - accuracy: 0.5613
##  79/781 [==>...........................] - ETA: 18s - loss: 1.2480 - accuracy: 0.5611
##  81/781 [==>...........................] - ETA: 18s - loss: 1.2502 - accuracy: 0.5590
##  84/781 [==>...........................] - ETA: 18s - loss: 1.2500 - accuracy: 0.5584
##  87/781 [==>...........................] - ETA: 18s - loss: 1.2531 - accuracy: 0.5571
```

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##  89/781 [==>............................] - ETA: 18s - loss: 1.2530 - accuracy: 0.5565
##  92/781 [==>............................] - ETA: 18s - loss: 1.2543 - accuracy: 0.5562
##  95/781 [==>............................] - ETA: 18s - loss: 1.2558 - accuracy: 0.5559
##  97/781 [==>............................] - ETA: 18s - loss: 1.2588 - accuracy: 0.5532
##  99/781 [==>............................] - ETA: 18s - loss: 1.2590 - accuracy: 0.5539
## 101/781 [==>............................] - ETA: 18s - loss: 1.2604 - accuracy: 0.5541
## 103/781 [==>............................] - ETA: 18s - loss: 1.2614 - accuracy: 0.5541
## 105/781 [===>...........................] - ETA: 18s - loss: 1.2635 - accuracy: 0.5519
## 107/781 [===>...........................] - ETA: 18s - loss: 1.2616 - accuracy: 0.5516
## 109/781 [===>...........................] - ETA: 18s - loss: 1.2622 - accuracy: 0.5502
## 111/781 [===>...........................] - ETA: 17s - loss: 1.2616 - accuracy: 0.5492
## 113/781 [===>...........................] - ETA: 17s - loss: 1.2608 - accuracy: 0.5493
## 115/781 [===>...........................] - ETA: 17s - loss: 1.2596 - accuracy: 0.5490
## 117/781 [===>...........................] - ETA: 17s - loss: 1.2590 - accuracy: 0.5493
## 120/781 [===>...........................] - ETA: 17s - loss: 1.2574 - accuracy: 0.5495
## 122/781 [===>...........................] - ETA: 17s - loss: 1.2541 - accuracy: 0.5499
## 125/781 [===>...........................] - ETA: 17s - loss: 1.2549 - accuracy: 0.5497
## 127/781 [===>...........................] - ETA: 17s - loss: 1.2533 - accuracy: 0.5512
## 129/781 [===>...........................] - ETA: 17s - loss: 1.2547 - accuracy: 0.5508
## 131/781 [====>..........................] - ETA: 17s - loss: 1.2554 - accuracy: 0.5505
## 134/781 [====>..........................] - ETA: 17s - loss: 1.2544 - accuracy: 0.5510
## 136/781 [====>..........................] - ETA: 17s - loss: 1.2523 - accuracy: 0.5516
## 139/781 [====>..........................] - ETA: 17s - loss: 1.2525 - accuracy: 0.5514
## 141/781 [====>..........................] - ETA: 17s - loss: 1.2537 - accuracy: 0.5521
## 143/781 [====>..........................] - ETA: 17s - loss: 1.2545 - accuracy: 0.5517
## 145/781 [====>..........................] - ETA: 17s - loss: 1.2537 - accuracy: 0.5525
## 147/781 [====>..........................] - ETA: 17s - loss: 1.2533 - accuracy: 0.5531
## 149/781 [====>..........................] - ETA: 16s - loss: 1.2520 - accuracy: 0.5530
## 152/781 [====>..........................] - ETA: 16s - loss: 1.2527 - accuracy: 0.5539
## 154/781 [====>..........................] - ETA: 16s - loss: 1.2517 - accuracy: 0.5543
## 156/781 [====>..........................] - ETA: 16s - loss: 1.2538 - accuracy: 0.5543
## 159/781 [=====>.........................] - ETA: 16s - loss: 1.2513 - accuracy: 0.5556
## 161/781 [=====>.........................] - ETA: 16s - loss: 1.2510 - accuracy: 0.5558
## 163/781 [=====>.........................] - ETA: 16s - loss: 1.2497 - accuracy: 0.5563
## 166/781 [=====>.........................] - ETA: 16s - loss: 1.2516 - accuracy: 0.5564
## 168/781 [=====>.........................] - ETA: 16s - loss: 1.2523 - accuracy: 0.5557
## 170/781 [=====>.........................] - ETA: 16s - loss: 1.2525 - accuracy: 0.5555
## 173/781 [=====>.........................] - ETA: 16s - loss: 1.2542 - accuracy: 0.5551
## 175/781 [=====>.........................] - ETA: 16s - loss: 1.2541 - accuracy: 0.5551
## 176/781 [=====>.........................] - ETA: 16s - loss: 1.2540 - accuracy: 0.5555
## 178/781 [=====>.........................] - ETA: 16s - loss: 1.2525 - accuracy: 0.5565
## 180/781 [=====>.........................] - ETA: 16s - loss: 1.2523 - accuracy: 0.5567
## 182/781 [=====>.........................] - ETA: 16s - loss: 1.2545 - accuracy: 0.5559
## 184/781 [======>........................] - ETA: 16s - loss: 1.2540 - accuracy: 0.5564
## 186/781 [======>........................] - ETA: 16s - loss: 1.2538 - accuracy: 0.5563
## 188/781 [======>........................] - ETA: 16s - loss: 1.2523 - accuracy: 0.5572
## 190/781 [======>........................] - ETA: 16s - loss: 1.2534 - accuracy: 0.5574
## 192/781 [======>........................] - ETA: 16s - loss: 1.2541 - accuracy: 0.5567
## 194/781 [======>........................] - ETA: 16s - loss: 1.2535 - accuracy: 0.5571
## 196/781 [======>........................] - ETA: 15s - loss: 1.2548 - accuracy: 0.5565
## 199/781 [======>........................] - ETA: 15s - loss: 1.2547 - accuracy: 0.5567
## 202/781 [======>........................] - ETA: 15s - loss: 1.2554 - accuracy: 0.5565
## 205/781 [======>........................] - ETA: 15s - loss: 1.2556 - accuracy: 0.5565
## 208/781 [======>........................] - ETA: 15s - loss: 1.2559 - accuracy: 0.5560
```

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## 211/781 [=======>......................] - ETA: 15s - loss: 1.2570 - accuracy: 0.5559
## 214/781 [=======>......................] - ETA: 15s - loss: 1.2576 - accuracy: 0.5554
## 216/781 [=======>......................] - ETA: 15s - loss: 1.2581 - accuracy: 0.5555
## 218/781 [=======>......................] - ETA: 15s - loss: 1.2581 - accuracy: 0.5554
## 220/781 [=======>......................] - ETA: 15s - loss: 1.2590 - accuracy: 0.5551
## 222/781 [=======>......................] - ETA: 15s - loss: 1.2592 - accuracy: 0.5547
## 224/781 [=======>......................] - ETA: 15s - loss: 1.2602 - accuracy: 0.5543
## 226/781 [=======>......................] - ETA: 15s - loss: 1.2611 - accuracy: 0.5542
## 228/781 [=======>......................] - ETA: 15s - loss: 1.2615 - accuracy: 0.5541
## 230/781 [=======>......................] - ETA: 15s - loss: 1.2618 - accuracy: 0.5540
## 232/781 [=======>......................] - ETA: 15s - loss: 1.2621 - accuracy: 0.5538
## 234/781 [=======>......................] - ETA: 15s - loss: 1.2614 - accuracy: 0.5541
## 236/781 [========>.....................] - ETA: 14s - loss: 1.2610 - accuracy: 0.5540
## 238/781 [========>.....................] - ETA: 14s - loss: 1.2603 - accuracy: 0.5545
## 240/781 [========>.....................] - ETA: 14s - loss: 1.2593 - accuracy: 0.5547
## 242/781 [========>.....................] - ETA: 14s - loss: 1.2588 - accuracy: 0.5548
## 244/781 [========>.....................] - ETA: 14s - loss: 1.2589 - accuracy: 0.5547
## 246/781 [========>.....................] - ETA: 14s - loss: 1.2578 - accuracy: 0.5552
## 248/781 [========>.....................] - ETA: 14s - loss: 1.2574 - accuracy: 0.5552
## 250/781 [========>.....................] - ETA: 14s - loss: 1.2561 - accuracy: 0.5555
## 252/781 [========>.....................] - ETA: 14s - loss: 1.2560 - accuracy: 0.5558
## 254/781 [========>.....................] - ETA: 14s - loss: 1.2565 - accuracy: 0.5558
## 256/781 [========>.....................] - ETA: 14s - loss: 1.2560 - accuracy: 0.5560
## 258/781 [========>.....................] - ETA: 14s - loss: 1.2566 - accuracy: 0.5562
## 260/781 [========>.....................] - ETA: 14s - loss: 1.2566 - accuracy: 0.5568
## 262/781 [=========>....................] - ETA: 14s - loss: 1.2569 - accuracy: 0.5566
## 264/781 [=========>....................] - ETA: 14s - loss: 1.2570 - accuracy: 0.5565
## 266/781 [=========>....................] - ETA: 14s - loss: 1.2564 - accuracy: 0.5565
## 268/781 [=========>....................] - ETA: 14s - loss: 1.2558 - accuracy: 0.5564
## 271/781 [=========>....................] - ETA: 14s - loss: 1.2565 - accuracy: 0.5563
## 273/781 [=========>....................] - ETA: 13s - loss: 1.2566 - accuracy: 0.5562
## 275/781 [=========>....................] - ETA: 13s - loss: 1.2566 - accuracy: 0.5565
## 277/781 [=========>....................] - ETA: 13s - loss: 1.2566 - accuracy: 0.5568
## 279/781 [=========>....................] - ETA: 13s - loss: 1.2559 - accuracy: 0.5573
## 281/781 [=========>....................] - ETA: 13s - loss: 1.2553 - accuracy: 0.5574
## 283/781 [=========>....................] - ETA: 13s - loss: 1.2556 - accuracy: 0.5574
## 285/781 [=========>....................] - ETA: 13s - loss: 1.2554 - accuracy: 0.5576
## 287/781 [==========>...................] - ETA: 13s - loss: 1.2558 - accuracy: 0.5574
## 289/781 [==========>...................] - ETA: 13s - loss: 1.2556 - accuracy: 0.5575
## 291/781 [==========>...................] - ETA: 13s - loss: 1.2551 - accuracy: 0.5571
## 293/781 [==========>...................] - ETA: 13s - loss: 1.2548 - accuracy: 0.5572
## 295/781 [==========>...................] - ETA: 13s - loss: 1.2542 - accuracy: 0.5573
## 297/781 [==========>...................] - ETA: 13s - loss: 1.2533 - accuracy: 0.5578
## 299/781 [==========>...................] - ETA: 13s - loss: 1.2530 - accuracy: 0.5579
## 300/781 [==========>...................] - ETA: 13s - loss: 1.2534 - accuracy: 0.5580
## 302/781 [==========>...................] - ETA: 13s - loss: 1.2535 - accuracy: 0.5580
## 304/781 [==========>...................] - ETA: 13s - loss: 1.2535 - accuracy: 0.5579
## 306/781 [==========>...................] - ETA: 13s - loss: 1.2532 - accuracy: 0.5579
## 308/781 [==========>...................] - ETA: 13s - loss: 1.2535 - accuracy: 0.5579
## 310/781 [==========>...................] - ETA: 13s - loss: 1.2531 - accuracy: 0.5580
## 312/781 [==========>...................] - ETA: 13s - loss: 1.2523 - accuracy: 0.5581
## 314/781 [===========>..................] - ETA: 12s - loss: 1.2513 - accuracy: 0.5584
## 316/781 [===========>..................] - ETA: 12s - loss: 1.2518 - accuracy: 0.5586
## 318/781 [===========>..................] - ETA: 12s - loss: 1.2523 - accuracy: 0.5582
```

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## 320/781 [===========>..................] - ETA: 12s - loss: 1.2524 - accuracy: 0.5581
## 322/781 [===========>..................] - ETA: 12s - loss: 1.2520 - accuracy: 0.5581
## 324/781 [===========>..................] - ETA: 12s - loss: 1.2526 - accuracy: 0.5577
## 326/781 [===========>..................] - ETA: 12s - loss: 1.2530 - accuracy: 0.5576
## 328/781 [===========>..................] - ETA: 12s - loss: 1.2528 - accuracy: 0.5576
## 330/781 [===========>..................] - ETA: 12s - loss: 1.2534 - accuracy: 0.5576
## 332/781 [===========>..................] - ETA: 12s - loss: 1.2534 - accuracy: 0.5575
## 334/781 [===========>..................] - ETA: 12s - loss: 1.2533 - accuracy: 0.5580
## 337/781 [===========>..................] - ETA: 12s - loss: 1.2550 - accuracy: 0.5579
## 339/781 [============>.................] - ETA: 12s - loss: 1.2543 - accuracy: 0.5579
## 341/781 [============>.................] - ETA: 12s - loss: 1.2545 - accuracy: 0.5576
## 344/781 [============>.................] - ETA: 12s - loss: 1.2557 - accuracy: 0.5576
## 346/781 [============>.................] - ETA: 12s - loss: 1.2557 - accuracy: 0.5577
## 348/781 [============>.................] - ETA: 12s - loss: 1.2556 - accuracy: 0.5575
## 350/781 [============>.................] - ETA: 12s - loss: 1.2555 - accuracy: 0.5575
## 352/781 [============>.................] - ETA: 12s - loss: 1.2556 - accuracy: 0.5573
## 354/781 [============>.................] - ETA: 11s - loss: 1.2553 - accuracy: 0.5577
## 356/781 [============>.................] - ETA: 11s - loss: 1.2557 - accuracy: 0.5575
## 358/781 [============>.................] - ETA: 11s - loss: 1.2560 - accuracy: 0.5575
## 360/781 [============>.................] - ETA: 11s - loss: 1.2558 - accuracy: 0.5574
## 362/781 [============>.................] - ETA: 11s - loss: 1.2565 - accuracy: 0.5571
## 364/781 [============>.................] - ETA: 11s - loss: 1.2562 - accuracy: 0.5573
## 366/781 [=============>................] - ETA: 11s - loss: 1.2566 - accuracy: 0.5573
## 369/781 [=============>................] - ETA: 11s - loss: 1.2560 - accuracy: 0.5573
## 371/781 [=============>................] - ETA: 11s - loss: 1.2561 - accuracy: 0.5576
## 373/781 [=============>................] - ETA: 11s - loss: 1.2555 - accuracy: 0.5577
## 375/781 [=============>................] - ETA: 11s - loss: 1.2545 - accuracy: 0.5580
## 377/781 [=============>................] - ETA: 11s - loss: 1.2535 - accuracy: 0.5581
## 379/781 [=============>................] - ETA: 11s - loss: 1.2538 - accuracy: 0.5583
## 382/781 [=============>................] - ETA: 11s - loss: 1.2534 - accuracy: 0.5583
## 384/781 [=============>................] - ETA: 11s - loss: 1.2540 - accuracy: 0.5581
## 386/781 [=============>................] - ETA: 11s - loss: 1.2542 - accuracy: 0.5582
## 388/781 [=============>................] - ETA: 11s - loss: 1.2537 - accuracy: 0.5583
## 391/781 [==============>...............] - ETA: 10s - loss: 1.2529 - accuracy: 0.5589
## 393/781 [==============>...............] - ETA: 10s - loss: 1.2529 - accuracy: 0.5591
## 395/781 [==============>...............] - ETA: 10s - loss: 1.2525 - accuracy: 0.5593
## 397/781 [==============>...............] - ETA: 10s - loss: 1.2520 - accuracy: 0.5595
## 399/781 [==============>...............] - ETA: 10s - loss: 1.2513 - accuracy: 0.5599
## 402/781 [==============>...............] - ETA: 10s - loss: 1.2506 - accuracy: 0.5599
## 404/781 [==============>...............] - ETA: 10s - loss: 1.2500 - accuracy: 0.5602
## 407/781 [==============>...............] - ETA: 10s - loss: 1.2494 - accuracy: 0.5603
## 409/781 [==============>...............] - ETA: 10s - loss: 1.2495 - accuracy: 0.5602
## 411/781 [==============>...............] - ETA: 10s - loss: 1.2495 - accuracy: 0.5601
## 413/781 [==============>...............] - ETA: 10s - loss: 1.2489 - accuracy: 0.5599
## 415/781 [==============>...............] - ETA: 10s - loss: 1.2492 - accuracy: 0.5601
## 417/781 [===============>..............] - ETA: 10s - loss: 1.2488 - accuracy: 0.5602
## 420/781 [===============>..............] - ETA: 10s - loss: 1.2479 - accuracy: 0.5604
## 422/781 [===============>..............] - ETA: 10s - loss: 1.2481 - accuracy: 0.5605
## 424/781 [===============>..............] - ETA: 10s - loss: 1.2481 - accuracy: 0.5605
## 426/781 [===============>..............] - ETA: 9s - loss: 1.2478 - accuracy: 0.5607
## 428/781 [===============>..............] - ETA: 9s - loss: 1.2476 - accuracy: 0.5606
## 431/781 [===============>..............] - ETA: 9s - loss: 1.2467 - accuracy: 0.5613
## 433/781 [===============>..............] - ETA: 9s - loss: 1.2470 - accuracy: 0.5612
## 435/781 [===============>..............] - ETA: 9s - loss: 1.2470 - accuracy: 0.5611
```

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## 437/781 [==============>.............] - ETA: 9s - loss: 1.2470 - accuracy: 0.5611
## 439/781 [==============>.............] - ETA: 9s - loss: 1.2472 - accuracy: 0.5610
## 441/781 [==============>.............] - ETA: 9s - loss: 1.2471 - accuracy: 0.5612
## 443/781 [===============>.............] - ETA: 9s - loss: 1.2466 - accuracy: 0.5613
## 445/781 [===============>.............] - ETA: 9s - loss: 1.2462 - accuracy: 0.5613
## 448/781 [===============>.............] - ETA: 9s - loss: 1.2459 - accuracy: 0.5612
## 451/781 [===============>.............] - ETA: 9s - loss: 1.2457 - accuracy: 0.5614
## 453/781 [===============>.............] - ETA: 9s - loss: 1.2452 - accuracy: 0.5614
## 456/781 [===============>.............] - ETA: 9s - loss: 1.2452 - accuracy: 0.5613
## 459/781 [===============>.............] - ETA: 8s - loss: 1.2442 - accuracy: 0.5619
## 461/781 [===============>.............] - ETA: 8s - loss: 1.2443 - accuracy: 0.5619
## 464/781 [===============>.............] - ETA: 8s - loss: 1.2439 - accuracy: 0.5622
## 466/781 [===============>.............] - ETA: 8s - loss: 1.2441 - accuracy: 0.5624
## 469/781 [================>............] - ETA: 8s - loss: 1.2428 - accuracy: 0.5631
## 471/781 [================>............] - ETA: 8s - loss: 1.2429 - accuracy: 0.5628
## 474/781 [================>............] - ETA: 8s - loss: 1.2425 - accuracy: 0.5626
## 477/781 [================>............] - ETA: 8s - loss: 1.2421 - accuracy: 0.5628
## 479/781 [================>............] - ETA: 8s - loss: 1.2424 - accuracy: 0.5626
## 481/781 [================>............] - ETA: 8s - loss: 1.2426 - accuracy: 0.5625
## 484/781 [================>............] - ETA: 8s - loss: 1.2421 - accuracy: 0.5627
## 486/781 [================>............] - ETA: 8s - loss: 1.2421 - accuracy: 0.5626
## 488/781 [================>............] - ETA: 8s - loss: 1.2413 - accuracy: 0.5629
## 490/781 [================>............] - ETA: 8s - loss: 1.2419 - accuracy: 0.5626
## 493/781 [================>............] - ETA: 8s - loss: 1.2418 - accuracy: 0.5625
## 495/781 [=================>............] - ETA: 7s - loss: 1.2415 - accuracy: 0.5625
## 497/781 [=================>............] - ETA: 7s - loss: 1.2415 - accuracy: 0.5626
## 499/781 [=================>............] - ETA: 7s - loss: 1.2413 - accuracy: 0.5629
## 501/781 [=================>............] - ETA: 7s - loss: 1.2415 - accuracy: 0.5627
## 503/781 [=================>............] - ETA: 7s - loss: 1.2415 - accuracy: 0.5628
## 505/781 [=================>............] - ETA: 7s - loss: 1.2412 - accuracy: 0.5630
## 507/781 [=================>............] - ETA: 7s - loss: 1.2406 - accuracy: 0.5632
## 509/781 [=================>............] - ETA: 7s - loss: 1.2406 - accuracy: 0.5633
## 511/781 [=================>............] - ETA: 7s - loss: 1.2405 - accuracy: 0.5633
## 513/781 [=================>............] - ETA: 7s - loss: 1.2399 - accuracy: 0.5635
## 515/781 [=================>............] - ETA: 7s - loss: 1.2406 - accuracy: 0.5631
## 517/781 [=================>............] - ETA: 7s - loss: 1.2407 - accuracy: 0.5630
## 519/781 [=================>............] - ETA: 7s - loss: 1.2408 - accuracy: 0.5628
## 522/781 [==================>...........] - ETA: 7s - loss: 1.2410 - accuracy: 0.5627
## 524/781 [==================>...........] - ETA: 7s - loss: 1.2409 - accuracy: 0.5628
## 526/781 [==================>...........] - ETA: 7s - loss: 1.2405 - accuracy: 0.5629
## 528/781 [==================>...........] - ETA: 7s - loss: 1.2404 - accuracy: 0.5630
## 530/781 [==================>...........] - ETA: 6s - loss: 1.2400 - accuracy: 0.5632
## 532/781 [==================>...........] - ETA: 6s - loss: 1.2401 - accuracy: 0.5633
## 534/781 [==================>...........] - ETA: 6s - loss: 1.2403 - accuracy: 0.5632
## 536/781 [==================>...........] - ETA: 6s - loss: 1.2402 - accuracy: 0.5634
## 538/781 [==================>...........] - ETA: 6s - loss: 1.2396 - accuracy: 0.5635
## 540/781 [==================>...........] - ETA: 6s - loss: 1.2397 - accuracy: 0.5637
## 542/781 [==================>...........] - ETA: 6s - loss: 1.2392 - accuracy: 0.5639
## 544/781 [==================>...........] - ETA: 6s - loss: 1.2390 - accuracy: 0.5641
## 546/781 [==================>...........] - ETA: 6s - loss: 1.2387 - accuracy: 0.5642
## 548/781 [===================>..........] - ETA: 6s - loss: 1.2385 - accuracy: 0.5642
## 550/781 [===================>..........] - ETA: 6s - loss: 1.2383 - accuracy: 0.5643
## 552/781 [===================>..........] - ETA: 6s - loss: 1.2383 - accuracy: 0.5642
## 554/781 [===================>..........] - ETA: 6s - loss: 1.2381 - accuracy: 0.5643
```

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## 557/781 [====================>.........] - ETA: 6s - loss: 1.2379 - accuracy: 0.5642
## 559/781 [====================>.........] - ETA: 6s - loss: 1.2378 - accuracy: 0.5643
## 561/781 [====================>.........] - ETA: 6s - loss: 1.2380 - accuracy: 0.5643
## 563/781 [====================>.........] - ETA: 6s - loss: 1.2383 - accuracy: 0.5641
## 565/781 [====================>.........] - ETA: 6s - loss: 1.2376 - accuracy: 0.5644
## 567/781 [====================>.........] - ETA: 5s - loss: 1.2374 - accuracy: 0.5644
## 570/781 [====================>.........] - ETA: 5s - loss: 1.2377 - accuracy: 0.5643
## 572/781 [====================>.........] - ETA: 5s - loss: 1.2377 - accuracy: 0.5642
## 575/781 [=====================>........] - ETA: 5s - loss: 1.2380 - accuracy: 0.5641
## 577/781 [=====================>........] - ETA: 5s - loss: 1.2381 - accuracy: 0.5641
## 579/781 [=====================>........] - ETA: 5s - loss: 1.2383 - accuracy: 0.5641
## 581/781 [=====================>........] - ETA: 5s - loss: 1.2383 - accuracy: 0.5639
## 584/781 [=====================>........] - ETA: 5s - loss: 1.2379 - accuracy: 0.5640
## 587/781 [=====================>........] - ETA: 5s - loss: 1.2380 - accuracy: 0.5640
## 589/781 [=====================>........] - ETA: 5s - loss: 1.2383 - accuracy: 0.5639
## 591/781 [=====================>........] - ETA: 5s - loss: 1.2375 - accuracy: 0.5643
## 593/781 [=====================>........] - ETA: 5s - loss: 1.2380 - accuracy: 0.5640
## 595/781 [=====================>........] - ETA: 5s - loss: 1.2385 - accuracy: 0.5638
## 597/781 [=====================>........] - ETA: 5s - loss: 1.2384 - accuracy: 0.5637
## 600/781 [======================>.......] - ETA: 5s - loss: 1.2379 - accuracy: 0.5636
## 602/781 [======================>.......] - ETA: 5s - loss: 1.2380 - accuracy: 0.5637
## 604/781 [======================>.......] - ETA: 4s - loss: 1.2383 - accuracy: 0.5637
## 606/781 [======================>.......] - ETA: 4s - loss: 1.2385 - accuracy: 0.5634
## 608/781 [======================>.......] - ETA: 4s - loss: 1.2388 - accuracy: 0.5634
## 610/781 [======================>.......] - ETA: 4s - loss: 1.2386 - accuracy: 0.5634
## 612/781 [======================>.......] - ETA: 4s - loss: 1.2380 - accuracy: 0.5637
## 614/781 [======================>.......] - ETA: 4s - loss: 1.2378 - accuracy: 0.5637
## 616/781 [======================>.......] - ETA: 4s - loss: 1.2378 - accuracy: 0.5638
## 618/781 [======================>.......] - ETA: 4s - loss: 1.2377 - accuracy: 0.5639
## 620/781 [======================>.......] - ETA: 4s - loss: 1.2382 - accuracy: 0.5637
## 623/781 [======================>.......] - ETA: 4s - loss: 1.2377 - accuracy: 0.5637
## 625/781 [=======================>......] - ETA: 4s - loss: 1.2383 - accuracy: 0.5635
## 627/781 [=======================>......] - ETA: 4s - loss: 1.2388 - accuracy: 0.5633
## 629/781 [=======================>......] - ETA: 4s - loss: 1.2390 - accuracy: 0.5631
## 631/781 [=======================>......] - ETA: 4s - loss: 1.2389 - accuracy: 0.5630
## 633/781 [=======================>......] - ETA: 4s - loss: 1.2384 - accuracy: 0.5632
## 635/781 [=======================>......] - ETA: 4s - loss: 1.2381 - accuracy: 0.5633
## 637/781 [=======================>......] - ETA: 4s - loss: 1.2379 - accuracy: 0.5635
## 639/781 [=======================>......] - ETA: 3s - loss: 1.2380 - accuracy: 0.5634
## 641/781 [=======================>......] - ETA: 3s - loss: 1.2376 - accuracy: 0.5636
## 643/781 [=======================>......] - ETA: 3s - loss: 1.2376 - accuracy: 0.5635
## 645/781 [=======================>......] - ETA: 3s - loss: 1.2378 - accuracy: 0.5635
## 647/781 [=======================>......] - ETA: 3s - loss: 1.2382 - accuracy: 0.5635
## 649/781 [=======================>......] - ETA: 3s - loss: 1.2383 - accuracy: 0.5633
## 651/781 [========================>.....] - ETA: 3s - loss: 1.2386 - accuracy: 0.5632
## 653/781 [========================>.....] - ETA: 3s - loss: 1.2381 - accuracy: 0.5632
## 656/781 [========================>.....] - ETA: 3s - loss: 1.2376 - accuracy: 0.5632
## 658/781 [========================>.....] - ETA: 3s - loss: 1.2368 - accuracy: 0.5634
## 660/781 [========================>.....] - ETA: 3s - loss: 1.2362 - accuracy: 0.5636
## 662/781 [========================>.....] - ETA: 3s - loss: 1.2355 - accuracy: 0.5639
## 664/781 [========================>.....] - ETA: 3s - loss: 1.2352 - accuracy: 0.5639
## 666/781 [========================>.....] - ETA: 3s - loss: 1.2350 - accuracy: 0.5638
## 668/781 [========================>.....] - ETA: 3s - loss: 1.2349 - accuracy: 0.5638
## 670/781 [========================>.....] - ETA: 3s - loss: 1.2348 - accuracy: 0.5639
```

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## 673/781 [=======================>.....] - ETA: 3s - loss: 1.2347 - accuracy: 0.5640
## 675/781 [=======================>.....] - ETA: 2s - loss: 1.2342 - accuracy: 0.5642
## 677/781 [=======================>.....] - ETA: 2s - loss: 1.2341 - accuracy: 0.5643
## 679/781 [=======================>.....] - ETA: 2s - loss: 1.2338 - accuracy: 0.5642
## 681/781 [=======================>.....] - ETA: 2s - loss: 1.2337 - accuracy: 0.5641
## 683/781 [=======================>.....] - ETA: 2s - loss: 1.2337 - accuracy: 0.5642
## 685/781 [=======================>.....] - ETA: 2s - loss: 1.2329 - accuracy: 0.5645
## 688/781 [=======================>.....] - ETA: 2s - loss: 1.2332 - accuracy: 0.5644
## 690/781 [=======================>.....] - ETA: 2s - loss: 1.2332 - accuracy: 0.5643
## 692/781 [=======================>.....] - ETA: 2s - loss: 1.2334 - accuracy: 0.5642
## 694/781 [=======================>.....] - ETA: 2s - loss: 1.2331 - accuracy: 0.5643
## 696/781 [=======================>.....] - ETA: 2s - loss: 1.2328 - accuracy: 0.5645
## 698/781 [=======================>.....] - ETA: 2s - loss: 1.2329 - accuracy: 0.5644
## 700/781 [=======================>.....] - ETA: 2s - loss: 1.2323 - accuracy: 0.5646
## 702/781 [=======================>.....] - ETA: 2s - loss: 1.2323 - accuracy: 0.5646
## 704/781 [=======================>.....] - ETA: 2s - loss: 1.2325 - accuracy: 0.5646
## 706/781 [=======================>.....] - ETA: 2s - loss: 1.2327 - accuracy: 0.5645
## 708/781 [=======================>.....] - ETA: 2s - loss: 1.2328 - accuracy: 0.5644
## 710/781 [=======================>.....] - ETA: 1s - loss: 1.2323 - accuracy: 0.5645
## 712/781 [=======================>.....] - ETA: 1s - loss: 1.2324 - accuracy: 0.5646
## 714/781 [=======================>.....] - ETA: 1s - loss: 1.2325 - accuracy: 0.5644
## 716/781 [=======================>.....] - ETA: 1s - loss: 1.2326 - accuracy: 0.5643
## 718/781 [=======================>.....] - ETA: 1s - loss: 1.2329 - accuracy: 0.5642
## 720/781 [=======================>.....] - ETA: 1s - loss: 1.2329 - accuracy: 0.5642
## 722/781 [=======================>.....] - ETA: 1s - loss: 1.2324 - accuracy: 0.5644
## 724/781 [=======================>.....] - ETA: 1s - loss: 1.2325 - accuracy: 0.5645
## 726/781 [=======================>.....] - ETA: 1s - loss: 1.2323 - accuracy: 0.5645
## 728/781 [=======================>.....] - ETA: 1s - loss: 1.2326 - accuracy: 0.5644
## 730/781 [=======================>.....] - ETA: 1s - loss: 1.2322 - accuracy: 0.5646
## 732/781 [=======================>.....] - ETA: 1s - loss: 1.2324 - accuracy: 0.5645
## 734/781 [=======================>.....] - ETA: 1s - loss: 1.2325 - accuracy: 0.5646
## 736/781 [=======================>.....] - ETA: 1s - loss: 1.2321 - accuracy: 0.5648
## 738/781 [=======================>.....] - ETA: 1s - loss: 1.2315 - accuracy: 0.5650
## 740/781 [=======================>.....] - ETA: 1s - loss: 1.2315 - accuracy: 0.5650
## 742/781 [=======================>.....] - ETA: 1s - loss: 1.2316 - accuracy: 0.5650
## 745/781 [=======================>.....] - ETA: 1s - loss: 1.2318 - accuracy: 0.5651
## 747/781 [=======================>.....] - ETA: 0s - loss: 1.2319 - accuracy: 0.5650
## 750/781 [=======================>.....] - ETA: 0s - loss: 1.2316 - accuracy: 0.5651
## 753/781 [=======================>.....] - ETA: 0s - loss: 1.2316 - accuracy: 0.5651
## 756/781 [=======================>.....] - ETA: 0s - loss: 1.2315 - accuracy: 0.5651
## 758/781 [=======================>.....] - ETA: 0s - loss: 1.2314 - accuracy: 0.5651
## 760/781 [=======================>.....] - ETA: 0s - loss: 1.2320 - accuracy: 0.5650
## 762/781 [=======================>.....] - ETA: 0s - loss: 1.2322 - accuracy: 0.5650
## 764/781 [=======================>.....] - ETA: 0s - loss: 1.2323 - accuracy: 0.5650
## 766/781 [=======================>.....] - ETA: 0s - loss: 1.2320 - accuracy: 0.5652
## 768/781 [=======================>.....] - ETA: 0s - loss: 1.2319 - accuracy: 0.5653
## 771/781 [=======================>.....] - ETA: 0s - loss: 1.2313 - accuracy: 0.5656
## 773/781 [=======================>.....] - ETA: 0s - loss: 1.2312 - accuracy: 0.5657
## 776/781 [=======================>.....] - ETA: 0s - loss: 1.2316 - accuracy: 0.5655
## 779/781 [=======================>.....] - ETA: 0s - loss: 1.2315 - accuracy: 0.5656
## 781/781 [==============================] - 23s 29ms/step - loss: 1.2315 - accuracy: 0.5657 - val_loss
## Epoch 4/20
##
##   1/781 [..............................] - ETA: 35s - loss: 1.2493 - accuracy: 0.5312
```

```
##   3/781 [..............................] - ETA: 19s - loss: 1.2696 - accuracy: 0.5156
##   5/781 [..............................] - ETA: 20s - loss: 1.2083 - accuracy: 0.5500
##   7/781 [..............................] - ETA: 20s - loss: 1.2358 - accuracy: 0.5513
##   9/781 [..............................] - ETA: 20s - loss: 1.2276 - accuracy: 0.5556
##  11/781 [..............................] - ETA: 20s - loss: 1.2024 - accuracy: 0.5710
##  13/781 [..............................] - ETA: 20s - loss: 1.1983 - accuracy: 0.5709
##  15/781 [..............................] - ETA: 20s - loss: 1.1929 - accuracy: 0.5750
##  17/781 [..............................] - ETA: 20s - loss: 1.1998 - accuracy: 0.5735
##  19/781 [..............................] - ETA: 20s - loss: 1.1749 - accuracy: 0.5847
##  21/781 [..............................] - ETA: 20s - loss: 1.1798 - accuracy: 0.5848
##  23/781 [..............................] - ETA: 20s - loss: 1.1903 - accuracy: 0.5822
##  25/781 [..............................] - ETA: 20s - loss: 1.1898 - accuracy: 0.5831
##  27/781 [>.............................] - ETA: 20s - loss: 1.1958 - accuracy: 0.5804
##  29/781 [>.............................] - ETA: 20s - loss: 1.1915 - accuracy: 0.5830
##  31/781 [>.............................] - ETA: 20s - loss: 1.1947 - accuracy: 0.5817
##  33/781 [>.............................] - ETA: 20s - loss: 1.1847 - accuracy: 0.5791
##  35/781 [>.............................] - ETA: 20s - loss: 1.1899 - accuracy: 0.5750
##  37/781 [>.............................] - ETA: 20s - loss: 1.1896 - accuracy: 0.5747
##  39/781 [>.............................] - ETA: 20s - loss: 1.1901 - accuracy: 0.5749
##  42/781 [>.............................] - ETA: 20s - loss: 1.1955 - accuracy: 0.5744
##  44/781 [>.............................] - ETA: 20s - loss: 1.1958 - accuracy: 0.5739
##  46/781 [>.............................] - ETA: 20s - loss: 1.1899 - accuracy: 0.5771
##  48/781 [>.............................] - ETA: 20s - loss: 1.1877 - accuracy: 0.5762
##  50/781 [>.............................] - ETA: 20s - loss: 1.1945 - accuracy: 0.5747
##  52/781 [>.............................] - ETA: 20s - loss: 1.1973 - accuracy: 0.5748
##  54/781 [=>............................] - ETA: 20s - loss: 1.1947 - accuracy: 0.5761
##  56/781 [=>............................] - ETA: 20s - loss: 1.1984 - accuracy: 0.5748
##  58/781 [=>............................] - ETA: 20s - loss: 1.2045 - accuracy: 0.5725
##  60/781 [=>............................] - ETA: 20s - loss: 1.2031 - accuracy: 0.5753
##  62/781 [=>............................] - ETA: 19s - loss: 1.2031 - accuracy: 0.5746
##  64/781 [=>............................] - ETA: 19s - loss: 1.2023 - accuracy: 0.5759
##  66/781 [=>............................] - ETA: 19s - loss: 1.1998 - accuracy: 0.5767
##  68/781 [=>............................] - ETA: 19s - loss: 1.2025 - accuracy: 0.5767
##  70/781 [=>............................] - ETA: 20s - loss: 1.2031 - accuracy: 0.5766
##  72/781 [=>............................] - ETA: 19s - loss: 1.2011 - accuracy: 0.5766
##  74/781 [=>............................] - ETA: 19s - loss: 1.1985 - accuracy: 0.5769
##  76/781 [=>............................] - ETA: 19s - loss: 1.1970 - accuracy: 0.5763
##  78/781 [=>............................] - ETA: 19s - loss: 1.1958 - accuracy: 0.5777
##  80/781 [==>...........................] - ETA: 19s - loss: 1.1935 - accuracy: 0.5781
##  82/781 [==>...........................] - ETA: 19s - loss: 1.1926 - accuracy: 0.5789
##  84/781 [==>...........................] - ETA: 19s - loss: 1.1918 - accuracy: 0.5781
##  86/781 [==>...........................] - ETA: 19s - loss: 1.1902 - accuracy: 0.5792
##  88/781 [==>...........................] - ETA: 19s - loss: 1.1920 - accuracy: 0.5781
##  90/781 [==>...........................] - ETA: 19s - loss: 1.1897 - accuracy: 0.5780
##  92/781 [==>...........................] - ETA: 19s - loss: 1.1871 - accuracy: 0.5793
##  94/781 [==>...........................] - ETA: 19s - loss: 1.1881 - accuracy: 0.5786
##  96/781 [==>...........................] - ETA: 19s - loss: 1.1874 - accuracy: 0.5798
##  98/781 [==>...........................] - ETA: 19s - loss: 1.1830 - accuracy: 0.5816
## 100/781 [==>...........................] - ETA: 19s - loss: 1.1823 - accuracy: 0.5811
## 102/781 [==>...........................] - ETA: 19s - loss: 1.1833 - accuracy: 0.5801
## 104/781 [==>...........................] - ETA: 19s - loss: 1.1863 - accuracy: 0.5793
## 106/781 [===>..........................] - ETA: 19s - loss: 1.1883 - accuracy: 0.5781
## 108/781 [===>..........................] - ETA: 19s - loss: 1.1895 - accuracy: 0.5770
## 110/781 [===>..........................] - ETA: 19s - loss: 1.1908 - accuracy: 0.5778
```

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## 112/781 [===>..........................] - ETA: 18s - loss: 1.1907 - accuracy: 0.5778
## 114/781 [===>..........................] - ETA: 18s - loss: 1.1910 - accuracy: 0.5766
## 116/781 [===>..........................] - ETA: 18s - loss: 1.1922 - accuracy: 0.5748
## 118/781 [===>..........................] - ETA: 18s - loss: 1.1911 - accuracy: 0.5753
## 121/781 [===>..........................] - ETA: 18s - loss: 1.1893 - accuracy: 0.5767
## 124/781 [===>..........................] - ETA: 18s - loss: 1.1880 - accuracy: 0.5770
## 126/781 [===>..........................] - ETA: 18s - loss: 1.1883 - accuracy: 0.5768
## 128/781 [===>..........................] - ETA: 18s - loss: 1.1908 - accuracy: 0.5758
## 130/781 [===>..........................] - ETA: 18s - loss: 1.1886 - accuracy: 0.5769
## 132/781 [====>.........................] - ETA: 18s - loss: 1.1873 - accuracy: 0.5777
## 134/781 [====>.........................] - ETA: 18s - loss: 1.1870 - accuracy: 0.5772
## 136/781 [====>.........................] - ETA: 18s - loss: 1.1888 - accuracy: 0.5771
## 138/781 [====>.........................] - ETA: 18s - loss: 1.1893 - accuracy: 0.5771
## 140/781 [====>.........................] - ETA: 18s - loss: 1.1874 - accuracy: 0.5776
## 142/781 [====>.........................] - ETA: 18s - loss: 1.1854 - accuracy: 0.5785
## 144/781 [====>.........................] - ETA: 18s - loss: 1.1848 - accuracy: 0.5786
## 146/781 [====>.........................] - ETA: 17s - loss: 1.1838 - accuracy: 0.5796
## 148/781 [====>.........................] - ETA: 17s - loss: 1.1839 - accuracy: 0.5794
## 150/781 [====>.........................] - ETA: 17s - loss: 1.1816 - accuracy: 0.5800
## 152/781 [====>.........................] - ETA: 17s - loss: 1.1811 - accuracy: 0.5798
## 154/781 [====>.........................] - ETA: 17s - loss: 1.1822 - accuracy: 0.5793
## 156/781 [====>.........................] - ETA: 17s - loss: 1.1810 - accuracy: 0.5801
## 158/781 [=====>........................] - ETA: 17s - loss: 1.1800 - accuracy: 0.5800
## 160/781 [=====>........................] - ETA: 17s - loss: 1.1792 - accuracy: 0.5804
## 162/781 [=====>........................] - ETA: 17s - loss: 1.1766 - accuracy: 0.5817
## 164/781 [=====>........................] - ETA: 17s - loss: 1.1769 - accuracy: 0.5815
## 166/781 [=====>........................] - ETA: 17s - loss: 1.1760 - accuracy: 0.5817
## 168/781 [=====>........................] - ETA: 17s - loss: 1.1756 - accuracy: 0.5815
## 170/781 [=====>........................] - ETA: 17s - loss: 1.1756 - accuracy: 0.5811
## 172/781 [=====>........................] - ETA: 17s - loss: 1.1762 - accuracy: 0.5806
## 174/781 [=====>........................] - ETA: 17s - loss: 1.1772 - accuracy: 0.5805
## 176/781 [=====>........................] - ETA: 17s - loss: 1.1781 - accuracy: 0.5803
## 178/781 [=====>........................] - ETA: 16s - loss: 1.1778 - accuracy: 0.5808
## 180/781 [=====>........................] - ETA: 16s - loss: 1.1787 - accuracy: 0.5806
## 182/781 [=====>........................] - ETA: 16s - loss: 1.1794 - accuracy: 0.5804
## 184/781 [======>.......................] - ETA: 16s - loss: 1.1821 - accuracy: 0.5796
## 186/781 [======>.......................] - ETA: 16s - loss: 1.1816 - accuracy: 0.5795
## 188/781 [======>.......................] - ETA: 16s - loss: 1.1812 - accuracy: 0.5800
## 190/781 [======>.......................] - ETA: 16s - loss: 1.1802 - accuracy: 0.5804
## 192/781 [======>.......................] - ETA: 16s - loss: 1.1797 - accuracy: 0.5806
## 194/781 [======>.......................] - ETA: 16s - loss: 1.1777 - accuracy: 0.5818
## 196/781 [======>.......................] - ETA: 16s - loss: 1.1773 - accuracy: 0.5820
## 198/781 [======>.......................] - ETA: 16s - loss: 1.1772 - accuracy: 0.5821
## 200/781 [======>.......................] - ETA: 16s - loss: 1.1772 - accuracy: 0.5818
## 202/781 [======>.......................] - ETA: 16s - loss: 1.1786 - accuracy: 0.5822
## 204/781 [======>.......................] - ETA: 16s - loss: 1.1769 - accuracy: 0.5830
## 207/781 [======>.......................] - ETA: 16s - loss: 1.1761 - accuracy: 0.5837
## 209/781 [=======>......................] - ETA: 16s - loss: 1.1780 - accuracy: 0.5832
## 211/781 [=======>......................] - ETA: 16s - loss: 1.1762 - accuracy: 0.5838
## 213/781 [=======>......................] - ETA: 15s - loss: 1.1759 - accuracy: 0.5839
## 215/781 [=======>......................] - ETA: 15s - loss: 1.1774 - accuracy: 0.5835
## 217/781 [=======>......................] - ETA: 15s - loss: 1.1786 - accuracy: 0.5837
## 219/781 [=======>......................] - ETA: 15s - loss: 1.1784 - accuracy: 0.5843
## 221/781 [=======>......................] - ETA: 15s - loss: 1.1777 - accuracy: 0.5847
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## 223/781 [=======>......................] - ETA: 15s - loss: 1.1761 - accuracy: 0.5856
## 226/781 [=======>......................] - ETA: 15s - loss: 1.1743 - accuracy: 0.5873
## 228/781 [=======>......................] - ETA: 15s - loss: 1.1740 - accuracy: 0.5874
## 230/781 [=======>......................] - ETA: 15s - loss: 1.1738 - accuracy: 0.5876
## 232/781 [=======>......................] - ETA: 15s - loss: 1.1738 - accuracy: 0.5875
## 234/781 [=======>......................] - ETA: 15s - loss: 1.1743 - accuracy: 0.5871
## 236/781 [========>.....................] - ETA: 15s - loss: 1.1744 - accuracy: 0.5867
## 238/781 [========>.....................] - ETA: 15s - loss: 1.1741 - accuracy: 0.5865
## 240/781 [========>.....................] - ETA: 15s - loss: 1.1733 - accuracy: 0.5870
## 242/781 [========>.....................] - ETA: 15s - loss: 1.1730 - accuracy: 0.5871
## 244/781 [========>.....................] - ETA: 14s - loss: 1.1730 - accuracy: 0.5869
## 246/781 [========>.....................] - ETA: 14s - loss: 1.1731 - accuracy: 0.5871
## 248/781 [========>.....................] - ETA: 14s - loss: 1.1728 - accuracy: 0.5878
## 250/781 [========>.....................] - ETA: 14s - loss: 1.1722 - accuracy: 0.5878
## 252/781 [========>.....................] - ETA: 14s - loss: 1.1708 - accuracy: 0.5882
## 254/781 [========>.....................] - ETA: 14s - loss: 1.1715 - accuracy: 0.5883
## 256/781 [========>.....................] - ETA: 14s - loss: 1.1718 - accuracy: 0.5881
## 258/781 [========>.....................] - ETA: 14s - loss: 1.1728 - accuracy: 0.5879
## 260/781 [========>.....................] - ETA: 14s - loss: 1.1726 - accuracy: 0.5880
## 263/781 [=========>....................] - ETA: 14s - loss: 1.1721 - accuracy: 0.5883
## 266/781 [=========>....................] - ETA: 14s - loss: 1.1737 - accuracy: 0.5881
## 268/781 [=========>....................] - ETA: 14s - loss: 1.1734 - accuracy: 0.5880
## 270/781 [=========>....................] - ETA: 14s - loss: 1.1743 - accuracy: 0.5874
## 272/781 [=========>....................] - ETA: 14s - loss: 1.1739 - accuracy: 0.5877
## 275/781 [=========>....................] - ETA: 13s - loss: 1.1743 - accuracy: 0.5875
## 277/781 [=========>....................] - ETA: 13s - loss: 1.1749 - accuracy: 0.5872
## 279/781 [=========>....................] - ETA: 13s - loss: 1.1754 - accuracy: 0.5870
## 281/781 [=========>....................] - ETA: 13s - loss: 1.1753 - accuracy: 0.5869
## 283/781 [=========>....................] - ETA: 13s - loss: 1.1748 - accuracy: 0.5869
## 285/781 [=========>....................] - ETA: 13s - loss: 1.1739 - accuracy: 0.5867
## 287/781 [==========>...................] - ETA: 13s - loss: 1.1730 - accuracy: 0.5867
## 290/781 [==========>...................] - ETA: 13s - loss: 1.1733 - accuracy: 0.5870
## 292/781 [==========>...................] - ETA: 13s - loss: 1.1738 - accuracy: 0.5867
## 294/781 [==========>...................] - ETA: 13s - loss: 1.1736 - accuracy: 0.5867
## 296/781 [==========>...................] - ETA: 13s - loss: 1.1739 - accuracy: 0.5864
## 299/781 [==========>...................] - ETA: 13s - loss: 1.1738 - accuracy: 0.5861
## 301/781 [==========>...................] - ETA: 13s - loss: 1.1740 - accuracy: 0.5862
## 303/781 [==========>...................] - ETA: 13s - loss: 1.1750 - accuracy: 0.5860
## 305/781 [==========>...................] - ETA: 13s - loss: 1.1754 - accuracy: 0.5857
## 307/781 [==========>...................] - ETA: 13s - loss: 1.1739 - accuracy: 0.5862
## 309/781 [==========>...................] - ETA: 12s - loss: 1.1747 - accuracy: 0.5858
## 311/781 [==========>...................] - ETA: 12s - loss: 1.1739 - accuracy: 0.5860
## 313/781 [===========>..................] - ETA: 12s - loss: 1.1743 - accuracy: 0.5860
## 315/781 [===========>..................] - ETA: 12s - loss: 1.1750 - accuracy: 0.5854
## 317/781 [===========>..................] - ETA: 12s - loss: 1.1747 - accuracy: 0.5855
## 319/781 [===========>..................] - ETA: 12s - loss: 1.1740 - accuracy: 0.5856
## 321/781 [===========>..................] - ETA: 12s - loss: 1.1741 - accuracy: 0.5854
## 323/781 [===========>..................] - ETA: 12s - loss: 1.1742 - accuracy: 0.5855
## 325/781 [===========>..................] - ETA: 12s - loss: 1.1733 - accuracy: 0.5860
## 327/781 [===========>..................] - ETA: 12s - loss: 1.1731 - accuracy: 0.5858
## 329/781 [===========>..................] - ETA: 12s - loss: 1.1725 - accuracy: 0.5860
## 331/781 [===========>..................] - ETA: 12s - loss: 1.1714 - accuracy: 0.5867
## 333/781 [===========>..................] - ETA: 12s - loss: 1.1724 - accuracy: 0.5866
## 335/781 [===========>..................] - ETA: 12s - loss: 1.1720 - accuracy: 0.5867
```

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## 337/781 [===========>..................] - ETA: 12s - loss: 1.1729 - accuracy: 0.5865
## 339/781 [===========>..................] - ETA: 12s - loss: 1.1742 - accuracy: 0.5861
## 341/781 [===========>..................] - ETA: 12s - loss: 1.1737 - accuracy: 0.5864
## 343/781 [===========>..................] - ETA: 12s - loss: 1.1740 - accuracy: 0.5863
## 345/781 [===========>..................] - ETA: 12s - loss: 1.1729 - accuracy: 0.5868
## 347/781 [===========>..................] - ETA: 11s - loss: 1.1720 - accuracy: 0.5871
## 349/781 [===========>..................] - ETA: 11s - loss: 1.1711 - accuracy: 0.5873
## 352/781 [===========>..................] - ETA: 11s - loss: 1.1716 - accuracy: 0.5871
## 354/781 [===========>..................] - ETA: 11s - loss: 1.1704 - accuracy: 0.5875
## 356/781 [===========>..................] - ETA: 11s - loss: 1.1697 - accuracy: 0.5878
## 359/781 [===========>..................] - ETA: 11s - loss: 1.1686 - accuracy: 0.5884
## 361/781 [===========>..................] - ETA: 11s - loss: 1.1690 - accuracy: 0.5882
## 363/781 [===========>..................] - ETA: 11s - loss: 1.1685 - accuracy: 0.5882
## 365/781 [============>.................] - ETA: 11s - loss: 1.1691 - accuracy: 0.5879
## 367/781 [============>.................] - ETA: 11s - loss: 1.1683 - accuracy: 0.5883
## 369/781 [============>.................] - ETA: 11s - loss: 1.1679 - accuracy: 0.5886
## 372/781 [============>.................] - ETA: 11s - loss: 1.1675 - accuracy: 0.5888
## 374/781 [============>.................] - ETA: 11s - loss: 1.1663 - accuracy: 0.5895
## 376/781 [============>.................] - ETA: 11s - loss: 1.1660 - accuracy: 0.5896
## 378/781 [============>.................] - ETA: 11s - loss: 1.1658 - accuracy: 0.5895
## 381/781 [============>.................] - ETA: 11s - loss: 1.1657 - accuracy: 0.5896
## 383/781 [============>.................] - ETA: 10s - loss: 1.1650 - accuracy: 0.5897
## 386/781 [============>.................] - ETA: 10s - loss: 1.1639 - accuracy: 0.5902
## 388/781 [============>.................] - ETA: 10s - loss: 1.1636 - accuracy: 0.5905
## 390/781 [============>.................] - ETA: 10s - loss: 1.1631 - accuracy: 0.5909
## 392/781 [============>.................] - ETA: 10s - loss: 1.1628 - accuracy: 0.5909
## 394/781 [============>.................] - ETA: 10s - loss: 1.1624 - accuracy: 0.5911
## 396/781 [============>.................] - ETA: 10s - loss: 1.1619 - accuracy: 0.5911
## 398/781 [============>.................] - ETA: 10s - loss: 1.1623 - accuracy: 0.5910
## 400/781 [============>.................] - ETA: 10s - loss: 1.1621 - accuracy: 0.5911
## 402/781 [============>.................] - ETA: 10s - loss: 1.1629 - accuracy: 0.5911
## 404/781 [============>.................] - ETA: 10s - loss: 1.1636 - accuracy: 0.5911
## 406/781 [============>.................] - ETA: 10s - loss: 1.1630 - accuracy: 0.5913
## 409/781 [============>.................] - ETA: 10s - loss: 1.1635 - accuracy: 0.5915
## 411/781 [============>.................] - ETA: 10s - loss: 1.1635 - accuracy: 0.5912
## 413/781 [============>.................] - ETA: 10s - loss: 1.1639 - accuracy: 0.5906
## 415/781 [============>.................] - ETA: 10s - loss: 1.1641 - accuracy: 0.5907
## 417/781 [============>.................] - ETA: 10s - loss: 1.1645 - accuracy: 0.5906
## 419/781 [============>.................] - ETA: 9s - loss: 1.1650 - accuracy: 0.5904
## 421/781 [============>.................] - ETA: 9s - loss: 1.1654 - accuracy: 0.5902
## 424/781 [============>.................] - ETA: 9s - loss: 1.1648 - accuracy: 0.5903
## 426/781 [============>.................] - ETA: 9s - loss: 1.1642 - accuracy: 0.5907
## 429/781 [============>.................] - ETA: 9s - loss: 1.1650 - accuracy: 0.5903
## 431/781 [============>.................] - ETA: 9s - loss: 1.1655 - accuracy: 0.5899
## 433/781 [============>.................] - ETA: 9s - loss: 1.1651 - accuracy: 0.5900
## 435/781 [============>.................] - ETA: 9s - loss: 1.1642 - accuracy: 0.5903
## 437/781 [============>.................] - ETA: 9s - loss: 1.1637 - accuracy: 0.5904
## 439/781 [============>.................] - ETA: 9s - loss: 1.1633 - accuracy: 0.5904
## 441/781 [============>.................] - ETA: 9s - loss: 1.1629 - accuracy: 0.5906
## 443/781 [=============>................] - ETA: 9s - loss: 1.1628 - accuracy: 0.5908
## 445/781 [=============>................] - ETA: 9s - loss: 1.1632 - accuracy: 0.5906
## 447/781 [=============>................] - ETA: 9s - loss: 1.1623 - accuracy: 0.5908
## 449/781 [=============>................] - ETA: 9s - loss: 1.1622 - accuracy: 0.5908
## 451/781 [=============>................] - ETA: 9s - loss: 1.1619 - accuracy: 0.5908
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## 453/781 [================>.............] - ETA: 9s - loss: 1.1624 - accuracy: 0.5907
## 455/781 [================>.............] - ETA: 8s - loss: 1.1619 - accuracy: 0.5909
## 457/781 [================>.............] - ETA: 8s - loss: 1.1614 - accuracy: 0.5911
## 459/781 [================>.............] - ETA: 8s - loss: 1.1612 - accuracy: 0.5911
## 461/781 [================>.............] - ETA: 8s - loss: 1.1608 - accuracy: 0.5913
## 463/781 [================>.............] - ETA: 8s - loss: 1.1610 - accuracy: 0.5914
## 465/781 [================>.............] - ETA: 8s - loss: 1.1607 - accuracy: 0.5914
## 467/781 [================>.............] - ETA: 8s - loss: 1.1611 - accuracy: 0.5913
## 469/781 [================>.............] - ETA: 8s - loss: 1.1615 - accuracy: 0.5912
## 472/781 [================>.............] - ETA: 8s - loss: 1.1612 - accuracy: 0.5914
## 474/781 [================>.............] - ETA: 8s - loss: 1.1618 - accuracy: 0.5913
## 476/781 [================>.............] - ETA: 8s - loss: 1.1621 - accuracy: 0.5913
## 478/781 [================>.............] - ETA: 8s - loss: 1.1615 - accuracy: 0.5916
## 480/781 [================>.............] - ETA: 8s - loss: 1.1617 - accuracy: 0.5915
## 482/781 [================>.............] - ETA: 8s - loss: 1.1615 - accuracy: 0.5915
## 484/781 [================>.............] - ETA: 8s - loss: 1.1613 - accuracy: 0.5917
## 486/781 [================>.............] - ETA: 8s - loss: 1.1613 - accuracy: 0.5915
## 489/781 [================>.............] - ETA: 8s - loss: 1.1606 - accuracy: 0.5916
## 492/781 [================>.............] - ETA: 7s - loss: 1.1602 - accuracy: 0.5916
## 494/781 [================>.............] - ETA: 7s - loss: 1.1604 - accuracy: 0.5916
## 496/781 [=================>............] - ETA: 7s - loss: 1.1607 - accuracy: 0.5913
## 498/781 [=================>............] - ETA: 7s - loss: 1.1606 - accuracy: 0.5916
## 500/781 [=================>............] - ETA: 7s - loss: 1.1612 - accuracy: 0.5913
## 502/781 [=================>............] - ETA: 7s - loss: 1.1616 - accuracy: 0.5913
## 504/781 [=================>............] - ETA: 7s - loss: 1.1617 - accuracy: 0.5912
## 506/781 [=================>............] - ETA: 7s - loss: 1.1615 - accuracy: 0.5913
## 508/781 [=================>............] - ETA: 7s - loss: 1.1610 - accuracy: 0.5914
## 510/781 [=================>............] - ETA: 7s - loss: 1.1610 - accuracy: 0.5915
## 512/781 [=================>............] - ETA: 7s - loss: 1.1607 - accuracy: 0.5914
## 514/781 [=================>............] - ETA: 7s - loss: 1.1604 - accuracy: 0.5915
## 516/781 [=================>............] - ETA: 7s - loss: 1.1605 - accuracy: 0.5914
## 518/781 [=================>............] - ETA: 7s - loss: 1.1601 - accuracy: 0.5916
## 520/781 [=================>............] - ETA: 7s - loss: 1.1597 - accuracy: 0.5918
## 523/781 [==================>...........] - ETA: 7s - loss: 1.1602 - accuracy: 0.5917
## 526/781 [==================>...........] - ETA: 7s - loss: 1.1607 - accuracy: 0.5914
## 528/781 [==================>...........] - ETA: 6s - loss: 1.1597 - accuracy: 0.5918
## 530/781 [==================>...........] - ETA: 6s - loss: 1.1593 - accuracy: 0.5919
## 532/781 [==================>...........] - ETA: 6s - loss: 1.1595 - accuracy: 0.5919
## 534/781 [==================>...........] - ETA: 6s - loss: 1.1592 - accuracy: 0.5921
## 536/781 [==================>...........] - ETA: 6s - loss: 1.1596 - accuracy: 0.5919
## 538/781 [==================>...........] - ETA: 6s - loss: 1.1595 - accuracy: 0.5920
## 540/781 [==================>...........] - ETA: 6s - loss: 1.1596 - accuracy: 0.5921
## 542/781 [==================>...........] - ETA: 6s - loss: 1.1596 - accuracy: 0.5921
## 545/781 [==================>...........] - ETA: 6s - loss: 1.1597 - accuracy: 0.5922
## 547/781 [===================>..........] - ETA: 6s - loss: 1.1588 - accuracy: 0.5925
## 549/781 [===================>..........] - ETA: 6s - loss: 1.1582 - accuracy: 0.5929
## 551/781 [===================>..........] - ETA: 6s - loss: 1.1581 - accuracy: 0.5931
## 553/781 [===================>..........] - ETA: 6s - loss: 1.1580 - accuracy: 0.5932
## 555/781 [===================>..........] - ETA: 6s - loss: 1.1580 - accuracy: 0.5931
## 558/781 [===================>..........] - ETA: 6s - loss: 1.1579 - accuracy: 0.5930
## 560/781 [===================>..........] - ETA: 6s - loss: 1.1579 - accuracy: 0.5930
## 562/781 [===================>..........] - ETA: 6s - loss: 1.1580 - accuracy: 0.5929
## 564/781 [===================>..........] - ETA: 5s - loss: 1.1574 - accuracy: 0.5930
## 566/781 [===================>..........] - ETA: 5s - loss: 1.1573 - accuracy: 0.5931
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## 568/781 [===================>.........] - ETA: 5s - loss: 1.1576 - accuracy: 0.5930
## 570/781 [===================>.........] - ETA: 5s - loss: 1.1570 - accuracy: 0.5933
## 572/781 [===================>.........] - ETA: 5s - loss: 1.1575 - accuracy: 0.5932
## 575/781 [====================>........] - ETA: 5s - loss: 1.1567 - accuracy: 0.5935
## 577/781 [====================>........] - ETA: 5s - loss: 1.1568 - accuracy: 0.5932
## 579/781 [====================>........] - ETA: 5s - loss: 1.1567 - accuracy: 0.5934
## 581/781 [====================>........] - ETA: 5s - loss: 1.1566 - accuracy: 0.5935
## 583/781 [====================>........] - ETA: 5s - loss: 1.1569 - accuracy: 0.5935
## 586/781 [====================>........] - ETA: 5s - loss: 1.1562 - accuracy: 0.5937
## 588/781 [====================>........] - ETA: 5s - loss: 1.1558 - accuracy: 0.5937
## 590/781 [====================>........] - ETA: 5s - loss: 1.1558 - accuracy: 0.5936
## 593/781 [====================>........] - ETA: 5s - loss: 1.1556 - accuracy: 0.5940
## 595/781 [====================>........] - ETA: 5s - loss: 1.1550 - accuracy: 0.5944
## 597/781 [====================>........] - ETA: 5s - loss: 1.1546 - accuracy: 0.5945
## 599/781 [=====================>.......] - ETA: 4s - loss: 1.1547 - accuracy: 0.5945
## 601/781 [=====================>.......] - ETA: 4s - loss: 1.1544 - accuracy: 0.5948
## 603/781 [=====================>.......] - ETA: 4s - loss: 1.1547 - accuracy: 0.5947
## 605/781 [=====================>.......] - ETA: 4s - loss: 1.1545 - accuracy: 0.5948
## 607/781 [=====================>.......] - ETA: 4s - loss: 1.1547 - accuracy: 0.5949
## 609/781 [=====================>.......] - ETA: 4s - loss: 1.1549 - accuracy: 0.5950
## 611/781 [=====================>.......] - ETA: 4s - loss: 1.1555 - accuracy: 0.5948
## 614/781 [=====================>.......] - ETA: 4s - loss: 1.1556 - accuracy: 0.5948
## 616/781 [=====================>.......] - ETA: 4s - loss: 1.1553 - accuracy: 0.5950
## 618/781 [=====================>.......] - ETA: 4s - loss: 1.1551 - accuracy: 0.5952
## 620/781 [=====================>.......] - ETA: 4s - loss: 1.1554 - accuracy: 0.5950
## 622/781 [=====================>.......] - ETA: 4s - loss: 1.1552 - accuracy: 0.5951
## 624/781 [=====================>.......] - ETA: 4s - loss: 1.1554 - accuracy: 0.5950
## 626/781 [======================>......] - ETA: 4s - loss: 1.1559 - accuracy: 0.5949
## 628/781 [======================>......] - ETA: 4s - loss: 1.1559 - accuracy: 0.5949
## 630/781 [======================>......] - ETA: 4s - loss: 1.1554 - accuracy: 0.5951
## 632/781 [======================>......] - ETA: 4s - loss: 1.1556 - accuracy: 0.5952
## 634/781 [======================>......] - ETA: 4s - loss: 1.1549 - accuracy: 0.5954
## 636/781 [======================>......] - ETA: 3s - loss: 1.1549 - accuracy: 0.5951
## 638/781 [======================>......] - ETA: 3s - loss: 1.1552 - accuracy: 0.5950
## 640/781 [======================>......] - ETA: 3s - loss: 1.1548 - accuracy: 0.5949
## 642/781 [======================>......] - ETA: 3s - loss: 1.1546 - accuracy: 0.5951
## 644/781 [======================>......] - ETA: 3s - loss: 1.1543 - accuracy: 0.5950
## 646/781 [======================>......] - ETA: 3s - loss: 1.1543 - accuracy: 0.5950
## 648/781 [======================>......] - ETA: 3s - loss: 1.1547 - accuracy: 0.5950
## 650/781 [======================>......] - ETA: 3s - loss: 1.1545 - accuracy: 0.5951
## 652/781 [=======================>.....] - ETA: 3s - loss: 1.1551 - accuracy: 0.5950
## 654/781 [=======================>.....] - ETA: 3s - loss: 1.1549 - accuracy: 0.5951
## 656/781 [=======================>.....] - ETA: 3s - loss: 1.1546 - accuracy: 0.5953
## 658/781 [=======================>.....] - ETA: 3s - loss: 1.1551 - accuracy: 0.5950
## 660/781 [=======================>.....] - ETA: 3s - loss: 1.1549 - accuracy: 0.5951
## 662/781 [=======================>.....] - ETA: 3s - loss: 1.1546 - accuracy: 0.5951
## 664/781 [=======================>.....] - ETA: 3s - loss: 1.1549 - accuracy: 0.5950
## 666/781 [=======================>.....] - ETA: 3s - loss: 1.1551 - accuracy: 0.5949
## 668/781 [=======================>.....] - ETA: 3s - loss: 1.1553 - accuracy: 0.5947
## 670/781 [=======================>.....] - ETA: 3s - loss: 1.1557 - accuracy: 0.5946
## 673/781 [=======================>.....] - ETA: 2s - loss: 1.1557 - accuracy: 0.5944
## 675/781 [=======================>.....] - ETA: 2s - loss: 1.1554 - accuracy: 0.5943
## 677/781 [========================>....] - ETA: 2s - loss: 1.1556 - accuracy: 0.5943
## 679/781 [========================>....] - ETA: 2s - loss: 1.1551 - accuracy: 0.5944
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## 681/781 [=======================>....] - ETA: 2s - loss: 1.1551 - accuracy: 0.5944
## 683/781 [=======================>....] - ETA: 2s - loss: 1.1551 - accuracy: 0.5944
## 685/781 [=======================>....] - ETA: 2s - loss: 1.1552 - accuracy: 0.5945
## 687/781 [=======================>....] - ETA: 2s - loss: 1.1550 - accuracy: 0.5945
## 689/781 [=======================>....] - ETA: 2s - loss: 1.1554 - accuracy: 0.5945
## 691/781 [=======================>....] - ETA: 2s - loss: 1.1562 - accuracy: 0.5941
## 693/781 [=======================>....] - ETA: 2s - loss: 1.1558 - accuracy: 0.5941
## 695/781 [=======================>....] - ETA: 2s - loss: 1.1559 - accuracy: 0.5941
## 697/781 [=======================>....] - ETA: 2s - loss: 1.1560 - accuracy: 0.5941
## 700/781 [=======================>....] - ETA: 2s - loss: 1.1563 - accuracy: 0.5939
## 702/781 [=======================>....] - ETA: 2s - loss: 1.1561 - accuracy: 0.5941
## 704/781 [=======================>...] - ETA: 2s - loss: 1.1566 - accuracy: 0.5938
## 706/781 [=======================>...] - ETA: 2s - loss: 1.1565 - accuracy: 0.5939
## 708/781 [=======================>...] - ETA: 1s - loss: 1.1568 - accuracy: 0.5937
## 710/781 [=======================>...] - ETA: 1s - loss: 1.1569 - accuracy: 0.5936
## 712/781 [=======================>...] - ETA: 1s - loss: 1.1572 - accuracy: 0.5935
## 714/781 [=======================>...] - ETA: 1s - loss: 1.1573 - accuracy: 0.5934
## 716/781 [=======================>...] - ETA: 1s - loss: 1.1574 - accuracy: 0.5933
## 718/781 [=======================>...] - ETA: 1s - loss: 1.1566 - accuracy: 0.5936
## 720/781 [=======================>...] - ETA: 1s - loss: 1.1569 - accuracy: 0.5934
## 722/781 [=======================>...] - ETA: 1s - loss: 1.1566 - accuracy: 0.5935
## 724/781 [=======================>...] - ETA: 1s - loss: 1.1567 - accuracy: 0.5935
## 726/781 [=======================>...] - ETA: 1s - loss: 1.1564 - accuracy: 0.5937
## 728/781 [=======================>...] - ETA: 1s - loss: 1.1561 - accuracy: 0.5939
## 730/781 [=======================>..] - ETA: 1s - loss: 1.1562 - accuracy: 0.5939
## 732/781 [=======================>..] - ETA: 1s - loss: 1.1558 - accuracy: 0.5939
## 734/781 [=======================>..] - ETA: 1s - loss: 1.1555 - accuracy: 0.5939
## 736/781 [=======================>..] - ETA: 1s - loss: 1.1558 - accuracy: 0.5937
## 738/781 [=======================>..] - ETA: 1s - loss: 1.1556 - accuracy: 0.5938
## 740/781 [=======================>..] - ETA: 1s - loss: 1.1556 - accuracy: 0.5940
## 742/781 [=======================>..] - ETA: 1s - loss: 1.1556 - accuracy: 0.5940
## 744/781 [=======================>..] - ETA: 1s - loss: 1.1557 - accuracy: 0.5939
## 746/781 [=======================>..] - ETA: 0s - loss: 1.1555 - accuracy: 0.5938
## 748/781 [=======================>..] - ETA: 0s - loss: 1.1554 - accuracy: 0.5938
## 750/781 [=======================>..] - ETA: 0s - loss: 1.1554 - accuracy: 0.5938
## 753/781 [=======================>..] - ETA: 0s - loss: 1.1552 - accuracy: 0.5938
## 755/781 [=======================>.] - ETA: 0s - loss: 1.1551 - accuracy: 0.5939
## 757/781 [=======================>.] - ETA: 0s - loss: 1.1547 - accuracy: 0.5940
## 759/781 [=======================>.] - ETA: 0s - loss: 1.1547 - accuracy: 0.5941
## 761/781 [=======================>.] - ETA: 0s - loss: 1.1543 - accuracy: 0.5942
## 764/781 [=======================>.] - ETA: 0s - loss: 1.1542 - accuracy: 0.5943
## 766/781 [=======================>.] - ETA: 0s - loss: 1.1539 - accuracy: 0.5942
## 768/781 [=======================>.] - ETA: 0s - loss: 1.1535 - accuracy: 0.5943
## 770/781 [=======================>.] - ETA: 0s - loss: 1.1533 - accuracy: 0.5942
## 773/781 [=======================>.] - ETA: 0s - loss: 1.1534 - accuracy: 0.5940
## 775/781 [=======================>.] - ETA: 0s - loss: 1.1537 - accuracy: 0.5938
## 777/781 [=======================>.] - ETA: 0s - loss: 1.1539 - accuracy: 0.5936
## 779/781 [=======================>.] - ETA: 0s - loss: 1.1538 - accuracy: 0.5937
## 781/781 [==============================] - ETA: 0s - loss: 1.1539 - accuracy: 0.5938
## 781/781 [==============================] - 22s 29ms/step - loss: 1.1539 - accuracy: 0.5938 - val_loss
## Epoch 5/20
##
##   1/781 [..............................] - ETA: 40s - loss: 1.0242 - accuracy: 0.6250
##   3/781 [..............................] - ETA: 21s - loss: 1.2434 - accuracy: 0.5521
```

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##   5/781 [..............................] - ETA: 21s - loss: 1.2038 - accuracy: 0.5625
##   7/781 [..............................] - ETA: 21s - loss: 1.2100 - accuracy: 0.5737
##   9/781 [..............................] - ETA: 21s - loss: 1.1792 - accuracy: 0.5764
##  11/781 [..............................] - ETA: 21s - loss: 1.1771 - accuracy: 0.5810
##  13/781 [..............................] - ETA: 21s - loss: 1.1846 - accuracy: 0.5829
##  15/781 [..............................] - ETA: 20s - loss: 1.1644 - accuracy: 0.5823
##  17/781 [..............................] - ETA: 20s - loss: 1.1723 - accuracy: 0.5809
##  20/781 [..............................] - ETA: 19s - loss: 1.1551 - accuracy: 0.5914
##  22/781 [..............................] - ETA: 20s - loss: 1.1399 - accuracy: 0.5987
##  25/781 [..............................] - ETA: 19s - loss: 1.1150 - accuracy: 0.6069
##  28/781 [>.............................] - ETA: 19s - loss: 1.0991 - accuracy: 0.6161
##  30/781 [>.............................] - ETA: 19s - loss: 1.1012 - accuracy: 0.6135
##  33/781 [>.............................] - ETA: 19s - loss: 1.0947 - accuracy: 0.6165
##  35/781 [>.............................] - ETA: 19s - loss: 1.0857 - accuracy: 0.6192
##  38/781 [>.............................] - ETA: 19s - loss: 1.0802 - accuracy: 0.6225
##  40/781 [>.............................] - ETA: 19s - loss: 1.0851 - accuracy: 0.6160
##  42/781 [>.............................] - ETA: 19s - loss: 1.0916 - accuracy: 0.6146
##  44/781 [>.............................] - ETA: 19s - loss: 1.0943 - accuracy: 0.6151
##  47/781 [>.............................] - ETA: 18s - loss: 1.0922 - accuracy: 0.6190
##  49/781 [>.............................] - ETA: 18s - loss: 1.0945 - accuracy: 0.6154
##  51/781 [>.............................] - ETA: 18s - loss: 1.0941 - accuracy: 0.6167
##  53/781 [=>............................] - ETA: 18s - loss: 1.0931 - accuracy: 0.6185
##  55/781 [=>............................] - ETA: 18s - loss: 1.0956 - accuracy: 0.6170
##  58/781 [=>............................] - ETA: 18s - loss: 1.0934 - accuracy: 0.6180
##  60/781 [=>............................] - ETA: 18s - loss: 1.0999 - accuracy: 0.6174
##  62/781 [=>............................] - ETA: 18s - loss: 1.1029 - accuracy: 0.6154
##  65/781 [=>............................] - ETA: 18s - loss: 1.1016 - accuracy: 0.6165
##  68/781 [=>............................] - ETA: 18s - loss: 1.1074 - accuracy: 0.6150
##  70/781 [=>............................] - ETA: 18s - loss: 1.1105 - accuracy: 0.6135
##  73/781 [=>............................] - ETA: 18s - loss: 1.1063 - accuracy: 0.6159
##  76/781 [=>............................] - ETA: 18s - loss: 1.1022 - accuracy: 0.6167
##  78/781 [=>............................] - ETA: 18s - loss: 1.1083 - accuracy: 0.6147
##  80/781 [==>...........................] - ETA: 18s - loss: 1.1092 - accuracy: 0.6157
##  82/781 [==>...........................] - ETA: 18s - loss: 1.1060 - accuracy: 0.6175
##  85/781 [==>...........................] - ETA: 17s - loss: 1.1070 - accuracy: 0.6170
##  88/781 [==>...........................] - ETA: 17s - loss: 1.1070 - accuracy: 0.6169
##  90/781 [==>...........................] - ETA: 17s - loss: 1.1059 - accuracy: 0.6169
##  93/781 [==>...........................] - ETA: 17s - loss: 1.1047 - accuracy: 0.6181
##  95/781 [==>...........................] - ETA: 17s - loss: 1.1051 - accuracy: 0.6175
##  98/781 [==>...........................] - ETA: 17s - loss: 1.1066 - accuracy: 0.6162
## 100/781 [==>...........................] - ETA: 17s - loss: 1.1069 - accuracy: 0.6154
## 103/781 [==>...........................] - ETA: 17s - loss: 1.1094 - accuracy: 0.6163
## 105/781 [===>..........................] - ETA: 17s - loss: 1.1095 - accuracy: 0.6154
## 108/781 [===>..........................] - ETA: 17s - loss: 1.1107 - accuracy: 0.6147
## 111/781 [===>..........................] - ETA: 17s - loss: 1.1106 - accuracy: 0.6135
## 114/781 [===>..........................] - ETA: 17s - loss: 1.1101 - accuracy: 0.6134
## 117/781 [===>..........................] - ETA: 17s - loss: 1.1090 - accuracy: 0.6134
## 119/781 [===>..........................] - ETA: 17s - loss: 1.1096 - accuracy: 0.6130
## 122/781 [===>..........................] - ETA: 17s - loss: 1.1138 - accuracy: 0.6126
## 125/781 [===>..........................] - ETA: 17s - loss: 1.1137 - accuracy: 0.6114
## 127/781 [===>..........................] - ETA: 16s - loss: 1.1140 - accuracy: 0.6114
## 129/781 [===>..........................] - ETA: 16s - loss: 1.1140 - accuracy: 0.6117
## 132/781 [====>.........................] - ETA: 16s - loss: 1.1167 - accuracy: 0.6105
## 134/781 [====>.........................] - ETA: 16s - loss: 1.1159 - accuracy: 0.6110
```

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## 137/781 [====>.....................] - ETA: 16s - loss: 1.1160 - accuracy: 0.6104
## 139/781 [====>.....................] - ETA: 16s - loss: 1.1147 - accuracy: 0.6113
## 141/781 [====>.....................] - ETA: 16s - loss: 1.1157 - accuracy: 0.6120
## 144/781 [====>.....................] - ETA: 16s - loss: 1.1138 - accuracy: 0.6125
## 146/781 [====>.....................] - ETA: 16s - loss: 1.1139 - accuracy: 0.6131
## 149/781 [====>.....................] - ETA: 16s - loss: 1.1150 - accuracy: 0.6117
## 151/781 [====>.....................] - ETA: 16s - loss: 1.1160 - accuracy: 0.6120
## 153/781 [====>.....................] - ETA: 16s - loss: 1.1156 - accuracy: 0.6120
## 156/781 [====>.....................] - ETA: 16s - loss: 1.1142 - accuracy: 0.6118
## 158/781 [=====>....................] - ETA: 16s - loss: 1.1154 - accuracy: 0.6110
## 161/781 [=====>....................] - ETA: 16s - loss: 1.1148 - accuracy: 0.6118
## 163/781 [=====>....................] - ETA: 16s - loss: 1.1121 - accuracy: 0.6128
## 165/781 [=====>....................] - ETA: 16s - loss: 1.1145 - accuracy: 0.6122
## 168/781 [=====>....................] - ETA: 15s - loss: 1.1134 - accuracy: 0.6121
## 171/781 [=====>....................] - ETA: 15s - loss: 1.1145 - accuracy: 0.6118
## 174/781 [=====>....................] - ETA: 15s - loss: 1.1140 - accuracy: 0.6121
## 177/781 [=====>....................] - ETA: 15s - loss: 1.1150 - accuracy: 0.6108
## 180/781 [=====>....................] - ETA: 15s - loss: 1.1154 - accuracy: 0.6108
## 183/781 [======>...................] - ETA: 15s - loss: 1.1152 - accuracy: 0.6109
## 185/781 [======>...................] - ETA: 15s - loss: 1.1154 - accuracy: 0.6106
## 188/781 [======>...................] - ETA: 15s - loss: 1.1163 - accuracy: 0.6098
## 190/781 [======>...................] - ETA: 15s - loss: 1.1159 - accuracy: 0.6103
## 193/781 [======>...................] - ETA: 15s - loss: 1.1162 - accuracy: 0.6103
## 195/781 [======>...................] - ETA: 15s - loss: 1.1160 - accuracy: 0.6108
## 197/781 [======>...................] - ETA: 15s - loss: 1.1142 - accuracy: 0.6119
## 200/781 [======>...................] - ETA: 15s - loss: 1.1131 - accuracy: 0.6123
## 202/781 [======>...................] - ETA: 15s - loss: 1.1137 - accuracy: 0.6120
## 204/781 [======>...................] - ETA: 15s - loss: 1.1132 - accuracy: 0.6122
## 207/781 [======>...................] - ETA: 14s - loss: 1.1135 - accuracy: 0.6117
## 210/781 [=======>..................] - ETA: 14s - loss: 1.1144 - accuracy: 0.6114
## 213/781 [=======>..................] - ETA: 14s - loss: 1.1151 - accuracy: 0.6112
## 215/781 [=======>..................] - ETA: 14s - loss: 1.1150 - accuracy: 0.6111
## 217/781 [=======>..................] - ETA: 14s - loss: 1.1141 - accuracy: 0.6112
## 220/781 [=======>..................] - ETA: 14s - loss: 1.1139 - accuracy: 0.6110
## 222/781 [=======>..................] - ETA: 14s - loss: 1.1124 - accuracy: 0.6117
## 224/781 [=======>..................] - ETA: 14s - loss: 1.1109 - accuracy: 0.6125
## 227/781 [=======>..................] - ETA: 14s - loss: 1.1110 - accuracy: 0.6124
## 229/781 [=======>..................] - ETA: 14s - loss: 1.1107 - accuracy: 0.6126
## 231/781 [=======>..................] - ETA: 14s - loss: 1.1114 - accuracy: 0.6120
## 233/781 [=======>..................] - ETA: 14s - loss: 1.1111 - accuracy: 0.6122
## 236/781 [========>.................] - ETA: 14s - loss: 1.1108 - accuracy: 0.6124
## 238/781 [========>.................] - ETA: 14s - loss: 1.1107 - accuracy: 0.6128
## 241/781 [========>.................] - ETA: 14s - loss: 1.1104 - accuracy: 0.6122
## 243/781 [========>.................] - ETA: 14s - loss: 1.1113 - accuracy: 0.6116
## 245/781 [========>.................] - ETA: 13s - loss: 1.1121 - accuracy: 0.6117
## 247/781 [========>.................] - ETA: 13s - loss: 1.1124 - accuracy: 0.6115
## 249/781 [========>.................] - ETA: 13s - loss: 1.1130 - accuracy: 0.6113
## 251/781 [========>.................] - ETA: 13s - loss: 1.1133 - accuracy: 0.6108
## 253/781 [========>.................] - ETA: 13s - loss: 1.1138 - accuracy: 0.6105
## 256/781 [========>.................] - ETA: 13s - loss: 1.1142 - accuracy: 0.6099
## 258/781 [========>.................] - ETA: 13s - loss: 1.1138 - accuracy: 0.6102
## 261/781 [=========>................] - ETA: 13s - loss: 1.1127 - accuracy: 0.6109
## 263/781 [=========>................] - ETA: 13s - loss: 1.1133 - accuracy: 0.6105
## 266/781 [=========>................] - ETA: 13s - loss: 1.1144 - accuracy: 0.6097
```

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## 269/781 [=========>....................] - ETA: 13s - loss: 1.1131 - accuracy: 0.6104
## 271/781 [=========>....................] - ETA: 13s - loss: 1.1132 - accuracy: 0.6103
## 273/781 [=========>....................] - ETA: 13s - loss: 1.1141 - accuracy: 0.6101
## 275/781 [=========>....................] - ETA: 13s - loss: 1.1137 - accuracy: 0.6105
## 277/781 [=========>....................] - ETA: 13s - loss: 1.1144 - accuracy: 0.6101
## 279/781 [=========>....................] - ETA: 13s - loss: 1.1138 - accuracy: 0.6102
## 281/781 [=========>....................] - ETA: 13s - loss: 1.1134 - accuracy: 0.6105
## 283/781 [=========>....................] - ETA: 13s - loss: 1.1136 - accuracy: 0.6106
## 285/781 [=========>....................] - ETA: 13s - loss: 1.1136 - accuracy: 0.6110
## 287/781 [==========>...................] - ETA: 12s - loss: 1.1135 - accuracy: 0.6112
## 289/781 [==========>...................] - ETA: 12s - loss: 1.1115 - accuracy: 0.6124
## 291/781 [==========>...................] - ETA: 12s - loss: 1.1115 - accuracy: 0.6122
## 293/781 [==========>...................] - ETA: 12s - loss: 1.1106 - accuracy: 0.6122
## 295/781 [==========>...................] - ETA: 12s - loss: 1.1097 - accuracy: 0.6127
## 297/781 [==========>...................] - ETA: 12s - loss: 1.1085 - accuracy: 0.6130
## 300/781 [==========>...................] - ETA: 12s - loss: 1.1094 - accuracy: 0.6128
## 302/781 [==========>...................] - ETA: 12s - loss: 1.1096 - accuracy: 0.6126
## 304/781 [==========>...................] - ETA: 12s - loss: 1.1099 - accuracy: 0.6123
## 306/781 [==========>...................] - ETA: 12s - loss: 1.1114 - accuracy: 0.6120
## 308/781 [==========>...................] - ETA: 12s - loss: 1.1105 - accuracy: 0.6122
## 310/781 [==========>...................] - ETA: 12s - loss: 1.1117 - accuracy: 0.6118
## 312/781 [==========>...................] - ETA: 12s - loss: 1.1120 - accuracy: 0.6118
## 315/781 [===========>..................] - ETA: 12s - loss: 1.1113 - accuracy: 0.6119
## 317/781 [===========>..................] - ETA: 12s - loss: 1.1101 - accuracy: 0.6122
## 319/781 [===========>..................] - ETA: 12s - loss: 1.1098 - accuracy: 0.6118
## 322/781 [===========>..................] - ETA: 12s - loss: 1.1094 - accuracy: 0.6119
## 324/781 [===========>..................] - ETA: 12s - loss: 1.1084 - accuracy: 0.6119
## 327/781 [===========>..................] - ETA: 11s - loss: 1.1092 - accuracy: 0.6115
## 329/781 [===========>..................] - ETA: 11s - loss: 1.1091 - accuracy: 0.6117
## 331/781 [===========>..................] - ETA: 11s - loss: 1.1092 - accuracy: 0.6113
## 334/781 [===========>..................] - ETA: 11s - loss: 1.1097 - accuracy: 0.6110
## 337/781 [===========>..................] - ETA: 11s - loss: 1.1094 - accuracy: 0.6112
## 339/781 [============>.................] - ETA: 11s - loss: 1.1097 - accuracy: 0.6112
## 341/781 [============>.................] - ETA: 11s - loss: 1.1093 - accuracy: 0.6113
## 344/781 [============>.................] - ETA: 11s - loss: 1.1087 - accuracy: 0.6114
## 346/781 [============>.................] - ETA: 11s - loss: 1.1082 - accuracy: 0.6119
## 349/781 [============>.................] - ETA: 11s - loss: 1.1083 - accuracy: 0.6114
## 351/781 [============>.................] - ETA: 11s - loss: 1.1088 - accuracy: 0.6109
## 354/781 [============>.................] - ETA: 11s - loss: 1.1078 - accuracy: 0.6116
## 356/781 [============>.................] - ETA: 11s - loss: 1.1072 - accuracy: 0.6118
## 358/781 [============>.................] - ETA: 11s - loss: 1.1067 - accuracy: 0.6120
## 361/781 [============>.................] - ETA: 11s - loss: 1.1070 - accuracy: 0.6120
## 364/781 [============>.................] - ETA: 10s - loss: 1.1065 - accuracy: 0.6124
## 367/781 [=============>................] - ETA: 10s - loss: 1.1069 - accuracy: 0.6125
## 370/781 [=============>................] - ETA: 10s - loss: 1.1081 - accuracy: 0.6120
## 372/781 [=============>................] - ETA: 10s - loss: 1.1081 - accuracy: 0.6120
## 374/781 [=============>................] - ETA: 10s - loss: 1.1084 - accuracy: 0.6120
## 376/781 [=============>................] - ETA: 10s - loss: 1.1091 - accuracy: 0.6120
## 379/781 [=============>................] - ETA: 10s - loss: 1.1101 - accuracy: 0.6115
## 381/781 [=============>................] - ETA: 10s - loss: 1.1105 - accuracy: 0.6114
## 383/781 [=============>................] - ETA: 10s - loss: 1.1096 - accuracy: 0.6117
## 385/781 [=============>................] - ETA: 10s - loss: 1.1096 - accuracy: 0.6119
## 388/781 [=============>................] - ETA: 10s - loss: 1.1094 - accuracy: 0.6118
## 390/781 [=============>................] - ETA: 10s - loss: 1.1102 - accuracy: 0.6115
```

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## 392/781 [==============>..............] - ETA: 10s - loss: 1.1102 - accuracy: 0.6119
## 395/781 [==============>..............] - ETA: 10s - loss: 1.1106 - accuracy: 0.6118
## 397/781 [==============>..............] - ETA: 10s - loss: 1.1102 - accuracy: 0.6121
## 400/781 [==============>..............] - ETA: 10s - loss: 1.1112 - accuracy: 0.6119
## 403/781 [==============>..............] - ETA: 9s - loss: 1.1112 - accuracy: 0.6119
## 406/781 [==============>..............] - ETA: 9s - loss: 1.1110 - accuracy: 0.6118
## 409/781 [==============>..............] - ETA: 9s - loss: 1.1107 - accuracy: 0.6119
## 411/781 [==============>..............] - ETA: 9s - loss: 1.1105 - accuracy: 0.6120
## 414/781 [==============>..............] - ETA: 9s - loss: 1.1110 - accuracy: 0.6117
## 416/781 [==============>..............] - ETA: 9s - loss: 1.1107 - accuracy: 0.6119
## 418/781 [===============>.............] - ETA: 9s - loss: 1.1107 - accuracy: 0.6120
## 421/781 [===============>.............] - ETA: 9s - loss: 1.1104 - accuracy: 0.6119
## 423/781 [===============>.............] - ETA: 9s - loss: 1.1099 - accuracy: 0.6122
## 426/781 [===============>.............] - ETA: 9s - loss: 1.1099 - accuracy: 0.6121
## 429/781 [===============>.............] - ETA: 9s - loss: 1.1104 - accuracy: 0.6120
## 432/781 [===============>.............] - ETA: 9s - loss: 1.1100 - accuracy: 0.6123
## 435/781 [===============>.............] - ETA: 9s - loss: 1.1102 - accuracy: 0.6122
## 438/781 [===============>.............] - ETA: 9s - loss: 1.1105 - accuracy: 0.6121
## 441/781 [===============>.............] - ETA: 8s - loss: 1.1099 - accuracy: 0.6124
## 443/781 [================>............] - ETA: 8s - loss: 1.1096 - accuracy: 0.6126
## 446/781 [================>............] - ETA: 8s - loss: 1.1088 - accuracy: 0.6132
## 448/781 [================>............] - ETA: 8s - loss: 1.1089 - accuracy: 0.6130
## 450/781 [================>............] - ETA: 8s - loss: 1.1091 - accuracy: 0.6129
## 452/781 [================>............] - ETA: 8s - loss: 1.1098 - accuracy: 0.6127
## 454/781 [================>............] - ETA: 8s - loss: 1.1099 - accuracy: 0.6126
## 456/781 [================>............] - ETA: 8s - loss: 1.1103 - accuracy: 0.6124
## 458/781 [================>............] - ETA: 8s - loss: 1.1103 - accuracy: 0.6124
## 460/781 [================>............] - ETA: 8s - loss: 1.1105 - accuracy: 0.6122
## 462/781 [================>............] - ETA: 8s - loss: 1.1107 - accuracy: 0.6121
## 464/781 [================>............] - ETA: 8s - loss: 1.1112 - accuracy: 0.6120
## 466/781 [================>............] - ETA: 8s - loss: 1.1116 - accuracy: 0.6120
## 468/781 [================>............] - ETA: 8s - loss: 1.1114 - accuracy: 0.6122
## 471/781 [=================>...........] - ETA: 8s - loss: 1.1116 - accuracy: 0.6121
## 473/781 [=================>...........] - ETA: 8s - loss: 1.1114 - accuracy: 0.6121
## 475/781 [=================>...........] - ETA: 8s - loss: 1.1110 - accuracy: 0.6122
## 477/781 [=================>...........] - ETA: 8s - loss: 1.1112 - accuracy: 0.6123
## 479/781 [=================>...........] - ETA: 7s - loss: 1.1111 - accuracy: 0.6124
## 481/781 [=================>...........] - ETA: 7s - loss: 1.1113 - accuracy: 0.6122
## 483/781 [=================>...........] - ETA: 7s - loss: 1.1114 - accuracy: 0.6122
## 485/781 [=================>...........] - ETA: 7s - loss: 1.1111 - accuracy: 0.6123
## 487/781 [=================>...........] - ETA: 7s - loss: 1.1118 - accuracy: 0.6121
## 489/781 [=================>...........] - ETA: 7s - loss: 1.1122 - accuracy: 0.6118
## 491/781 [=================>...........] - ETA: 7s - loss: 1.1124 - accuracy: 0.6119
## 493/781 [=================>...........] - ETA: 7s - loss: 1.1125 - accuracy: 0.6120
## 495/781 [==================>..........] - ETA: 7s - loss: 1.1122 - accuracy: 0.6120
## 497/781 [==================>..........] - ETA: 7s - loss: 1.1126 - accuracy: 0.6118
## 499/781 [==================>..........] - ETA: 7s - loss: 1.1128 - accuracy: 0.6116
## 501/781 [==================>..........] - ETA: 7s - loss: 1.1127 - accuracy: 0.6116
## 503/781 [==================>..........] - ETA: 7s - loss: 1.1129 - accuracy: 0.6118
## 506/781 [==================>..........] - ETA: 7s - loss: 1.1125 - accuracy: 0.6119
## 509/781 [==================>..........] - ETA: 7s - loss: 1.1124 - accuracy: 0.6118
## 512/781 [==================>..........] - ETA: 7s - loss: 1.1127 - accuracy: 0.6116
## 514/781 [==================>..........] - ETA: 7s - loss: 1.1127 - accuracy: 0.6118
## 516/781 [==================>..........] - ETA: 7s - loss: 1.1127 - accuracy: 0.6117
```

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## 519/781 [=================>............] - ETA: 6s - loss: 1.1134 - accuracy: 0.6113
## 521/781 [=================>............] - ETA: 6s - loss: 1.1141 - accuracy: 0.6111
## 523/781 [=================>............] - ETA: 6s - loss: 1.1138 - accuracy: 0.6113
## 525/781 [=================>............] - ETA: 6s - loss: 1.1139 - accuracy: 0.6111
## 527/781 [=================>............] - ETA: 6s - loss: 1.1136 - accuracy: 0.6111
## 529/781 [=================>............] - ETA: 6s - loss: 1.1135 - accuracy: 0.6112
## 531/781 [=================>............] - ETA: 6s - loss: 1.1134 - accuracy: 0.6112
## 533/781 [=================>............] - ETA: 6s - loss: 1.1133 - accuracy: 0.6112
## 535/781 [=================>............] - ETA: 6s - loss: 1.1132 - accuracy: 0.6113
## 537/781 [=================>............] - ETA: 6s - loss: 1.1131 - accuracy: 0.6112
## 539/781 [=================>............] - ETA: 6s - loss: 1.1138 - accuracy: 0.6111
## 541/781 [=================>............] - ETA: 6s - loss: 1.1136 - accuracy: 0.6111
## 543/781 [=================>............] - ETA: 6s - loss: 1.1135 - accuracy: 0.6110
## 546/781 [=================>............] - ETA: 6s - loss: 1.1129 - accuracy: 0.6113
## 548/781 [==================>...........] - ETA: 6s - loss: 1.1126 - accuracy: 0.6114
## 550/781 [==================>...........] - ETA: 6s - loss: 1.1125 - accuracy: 0.6114
## 552/781 [==================>...........] - ETA: 6s - loss: 1.1131 - accuracy: 0.6111
## 555/781 [==================>...........] - ETA: 5s - loss: 1.1133 - accuracy: 0.6108
## 557/781 [==================>...........] - ETA: 5s - loss: 1.1132 - accuracy: 0.6108
## 559/781 [==================>...........] - ETA: 5s - loss: 1.1129 - accuracy: 0.6108
## 561/781 [==================>...........] - ETA: 5s - loss: 1.1131 - accuracy: 0.6108
## 563/781 [==================>...........] - ETA: 5s - loss: 1.1132 - accuracy: 0.6106
## 566/781 [==================>...........] - ETA: 5s - loss: 1.1133 - accuracy: 0.6105
## 568/781 [==================>...........] - ETA: 5s - loss: 1.1127 - accuracy: 0.6107
## 570/781 [==================>...........] - ETA: 5s - loss: 1.1131 - accuracy: 0.6106
## 572/781 [==================>...........] - ETA: 5s - loss: 1.1127 - accuracy: 0.6107
## 574/781 [==================>...........] - ETA: 5s - loss: 1.1125 - accuracy: 0.6108
## 576/781 [==================>...........] - ETA: 5s - loss: 1.1121 - accuracy: 0.6109
## 579/781 [==================>...........] - ETA: 5s - loss: 1.1117 - accuracy: 0.6112
## 581/781 [==================>...........] - ETA: 5s - loss: 1.1115 - accuracy: 0.6113
## 584/781 [==================>...........] - ETA: 5s - loss: 1.1117 - accuracy: 0.6110
## 587/781 [==================>...........] - ETA: 5s - loss: 1.1121 - accuracy: 0.6110
## 590/781 [==================>...........] - ETA: 5s - loss: 1.1123 - accuracy: 0.6110
## 592/781 [==================>...........] - ETA: 5s - loss: 1.1131 - accuracy: 0.6106
## 595/781 [==================>...........] - ETA: 4s - loss: 1.1125 - accuracy: 0.6109
## 597/781 [==================>...........] - ETA: 4s - loss: 1.1126 - accuracy: 0.6109
## 599/781 [==================>...........] - ETA: 4s - loss: 1.1125 - accuracy: 0.6109
## 601/781 [==================>...........] - ETA: 4s - loss: 1.1127 - accuracy: 0.6108
## 603/781 [==================>...........] - ETA: 4s - loss: 1.1127 - accuracy: 0.6108
## 605/781 [==================>...........] - ETA: 4s - loss: 1.1122 - accuracy: 0.6110
## 608/781 [==================>...........] - ETA: 4s - loss: 1.1122 - accuracy: 0.6108
## 610/781 [==================>...........] - ETA: 4s - loss: 1.1119 - accuracy: 0.6108
## 612/781 [==================>...........] - ETA: 4s - loss: 1.1117 - accuracy: 0.6108
## 614/781 [==================>...........] - ETA: 4s - loss: 1.1114 - accuracy: 0.6108
## 616/781 [==================>...........] - ETA: 4s - loss: 1.1116 - accuracy: 0.6108
## 618/781 [==================>...........] - ETA: 4s - loss: 1.1117 - accuracy: 0.6107
## 620/781 [==================>...........] - ETA: 4s - loss: 1.1119 - accuracy: 0.6108
## 622/781 [==================>...........] - ETA: 4s - loss: 1.1123 - accuracy: 0.6109
## 625/781 [==================>...........] - ETA: 4s - loss: 1.1124 - accuracy: 0.6109
## 628/781 [==================>...........] - ETA: 4s - loss: 1.1129 - accuracy: 0.6107
## 631/781 [==================>...........] - ETA: 3s - loss: 1.1129 - accuracy: 0.6110
## 634/781 [==================>...........] - ETA: 3s - loss: 1.1130 - accuracy: 0.6109
## 637/781 [==================>...........] - ETA: 3s - loss: 1.1129 - accuracy: 0.6110
## 639/781 [==================>...........] - ETA: 3s - loss: 1.1131 - accuracy: 0.6110
```

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## 641/781 [=====================>......] - ETA: 3s - loss: 1.1130 - accuracy: 0.6109
## 643/781 [=====================>......] - ETA: 3s - loss: 1.1128 - accuracy: 0.6110
## 646/781 [=====================>......] - ETA: 3s - loss: 1.1129 - accuracy: 0.6108
## 648/781 [=====================>......] - ETA: 3s - loss: 1.1128 - accuracy: 0.6109
## 651/781 [======================>.....] - ETA: 3s - loss: 1.1124 - accuracy: 0.6108
## 653/781 [======================>.....] - ETA: 3s - loss: 1.1120 - accuracy: 0.6112
## 655/781 [======================>.....] - ETA: 3s - loss: 1.1120 - accuracy: 0.6112
## 657/781 [======================>.....] - ETA: 3s - loss: 1.1118 - accuracy: 0.6112
## 659/781 [======================>.....] - ETA: 3s - loss: 1.1118 - accuracy: 0.6112
## 661/781 [======================>.....] - ETA: 3s - loss: 1.1119 - accuracy: 0.6113
## 663/781 [======================>.....] - ETA: 3s - loss: 1.1119 - accuracy: 0.6114
## 665/781 [======================>.....] - ETA: 3s - loss: 1.1119 - accuracy: 0.6114
## 667/781 [======================>.....] - ETA: 3s - loss: 1.1119 - accuracy: 0.6113
## 669/781 [======================>.....] - ETA: 2s - loss: 1.1118 - accuracy: 0.6113
## 671/781 [======================>.....] - ETA: 2s - loss: 1.1116 - accuracy: 0.6115
## 673/781 [======================>.....] - ETA: 2s - loss: 1.1119 - accuracy: 0.6111
## 675/781 [======================>.....] - ETA: 2s - loss: 1.1117 - accuracy: 0.6111
## 677/781 [=======================>....] - ETA: 2s - loss: 1.1114 - accuracy: 0.6111
## 679/781 [=======================>....] - ETA: 2s - loss: 1.1117 - accuracy: 0.6111
## 681/781 [=======================>....] - ETA: 2s - loss: 1.1115 - accuracy: 0.6111
## 683/781 [=======================>....] - ETA: 2s - loss: 1.1116 - accuracy: 0.6111
## 685/781 [=======================>....] - ETA: 2s - loss: 1.1113 - accuracy: 0.6112
## 687/781 [=======================>....] - ETA: 2s - loss: 1.1112 - accuracy: 0.6111
## 689/781 [=======================>....] - ETA: 2s - loss: 1.1112 - accuracy: 0.6110
## 691/781 [=======================>....] - ETA: 2s - loss: 1.1112 - accuracy: 0.6109
## 693/781 [=======================>....] - ETA: 2s - loss: 1.1109 - accuracy: 0.6111
## 696/781 [=======================>....] - ETA: 2s - loss: 1.1113 - accuracy: 0.6110
## 698/781 [=======================>....] - ETA: 2s - loss: 1.1109 - accuracy: 0.6109
## 700/781 [=======================>....] - ETA: 2s - loss: 1.1105 - accuracy: 0.6111
## 702/781 [=======================>....] - ETA: 2s - loss: 1.1108 - accuracy: 0.6110
## 704/781 [========================>...] - ETA: 2s - loss: 1.1106 - accuracy: 0.6112
## 706/781 [========================>...] - ETA: 1s - loss: 1.1108 - accuracy: 0.6112
## 708/781 [========================>...] - ETA: 1s - loss: 1.1110 - accuracy: 0.6111
## 711/781 [========================>...] - ETA: 1s - loss: 1.1102 - accuracy: 0.6113
## 714/781 [========================>...] - ETA: 1s - loss: 1.1101 - accuracy: 0.6113
## 716/781 [========================>...] - ETA: 1s - loss: 1.1100 - accuracy: 0.6114
## 719/781 [========================>...] - ETA: 1s - loss: 1.1096 - accuracy: 0.6117
## 721/781 [========================>...] - ETA: 1s - loss: 1.1098 - accuracy: 0.6116
## 723/781 [========================>...] - ETA: 1s - loss: 1.1101 - accuracy: 0.6115
## 726/781 [========================>...] - ETA: 1s - loss: 1.1097 - accuracy: 0.6116
## 728/781 [========================>...] - ETA: 1s - loss: 1.1099 - accuracy: 0.6116
## 730/781 [=========================>..] - ETA: 1s - loss: 1.1098 - accuracy: 0.6116
## 733/781 [=========================>..] - ETA: 1s - loss: 1.1105 - accuracy: 0.6113
## 735/781 [=========================>..] - ETA: 1s - loss: 1.1100 - accuracy: 0.6116
## 737/781 [=========================>..] - ETA: 1s - loss: 1.1097 - accuracy: 0.6117
## 739/781 [=========================>..] - ETA: 1s - loss: 1.1097 - accuracy: 0.6118
## 741/781 [=========================>..] - ETA: 1s - loss: 1.1099 - accuracy: 0.6118
## 743/781 [=========================>..] - ETA: 1s - loss: 1.1095 - accuracy: 0.6121
## 745/781 [=========================>..] - ETA: 0s - loss: 1.1089 - accuracy: 0.6124
## 747/781 [=========================>..] - ETA: 0s - loss: 1.1086 - accuracy: 0.6124
## 749/781 [=========================>..] - ETA: 0s - loss: 1.1085 - accuracy: 0.6124
## 751/781 [=========================>..] - ETA: 0s - loss: 1.1085 - accuracy: 0.6124
## 753/781 [=========================>..] - ETA: 0s - loss: 1.1082 - accuracy: 0.6126
## 755/781 [=========================>.] - ETA: 0s - loss: 1.1080 - accuracy: 0.6126
```

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## 757/781 [============================>.] - ETA: 0s - loss: 1.1073 - accuracy: 0.6127
## 759/781 [============================>.] - ETA: 0s - loss: 1.1072 - accuracy: 0.6128
## 761/781 [============================>.] - ETA: 0s - loss: 1.1069 - accuracy: 0.6128
## 764/781 [============================>.] - ETA: 0s - loss: 1.1064 - accuracy: 0.6129
## 766/781 [============================>.] - ETA: 0s - loss: 1.1064 - accuracy: 0.6130
## 768/781 [============================>.] - ETA: 0s - loss: 1.1060 - accuracy: 0.6132
## 770/781 [============================>.] - ETA: 0s - loss: 1.1057 - accuracy: 0.6133
## 772/781 [============================>.] - ETA: 0s - loss: 1.1057 - accuracy: 0.6133
## 774/781 [============================>.] - ETA: 0s - loss: 1.1057 - accuracy: 0.6133
## 776/781 [============================>.] - ETA: 0s - loss: 1.1053 - accuracy: 0.6136
## 778/781 [============================>.] - ETA: 0s - loss: 1.1051 - accuracy: 0.6135
## 780/781 [============================>.] - ETA: 0s - loss: 1.1049 - accuracy: 0.6136
## 781/781 [==============================] - 22s 28ms/step - loss: 1.1046 - accuracy: 0.6137 - val_loss
## Epoch 6/20
##
##   1/781 [..............................] - ETA: 40s - loss: 0.8776 - accuracy: 0.7031
##   4/781 [..............................] - ETA: 20s - loss: 0.9927 - accuracy: 0.6602
##   6/781 [..............................] - ETA: 20s - loss: 0.9728 - accuracy: 0.6641
##  10/781 [..............................] - ETA: 19s - loss: 1.0226 - accuracy: 0.6402
##  13/781 [..............................] - ETA: 19s - loss: 1.0544 - accuracy: 0.6276
##  16/781 [..............................] - ETA: 19s - loss: 1.0471 - accuracy: 0.6383
##  18/781 [..............................] - ETA: 19s - loss: 1.0523 - accuracy: 0.6377
##  20/781 [..............................] - ETA: 19s - loss: 1.0699 - accuracy: 0.6347
##  23/781 [..............................] - ETA: 18s - loss: 1.0829 - accuracy: 0.6257
##  25/781 [..............................] - ETA: 19s - loss: 1.0822 - accuracy: 0.6282
##  27/781 [>.............................] - ETA: 19s - loss: 1.0787 - accuracy: 0.6280
##  30/781 [>.............................] - ETA: 19s - loss: 1.0780 - accuracy: 0.6223
##  33/781 [>.............................] - ETA: 19s - loss: 1.0693 - accuracy: 0.6240
##  35/781 [>.............................] - ETA: 19s - loss: 1.0726 - accuracy: 0.6236
##  38/781 [>.............................] - ETA: 18s - loss: 1.0688 - accuracy: 0.6254
##  41/781 [>.............................] - ETA: 18s - loss: 1.0606 - accuracy: 0.6300
##  43/781 [>.............................] - ETA: 18s - loss: 1.0553 - accuracy: 0.6317
##  45/781 [>.............................] - ETA: 18s - loss: 1.0483 - accuracy: 0.6356
##  47/781 [>.............................] - ETA: 18s - loss: 1.0564 - accuracy: 0.6314
##  50/781 [>.............................] - ETA: 18s - loss: 1.0547 - accuracy: 0.6323
##  52/781 [>.............................] - ETA: 18s - loss: 1.0562 - accuracy: 0.6338
##  54/781 [=>............................] - ETA: 18s - loss: 1.0507 - accuracy: 0.6353
##  56/781 [=>............................] - ETA: 18s - loss: 1.0568 - accuracy: 0.6312
##  59/781 [=>............................] - ETA: 18s - loss: 1.0551 - accuracy: 0.6322
##  62/781 [=>............................] - ETA: 18s - loss: 1.0560 - accuracy: 0.6337
##  64/781 [=>............................] - ETA: 18s - loss: 1.0570 - accuracy: 0.6339
##  67/781 [=>............................] - ETA: 18s - loss: 1.0598 - accuracy: 0.6318
##  69/781 [=>............................] - ETA: 18s - loss: 1.0635 - accuracy: 0.6314
##  71/781 [=>............................] - ETA: 18s - loss: 1.0633 - accuracy: 0.6315
##  73/781 [=>............................] - ETA: 18s - loss: 1.0676 - accuracy: 0.6295
##  76/781 [=>............................] - ETA: 18s - loss: 1.0701 - accuracy: 0.6277
##  78/781 [=>............................] - ETA: 18s - loss: 1.0700 - accuracy: 0.6272
##  80/781 [==>...........................] - ETA: 18s - loss: 1.0715 - accuracy: 0.6272
##  83/781 [==>...........................] - ETA: 18s - loss: 1.0741 - accuracy: 0.6254
##  86/781 [==>...........................] - ETA: 18s - loss: 1.0791 - accuracy: 0.6226
##  89/781 [==>...........................] - ETA: 17s - loss: 1.0815 - accuracy: 0.6206
##  92/781 [==>...........................] - ETA: 17s - loss: 1.0861 - accuracy: 0.6197
##  94/781 [==>...........................] - ETA: 17s - loss: 1.0873 - accuracy: 0.6186
##  96/781 [==>...........................] - ETA: 17s - loss: 1.0872 - accuracy: 0.6178
```

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##  99/781 [==>...........................] - ETA: 17s - loss: 1.0901 - accuracy: 0.6159
## 101/781 [==>...........................] - ETA: 17s - loss: 1.0895 - accuracy: 0.6155
## 104/781 [==>...........................] - ETA: 17s - loss: 1.0865 - accuracy: 0.6156
## 106/781 [===>..........................] - ETA: 17s - loss: 1.0865 - accuracy: 0.6148
## 109/781 [===>..........................] - ETA: 17s - loss: 1.0869 - accuracy: 0.6153
## 112/781 [===>..........................] - ETA: 17s - loss: 1.0857 - accuracy: 0.6156
## 114/781 [===>..........................] - ETA: 17s - loss: 1.0834 - accuracy: 0.6171
## 117/781 [===>..........................] - ETA: 17s - loss: 1.0816 - accuracy: 0.6172
## 119/781 [===>..........................] - ETA: 17s - loss: 1.0816 - accuracy: 0.6169
## 121/781 [===>..........................] - ETA: 17s - loss: 1.0816 - accuracy: 0.6171
## 124/781 [===>..........................] - ETA: 17s - loss: 1.0815 - accuracy: 0.6173
## 127/781 [===>..........................] - ETA: 17s - loss: 1.0809 - accuracy: 0.6165
## 129/781 [===>..........................] - ETA: 17s - loss: 1.0848 - accuracy: 0.6148
## 131/781 [====>.........................] - ETA: 17s - loss: 1.0835 - accuracy: 0.6150
## 133/781 [====>.........................] - ETA: 16s - loss: 1.0804 - accuracy: 0.6167
## 136/781 [====>.........................] - ETA: 16s - loss: 1.0777 - accuracy: 0.6170
## 138/781 [====>.........................] - ETA: 16s - loss: 1.0771 - accuracy: 0.6168
## 140/781 [====>.........................] - ETA: 16s - loss: 1.0788 - accuracy: 0.6160
## 142/781 [====>.........................] - ETA: 16s - loss: 1.0770 - accuracy: 0.6169
## 144/781 [====>.........................] - ETA: 16s - loss: 1.0762 - accuracy: 0.6170
## 147/781 [====>.........................] - ETA: 16s - loss: 1.0752 - accuracy: 0.6179
## 150/781 [====>.........................] - ETA: 16s - loss: 1.0750 - accuracy: 0.6181
## 152/781 [====>.........................] - ETA: 16s - loss: 1.0745 - accuracy: 0.6188
## 155/781 [====>.........................] - ETA: 16s - loss: 1.0758 - accuracy: 0.6184
## 158/781 [=====>........................] - ETA: 16s - loss: 1.0756 - accuracy: 0.6180
## 160/781 [=====>........................] - ETA: 16s - loss: 1.0773 - accuracy: 0.6179
## 162/781 [=====>........................] - ETA: 16s - loss: 1.0777 - accuracy: 0.6180
## 164/781 [=====>........................] - ETA: 16s - loss: 1.0772 - accuracy: 0.6185
## 167/781 [=====>........................] - ETA: 16s - loss: 1.0774 - accuracy: 0.6189
## 170/781 [=====>........................] - ETA: 15s - loss: 1.0768 - accuracy: 0.6195
## 172/781 [=====>........................] - ETA: 15s - loss: 1.0773 - accuracy: 0.6196
## 174/781 [=====>........................] - ETA: 15s - loss: 1.0767 - accuracy: 0.6196
## 177/781 [=====>........................] - ETA: 15s - loss: 1.0788 - accuracy: 0.6197
## 180/781 [=====>........................] - ETA: 15s - loss: 1.0793 - accuracy: 0.6189
## 183/781 [======>.......................] - ETA: 15s - loss: 1.0809 - accuracy: 0.6185
## 185/781 [======>.......................] - ETA: 15s - loss: 1.0804 - accuracy: 0.6187
## 188/781 [======>.......................] - ETA: 15s - loss: 1.0775 - accuracy: 0.6195
## 191/781 [======>.......................] - ETA: 15s - loss: 1.0767 - accuracy: 0.6197
## 193/781 [======>.......................] - ETA: 15s - loss: 1.0782 - accuracy: 0.6192
## 195/781 [======>.......................] - ETA: 15s - loss: 1.0786 - accuracy: 0.6190
## 198/781 [======>.......................] - ETA: 15s - loss: 1.0802 - accuracy: 0.6189
## 200/781 [======>.......................] - ETA: 15s - loss: 1.0786 - accuracy: 0.6197
## 203/781 [======>.......................] - ETA: 15s - loss: 1.0789 - accuracy: 0.6204
## 205/781 [======>.......................] - ETA: 15s - loss: 1.0782 - accuracy: 0.6209
## 208/781 [======>.......................] - ETA: 14s - loss: 1.0758 - accuracy: 0.6218
## 210/781 [=======>......................] - ETA: 14s - loss: 1.0760 - accuracy: 0.6216
## 212/781 [=======>......................] - ETA: 14s - loss: 1.0757 - accuracy: 0.6216
## 214/781 [=======>......................] - ETA: 14s - loss: 1.0764 - accuracy: 0.6213
## 217/781 [=======>......................] - ETA: 14s - loss: 1.0752 - accuracy: 0.6219
## 219/781 [=======>......................] - ETA: 14s - loss: 1.0744 - accuracy: 0.6221
## 222/781 [=======>......................] - ETA: 14s - loss: 1.0752 - accuracy: 0.6218
## 224/781 [=======>......................] - ETA: 14s - loss: 1.0747 - accuracy: 0.6219
## 226/781 [=======>......................] - ETA: 14s - loss: 1.0756 - accuracy: 0.6222
## 228/781 [=======>......................] - ETA: 14s - loss: 1.0753 - accuracy: 0.6229
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## 231/781 [=======>......................] - ETA: 14s - loss: 1.0751 - accuracy: 0.6231
## 233/781 [=======>......................] - ETA: 14s - loss: 1.0743 - accuracy: 0.6235
## 236/781 [========>.....................] - ETA: 14s - loss: 1.0736 - accuracy: 0.6234
## 238/781 [========>.....................] - ETA: 14s - loss: 1.0725 - accuracy: 0.6237
## 241/781 [========>.....................] - ETA: 14s - loss: 1.0722 - accuracy: 0.6240
## 243/781 [========>.....................] - ETA: 14s - loss: 1.0732 - accuracy: 0.6238
## 245/781 [========>.....................] - ETA: 13s - loss: 1.0735 - accuracy: 0.6238
## 248/781 [========>.....................] - ETA: 13s - loss: 1.0733 - accuracy: 0.6231
## 251/781 [========>.....................] - ETA: 13s - loss: 1.0737 - accuracy: 0.6231
## 253/781 [========>.....................] - ETA: 13s - loss: 1.0738 - accuracy: 0.6228
## 255/781 [========>.....................] - ETA: 13s - loss: 1.0735 - accuracy: 0.6228
## 258/781 [========>.....................] - ETA: 13s - loss: 1.0745 - accuracy: 0.6223
## 260/781 [========>.....................] - ETA: 13s - loss: 1.0737 - accuracy: 0.6224
## 263/781 [=========>....................] - ETA: 13s - loss: 1.0739 - accuracy: 0.6224
## 265/781 [=========>....................] - ETA: 13s - loss: 1.0742 - accuracy: 0.6222
## 267/781 [=========>....................] - ETA: 13s - loss: 1.0741 - accuracy: 0.6222
## 269/781 [=========>....................] - ETA: 13s - loss: 1.0741 - accuracy: 0.6224
## 272/781 [=========>....................] - ETA: 13s - loss: 1.0734 - accuracy: 0.6228
## 275/781 [=========>....................] - ETA: 13s - loss: 1.0745 - accuracy: 0.6222
## 277/781 [=========>....................] - ETA: 13s - loss: 1.0757 - accuracy: 0.6221
## 280/781 [=========>....................] - ETA: 13s - loss: 1.0769 - accuracy: 0.6210
## 283/781 [=========>....................] - ETA: 12s - loss: 1.0758 - accuracy: 0.6217
## 285/781 [=========>....................] - ETA: 12s - loss: 1.0758 - accuracy: 0.6220
## 288/781 [==========>...................] - ETA: 12s - loss: 1.0750 - accuracy: 0.6225
## 290/781 [==========>...................] - ETA: 12s - loss: 1.0745 - accuracy: 0.6229
## 292/781 [==========>...................] - ETA: 12s - loss: 1.0760 - accuracy: 0.6227
## 295/781 [==========>...................] - ETA: 12s - loss: 1.0773 - accuracy: 0.6221
## 297/781 [==========>...................] - ETA: 12s - loss: 1.0766 - accuracy: 0.6221
## 300/781 [==========>...................] - ETA: 12s - loss: 1.0786 - accuracy: 0.6212
## 302/781 [==========>...................] - ETA: 12s - loss: 1.0789 - accuracy: 0.6212
## 304/781 [==========>...................] - ETA: 12s - loss: 1.0794 - accuracy: 0.6210
## 306/781 [==========>...................] - ETA: 12s - loss: 1.0796 - accuracy: 0.6211
## 309/781 [==========>...................] - ETA: 12s - loss: 1.0801 - accuracy: 0.6212
## 312/781 [==========>...................] - ETA: 12s - loss: 1.0802 - accuracy: 0.6210
## 315/781 [===========>..................] - ETA: 12s - loss: 1.0797 - accuracy: 0.6213
## 317/781 [===========>..................] - ETA: 12s - loss: 1.0797 - accuracy: 0.6215
## 319/781 [===========>..................] - ETA: 12s - loss: 1.0793 - accuracy: 0.6219
## 321/781 [===========>..................] - ETA: 12s - loss: 1.0787 - accuracy: 0.6223
## 323/781 [===========>..................] - ETA: 11s - loss: 1.0799 - accuracy: 0.6217
## 326/781 [===========>..................] - ETA: 11s - loss: 1.0806 - accuracy: 0.6216
## 328/781 [===========>..................] - ETA: 11s - loss: 1.0818 - accuracy: 0.6214
## 331/781 [===========>..................] - ETA: 11s - loss: 1.0826 - accuracy: 0.6212
## 333/781 [===========>..................] - ETA: 11s - loss: 1.0825 - accuracy: 0.6213
## 336/781 [===========>..................] - ETA: 11s - loss: 1.0828 - accuracy: 0.6211
## 338/781 [===========>..................] - ETA: 11s - loss: 1.0821 - accuracy: 0.6214
## 341/781 [============>.................] - ETA: 11s - loss: 1.0811 - accuracy: 0.6216
## 343/781 [============>.................] - ETA: 11s - loss: 1.0816 - accuracy: 0.6213
## 346/781 [============>.................] - ETA: 11s - loss: 1.0805 - accuracy: 0.6216
## 348/781 [============>.................] - ETA: 11s - loss: 1.0801 - accuracy: 0.6218
## 350/781 [============>.................] - ETA: 11s - loss: 1.0798 - accuracy: 0.6220
## 352/781 [============>.................] - ETA: 11s - loss: 1.0804 - accuracy: 0.6219
## 355/781 [============>.................] - ETA: 11s - loss: 1.0794 - accuracy: 0.6223
## 357/781 [============>.................] - ETA: 11s - loss: 1.0788 - accuracy: 0.6227
## 360/781 [============>.................] - ETA: 11s - loss: 1.0782 - accuracy: 0.6230
```

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## 362/781 [============>.................] - ETA: 10s - loss: 1.0780 - accuracy: 0.6230
## 365/781 [=============>................] - ETA: 10s - loss: 1.0780 - accuracy: 0.6230
## 367/781 [=============>................] - ETA: 10s - loss: 1.0780 - accuracy: 0.6230
## 370/781 [=============>................] - ETA: 10s - loss: 1.0782 - accuracy: 0.6226
## 372/781 [=============>................] - ETA: 10s - loss: 1.0785 - accuracy: 0.6225
## 374/781 [=============>................] - ETA: 10s - loss: 1.0781 - accuracy: 0.6227
## 377/781 [=============>................] - ETA: 10s - loss: 1.0789 - accuracy: 0.6222
## 379/781 [=============>................] - ETA: 10s - loss: 1.0783 - accuracy: 0.6226
## 382/781 [=============>................] - ETA: 10s - loss: 1.0769 - accuracy: 0.6233
## 384/781 [=============>................] - ETA: 10s - loss: 1.0767 - accuracy: 0.6232
## 387/781 [=============>................] - ETA: 10s - loss: 1.0773 - accuracy: 0.6230
## 389/781 [=============>................] - ETA: 10s - loss: 1.0781 - accuracy: 0.6226
## 391/781 [==============>...............] - ETA: 10s - loss: 1.0772 - accuracy: 0.6226
## 393/781 [==============>...............] - ETA: 10s - loss: 1.0777 - accuracy: 0.6224
## 395/781 [==============>...............] - ETA: 10s - loss: 1.0783 - accuracy: 0.6221
## 398/781 [==============>...............] - ETA: 10s - loss: 1.0783 - accuracy: 0.6219
## 401/781 [==============>...............] - ETA: 9s - loss: 1.0784 - accuracy: 0.6222
## 403/781 [==============>...............] - ETA: 9s - loss: 1.0790 - accuracy: 0.6220
## 405/781 [==============>...............] - ETA: 9s - loss: 1.0797 - accuracy: 0.6218
## 407/781 [==============>...............] - ETA: 9s - loss: 1.0810 - accuracy: 0.6213
## 410/781 [==============>...............] - ETA: 9s - loss: 1.0812 - accuracy: 0.6214
## 412/781 [==============>...............] - ETA: 9s - loss: 1.0813 - accuracy: 0.6214
## 415/781 [==============>...............] - ETA: 9s - loss: 1.0820 - accuracy: 0.6213
## 418/781 [===============>..............] - ETA: 9s - loss: 1.0813 - accuracy: 0.6214
## 420/781 [===============>..............] - ETA: 9s - loss: 1.0810 - accuracy: 0.6214
## 423/781 [===============>..............] - ETA: 9s - loss: 1.0806 - accuracy: 0.6216
## 425/781 [===============>..............] - ETA: 9s - loss: 1.0811 - accuracy: 0.6211
## 428/781 [===============>..............] - ETA: 9s - loss: 1.0808 - accuracy: 0.6215
## 430/781 [===============>..............] - ETA: 9s - loss: 1.0803 - accuracy: 0.6213
## 433/781 [===============>..............] - ETA: 9s - loss: 1.0809 - accuracy: 0.6209
## 436/781 [===============>..............] - ETA: 9s - loss: 1.0813 - accuracy: 0.6208
## 439/781 [===============>..............] - ETA: 8s - loss: 1.0810 - accuracy: 0.6209
## 441/781 [===============>..............] - ETA: 8s - loss: 1.0804 - accuracy: 0.6209
## 443/781 [================>.............] - ETA: 8s - loss: 1.0796 - accuracy: 0.6210
## 445/781 [================>.............] - ETA: 8s - loss: 1.0804 - accuracy: 0.6207
## 447/781 [================>.............] - ETA: 8s - loss: 1.0800 - accuracy: 0.6210
## 450/781 [================>.............] - ETA: 8s - loss: 1.0800 - accuracy: 0.6207
## 453/781 [================>.............] - ETA: 8s - loss: 1.0793 - accuracy: 0.6207
## 455/781 [================>.............] - ETA: 8s - loss: 1.0791 - accuracy: 0.6204
## 457/781 [================>.............] - ETA: 8s - loss: 1.0793 - accuracy: 0.6204
## 459/781 [================>.............] - ETA: 8s - loss: 1.0781 - accuracy: 0.6210
## 461/781 [================>.............] - ETA: 8s - loss: 1.0779 - accuracy: 0.6210
## 463/781 [================>.............] - ETA: 8s - loss: 1.0771 - accuracy: 0.6215
## 466/781 [================>.............] - ETA: 8s - loss: 1.0777 - accuracy: 0.6211
## 469/781 [=================>............] - ETA: 8s - loss: 1.0779 - accuracy: 0.6211
## 472/781 [=================>............] - ETA: 8s - loss: 1.0786 - accuracy: 0.6209
## 474/781 [=================>............] - ETA: 8s - loss: 1.0782 - accuracy: 0.6211
## 476/781 [=================>............] - ETA: 8s - loss: 1.0782 - accuracy: 0.6211
## 479/781 [=================>............] - ETA: 7s - loss: 1.0776 - accuracy: 0.6212
## 482/781 [=================>............] - ETA: 7s - loss: 1.0775 - accuracy: 0.6215
## 485/781 [=================>............] - ETA: 7s - loss: 1.0778 - accuracy: 0.6215
## 487/781 [=================>............] - ETA: 7s - loss: 1.0774 - accuracy: 0.6216
## 490/781 [=================>............] - ETA: 7s - loss: 1.0761 - accuracy: 0.6221
## 492/781 [=================>............] - ETA: 7s - loss: 1.0755 - accuracy: 0.6223
```

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## 495/781 [==================>...........] - ETA: 7s - loss: 1.0755 - accuracy: 0.6222
## 497/781 [==================>...........] - ETA: 7s - loss: 1.0757 - accuracy: 0.6220
## 500/781 [==================>...........] - ETA: 7s - loss: 1.0760 - accuracy: 0.6222
## 503/781 [==================>...........] - ETA: 7s - loss: 1.0756 - accuracy: 0.6224
## 506/781 [==================>...........] - ETA: 7s - loss: 1.0757 - accuracy: 0.6222
## 508/781 [==================>...........] - ETA: 7s - loss: 1.0756 - accuracy: 0.6222
## 511/781 [==================>...........] - ETA: 7s - loss: 1.0756 - accuracy: 0.6224
## 513/781 [==================>...........] - ETA: 7s - loss: 1.0760 - accuracy: 0.6223
## 515/781 [==================>...........] - ETA: 6s - loss: 1.0755 - accuracy: 0.6225
## 517/781 [==================>...........] - ETA: 6s - loss: 1.0752 - accuracy: 0.6227
## 520/781 [==================>...........] - ETA: 6s - loss: 1.0758 - accuracy: 0.6225
## 522/781 [==================>...........] - ETA: 6s - loss: 1.0759 - accuracy: 0.6225
## 525/781 [==================>...........] - ETA: 6s - loss: 1.0757 - accuracy: 0.6225
## 528/781 [==================>...........] - ETA: 6s - loss: 1.0749 - accuracy: 0.6229
## 530/781 [==================>...........] - ETA: 6s - loss: 1.0748 - accuracy: 0.6229
## 532/781 [==================>...........] - ETA: 6s - loss: 1.0749 - accuracy: 0.6229
## 534/781 [==================>...........] - ETA: 6s - loss: 1.0752 - accuracy: 0.6227
## 537/781 [==================>...........] - ETA: 6s - loss: 1.0751 - accuracy: 0.6227
## 539/781 [==================>...........] - ETA: 6s - loss: 1.0744 - accuracy: 0.6230
## 541/781 [==================>...........] - ETA: 6s - loss: 1.0744 - accuracy: 0.6231
## 543/781 [==================>...........] - ETA: 6s - loss: 1.0742 - accuracy: 0.6231
## 546/781 [==================>...........] - ETA: 6s - loss: 1.0733 - accuracy: 0.6234
## 549/781 [===================>..........] - ETA: 6s - loss: 1.0732 - accuracy: 0.6234
## 551/781 [===================>..........] - ETA: 6s - loss: 1.0733 - accuracy: 0.6234
## 553/781 [===================>..........] - ETA: 5s - loss: 1.0735 - accuracy: 0.6234
## 555/781 [===================>..........] - ETA: 5s - loss: 1.0737 - accuracy: 0.6233
## 558/781 [===================>..........] - ETA: 5s - loss: 1.0734 - accuracy: 0.6233
## 560/781 [===================>..........] - ETA: 5s - loss: 1.0735 - accuracy: 0.6233
## 563/781 [===================>..........] - ETA: 5s - loss: 1.0728 - accuracy: 0.6233
## 566/781 [===================>..........] - ETA: 5s - loss: 1.0718 - accuracy: 0.6237
## 568/781 [===================>..........] - ETA: 5s - loss: 1.0717 - accuracy: 0.6236
## 571/781 [===================>..........] - ETA: 5s - loss: 1.0718 - accuracy: 0.6235
## 574/781 [====================>.........] - ETA: 5s - loss: 1.0718 - accuracy: 0.6235
## 577/781 [====================>.........] - ETA: 5s - loss: 1.0711 - accuracy: 0.6239
## 580/781 [====================>.........] - ETA: 5s - loss: 1.0717 - accuracy: 0.6237
## 582/781 [====================>.........] - ETA: 5s - loss: 1.0711 - accuracy: 0.6238
## 585/781 [====================>.........] - ETA: 5s - loss: 1.0704 - accuracy: 0.6242
## 588/781 [====================>.........] - ETA: 5s - loss: 1.0704 - accuracy: 0.6242
## 590/781 [====================>.........] - ETA: 5s - loss: 1.0704 - accuracy: 0.6242
## 593/781 [====================>.........] - ETA: 4s - loss: 1.0706 - accuracy: 0.6240
## 595/781 [====================>.........] - ETA: 4s - loss: 1.0703 - accuracy: 0.6242
## 598/781 [====================>.........] - ETA: 4s - loss: 1.0699 - accuracy: 0.6242
## 600/781 [=====================>........] - ETA: 4s - loss: 1.0693 - accuracy: 0.6245
## 602/781 [=====================>........] - ETA: 4s - loss: 1.0697 - accuracy: 0.6244
## 604/781 [=====================>........] - ETA: 4s - loss: 1.0699 - accuracy: 0.6245
## 607/781 [=====================>........] - ETA: 4s - loss: 1.0703 - accuracy: 0.6246
## 610/781 [=====================>........] - ETA: 4s - loss: 1.0704 - accuracy: 0.6245
## 612/781 [=====================>........] - ETA: 4s - loss: 1.0701 - accuracy: 0.6245
## 614/781 [=====================>........] - ETA: 4s - loss: 1.0696 - accuracy: 0.6248
## 616/781 [=====================>........] - ETA: 4s - loss: 1.0699 - accuracy: 0.6248
## 618/781 [=====================>........] - ETA: 4s - loss: 1.0696 - accuracy: 0.6249
## 620/781 [=====================>........] - ETA: 4s - loss: 1.0692 - accuracy: 0.6252
## 622/781 [=====================>........] - ETA: 4s - loss: 1.0692 - accuracy: 0.6252
## 624/781 [=====================>........] - ETA: 4s - loss: 1.0688 - accuracy: 0.6253
```

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## 627/781 [=====================>......] - ETA: 4s - loss: 1.0691 - accuracy: 0.6252
## 630/781 [=====================>......] - ETA: 3s - loss: 1.0693 - accuracy: 0.6250
## 632/781 [=====================>......] - ETA: 3s - loss: 1.0690 - accuracy: 0.6251
## 634/781 [=====================>......] - ETA: 3s - loss: 1.0687 - accuracy: 0.6251
## 637/781 [=====================>......] - ETA: 3s - loss: 1.0687 - accuracy: 0.6249
## 640/781 [=====================>......] - ETA: 3s - loss: 1.0684 - accuracy: 0.6250
## 643/781 [=====================>......] - ETA: 3s - loss: 1.0679 - accuracy: 0.6252
## 646/781 [=====================>......] - ETA: 3s - loss: 1.0677 - accuracy: 0.6252
## 648/781 [=====================>......] - ETA: 3s - loss: 1.0677 - accuracy: 0.6251
## 650/781 [=====================>......] - ETA: 3s - loss: 1.0681 - accuracy: 0.6249
## 653/781 [=====================>.....] - ETA: 3s - loss: 1.0685 - accuracy: 0.6247
## 655/781 [=====================>.....] - ETA: 3s - loss: 1.0683 - accuracy: 0.6249
## 658/781 [=====================>.....] - ETA: 3s - loss: 1.0683 - accuracy: 0.6249
## 660/781 [=====================>.....] - ETA: 3s - loss: 1.0685 - accuracy: 0.6249
## 662/781 [=====================>.....] - ETA: 3s - loss: 1.0683 - accuracy: 0.6250
## 664/781 [=====================>.....] - ETA: 3s - loss: 1.0684 - accuracy: 0.6249
## 667/781 [=====================>.....] - ETA: 2s - loss: 1.0685 - accuracy: 0.6249
## 669/781 [=====================>.....] - ETA: 2s - loss: 1.0685 - accuracy: 0.6250
## 671/781 [=====================>.....] - ETA: 2s - loss: 1.0693 - accuracy: 0.6247
## 674/781 [=====================>.....] - ETA: 2s - loss: 1.0691 - accuracy: 0.6247
## 677/781 [======================>....] - ETA: 2s - loss: 1.0693 - accuracy: 0.6245
## 680/781 [======================>....] - ETA: 2s - loss: 1.0699 - accuracy: 0.6242
## 682/781 [======================>....] - ETA: 2s - loss: 1.0702 - accuracy: 0.6241
## 684/781 [======================>....] - ETA: 2s - loss: 1.0706 - accuracy: 0.6239
## 687/781 [======================>....] - ETA: 2s - loss: 1.0711 - accuracy: 0.6237
## 689/781 [======================>....] - ETA: 2s - loss: 1.0710 - accuracy: 0.6238
## 691/781 [======================>....] - ETA: 2s - loss: 1.0710 - accuracy: 0.6238
## 694/781 [======================>....] - ETA: 2s - loss: 1.0710 - accuracy: 0.6238
## 695/781 [======================>....] - ETA: 2s - loss: 1.0710 - accuracy: 0.6238
## 698/781 [======================>....] - ETA: 2s - loss: 1.0709 - accuracy: 0.6239
## 701/781 [======================>....] - ETA: 2s - loss: 1.0708 - accuracy: 0.6238
## 704/781 [======================>...] - ETA: 2s - loss: 1.0704 - accuracy: 0.6240
## 707/781 [======================>...] - ETA: 1s - loss: 1.0700 - accuracy: 0.6242
## 709/781 [======================>...] - ETA: 1s - loss: 1.0698 - accuracy: 0.6243
## 712/781 [======================>...] - ETA: 1s - loss: 1.0700 - accuracy: 0.6241
## 714/781 [======================>...] - ETA: 1s - loss: 1.0700 - accuracy: 0.6241
## 716/781 [======================>...] - ETA: 1s - loss: 1.0699 - accuracy: 0.6242
## 718/781 [======================>...] - ETA: 1s - loss: 1.0697 - accuracy: 0.6242
## 720/781 [======================>...] - ETA: 1s - loss: 1.0698 - accuracy: 0.6242
## 723/781 [======================>...] - ETA: 1s - loss: 1.0693 - accuracy: 0.6244
## 726/781 [======================>...] - ETA: 1s - loss: 1.0695 - accuracy: 0.6243
## 729/781 [=======================>..] - ETA: 1s - loss: 1.0694 - accuracy: 0.6243
## 731/781 [=======================>..] - ETA: 1s - loss: 1.0694 - accuracy: 0.6244
## 734/781 [=======================>..] - ETA: 1s - loss: 1.0696 - accuracy: 0.6243
## 736/781 [=======================>..] - ETA: 1s - loss: 1.0692 - accuracy: 0.6243
## 739/781 [=======================>..] - ETA: 1s - loss: 1.0686 - accuracy: 0.6245
## 742/781 [=======================>..] - ETA: 1s - loss: 1.0698 - accuracy: 0.6241
## 745/781 [=======================>..] - ETA: 0s - loss: 1.0695 - accuracy: 0.6242
## 747/781 [=======================>..] - ETA: 0s - loss: 1.0695 - accuracy: 0.6242
## 749/781 [=======================>..] - ETA: 0s - loss: 1.0691 - accuracy: 0.6244
## 752/781 [=======================>..] - ETA: 0s - loss: 1.0689 - accuracy: 0.6244
## 754/781 [=======================>..] - ETA: 0s - loss: 1.0687 - accuracy: 0.6246
## 757/781 [=======================>.] - ETA: 0s - loss: 1.0688 - accuracy: 0.6245
## 760/781 [=======================>.] - ETA: 0s - loss: 1.0689 - accuracy: 0.6245
```

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## 762/781 [============================>.] - ETA: 0s - loss: 1.0692 - accuracy: 0.6244
## 765/781 [============================>.] - ETA: 0s - loss: 1.0691 - accuracy: 0.6245
## 768/781 [============================>.] - ETA: 0s - loss: 1.0692 - accuracy: 0.6244
## 770/781 [============================>.] - ETA: 0s - loss: 1.0691 - accuracy: 0.6244
## 772/781 [============================>.] - ETA: 0s - loss: 1.0691 - accuracy: 0.6243
## 775/781 [============================>.] - ETA: 0s - loss: 1.0694 - accuracy: 0.6243
## 777/781 [============================>.] - ETA: 0s - loss: 1.0696 - accuracy: 0.6243
## 780/781 [============================>.] - ETA: 0s - loss: 1.0697 - accuracy: 0.6242
## 781/781 [==============================] - 22s 28ms/step - loss: 1.0698 - accuracy: 0.6242 - val_loss
## Epoch 7/20
##
##   1/781 [..............................] - ETA: 28s - loss: 0.8425 - accuracy: 0.7656
##   3/781 [..............................] - ETA: 22s - loss: 1.1158 - accuracy: 0.6667
##   6/781 [..............................] - ETA: 20s - loss: 1.1217 - accuracy: 0.6328
##   8/781 [..............................] - ETA: 20s - loss: 1.1336 - accuracy: 0.6328
##  11/781 [..............................] - ETA: 19s - loss: 1.1229 - accuracy: 0.6349
##  14/781 [..............................] - ETA: 19s - loss: 1.1026 - accuracy: 0.6406
##  16/781 [..............................] - ETA: 19s - loss: 1.0905 - accuracy: 0.6445
##  18/781 [..............................] - ETA: 19s - loss: 1.0931 - accuracy: 0.6450
##  20/781 [..............................] - ETA: 19s - loss: 1.0941 - accuracy: 0.6406
##  23/781 [..............................] - ETA: 19s - loss: 1.0966 - accuracy: 0.6393
##  26/781 [..............................] - ETA: 19s - loss: 1.0834 - accuracy: 0.6418
##  28/781 [>.............................] - ETA: 19s - loss: 1.0784 - accuracy: 0.6401
##  30/781 [>.............................] - ETA: 19s - loss: 1.0819 - accuracy: 0.6406
##  32/781 [>.............................] - ETA: 19s - loss: 1.0717 - accuracy: 0.6445
##  35/781 [>.............................] - ETA: 19s - loss: 1.0668 - accuracy: 0.6455
##  37/781 [>.............................] - ETA: 19s - loss: 1.0642 - accuracy: 0.6482
##  40/781 [>.............................] - ETA: 19s - loss: 1.0568 - accuracy: 0.6492
##  43/781 [>.............................] - ETA: 18s - loss: 1.0482 - accuracy: 0.6523
##  46/781 [>.............................] - ETA: 18s - loss: 1.0474 - accuracy: 0.6505
##  48/781 [>.............................] - ETA: 18s - loss: 1.0456 - accuracy: 0.6504
##  50/781 [>.............................] - ETA: 18s - loss: 1.0518 - accuracy: 0.6481
##  53/781 [=>............................] - ETA: 18s - loss: 1.0454 - accuracy: 0.6506
##  55/781 [=>............................] - ETA: 18s - loss: 1.0574 - accuracy: 0.6457
##  57/781 [=>............................] - ETA: 18s - loss: 1.0586 - accuracy: 0.6434
##  59/781 [=>............................] - ETA: 18s - loss: 1.0616 - accuracy: 0.6433
##  61/781 [=>............................] - ETA: 18s - loss: 1.0599 - accuracy: 0.6455
##  63/781 [=>............................] - ETA: 18s - loss: 1.0593 - accuracy: 0.6458
##  65/781 [=>............................] - ETA: 18s - loss: 1.0554 - accuracy: 0.6459
##  67/781 [=>............................] - ETA: 18s - loss: 1.0540 - accuracy: 0.6455
##  70/781 [=>............................] - ETA: 18s - loss: 1.0501 - accuracy: 0.6446
##  72/781 [=>............................] - ETA: 18s - loss: 1.0504 - accuracy: 0.6458
##  74/781 [=>............................] - ETA: 18s - loss: 1.0547 - accuracy: 0.6442
##  77/781 [=>............................] - ETA: 18s - loss: 1.0532 - accuracy: 0.6449
##  79/781 [==>...........................] - ETA: 18s - loss: 1.0545 - accuracy: 0.6450
##  81/781 [==>...........................] - ETA: 18s - loss: 1.0550 - accuracy: 0.6437
##  84/781 [==>...........................] - ETA: 18s - loss: 1.0515 - accuracy: 0.6453
##  87/781 [==>...........................] - ETA: 18s - loss: 1.0569 - accuracy: 0.6431
##  89/781 [==>...........................] - ETA: 18s - loss: 1.0563 - accuracy: 0.6431
##  91/781 [==>...........................] - ETA: 18s - loss: 1.0565 - accuracy: 0.6423
##  93/781 [==>...........................] - ETA: 17s - loss: 1.0567 - accuracy: 0.6421
##  96/781 [==>...........................] - ETA: 17s - loss: 1.0546 - accuracy: 0.6421
##  98/781 [==>...........................] - ETA: 17s - loss: 1.0562 - accuracy: 0.6416
## 101/781 [==>...........................] - ETA: 17s - loss: 1.0572 - accuracy: 0.6416
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## 104/781 [==>...........................] - ETA: 17s - loss: 1.0565 - accuracy: 0.6423
## 106/781 [===>..........................] - ETA: 17s - loss: 1.0547 - accuracy: 0.6420
## 109/781 [===>..........................] - ETA: 17s - loss: 1.0524 - accuracy: 0.6419
## 112/781 [===>..........................] - ETA: 17s - loss: 1.0508 - accuracy: 0.6412
## 115/781 [===>..........................] - ETA: 17s - loss: 1.0472 - accuracy: 0.6408
## 118/781 [===>..........................] - ETA: 17s - loss: 1.0462 - accuracy: 0.6413
## 120/781 [===>..........................] - ETA: 17s - loss: 1.0450 - accuracy: 0.6405
## 122/781 [===>..........................] - ETA: 17s - loss: 1.0422 - accuracy: 0.6415
## 124/781 [===>..........................] - ETA: 17s - loss: 1.0441 - accuracy: 0.6399
## 127/781 [===>..........................] - ETA: 17s - loss: 1.0444 - accuracy: 0.6390
## 129/781 [===>..........................] - ETA: 16s - loss: 1.0429 - accuracy: 0.6391
## 132/781 [====>.........................] - ETA: 16s - loss: 1.0421 - accuracy: 0.6385
## 135/781 [====>.........................] - ETA: 16s - loss: 1.0430 - accuracy: 0.6385
## 137/781 [====>.........................] - ETA: 16s - loss: 1.0447 - accuracy: 0.6377
## 139/781 [====>.........................] - ETA: 16s - loss: 1.0442 - accuracy: 0.6374
## 142/781 [====>.........................] - ETA: 16s - loss: 1.0424 - accuracy: 0.6381
## 145/781 [====>.........................] - ETA: 16s - loss: 1.0430 - accuracy: 0.6379
## 147/781 [====>.........................] - ETA: 16s - loss: 1.0417 - accuracy: 0.6383
## 149/781 [====>.........................] - ETA: 16s - loss: 1.0421 - accuracy: 0.6386
## 151/781 [====>.........................] - ETA: 16s - loss: 1.0402 - accuracy: 0.6391
## 154/781 [====>.........................] - ETA: 16s - loss: 1.0399 - accuracy: 0.6396
## 157/781 [=====>........................] - ETA: 16s - loss: 1.0427 - accuracy: 0.6389
## 159/781 [=====>........................] - ETA: 16s - loss: 1.0422 - accuracy: 0.6387
## 161/781 [=====>........................] - ETA: 16s - loss: 1.0415 - accuracy: 0.6395
## 164/781 [=====>........................] - ETA: 16s - loss: 1.0408 - accuracy: 0.6401
## 167/781 [=====>........................] - ETA: 15s - loss: 1.0408 - accuracy: 0.6397
## 170/781 [=====>........................] - ETA: 15s - loss: 1.0408 - accuracy: 0.6393
## 173/781 [=====>........................] - ETA: 15s - loss: 1.0415 - accuracy: 0.6389
## 176/781 [=====>........................] - ETA: 15s - loss: 1.0394 - accuracy: 0.6393
## 178/781 [=====>........................] - ETA: 15s - loss: 1.0389 - accuracy: 0.6390
## 180/781 [=====>........................] - ETA: 15s - loss: 1.0391 - accuracy: 0.6391
## 183/781 [======>.......................] - ETA: 15s - loss: 1.0395 - accuracy: 0.6381
## 185/781 [======>.......................] - ETA: 15s - loss: 1.0413 - accuracy: 0.6372
## 188/781 [======>.......................] - ETA: 15s - loss: 1.0394 - accuracy: 0.6375
## 191/781 [======>.......................] - ETA: 15s - loss: 1.0401 - accuracy: 0.6371
## 193/781 [======>.......................] - ETA: 15s - loss: 1.0401 - accuracy: 0.6366
## 196/781 [======>.......................] - ETA: 15s - loss: 1.0387 - accuracy: 0.6377
## 199/781 [======>.......................] - ETA: 15s - loss: 1.0393 - accuracy: 0.6372
## 201/781 [======>.......................] - ETA: 15s - loss: 1.0388 - accuracy: 0.6377
## 204/781 [======>.......................] - ETA: 14s - loss: 1.0386 - accuracy: 0.6375
## 207/781 [======>.......................] - ETA: 14s - loss: 1.0399 - accuracy: 0.6370
## 209/781 [=======>......................] - ETA: 14s - loss: 1.0405 - accuracy: 0.6364
## 211/781 [=======>......................] - ETA: 14s - loss: 1.0392 - accuracy: 0.6366
## 213/781 [=======>......................] - ETA: 14s - loss: 1.0389 - accuracy: 0.6365
## 216/781 [=======>......................] - ETA: 14s - loss: 1.0394 - accuracy: 0.6365
## 219/781 [=======>......................] - ETA: 14s - loss: 1.0404 - accuracy: 0.6357
## 221/781 [=======>......................] - ETA: 14s - loss: 1.0392 - accuracy: 0.6359
## 223/781 [=======>......................] - ETA: 14s - loss: 1.0392 - accuracy: 0.6361
## 225/781 [=======>......................] - ETA: 14s - loss: 1.0387 - accuracy: 0.6362
## 228/781 [=======>......................] - ETA: 14s - loss: 1.0402 - accuracy: 0.6357
## 230/781 [=======>......................] - ETA: 14s - loss: 1.0408 - accuracy: 0.6357
## 233/781 [=======>......................] - ETA: 14s - loss: 1.0397 - accuracy: 0.6361
## 236/781 [========>.....................] - ETA: 14s - loss: 1.0405 - accuracy: 0.6361
## 238/781 [========>.....................] - ETA: 14s - loss: 1.0404 - accuracy: 0.6362
```

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## 240/781 [========>.....................] - ETA: 14s - loss: 1.0395 - accuracy: 0.6362
## 243/781 [========>.....................] - ETA: 13s - loss: 1.0397 - accuracy: 0.6364
## 246/781 [========>.....................] - ETA: 13s - loss: 1.0400 - accuracy: 0.6362
## 249/781 [========>.....................] - ETA: 13s - loss: 1.0413 - accuracy: 0.6362
## 251/781 [========>.....................] - ETA: 13s - loss: 1.0419 - accuracy: 0.6358
## 253/781 [========>.....................] - ETA: 13s - loss: 1.0429 - accuracy: 0.6356
## 255/781 [========>.....................] - ETA: 13s - loss: 1.0425 - accuracy: 0.6359
## 258/781 [========>.....................] - ETA: 13s - loss: 1.0433 - accuracy: 0.6357
## 260/781 [========>.....................] - ETA: 13s - loss: 1.0440 - accuracy: 0.6355
## 263/781 [=========>....................] - ETA: 13s - loss: 1.0445 - accuracy: 0.6353
## 266/781 [=========>....................] - ETA: 13s - loss: 1.0437 - accuracy: 0.6357
## 269/781 [=========>....................] - ETA: 13s - loss: 1.0449 - accuracy: 0.6358
## 272/781 [=========>....................] - ETA: 13s - loss: 1.0447 - accuracy: 0.6356
## 274/781 [=========>....................] - ETA: 13s - loss: 1.0454 - accuracy: 0.6353
## 277/781 [=========>....................] - ETA: 13s - loss: 1.0448 - accuracy: 0.6357
## 279/781 [=========>....................] - ETA: 13s - loss: 1.0452 - accuracy: 0.6353
## 281/781 [=========>....................] - ETA: 12s - loss: 1.0459 - accuracy: 0.6351
## 284/781 [=========>....................] - ETA: 12s - loss: 1.0464 - accuracy: 0.6346
## 286/781 [=========>....................] - ETA: 12s - loss: 1.0463 - accuracy: 0.6346
## 289/781 [==========>...................] - ETA: 12s - loss: 1.0448 - accuracy: 0.6350
## 292/781 [==========>...................] - ETA: 12s - loss: 1.0452 - accuracy: 0.6352
## 294/781 [==========>...................] - ETA: 12s - loss: 1.0445 - accuracy: 0.6353
## 297/781 [==========>...................] - ETA: 12s - loss: 1.0455 - accuracy: 0.6354
## 300/781 [==========>...................] - ETA: 12s - loss: 1.0453 - accuracy: 0.6353
## 302/781 [==========>...................] - ETA: 12s - loss: 1.0450 - accuracy: 0.6352
## 304/781 [==========>...................] - ETA: 12s - loss: 1.0458 - accuracy: 0.6352
## 307/781 [==========>...................] - ETA: 12s - loss: 1.0454 - accuracy: 0.6356
## 309/781 [==========>...................] - ETA: 12s - loss: 1.0459 - accuracy: 0.6353
## 312/781 [==========>...................] - ETA: 12s - loss: 1.0452 - accuracy: 0.6356
## 315/781 [===========>..................] - ETA: 12s - loss: 1.0459 - accuracy: 0.6353
## 317/781 [===========>..................] - ETA: 12s - loss: 1.0465 - accuracy: 0.6351
## 320/781 [===========>..................] - ETA: 11s - loss: 1.0476 - accuracy: 0.6346
## 323/781 [===========>..................] - ETA: 11s - loss: 1.0476 - accuracy: 0.6348
## 325/781 [===========>..................] - ETA: 11s - loss: 1.0474 - accuracy: 0.6349
## 328/781 [===========>..................] - ETA: 11s - loss: 1.0475 - accuracy: 0.6349
## 330/781 [===========>..................] - ETA: 11s - loss: 1.0468 - accuracy: 0.6350
## 332/781 [===========>..................] - ETA: 11s - loss: 1.0463 - accuracy: 0.6355
## 334/781 [===========>..................] - ETA: 11s - loss: 1.0466 - accuracy: 0.6353
## 337/781 [===========>..................] - ETA: 11s - loss: 1.0479 - accuracy: 0.6347
## 340/781 [============>.................] - ETA: 11s - loss: 1.0480 - accuracy: 0.6348
## 343/781 [============>.................] - ETA: 11s - loss: 1.0474 - accuracy: 0.6350
## 345/781 [============>.................] - ETA: 11s - loss: 1.0476 - accuracy: 0.6348
## 347/781 [============>.................] - ETA: 11s - loss: 1.0471 - accuracy: 0.6351
## 349/781 [============>.................] - ETA: 11s - loss: 1.0470 - accuracy: 0.6350
## 352/781 [============>.................] - ETA: 11s - loss: 1.0459 - accuracy: 0.6353
## 354/781 [============>.................] - ETA: 11s - loss: 1.0451 - accuracy: 0.6357
## 357/781 [============>.................] - ETA: 11s - loss: 1.0441 - accuracy: 0.6356
## 360/781 [============>.................] - ETA: 10s - loss: 1.0416 - accuracy: 0.6365
## 363/781 [============>.................] - ETA: 10s - loss: 1.0424 - accuracy: 0.6358
## 365/781 [=============>................] - ETA: 10s - loss: 1.0416 - accuracy: 0.6361
## 367/781 [=============>................] - ETA: 10s - loss: 1.0419 - accuracy: 0.6361
## 369/781 [=============>................] - ETA: 10s - loss: 1.0427 - accuracy: 0.6357
## 372/781 [=============>................] - ETA: 10s - loss: 1.0423 - accuracy: 0.6359
## 374/781 [=============>................] - ETA: 10s - loss: 1.0417 - accuracy: 0.6363
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## 377/781 [============>.............] - ETA: 10s - loss: 1.0412 - accuracy: 0.6366
## 380/781 [============>.............] - ETA: 10s - loss: 1.0416 - accuracy: 0.6366
## 383/781 [============>.............] - ETA: 10s - loss: 1.0415 - accuracy: 0.6367
## 386/781 [============>.............] - ETA: 10s - loss: 1.0407 - accuracy: 0.6369
## 389/781 [============>.............] - ETA: 10s - loss: 1.0413 - accuracy: 0.6366
## 392/781 [=============>............] - ETA: 10s - loss: 1.0410 - accuracy: 0.6368
## 395/781 [=============>............] - ETA: 10s - loss: 1.0416 - accuracy: 0.6367
## 397/781 [=============>............] - ETA: 9s - loss: 1.0415 - accuracy: 0.6365
## 399/781 [=============>............] - ETA: 9s - loss: 1.0417 - accuracy: 0.6365
## 401/781 [=============>............] - ETA: 9s - loss: 1.0417 - accuracy: 0.6366
## 403/781 [=============>............] - ETA: 9s - loss: 1.0418 - accuracy: 0.6366
## 405/781 [=============>............] - ETA: 9s - loss: 1.0424 - accuracy: 0.6363
## 407/781 [=============>............] - ETA: 9s - loss: 1.0427 - accuracy: 0.6362
## 410/781 [=============>............] - ETA: 9s - loss: 1.0429 - accuracy: 0.6362
## 412/781 [=============>............] - ETA: 9s - loss: 1.0427 - accuracy: 0.6363
## 415/781 [=============>............] - ETA: 9s - loss: 1.0430 - accuracy: 0.6360
## 417/781 [==============>...........] - ETA: 9s - loss: 1.0424 - accuracy: 0.6361
## 419/781 [==============>...........] - ETA: 9s - loss: 1.0431 - accuracy: 0.6359
## 422/781 [==============>...........] - ETA: 9s - loss: 1.0431 - accuracy: 0.6359
## 424/781 [==============>...........] - ETA: 9s - loss: 1.0428 - accuracy: 0.6360
## 426/781 [==============>...........] - ETA: 9s - loss: 1.0427 - accuracy: 0.6360
## 429/781 [==============>...........] - ETA: 9s - loss: 1.0429 - accuracy: 0.6358
## 431/781 [==============>...........] - ETA: 9s - loss: 1.0429 - accuracy: 0.6358
## 434/781 [==============>...........] - ETA: 9s - loss: 1.0426 - accuracy: 0.6357
## 437/781 [==============>...........] - ETA: 8s - loss: 1.0426 - accuracy: 0.6359
## 440/781 [==============>...........] - ETA: 8s - loss: 1.0425 - accuracy: 0.6361
## 442/781 [==============>...........] - ETA: 8s - loss: 1.0425 - accuracy: 0.6362
## 445/781 [===============>..........] - ETA: 8s - loss: 1.0414 - accuracy: 0.6366
## 447/781 [===============>..........] - ETA: 8s - loss: 1.0418 - accuracy: 0.6365
## 450/781 [===============>..........] - ETA: 8s - loss: 1.0411 - accuracy: 0.6367
## 452/781 [===============>..........] - ETA: 8s - loss: 1.0411 - accuracy: 0.6367
## 455/781 [===============>..........] - ETA: 8s - loss: 1.0418 - accuracy: 0.6365
## 458/781 [===============>..........] - ETA: 8s - loss: 1.0412 - accuracy: 0.6363
## 460/781 [===============>..........] - ETA: 8s - loss: 1.0410 - accuracy: 0.6363
## 462/781 [===============>..........] - ETA: 8s - loss: 1.0411 - accuracy: 0.6363
## 465/781 [===============>..........] - ETA: 8s - loss: 1.0407 - accuracy: 0.6364
## 468/781 [===============>..........] - ETA: 8s - loss: 1.0401 - accuracy: 0.6368
## 470/781 [================>.........] - ETA: 8s - loss: 1.0397 - accuracy: 0.6370
## 473/781 [================>.........] - ETA: 8s - loss: 1.0400 - accuracy: 0.6370
## 475/781 [================>.........] - ETA: 7s - loss: 1.0395 - accuracy: 0.6373
## 478/781 [================>.........] - ETA: 7s - loss: 1.0396 - accuracy: 0.6372
## 480/781 [================>.........] - ETA: 7s - loss: 1.0394 - accuracy: 0.6373
## 483/781 [================>.........] - ETA: 7s - loss: 1.0398 - accuracy: 0.6372
## 486/781 [================>.........] - ETA: 7s - loss: 1.0400 - accuracy: 0.6370
## 488/781 [================>.........] - ETA: 7s - loss: 1.0396 - accuracy: 0.6370
## 491/781 [================>.........] - ETA: 7s - loss: 1.0394 - accuracy: 0.6371
## 493/781 [================>.........] - ETA: 7s - loss: 1.0391 - accuracy: 0.6373
## 496/781 [=================>........] - ETA: 7s - loss: 1.0393 - accuracy: 0.6373
## 498/781 [=================>........] - ETA: 7s - loss: 1.0392 - accuracy: 0.6374
## 500/781 [=================>........] - ETA: 7s - loss: 1.0388 - accuracy: 0.6374
## 503/781 [=================>........] - ETA: 7s - loss: 1.0386 - accuracy: 0.6376
## 506/781 [=================>........] - ETA: 7s - loss: 1.0391 - accuracy: 0.6371
## 509/781 [=================>........] - ETA: 7s - loss: 1.0385 - accuracy: 0.6373
## 511/781 [=================>........] - ETA: 7s - loss: 1.0383 - accuracy: 0.6376
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## 514/781 [=================>............] - ETA: 6s - loss: 1.0383 - accuracy: 0.6374
## 516/781 [=================>............] - ETA: 6s - loss: 1.0389 - accuracy: 0.6371
## 519/781 [=================>............] - ETA: 6s - loss: 1.0391 - accuracy: 0.6371
## 521/781 [==================>...........] - ETA: 6s - loss: 1.0395 - accuracy: 0.6370
## 524/781 [==================>...........] - ETA: 6s - loss: 1.0398 - accuracy: 0.6371
## 527/781 [==================>...........] - ETA: 6s - loss: 1.0399 - accuracy: 0.6370
## 530/781 [==================>...........] - ETA: 6s - loss: 1.0402 - accuracy: 0.6368
## 533/781 [==================>...........] - ETA: 6s - loss: 1.0399 - accuracy: 0.6367
## 536/781 [==================>...........] - ETA: 6s - loss: 1.0394 - accuracy: 0.6368
## 538/781 [==================>...........] - ETA: 6s - loss: 1.0393 - accuracy: 0.6367
## 541/781 [==================>...........] - ETA: 6s - loss: 1.0384 - accuracy: 0.6370
## 544/781 [==================>...........] - ETA: 6s - loss: 1.0377 - accuracy: 0.6372
## 547/781 [===================>..........] - ETA: 6s - loss: 1.0370 - accuracy: 0.6374
## 550/781 [===================>..........] - ETA: 5s - loss: 1.0373 - accuracy: 0.6373
## 553/781 [===================>..........] - ETA: 5s - loss: 1.0370 - accuracy: 0.6373
## 555/781 [===================>..........] - ETA: 5s - loss: 1.0364 - accuracy: 0.6377
## 558/781 [===================>..........] - ETA: 5s - loss: 1.0360 - accuracy: 0.6376
## 560/781 [===================>..........] - ETA: 5s - loss: 1.0360 - accuracy: 0.6375
## 563/781 [===================>..........] - ETA: 5s - loss: 1.0360 - accuracy: 0.6376
## 566/781 [===================>..........] - ETA: 5s - loss: 1.0356 - accuracy: 0.6375
## 568/781 [===================>..........] - ETA: 5s - loss: 1.0355 - accuracy: 0.6377
## 571/781 [===================>..........] - ETA: 5s - loss: 1.0354 - accuracy: 0.6379
## 574/781 [====================>.........] - ETA: 5s - loss: 1.0351 - accuracy: 0.6381
## 577/781 [====================>.........] - ETA: 5s - loss: 1.0353 - accuracy: 0.6380
## 579/781 [====================>.........] - ETA: 5s - loss: 1.0358 - accuracy: 0.6378
## 581/781 [====================>.........] - ETA: 5s - loss: 1.0359 - accuracy: 0.6378
## 583/781 [====================>.........] - ETA: 5s - loss: 1.0358 - accuracy: 0.6379
## 586/781 [====================>.........] - ETA: 5s - loss: 1.0362 - accuracy: 0.6379
## 588/781 [====================>.........] - ETA: 5s - loss: 1.0366 - accuracy: 0.6377
## 590/781 [====================>.........] - ETA: 4s - loss: 1.0364 - accuracy: 0.6377
## 593/781 [====================>.........] - ETA: 4s - loss: 1.0359 - accuracy: 0.6379
## 596/781 [====================>.........] - ETA: 4s - loss: 1.0359 - accuracy: 0.6380
## 598/781 [====================>.........] - ETA: 4s - loss: 1.0356 - accuracy: 0.6382
## 600/781 [=====================>........] - ETA: 4s - loss: 1.0358 - accuracy: 0.6382
## 602/781 [=====================>........] - ETA: 4s - loss: 1.0362 - accuracy: 0.6380
## 605/781 [=====================>........] - ETA: 4s - loss: 1.0363 - accuracy: 0.6380
## 608/781 [=====================>........] - ETA: 4s - loss: 1.0364 - accuracy: 0.6380
## 610/781 [=====================>........] - ETA: 4s - loss: 1.0367 - accuracy: 0.6377
## 612/781 [=====================>........] - ETA: 4s - loss: 1.0365 - accuracy: 0.6378
## 614/781 [=====================>........] - ETA: 4s - loss: 1.0364 - accuracy: 0.6375
## 617/781 [=====================>........] - ETA: 4s - loss: 1.0365 - accuracy: 0.6373
## 619/781 [=====================>........] - ETA: 4s - loss: 1.0371 - accuracy: 0.6371
## 622/781 [=====================>........] - ETA: 4s - loss: 1.0365 - accuracy: 0.6374
## 624/781 [=====================>........] - ETA: 4s - loss: 1.0365 - accuracy: 0.6374
## 627/781 [======================>.......] - ETA: 3s - loss: 1.0368 - accuracy: 0.6372
## 630/781 [======================>.......] - ETA: 3s - loss: 1.0364 - accuracy: 0.6376
## 632/781 [======================>.......] - ETA: 3s - loss: 1.0368 - accuracy: 0.6376
## 635/781 [======================>.......] - ETA: 3s - loss: 1.0368 - accuracy: 0.6374
## 637/781 [======================>.......] - ETA: 3s - loss: 1.0373 - accuracy: 0.6373
## 639/781 [======================>.......] - ETA: 3s - loss: 1.0371 - accuracy: 0.6374
## 642/781 [======================>.......] - ETA: 3s - loss: 1.0368 - accuracy: 0.6374
## 644/781 [======================>.......] - ETA: 3s - loss: 1.0369 - accuracy: 0.6374
## 647/781 [======================>.......] - ETA: 3s - loss: 1.0368 - accuracy: 0.6373
## 650/781 [======================>.......] - ETA: 3s - loss: 1.0369 - accuracy: 0.6372
```

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## 653/781 [=======================>.....] - ETA: 3s - loss: 1.0368 - accuracy: 0.6372
## 656/781 [=======================>.....] - ETA: 3s - loss: 1.0363 - accuracy: 0.6374
## 659/781 [=======================>.....] - ETA: 3s - loss: 1.0366 - accuracy: 0.6372
## 661/781 [=======================>.....] - ETA: 3s - loss: 1.0361 - accuracy: 0.6373
## 664/781 [=======================>.....] - ETA: 3s - loss: 1.0362 - accuracy: 0.6374
## 666/781 [=======================>.....] - ETA: 2s - loss: 1.0366 - accuracy: 0.6373
## 668/781 [=======================>.....] - ETA: 2s - loss: 1.0370 - accuracy: 0.6373
## 670/781 [=======================>.....] - ETA: 2s - loss: 1.0371 - accuracy: 0.6374
## 672/781 [=======================>.....] - ETA: 2s - loss: 1.0372 - accuracy: 0.6373
## 675/781 [=======================>.....] - ETA: 2s - loss: 1.0376 - accuracy: 0.6374
## 678/781 [=======================>....] - ETA: 2s - loss: 1.0375 - accuracy: 0.6371
## 680/781 [=======================>....] - ETA: 2s - loss: 1.0373 - accuracy: 0.6374
## 682/781 [=======================>....] - ETA: 2s - loss: 1.0374 - accuracy: 0.6373
## 685/781 [=======================>....] - ETA: 2s - loss: 1.0376 - accuracy: 0.6374
## 687/781 [=======================>....] - ETA: 2s - loss: 1.0378 - accuracy: 0.6372
## 690/781 [=======================>....] - ETA: 2s - loss: 1.0379 - accuracy: 0.6372
## 692/781 [=======================>....] - ETA: 2s - loss: 1.0383 - accuracy: 0.6371
## 694/781 [=======================>....] - ETA: 2s - loss: 1.0381 - accuracy: 0.6371
## 696/781 [=======================>....] - ETA: 2s - loss: 1.0378 - accuracy: 0.6373
## 699/781 [=======================>....] - ETA: 2s - loss: 1.0379 - accuracy: 0.6373
## 702/781 [=======================>....] - ETA: 2s - loss: 1.0376 - accuracy: 0.6374
## 705/781 [=======================>...] - ETA: 1s - loss: 1.0381 - accuracy: 0.6371
## 707/781 [=======================>...] - ETA: 1s - loss: 1.0384 - accuracy: 0.6369
## 709/781 [=======================>...] - ETA: 1s - loss: 1.0382 - accuracy: 0.6368
## 712/781 [=======================>...] - ETA: 1s - loss: 1.0378 - accuracy: 0.6371
## 715/781 [=======================>...] - ETA: 1s - loss: 1.0370 - accuracy: 0.6375
## 717/781 [=======================>...] - ETA: 1s - loss: 1.0368 - accuracy: 0.6375
## 720/781 [=======================>...] - ETA: 1s - loss: 1.0369 - accuracy: 0.6375
## 722/781 [=======================>...] - ETA: 1s - loss: 1.0374 - accuracy: 0.6373
## 724/781 [=======================>...] - ETA: 1s - loss: 1.0373 - accuracy: 0.6374
## 726/781 [=======================>...] - ETA: 1s - loss: 1.0371 - accuracy: 0.6374
## 729/781 [=======================>..] - ETA: 1s - loss: 1.0369 - accuracy: 0.6374
## 732/781 [=======================>..] - ETA: 1s - loss: 1.0365 - accuracy: 0.6376
## 735/781 [=======================>..] - ETA: 1s - loss: 1.0363 - accuracy: 0.6377
## 737/781 [=======================>..] - ETA: 1s - loss: 1.0365 - accuracy: 0.6378
## 739/781 [=======================>..] - ETA: 1s - loss: 1.0367 - accuracy: 0.6377
## 741/781 [=======================>..] - ETA: 1s - loss: 1.0365 - accuracy: 0.6377
## 744/781 [=======================>..] - ETA: 0s - loss: 1.0360 - accuracy: 0.6378
## 747/781 [=======================>..] - ETA: 0s - loss: 1.0364 - accuracy: 0.6376
## 749/781 [=======================>..] - ETA: 0s - loss: 1.0368 - accuracy: 0.6374
## 752/781 [=======================>..] - ETA: 0s - loss: 1.0369 - accuracy: 0.6373
## 755/781 [=======================>.] - ETA: 0s - loss: 1.0369 - accuracy: 0.6373
## 757/781 [=======================>.] - ETA: 0s - loss: 1.0368 - accuracy: 0.6373
## 760/781 [=======================>.] - ETA: 0s - loss: 1.0365 - accuracy: 0.6375
## 762/781 [=======================>.] - ETA: 0s - loss: 1.0362 - accuracy: 0.6376
## 765/781 [=======================>.] - ETA: 0s - loss: 1.0363 - accuracy: 0.6375
## 768/781 [=======================>.] - ETA: 0s - loss: 1.0364 - accuracy: 0.6374
## 771/781 [=======================>.] - ETA: 0s - loss: 1.0362 - accuracy: 0.6374
## 773/781 [=======================>.] - ETA: 0s - loss: 1.0362 - accuracy: 0.6373
## 775/781 [=======================>.] - ETA: 0s - loss: 1.0358 - accuracy: 0.6374
## 777/781 [=======================>.] - ETA: 0s - loss: 1.0360 - accuracy: 0.6373
## 780/781 [=======================>.] - ETA: 0s - loss: 1.0365 - accuracy: 0.6372
## 781/781 [==============================] - 21s 27ms/step - loss: 1.0365 - accuracy: 0.6371 - val_loss
## Epoch 8/20
```

```
##
##   1/781 [..............................] - ETA: 41s - loss: 1.1684 - accuracy: 0.5625
##   3/781 [..............................] - ETA: 21s - loss: 1.0974 - accuracy: 0.6198
##   5/781 [..............................] - ETA: 20s - loss: 1.0962 - accuracy: 0.6062
##   8/781 [..............................] - ETA: 20s - loss: 1.0609 - accuracy: 0.6270
##  11/781 [..............................] - ETA: 18s - loss: 1.0101 - accuracy: 0.6406
##  13/781 [..............................] - ETA: 19s - loss: 0.9973 - accuracy: 0.6418
##  16/781 [..............................] - ETA: 19s - loss: 0.9997 - accuracy: 0.6416
##  19/781 [..............................] - ETA: 19s - loss: 0.9812 - accuracy: 0.6497
##  21/781 [..............................] - ETA: 19s - loss: 1.0009 - accuracy: 0.6458
##  23/781 [..............................] - ETA: 19s - loss: 1.0059 - accuracy: 0.6406
##  26/781 [..............................] - ETA: 19s - loss: 1.0075 - accuracy: 0.6418
##  28/781 [>.............................] - ETA: 19s - loss: 1.0085 - accuracy: 0.6417
##  31/781 [>.............................] - ETA: 19s - loss: 1.0006 - accuracy: 0.6452
##  34/781 [>.............................] - ETA: 19s - loss: 1.0009 - accuracy: 0.6448
##  36/781 [>.............................] - ETA: 19s - loss: 1.0017 - accuracy: 0.6419
##  38/781 [>.............................] - ETA: 19s - loss: 1.0094 - accuracy: 0.6390
##  40/781 [>.............................] - ETA: 19s - loss: 1.0060 - accuracy: 0.6426
##  43/781 [>.............................] - ETA: 19s - loss: 1.0111 - accuracy: 0.6399
##  45/781 [>.............................] - ETA: 19s - loss: 1.0099 - accuracy: 0.6399
##  47/781 [>.............................] - ETA: 19s - loss: 1.0104 - accuracy: 0.6386
##  49/781 [>.............................] - ETA: 19s - loss: 1.0096 - accuracy: 0.6400
##  52/781 [>.............................] - ETA: 19s - loss: 1.0136 - accuracy: 0.6394
##  55/781 [=>............................] - ETA: 19s - loss: 1.0186 - accuracy: 0.6349
##  58/781 [=>............................] - ETA: 19s - loss: 1.0253 - accuracy: 0.6342
##  60/781 [=>............................] - ETA: 18s - loss: 1.0202 - accuracy: 0.6357
##  63/781 [=>............................] - ETA: 18s - loss: 1.0160 - accuracy: 0.6357
##  65/781 [=>............................] - ETA: 18s - loss: 1.0176 - accuracy: 0.6341
##  68/781 [=>............................] - ETA: 18s - loss: 1.0123 - accuracy: 0.6344
##  71/781 [=>............................] - ETA: 18s - loss: 1.0083 - accuracy: 0.6347
##  74/781 [=>............................] - ETA: 18s - loss: 1.0067 - accuracy: 0.6341
##  77/781 [=>............................] - ETA: 18s - loss: 1.0073 - accuracy: 0.6345
##  79/781 [==>...........................] - ETA: 18s - loss: 1.0049 - accuracy: 0.6365
##  82/781 [==>...........................] - ETA: 18s - loss: 1.0095 - accuracy: 0.6359
##  84/781 [==>...........................] - ETA: 18s - loss: 1.0074 - accuracy: 0.6373
##  86/781 [==>...........................] - ETA: 18s - loss: 1.0104 - accuracy: 0.6363
##  89/781 [==>...........................] - ETA: 18s - loss: 1.0121 - accuracy: 0.6366
##  92/781 [==>...........................] - ETA: 18s - loss: 1.0110 - accuracy: 0.6365
##  94/781 [==>...........................] - ETA: 18s - loss: 1.0138 - accuracy: 0.6365
##  97/781 [==>...........................] - ETA: 17s - loss: 1.0153 - accuracy: 0.6355
##  99/781 [==>...........................] - ETA: 17s - loss: 1.0130 - accuracy: 0.6367
## 101/781 [==>...........................] - ETA: 17s - loss: 1.0131 - accuracy: 0.6355
## 103/781 [==>...........................] - ETA: 17s - loss: 1.0147 - accuracy: 0.6359
## 105/781 [===>..........................] - ETA: 17s - loss: 1.0140 - accuracy: 0.6366
## 108/781 [===>..........................] - ETA: 17s - loss: 1.0133 - accuracy: 0.6373
## 111/781 [===>..........................] - ETA: 17s - loss: 1.0174 - accuracy: 0.6358
## 113/781 [===>..........................] - ETA: 17s - loss: 1.0171 - accuracy: 0.6361
## 116/781 [===>..........................] - ETA: 17s - loss: 1.0185 - accuracy: 0.6354
## 118/781 [===>..........................] - ETA: 17s - loss: 1.0177 - accuracy: 0.6361
## 121/781 [===>..........................] - ETA: 17s - loss: 1.0221 - accuracy: 0.6355
## 124/781 [===>..........................] - ETA: 17s - loss: 1.0220 - accuracy: 0.6362
## 127/781 [===>..........................] - ETA: 17s - loss: 1.0200 - accuracy: 0.6368
## 129/781 [===>..........................] - ETA: 17s - loss: 1.0194 - accuracy: 0.6370
## 132/781 [====>.........................] - ETA: 17s - loss: 1.0198 - accuracy: 0.6370
```

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## 135/781 [====>.....................] - ETA: 16s - loss: 1.0215 - accuracy: 0.6363
## 137/781 [====>.....................] - ETA: 16s - loss: 1.0218 - accuracy: 0.6357
## 140/781 [====>.....................] - ETA: 16s - loss: 1.0215 - accuracy: 0.6367
## 143/781 [====>.....................] - ETA: 16s - loss: 1.0212 - accuracy: 0.6371
## 145/781 [====>.....................] - ETA: 16s - loss: 1.0236 - accuracy: 0.6372
## 148/781 [====>.....................] - ETA: 16s - loss: 1.0227 - accuracy: 0.6374
## 150/781 [====>.....................] - ETA: 16s - loss: 1.0223 - accuracy: 0.6381
## 152/781 [====>.....................] - ETA: 16s - loss: 1.0210 - accuracy: 0.6386
## 155/781 [====>.....................] - ETA: 16s - loss: 1.0202 - accuracy: 0.6383
## 157/781 [=====>....................] - ETA: 16s - loss: 1.0205 - accuracy: 0.6381
## 160/781 [=====>....................] - ETA: 16s - loss: 1.0188 - accuracy: 0.6395
## 162/781 [=====>....................] - ETA: 16s - loss: 1.0192 - accuracy: 0.6399
## 165/781 [=====>....................] - ETA: 16s - loss: 1.0169 - accuracy: 0.6413
## 168/781 [=====>....................] - ETA: 15s - loss: 1.0195 - accuracy: 0.6402
## 171/781 [=====>....................] - ETA: 15s - loss: 1.0205 - accuracy: 0.6404
## 174/781 [=====>....................] - ETA: 15s - loss: 1.0215 - accuracy: 0.6404
## 176/781 [=====>....................] - ETA: 15s - loss: 1.0216 - accuracy: 0.6407
## 179/781 [=====>....................] - ETA: 15s - loss: 1.0228 - accuracy: 0.6400
## 181/781 [=====>....................] - ETA: 15s - loss: 1.0234 - accuracy: 0.6397
## 183/781 [======>...................] - ETA: 15s - loss: 1.0240 - accuracy: 0.6396
## 186/781 [======>...................] - ETA: 15s - loss: 1.0251 - accuracy: 0.6395
## 188/781 [======>...................] - ETA: 15s - loss: 1.0246 - accuracy: 0.6395
## 191/781 [======>...................] - ETA: 15s - loss: 1.0238 - accuracy: 0.6396
## 193/781 [======>...................] - ETA: 15s - loss: 1.0257 - accuracy: 0.6387
## 196/781 [======>...................] - ETA: 15s - loss: 1.0254 - accuracy: 0.6388
## 198/781 [======>...................] - ETA: 15s - loss: 1.0245 - accuracy: 0.6395
## 200/781 [======>...................] - ETA: 15s - loss: 1.0252 - accuracy: 0.6393
## 203/781 [======>...................] - ETA: 15s - loss: 1.0254 - accuracy: 0.6394
## 205/781 [======>...................] - ETA: 15s - loss: 1.0244 - accuracy: 0.6402
## 208/781 [======>...................] - ETA: 14s - loss: 1.0240 - accuracy: 0.6401
## 210/781 [=======>..................] - ETA: 14s - loss: 1.0248 - accuracy: 0.6397
## 212/781 [=======>..................] - ETA: 14s - loss: 1.0237 - accuracy: 0.6404
## 214/781 [=======>..................] - ETA: 14s - loss: 1.0218 - accuracy: 0.6414
## 216/781 [=======>..................] - ETA: 14s - loss: 1.0205 - accuracy: 0.6422
## 218/781 [=======>..................] - ETA: 14s - loss: 1.0211 - accuracy: 0.6416
## 221/781 [=======>..................] - ETA: 14s - loss: 1.0232 - accuracy: 0.6418
## 224/781 [=======>..................] - ETA: 14s - loss: 1.0224 - accuracy: 0.6423
## 226/781 [=======>..................] - ETA: 14s - loss: 1.0227 - accuracy: 0.6423
## 229/781 [=======>..................] - ETA: 14s - loss: 1.0235 - accuracy: 0.6422
## 232/781 [=======>..................] - ETA: 14s - loss: 1.0231 - accuracy: 0.6422
## 234/781 [=======>..................] - ETA: 14s - loss: 1.0229 - accuracy: 0.6418
## 236/781 [========>.................] - ETA: 14s - loss: 1.0248 - accuracy: 0.6410
## 239/781 [========>.................] - ETA: 14s - loss: 1.0245 - accuracy: 0.6411
## 241/781 [========>.................] - ETA: 14s - loss: 1.0243 - accuracy: 0.6417
## 243/781 [========>.................] - ETA: 14s - loss: 1.0225 - accuracy: 0.6426
## 246/781 [========>.................] - ETA: 13s - loss: 1.0211 - accuracy: 0.6431
## 249/781 [========>.................] - ETA: 13s - loss: 1.0222 - accuracy: 0.6426
## 252/781 [========>.................] - ETA: 13s - loss: 1.0233 - accuracy: 0.6424
## 255/781 [========>.................] - ETA: 13s - loss: 1.0246 - accuracy: 0.6418
## 258/781 [========>.................] - ETA: 13s - loss: 1.0252 - accuracy: 0.6416
## 261/781 [=========>................] - ETA: 13s - loss: 1.0247 - accuracy: 0.6415
## 264/781 [=========>................] - ETA: 13s - loss: 1.0249 - accuracy: 0.6415
## 266/781 [=========>................] - ETA: 13s - loss: 1.0252 - accuracy: 0.6412
## 268/781 [=========>................] - ETA: 13s - loss: 1.0243 - accuracy: 0.6413
```

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## 270/781 [=========>....................] - ETA: 13s - loss: 1.0242 - accuracy: 0.6414
## 273/781 [=========>....................] - ETA: 13s - loss: 1.0244 - accuracy: 0.6414
## 275/781 [=========>....................] - ETA: 13s - loss: 1.0247 - accuracy: 0.6414
## 278/781 [=========>....................] - ETA: 13s - loss: 1.0256 - accuracy: 0.6406
## 280/781 [=========>....................] - ETA: 13s - loss: 1.0260 - accuracy: 0.6406
## 282/781 [=========>....................] - ETA: 12s - loss: 1.0268 - accuracy: 0.6403
## 285/781 [=========>....................] - ETA: 12s - loss: 1.0256 - accuracy: 0.6407
## 287/781 [==========>...................] - ETA: 12s - loss: 1.0254 - accuracy: 0.6408
## 290/781 [==========>...................] - ETA: 12s - loss: 1.0237 - accuracy: 0.6414
## 292/781 [==========>...................] - ETA: 12s - loss: 1.0228 - accuracy: 0.6419
## 294/781 [==========>...................] - ETA: 12s - loss: 1.0231 - accuracy: 0.6418
## 296/781 [==========>...................] - ETA: 12s - loss: 1.0235 - accuracy: 0.6417
## 299/781 [==========>...................] - ETA: 12s - loss: 1.0235 - accuracy: 0.6418
## 301/781 [==========>...................] - ETA: 12s - loss: 1.0226 - accuracy: 0.6421
## 303/781 [==========>...................] - ETA: 12s - loss: 1.0224 - accuracy: 0.6423
## 305/781 [==========>...................] - ETA: 12s - loss: 1.0211 - accuracy: 0.6426
## 308/781 [==========>...................] - ETA: 12s - loss: 1.0219 - accuracy: 0.6423
## 310/781 [==========>...................] - ETA: 12s - loss: 1.0215 - accuracy: 0.6424
## 313/781 [===========>..................] - ETA: 12s - loss: 1.0198 - accuracy: 0.6430
## 316/781 [===========>..................] - ETA: 12s - loss: 1.0194 - accuracy: 0.6430
## 319/781 [===========>..................] - ETA: 11s - loss: 1.0182 - accuracy: 0.6434
## 321/781 [===========>..................] - ETA: 11s - loss: 1.0182 - accuracy: 0.6430
## 324/781 [===========>..................] - ETA: 11s - loss: 1.0193 - accuracy: 0.6428
## 327/781 [===========>..................] - ETA: 11s - loss: 1.0200 - accuracy: 0.6426
## 330/781 [===========>..................] - ETA: 11s - loss: 1.0194 - accuracy: 0.6427
## 333/781 [===========>..................] - ETA: 11s - loss: 1.0185 - accuracy: 0.6433
## 335/781 [===========>..................] - ETA: 11s - loss: 1.0189 - accuracy: 0.6428
## 337/781 [===========>..................] - ETA: 11s - loss: 1.0182 - accuracy: 0.6432
## 339/781 [============>.................] - ETA: 11s - loss: 1.0181 - accuracy: 0.6433
## 342/781 [============>.................] - ETA: 11s - loss: 1.0182 - accuracy: 0.6435
## 344/781 [============>.................] - ETA: 11s - loss: 1.0188 - accuracy: 0.6433
## 347/781 [============>.................] - ETA: 11s - loss: 1.0193 - accuracy: 0.6428
## 349/781 [============>.................] - ETA: 11s - loss: 1.0191 - accuracy: 0.6431
## 351/781 [============>.................] - ETA: 11s - loss: 1.0190 - accuracy: 0.6430
## 353/781 [============>.................] - ETA: 11s - loss: 1.0187 - accuracy: 0.6431
## 355/781 [============>.................] - ETA: 11s - loss: 1.0184 - accuracy: 0.6433
## 358/781 [============>.................] - ETA: 10s - loss: 1.0197 - accuracy: 0.6429
## 361/781 [============>.................] - ETA: 10s - loss: 1.0203 - accuracy: 0.6426
## 363/781 [============>.................] - ETA: 10s - loss: 1.0203 - accuracy: 0.6426
## 365/781 [=============>................] - ETA: 10s - loss: 1.0205 - accuracy: 0.6423
## 367/781 [=============>................] - ETA: 10s - loss: 1.0203 - accuracy: 0.6424
## 369/781 [=============>................] - ETA: 10s - loss: 1.0200 - accuracy: 0.6423
## 372/781 [=============>................] - ETA: 10s - loss: 1.0197 - accuracy: 0.6423
## 374/781 [=============>................] - ETA: 10s - loss: 1.0192 - accuracy: 0.6425
## 377/781 [=============>................] - ETA: 10s - loss: 1.0183 - accuracy: 0.6428
## 378/781 [=============>................] - ETA: 10s - loss: 1.0179 - accuracy: 0.6429
## 380/781 [=============>................] - ETA: 10s - loss: 1.0178 - accuracy: 0.6429
## 382/781 [=============>................] - ETA: 10s - loss: 1.0179 - accuracy: 0.6428
## 384/781 [=============>................] - ETA: 10s - loss: 1.0177 - accuracy: 0.6427
## 387/781 [=============>................] - ETA: 10s - loss: 1.0172 - accuracy: 0.6432
## 390/781 [=============>................] - ETA: 10s - loss: 1.0176 - accuracy: 0.6431
## 393/781 [==============>...............] - ETA: 10s - loss: 1.0185 - accuracy: 0.6430
## 395/781 [==============>...............] - ETA: 10s - loss: 1.0197 - accuracy: 0.6425
## 397/781 [==============>...............] - ETA: 10s - loss: 1.0199 - accuracy: 0.6422
```

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## 400/781 [==============>..............] - ETA: 9s - loss: 1.0189 - accuracy: 0.6427
## 402/781 [==============>..............] - ETA: 9s - loss: 1.0194 - accuracy: 0.6428
## 405/781 [==============>..............] - ETA: 9s - loss: 1.0189 - accuracy: 0.6430
## 407/781 [==============>..............] - ETA: 9s - loss: 1.0186 - accuracy: 0.6432
## 410/781 [==============>..............] - ETA: 9s - loss: 1.0179 - accuracy: 0.6432
## 413/781 [==============>..............] - ETA: 9s - loss: 1.0189 - accuracy: 0.6431
## 415/781 [==============>..............] - ETA: 9s - loss: 1.0195 - accuracy: 0.6429
## 418/781 [===============>.............] - ETA: 9s - loss: 1.0198 - accuracy: 0.6427
## 421/781 [===============>.............] - ETA: 9s - loss: 1.0190 - accuracy: 0.6430
## 423/781 [===============>.............] - ETA: 9s - loss: 1.0189 - accuracy: 0.6432
## 426/781 [===============>.............] - ETA: 9s - loss: 1.0187 - accuracy: 0.6433
## 428/781 [===============>.............] - ETA: 9s - loss: 1.0180 - accuracy: 0.6435
## 431/781 [===============>.............] - ETA: 9s - loss: 1.0195 - accuracy: 0.6428
## 433/781 [===============>.............] - ETA: 9s - loss: 1.0196 - accuracy: 0.6426
## 436/781 [===============>.............] - ETA: 9s - loss: 1.0198 - accuracy: 0.6426
## 438/781 [===============>.............] - ETA: 8s - loss: 1.0200 - accuracy: 0.6425
## 441/781 [===============>.............] - ETA: 8s - loss: 1.0194 - accuracy: 0.6426
## 444/781 [================>............] - ETA: 8s - loss: 1.0190 - accuracy: 0.6427
## 446/781 [================>............] - ETA: 8s - loss: 1.0189 - accuracy: 0.6428
## 449/781 [================>............] - ETA: 8s - loss: 1.0189 - accuracy: 0.6431
## 451/781 [================>............] - ETA: 8s - loss: 1.0193 - accuracy: 0.6430
## 454/781 [================>............] - ETA: 8s - loss: 1.0194 - accuracy: 0.6432
## 456/781 [================>............] - ETA: 8s - loss: 1.0195 - accuracy: 0.6432
## 458/781 [================>............] - ETA: 8s - loss: 1.0193 - accuracy: 0.6432
## 460/781 [================>............] - ETA: 8s - loss: 1.0194 - accuracy: 0.6431
## 462/781 [================>............] - ETA: 8s - loss: 1.0192 - accuracy: 0.6434
## 464/781 [================>............] - ETA: 8s - loss: 1.0192 - accuracy: 0.6434
## 467/781 [================>............] - ETA: 8s - loss: 1.0188 - accuracy: 0.6436
## 469/781 [=================>...........] - ETA: 8s - loss: 1.0183 - accuracy: 0.6437
## 471/781 [=================>...........] - ETA: 8s - loss: 1.0177 - accuracy: 0.6439
## 474/781 [=================>...........] - ETA: 8s - loss: 1.0177 - accuracy: 0.6441
## 476/781 [=================>...........] - ETA: 7s - loss: 1.0178 - accuracy: 0.6441
## 478/781 [=================>...........] - ETA: 7s - loss: 1.0170 - accuracy: 0.6443
## 481/781 [=================>...........] - ETA: 7s - loss: 1.0173 - accuracy: 0.6440
## 483/781 [=================>...........] - ETA: 7s - loss: 1.0168 - accuracy: 0.6441
## 485/781 [=================>...........] - ETA: 7s - loss: 1.0168 - accuracy: 0.6441
## 487/781 [=================>...........] - ETA: 7s - loss: 1.0173 - accuracy: 0.6438
## 490/781 [=================>...........] - ETA: 7s - loss: 1.0168 - accuracy: 0.6438
## 493/781 [=================>...........] - ETA: 7s - loss: 1.0165 - accuracy: 0.6442
## 496/781 [==================>..........] - ETA: 7s - loss: 1.0163 - accuracy: 0.6442
## 499/781 [==================>..........] - ETA: 7s - loss: 1.0163 - accuracy: 0.6442
## 502/781 [==================>..........] - ETA: 7s - loss: 1.0165 - accuracy: 0.6442
## 504/781 [==================>..........] - ETA: 7s - loss: 1.0170 - accuracy: 0.6440
## 506/781 [==================>..........] - ETA: 7s - loss: 1.0169 - accuracy: 0.6440
## 508/781 [==================>..........] - ETA: 7s - loss: 1.0166 - accuracy: 0.6441
## 511/781 [==================>..........] - ETA: 7s - loss: 1.0153 - accuracy: 0.6443
## 513/781 [==================>..........] - ETA: 6s - loss: 1.0156 - accuracy: 0.6443
## 515/781 [==================>..........] - ETA: 6s - loss: 1.0161 - accuracy: 0.6439
## 517/781 [==================>..........] - ETA: 6s - loss: 1.0167 - accuracy: 0.6438
## 519/781 [==================>..........] - ETA: 6s - loss: 1.0164 - accuracy: 0.6438
## 521/781 [===================>.........] - ETA: 6s - loss: 1.0164 - accuracy: 0.6436
## 524/781 [===================>.........] - ETA: 6s - loss: 1.0155 - accuracy: 0.6439
## 526/781 [===================>.........] - ETA: 6s - loss: 1.0158 - accuracy: 0.6438
## 529/781 [===================>.........] - ETA: 6s - loss: 1.0154 - accuracy: 0.6440
```

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## 531/781 [==================>.....] - ETA: 6s - loss: 1.0159 - accuracy: 0.6438
## 534/781 [==================>.....] - ETA: 6s - loss: 1.0155 - accuracy: 0.6439
## 536/781 [==================>.....] - ETA: 6s - loss: 1.0156 - accuracy: 0.6440
## 539/781 [==================>.....] - ETA: 6s - loss: 1.0147 - accuracy: 0.6445
## 541/781 [==================>.....] - ETA: 6s - loss: 1.0144 - accuracy: 0.6444
## 544/781 [==================>.....] - ETA: 6s - loss: 1.0142 - accuracy: 0.6444
## 546/781 [==================>.....] - ETA: 6s - loss: 1.0142 - accuracy: 0.6444
## 549/781 [===================>....] - ETA: 6s - loss: 1.0141 - accuracy: 0.6444
## 551/781 [===================>....] - ETA: 6s - loss: 1.0142 - accuracy: 0.6445
## 554/781 [===================>....] - ETA: 5s - loss: 1.0133 - accuracy: 0.6448
## 557/781 [===================>....] - ETA: 5s - loss: 1.0131 - accuracy: 0.6448
## 560/781 [===================>....] - ETA: 5s - loss: 1.0134 - accuracy: 0.6448
## 562/781 [===================>....] - ETA: 5s - loss: 1.0134 - accuracy: 0.6449
## 564/781 [===================>....] - ETA: 5s - loss: 1.0131 - accuracy: 0.6450
## 566/781 [===================>....] - ETA: 5s - loss: 1.0129 - accuracy: 0.6451
## 569/781 [===================>....] - ETA: 5s - loss: 1.0127 - accuracy: 0.6454
## 571/781 [===================>....] - ETA: 5s - loss: 1.0130 - accuracy: 0.6453
## 574/781 [====================>...] - ETA: 5s - loss: 1.0128 - accuracy: 0.6453
## 576/781 [====================>...] - ETA: 5s - loss: 1.0127 - accuracy: 0.6455
## 578/781 [====================>...] - ETA: 5s - loss: 1.0130 - accuracy: 0.6455
## 581/781 [====================>...] - ETA: 5s - loss: 1.0133 - accuracy: 0.6454
## 583/781 [====================>...] - ETA: 5s - loss: 1.0133 - accuracy: 0.6453
## 585/781 [====================>...] - ETA: 5s - loss: 1.0133 - accuracy: 0.6453
## 588/781 [====================>...] - ETA: 5s - loss: 1.0140 - accuracy: 0.6450
## 590/781 [====================>...] - ETA: 4s - loss: 1.0140 - accuracy: 0.6449
## 593/781 [====================>...] - ETA: 4s - loss: 1.0149 - accuracy: 0.6446
## 596/781 [====================>...] - ETA: 4s - loss: 1.0143 - accuracy: 0.6447
## 598/781 [====================>...] - ETA: 4s - loss: 1.0144 - accuracy: 0.6448
## 600/781 [=====================>..] - ETA: 4s - loss: 1.0147 - accuracy: 0.6445
## 603/781 [=====================>..] - ETA: 4s - loss: 1.0149 - accuracy: 0.6444
## 605/781 [=====================>..] - ETA: 4s - loss: 1.0146 - accuracy: 0.6445
## 608/781 [=====================>..] - ETA: 4s - loss: 1.0149 - accuracy: 0.6442
## 611/781 [=====================>..] - ETA: 4s - loss: 1.0144 - accuracy: 0.6444
## 613/781 [=====================>..] - ETA: 4s - loss: 1.0144 - accuracy: 0.6442
## 615/781 [=====================>..] - ETA: 4s - loss: 1.0140 - accuracy: 0.6444
## 618/781 [=====================>..] - ETA: 4s - loss: 1.0139 - accuracy: 0.6443
## 621/781 [=====================>..] - ETA: 4s - loss: 1.0138 - accuracy: 0.6441
## 623/781 [=====================>..] - ETA: 4s - loss: 1.0138 - accuracy: 0.6441
## 625/781 [======================>.] - ETA: 4s - loss: 1.0134 - accuracy: 0.6443
## 627/781 [======================>.] - ETA: 4s - loss: 1.0135 - accuracy: 0.6444
## 630/781 [======================>.] - ETA: 3s - loss: 1.0129 - accuracy: 0.6446
## 632/781 [======================>.] - ETA: 3s - loss: 1.0131 - accuracy: 0.6445
## 634/781 [======================>.] - ETA: 3s - loss: 1.0135 - accuracy: 0.6442
## 637/781 [======================>.] - ETA: 3s - loss: 1.0134 - accuracy: 0.6443
## 640/781 [======================>.] - ETA: 3s - loss: 1.0136 - accuracy: 0.6444
## 643/781 [======================>.] - ETA: 3s - loss: 1.0133 - accuracy: 0.6444
## 645/781 [======================>.] - ETA: 3s - loss: 1.0130 - accuracy: 0.6444
## 648/781 [======================>.] - ETA: 3s - loss: 1.0130 - accuracy: 0.6445
## 650/781 [======================>.] - ETA: 3s - loss: 1.0131 - accuracy: 0.6444
## 652/781 [======================>.] - ETA: 3s - loss: 1.0132 - accuracy: 0.6444
## 654/781 [======================>.] - ETA: 3s - loss: 1.0126 - accuracy: 0.6446
## 657/781 [======================>.] - ETA: 3s - loss: 1.0124 - accuracy: 0.6448
## 659/781 [======================>.] - ETA: 3s - loss: 1.0123 - accuracy: 0.6447
## 662/781 [======================>.] - ETA: 3s - loss: 1.0122 - accuracy: 0.6448
```

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## 665/781 [=======================>.....] - ETA: 3s - loss: 1.0127 - accuracy: 0.6446
## 667/781 [=======================>.....] - ETA: 2s - loss: 1.0123 - accuracy: 0.6447
## 669/781 [=======================>.....] - ETA: 2s - loss: 1.0124 - accuracy: 0.6448
## 671/781 [=======================>.....] - ETA: 2s - loss: 1.0122 - accuracy: 0.6449
## 673/781 [=======================>.....] - ETA: 2s - loss: 1.0120 - accuracy: 0.6449
## 675/781 [=======================>.....] - ETA: 2s - loss: 1.0116 - accuracy: 0.6449
## 677/781 [=======================>.....] - ETA: 2s - loss: 1.0115 - accuracy: 0.6450
## 680/781 [=======================>.....] - ETA: 2s - loss: 1.0116 - accuracy: 0.6449
## 682/781 [=======================>.....] - ETA: 2s - loss: 1.0118 - accuracy: 0.6450
## 684/781 [=======================>.....] - ETA: 2s - loss: 1.0114 - accuracy: 0.6452
## 687/781 [=======================>.....] - ETA: 2s - loss: 1.0113 - accuracy: 0.6451
## 689/781 [=======================>.....] - ETA: 2s - loss: 1.0118 - accuracy: 0.6448
## 692/781 [=======================>.....] - ETA: 2s - loss: 1.0118 - accuracy: 0.6448
## 694/781 [=======================>.....] - ETA: 2s - loss: 1.0117 - accuracy: 0.6447
## 696/781 [=======================>.....] - ETA: 2s - loss: 1.0120 - accuracy: 0.6447
## 698/781 [=======================>.....] - ETA: 2s - loss: 1.0117 - accuracy: 0.6448
## 700/781 [=======================>.....] - ETA: 2s - loss: 1.0113 - accuracy: 0.6449
## 703/781 [=======================>.....] - ETA: 2s - loss: 1.0113 - accuracy: 0.6449
## 705/781 [=======================>.....] - ETA: 1s - loss: 1.0115 - accuracy: 0.6448
## 707/781 [=======================>.....] - ETA: 1s - loss: 1.0114 - accuracy: 0.6448
## 710/781 [=======================>.....] - ETA: 1s - loss: 1.0112 - accuracy: 0.6450
## 712/781 [=======================>.....] - ETA: 1s - loss: 1.0112 - accuracy: 0.6449
## 715/781 [=======================>.....] - ETA: 1s - loss: 1.0117 - accuracy: 0.6449
## 718/781 [=======================>.....] - ETA: 1s - loss: 1.0120 - accuracy: 0.6449
## 721/781 [=======================>.....] - ETA: 1s - loss: 1.0119 - accuracy: 0.6450
## 723/781 [=======================>.....] - ETA: 1s - loss: 1.0122 - accuracy: 0.6447
## 726/781 [=======================>.....] - ETA: 1s - loss: 1.0126 - accuracy: 0.6445
## 728/781 [=======================>.....] - ETA: 1s - loss: 1.0123 - accuracy: 0.6446
## 731/781 [=======================>.....] - ETA: 1s - loss: 1.0114 - accuracy: 0.6450
## 734/781 [=======================>.....] - ETA: 1s - loss: 1.0109 - accuracy: 0.6452
## 737/781 [=======================>.....] - ETA: 1s - loss: 1.0113 - accuracy: 0.6451
## 739/781 [=======================>.....] - ETA: 1s - loss: 1.0111 - accuracy: 0.6451
## 741/781 [=======================>.....] - ETA: 1s - loss: 1.0111 - accuracy: 0.6451
## 744/781 [=======================>.....] - ETA: 0s - loss: 1.0106 - accuracy: 0.6452
## 747/781 [=======================>.....] - ETA: 0s - loss: 1.0101 - accuracy: 0.6455
## 750/781 [=======================>.....] - ETA: 0s - loss: 1.0094 - accuracy: 0.6458
## 753/781 [=======================>.....] - ETA: 0s - loss: 1.0096 - accuracy: 0.6457
## 755/781 [=======================>.....] - ETA: 0s - loss: 1.0093 - accuracy: 0.6458
## 757/781 [=======================>.....] - ETA: 0s - loss: 1.0090 - accuracy: 0.6460
## 759/781 [=======================>.....] - ETA: 0s - loss: 1.0096 - accuracy: 0.6459
## 761/781 [=======================>.....] - ETA: 0s - loss: 1.0096 - accuracy: 0.6460
## 763/781 [=======================>.....] - ETA: 0s - loss: 1.0089 - accuracy: 0.6463
## 766/781 [=======================>.....] - ETA: 0s - loss: 1.0088 - accuracy: 0.6462
## 768/781 [=======================>.....] - ETA: 0s - loss: 1.0089 - accuracy: 0.6461
## 770/781 [=======================>.....] - ETA: 0s - loss: 1.0088 - accuracy: 0.6462
## 772/781 [=======================>.....] - ETA: 0s - loss: 1.0089 - accuracy: 0.6463
## 775/781 [=======================>.....] - ETA: 0s - loss: 1.0087 - accuracy: 0.6461
## 777/781 [=======================>.....] - ETA: 0s - loss: 1.0084 - accuracy: 0.6462
## 779/781 [=======================>.....] - ETA: 0s - loss: 1.0083 - accuracy: 0.6463
## 781/781 [==============================] - 22s 28ms/step - loss: 1.0085 - accuracy: 0.6461 - val_loss
## Epoch 9/20
##
##   1/781 [..............................] - ETA: 20s - loss: 1.1275 - accuracy: 0.5938
##   3/781 [..............................] - ETA: 25s - loss: 1.1470 - accuracy: 0.5990
```

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##   6/781 [..............................] - ETA: 20s - loss: 1.0062 - accuracy: 0.6250
##   8/781 [..............................] - ETA: 20s - loss: 1.0340 - accuracy: 0.6035
##  11/781 [..............................] - ETA: 20s - loss: 1.0120 - accuracy: 0.6264
##  13/781 [..............................] - ETA: 20s - loss: 0.9950 - accuracy: 0.6382
##  15/781 [..............................] - ETA: 20s - loss: 0.9986 - accuracy: 0.6448
##  17/781 [..............................] - ETA: 19s - loss: 0.9860 - accuracy: 0.6471
##  19/781 [..............................] - ETA: 20s - loss: 1.0098 - accuracy: 0.6414
##  21/781 [..............................] - ETA: 20s - loss: 1.0075 - accuracy: 0.6421
##  24/781 [..............................] - ETA: 20s - loss: 1.0014 - accuracy: 0.6439
##  26/781 [..............................] - ETA: 20s - loss: 1.0002 - accuracy: 0.6472
##  28/781 [>.............................] - ETA: 20s - loss: 0.9999 - accuracy: 0.6473
##  31/781 [>.............................] - ETA: 19s - loss: 1.0056 - accuracy: 0.6472
##  33/781 [>.............................] - ETA: 19s - loss: 1.0125 - accuracy: 0.6430
##  36/781 [>.............................] - ETA: 19s - loss: 1.0108 - accuracy: 0.6437
##  38/781 [>.............................] - ETA: 19s - loss: 1.0097 - accuracy: 0.6439
##  41/781 [>.............................] - ETA: 19s - loss: 1.0028 - accuracy: 0.6444
##  44/781 [>.............................] - ETA: 19s - loss: 0.9947 - accuracy: 0.6460
##  46/781 [>.............................] - ETA: 19s - loss: 0.9999 - accuracy: 0.6433
##  49/781 [>.............................] - ETA: 19s - loss: 0.9977 - accuracy: 0.6464
##  51/781 [>.............................] - ETA: 19s - loss: 0.9943 - accuracy: 0.6486
##  55/781 [=>............................] - ETA: 19s - loss: 0.9967 - accuracy: 0.6472
##  57/781 [=>............................] - ETA: 18s - loss: 1.0004 - accuracy: 0.6461
##  59/781 [=>............................] - ETA: 19s - loss: 1.0024 - accuracy: 0.6440
##  62/781 [=>............................] - ETA: 18s - loss: 1.0031 - accuracy: 0.6449
##  64/781 [=>............................] - ETA: 18s - loss: 0.9983 - accuracy: 0.6467
##  66/781 [=>............................] - ETA: 18s - loss: 0.9987 - accuracy: 0.6468
##  68/781 [=>............................] - ETA: 18s - loss: 1.0011 - accuracy: 0.6459
##  71/781 [=>............................] - ETA: 18s - loss: 0.9999 - accuracy: 0.6464
##  73/781 [=>............................] - ETA: 18s - loss: 1.0008 - accuracy: 0.6462
##  75/781 [=>............................] - ETA: 18s - loss: 1.0011 - accuracy: 0.6458
##  78/781 [=>............................] - ETA: 18s - loss: 1.0027 - accuracy: 0.6446
##  80/781 [==>...........................] - ETA: 18s - loss: 1.0018 - accuracy: 0.6449
##  82/781 [==>...........................] - ETA: 18s - loss: 1.0007 - accuracy: 0.6450
##  85/781 [==>...........................] - ETA: 18s - loss: 1.0010 - accuracy: 0.6458
##  87/781 [==>...........................] - ETA: 18s - loss: 1.0017 - accuracy: 0.6451
##  89/781 [==>...........................] - ETA: 18s - loss: 1.0030 - accuracy: 0.6438
##  92/781 [==>...........................] - ETA: 18s - loss: 1.0008 - accuracy: 0.6454
##  94/781 [==>...........................] - ETA: 18s - loss: 1.0017 - accuracy: 0.6453
##  97/781 [==>...........................] - ETA: 18s - loss: 1.0028 - accuracy: 0.6443
## 100/781 [==>...........................] - ETA: 18s - loss: 1.0034 - accuracy: 0.6455
## 102/781 [==>...........................] - ETA: 18s - loss: 1.0025 - accuracy: 0.6458
## 104/781 [==>...........................] - ETA: 17s - loss: 0.9990 - accuracy: 0.6468
## 106/781 [===>..........................] - ETA: 17s - loss: 0.9978 - accuracy: 0.6477
## 109/781 [===>..........................] - ETA: 17s - loss: 0.9961 - accuracy: 0.6482
## 111/781 [===>..........................] - ETA: 17s - loss: 0.9952 - accuracy: 0.6482
## 114/781 [===>..........................] - ETA: 17s - loss: 0.9932 - accuracy: 0.6493
## 116/781 [===>..........................] - ETA: 17s - loss: 0.9952 - accuracy: 0.6487
## 118/781 [===>..........................] - ETA: 17s - loss: 0.9939 - accuracy: 0.6490
## 120/781 [===>..........................] - ETA: 17s - loss: 0.9952 - accuracy: 0.6485
## 123/781 [===>..........................] - ETA: 17s - loss: 0.9950 - accuracy: 0.6493
## 125/781 [===>..........................] - ETA: 17s - loss: 0.9957 - accuracy: 0.6491
## 128/781 [===>..........................] - ETA: 17s - loss: 0.9951 - accuracy: 0.6491
## 130/781 [===>..........................] - ETA: 17s - loss: 0.9946 - accuracy: 0.6493
## 133/781 [====>.........................] - ETA: 17s - loss: 0.9957 - accuracy: 0.6492
```

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## 136/781 [====>.....................] - ETA: 17s - loss: 0.9960 - accuracy: 0.6485
## 138/781 [====>.....................] - ETA: 16s - loss: 0.9956 - accuracy: 0.6488
## 141/781 [====>.....................] - ETA: 16s - loss: 0.9956 - accuracy: 0.6495
## 143/781 [====>.....................] - ETA: 16s - loss: 0.9959 - accuracy: 0.6500
## 145/781 [====>.....................] - ETA: 16s - loss: 0.9958 - accuracy: 0.6500
## 148/781 [====>.....................] - ETA: 16s - loss: 0.9967 - accuracy: 0.6504
## 151/781 [====>.....................] - ETA: 16s - loss: 0.9976 - accuracy: 0.6507
## 153/781 [====>.....................] - ETA: 16s - loss: 0.9974 - accuracy: 0.6508
## 155/781 [====>.....................] - ETA: 16s - loss: 0.9978 - accuracy: 0.6505
## 157/781 [=====>....................] - ETA: 16s - loss: 0.9980 - accuracy: 0.6505
## 160/781 [=====>....................] - ETA: 16s - loss: 0.9946 - accuracy: 0.6520
## 162/781 [=====>....................] - ETA: 16s - loss: 0.9952 - accuracy: 0.6518
## 165/781 [=====>....................] - ETA: 16s - loss: 0.9945 - accuracy: 0.6518
## 167/781 [=====>....................] - ETA: 16s - loss: 0.9938 - accuracy: 0.6515
## 170/781 [=====>....................] - ETA: 16s - loss: 0.9923 - accuracy: 0.6515
## 173/781 [=====>....................] - ETA: 16s - loss: 0.9942 - accuracy: 0.6505
## 176/781 [=====>....................] - ETA: 15s - loss: 0.9918 - accuracy: 0.6514
## 178/781 [=====>....................] - ETA: 15s - loss: 0.9918 - accuracy: 0.6510
## 180/781 [=====>....................] - ETA: 15s - loss: 0.9926 - accuracy: 0.6510
## 182/781 [=====>....................] - ETA: 15s - loss: 0.9944 - accuracy: 0.6507
## 185/781 [======>...................] - ETA: 15s - loss: 0.9956 - accuracy: 0.6504
## 187/781 [======>...................] - ETA: 15s - loss: 0.9963 - accuracy: 0.6503
## 190/781 [======>...................] - ETA: 15s - loss: 0.9969 - accuracy: 0.6495
## 192/781 [======>...................] - ETA: 15s - loss: 0.9983 - accuracy: 0.6489
## 195/781 [======>...................] - ETA: 15s - loss: 0.9988 - accuracy: 0.6483
## 198/781 [======>...................] - ETA: 15s - loss: 0.9985 - accuracy: 0.6485
## 200/781 [======>...................] - ETA: 15s - loss: 0.9962 - accuracy: 0.6492
## 203/781 [======>...................] - ETA: 15s - loss: 0.9971 - accuracy: 0.6483
## 205/781 [======>...................] - ETA: 15s - loss: 0.9968 - accuracy: 0.6483
## 208/781 [======>...................] - ETA: 15s - loss: 0.9953 - accuracy: 0.6492
## 210/781 [=======>..................] - ETA: 15s - loss: 0.9952 - accuracy: 0.6488
## 212/781 [=======>..................] - ETA: 15s - loss: 0.9964 - accuracy: 0.6484
## 215/781 [=======>..................] - ETA: 14s - loss: 0.9960 - accuracy: 0.6486
## 217/781 [=======>..................] - ETA: 14s - loss: 0.9970 - accuracy: 0.6482
## 220/781 [=======>..................] - ETA: 14s - loss: 0.9967 - accuracy: 0.6482
## 223/781 [=======>..................] - ETA: 14s - loss: 0.9958 - accuracy: 0.6484
## 225/781 [=======>..................] - ETA: 14s - loss: 0.9950 - accuracy: 0.6487
## 228/781 [=======>..................] - ETA: 14s - loss: 0.9940 - accuracy: 0.6489
## 231/781 [=======>..................] - ETA: 14s - loss: 0.9939 - accuracy: 0.6489
## 233/781 [=======>..................] - ETA: 14s - loss: 0.9943 - accuracy: 0.6480
## 236/781 [========>.................] - ETA: 14s - loss: 0.9940 - accuracy: 0.6483
## 238/781 [========>.................] - ETA: 14s - loss: 0.9942 - accuracy: 0.6482
## 240/781 [========>.................] - ETA: 14s - loss: 0.9946 - accuracy: 0.6484
## 243/781 [========>.................] - ETA: 14s - loss: 0.9925 - accuracy: 0.6493
## 245/781 [========>.................] - ETA: 14s - loss: 0.9931 - accuracy: 0.6489
## 247/781 [========>.................] - ETA: 14s - loss: 0.9927 - accuracy: 0.6490
## 250/781 [========>.................] - ETA: 14s - loss: 0.9925 - accuracy: 0.6492
## 252/781 [========>.................] - ETA: 13s - loss: 0.9928 - accuracy: 0.6491
## 254/781 [========>.................] - ETA: 13s - loss: 0.9942 - accuracy: 0.6492
## 257/781 [========>.................] - ETA: 13s - loss: 0.9932 - accuracy: 0.6494
## 259/781 [========>.................] - ETA: 13s - loss: 0.9944 - accuracy: 0.6496
## 262/781 [=========>................] - ETA: 13s - loss: 0.9934 - accuracy: 0.6498
## 265/781 [=========>................] - ETA: 13s - loss: 0.9938 - accuracy: 0.6495
## 268/781 [=========>................] - ETA: 13s - loss: 0.9940 - accuracy: 0.6496
```

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## 270/781 [=========>....................] - ETA: 13s - loss: 0.9926 - accuracy: 0.6501
## 273/781 [=========>....................] - ETA: 13s - loss: 0.9919 - accuracy: 0.6504
## 275/781 [=========>....................] - ETA: 13s - loss: 0.9914 - accuracy: 0.6507
## 278/781 [=========>....................] - ETA: 13s - loss: 0.9922 - accuracy: 0.6501
## 281/781 [=========>....................] - ETA: 13s - loss: 0.9928 - accuracy: 0.6499
## 283/781 [=========>....................] - ETA: 13s - loss: 0.9926 - accuracy: 0.6497
## 285/781 [=========>....................] - ETA: 13s - loss: 0.9918 - accuracy: 0.6501
## 288/781 [==========>...................] - ETA: 12s - loss: 0.9924 - accuracy: 0.6502
## 290/781 [==========>...................] - ETA: 12s - loss: 0.9911 - accuracy: 0.6507
## 292/781 [==========>...................] - ETA: 12s - loss: 0.9904 - accuracy: 0.6511
## 294/781 [==========>...................] - ETA: 12s - loss: 0.9888 - accuracy: 0.6517
## 297/781 [==========>...................] - ETA: 12s - loss: 0.9890 - accuracy: 0.6518
## 300/781 [==========>...................] - ETA: 12s - loss: 0.9904 - accuracy: 0.6512
## 302/781 [==========>...................] - ETA: 12s - loss: 0.9895 - accuracy: 0.6516
## 304/781 [==========>...................] - ETA: 12s - loss: 0.9884 - accuracy: 0.6519
## 306/781 [==========>...................] - ETA: 12s - loss: 0.9879 - accuracy: 0.6521
## 309/781 [==========>...................] - ETA: 12s - loss: 0.9881 - accuracy: 0.6519
## 312/781 [==========>...................] - ETA: 12s - loss: 0.9895 - accuracy: 0.6514
## 315/781 [===========>..................] - ETA: 12s - loss: 0.9884 - accuracy: 0.6518
## 317/781 [===========>..................] - ETA: 12s - loss: 0.9879 - accuracy: 0.6519
## 319/781 [===========>..................] - ETA: 12s - loss: 0.9882 - accuracy: 0.6520
## 322/781 [===========>..................] - ETA: 12s - loss: 0.9875 - accuracy: 0.6521
## 325/781 [===========>..................] - ETA: 11s - loss: 0.9874 - accuracy: 0.6520
## 328/781 [===========>..................] - ETA: 11s - loss: 0.9878 - accuracy: 0.6521
## 330/781 [===========>..................] - ETA: 11s - loss: 0.9872 - accuracy: 0.6523
## 333/781 [===========>..................] - ETA: 11s - loss: 0.9868 - accuracy: 0.6525
## 335/781 [===========>..................] - ETA: 11s - loss: 0.9866 - accuracy: 0.6527
## 337/781 [===========>..................] - ETA: 11s - loss: 0.9871 - accuracy: 0.6524
## 340/781 [============>.................] - ETA: 11s - loss: 0.9879 - accuracy: 0.6522
## 342/781 [============>.................] - ETA: 11s - loss: 0.9880 - accuracy: 0.6522
## 345/781 [============>.................] - ETA: 11s - loss: 0.9879 - accuracy: 0.6523
## 347/781 [============>.................] - ETA: 11s - loss: 0.9878 - accuracy: 0.6522
## 350/781 [============>.................] - ETA: 11s - loss: 0.9869 - accuracy: 0.6527
## 352/781 [============>.................] - ETA: 11s - loss: 0.9870 - accuracy: 0.6524
## 355/781 [============>.................] - ETA: 11s - loss: 0.9870 - accuracy: 0.6528
## 357/781 [============>.................] - ETA: 11s - loss: 0.9862 - accuracy: 0.6533
## 360/781 [============>.................] - ETA: 11s - loss: 0.9864 - accuracy: 0.6531
## 362/781 [============>.................] - ETA: 11s - loss: 0.9861 - accuracy: 0.6530
## 365/781 [=============>................] - ETA: 10s - loss: 0.9851 - accuracy: 0.6533
## 367/781 [=============>................] - ETA: 10s - loss: 0.9851 - accuracy: 0.6534
## 370/781 [=============>................] - ETA: 10s - loss: 0.9857 - accuracy: 0.6529
## 372/781 [=============>................] - ETA: 10s - loss: 0.9868 - accuracy: 0.6525
## 375/781 [=============>................] - ETA: 10s - loss: 0.9870 - accuracy: 0.6522
## 378/781 [=============>................] - ETA: 10s - loss: 0.9869 - accuracy: 0.6522
## 380/781 [=============>................] - ETA: 10s - loss: 0.9866 - accuracy: 0.6522
## 382/781 [=============>................] - ETA: 10s - loss: 0.9859 - accuracy: 0.6525
## 385/781 [=============>................] - ETA: 10s - loss: 0.9868 - accuracy: 0.6525
## 388/781 [=============>................] - ETA: 10s - loss: 0.9873 - accuracy: 0.6524
## 390/781 [=============>................] - ETA: 10s - loss: 0.9872 - accuracy: 0.6527
## 392/781 [==============>...............] - ETA: 10s - loss: 0.9884 - accuracy: 0.6523
## 395/781 [==============>...............] - ETA: 10s - loss: 0.9878 - accuracy: 0.6527
## 398/781 [==============>...............] - ETA: 10s - loss: 0.9885 - accuracy: 0.6524
## 401/781 [==============>...............] - ETA: 10s - loss: 0.9888 - accuracy: 0.6524
## 404/781 [==============>...............] - ETA: 9s - loss: 0.9892 - accuracy: 0.6523
```

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## 407/781 [==============>..............] - ETA: 9s - loss: 0.9896 - accuracy: 0.6522
## 409/781 [==============>..............] - ETA: 9s - loss: 0.9898 - accuracy: 0.6522
## 412/781 [==============>..............] - ETA: 9s - loss: 0.9890 - accuracy: 0.6524
## 414/781 [==============>..............] - ETA: 9s - loss: 0.9892 - accuracy: 0.6523
## 417/781 [===============>.............] - ETA: 9s - loss: 0.9894 - accuracy: 0.6522
## 419/781 [===============>.............] - ETA: 9s - loss: 0.9905 - accuracy: 0.6519
## 422/781 [===============>.............] - ETA: 9s - loss: 0.9903 - accuracy: 0.6520
## 424/781 [===============>.............] - ETA: 9s - loss: 0.9910 - accuracy: 0.6517
## 427/781 [===============>.............] - ETA: 9s - loss: 0.9906 - accuracy: 0.6520
## 429/781 [===============>.............] - ETA: 9s - loss: 0.9916 - accuracy: 0.6516
## 431/781 [===============>.............] - ETA: 9s - loss: 0.9907 - accuracy: 0.6520
## 433/781 [===============>.............] - ETA: 9s - loss: 0.9904 - accuracy: 0.6524
## 435/781 [===============>.............] - ETA: 9s - loss: 0.9916 - accuracy: 0.6522
## 437/781 [===============>.............] - ETA: 9s - loss: 0.9909 - accuracy: 0.6524
## 440/781 [===============>.............] - ETA: 8s - loss: 0.9913 - accuracy: 0.6522
## 442/781 [===============>.............] - ETA: 8s - loss: 0.9905 - accuracy: 0.6524
## 445/781 [================>............] - ETA: 8s - loss: 0.9909 - accuracy: 0.6523
## 448/781 [================>............] - ETA: 8s - loss: 0.9903 - accuracy: 0.6524
## 451/781 [================>............] - ETA: 8s - loss: 0.9894 - accuracy: 0.6526
## 453/781 [================>............] - ETA: 8s - loss: 0.9895 - accuracy: 0.6525
## 455/781 [================>............] - ETA: 8s - loss: 0.9885 - accuracy: 0.6528
## 457/781 [================>............] - ETA: 8s - loss: 0.9884 - accuracy: 0.6529
## 460/781 [================>............] - ETA: 8s - loss: 0.9888 - accuracy: 0.6527
## 463/781 [================>............] - ETA: 8s - loss: 0.9902 - accuracy: 0.6520
## 465/781 [================>............] - ETA: 8s - loss: 0.9901 - accuracy: 0.6521
## 468/781 [================>............] - ETA: 8s - loss: 0.9906 - accuracy: 0.6520
## 470/781 [=================>...........] - ETA: 8s - loss: 0.9906 - accuracy: 0.6522
## 473/781 [=================>...........] - ETA: 8s - loss: 0.9911 - accuracy: 0.6521
## 475/781 [=================>...........] - ETA: 8s - loss: 0.9908 - accuracy: 0.6521
## 478/781 [=================>...........] - ETA: 7s - loss: 0.9902 - accuracy: 0.6523
## 480/781 [=================>...........] - ETA: 7s - loss: 0.9900 - accuracy: 0.6523
## 482/781 [=================>...........] - ETA: 7s - loss: 0.9900 - accuracy: 0.6522
## 484/781 [=================>...........] - ETA: 7s - loss: 0.9893 - accuracy: 0.6525
## 486/781 [=================>...........] - ETA: 7s - loss: 0.9893 - accuracy: 0.6525
## 488/781 [=================>...........] - ETA: 7s - loss: 0.9887 - accuracy: 0.6529
## 490/781 [=================>...........] - ETA: 7s - loss: 0.9887 - accuracy: 0.6530
## 492/781 [=================>...........] - ETA: 7s - loss: 0.9883 - accuracy: 0.6531
## 494/781 [=================>...........] - ETA: 7s - loss: 0.9879 - accuracy: 0.6533
## 497/781 [==================>..........] - ETA: 7s - loss: 0.9875 - accuracy: 0.6532
## 500/781 [==================>..........] - ETA: 7s - loss: 0.9875 - accuracy: 0.6529
## 502/781 [==================>..........] - ETA: 7s - loss: 0.9871 - accuracy: 0.6531
## 504/781 [==================>..........] - ETA: 7s - loss: 0.9872 - accuracy: 0.6531
## 507/781 [==================>..........] - ETA: 7s - loss: 0.9864 - accuracy: 0.6533
## 510/781 [==================>..........] - ETA: 7s - loss: 0.9857 - accuracy: 0.6537
## 512/781 [==================>..........] - ETA: 7s - loss: 0.9853 - accuracy: 0.6539
## 514/781 [==================>..........] - ETA: 7s - loss: 0.9850 - accuracy: 0.6540
## 516/781 [==================>..........] - ETA: 7s - loss: 0.9850 - accuracy: 0.6541
## 519/781 [==================>..........] - ETA: 6s - loss: 0.9845 - accuracy: 0.6543
## 521/781 [===================>.........] - ETA: 6s - loss: 0.9840 - accuracy: 0.6544
## 524/781 [===================>.........] - ETA: 6s - loss: 0.9836 - accuracy: 0.6547
## 526/781 [===================>.........] - ETA: 6s - loss: 0.9835 - accuracy: 0.6547
## 528/781 [===================>.........] - ETA: 6s - loss: 0.9838 - accuracy: 0.6547
## 530/781 [===================>.........] - ETA: 6s - loss: 0.9831 - accuracy: 0.6550
## 532/781 [===================>.........] - ETA: 6s - loss: 0.9830 - accuracy: 0.6550
```

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## 535/781 [==================>.....] - ETA: 6s - loss: 0.9823 - accuracy: 0.6551
## 537/781 [==================>.....] - ETA: 6s - loss: 0.9827 - accuracy: 0.6550
## 539/781 [==================>.....] - ETA: 6s - loss: 0.9831 - accuracy: 0.6548
## 541/781 [==================>.....] - ETA: 6s - loss: 0.9824 - accuracy: 0.6550
## 543/781 [==================>.....] - ETA: 6s - loss: 0.9824 - accuracy: 0.6550
## 545/781 [==================>.....] - ETA: 6s - loss: 0.9826 - accuracy: 0.6550
## 547/781 [==================>.....] - ETA: 6s - loss: 0.9825 - accuracy: 0.6550
## 550/781 [==================>.....] - ETA: 6s - loss: 0.9833 - accuracy: 0.6546
## 552/781 [==================>.....] - ETA: 6s - loss: 0.9834 - accuracy: 0.6545
## 554/781 [==================>.....] - ETA: 6s - loss: 0.9838 - accuracy: 0.6542
## 556/781 [==================>.....] - ETA: 5s - loss: 0.9833 - accuracy: 0.6545
## 558/781 [==================>.....] - ETA: 5s - loss: 0.9840 - accuracy: 0.6542
## 560/781 [==================>.....] - ETA: 5s - loss: 0.9837 - accuracy: 0.6543
## 562/781 [==================>.....] - ETA: 5s - loss: 0.9842 - accuracy: 0.6540
## 564/781 [==================>.....] - ETA: 5s - loss: 0.9844 - accuracy: 0.6540
## 566/781 [==================>.....] - ETA: 5s - loss: 0.9844 - accuracy: 0.6541
## 568/781 [==================>.....] - ETA: 5s - loss: 0.9846 - accuracy: 0.6541
## 570/781 [==================>.....] - ETA: 5s - loss: 0.9841 - accuracy: 0.6544
## 572/781 [==================>.....] - ETA: 5s - loss: 0.9846 - accuracy: 0.6542
## 575/781 [==================>.....] - ETA: 5s - loss: 0.9844 - accuracy: 0.6542
## 577/781 [==================>.....] - ETA: 5s - loss: 0.9841 - accuracy: 0.6542
## 579/781 [==================>.....] - ETA: 5s - loss: 0.9837 - accuracy: 0.6545
## 581/781 [==================>.....] - ETA: 5s - loss: 0.9839 - accuracy: 0.6546
## 583/781 [==================>.....] - ETA: 5s - loss: 0.9841 - accuracy: 0.6545
## 585/781 [==================>.....] - ETA: 5s - loss: 0.9845 - accuracy: 0.6544
## 587/781 [==================>.....] - ETA: 5s - loss: 0.9851 - accuracy: 0.6542
## 589/781 [==================>.....] - ETA: 5s - loss: 0.9852 - accuracy: 0.6543
## 591/781 [==================>.....] - ETA: 5s - loss: 0.9854 - accuracy: 0.6543
## 593/781 [==================>.....] - ETA: 5s - loss: 0.9853 - accuracy: 0.6544
## 595/781 [==================>.....] - ETA: 4s - loss: 0.9854 - accuracy: 0.6544
## 597/781 [==================>.....] - ETA: 4s - loss: 0.9853 - accuracy: 0.6547
## 599/781 [==================>.....] - ETA: 4s - loss: 0.9851 - accuracy: 0.6547
## 601/781 [==================>.....] - ETA: 4s - loss: 0.9858 - accuracy: 0.6544
## 603/781 [==================>.....] - ETA: 4s - loss: 0.9859 - accuracy: 0.6542
## 605/781 [==================>.....] - ETA: 4s - loss: 0.9859 - accuracy: 0.6542
## 607/781 [==================>.....] - ETA: 4s - loss: 0.9861 - accuracy: 0.6540
## 609/781 [==================>.....] - ETA: 4s - loss: 0.9856 - accuracy: 0.6543
## 611/781 [==================>.....] - ETA: 4s - loss: 0.9852 - accuracy: 0.6544
## 613/781 [==================>.....] - ETA: 4s - loss: 0.9856 - accuracy: 0.6543
## 615/781 [==================>.....] - ETA: 4s - loss: 0.9854 - accuracy: 0.6543
## 617/781 [==================>.....] - ETA: 4s - loss: 0.9853 - accuracy: 0.6543
## 619/781 [==================>.....] - ETA: 4s - loss: 0.9849 - accuracy: 0.6545
## 621/781 [==================>.....] - ETA: 4s - loss: 0.9843 - accuracy: 0.6549
## 623/781 [==================>.....] - ETA: 4s - loss: 0.9844 - accuracy: 0.6549
## 625/781 [==================>.....] - ETA: 4s - loss: 0.9846 - accuracy: 0.6548
## 627/781 [==================>.....] - ETA: 4s - loss: 0.9845 - accuracy: 0.6549
## 629/781 [==================>.....] - ETA: 4s - loss: 0.9844 - accuracy: 0.6550
## 631/781 [==================>.....] - ETA: 4s - loss: 0.9849 - accuracy: 0.6548
## 633/781 [==================>.....] - ETA: 4s - loss: 0.9850 - accuracy: 0.6549
## 635/781 [==================>.....] - ETA: 3s - loss: 0.9851 - accuracy: 0.6549
## 637/781 [==================>.....] - ETA: 3s - loss: 0.9853 - accuracy: 0.6548
## 639/781 [==================>.....] - ETA: 3s - loss: 0.9853 - accuracy: 0.6550
## 641/781 [==================>.....] - ETA: 3s - loss: 0.9853 - accuracy: 0.6549
## 643/781 [==================>.....] - ETA: 3s - loss: 0.9852 - accuracy: 0.6549
```

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## 645/781 [=====================>......] - ETA: 3s - loss: 0.9850 - accuracy: 0.6551
## 647/781 [=====================>......] - ETA: 3s - loss: 0.9851 - accuracy: 0.6551
## 649/781 [=====================>......] - ETA: 3s - loss: 0.9852 - accuracy: 0.6552
## 651/781 [=====================>.....] - ETA: 3s - loss: 0.9852 - accuracy: 0.6552
## 653/781 [=====================>.....] - ETA: 3s - loss: 0.9850 - accuracy: 0.6553
## 655/781 [=====================>.....] - ETA: 3s - loss: 0.9848 - accuracy: 0.6553
## 657/781 [=====================>.....] - ETA: 3s - loss: 0.9846 - accuracy: 0.6555
## 659/781 [=====================>.....] - ETA: 3s - loss: 0.9848 - accuracy: 0.6555
## 661/781 [=====================>.....] - ETA: 3s - loss: 0.9847 - accuracy: 0.6555
## 663/781 [=====================>.....] - ETA: 3s - loss: 0.9851 - accuracy: 0.6554
## 665/781 [=====================>.....] - ETA: 3s - loss: 0.9852 - accuracy: 0.6554
## 667/781 [=====================>.....] - ETA: 3s - loss: 0.9861 - accuracy: 0.6550
## 669/781 [=====================>.....] - ETA: 3s - loss: 0.9859 - accuracy: 0.6551
## 671/781 [=====================>.....] - ETA: 3s - loss: 0.9861 - accuracy: 0.6551
## 673/781 [=====================>.....] - ETA: 2s - loss: 0.9861 - accuracy: 0.6551
## 675/781 [=====================>.....] - ETA: 2s - loss: 0.9858 - accuracy: 0.6552
## 677/781 [======================>....] - ETA: 2s - loss: 0.9859 - accuracy: 0.6552
## 679/781 [======================>....] - ETA: 2s - loss: 0.9858 - accuracy: 0.6550
## 681/781 [======================>....] - ETA: 2s - loss: 0.9858 - accuracy: 0.6550
## 683/781 [======================>....] - ETA: 2s - loss: 0.9854 - accuracy: 0.6551
## 685/781 [======================>....] - ETA: 2s - loss: 0.9851 - accuracy: 0.6552
## 687/781 [======================>....] - ETA: 2s - loss: 0.9849 - accuracy: 0.6554
## 689/781 [======================>....] - ETA: 2s - loss: 0.9850 - accuracy: 0.6555
## 691/781 [======================>....] - ETA: 2s - loss: 0.9846 - accuracy: 0.6555
## 693/781 [======================>....] - ETA: 2s - loss: 0.9845 - accuracy: 0.6556
## 695/781 [======================>....] - ETA: 2s - loss: 0.9850 - accuracy: 0.6553
## 698/781 [======================>....] - ETA: 2s - loss: 0.9847 - accuracy: 0.6553
## 701/781 [======================>....] - ETA: 2s - loss: 0.9851 - accuracy: 0.6550
## 703/781 [======================>...] - ETA: 2s - loss: 0.9850 - accuracy: 0.6550
## 705/781 [======================>...] - ETA: 2s - loss: 0.9855 - accuracy: 0.6548
## 707/781 [======================>...] - ETA: 2s - loss: 0.9859 - accuracy: 0.6547
## 709/781 [======================>...] - ETA: 1s - loss: 0.9855 - accuracy: 0.6548
## 711/781 [======================>...] - ETA: 1s - loss: 0.9856 - accuracy: 0.6548
## 713/781 [======================>...] - ETA: 1s - loss: 0.9856 - accuracy: 0.6548
## 715/781 [======================>...] - ETA: 1s - loss: 0.9856 - accuracy: 0.6549
## 717/781 [======================>...] - ETA: 1s - loss: 0.9858 - accuracy: 0.6549
## 719/781 [======================>...] - ETA: 1s - loss: 0.9861 - accuracy: 0.6549
## 721/781 [======================>...] - ETA: 1s - loss: 0.9864 - accuracy: 0.6549
## 723/781 [======================>...] - ETA: 1s - loss: 0.9865 - accuracy: 0.6547
## 725/781 [======================>...] - ETA: 1s - loss: 0.9861 - accuracy: 0.6548
## 727/781 [======================>...] - ETA: 1s - loss: 0.9864 - accuracy: 0.6548
## 729/781 [=======================>..] - ETA: 1s - loss: 0.9863 - accuracy: 0.6548
## 731/781 [=======================>..] - ETA: 1s - loss: 0.9866 - accuracy: 0.6547
## 733/781 [=======================>..] - ETA: 1s - loss: 0.9870 - accuracy: 0.6546
## 735/781 [=======================>..] - ETA: 1s - loss: 0.9869 - accuracy: 0.6547
## 738/781 [=======================>..] - ETA: 1s - loss: 0.9862 - accuracy: 0.6549
## 740/781 [=======================>..] - ETA: 1s - loss: 0.9861 - accuracy: 0.6549
## 742/781 [=======================>..] - ETA: 1s - loss: 0.9861 - accuracy: 0.6549
## 745/781 [=======================>..] - ETA: 0s - loss: 0.9856 - accuracy: 0.6550
## 748/781 [=======================>..] - ETA: 0s - loss: 0.9853 - accuracy: 0.6551
## 750/781 [=======================>..] - ETA: 0s - loss: 0.9852 - accuracy: 0.6552
## 752/781 [=======================>..] - ETA: 0s - loss: 0.9851 - accuracy: 0.6552
## 754/781 [=======================>..] - ETA: 0s - loss: 0.9851 - accuracy: 0.6553
## 756/781 [=======================>.] - ETA: 0s - loss: 0.9852 - accuracy: 0.6552
```

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## 758/781 [============================>.] - ETA: 0s - loss: 0.9858 - accuracy: 0.6551
## 760/781 [============================>.] - ETA: 0s - loss: 0.9858 - accuracy: 0.6550
## 762/781 [============================>.] - ETA: 0s - loss: 0.9856 - accuracy: 0.6551
## 764/781 [============================>.] - ETA: 0s - loss: 0.9851 - accuracy: 0.6553
## 766/781 [============================>.] - ETA: 0s - loss: 0.9859 - accuracy: 0.6550
## 768/781 [============================>.] - ETA: 0s - loss: 0.9858 - accuracy: 0.6549
## 770/781 [============================>.] - ETA: 0s - loss: 0.9860 - accuracy: 0.6549
## 772/781 [============================>.] - ETA: 0s - loss: 0.9856 - accuracy: 0.6549
## 774/781 [============================>.] - ETA: 0s - loss: 0.9857 - accuracy: 0.6549
## 776/781 [============================>.] - ETA: 0s - loss: 0.9860 - accuracy: 0.6548
## 779/781 [============================>.] - ETA: 0s - loss: 0.9859 - accuracy: 0.6547
## 781/781 [==============================] - ETA: 0s - loss: 0.9860 - accuracy: 0.6548
## 781/781 [==============================] - 23s 29ms/step - loss: 0.9860 - accuracy: 0.6548 - val_loss
## Epoch 10/20
##
##   1/781 [..............................] - ETA: 40s - loss: 1.2374 - accuracy: 0.6562
##   3/781 [..............................] - ETA: 19s - loss: 1.0572 - accuracy: 0.6562
##   5/781 [..............................] - ETA: 22s - loss: 0.9906 - accuracy: 0.6562
##   7/781 [..............................] - ETA: 21s - loss: 0.9790 - accuracy: 0.6518
##  10/781 [..............................] - ETA: 21s - loss: 0.9374 - accuracy: 0.6641
##  12/781 [..............................] - ETA: 22s - loss: 0.9490 - accuracy: 0.6680
##  15/781 [..............................] - ETA: 21s - loss: 0.9223 - accuracy: 0.6771
##  17/781 [..............................] - ETA: 21s - loss: 0.9154 - accuracy: 0.6820
##  20/781 [..............................] - ETA: 21s - loss: 0.9308 - accuracy: 0.6742
##  22/781 [..............................] - ETA: 21s - loss: 0.9278 - accuracy: 0.6733
##  24/781 [..............................] - ETA: 20s - loss: 0.9203 - accuracy: 0.6771
##  26/781 [..............................] - ETA: 21s - loss: 0.9239 - accuracy: 0.6749
##  29/781 [>.............................] - ETA: 20s - loss: 0.9274 - accuracy: 0.6713
##  31/781 [>.............................] - ETA: 20s - loss: 0.9300 - accuracy: 0.6744
##  34/781 [>.............................] - ETA: 20s - loss: 0.9259 - accuracy: 0.6756
##  36/781 [>.............................] - ETA: 20s - loss: 0.9159 - accuracy: 0.6806
##  38/781 [>.............................] - ETA: 20s - loss: 0.9173 - accuracy: 0.6826
##  41/781 [>.............................] - ETA: 20s - loss: 0.9225 - accuracy: 0.6829
##  43/781 [>.............................] - ETA: 20s - loss: 0.9199 - accuracy: 0.6839
##  45/781 [>.............................] - ETA: 20s - loss: 0.9315 - accuracy: 0.6819
##  48/781 [>.............................] - ETA: 19s - loss: 0.9291 - accuracy: 0.6839
##  51/781 [>.............................] - ETA: 19s - loss: 0.9324 - accuracy: 0.6792
##  53/781 [=>............................] - ETA: 19s - loss: 0.9300 - accuracy: 0.6795
##  56/781 [=>............................] - ETA: 19s - loss: 0.9335 - accuracy: 0.6800
##  59/781 [=>............................] - ETA: 19s - loss: 0.9349 - accuracy: 0.6809
##  61/781 [=>............................] - ETA: 19s - loss: 0.9390 - accuracy: 0.6793
##  64/781 [=>............................] - ETA: 19s - loss: 0.9428 - accuracy: 0.6770
##  66/781 [=>............................] - ETA: 19s - loss: 0.9461 - accuracy: 0.6750
##  68/781 [=>............................] - ETA: 19s - loss: 0.9429 - accuracy: 0.6765
##  70/781 [=>............................] - ETA: 19s - loss: 0.9430 - accuracy: 0.6750
##  73/781 [=>............................] - ETA: 19s - loss: 0.9380 - accuracy: 0.6770
##  76/781 [=>............................] - ETA: 18s - loss: 0.9390 - accuracy: 0.6758
##  79/781 [==>...........................] - ETA: 18s - loss: 0.9398 - accuracy: 0.6750
##  81/781 [==>...........................] - ETA: 18s - loss: 0.9410 - accuracy: 0.6744
##  84/781 [==>...........................] - ETA: 18s - loss: 0.9430 - accuracy: 0.6724
##  86/781 [==>...........................] - ETA: 18s - loss: 0.9420 - accuracy: 0.6733
##  88/781 [==>...........................] - ETA: 18s - loss: 0.9450 - accuracy: 0.6719
##  91/781 [==>...........................] - ETA: 18s - loss: 0.9426 - accuracy: 0.6727
##  93/781 [==>...........................] - ETA: 18s - loss: 0.9426 - accuracy: 0.6720
```

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##  95/781 [==>...........................] - ETA: 18s - loss: 0.9420 - accuracy: 0.6724
##  98/781 [==>...........................] - ETA: 18s - loss: 0.9441 - accuracy: 0.6720
## 100/781 [==>...........................] - ETA: 18s - loss: 0.9433 - accuracy: 0.6720
## 103/781 [==>...........................] - ETA: 18s - loss: 0.9438 - accuracy: 0.6723
## 105/781 [===>..........................] - ETA: 18s - loss: 0.9467 - accuracy: 0.6705
## 107/781 [===>..........................] - ETA: 18s - loss: 0.9475 - accuracy: 0.6697
## 109/781 [===>..........................] - ETA: 18s - loss: 0.9471 - accuracy: 0.6694
## 112/781 [===>..........................] - ETA: 17s - loss: 0.9456 - accuracy: 0.6696
## 115/781 [===>..........................] - ETA: 17s - loss: 0.9487 - accuracy: 0.6687
## 118/781 [===>..........................] - ETA: 17s - loss: 0.9507 - accuracy: 0.6672
## 120/781 [===>..........................] - ETA: 17s - loss: 0.9489 - accuracy: 0.6674
## 123/781 [===>..........................] - ETA: 17s - loss: 0.9490 - accuracy: 0.6679
## 125/781 [===>..........................] - ETA: 17s - loss: 0.9478 - accuracy: 0.6684
## 127/781 [===>..........................] - ETA: 17s - loss: 0.9494 - accuracy: 0.6683
## 129/781 [===>..........................] - ETA: 17s - loss: 0.9501 - accuracy: 0.6672
## 132/781 [====>.........................] - ETA: 17s - loss: 0.9550 - accuracy: 0.6656
## 134/781 [====>.........................] - ETA: 17s - loss: 0.9532 - accuracy: 0.6665
## 136/781 [====>.........................] - ETA: 17s - loss: 0.9519 - accuracy: 0.6668
## 139/781 [====>.........................] - ETA: 17s - loss: 0.9508 - accuracy: 0.6674
## 142/781 [====>.........................] - ETA: 17s - loss: 0.9510 - accuracy: 0.6673
## 144/781 [====>.........................] - ETA: 17s - loss: 0.9494 - accuracy: 0.6676
## 147/781 [====>.........................] - ETA: 16s - loss: 0.9477 - accuracy: 0.6685
## 149/781 [====>.........................] - ETA: 16s - loss: 0.9455 - accuracy: 0.6699
## 151/781 [====>.........................] - ETA: 16s - loss: 0.9448 - accuracy: 0.6703
## 153/781 [====>.........................] - ETA: 16s - loss: 0.9433 - accuracy: 0.6708
## 155/781 [====>.........................] - ETA: 16s - loss: 0.9416 - accuracy: 0.6712
## 157/781 [=====>........................] - ETA: 16s - loss: 0.9438 - accuracy: 0.6702
## 159/781 [=====>........................] - ETA: 16s - loss: 0.9437 - accuracy: 0.6701
## 162/781 [=====>........................] - ETA: 16s - loss: 0.9432 - accuracy: 0.6703
## 165/781 [=====>........................] - ETA: 16s - loss: 0.9450 - accuracy: 0.6700
## 167/781 [=====>........................] - ETA: 16s - loss: 0.9454 - accuracy: 0.6691
## 170/781 [=====>........................] - ETA: 16s - loss: 0.9452 - accuracy: 0.6696
## 172/781 [=====>........................] - ETA: 16s - loss: 0.9458 - accuracy: 0.6690
## 174/781 [=====>........................] - ETA: 16s - loss: 0.9452 - accuracy: 0.6691
## 176/781 [=====>........................] - ETA: 16s - loss: 0.9440 - accuracy: 0.6697
## 179/781 [=====>........................] - ETA: 16s - loss: 0.9426 - accuracy: 0.6701
## 182/781 [=====>........................] - ETA: 16s - loss: 0.9436 - accuracy: 0.6701
## 184/781 [======>.......................] - ETA: 15s - loss: 0.9427 - accuracy: 0.6701
## 186/781 [======>.......................] - ETA: 15s - loss: 0.9427 - accuracy: 0.6703
## 188/781 [======>.......................] - ETA: 15s - loss: 0.9420 - accuracy: 0.6705
## 191/781 [======>.......................] - ETA: 15s - loss: 0.9432 - accuracy: 0.6700
## 193/781 [======>.......................] - ETA: 15s - loss: 0.9446 - accuracy: 0.6694
## 196/781 [======>.......................] - ETA: 15s - loss: 0.9457 - accuracy: 0.6692
## 199/781 [======>.......................] - ETA: 15s - loss: 0.9470 - accuracy: 0.6693
## 201/781 [======>.......................] - ETA: 15s - loss: 0.9492 - accuracy: 0.6685
## 204/781 [======>.......................] - ETA: 15s - loss: 0.9521 - accuracy: 0.6675
## 207/781 [======>.......................] - ETA: 15s - loss: 0.9529 - accuracy: 0.6672
## 210/781 [=======>......................] - ETA: 15s - loss: 0.9523 - accuracy: 0.6679
## 212/781 [=======>......................] - ETA: 15s - loss: 0.9524 - accuracy: 0.6679
## 215/781 [=======>......................] - ETA: 15s - loss: 0.9529 - accuracy: 0.6675
## 218/781 [=======>......................] - ETA: 14s - loss: 0.9543 - accuracy: 0.6672
## 221/781 [=======>......................] - ETA: 14s - loss: 0.9527 - accuracy: 0.6680
## 224/781 [=======>......................] - ETA: 14s - loss: 0.9535 - accuracy: 0.6674
## 226/781 [=======>......................] - ETA: 14s - loss: 0.9541 - accuracy: 0.6675
```

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## 228/781 [=======>......................] - ETA: 14s - loss: 0.9534 - accuracy: 0.6671
## 231/781 [=======>......................] - ETA: 14s - loss: 0.9526 - accuracy: 0.6672
## 233/781 [=======>......................] - ETA: 14s - loss: 0.9527 - accuracy: 0.6672
## 236/781 [========>.....................] - ETA: 14s - loss: 0.9521 - accuracy: 0.6671
## 238/781 [========>.....................] - ETA: 14s - loss: 0.9529 - accuracy: 0.6665
## 241/781 [========>.....................] - ETA: 14s - loss: 0.9542 - accuracy: 0.6664
## 244/781 [========>.....................] - ETA: 14s - loss: 0.9555 - accuracy: 0.6659
## 246/781 [========>.....................] - ETA: 14s - loss: 0.9557 - accuracy: 0.6657
## 249/781 [========>.....................] - ETA: 14s - loss: 0.9562 - accuracy: 0.6656
## 251/781 [========>.....................] - ETA: 14s - loss: 0.9563 - accuracy: 0.6656
## 253/781 [========>.....................] - ETA: 14s - loss: 0.9568 - accuracy: 0.6658
## 256/781 [========>.....................] - ETA: 13s - loss: 0.9553 - accuracy: 0.6669
## 258/781 [========>.....................] - ETA: 13s - loss: 0.9557 - accuracy: 0.6672
## 260/781 [========>.....................] - ETA: 13s - loss: 0.9555 - accuracy: 0.6668
## 262/781 [=========>....................] - ETA: 13s - loss: 0.9569 - accuracy: 0.6663
## 265/781 [=========>....................] - ETA: 13s - loss: 0.9561 - accuracy: 0.6664
## 267/781 [=========>....................] - ETA: 13s - loss: 0.9557 - accuracy: 0.6669
## 270/781 [=========>....................] - ETA: 13s - loss: 0.9552 - accuracy: 0.6668
## 272/781 [=========>....................] - ETA: 13s - loss: 0.9540 - accuracy: 0.6671
## 274/781 [=========>....................] - ETA: 13s - loss: 0.9535 - accuracy: 0.6673
## 276/781 [=========>....................] - ETA: 13s - loss: 0.9543 - accuracy: 0.6671
## 279/781 [=========>....................] - ETA: 13s - loss: 0.9559 - accuracy: 0.6667
## 281/781 [=========>....................] - ETA: 13s - loss: 0.9566 - accuracy: 0.6666
## 283/781 [=========>....................] - ETA: 13s - loss: 0.9579 - accuracy: 0.6663
## 285/781 [=========>....................] - ETA: 13s - loss: 0.9568 - accuracy: 0.6667
## 288/781 [==========>...................] - ETA: 13s - loss: 0.9559 - accuracy: 0.6669
## 291/781 [==========>...................] - ETA: 12s - loss: 0.9562 - accuracy: 0.6668
## 293/781 [==========>...................] - ETA: 12s - loss: 0.9579 - accuracy: 0.6664
## 295/781 [==========>...................] - ETA: 12s - loss: 0.9582 - accuracy: 0.6664
## 298/781 [==========>...................] - ETA: 12s - loss: 0.9588 - accuracy: 0.6661
## 300/781 [==========>...................] - ETA: 12s - loss: 0.9589 - accuracy: 0.6660
## 302/781 [==========>...................] - ETA: 12s - loss: 0.9590 - accuracy: 0.6657
## 305/781 [==========>...................] - ETA: 12s - loss: 0.9588 - accuracy: 0.6654
## 307/781 [==========>...................] - ETA: 12s - loss: 0.9585 - accuracy: 0.6654
## 310/781 [==========>...................] - ETA: 12s - loss: 0.9594 - accuracy: 0.6647
## 313/781 [===========>..................] - ETA: 12s - loss: 0.9597 - accuracy: 0.6644
## 315/781 [===========>..................] - ETA: 12s - loss: 0.9598 - accuracy: 0.6643
## 318/781 [===========>..................] - ETA: 12s - loss: 0.9610 - accuracy: 0.6640
## 320/781 [===========>..................] - ETA: 12s - loss: 0.9617 - accuracy: 0.6635
## 322/781 [===========>..................] - ETA: 12s - loss: 0.9613 - accuracy: 0.6636
## 324/781 [===========>..................] - ETA: 12s - loss: 0.9612 - accuracy: 0.6635
## 326/781 [===========>..................] - ETA: 12s - loss: 0.9616 - accuracy: 0.6632
## 329/781 [===========>..................] - ETA: 11s - loss: 0.9622 - accuracy: 0.6628
## 332/781 [===========>..................] - ETA: 11s - loss: 0.9633 - accuracy: 0.6625
## 334/781 [===========>..................] - ETA: 11s - loss: 0.9631 - accuracy: 0.6629
## 337/781 [===========>..................] - ETA: 11s - loss: 0.9635 - accuracy: 0.6626
## 340/781 [============>.................] - ETA: 11s - loss: 0.9641 - accuracy: 0.6623
## 342/781 [============>.................] - ETA: 11s - loss: 0.9635 - accuracy: 0.6625
## 344/781 [============>.................] - ETA: 11s - loss: 0.9640 - accuracy: 0.6622
## 347/781 [============>.................] - ETA: 11s - loss: 0.9651 - accuracy: 0.6620
## 350/781 [============>.................] - ETA: 11s - loss: 0.9657 - accuracy: 0.6618
## 352/781 [============>.................] - ETA: 11s - loss: 0.9663 - accuracy: 0.6617
## 355/781 [============>.................] - ETA: 11s - loss: 0.9666 - accuracy: 0.6621
## 358/781 [============>.................] - ETA: 11s - loss: 0.9676 - accuracy: 0.6616
```

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## 361/781 [============>.................] - ETA: 11s - loss: 0.9685 - accuracy: 0.6611
## 363/781 [============>.................] - ETA: 11s - loss: 0.9686 - accuracy: 0.6611
## 365/781 [=============>................] - ETA: 11s - loss: 0.9693 - accuracy: 0.6611
## 367/781 [=============>................] - ETA: 10s - loss: 0.9692 - accuracy: 0.6613
## 369/781 [=============>................] - ETA: 10s - loss: 0.9694 - accuracy: 0.6614
## 372/781 [=============>................] - ETA: 10s - loss: 0.9705 - accuracy: 0.6611
## 374/781 [=============>................] - ETA: 10s - loss: 0.9696 - accuracy: 0.6613
## 376/781 [=============>................] - ETA: 10s - loss: 0.9696 - accuracy: 0.6613
## 378/781 [=============>................] - ETA: 10s - loss: 0.9692 - accuracy: 0.6613
## 381/781 [=============>................] - ETA: 10s - loss: 0.9695 - accuracy: 0.6610
## 383/781 [=============>................] - ETA: 10s - loss: 0.9693 - accuracy: 0.6609
## 386/781 [=============>................] - ETA: 10s - loss: 0.9693 - accuracy: 0.6609
## 388/781 [=============>................] - ETA: 10s - loss: 0.9697 - accuracy: 0.6607
## 390/781 [=============>................] - ETA: 10s - loss: 0.9701 - accuracy: 0.6607
## 392/781 [==============>...............] - ETA: 10s - loss: 0.9695 - accuracy: 0.6611
## 395/781 [==============>...............] - ETA: 10s - loss: 0.9702 - accuracy: 0.6611
## 397/781 [==============>...............] - ETA: 10s - loss: 0.9696 - accuracy: 0.6611
## 400/781 [==============>...............] - ETA: 10s - loss: 0.9698 - accuracy: 0.6614
## 402/781 [==============>...............] - ETA: 10s - loss: 0.9692 - accuracy: 0.6616
## 405/781 [==============>...............] - ETA: 9s - loss: 0.9690 - accuracy: 0.6618
## 407/781 [==============>...............] - ETA: 9s - loss: 0.9678 - accuracy: 0.6622
## 409/781 [==============>...............] - ETA: 9s - loss: 0.9681 - accuracy: 0.6620
## 412/781 [==============>...............] - ETA: 9s - loss: 0.9677 - accuracy: 0.6624
## 414/781 [==============>...............] - ETA: 9s - loss: 0.9680 - accuracy: 0.6620
## 416/781 [==============>...............] - ETA: 9s - loss: 0.9684 - accuracy: 0.6618
## 418/781 [===============>..............] - ETA: 9s - loss: 0.9680 - accuracy: 0.6619
## 421/781 [===============>..............] - ETA: 9s - loss: 0.9682 - accuracy: 0.6620
## 423/781 [===============>..............] - ETA: 9s - loss: 0.9677 - accuracy: 0.6622
## 426/781 [===============>..............] - ETA: 9s - loss: 0.9671 - accuracy: 0.6624
## 428/781 [===============>..............] - ETA: 9s - loss: 0.9669 - accuracy: 0.6626
## 431/781 [===============>..............] - ETA: 9s - loss: 0.9673 - accuracy: 0.6626
## 433/781 [===============>..............] - ETA: 9s - loss: 0.9664 - accuracy: 0.6628
## 435/781 [===============>..............] - ETA: 9s - loss: 0.9669 - accuracy: 0.6626
## 437/781 [===============>..............] - ETA: 9s - loss: 0.9664 - accuracy: 0.6629
## 440/781 [===============>..............] - ETA: 9s - loss: 0.9664 - accuracy: 0.6628
## 442/781 [===============>..............] - ETA: 8s - loss: 0.9670 - accuracy: 0.6625
## 444/781 [================>.............] - ETA: 8s - loss: 0.9676 - accuracy: 0.6623
## 446/781 [================>.............] - ETA: 8s - loss: 0.9670 - accuracy: 0.6627
## 449/781 [================>.............] - ETA: 8s - loss: 0.9669 - accuracy: 0.6628
## 451/781 [================>.............] - ETA: 8s - loss: 0.9673 - accuracy: 0.6626
## 453/781 [================>.............] - ETA: 8s - loss: 0.9665 - accuracy: 0.6630
## 456/781 [================>.............] - ETA: 8s - loss: 0.9674 - accuracy: 0.6627
## 459/781 [================>.............] - ETA: 8s - loss: 0.9666 - accuracy: 0.6631
## 461/781 [================>.............] - ETA: 8s - loss: 0.9671 - accuracy: 0.6628
## 463/781 [================>.............] - ETA: 8s - loss: 0.9670 - accuracy: 0.6628
## 465/781 [================>.............] - ETA: 8s - loss: 0.9670 - accuracy: 0.6629
## 468/781 [================>.............] - ETA: 8s - loss: 0.9672 - accuracy: 0.6625
## 471/781 [=================>............] - ETA: 8s - loss: 0.9674 - accuracy: 0.6624
## 473/781 [=================>............] - ETA: 8s - loss: 0.9675 - accuracy: 0.6622
## 475/781 [=================>............] - ETA: 8s - loss: 0.9671 - accuracy: 0.6623
## 477/781 [=================>............] - ETA: 8s - loss: 0.9674 - accuracy: 0.6623
## 480/781 [=================>............] - ETA: 7s - loss: 0.9668 - accuracy: 0.6625
## 482/781 [=================>............] - ETA: 7s - loss: 0.9667 - accuracy: 0.6626
## 484/781 [=================>............] - ETA: 7s - loss: 0.9663 - accuracy: 0.6628
```

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## 487/781 [================>.............] - ETA: 7s - loss: 0.9660 - accuracy: 0.6630
## 489/781 [================>.............] - ETA: 7s - loss: 0.9661 - accuracy: 0.6630
## 491/781 [================>.............] - ETA: 7s - loss: 0.9656 - accuracy: 0.6632
## 493/781 [================>.............] - ETA: 7s - loss: 0.9661 - accuracy: 0.6631
## 495/781 [=================>............] - ETA: 7s - loss: 0.9656 - accuracy: 0.6633
## 498/781 [=================>............] - ETA: 7s - loss: 0.9659 - accuracy: 0.6634
## 501/781 [=================>............] - ETA: 7s - loss: 0.9664 - accuracy: 0.6633
## 504/781 [=================>............] - ETA: 7s - loss: 0.9656 - accuracy: 0.6636
## 506/781 [=================>............] - ETA: 7s - loss: 0.9657 - accuracy: 0.6636
## 508/781 [=================>............] - ETA: 7s - loss: 0.9652 - accuracy: 0.6637
## 510/781 [=================>............] - ETA: 7s - loss: 0.9648 - accuracy: 0.6637
## 512/781 [=================>............] - ETA: 7s - loss: 0.9646 - accuracy: 0.6637
## 514/781 [=================>............] - ETA: 7s - loss: 0.9643 - accuracy: 0.6638
## 517/781 [=================>............] - ETA: 7s - loss: 0.9644 - accuracy: 0.6637
## 520/781 [=================>............] - ETA: 6s - loss: 0.9636 - accuracy: 0.6641
## 522/781 [==================>...........] - ETA: 6s - loss: 0.9642 - accuracy: 0.6640
## 525/781 [==================>...........] - ETA: 6s - loss: 0.9643 - accuracy: 0.6640
## 527/781 [==================>...........] - ETA: 6s - loss: 0.9635 - accuracy: 0.6642
## 529/781 [==================>...........] - ETA: 6s - loss: 0.9638 - accuracy: 0.6640
## 531/781 [==================>...........] - ETA: 6s - loss: 0.9641 - accuracy: 0.6638
## 534/781 [==================>...........] - ETA: 6s - loss: 0.9641 - accuracy: 0.6639
## 536/781 [==================>...........] - ETA: 6s - loss: 0.9641 - accuracy: 0.6640
## 539/781 [==================>...........] - ETA: 6s - loss: 0.9640 - accuracy: 0.6642
## 541/781 [==================>...........] - ETA: 6s - loss: 0.9638 - accuracy: 0.6641
## 543/781 [==================>...........] - ETA: 6s - loss: 0.9636 - accuracy: 0.6642
## 546/781 [==================>...........] - ETA: 6s - loss: 0.9636 - accuracy: 0.6642
## 548/781 [===================>..........] - ETA: 6s - loss: 0.9642 - accuracy: 0.6639
## 551/781 [===================>..........] - ETA: 6s - loss: 0.9641 - accuracy: 0.6640
## 553/781 [===================>..........] - ETA: 6s - loss: 0.9639 - accuracy: 0.6640
## 555/781 [===================>..........] - ETA: 5s - loss: 0.9646 - accuracy: 0.6636
## 558/781 [===================>..........] - ETA: 5s - loss: 0.9646 - accuracy: 0.6636
## 560/781 [===================>..........] - ETA: 5s - loss: 0.9639 - accuracy: 0.6638
## 563/781 [===================>..........] - ETA: 5s - loss: 0.9635 - accuracy: 0.6641
## 566/781 [===================>..........] - ETA: 5s - loss: 0.9632 - accuracy: 0.6643
## 568/781 [===================>..........] - ETA: 5s - loss: 0.9631 - accuracy: 0.6644
## 571/781 [===================>..........] - ETA: 5s - loss: 0.9632 - accuracy: 0.6643
## 573/781 [====================>.........] - ETA: 5s - loss: 0.9631 - accuracy: 0.6645
## 575/781 [====================>.........] - ETA: 5s - loss: 0.9633 - accuracy: 0.6645
## 578/781 [====================>.........] - ETA: 5s - loss: 0.9637 - accuracy: 0.6641
## 581/781 [====================>.........] - ETA: 5s - loss: 0.9640 - accuracy: 0.6640
## 583/781 [====================>.........] - ETA: 5s - loss: 0.9640 - accuracy: 0.6639
## 585/781 [====================>.........] - ETA: 5s - loss: 0.9644 - accuracy: 0.6638
## 588/781 [====================>.........] - ETA: 5s - loss: 0.9645 - accuracy: 0.6636
## 590/781 [====================>.........] - ETA: 5s - loss: 0.9651 - accuracy: 0.6631
## 593/781 [====================>.........] - ETA: 4s - loss: 0.9645 - accuracy: 0.6633
## 595/781 [====================>.........] - ETA: 4s - loss: 0.9649 - accuracy: 0.6632
## 597/781 [====================>.........] - ETA: 4s - loss: 0.9642 - accuracy: 0.6634
## 599/781 [=====================>........] - ETA: 4s - loss: 0.9641 - accuracy: 0.6634
## 601/781 [=====================>........] - ETA: 4s - loss: 0.9637 - accuracy: 0.6636
## 604/781 [=====================>........] - ETA: 4s - loss: 0.9645 - accuracy: 0.6632
## 606/781 [=====================>........] - ETA: 4s - loss: 0.9641 - accuracy: 0.6634
## 608/781 [=====================>........] - ETA: 4s - loss: 0.9637 - accuracy: 0.6635
## 610/781 [=====================>........] - ETA: 4s - loss: 0.9635 - accuracy: 0.6635
## 612/781 [=====================>........] - ETA: 4s - loss: 0.9633 - accuracy: 0.6634
```

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## 614/781 [=====================>.......] - ETA: 4s - loss: 0.9630 - accuracy: 0.6636
## 616/781 [=====================>.......] - ETA: 4s - loss: 0.9629 - accuracy: 0.6635
## 619/781 [=====================>.......] - ETA: 4s - loss: 0.9627 - accuracy: 0.6636
## 621/781 [=====================>.......] - ETA: 4s - loss: 0.9625 - accuracy: 0.6635
## 623/781 [=====================>.......] - ETA: 4s - loss: 0.9628 - accuracy: 0.6633
## 625/781 [======================>......] - ETA: 4s - loss: 0.9626 - accuracy: 0.6634
## 627/781 [======================>......] - ETA: 4s - loss: 0.9620 - accuracy: 0.6635
## 630/781 [======================>......] - ETA: 4s - loss: 0.9618 - accuracy: 0.6636
## 632/781 [======================>......] - ETA: 3s - loss: 0.9623 - accuracy: 0.6635
## 634/781 [======================>......] - ETA: 3s - loss: 0.9620 - accuracy: 0.6636
## 636/781 [======================>......] - ETA: 3s - loss: 0.9616 - accuracy: 0.6636
## 638/781 [======================>......] - ETA: 3s - loss: 0.9618 - accuracy: 0.6636
## 640/781 [======================>......] - ETA: 3s - loss: 0.9619 - accuracy: 0.6636
## 642/781 [======================>......] - ETA: 3s - loss: 0.9618 - accuracy: 0.6635
## 644/781 [======================>......] - ETA: 3s - loss: 0.9619 - accuracy: 0.6634
## 647/781 [======================>......] - ETA: 3s - loss: 0.9617 - accuracy: 0.6636
## 649/781 [======================>......] - ETA: 3s - loss: 0.9617 - accuracy: 0.6637
## 651/781 [======================>.....] - ETA: 3s - loss: 0.9613 - accuracy: 0.6639
## 653/781 [======================>.....] - ETA: 3s - loss: 0.9616 - accuracy: 0.6638
## 656/781 [======================>.....] - ETA: 3s - loss: 0.9616 - accuracy: 0.6638
## 659/781 [======================>.....] - ETA: 3s - loss: 0.9617 - accuracy: 0.6637
## 661/781 [======================>.....] - ETA: 3s - loss: 0.9619 - accuracy: 0.6636
## 663/781 [======================>.....] - ETA: 3s - loss: 0.9620 - accuracy: 0.6634
## 665/781 [======================>.....] - ETA: 3s - loss: 0.9618 - accuracy: 0.6635
## 667/781 [======================>.....] - ETA: 3s - loss: 0.9620 - accuracy: 0.6635
## 669/781 [======================>.....] - ETA: 2s - loss: 0.9617 - accuracy: 0.6638
## 671/781 [======================>.....] - ETA: 2s - loss: 0.9616 - accuracy: 0.6638
## 673/781 [======================>.....] - ETA: 2s - loss: 0.9617 - accuracy: 0.6638
## 676/781 [======================>.....] - ETA: 2s - loss: 0.9620 - accuracy: 0.6636
## 678/781 [=======================>....] - ETA: 2s - loss: 0.9623 - accuracy: 0.6635
## 680/781 [=======================>....] - ETA: 2s - loss: 0.9623 - accuracy: 0.6636
## 682/781 [=======================>....] - ETA: 2s - loss: 0.9622 - accuracy: 0.6636
## 685/781 [=======================>....] - ETA: 2s - loss: 0.9622 - accuracy: 0.6637
## 687/781 [=======================>....] - ETA: 2s - loss: 0.9623 - accuracy: 0.6637
## 689/781 [=======================>....] - ETA: 2s - loss: 0.9620 - accuracy: 0.6637
## 691/781 [=======================>....] - ETA: 2s - loss: 0.9613 - accuracy: 0.6639
## 693/781 [=======================>....] - ETA: 2s - loss: 0.9613 - accuracy: 0.6640
## 696/781 [=======================>....] - ETA: 2s - loss: 0.9612 - accuracy: 0.6639
## 698/781 [=======================>....] - ETA: 2s - loss: 0.9608 - accuracy: 0.6639
## 700/781 [=======================>....] - ETA: 2s - loss: 0.9606 - accuracy: 0.6642
## 702/781 [=======================>....] - ETA: 2s - loss: 0.9601 - accuracy: 0.6644
## 704/781 [========================>...] - ETA: 2s - loss: 0.9598 - accuracy: 0.6645
## 706/781 [========================>...] - ETA: 1s - loss: 0.9597 - accuracy: 0.6644
## 708/781 [========================>...] - ETA: 1s - loss: 0.9594 - accuracy: 0.6647
## 711/781 [========================>...] - ETA: 1s - loss: 0.9592 - accuracy: 0.6647
## 713/781 [========================>...] - ETA: 1s - loss: 0.9586 - accuracy: 0.6648
## 715/781 [========================>...] - ETA: 1s - loss: 0.9587 - accuracy: 0.6647
## 717/781 [========================>...] - ETA: 1s - loss: 0.9584 - accuracy: 0.6648
## 719/781 [========================>...] - ETA: 1s - loss: 0.9587 - accuracy: 0.6647
## 721/781 [========================>...] - ETA: 1s - loss: 0.9587 - accuracy: 0.6648
## 724/781 [========================>...] - ETA: 1s - loss: 0.9588 - accuracy: 0.6648
## 726/781 [========================>...] - ETA: 1s - loss: 0.9592 - accuracy: 0.6648
## 728/781 [========================>...] - ETA: 1s - loss: 0.9593 - accuracy: 0.6648
## 730/781 [========================>..] - ETA: 1s - loss: 0.9594 - accuracy: 0.6647
```

```
## 732/781 [===========================>..] - ETA: 1s - loss: 0.9594 - accuracy: 0.6646
## 734/781 [===========================>..] - ETA: 1s - loss: 0.9598 - accuracy: 0.6645
## 736/781 [===========================>..] - ETA: 1s - loss: 0.9598 - accuracy: 0.6644
## 739/781 [===========================>..] - ETA: 1s - loss: 0.9602 - accuracy: 0.6644
## 741/781 [===========================>..] - ETA: 1s - loss: 0.9605 - accuracy: 0.6643
## 744/781 [===========================>..] - ETA: 0s - loss: 0.9613 - accuracy: 0.6641
## 747/781 [===========================>..] - ETA: 0s - loss: 0.9608 - accuracy: 0.6643
## 750/781 [===========================>..] - ETA: 0s - loss: 0.9605 - accuracy: 0.6644
## 752/781 [===========================>..] - ETA: 0s - loss: 0.9603 - accuracy: 0.6643
## 754/781 [===========================>..] - ETA: 0s - loss: 0.9599 - accuracy: 0.6645
## 756/781 [===========================>.] - ETA: 0s - loss: 0.9596 - accuracy: 0.6646
## 758/781 [===========================>.] - ETA: 0s - loss: 0.9592 - accuracy: 0.6647
## 760/781 [===========================>.] - ETA: 0s - loss: 0.9593 - accuracy: 0.6647
## 762/781 [===========================>.] - ETA: 0s - loss: 0.9592 - accuracy: 0.6647
## 764/781 [===========================>.] - ETA: 0s - loss: 0.9590 - accuracy: 0.6647
## 766/781 [===========================>.] - ETA: 0s - loss: 0.9588 - accuracy: 0.6649
## 768/781 [===========================>.] - ETA: 0s - loss: 0.9589 - accuracy: 0.6648
## 771/781 [===========================>.] - ETA: 0s - loss: 0.9578 - accuracy: 0.6651
## 773/781 [===========================>.] - ETA: 0s - loss: 0.9575 - accuracy: 0.6652
## 775/781 [===========================>.] - ETA: 0s - loss: 0.9574 - accuracy: 0.6652
## 777/781 [===========================>.] - ETA: 0s - loss: 0.9573 - accuracy: 0.6652
## 779/781 [===========================>.] - ETA: 0s - loss: 0.9572 - accuracy: 0.6652
## 781/781 [============================] - ETA: 0s - loss: 0.9571 - accuracy: 0.6652
## 781/781 [============================] - 22s 28ms/step - loss: 0.9571 - accuracy: 0.6652 - val_loss
## Epoch 11/20
##
##   1/781 [..............................] - ETA: 28s - loss: 1.1451 - accuracy: 0.6406
##   3/781 [..............................] - ETA: 19s - loss: 0.9763 - accuracy: 0.6667
##   5/781 [..............................] - ETA: 22s - loss: 1.0317 - accuracy: 0.6313
##   7/781 [..............................] - ETA: 21s - loss: 1.0395 - accuracy: 0.6250
##   9/781 [..............................] - ETA: 21s - loss: 1.0417 - accuracy: 0.6250
##  11/781 [..............................] - ETA: 21s - loss: 1.0322 - accuracy: 0.6349
##  14/781 [..............................] - ETA: 20s - loss: 0.9865 - accuracy: 0.6540
##  16/781 [..............................] - ETA: 20s - loss: 0.9613 - accuracy: 0.6641
##  18/781 [..............................] - ETA: 20s - loss: 0.9715 - accuracy: 0.6606
##  20/781 [..............................] - ETA: 20s - loss: 0.9828 - accuracy: 0.6562
##  23/781 [..............................] - ETA: 20s - loss: 0.9736 - accuracy: 0.6583
##  26/781 [..............................] - ETA: 20s - loss: 0.9772 - accuracy: 0.6581
##  29/781 [>.............................] - ETA: 20s - loss: 0.9736 - accuracy: 0.6568
##  32/781 [>.............................] - ETA: 19s - loss: 0.9643 - accuracy: 0.6616
##  34/781 [>.............................] - ETA: 19s - loss: 0.9632 - accuracy: 0.6622
##  37/781 [>.............................] - ETA: 19s - loss: 0.9625 - accuracy: 0.6643
##  40/781 [>.............................] - ETA: 19s - loss: 0.9702 - accuracy: 0.6617
##  43/781 [>.............................] - ETA: 19s - loss: 0.9645 - accuracy: 0.6650
##  45/781 [>.............................] - ETA: 19s - loss: 0.9614 - accuracy: 0.6646
##  47/781 [>.............................] - ETA: 19s - loss: 0.9596 - accuracy: 0.6656
##  49/781 [>.............................] - ETA: 19s - loss: 0.9571 - accuracy: 0.6671
##  52/781 [>.............................] - ETA: 19s - loss: 0.9581 - accuracy: 0.6668
##  54/781 [=>............................] - ETA: 19s - loss: 0.9553 - accuracy: 0.6664
##  56/781 [=>............................] - ETA: 19s - loss: 0.9525 - accuracy: 0.6677
##  59/781 [=>............................] - ETA: 19s - loss: 0.9501 - accuracy: 0.6684
##  61/781 [=>............................] - ETA: 19s - loss: 0.9536 - accuracy: 0.6660
##  64/781 [=>............................] - ETA: 18s - loss: 0.9580 - accuracy: 0.6633
##  66/781 [=>............................] - ETA: 19s - loss: 0.9591 - accuracy: 0.6622
```

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##  68/781 [=>............................] - ETA: 19s - loss: 0.9593 - accuracy: 0.6625
##  71/781 [=>............................] - ETA: 18s - loss: 0.9550 - accuracy: 0.6637
##  74/781 [=>............................] - ETA: 18s - loss: 0.9570 - accuracy: 0.6620
##  76/781 [=>............................] - ETA: 18s - loss: 0.9561 - accuracy: 0.6624
##  78/781 [=>............................] - ETA: 18s - loss: 0.9609 - accuracy: 0.6601
##  81/781 [==>...........................] - ETA: 18s - loss: 0.9619 - accuracy: 0.6609
##  83/781 [==>...........................] - ETA: 18s - loss: 0.9585 - accuracy: 0.6632
##  86/781 [==>...........................] - ETA: 18s - loss: 0.9551 - accuracy: 0.6632
##  89/781 [==>...........................] - ETA: 18s - loss: 0.9605 - accuracy: 0.6626
##  91/781 [==>...........................] - ETA: 18s - loss: 0.9591 - accuracy: 0.6633
##  94/781 [==>...........................] - ETA: 18s - loss: 0.9577 - accuracy: 0.6634
##  96/781 [==>...........................] - ETA: 18s - loss: 0.9581 - accuracy: 0.6636
##  99/781 [==>...........................] - ETA: 18s - loss: 0.9570 - accuracy: 0.6635
## 101/781 [==>...........................] - ETA: 18s - loss: 0.9571 - accuracy: 0.6634
## 104/781 [==>...........................] - ETA: 18s - loss: 0.9579 - accuracy: 0.6632
## 106/781 [===>..........................] - ETA: 18s - loss: 0.9560 - accuracy: 0.6641
## 108/781 [===>..........................] - ETA: 18s - loss: 0.9534 - accuracy: 0.6645
## 110/781 [===>..........................] - ETA: 17s - loss: 0.9526 - accuracy: 0.6643
## 112/781 [===>..........................] - ETA: 17s - loss: 0.9566 - accuracy: 0.6634
## 115/781 [===>..........................] - ETA: 17s - loss: 0.9574 - accuracy: 0.6635
## 117/781 [===>..........................] - ETA: 17s - loss: 0.9561 - accuracy: 0.6643
## 119/781 [===>..........................] - ETA: 17s - loss: 0.9580 - accuracy: 0.6636
## 122/781 [===>..........................] - ETA: 17s - loss: 0.9578 - accuracy: 0.6633
## 124/781 [===>..........................] - ETA: 17s - loss: 0.9586 - accuracy: 0.6631
## 127/781 [===>..........................] - ETA: 17s - loss: 0.9589 - accuracy: 0.6630
## 129/781 [===>..........................] - ETA: 17s - loss: 0.9574 - accuracy: 0.6638
## 131/781 [====>.........................] - ETA: 17s - loss: 0.9574 - accuracy: 0.6642
## 134/781 [====>.........................] - ETA: 17s - loss: 0.9580 - accuracy: 0.6646
## 137/781 [====>.........................] - ETA: 17s - loss: 0.9558 - accuracy: 0.6657
## 140/781 [====>.........................] - ETA: 17s - loss: 0.9558 - accuracy: 0.6655
## 143/781 [====>.........................] - ETA: 17s - loss: 0.9519 - accuracy: 0.6678
## 145/781 [====>.........................] - ETA: 17s - loss: 0.9521 - accuracy: 0.6675
## 148/781 [====>.........................] - ETA: 17s - loss: 0.9527 - accuracy: 0.6671
## 151/781 [====>.........................] - ETA: 16s - loss: 0.9525 - accuracy: 0.6677
## 153/781 [====>.........................] - ETA: 16s - loss: 0.9536 - accuracy: 0.6669
## 156/781 [====>.........................] - ETA: 16s - loss: 0.9525 - accuracy: 0.6669
## 158/781 [=====>........................] - ETA: 16s - loss: 0.9536 - accuracy: 0.6670
## 160/781 [=====>........................] - ETA: 16s - loss: 0.9531 - accuracy: 0.6668
## 162/781 [=====>........................] - ETA: 16s - loss: 0.9508 - accuracy: 0.6675
## 164/781 [=====>........................] - ETA: 16s - loss: 0.9495 - accuracy: 0.6686
## 166/781 [=====>........................] - ETA: 16s - loss: 0.9490 - accuracy: 0.6687
## 169/781 [=====>........................] - ETA: 16s - loss: 0.9469 - accuracy: 0.6689
## 172/781 [=====>........................] - ETA: 16s - loss: 0.9490 - accuracy: 0.6685
## 174/781 [=====>........................] - ETA: 16s - loss: 0.9488 - accuracy: 0.6688
## 176/781 [=====>........................] - ETA: 16s - loss: 0.9484 - accuracy: 0.6685
## 179/781 [=====>........................] - ETA: 16s - loss: 0.9475 - accuracy: 0.6688
## 181/781 [=====>........................] - ETA: 16s - loss: 0.9481 - accuracy: 0.6689
## 183/781 [======>.......................] - ETA: 16s - loss: 0.9481 - accuracy: 0.6685
## 186/781 [======>.......................] - ETA: 16s - loss: 0.9478 - accuracy: 0.6688
## 188/781 [======>.......................] - ETA: 16s - loss: 0.9494 - accuracy: 0.6681
## 191/781 [======>.......................] - ETA: 15s - loss: 0.9496 - accuracy: 0.6684
## 194/781 [======>.......................] - ETA: 15s - loss: 0.9491 - accuracy: 0.6685
## 196/781 [======>.......................] - ETA: 15s - loss: 0.9489 - accuracy: 0.6688
## 199/781 [======>.......................] - ETA: 15s - loss: 0.9511 - accuracy: 0.6678
```

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## 202/781 [======>.....................] - ETA: 15s - loss: 0.9495 - accuracy: 0.6689
## 204/781 [======>.....................] - ETA: 15s - loss: 0.9482 - accuracy: 0.6693
## 206/781 [======>.....................] - ETA: 15s - loss: 0.9491 - accuracy: 0.6687
## 209/781 [=======>....................] - ETA: 15s - loss: 0.9485 - accuracy: 0.6694
## 211/781 [=======>....................] - ETA: 15s - loss: 0.9483 - accuracy: 0.6698
## 214/781 [=======>....................] - ETA: 15s - loss: 0.9483 - accuracy: 0.6695
## 216/781 [=======>....................] - ETA: 15s - loss: 0.9510 - accuracy: 0.6684
## 218/781 [=======>....................] - ETA: 15s - loss: 0.9524 - accuracy: 0.6680
## 220/781 [=======>....................] - ETA: 15s - loss: 0.9518 - accuracy: 0.6682
## 223/781 [=======>....................] - ETA: 15s - loss: 0.9525 - accuracy: 0.6680
## 225/781 [=======>....................] - ETA: 14s - loss: 0.9519 - accuracy: 0.6687
## 227/781 [=======>....................] - ETA: 14s - loss: 0.9511 - accuracy: 0.6691
## 230/781 [=======>....................] - ETA: 14s - loss: 0.9511 - accuracy: 0.6697
## 232/781 [=======>....................] - ETA: 14s - loss: 0.9527 - accuracy: 0.6695
## 235/781 [========>...................] - ETA: 14s - loss: 0.9527 - accuracy: 0.6701
## 237/781 [========>...................] - ETA: 14s - loss: 0.9526 - accuracy: 0.6701
## 240/781 [========>...................] - ETA: 14s - loss: 0.9522 - accuracy: 0.6702
## 243/781 [========>...................] - ETA: 14s - loss: 0.9521 - accuracy: 0.6703
## 246/781 [========>...................] - ETA: 14s - loss: 0.9527 - accuracy: 0.6705
## 248/781 [========>...................] - ETA: 14s - loss: 0.9532 - accuracy: 0.6704
## 251/781 [========>...................] - ETA: 14s - loss: 0.9541 - accuracy: 0.6700
## 253/781 [========>...................] - ETA: 14s - loss: 0.9552 - accuracy: 0.6701
## 255/781 [========>...................] - ETA: 14s - loss: 0.9547 - accuracy: 0.6703
## 257/781 [========>...................] - ETA: 14s - loss: 0.9541 - accuracy: 0.6702
## 259/781 [========>...................] - ETA: 14s - loss: 0.9540 - accuracy: 0.6701
## 261/781 [=========>..................] - ETA: 14s - loss: 0.9546 - accuracy: 0.6697
## 264/781 [=========>..................] - ETA: 13s - loss: 0.9547 - accuracy: 0.6696
## 266/781 [=========>..................] - ETA: 13s - loss: 0.9547 - accuracy: 0.6695
## 269/781 [=========>..................] - ETA: 13s - loss: 0.9534 - accuracy: 0.6697
## 271/781 [=========>..................] - ETA: 13s - loss: 0.9541 - accuracy: 0.6695
## 273/781 [=========>..................] - ETA: 13s - loss: 0.9526 - accuracy: 0.6700
## 276/781 [=========>..................] - ETA: 13s - loss: 0.9529 - accuracy: 0.6698
## 278/781 [=========>..................] - ETA: 13s - loss: 0.9534 - accuracy: 0.6696
## 281/781 [=========>..................] - ETA: 13s - loss: 0.9523 - accuracy: 0.6698
## 284/781 [=========>..................] - ETA: 13s - loss: 0.9528 - accuracy: 0.6698
## 286/781 [=========>..................] - ETA: 13s - loss: 0.9525 - accuracy: 0.6698
## 289/781 [==========>.................] - ETA: 13s - loss: 0.9522 - accuracy: 0.6701
## 292/781 [==========>.................] - ETA: 13s - loss: 0.9534 - accuracy: 0.6694
## 295/781 [==========>.................] - ETA: 13s - loss: 0.9533 - accuracy: 0.6691
## 297/781 [==========>.................] - ETA: 13s - loss: 0.9544 - accuracy: 0.6688
## 300/781 [==========>.................] - ETA: 12s - loss: 0.9548 - accuracy: 0.6684
## 302/781 [==========>.................] - ETA: 12s - loss: 0.9553 - accuracy: 0.6681
## 305/781 [==========>.................] - ETA: 12s - loss: 0.9556 - accuracy: 0.6679
## 308/781 [==========>.................] - ETA: 12s - loss: 0.9554 - accuracy: 0.6683
## 310/781 [==========>.................] - ETA: 12s - loss: 0.9560 - accuracy: 0.6679
## 313/781 [===========>................] - ETA: 12s - loss: 0.9560 - accuracy: 0.6679
## 316/781 [===========>................] - ETA: 12s - loss: 0.9562 - accuracy: 0.6680
## 318/781 [===========>................] - ETA: 12s - loss: 0.9558 - accuracy: 0.6679
## 320/781 [===========>................] - ETA: 12s - loss: 0.9549 - accuracy: 0.6683
## 322/781 [===========>................] - ETA: 12s - loss: 0.9546 - accuracy: 0.6682
## 325/781 [===========>................] - ETA: 12s - loss: 0.9536 - accuracy: 0.6685
## 327/781 [===========>................] - ETA: 12s - loss: 0.9536 - accuracy: 0.6685
## 330/781 [===========>................] - ETA: 12s - loss: 0.9522 - accuracy: 0.6684
## 332/781 [===========>................] - ETA: 12s - loss: 0.9524 - accuracy: 0.6681
```

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## 335/781 [==========>..................] - ETA: 12s - loss: 0.9538 - accuracy: 0.6673
## 337/781 [==========>..................] - ETA: 11s - loss: 0.9533 - accuracy: 0.6676
## 340/781 [==========>..................] - ETA: 11s - loss: 0.9536 - accuracy: 0.6676
## 343/781 [==========>..................] - ETA: 11s - loss: 0.9535 - accuracy: 0.6677
## 346/781 [==========>..................] - ETA: 11s - loss: 0.9549 - accuracy: 0.6671
## 348/781 [==========>..................] - ETA: 11s - loss: 0.9551 - accuracy: 0.6671
## 350/781 [==========>..................] - ETA: 11s - loss: 0.9549 - accuracy: 0.6671
## 353/781 [==========>..................] - ETA: 11s - loss: 0.9548 - accuracy: 0.6672
## 356/781 [==========>..................] - ETA: 11s - loss: 0.9550 - accuracy: 0.6673
## 358/781 [==========>..................] - ETA: 11s - loss: 0.9546 - accuracy: 0.6676
## 360/781 [==========>..................] - ETA: 11s - loss: 0.9544 - accuracy: 0.6678
## 363/781 [==========>..................] - ETA: 11s - loss: 0.9537 - accuracy: 0.6680
## 366/781 [==========>..................] - ETA: 11s - loss: 0.9534 - accuracy: 0.6680
## 368/781 [==========>..................] - ETA: 11s - loss: 0.9538 - accuracy: 0.6679
## 371/781 [==========>..................] - ETA: 11s - loss: 0.9538 - accuracy: 0.6679
## 373/781 [==========>..................] - ETA: 10s - loss: 0.9533 - accuracy: 0.6682
## 376/781 [==========>..................] - ETA: 10s - loss: 0.9540 - accuracy: 0.6684
## 378/781 [==========>..................] - ETA: 10s - loss: 0.9546 - accuracy: 0.6683
## 380/781 [==========>..................] - ETA: 10s - loss: 0.9541 - accuracy: 0.6682
## 383/781 [==========>..................] - ETA: 10s - loss: 0.9536 - accuracy: 0.6684
## 386/781 [==========>..................] - ETA: 10s - loss: 0.9533 - accuracy: 0.6686
## 389/781 [==========>..................] - ETA: 10s - loss: 0.9533 - accuracy: 0.6686
## 391/781 [==========>..................] - ETA: 10s - loss: 0.9529 - accuracy: 0.6685
## 393/781 [==========>..................] - ETA: 10s - loss: 0.9529 - accuracy: 0.6683
## 395/781 [==========>..................] - ETA: 10s - loss: 0.9530 - accuracy: 0.6682
## 398/781 [==========>..................] - ETA: 10s - loss: 0.9526 - accuracy: 0.6684
## 401/781 [==========>..................] - ETA: 10s - loss: 0.9536 - accuracy: 0.6679
## 403/781 [==========>..................] - ETA: 10s - loss: 0.9539 - accuracy: 0.6677
## 405/781 [==========>..................] - ETA: 10s - loss: 0.9542 - accuracy: 0.6676
## 407/781 [==========>..................] - ETA: 10s - loss: 0.9540 - accuracy: 0.6675
## 409/781 [==========>..................] - ETA: 9s - loss: 0.9551 - accuracy: 0.6673
## 411/781 [==========>..................] - ETA: 9s - loss: 0.9554 - accuracy: 0.6670
## 414/781 [==========>..................] - ETA: 9s - loss: 0.9548 - accuracy: 0.6668
## 416/781 [==========>..................] - ETA: 9s - loss: 0.9551 - accuracy: 0.6668
## 419/781 [==========>..................] - ETA: 9s - loss: 0.9548 - accuracy: 0.6669
## 421/781 [==========>..................] - ETA: 9s - loss: 0.9544 - accuracy: 0.6670
## 423/781 [==========>..................] - ETA: 9s - loss: 0.9545 - accuracy: 0.6667
## 425/781 [==========>..................] - ETA: 9s - loss: 0.9544 - accuracy: 0.6668
## 428/781 [==========>..................] - ETA: 9s - loss: 0.9549 - accuracy: 0.6666
## 430/781 [==========>..................] - ETA: 9s - loss: 0.9549 - accuracy: 0.6668
## 433/781 [==========>..................] - ETA: 9s - loss: 0.9544 - accuracy: 0.6670
## 435/781 [==========>..................] - ETA: 9s - loss: 0.9541 - accuracy: 0.6673
## 438/781 [==========>..................] - ETA: 9s - loss: 0.9542 - accuracy: 0.6673
## 440/781 [==========>..................] - ETA: 9s - loss: 0.9542 - accuracy: 0.6670
## 442/781 [==========>..................] - ETA: 9s - loss: 0.9542 - accuracy: 0.6671
## 445/781 [==========>..................] - ETA: 9s - loss: 0.9540 - accuracy: 0.6672
## 447/781 [==========>..................] - ETA: 8s - loss: 0.9539 - accuracy: 0.6674
## 450/781 [==========>..................] - ETA: 8s - loss: 0.9540 - accuracy: 0.6674
## 452/781 [==========>..................] - ETA: 8s - loss: 0.9537 - accuracy: 0.6675
## 454/781 [==========>..................] - ETA: 8s - loss: 0.9532 - accuracy: 0.6676
## 457/781 [==========>..................] - ETA: 8s - loss: 0.9541 - accuracy: 0.6674
## 459/781 [==========>..................] - ETA: 8s - loss: 0.9540 - accuracy: 0.6674
## 462/781 [==========>..................] - ETA: 8s - loss: 0.9541 - accuracy: 0.6674
## 464/781 [==========>..................] - ETA: 8s - loss: 0.9540 - accuracy: 0.6674
```

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## 466/781 [===============>.............] - ETA: 8s - loss: 0.9540 - accuracy: 0.6672
## 469/781 [================>.............] - ETA: 8s - loss: 0.9539 - accuracy: 0.6672
## 471/781 [================>.............] - ETA: 8s - loss: 0.9543 - accuracy: 0.6671
## 474/781 [================>.............] - ETA: 8s - loss: 0.9549 - accuracy: 0.6667
## 476/781 [================>.............] - ETA: 8s - loss: 0.9553 - accuracy: 0.6666
## 479/781 [================>.............] - ETA: 8s - loss: 0.9552 - accuracy: 0.6667
## 481/781 [================>.............] - ETA: 8s - loss: 0.9551 - accuracy: 0.6666
## 483/781 [================>.............] - ETA: 7s - loss: 0.9555 - accuracy: 0.6666
## 485/781 [================>.............] - ETA: 7s - loss: 0.9554 - accuracy: 0.6666
## 487/781 [================>.............] - ETA: 7s - loss: 0.9548 - accuracy: 0.6670
## 490/781 [================>.............] - ETA: 7s - loss: 0.9548 - accuracy: 0.6668
## 492/781 [================>.............] - ETA: 7s - loss: 0.9547 - accuracy: 0.6668
## 494/781 [================>.............] - ETA: 7s - loss: 0.9547 - accuracy: 0.6668
## 496/781 [=================>............] - ETA: 7s - loss: 0.9553 - accuracy: 0.6666
## 498/781 [=================>............] - ETA: 7s - loss: 0.9560 - accuracy: 0.6665
## 501/781 [=================>............] - ETA: 7s - loss: 0.9553 - accuracy: 0.6666
## 503/781 [=================>............] - ETA: 7s - loss: 0.9551 - accuracy: 0.6667
## 506/781 [=================>............] - ETA: 7s - loss: 0.9557 - accuracy: 0.6663
## 509/781 [=================>............] - ETA: 7s - loss: 0.9556 - accuracy: 0.6665
## 512/781 [=================>............] - ETA: 7s - loss: 0.9564 - accuracy: 0.6663
## 514/781 [=================>............] - ETA: 7s - loss: 0.9556 - accuracy: 0.6667
## 517/781 [=================>............] - ETA: 7s - loss: 0.9556 - accuracy: 0.6666
## 520/781 [=================>............] - ETA: 6s - loss: 0.9563 - accuracy: 0.6665
## 523/781 [==================>...........] - ETA: 6s - loss: 0.9556 - accuracy: 0.6667
## 526/781 [==================>...........] - ETA: 6s - loss: 0.9559 - accuracy: 0.6667
## 528/781 [==================>...........] - ETA: 6s - loss: 0.9549 - accuracy: 0.6671
## 530/781 [==================>...........] - ETA: 6s - loss: 0.9550 - accuracy: 0.6671
## 532/781 [==================>...........] - ETA: 6s - loss: 0.9551 - accuracy: 0.6671
## 535/781 [==================>...........] - ETA: 6s - loss: 0.9546 - accuracy: 0.6671
## 537/781 [==================>...........] - ETA: 6s - loss: 0.9544 - accuracy: 0.6673
## 539/781 [==================>...........] - ETA: 6s - loss: 0.9541 - accuracy: 0.6672
## 541/781 [==================>...........] - ETA: 6s - loss: 0.9540 - accuracy: 0.6673
## 543/781 [==================>...........] - ETA: 6s - loss: 0.9546 - accuracy: 0.6669
## 545/781 [==================>...........] - ETA: 6s - loss: 0.9540 - accuracy: 0.6671
## 547/781 [===================>..........] - ETA: 6s - loss: 0.9543 - accuracy: 0.6671
## 549/781 [===================>..........] - ETA: 6s - loss: 0.9546 - accuracy: 0.6668
## 551/781 [===================>..........] - ETA: 6s - loss: 0.9550 - accuracy: 0.6668
## 553/781 [===================>..........] - ETA: 6s - loss: 0.9550 - accuracy: 0.6667
## 555/781 [===================>..........] - ETA: 6s - loss: 0.9546 - accuracy: 0.6668
## 557/781 [===================>..........] - ETA: 5s - loss: 0.9552 - accuracy: 0.6665
## 559/781 [===================>..........] - ETA: 5s - loss: 0.9552 - accuracy: 0.6666
## 561/781 [===================>..........] - ETA: 5s - loss: 0.9554 - accuracy: 0.6668
## 563/781 [===================>..........] - ETA: 5s - loss: 0.9550 - accuracy: 0.6669
## 565/781 [===================>..........] - ETA: 5s - loss: 0.9551 - accuracy: 0.6668
## 567/781 [===================>..........] - ETA: 5s - loss: 0.9551 - accuracy: 0.6666
## 569/781 [===================>..........] - ETA: 5s - loss: 0.9554 - accuracy: 0.6666
## 571/781 [===================>..........] - ETA: 5s - loss: 0.9550 - accuracy: 0.6666
## 573/781 [====================>.........] - ETA: 5s - loss: 0.9553 - accuracy: 0.6664
## 575/781 [====================>.........] - ETA: 5s - loss: 0.9554 - accuracy: 0.6662
## 577/781 [====================>.........] - ETA: 5s - loss: 0.9558 - accuracy: 0.6661
## 579/781 [====================>.........] - ETA: 5s - loss: 0.9558 - accuracy: 0.6661
## 581/781 [====================>.........] - ETA: 5s - loss: 0.9558 - accuracy: 0.6661
## 583/781 [====================>.........] - ETA: 5s - loss: 0.9551 - accuracy: 0.6664
## 586/781 [====================>.........] - ETA: 5s - loss: 0.9548 - accuracy: 0.6664
```

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## 588/781 [====================>........] - ETA: 5s - loss: 0.9546 - accuracy: 0.6666
## 590/781 [====================>........] - ETA: 5s - loss: 0.9546 - accuracy: 0.6666
## 593/781 [====================>........] - ETA: 5s - loss: 0.9549 - accuracy: 0.6665
## 595/781 [====================>........] - ETA: 4s - loss: 0.9552 - accuracy: 0.6664
## 597/781 [====================>........] - ETA: 4s - loss: 0.9552 - accuracy: 0.6663
## 599/781 [=====================>.......] - ETA: 4s - loss: 0.9550 - accuracy: 0.6662
## 602/781 [=====================>.......] - ETA: 4s - loss: 0.9548 - accuracy: 0.6665
## 604/781 [=====================>.......] - ETA: 4s - loss: 0.9541 - accuracy: 0.6666
## 607/781 [=====================>.......] - ETA: 4s - loss: 0.9536 - accuracy: 0.6668
## 609/781 [=====================>.......] - ETA: 4s - loss: 0.9538 - accuracy: 0.6670
## 612/781 [=====================>.......] - ETA: 4s - loss: 0.9536 - accuracy: 0.6669
## 614/781 [=====================>.......] - ETA: 4s - loss: 0.9539 - accuracy: 0.6668
## 616/781 [=====================>.......] - ETA: 4s - loss: 0.9534 - accuracy: 0.6670
## 618/781 [=====================>.......] - ETA: 4s - loss: 0.9539 - accuracy: 0.6668
## 621/781 [=====================>.......] - ETA: 4s - loss: 0.9541 - accuracy: 0.6669
## 623/781 [=====================>.......] - ETA: 4s - loss: 0.9537 - accuracy: 0.6670
## 626/781 [======================>......] - ETA: 4s - loss: 0.9532 - accuracy: 0.6670
## 628/781 [======================>......] - ETA: 4s - loss: 0.9531 - accuracy: 0.6669
## 630/781 [======================>......] - ETA: 4s - loss: 0.9531 - accuracy: 0.6668
## 633/781 [======================>......] - ETA: 3s - loss: 0.9528 - accuracy: 0.6669
## 635/781 [======================>......] - ETA: 3s - loss: 0.9524 - accuracy: 0.6670
## 638/781 [======================>......] - ETA: 3s - loss: 0.9522 - accuracy: 0.6673
## 640/781 [======================>......] - ETA: 3s - loss: 0.9528 - accuracy: 0.6671
## 643/781 [======================>......] - ETA: 3s - loss: 0.9523 - accuracy: 0.6671
## 645/781 [======================>......] - ETA: 3s - loss: 0.9527 - accuracy: 0.6670
## 648/781 [======================>......] - ETA: 3s - loss: 0.9525 - accuracy: 0.6671
## 650/781 [======================>......] - ETA: 3s - loss: 0.9523 - accuracy: 0.6670
## 653/781 [=======================>.....] - ETA: 3s - loss: 0.9529 - accuracy: 0.6667
## 655/781 [=======================>.....] - ETA: 3s - loss: 0.9529 - accuracy: 0.6668
## 658/781 [=======================>.....] - ETA: 3s - loss: 0.9522 - accuracy: 0.6672
## 660/781 [=======================>.....] - ETA: 3s - loss: 0.9524 - accuracy: 0.6670
## 663/781 [=======================>.....] - ETA: 3s - loss: 0.9521 - accuracy: 0.6670
## 666/781 [=======================>.....] - ETA: 3s - loss: 0.9517 - accuracy: 0.6673
## 668/781 [=======================>.....] - ETA: 3s - loss: 0.9510 - accuracy: 0.6675
## 670/781 [=======================>.....] - ETA: 2s - loss: 0.9512 - accuracy: 0.6674
## 672/781 [=======================>.....] - ETA: 2s - loss: 0.9516 - accuracy: 0.6674
## 675/781 [=======================>.....] - ETA: 2s - loss: 0.9510 - accuracy: 0.6678
## 678/781 [========================>....] - ETA: 2s - loss: 0.9509 - accuracy: 0.6678
## 680/781 [========================>....] - ETA: 2s - loss: 0.9514 - accuracy: 0.6675
## 682/781 [========================>....] - ETA: 2s - loss: 0.9514 - accuracy: 0.6675
## 685/781 [========================>....] - ETA: 2s - loss: 0.9518 - accuracy: 0.6675
## 687/781 [========================>....] - ETA: 2s - loss: 0.9516 - accuracy: 0.6674
## 689/781 [========================>....] - ETA: 2s - loss: 0.9516 - accuracy: 0.6674
## 692/781 [========================>....] - ETA: 2s - loss: 0.9519 - accuracy: 0.6672
## 695/781 [========================>....] - ETA: 2s - loss: 0.9514 - accuracy: 0.6675
## 698/781 [========================>....] - ETA: 2s - loss: 0.9516 - accuracy: 0.6676
## 701/781 [========================>....] - ETA: 2s - loss: 0.9513 - accuracy: 0.6677
## 703/781 [========================>....] - ETA: 2s - loss: 0.9514 - accuracy: 0.6678
## 706/781 [=========================>...] - ETA: 2s - loss: 0.9512 - accuracy: 0.6679
## 709/781 [=========================>...] - ETA: 1s - loss: 0.9509 - accuracy: 0.6679
## 711/781 [=========================>...] - ETA: 1s - loss: 0.9510 - accuracy: 0.6679
## 713/781 [=========================>...] - ETA: 1s - loss: 0.9507 - accuracy: 0.6679
## 716/781 [=========================>...] - ETA: 1s - loss: 0.9504 - accuracy: 0.6679
## 718/781 [=========================>...] - ETA: 1s - loss: 0.9500 - accuracy: 0.6680
```

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## 720/781 [=========================>...] - ETA: 1s - loss: 0.9498 - accuracy: 0.6680
## 722/781 [=========================>...] - ETA: 1s - loss: 0.9501 - accuracy: 0.6679
## 725/781 [=========================>...] - ETA: 1s - loss: 0.9499 - accuracy: 0.6680
## 727/781 [=========================>...] - ETA: 1s - loss: 0.9501 - accuracy: 0.6679
## 730/781 [==========================>..] - ETA: 1s - loss: 0.9497 - accuracy: 0.6680
## 732/781 [==========================>..] - ETA: 1s - loss: 0.9501 - accuracy: 0.6679
## 734/781 [==========================>..] - ETA: 1s - loss: 0.9500 - accuracy: 0.6680
## 736/781 [==========================>..] - ETA: 1s - loss: 0.9501 - accuracy: 0.6679
## 739/781 [==========================>..] - ETA: 1s - loss: 0.9499 - accuracy: 0.6681
## 741/781 [==========================>..] - ETA: 1s - loss: 0.9498 - accuracy: 0.6681
## 743/781 [==========================>..] - ETA: 1s - loss: 0.9498 - accuracy: 0.6680
## 745/781 [==========================>..] - ETA: 0s - loss: 0.9498 - accuracy: 0.6679
## 747/781 [==========================>..] - ETA: 0s - loss: 0.9500 - accuracy: 0.6678
## 749/781 [==========================>..] - ETA: 0s - loss: 0.9499 - accuracy: 0.6678
## 751/781 [==========================>..] - ETA: 0s - loss: 0.9499 - accuracy: 0.6677
## 754/781 [==========================>..] - ETA: 0s - loss: 0.9497 - accuracy: 0.6678
## 756/781 [===========================>.] - ETA: 0s - loss: 0.9495 - accuracy: 0.6679
## 759/781 [===========================>.] - ETA: 0s - loss: 0.9492 - accuracy: 0.6680
## 761/781 [===========================>.] - ETA: 0s - loss: 0.9490 - accuracy: 0.6681
## 764/781 [===========================>.] - ETA: 0s - loss: 0.9483 - accuracy: 0.6684
## 766/781 [===========================>.] - ETA: 0s - loss: 0.9484 - accuracy: 0.6685
## 768/781 [===========================>.] - ETA: 0s - loss: 0.9488 - accuracy: 0.6684
## 770/781 [===========================>.] - ETA: 0s - loss: 0.9486 - accuracy: 0.6684
## 773/781 [===========================>.] - ETA: 0s - loss: 0.9494 - accuracy: 0.6682
## 776/781 [===========================>.] - ETA: 0s - loss: 0.9492 - accuracy: 0.6683
## 778/781 [===========================>.] - ETA: 0s - loss: 0.9489 - accuracy: 0.6683
## 780/781 [===========================>.] - ETA: 0s - loss: 0.9489 - accuracy: 0.6684
## 781/781 [==============================] - 22s 28ms/step - loss: 0.9488 - accuracy: 0.6685 - val_loss
## Epoch 12/20
##
##   1/781 [..............................] - ETA: 34s - loss: 0.9248 - accuracy: 0.6250
##   3/781 [..............................] - ETA: 22s - loss: 0.9723 - accuracy: 0.6667
##   6/781 [..............................] - ETA: 20s - loss: 1.0475 - accuracy: 0.6224
##   9/781 [..............................] - ETA: 20s - loss: 1.0642 - accuracy: 0.6181
##  11/781 [..............................] - ETA: 20s - loss: 1.0573 - accuracy: 0.6264
##  14/781 [..............................] - ETA: 20s - loss: 1.0261 - accuracy: 0.6339
##  16/781 [..............................] - ETA: 20s - loss: 1.0309 - accuracy: 0.6328
##  18/781 [..............................] - ETA: 20s - loss: 1.0102 - accuracy: 0.6415
##  20/781 [..............................] - ETA: 20s - loss: 1.0229 - accuracy: 0.6375
##  23/781 [..............................] - ETA: 19s - loss: 1.0020 - accuracy: 0.6440
##  25/781 [..............................] - ETA: 19s - loss: 0.9939 - accuracy: 0.6481
##  28/781 [>.............................] - ETA: 19s - loss: 0.9881 - accuracy: 0.6501
##  30/781 [>.............................] - ETA: 19s - loss: 0.9807 - accuracy: 0.6536
##  32/781 [>.............................] - ETA: 19s - loss: 0.9674 - accuracy: 0.6558
##  34/781 [>.............................] - ETA: 19s - loss: 0.9524 - accuracy: 0.6590
##  37/781 [>.............................] - ETA: 19s - loss: 0.9574 - accuracy: 0.6584
##  39/781 [>.............................] - ETA: 19s - loss: 0.9502 - accuracy: 0.6607
##  42/781 [>.............................] - ETA: 19s - loss: 0.9541 - accuracy: 0.6603
##  44/781 [>.............................] - ETA: 19s - loss: 0.9518 - accuracy: 0.6594
##  46/781 [>.............................] - ETA: 19s - loss: 0.9466 - accuracy: 0.6627
##  49/781 [>.............................] - ETA: 19s - loss: 0.9484 - accuracy: 0.6639
##  52/781 [>.............................] - ETA: 18s - loss: 0.9471 - accuracy: 0.6656
##  54/781 [=>............................] - ETA: 19s - loss: 0.9417 - accuracy: 0.6670
##  57/781 [=>............................] - ETA: 18s - loss: 0.9349 - accuracy: 0.6697
```

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##  60/781 [=>............................] - ETA: 18s - loss: 0.9387 - accuracy: 0.6698
##  62/781 [=>............................] - ETA: 18s - loss: 0.9348 - accuracy: 0.6719
##  64/781 [=>............................] - ETA: 18s - loss: 0.9386 - accuracy: 0.6707
##  66/781 [=>............................] - ETA: 18s - loss: 0.9350 - accuracy: 0.6719
##  69/781 [=>............................] - ETA: 18s - loss: 0.9281 - accuracy: 0.6732
##  71/781 [=>............................] - ETA: 18s - loss: 0.9326 - accuracy: 0.6721
##  74/781 [=>............................] - ETA: 18s - loss: 0.9306 - accuracy: 0.6742
##  76/781 [=>............................] - ETA: 18s - loss: 0.9312 - accuracy: 0.6750
##  78/781 [=>............................] - ETA: 18s - loss: 0.9317 - accuracy: 0.6757
##  80/781 [==>...........................] - ETA: 18s - loss: 0.9324 - accuracy: 0.6756
##  83/781 [==>...........................] - ETA: 18s - loss: 0.9295 - accuracy: 0.6760
##  85/781 [==>...........................] - ETA: 18s - loss: 0.9286 - accuracy: 0.6761
##  88/781 [==>...........................] - ETA: 18s - loss: 0.9316 - accuracy: 0.6751
##  90/781 [==>...........................] - ETA: 18s - loss: 0.9315 - accuracy: 0.6753
##  92/781 [==>...........................] - ETA: 18s - loss: 0.9337 - accuracy: 0.6753
##  94/781 [==>...........................] - ETA: 18s - loss: 0.9308 - accuracy: 0.6762
##  97/781 [==>...........................] - ETA: 18s - loss: 0.9304 - accuracy: 0.6756
## 100/781 [==>...........................] - ETA: 17s - loss: 0.9288 - accuracy: 0.6770
## 103/781 [==>...........................] - ETA: 17s - loss: 0.9321 - accuracy: 0.6755
## 105/781 [===>..........................] - ETA: 17s - loss: 0.9345 - accuracy: 0.6749
## 107/781 [===>..........................] - ETA: 17s - loss: 0.9332 - accuracy: 0.6752
## 110/781 [===>..........................] - ETA: 17s - loss: 0.9338 - accuracy: 0.6754
## 112/781 [===>..........................] - ETA: 17s - loss: 0.9338 - accuracy: 0.6752
## 115/781 [===>..........................] - ETA: 17s - loss: 0.9335 - accuracy: 0.6750
## 117/781 [===>..........................] - ETA: 17s - loss: 0.9336 - accuracy: 0.6748
## 120/781 [===>..........................] - ETA: 17s - loss: 0.9380 - accuracy: 0.6741
## 123/781 [===>..........................] - ETA: 17s - loss: 0.9380 - accuracy: 0.6740
## 125/781 [===>..........................] - ETA: 17s - loss: 0.9395 - accuracy: 0.6737
## 128/781 [===>..........................] - ETA: 17s - loss: 0.9377 - accuracy: 0.6743
## 130/781 [===>..........................] - ETA: 17s - loss: 0.9377 - accuracy: 0.6749
## 133/781 [====>.........................] - ETA: 17s - loss: 0.9393 - accuracy: 0.6741
## 136/781 [====>.........................] - ETA: 16s - loss: 0.9394 - accuracy: 0.6744
## 138/781 [====>.........................] - ETA: 16s - loss: 0.9385 - accuracy: 0.6750
## 140/781 [====>.........................] - ETA: 16s - loss: 0.9392 - accuracy: 0.6743
## 142/781 [====>.........................] - ETA: 16s - loss: 0.9395 - accuracy: 0.6740
## 145/781 [====>.........................] - ETA: 16s - loss: 0.9383 - accuracy: 0.6738
## 147/781 [====>.........................] - ETA: 16s - loss: 0.9398 - accuracy: 0.6734
## 149/781 [====>.........................] - ETA: 16s - loss: 0.9425 - accuracy: 0.6723
## 152/781 [====>.........................] - ETA: 16s - loss: 0.9407 - accuracy: 0.6728
## 155/781 [====>.........................] - ETA: 16s - loss: 0.9373 - accuracy: 0.6739
## 157/781 [=====>........................] - ETA: 16s - loss: 0.9371 - accuracy: 0.6733
## 159/781 [=====>........................] - ETA: 16s - loss: 0.9361 - accuracy: 0.6734
## 161/781 [=====>........................] - ETA: 16s - loss: 0.9348 - accuracy: 0.6745
## 164/781 [=====>........................] - ETA: 16s - loss: 0.9348 - accuracy: 0.6741
## 167/781 [=====>........................] - ETA: 16s - loss: 0.9340 - accuracy: 0.6742
## 169/781 [=====>........................] - ETA: 16s - loss: 0.9355 - accuracy: 0.6737
## 171/781 [=====>........................] - ETA: 16s - loss: 0.9323 - accuracy: 0.6750
## 174/781 [=====>........................] - ETA: 15s - loss: 0.9331 - accuracy: 0.6747
## 176/781 [=====>........................] - ETA: 15s - loss: 0.9329 - accuracy: 0.6747
## 178/781 [=====>........................] - ETA: 15s - loss: 0.9334 - accuracy: 0.6747
## 181/781 [=====>........................] - ETA: 15s - loss: 0.9324 - accuracy: 0.6750
## 184/781 [======>.......................] - ETA: 15s - loss: 0.9323 - accuracy: 0.6753
## 187/781 [======>.......................] - ETA: 15s - loss: 0.9320 - accuracy: 0.6751
## 190/781 [======>.......................] - ETA: 15s - loss: 0.9332 - accuracy: 0.6742
```

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## 192/781 [======>.....................] - ETA: 15s - loss: 0.9334 - accuracy: 0.6742
## 195/781 [======>.....................] - ETA: 15s - loss: 0.9340 - accuracy: 0.6739
## 197/781 [======>.....................] - ETA: 15s - loss: 0.9347 - accuracy: 0.6736
## 199/781 [======>.....................] - ETA: 15s - loss: 0.9354 - accuracy: 0.6738
## 202/781 [======>.....................] - ETA: 15s - loss: 0.9349 - accuracy: 0.6738
## 204/781 [======>.....................] - ETA: 15s - loss: 0.9343 - accuracy: 0.6739
## 206/781 [======>.....................] - ETA: 15s - loss: 0.9347 - accuracy: 0.6738
## 208/781 [======>.....................] - ETA: 15s - loss: 0.9354 - accuracy: 0.6726
## 211/781 [=======>....................] - ETA: 14s - loss: 0.9354 - accuracy: 0.6725
## 213/781 [=======>....................] - ETA: 14s - loss: 0.9354 - accuracy: 0.6725
## 215/781 [=======>....................] - ETA: 14s - loss: 0.9365 - accuracy: 0.6722
## 217/781 [=======>....................] - ETA: 14s - loss: 0.9358 - accuracy: 0.6724
## 220/781 [=======>....................] - ETA: 14s - loss: 0.9377 - accuracy: 0.6719
## 222/781 [=======>....................] - ETA: 14s - loss: 0.9365 - accuracy: 0.6727
## 224/781 [=======>....................] - ETA: 14s - loss: 0.9363 - accuracy: 0.6729
## 227/781 [=======>....................] - ETA: 14s - loss: 0.9363 - accuracy: 0.6728
## 229/781 [=======>....................] - ETA: 14s - loss: 0.9353 - accuracy: 0.6734
## 231/781 [=======>....................] - ETA: 14s - loss: 0.9348 - accuracy: 0.6735
## 233/781 [=======>....................] - ETA: 14s - loss: 0.9344 - accuracy: 0.6738
## 235/781 [========>...................] - ETA: 14s - loss: 0.9350 - accuracy: 0.6734
## 237/781 [========>...................] - ETA: 14s - loss: 0.9352 - accuracy: 0.6729
## 239/781 [========>...................] - ETA: 14s - loss: 0.9349 - accuracy: 0.6728
## 241/781 [========>...................] - ETA: 14s - loss: 0.9359 - accuracy: 0.6725
## 243/781 [========>...................] - ETA: 14s - loss: 0.9359 - accuracy: 0.6724
## 245/781 [========>...................] - ETA: 14s - loss: 0.9356 - accuracy: 0.6726
## 247/781 [========>...................] - ETA: 14s - loss: 0.9363 - accuracy: 0.6725
## 249/781 [========>...................] - ETA: 14s - loss: 0.9363 - accuracy: 0.6725
## 252/781 [========>...................] - ETA: 14s - loss: 0.9351 - accuracy: 0.6733
## 254/781 [========>...................] - ETA: 13s - loss: 0.9349 - accuracy: 0.6733
## 256/781 [========>...................] - ETA: 13s - loss: 0.9344 - accuracy: 0.6736
## 258/781 [========>...................] - ETA: 13s - loss: 0.9344 - accuracy: 0.6737
## 260/781 [========>...................] - ETA: 13s - loss: 0.9320 - accuracy: 0.6746
## 262/781 [=========>..................] - ETA: 13s - loss: 0.9311 - accuracy: 0.6747
## 264/781 [=========>..................] - ETA: 13s - loss: 0.9317 - accuracy: 0.6745
## 267/781 [=========>..................] - ETA: 13s - loss: 0.9349 - accuracy: 0.6736
## 269/781 [=========>..................] - ETA: 13s - loss: 0.9346 - accuracy: 0.6736
## 271/781 [=========>..................] - ETA: 13s - loss: 0.9340 - accuracy: 0.6738
## 273/781 [=========>..................] - ETA: 13s - loss: 0.9331 - accuracy: 0.6743
## 275/781 [=========>..................] - ETA: 13s - loss: 0.9323 - accuracy: 0.6745
## 277/781 [=========>..................] - ETA: 13s - loss: 0.9325 - accuracy: 0.6744
## 279/781 [=========>..................] - ETA: 13s - loss: 0.9313 - accuracy: 0.6747
## 282/781 [=========>..................] - ETA: 13s - loss: 0.9310 - accuracy: 0.6746
## 284/781 [=========>..................] - ETA: 13s - loss: 0.9311 - accuracy: 0.6743
## 287/781 [==========>.................] - ETA: 13s - loss: 0.9321 - accuracy: 0.6741
## 289/781 [==========>.................] - ETA: 13s - loss: 0.9325 - accuracy: 0.6740
## 291/781 [==========>.................] - ETA: 13s - loss: 0.9329 - accuracy: 0.6739
## 293/781 [==========>.................] - ETA: 13s - loss: 0.9328 - accuracy: 0.6742
## 295/781 [==========>.................] - ETA: 12s - loss: 0.9333 - accuracy: 0.6739
## 297/781 [==========>.................] - ETA: 12s - loss: 0.9333 - accuracy: 0.6738
## 299/781 [==========>.................] - ETA: 12s - loss: 0.9333 - accuracy: 0.6744
## 301/781 [==========>.................] - ETA: 12s - loss: 0.9333 - accuracy: 0.6745
## 303/781 [==========>.................] - ETA: 12s - loss: 0.9338 - accuracy: 0.6744
## 305/781 [==========>.................] - ETA: 12s - loss: 0.9350 - accuracy: 0.6738
## 307/781 [==========>.................] - ETA: 12s - loss: 0.9344 - accuracy: 0.6740
```

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## 309/781 [==========>..................] - ETA: 12s - loss: 0.9352 - accuracy: 0.6737
## 312/781 [==========>..................] - ETA: 12s - loss: 0.9357 - accuracy: 0.6736
## 314/781 [===========>..................] - ETA: 12s - loss: 0.9355 - accuracy: 0.6736
## 317/781 [===========>..................] - ETA: 12s - loss: 0.9343 - accuracy: 0.6742
## 319/781 [===========>..................] - ETA: 12s - loss: 0.9343 - accuracy: 0.6743
## 322/781 [===========>..................] - ETA: 12s - loss: 0.9337 - accuracy: 0.6745
## 324/781 [===========>..................] - ETA: 12s - loss: 0.9340 - accuracy: 0.6742
## 326/781 [===========>..................] - ETA: 12s - loss: 0.9351 - accuracy: 0.6740
## 328/781 [===========>..................] - ETA: 12s - loss: 0.9338 - accuracy: 0.6744
## 330/781 [===========>..................] - ETA: 12s - loss: 0.9330 - accuracy: 0.6747
## 332/781 [===========>..................] - ETA: 11s - loss: 0.9326 - accuracy: 0.6747
## 334/781 [===========>..................] - ETA: 11s - loss: 0.9328 - accuracy: 0.6746
## 336/781 [===========>..................] - ETA: 11s - loss: 0.9336 - accuracy: 0.6744
## 339/781 [============>.................] - ETA: 11s - loss: 0.9335 - accuracy: 0.6746
## 341/781 [============>.................] - ETA: 11s - loss: 0.9339 - accuracy: 0.6742
## 343/781 [============>.................] - ETA: 11s - loss: 0.9330 - accuracy: 0.6743
## 346/781 [============>.................] - ETA: 11s - loss: 0.9337 - accuracy: 0.6740
## 349/781 [============>.................] - ETA: 11s - loss: 0.9336 - accuracy: 0.6740
## 351/781 [============>.................] - ETA: 11s - loss: 0.9334 - accuracy: 0.6741
## 353/781 [============>.................] - ETA: 11s - loss: 0.9330 - accuracy: 0.6743
## 356/781 [============>.................] - ETA: 11s - loss: 0.9330 - accuracy: 0.6746
## 358/781 [============>.................] - ETA: 11s - loss: 0.9326 - accuracy: 0.6745
## 360/781 [============>.................] - ETA: 11s - loss: 0.9324 - accuracy: 0.6747
## 363/781 [============>.................] - ETA: 11s - loss: 0.9331 - accuracy: 0.6743
## 366/781 [=============>................] - ETA: 11s - loss: 0.9326 - accuracy: 0.6744
## 368/781 [=============>................] - ETA: 10s - loss: 0.9328 - accuracy: 0.6741
## 371/781 [=============>................] - ETA: 10s - loss: 0.9333 - accuracy: 0.6735
## 374/781 [=============>................] - ETA: 10s - loss: 0.9343 - accuracy: 0.6732
## 376/781 [=============>................] - ETA: 10s - loss: 0.9341 - accuracy: 0.6732
## 379/781 [=============>................] - ETA: 10s - loss: 0.9344 - accuracy: 0.6730
## 382/781 [=============>................] - ETA: 10s - loss: 0.9353 - accuracy: 0.6726
## 384/781 [=============>................] - ETA: 10s - loss: 0.9349 - accuracy: 0.6728
## 386/781 [=============>................] - ETA: 10s - loss: 0.9349 - accuracy: 0.6728
## 388/781 [=============>................] - ETA: 10s - loss: 0.9359 - accuracy: 0.6724
## 391/781 [==============>...............] - ETA: 10s - loss: 0.9360 - accuracy: 0.6725
## 393/781 [==============>...............] - ETA: 10s - loss: 0.9363 - accuracy: 0.6723
## 395/781 [==============>...............] - ETA: 10s - loss: 0.9358 - accuracy: 0.6723
## 398/781 [==============>...............] - ETA: 10s - loss: 0.9353 - accuracy: 0.6724
## 400/781 [==============>...............] - ETA: 10s - loss: 0.9362 - accuracy: 0.6720
## 402/781 [==============>...............] - ETA: 10s - loss: 0.9364 - accuracy: 0.6718
## 404/781 [==============>...............] - ETA: 10s - loss: 0.9365 - accuracy: 0.6717
## 406/781 [==============>...............] - ETA: 9s - loss: 0.9370 - accuracy: 0.6718
## 408/781 [==============>...............] - ETA: 9s - loss: 0.9370 - accuracy: 0.6717
## 411/781 [==============>...............] - ETA: 9s - loss: 0.9370 - accuracy: 0.6720
## 413/781 [==============>...............] - ETA: 9s - loss: 0.9365 - accuracy: 0.6724
## 415/781 [==============>...............] - ETA: 9s - loss: 0.9367 - accuracy: 0.6725
## 417/781 [===============>..............] - ETA: 9s - loss: 0.9360 - accuracy: 0.6728
## 420/781 [===============>..............] - ETA: 9s - loss: 0.9360 - accuracy: 0.6727
## 422/781 [===============>..............] - ETA: 9s - loss: 0.9366 - accuracy: 0.6725
## 424/781 [===============>..............] - ETA: 9s - loss: 0.9372 - accuracy: 0.6726
## 426/781 [===============>..............] - ETA: 9s - loss: 0.9360 - accuracy: 0.6732
## 428/781 [===============>..............] - ETA: 9s - loss: 0.9361 - accuracy: 0.6732
## 430/781 [===============>..............] - ETA: 9s - loss: 0.9360 - accuracy: 0.6731
## 433/781 [===============>..............] - ETA: 9s - loss: 0.9354 - accuracy: 0.6733
```

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## 436/781 [==============>.............] - ETA: 9s - loss: 0.9348 - accuracy: 0.6733
## 438/781 [==============>.............] - ETA: 9s - loss: 0.9349 - accuracy: 0.6732
## 441/781 [==============>.............] - ETA: 9s - loss: 0.9345 - accuracy: 0.6733
## 443/781 [===============>.............] - ETA: 8s - loss: 0.9346 - accuracy: 0.6734
## 446/781 [===============>.............] - ETA: 8s - loss: 0.9351 - accuracy: 0.6732
## 448/781 [===============>.............] - ETA: 8s - loss: 0.9348 - accuracy: 0.6733
## 450/781 [===============>.............] - ETA: 8s - loss: 0.9354 - accuracy: 0.6733
## 453/781 [===============>.............] - ETA: 8s - loss: 0.9349 - accuracy: 0.6735
## 455/781 [===============>.............] - ETA: 8s - loss: 0.9349 - accuracy: 0.6735
## 458/781 [===============>.............] - ETA: 8s - loss: 0.9350 - accuracy: 0.6734
## 460/781 [===============>.............] - ETA: 8s - loss: 0.9345 - accuracy: 0.6733
## 463/781 [===============>.............] - ETA: 8s - loss: 0.9341 - accuracy: 0.6735
## 466/781 [===============>.............] - ETA: 8s - loss: 0.9337 - accuracy: 0.6736
## 468/781 [===============>.............] - ETA: 8s - loss: 0.9341 - accuracy: 0.6736
## 471/781 [================>............] - ETA: 8s - loss: 0.9337 - accuracy: 0.6740
## 474/781 [================>............] - ETA: 8s - loss: 0.9330 - accuracy: 0.6743
## 476/781 [================>............] - ETA: 8s - loss: 0.9339 - accuracy: 0.6741
## 478/781 [================>............] - ETA: 8s - loss: 0.9338 - accuracy: 0.6742
## 480/781 [================>............] - ETA: 7s - loss: 0.9343 - accuracy: 0.6741
## 482/781 [================>............] - ETA: 7s - loss: 0.9341 - accuracy: 0.6741
## 484/781 [================>............] - ETA: 7s - loss: 0.9348 - accuracy: 0.6739
## 486/781 [================>............] - ETA: 7s - loss: 0.9343 - accuracy: 0.6741
## 489/781 [================>............] - ETA: 7s - loss: 0.9343 - accuracy: 0.6739
## 491/781 [================>............] - ETA: 7s - loss: 0.9341 - accuracy: 0.6740
## 494/781 [================>............] - ETA: 7s - loss: 0.9341 - accuracy: 0.6740
## 496/781 [=================>............] - ETA: 7s - loss: 0.9341 - accuracy: 0.6741
## 499/781 [=================>............] - ETA: 7s - loss: 0.9345 - accuracy: 0.6738
## 502/781 [=================>............] - ETA: 7s - loss: 0.9341 - accuracy: 0.6739
## 505/781 [=================>............] - ETA: 7s - loss: 0.9341 - accuracy: 0.6738
## 508/781 [=================>............] - ETA: 7s - loss: 0.9344 - accuracy: 0.6735
## 511/781 [=================>............] - ETA: 7s - loss: 0.9350 - accuracy: 0.6732
## 514/781 [=================>............] - ETA: 7s - loss: 0.9350 - accuracy: 0.6732
## 516/781 [=================>............] - ETA: 7s - loss: 0.9348 - accuracy: 0.6735
## 518/781 [=================>............] - ETA: 6s - loss: 0.9349 - accuracy: 0.6737
## 520/781 [=================>............] - ETA: 6s - loss: 0.9350 - accuracy: 0.6737
## 523/781 [==================>...........] - ETA: 6s - loss: 0.9343 - accuracy: 0.6740
## 526/781 [==================>...........] - ETA: 6s - loss: 0.9341 - accuracy: 0.6740
## 529/781 [==================>...........] - ETA: 6s - loss: 0.9340 - accuracy: 0.6740
## 531/781 [==================>...........] - ETA: 6s - loss: 0.9337 - accuracy: 0.6742
## 533/781 [==================>...........] - ETA: 6s - loss: 0.9342 - accuracy: 0.6740
## 535/781 [==================>...........] - ETA: 6s - loss: 0.9337 - accuracy: 0.6740
## 538/781 [==================>...........] - ETA: 6s - loss: 0.9334 - accuracy: 0.6741
## 540/781 [==================>...........] - ETA: 6s - loss: 0.9333 - accuracy: 0.6742
## 543/781 [==================>...........] - ETA: 6s - loss: 0.9334 - accuracy: 0.6743
## 545/781 [==================>...........] - ETA: 6s - loss: 0.9333 - accuracy: 0.6743
## 547/781 [===================>..........] - ETA: 6s - loss: 0.9338 - accuracy: 0.6741
## 550/781 [===================>..........] - ETA: 6s - loss: 0.9327 - accuracy: 0.6745
## 553/781 [===================>..........] - ETA: 6s - loss: 0.9327 - accuracy: 0.6746
## 555/781 [===================>..........] - ETA: 5s - loss: 0.9326 - accuracy: 0.6746
## 557/781 [===================>..........] - ETA: 5s - loss: 0.9325 - accuracy: 0.6745
## 560/781 [===================>..........] - ETA: 5s - loss: 0.9323 - accuracy: 0.6746
## 563/781 [===================>..........] - ETA: 5s - loss: 0.9326 - accuracy: 0.6743
## 565/781 [===================>..........] - ETA: 5s - loss: 0.9327 - accuracy: 0.6742
## 568/781 [===================>..........] - ETA: 5s - loss: 0.9328 - accuracy: 0.6740
```

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## 570/781 [==================>.........] - ETA: 5s - loss: 0.9327 - accuracy: 0.6741
## 572/781 [==================>.........] - ETA: 5s - loss: 0.9325 - accuracy: 0.6741
## 575/781 [===================>........] - ETA: 5s - loss: 0.9314 - accuracy: 0.6747
## 577/781 [===================>........] - ETA: 5s - loss: 0.9315 - accuracy: 0.6747
## 580/781 [===================>........] - ETA: 5s - loss: 0.9314 - accuracy: 0.6746
## 582/781 [===================>........] - ETA: 5s - loss: 0.9309 - accuracy: 0.6748
## 585/781 [===================>........] - ETA: 5s - loss: 0.9311 - accuracy: 0.6746
## 587/781 [===================>........] - ETA: 5s - loss: 0.9313 - accuracy: 0.6744
## 589/781 [===================>........] - ETA: 5s - loss: 0.9319 - accuracy: 0.6743
## 592/781 [===================>........] - ETA: 5s - loss: 0.9319 - accuracy: 0.6744
## 594/781 [===================>........] - ETA: 4s - loss: 0.9322 - accuracy: 0.6743
## 597/781 [===================>........] - ETA: 4s - loss: 0.9328 - accuracy: 0.6740
## 599/781 [====================>.......] - ETA: 4s - loss: 0.9329 - accuracy: 0.6741
## 602/781 [====================>.......] - ETA: 4s - loss: 0.9325 - accuracy: 0.6743
## 605/781 [====================>.......] - ETA: 4s - loss: 0.9324 - accuracy: 0.6743
## 608/781 [====================>.......] - ETA: 4s - loss: 0.9315 - accuracy: 0.6746
## 610/781 [====================>.......] - ETA: 4s - loss: 0.9317 - accuracy: 0.6746
## 612/781 [====================>.......] - ETA: 4s - loss: 0.9319 - accuracy: 0.6745
## 614/781 [====================>.......] - ETA: 4s - loss: 0.9316 - accuracy: 0.6744
## 617/781 [====================>.......] - ETA: 4s - loss: 0.9317 - accuracy: 0.6743
## 619/781 [====================>.......] - ETA: 4s - loss: 0.9314 - accuracy: 0.6743
## 622/781 [====================>.......] - ETA: 4s - loss: 0.9310 - accuracy: 0.6744
## 624/781 [====================>.......] - ETA: 4s - loss: 0.9310 - accuracy: 0.6743
## 626/781 [=====================>......] - ETA: 4s - loss: 0.9313 - accuracy: 0.6742
## 628/781 [=====================>......] - ETA: 4s - loss: 0.9315 - accuracy: 0.6742
## 630/781 [=====================>......] - ETA: 4s - loss: 0.9312 - accuracy: 0.6743
## 632/781 [=====================>......] - ETA: 3s - loss: 0.9312 - accuracy: 0.6743
## 635/781 [=====================>......] - ETA: 3s - loss: 0.9321 - accuracy: 0.6740
## 637/781 [=====================>......] - ETA: 3s - loss: 0.9320 - accuracy: 0.6740
## 639/781 [=====================>......] - ETA: 3s - loss: 0.9322 - accuracy: 0.6739
## 642/781 [=====================>......] - ETA: 3s - loss: 0.9323 - accuracy: 0.6740
## 644/781 [=====================>......] - ETA: 3s - loss: 0.9322 - accuracy: 0.6740
## 647/781 [=====================>......] - ETA: 3s - loss: 0.9326 - accuracy: 0.6738
## 649/781 [=====================>......] - ETA: 3s - loss: 0.9321 - accuracy: 0.6740
## 652/781 [======================>.....] - ETA: 3s - loss: 0.9320 - accuracy: 0.6740
## 655/781 [======================>.....] - ETA: 3s - loss: 0.9326 - accuracy: 0.6739
## 657/781 [======================>.....] - ETA: 3s - loss: 0.9328 - accuracy: 0.6738
## 660/781 [======================>.....] - ETA: 3s - loss: 0.9333 - accuracy: 0.6737
## 663/781 [======================>.....] - ETA: 3s - loss: 0.9334 - accuracy: 0.6736
## 665/781 [======================>.....] - ETA: 3s - loss: 0.9343 - accuracy: 0.6735
## 668/781 [======================>.....] - ETA: 2s - loss: 0.9341 - accuracy: 0.6735
## 670/781 [======================>.....] - ETA: 2s - loss: 0.9342 - accuracy: 0.6735
## 672/781 [======================>.....] - ETA: 2s - loss: 0.9343 - accuracy: 0.6735
## 675/781 [======================>.....] - ETA: 2s - loss: 0.9335 - accuracy: 0.6737
## 677/781 [=======================>....] - ETA: 2s - loss: 0.9336 - accuracy: 0.6736
## 679/781 [=======================>....] - ETA: 2s - loss: 0.9340 - accuracy: 0.6734
## 681/781 [=======================>....] - ETA: 2s - loss: 0.9342 - accuracy: 0.6734
## 683/781 [=======================>....] - ETA: 2s - loss: 0.9342 - accuracy: 0.6734
## 685/781 [=======================>....] - ETA: 2s - loss: 0.9341 - accuracy: 0.6734
## 687/781 [=======================>....] - ETA: 2s - loss: 0.9340 - accuracy: 0.6735
## 689/781 [=======================>....] - ETA: 2s - loss: 0.9342 - accuracy: 0.6735
## 691/781 [=======================>....] - ETA: 2s - loss: 0.9337 - accuracy: 0.6736
## 693/781 [=======================>....] - ETA: 2s - loss: 0.9333 - accuracy: 0.6737
## 695/781 [=======================>....] - ETA: 2s - loss: 0.9334 - accuracy: 0.6736
```

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## 699/781 [=======================>....] - ETA: 2s - loss: 0.9335 - accuracy: 0.6735
## 701/781 [=======================>....] - ETA: 2s - loss: 0.9335 - accuracy: 0.6735
## 704/781 [=======================>...] - ETA: 2s - loss: 0.9340 - accuracy: 0.6733
## 706/781 [=======================>...] - ETA: 1s - loss: 0.9344 - accuracy: 0.6729
## 708/781 [=======================>...] - ETA: 1s - loss: 0.9341 - accuracy: 0.6731
## 711/781 [=======================>...] - ETA: 1s - loss: 0.9344 - accuracy: 0.6728
## 713/781 [=======================>...] - ETA: 1s - loss: 0.9342 - accuracy: 0.6730
## 715/781 [=======================>...] - ETA: 1s - loss: 0.9341 - accuracy: 0.6730
## 717/781 [=======================>...] - ETA: 1s - loss: 0.9339 - accuracy: 0.6730
## 720/781 [=======================>...] - ETA: 1s - loss: 0.9341 - accuracy: 0.6728
## 722/781 [=======================>...] - ETA: 1s - loss: 0.9345 - accuracy: 0.6727
## 724/781 [=======================>...] - ETA: 1s - loss: 0.9348 - accuracy: 0.6726
## 727/781 [=======================>...] - ETA: 1s - loss: 0.9346 - accuracy: 0.6726
## 729/781 [=======================>..] - ETA: 1s - loss: 0.9346 - accuracy: 0.6725
## 731/781 [=======================>..] - ETA: 1s - loss: 0.9341 - accuracy: 0.6727
## 734/781 [=======================>..] - ETA: 1s - loss: 0.9336 - accuracy: 0.6728
## 737/781 [=======================>..] - ETA: 1s - loss: 0.9340 - accuracy: 0.6726
## 740/781 [=======================>..] - ETA: 1s - loss: 0.9339 - accuracy: 0.6727
## 742/781 [=======================>..] - ETA: 1s - loss: 0.9338 - accuracy: 0.6728
## 745/781 [=======================>..] - ETA: 0s - loss: 0.9339 - accuracy: 0.6727
## 747/781 [=======================>..] - ETA: 0s - loss: 0.9336 - accuracy: 0.6728
## 750/781 [=======================>..] - ETA: 0s - loss: 0.9331 - accuracy: 0.6731
## 752/781 [=======================>..] - ETA: 0s - loss: 0.9331 - accuracy: 0.6730
## 755/781 [=======================>.] - ETA: 0s - loss: 0.9329 - accuracy: 0.6732
## 757/781 [=======================>.] - ETA: 0s - loss: 0.9330 - accuracy: 0.6731
## 760/781 [=======================>.] - ETA: 0s - loss: 0.9333 - accuracy: 0.6729
## 763/781 [=======================>.] - ETA: 0s - loss: 0.9334 - accuracy: 0.6729
## 765/781 [=======================>.] - ETA: 0s - loss: 0.9329 - accuracy: 0.6731
## 767/781 [=======================>.] - ETA: 0s - loss: 0.9327 - accuracy: 0.6731
## 769/781 [=======================>.] - ETA: 0s - loss: 0.9327 - accuracy: 0.6731
## 772/781 [=======================>.] - ETA: 0s - loss: 0.9329 - accuracy: 0.6729
## 774/781 [=======================>.] - ETA: 0s - loss: 0.9328 - accuracy: 0.6729
## 777/781 [=======================>.] - ETA: 0s - loss: 0.9330 - accuracy: 0.6727
## 779/781 [=======================>.] - ETA: 0s - loss: 0.9330 - accuracy: 0.6728
## 781/781 [==============================] - 22s 28ms/step - loss: 0.9327 - accuracy: 0.6728 - val_loss
## Epoch 13/20
##
##   1/781 [..............................] - ETA: 33s - loss: 1.0312 - accuracy: 0.7188
##   4/781 [..............................] - ETA: 13s - loss: 0.8917 - accuracy: 0.7019
##   6/781 [..............................] - ETA: 17s - loss: 0.9611 - accuracy: 0.6756
##   8/781 [..............................] - ETA: 18s - loss: 0.9240 - accuracy: 0.6853
##  11/781 [..............................] - ETA: 18s - loss: 0.8925 - accuracy: 0.6997
##  14/781 [..............................] - ETA: 18s - loss: 0.9034 - accuracy: 0.6946
##  16/781 [..............................] - ETA: 19s - loss: 0.9166 - accuracy: 0.6865
##  19/781 [..............................] - ETA: 19s - loss: 0.9274 - accuracy: 0.6824
##  21/781 [..............................] - ETA: 19s - loss: 0.9150 - accuracy: 0.6867
##  24/781 [..............................] - ETA: 18s - loss: 0.9174 - accuracy: 0.6868
##  27/781 [>.............................] - ETA: 19s - loss: 0.9025 - accuracy: 0.6952
##  29/781 [>.............................] - ETA: 19s - loss: 0.9056 - accuracy: 0.6947
##  31/781 [>.............................] - ETA: 18s - loss: 0.9047 - accuracy: 0.6942
##  34/781 [>.............................] - ETA: 18s - loss: 0.9043 - accuracy: 0.6931
##  36/781 [>.............................] - ETA: 18s - loss: 0.9049 - accuracy: 0.6924
##  38/781 [>.............................] - ETA: 18s - loss: 0.9071 - accuracy: 0.6921
##  41/781 [>.............................] - ETA: 18s - loss: 0.9085 - accuracy: 0.6906
```

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##  43/781 [>.............................] - ETA: 18s - loss: 0.9156 - accuracy: 0.6882
##  46/781 [>.............................] - ETA: 18s - loss: 0.9200 - accuracy: 0.6868
##  49/781 [>.............................] - ETA: 18s - loss: 0.9157 - accuracy: 0.6888
##  51/781 [>.............................] - ETA: 18s - loss: 0.9139 - accuracy: 0.6900
##  53/781 [=>............................] - ETA: 18s - loss: 0.9185 - accuracy: 0.6893
##  56/781 [=>............................] - ETA: 18s - loss: 0.9164 - accuracy: 0.6883
##  58/781 [=>............................] - ETA: 18s - loss: 0.9148 - accuracy: 0.6894
##  61/781 [=>............................] - ETA: 18s - loss: 0.9144 - accuracy: 0.6904
##  63/781 [=>............................] - ETA: 18s - loss: 0.9171 - accuracy: 0.6890
##  66/781 [=>............................] - ETA: 18s - loss: 0.9208 - accuracy: 0.6853
##  68/781 [=>............................] - ETA: 18s - loss: 0.9191 - accuracy: 0.6847
##  71/781 [=>............................] - ETA: 18s - loss: 0.9237 - accuracy: 0.6819
##  74/781 [=>............................] - ETA: 18s - loss: 0.9234 - accuracy: 0.6820
##  76/781 [=>............................] - ETA: 18s - loss: 0.9287 - accuracy: 0.6804
##  79/781 [==>...........................] - ETA: 18s - loss: 0.9239 - accuracy: 0.6813
##  82/781 [==>...........................] - ETA: 18s - loss: 0.9289 - accuracy: 0.6783
##  84/781 [==>...........................] - ETA: 18s - loss: 0.9307 - accuracy: 0.6783
##  87/781 [==>...........................] - ETA: 18s - loss: 0.9305 - accuracy: 0.6788
##  89/781 [==>...........................] - ETA: 18s - loss: 0.9313 - accuracy: 0.6778
##  92/781 [==>...........................] - ETA: 18s - loss: 0.9288 - accuracy: 0.6781
##  94/781 [==>...........................] - ETA: 18s - loss: 0.9259 - accuracy: 0.6779
##  96/781 [==>...........................] - ETA: 17s - loss: 0.9256 - accuracy: 0.6780
##  99/781 [==>...........................] - ETA: 17s - loss: 0.9240 - accuracy: 0.6784
## 102/781 [==>...........................] - ETA: 17s - loss: 0.9205 - accuracy: 0.6806
## 104/781 [==>...........................] - ETA: 17s - loss: 0.9182 - accuracy: 0.6810
## 107/781 [===>..........................] - ETA: 17s - loss: 0.9176 - accuracy: 0.6810
## 110/781 [===>..........................] - ETA: 17s - loss: 0.9173 - accuracy: 0.6809
## 112/781 [===>..........................] - ETA: 17s - loss: 0.9138 - accuracy: 0.6816
## 114/781 [===>..........................] - ETA: 17s - loss: 0.9177 - accuracy: 0.6806
## 117/781 [===>..........................] - ETA: 17s - loss: 0.9168 - accuracy: 0.6809
## 119/781 [===>..........................] - ETA: 17s - loss: 0.9178 - accuracy: 0.6797
## 121/781 [===>..........................] - ETA: 17s - loss: 0.9203 - accuracy: 0.6787
## 124/781 [===>..........................] - ETA: 17s - loss: 0.9218 - accuracy: 0.6789
## 127/781 [===>..........................] - ETA: 17s - loss: 0.9203 - accuracy: 0.6798
## 129/781 [===>..........................] - ETA: 17s - loss: 0.9203 - accuracy: 0.6804
## 132/781 [====>.........................] - ETA: 17s - loss: 0.9247 - accuracy: 0.6789
## 135/781 [====>.........................] - ETA: 16s - loss: 0.9264 - accuracy: 0.6782
## 138/781 [====>.........................] - ETA: 16s - loss: 0.9242 - accuracy: 0.6792
## 140/781 [====>.........................] - ETA: 16s - loss: 0.9245 - accuracy: 0.6780
## 143/781 [====>.........................] - ETA: 16s - loss: 0.9221 - accuracy: 0.6783
## 145/781 [====>.........................] - ETA: 16s - loss: 0.9223 - accuracy: 0.6782
## 147/781 [====>.........................] - ETA: 16s - loss: 0.9204 - accuracy: 0.6787
## 150/781 [====>.........................] - ETA: 16s - loss: 0.9221 - accuracy: 0.6781
## 152/781 [====>.........................] - ETA: 16s - loss: 0.9226 - accuracy: 0.6775
## 154/781 [====>.........................] - ETA: 16s - loss: 0.9240 - accuracy: 0.6770
## 157/781 [=====>........................] - ETA: 16s - loss: 0.9209 - accuracy: 0.6784
## 159/781 [=====>........................] - ETA: 16s - loss: 0.9207 - accuracy: 0.6783
## 162/781 [=====>........................] - ETA: 16s - loss: 0.9214 - accuracy: 0.6786
## 164/781 [=====>........................] - ETA: 16s - loss: 0.9222 - accuracy: 0.6786
## 166/781 [=====>........................] - ETA: 16s - loss: 0.9219 - accuracy: 0.6791
## 168/781 [=====>........................] - ETA: 16s - loss: 0.9225 - accuracy: 0.6791
## 170/781 [=====>........................] - ETA: 16s - loss: 0.9238 - accuracy: 0.6789
## 172/781 [=====>........................] - ETA: 15s - loss: 0.9240 - accuracy: 0.6793
## 175/781 [=====>........................] - ETA: 15s - loss: 0.9214 - accuracy: 0.6799
```

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## 177/781 [=====>........................] - ETA: 15s - loss: 0.9210 - accuracy: 0.6801
## 180/781 [=====>........................] - ETA: 15s - loss: 0.9213 - accuracy: 0.6795
## 183/781 [======>.......................] - ETA: 15s - loss: 0.9210 - accuracy: 0.6796
## 185/781 [======>.......................] - ETA: 15s - loss: 0.9217 - accuracy: 0.6791
## 187/781 [======>.......................] - ETA: 15s - loss: 0.9199 - accuracy: 0.6802
## 190/781 [======>.......................] - ETA: 15s - loss: 0.9193 - accuracy: 0.6802
## 193/781 [======>.......................] - ETA: 15s - loss: 0.9175 - accuracy: 0.6811
## 195/781 [======>.......................] - ETA: 15s - loss: 0.9169 - accuracy: 0.6814
## 198/781 [======>.......................] - ETA: 15s - loss: 0.9170 - accuracy: 0.6810
## 201/781 [======>.......................] - ETA: 15s - loss: 0.9187 - accuracy: 0.6810
## 203/781 [======>.......................] - ETA: 15s - loss: 0.9184 - accuracy: 0.6814
## 205/781 [======>.......................] - ETA: 15s - loss: 0.9192 - accuracy: 0.6808
## 207/781 [======>.......................] - ETA: 15s - loss: 0.9195 - accuracy: 0.6806
## 209/781 [=======>......................] - ETA: 14s - loss: 0.9185 - accuracy: 0.6813
## 212/781 [=======>......................] - ETA: 14s - loss: 0.9174 - accuracy: 0.6820
## 214/781 [=======>......................] - ETA: 14s - loss: 0.9166 - accuracy: 0.6819
## 216/781 [=======>......................] - ETA: 14s - loss: 0.9168 - accuracy: 0.6818
## 219/781 [=======>......................] - ETA: 14s - loss: 0.9158 - accuracy: 0.6818
## 222/781 [=======>......................] - ETA: 14s - loss: 0.9169 - accuracy: 0.6814
## 224/781 [=======>......................] - ETA: 14s - loss: 0.9166 - accuracy: 0.6817
## 226/781 [=======>......................] - ETA: 14s - loss: 0.9184 - accuracy: 0.6808
## 228/781 [=======>......................] - ETA: 14s - loss: 0.9188 - accuracy: 0.6807
## 230/781 [=======>......................] - ETA: 14s - loss: 0.9176 - accuracy: 0.6810
## 232/781 [=======>......................] - ETA: 14s - loss: 0.9181 - accuracy: 0.6810
## 235/781 [========>.....................] - ETA: 14s - loss: 0.9189 - accuracy: 0.6806
## 238/781 [========>.....................] - ETA: 14s - loss: 0.9184 - accuracy: 0.6810
## 240/781 [========>.....................] - ETA: 14s - loss: 0.9180 - accuracy: 0.6807
## 242/781 [========>.....................] - ETA: 14s - loss: 0.9182 - accuracy: 0.6808
## 244/781 [========>.....................] - ETA: 14s - loss: 0.9177 - accuracy: 0.6813
## 247/781 [========>.....................] - ETA: 13s - loss: 0.9189 - accuracy: 0.6810
## 249/781 [========>.....................] - ETA: 13s - loss: 0.9185 - accuracy: 0.6810
## 251/781 [========>.....................] - ETA: 13s - loss: 0.9177 - accuracy: 0.6809
## 253/781 [========>.....................] - ETA: 13s - loss: 0.9182 - accuracy: 0.6809
## 255/781 [========>.....................] - ETA: 13s - loss: 0.9168 - accuracy: 0.6813
## 258/781 [========>.....................] - ETA: 13s - loss: 0.9165 - accuracy: 0.6815
## 261/781 [=========>....................] - ETA: 13s - loss: 0.9175 - accuracy: 0.6808
## 264/781 [=========>....................] - ETA: 13s - loss: 0.9170 - accuracy: 0.6810
## 266/781 [=========>....................] - ETA: 13s - loss: 0.9173 - accuracy: 0.6812
## 269/781 [=========>....................] - ETA: 13s - loss: 0.9168 - accuracy: 0.6813
## 272/781 [=========>....................] - ETA: 13s - loss: 0.9158 - accuracy: 0.6814
## 274/781 [=========>....................] - ETA: 13s - loss: 0.9163 - accuracy: 0.6811
## 277/781 [=========>....................] - ETA: 13s - loss: 0.9163 - accuracy: 0.6808
## 280/781 [=========>....................] - ETA: 13s - loss: 0.9168 - accuracy: 0.6805
## 283/781 [=========>....................] - ETA: 13s - loss: 0.9159 - accuracy: 0.6813
## 285/781 [=========>....................] - ETA: 13s - loss: 0.9168 - accuracy: 0.6812
## 288/781 [==========>...................] - ETA: 12s - loss: 0.9179 - accuracy: 0.6812
## 290/781 [==========>...................] - ETA: 12s - loss: 0.9168 - accuracy: 0.6815
## 293/781 [==========>...................] - ETA: 12s - loss: 0.9178 - accuracy: 0.6815
## 296/781 [==========>...................] - ETA: 12s - loss: 0.9188 - accuracy: 0.6814
## 298/781 [==========>...................] - ETA: 12s - loss: 0.9196 - accuracy: 0.6809
## 300/781 [==========>...................] - ETA: 12s - loss: 0.9200 - accuracy: 0.6806
## 303/781 [==========>...................] - ETA: 12s - loss: 0.9202 - accuracy: 0.6804
## 305/781 [==========>...................] - ETA: 12s - loss: 0.9209 - accuracy: 0.6805
## 307/781 [==========>...................] - ETA: 12s - loss: 0.9207 - accuracy: 0.6806
```

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## 310/781 [==========>...................] - ETA: 12s - loss: 0.9206 - accuracy: 0.6805
## 312/781 [==========>...................] - ETA: 12s - loss: 0.9199 - accuracy: 0.6808
## 314/781 [===========>..................] - ETA: 12s - loss: 0.9200 - accuracy: 0.6807
## 316/781 [===========>..................] - ETA: 12s - loss: 0.9211 - accuracy: 0.6805
## 318/781 [===========>..................] - ETA: 12s - loss: 0.9214 - accuracy: 0.6803
## 320/781 [===========>..................] - ETA: 12s - loss: 0.9209 - accuracy: 0.6806
## 323/781 [===========>..................] - ETA: 12s - loss: 0.9212 - accuracy: 0.6803
## 325/781 [===========>..................] - ETA: 11s - loss: 0.9205 - accuracy: 0.6807
## 328/781 [===========>..................] - ETA: 11s - loss: 0.9211 - accuracy: 0.6806
## 331/781 [===========>..................] - ETA: 11s - loss: 0.9206 - accuracy: 0.6807
## 334/781 [===========>..................] - ETA: 11s - loss: 0.9193 - accuracy: 0.6813
## 336/781 [===========>..................] - ETA: 11s - loss: 0.9202 - accuracy: 0.6811
## 338/781 [===========>..................] - ETA: 11s - loss: 0.9194 - accuracy: 0.6815
## 341/781 [============>.................] - ETA: 11s - loss: 0.9201 - accuracy: 0.6815
## 343/781 [============>.................] - ETA: 11s - loss: 0.9210 - accuracy: 0.6813
## 345/781 [============>.................] - ETA: 11s - loss: 0.9213 - accuracy: 0.6812
## 348/781 [============>.................] - ETA: 11s - loss: 0.9213 - accuracy: 0.6811
## 350/781 [============>.................] - ETA: 11s - loss: 0.9213 - accuracy: 0.6812
## 353/781 [============>.................] - ETA: 11s - loss: 0.9221 - accuracy: 0.6804
## 356/781 [============>.................] - ETA: 11s - loss: 0.9224 - accuracy: 0.6805
## 358/781 [============>.................] - ETA: 11s - loss: 0.9221 - accuracy: 0.6806
## 361/781 [============>.................] - ETA: 11s - loss: 0.9235 - accuracy: 0.6801
## 364/781 [============>.................] - ETA: 10s - loss: 0.9229 - accuracy: 0.6804
## 367/781 [=============>................] - ETA: 10s - loss: 0.9225 - accuracy: 0.6803
## 369/781 [=============>................] - ETA: 10s - loss: 0.9220 - accuracy: 0.6804
## 372/781 [=============>................] - ETA: 10s - loss: 0.9218 - accuracy: 0.6805
## 374/781 [=============>................] - ETA: 10s - loss: 0.9226 - accuracy: 0.6802
## 377/781 [=============>................] - ETA: 10s - loss: 0.9216 - accuracy: 0.6805
## 379/781 [=============>................] - ETA: 10s - loss: 0.9211 - accuracy: 0.6806
## 381/781 [=============>................] - ETA: 10s - loss: 0.9211 - accuracy: 0.6806
## 384/781 [=============>................] - ETA: 10s - loss: 0.9208 - accuracy: 0.6807
## 387/781 [=============>................] - ETA: 10s - loss: 0.9197 - accuracy: 0.6811
## 390/781 [=============>................] - ETA: 10s - loss: 0.9197 - accuracy: 0.6811
## 393/781 [==============>...............] - ETA: 10s - loss: 0.9191 - accuracy: 0.6814
## 395/781 [==============>...............] - ETA: 10s - loss: 0.9188 - accuracy: 0.6816
## 397/781 [==============>...............] - ETA: 10s - loss: 0.9189 - accuracy: 0.6816
## 399/781 [==============>...............] - ETA: 10s - loss: 0.9182 - accuracy: 0.6819
## 402/781 [==============>...............] - ETA: 9s - loss: 0.9176 - accuracy: 0.6821
## 405/781 [==============>...............] - ETA: 9s - loss: 0.9175 - accuracy: 0.6819
## 407/781 [==============>...............] - ETA: 9s - loss: 0.9174 - accuracy: 0.6818
## 410/781 [==============>...............] - ETA: 9s - loss: 0.9182 - accuracy: 0.6817
## 413/781 [==============>...............] - ETA: 9s - loss: 0.9184 - accuracy: 0.6814
## 415/781 [==============>...............] - ETA: 9s - loss: 0.9185 - accuracy: 0.6815
## 417/781 [===============>..............] - ETA: 9s - loss: 0.9183 - accuracy: 0.6816
## 420/781 [===============>..............] - ETA: 9s - loss: 0.9176 - accuracy: 0.6816
## 422/781 [===============>..............] - ETA: 9s - loss: 0.9174 - accuracy: 0.6817
## 425/781 [===============>..............] - ETA: 9s - loss: 0.9173 - accuracy: 0.6818
## 428/781 [===============>..............] - ETA: 9s - loss: 0.9175 - accuracy: 0.6816
## 430/781 [===============>..............] - ETA: 9s - loss: 0.9171 - accuracy: 0.6817
## 433/781 [===============>..............] - ETA: 9s - loss: 0.9171 - accuracy: 0.6816
## 435/781 [===============>..............] - ETA: 9s - loss: 0.9162 - accuracy: 0.6819
## 438/781 [===============>..............] - ETA: 8s - loss: 0.9160 - accuracy: 0.6822
## 440/781 [===============>..............] - ETA: 8s - loss: 0.9162 - accuracy: 0.6823
## 443/781 [================>.............] - ETA: 8s - loss: 0.9168 - accuracy: 0.6820
```

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## 445/781 [================>.............] - ETA: 8s - loss: 0.9169 - accuracy: 0.6818
## 447/781 [================>.............] - ETA: 8s - loss: 0.9171 - accuracy: 0.6817
## 449/781 [================>.............] - ETA: 8s - loss: 0.9172 - accuracy: 0.6820
## 451/781 [================>.............] - ETA: 8s - loss: 0.9171 - accuracy: 0.6820
## 454/781 [================>.............] - ETA: 8s - loss: 0.9166 - accuracy: 0.6823
## 457/781 [================>.............] - ETA: 8s - loss: 0.9163 - accuracy: 0.6823
## 460/781 [================>.............] - ETA: 8s - loss: 0.9166 - accuracy: 0.6823
## 463/781 [================>.............] - ETA: 8s - loss: 0.9170 - accuracy: 0.6820
## 465/781 [================>.............] - ETA: 8s - loss: 0.9164 - accuracy: 0.6822
## 468/781 [================>.............] - ETA: 8s - loss: 0.9168 - accuracy: 0.6819
## 470/781 [================>.............] - ETA: 8s - loss: 0.9166 - accuracy: 0.6820
## 472/781 [================>.............] - ETA: 8s - loss: 0.9161 - accuracy: 0.6823
## 475/781 [================>.............] - ETA: 8s - loss: 0.9157 - accuracy: 0.6826
## 477/781 [================>.............] - ETA: 7s - loss: 0.9160 - accuracy: 0.6827
## 480/781 [================>.............] - ETA: 7s - loss: 0.9165 - accuracy: 0.6827
## 482/781 [================>.............] - ETA: 7s - loss: 0.9173 - accuracy: 0.6824
## 485/781 [================>.............] - ETA: 7s - loss: 0.9180 - accuracy: 0.6823
## 488/781 [================>.............] - ETA: 7s - loss: 0.9189 - accuracy: 0.6820
## 491/781 [================>.............] - ETA: 7s - loss: 0.9187 - accuracy: 0.6821
## 493/781 [================>.............] - ETA: 7s - loss: 0.9185 - accuracy: 0.6822
## 496/781 [=================>............] - ETA: 7s - loss: 0.9186 - accuracy: 0.6820
## 499/781 [=================>............] - ETA: 7s - loss: 0.9183 - accuracy: 0.6822
## 501/781 [=================>............] - ETA: 7s - loss: 0.9183 - accuracy: 0.6823
## 503/781 [=================>............] - ETA: 7s - loss: 0.9180 - accuracy: 0.6823
## 505/781 [=================>............] - ETA: 7s - loss: 0.9180 - accuracy: 0.6824
## 508/781 [=================>............] - ETA: 7s - loss: 0.9178 - accuracy: 0.6826
## 510/781 [=================>............] - ETA: 7s - loss: 0.9170 - accuracy: 0.6828
## 513/781 [=================>............] - ETA: 7s - loss: 0.9169 - accuracy: 0.6829
## 515/781 [=================>............] - ETA: 6s - loss: 0.9163 - accuracy: 0.6832
## 518/781 [=================>............] - ETA: 6s - loss: 0.9167 - accuracy: 0.6830
## 520/781 [=================>............] - ETA: 6s - loss: 0.9167 - accuracy: 0.6830
## 522/781 [==================>...........] - ETA: 6s - loss: 0.9162 - accuracy: 0.6834
## 525/781 [==================>...........] - ETA: 6s - loss: 0.9161 - accuracy: 0.6834
## 527/781 [==================>...........] - ETA: 6s - loss: 0.9161 - accuracy: 0.6832
## 530/781 [==================>...........] - ETA: 6s - loss: 0.9161 - accuracy: 0.6834
## 532/781 [==================>...........] - ETA: 6s - loss: 0.9163 - accuracy: 0.6833
## 534/781 [==================>...........] - ETA: 6s - loss: 0.9159 - accuracy: 0.6835
## 536/781 [==================>...........] - ETA: 6s - loss: 0.9162 - accuracy: 0.6833
## 539/781 [==================>...........] - ETA: 6s - loss: 0.9170 - accuracy: 0.6829
## 542/781 [==================>...........] - ETA: 6s - loss: 0.9166 - accuracy: 0.6830
## 545/781 [==================>...........] - ETA: 6s - loss: 0.9162 - accuracy: 0.6831
## 548/781 [===================>..........] - ETA: 6s - loss: 0.9161 - accuracy: 0.6833
## 550/781 [===================>..........] - ETA: 6s - loss: 0.9162 - accuracy: 0.6833
## 552/781 [===================>..........] - ETA: 5s - loss: 0.9162 - accuracy: 0.6832
## 555/781 [===================>..........] - ETA: 5s - loss: 0.9159 - accuracy: 0.6832
## 557/781 [===================>..........] - ETA: 5s - loss: 0.9156 - accuracy: 0.6834
## 560/781 [===================>..........] - ETA: 5s - loss: 0.9157 - accuracy: 0.6834
## 563/781 [===================>..........] - ETA: 5s - loss: 0.9150 - accuracy: 0.6837
## 565/781 [===================>..........] - ETA: 5s - loss: 0.9151 - accuracy: 0.6835
## 568/781 [===================>..........] - ETA: 5s - loss: 0.9154 - accuracy: 0.6832
## 571/781 [===================>..........] - ETA: 5s - loss: 0.9160 - accuracy: 0.6830
## 573/781 [====================>.........] - ETA: 5s - loss: 0.9158 - accuracy: 0.6829
## 575/781 [====================>.........] - ETA: 5s - loss: 0.9159 - accuracy: 0.6828
## 577/781 [====================>.........] - ETA: 5s - loss: 0.9160 - accuracy: 0.6828
```

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## 580/781 [====================>........] - ETA: 5s - loss: 0.9156 - accuracy: 0.6828
## 583/781 [====================>........] - ETA: 5s - loss: 0.9151 - accuracy: 0.6830
## 585/781 [====================>........] - ETA: 5s - loss: 0.9152 - accuracy: 0.6831
## 587/781 [====================>........] - ETA: 5s - loss: 0.9146 - accuracy: 0.6832
## 589/781 [====================>........] - ETA: 5s - loss: 0.9145 - accuracy: 0.6830
## 591/781 [====================>........] - ETA: 4s - loss: 0.9144 - accuracy: 0.6831
## 594/781 [====================>........] - ETA: 4s - loss: 0.9138 - accuracy: 0.6834
## 597/781 [====================>........] - ETA: 4s - loss: 0.9143 - accuracy: 0.6833
## 599/781 [=====================>.......] - ETA: 4s - loss: 0.9145 - accuracy: 0.6832
## 602/781 [=====================>.......] - ETA: 4s - loss: 0.9146 - accuracy: 0.6832
## 605/781 [=====================>.......] - ETA: 4s - loss: 0.9140 - accuracy: 0.6835
## 607/781 [=====================>.......] - ETA: 4s - loss: 0.9134 - accuracy: 0.6836
## 610/781 [=====================>.......] - ETA: 4s - loss: 0.9133 - accuracy: 0.6837
## 612/781 [=====================>.......] - ETA: 4s - loss: 0.9131 - accuracy: 0.6837
## 615/781 [=====================>.......] - ETA: 4s - loss: 0.9126 - accuracy: 0.6838
## 617/781 [=====================>.......] - ETA: 4s - loss: 0.9122 - accuracy: 0.6839
## 620/781 [=====================>.......] - ETA: 4s - loss: 0.9125 - accuracy: 0.6840
## 622/781 [=====================>.......] - ETA: 4s - loss: 0.9124 - accuracy: 0.6840
## 624/781 [=====================>.......] - ETA: 4s - loss: 0.9123 - accuracy: 0.6839
## 627/781 [======================>......] - ETA: 4s - loss: 0.9123 - accuracy: 0.6838
## 629/781 [======================>......] - ETA: 3s - loss: 0.9124 - accuracy: 0.6834
## 631/781 [======================>......] - ETA: 3s - loss: 0.9126 - accuracy: 0.6832
## 634/781 [======================>......] - ETA: 3s - loss: 0.9125 - accuracy: 0.6830
## 636/781 [======================>......] - ETA: 3s - loss: 0.9127 - accuracy: 0.6829
## 639/781 [======================>......] - ETA: 3s - loss: 0.9130 - accuracy: 0.6828
## 642/781 [======================>......] - ETA: 3s - loss: 0.9128 - accuracy: 0.6826
## 644/781 [======================>......] - ETA: 3s - loss: 0.9128 - accuracy: 0.6828
## 647/781 [======================>......] - ETA: 3s - loss: 0.9133 - accuracy: 0.6826
## 649/781 [======================>......] - ETA: 3s - loss: 0.9133 - accuracy: 0.6826
## 651/781 [=======================>.....] - ETA: 3s - loss: 0.9139 - accuracy: 0.6825
## 654/781 [=======================>.....] - ETA: 3s - loss: 0.9141 - accuracy: 0.6823
## 656/781 [=======================>.....] - ETA: 3s - loss: 0.9138 - accuracy: 0.6824
## 659/781 [=======================>.....] - ETA: 3s - loss: 0.9139 - accuracy: 0.6823
## 661/781 [=======================>.....] - ETA: 3s - loss: 0.9145 - accuracy: 0.6822
## 664/781 [=======================>.....] - ETA: 3s - loss: 0.9143 - accuracy: 0.6822
## 666/781 [=======================>.....] - ETA: 3s - loss: 0.9143 - accuracy: 0.6823
## 668/781 [=======================>.....] - ETA: 2s - loss: 0.9141 - accuracy: 0.6824
## 670/781 [=======================>.....] - ETA: 2s - loss: 0.9139 - accuracy: 0.6825
## 673/781 [=======================>.....] - ETA: 2s - loss: 0.9135 - accuracy: 0.6826
## 676/781 [=======================>.....] - ETA: 2s - loss: 0.9134 - accuracy: 0.6826
## 678/781 [========================>....] - ETA: 2s - loss: 0.9132 - accuracy: 0.6827
## 680/781 [========================>....] - ETA: 2s - loss: 0.9132 - accuracy: 0.6827
## 683/781 [========================>....] - ETA: 2s - loss: 0.9126 - accuracy: 0.6827
## 685/781 [========================>....] - ETA: 2s - loss: 0.9125 - accuracy: 0.6827
## 687/781 [========================>....] - ETA: 2s - loss: 0.9127 - accuracy: 0.6826
## 690/781 [========================>....] - ETA: 2s - loss: 0.9123 - accuracy: 0.6827
## 692/781 [========================>....] - ETA: 2s - loss: 0.9123 - accuracy: 0.6826
## 694/781 [========================>....] - ETA: 2s - loss: 0.9118 - accuracy: 0.6829
## 697/781 [========================>....] - ETA: 2s - loss: 0.9114 - accuracy: 0.6829
## 699/781 [========================>....] - ETA: 2s - loss: 0.9117 - accuracy: 0.6829
## 702/781 [========================>....] - ETA: 2s - loss: 0.9116 - accuracy: 0.6828
## 704/781 [=========================>...] - ETA: 2s - loss: 0.9116 - accuracy: 0.6828
## 706/781 [=========================>...] - ETA: 1s - loss: 0.9120 - accuracy: 0.6827
## 708/781 [=========================>...] - ETA: 1s - loss: 0.9120 - accuracy: 0.6825
```

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## 711/781 [==========================>...] - ETA: 1s - loss: 0.9120 - accuracy: 0.6826
## 713/781 [==========================>...] - ETA: 1s - loss: 0.9117 - accuracy: 0.6827
## 716/781 [==========================>...] - ETA: 1s - loss: 0.9113 - accuracy: 0.6827
## 719/781 [==========================>...] - ETA: 1s - loss: 0.9114 - accuracy: 0.6826
## 721/781 [==========================>...] - ETA: 1s - loss: 0.9109 - accuracy: 0.6829
## 724/781 [==========================>...] - ETA: 1s - loss: 0.9113 - accuracy: 0.6827
## 726/781 [==========================>...] - ETA: 1s - loss: 0.9116 - accuracy: 0.6825
## 728/781 [==========================>...] - ETA: 1s - loss: 0.9119 - accuracy: 0.6824
## 730/781 [==========================>..] - ETA: 1s - loss: 0.9118 - accuracy: 0.6824
## 733/781 [==========================>..] - ETA: 1s - loss: 0.9116 - accuracy: 0.6824
## 735/781 [==========================>..] - ETA: 1s - loss: 0.9116 - accuracy: 0.6825
## 738/781 [==========================>..] - ETA: 1s - loss: 0.9109 - accuracy: 0.6826
## 740/781 [==========================>..] - ETA: 1s - loss: 0.9114 - accuracy: 0.6824
## 742/781 [==========================>..] - ETA: 1s - loss: 0.9117 - accuracy: 0.6823
## 745/781 [==========================>..] - ETA: 0s - loss: 0.9118 - accuracy: 0.6822
## 747/781 [==========================>..] - ETA: 0s - loss: 0.9118 - accuracy: 0.6822
## 750/781 [==========================>..] - ETA: 0s - loss: 0.9119 - accuracy: 0.6822
## 751/781 [==========================>..] - ETA: 0s - loss: 0.9120 - accuracy: 0.6821
## 754/781 [==========================>..] - ETA: 0s - loss: 0.9120 - accuracy: 0.6822
## 757/781 [==========================>.] - ETA: 0s - loss: 0.9125 - accuracy: 0.6822
## 759/781 [==========================>.] - ETA: 0s - loss: 0.9124 - accuracy: 0.6821
## 761/781 [==========================>.] - ETA: 0s - loss: 0.9120 - accuracy: 0.6823
## 763/781 [==========================>.] - ETA: 0s - loss: 0.9117 - accuracy: 0.6824
## 765/781 [==========================>.] - ETA: 0s - loss: 0.9114 - accuracy: 0.6826
## 767/781 [==========================>.] - ETA: 0s - loss: 0.9117 - accuracy: 0.6825
## 769/781 [==========================>.] - ETA: 0s - loss: 0.9116 - accuracy: 0.6825
## 771/781 [==========================>.] - ETA: 0s - loss: 0.9120 - accuracy: 0.6823
## 773/781 [==========================>.] - ETA: 0s - loss: 0.9119 - accuracy: 0.6825
## 776/781 [==========================>.] - ETA: 0s - loss: 0.9117 - accuracy: 0.6825
## 778/781 [==========================>.] - ETA: 0s - loss: 0.9118 - accuracy: 0.6824
## 781/781 [==============================] - ETA: 0s - loss: 0.9118 - accuracy: 0.6825
## 781/781 [==============================] - 22s 28ms/step - loss: 0.9118 - accuracy: 0.6825 - val_loss
## Epoch 14/20
##
##   1/781 [..............................] - ETA: 40s - loss: 1.2547 - accuracy: 0.6406
##   4/781 [..............................] - ETA: 16s - loss: 1.0367 - accuracy: 0.6719
##   7/781 [..............................] - ETA: 16s - loss: 0.9598 - accuracy: 0.6942
##   9/781 [..............................] - ETA: 19s - loss: 0.9356 - accuracy: 0.6910
##  12/781 [..............................] - ETA: 19s - loss: 0.9323 - accuracy: 0.6862
##  14/781 [..............................] - ETA: 19s - loss: 0.9073 - accuracy: 0.6942
##  16/781 [..............................] - ETA: 19s - loss: 0.9018 - accuracy: 0.6924
##  19/781 [..............................] - ETA: 19s - loss: 0.8973 - accuracy: 0.6908
##  21/781 [..............................] - ETA: 19s - loss: 0.8876 - accuracy: 0.6987
##  24/781 [..............................] - ETA: 19s - loss: 0.8970 - accuracy: 0.6947
##  26/781 [..............................] - ETA: 19s - loss: 0.9055 - accuracy: 0.6893
##  28/781 [>.............................] - ETA: 19s - loss: 0.9094 - accuracy: 0.6903
##  31/781 [>.............................] - ETA: 19s - loss: 0.9060 - accuracy: 0.6885
##  33/781 [>.............................] - ETA: 19s - loss: 0.9001 - accuracy: 0.6880
##  36/781 [>.............................] - ETA: 19s - loss: 0.8991 - accuracy: 0.6849
##  38/781 [>.............................] - ETA: 19s - loss: 0.8966 - accuracy: 0.6859
##  40/781 [>.............................] - ETA: 19s - loss: 0.8983 - accuracy: 0.6848
##  42/781 [>.............................] - ETA: 19s - loss: 0.8912 - accuracy: 0.6886
##  45/781 [>.............................] - ETA: 19s - loss: 0.8940 - accuracy: 0.6885
##  47/781 [>.............................] - ETA: 19s - loss: 0.8967 - accuracy: 0.6872
```

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##  50/781 [>.............................] - ETA: 19s - loss: 0.8997 - accuracy: 0.6862
##  52/781 [>.............................] - ETA: 19s - loss: 0.9036 - accuracy: 0.6854
##  55/781 [=>............................] - ETA: 19s - loss: 0.9038 - accuracy: 0.6869
##  57/781 [=>............................] - ETA: 19s - loss: 0.9069 - accuracy: 0.6864
##  59/781 [=>............................] - ETA: 19s - loss: 0.9127 - accuracy: 0.6827
##  62/781 [=>............................] - ETA: 19s - loss: 0.9087 - accuracy: 0.6845
##  64/781 [=>............................] - ETA: 18s - loss: 0.9083 - accuracy: 0.6846
##  67/781 [=>............................] - ETA: 18s - loss: 0.9106 - accuracy: 0.6838
##  70/781 [=>............................] - ETA: 18s - loss: 0.9095 - accuracy: 0.6839
##  72/781 [=>............................] - ETA: 18s - loss: 0.9136 - accuracy: 0.6836
##  75/781 [=>............................] - ETA: 18s - loss: 0.9117 - accuracy: 0.6833
##  78/781 [=>............................] - ETA: 18s - loss: 0.9118 - accuracy: 0.6843
##  80/781 [==>...........................] - ETA: 18s - loss: 0.9121 - accuracy: 0.6848
##  82/781 [==>...........................] - ETA: 18s - loss: 0.9080 - accuracy: 0.6856
##  84/781 [==>...........................] - ETA: 18s - loss: 0.9066 - accuracy: 0.6862
##  87/781 [==>...........................] - ETA: 18s - loss: 0.9070 - accuracy: 0.6855
##  89/781 [==>...........................] - ETA: 18s - loss: 0.9046 - accuracy: 0.6873
##  92/781 [==>...........................] - ETA: 18s - loss: 0.9055 - accuracy: 0.6875
##  94/781 [==>...........................] - ETA: 18s - loss: 0.9059 - accuracy: 0.6875
##  96/781 [==>...........................] - ETA: 18s - loss: 0.9030 - accuracy: 0.6891
##  98/781 [==>...........................] - ETA: 18s - loss: 0.9042 - accuracy: 0.6891
## 100/781 [==>...........................] - ETA: 17s - loss: 0.9020 - accuracy: 0.6897
## 102/781 [==>...........................] - ETA: 17s - loss: 0.9000 - accuracy: 0.6906
## 105/781 [===>..........................] - ETA: 17s - loss: 0.8999 - accuracy: 0.6909
## 107/781 [===>..........................] - ETA: 17s - loss: 0.8992 - accuracy: 0.6909
## 109/781 [===>..........................] - ETA: 17s - loss: 0.8958 - accuracy: 0.6919
## 111/781 [===>..........................] - ETA: 17s - loss: 0.8968 - accuracy: 0.6916
## 113/781 [===>..........................] - ETA: 17s - loss: 0.8941 - accuracy: 0.6919
## 115/781 [===>..........................] - ETA: 17s - loss: 0.8936 - accuracy: 0.6918
## 118/781 [===>..........................] - ETA: 17s - loss: 0.8939 - accuracy: 0.6911
## 120/781 [===>..........................] - ETA: 17s - loss: 0.8933 - accuracy: 0.6906
## 122/781 [===>..........................] - ETA: 17s - loss: 0.8942 - accuracy: 0.6901
## 125/781 [===>..........................] - ETA: 17s - loss: 0.8905 - accuracy: 0.6902
## 128/781 [===>..........................] - ETA: 17s - loss: 0.8907 - accuracy: 0.6901
## 130/781 [===>..........................] - ETA: 17s - loss: 0.8935 - accuracy: 0.6894
## 132/781 [====>.........................] - ETA: 17s - loss: 0.8925 - accuracy: 0.6895
## 134/781 [====>.........................] - ETA: 16s - loss: 0.8927 - accuracy: 0.6896
## 136/781 [====>.........................] - ETA: 16s - loss: 0.8928 - accuracy: 0.6890
## 138/781 [====>.........................] - ETA: 16s - loss: 0.8954 - accuracy: 0.6877
## 141/781 [====>.........................] - ETA: 16s - loss: 0.8952 - accuracy: 0.6877
## 144/781 [====>.........................] - ETA: 16s - loss: 0.8976 - accuracy: 0.6870
## 146/781 [====>.........................] - ETA: 16s - loss: 0.8988 - accuracy: 0.6872
## 149/781 [====>.........................] - ETA: 16s - loss: 0.8996 - accuracy: 0.6866
## 152/781 [====>.........................] - ETA: 16s - loss: 0.9002 - accuracy: 0.6858
## 154/781 [====>.........................] - ETA: 16s - loss: 0.8988 - accuracy: 0.6869
## 156/781 [====>.........................] - ETA: 16s - loss: 0.8981 - accuracy: 0.6869
## 158/781 [=====>........................] - ETA: 16s - loss: 0.8981 - accuracy: 0.6867
## 161/781 [=====>........................] - ETA: 16s - loss: 0.8962 - accuracy: 0.6865
## 163/781 [=====>........................] - ETA: 16s - loss: 0.8937 - accuracy: 0.6873
## 165/781 [=====>........................] - ETA: 16s - loss: 0.8945 - accuracy: 0.6870
## 167/781 [=====>........................] - ETA: 16s - loss: 0.8952 - accuracy: 0.6872
## 170/781 [=====>........................] - ETA: 16s - loss: 0.8954 - accuracy: 0.6869
## 173/781 [=====>........................] - ETA: 16s - loss: 0.8941 - accuracy: 0.6871
## 175/781 [=====>........................] - ETA: 16s - loss: 0.8938 - accuracy: 0.6868
```

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## 178/781 [=====>........................] - ETA: 15s - loss: 0.8949 - accuracy: 0.6863
## 180/781 [=====>........................] - ETA: 15s - loss: 0.8939 - accuracy: 0.6865
## 182/781 [=====>........................] - ETA: 15s - loss: 0.8951 - accuracy: 0.6869
## 185/781 [======>.......................] - ETA: 15s - loss: 0.8962 - accuracy: 0.6855
## 188/781 [======>.......................] - ETA: 15s - loss: 0.8958 - accuracy: 0.6855
## 190/781 [======>.......................] - ETA: 15s - loss: 0.8939 - accuracy: 0.6859
## 192/781 [======>.......................] - ETA: 15s - loss: 0.8932 - accuracy: 0.6860
## 195/781 [======>.......................] - ETA: 15s - loss: 0.8976 - accuracy: 0.6843
## 197/781 [======>.......................] - ETA: 15s - loss: 0.8981 - accuracy: 0.6841
## 200/781 [======>.......................] - ETA: 15s - loss: 0.8991 - accuracy: 0.6837
## 203/781 [======>.......................] - ETA: 15s - loss: 0.8987 - accuracy: 0.6836
## 205/781 [======>.......................] - ETA: 15s - loss: 0.8991 - accuracy: 0.6838
## 208/781 [======>.......................] - ETA: 15s - loss: 0.9000 - accuracy: 0.6830
## 210/781 [=======>......................] - ETA: 15s - loss: 0.9002 - accuracy: 0.6829
## 212/781 [=======>......................] - ETA: 15s - loss: 0.9006 - accuracy: 0.6822
## 215/781 [=======>......................] - ETA: 14s - loss: 0.9004 - accuracy: 0.6827
## 217/781 [=======>......................] - ETA: 14s - loss: 0.9005 - accuracy: 0.6829
## 220/781 [=======>......................] - ETA: 14s - loss: 0.9005 - accuracy: 0.6826
## 222/781 [=======>......................] - ETA: 14s - loss: 0.9007 - accuracy: 0.6820
## 225/781 [=======>......................] - ETA: 14s - loss: 0.9002 - accuracy: 0.6825
## 227/781 [=======>......................] - ETA: 14s - loss: 0.9019 - accuracy: 0.6817
## 229/781 [=======>......................] - ETA: 14s - loss: 0.9015 - accuracy: 0.6819
## 232/781 [=======>......................] - ETA: 14s - loss: 0.9016 - accuracy: 0.6817
## 234/781 [=======>......................] - ETA: 14s - loss: 0.9008 - accuracy: 0.6819
## 237/781 [========>.....................] - ETA: 14s - loss: 0.9014 - accuracy: 0.6816
## 239/781 [========>.....................] - ETA: 14s - loss: 0.9014 - accuracy: 0.6815
## 241/781 [========>.....................] - ETA: 14s - loss: 0.9013 - accuracy: 0.6814
## 243/781 [========>.....................] - ETA: 14s - loss: 0.9010 - accuracy: 0.6816
## 245/781 [========>.....................] - ETA: 14s - loss: 0.9013 - accuracy: 0.6810
## 247/781 [========>.....................] - ETA: 14s - loss: 0.9018 - accuracy: 0.6812
## 250/781 [========>.....................] - ETA: 14s - loss: 0.9013 - accuracy: 0.6818
## 253/781 [========>.....................] - ETA: 13s - loss: 0.9025 - accuracy: 0.6818
## 255/781 [========>.....................] - ETA: 13s - loss: 0.9029 - accuracy: 0.6816
## 257/781 [========>.....................] - ETA: 13s - loss: 0.9024 - accuracy: 0.6818
## 259/781 [========>.....................] - ETA: 13s - loss: 0.9034 - accuracy: 0.6814
## 262/781 [=========>....................] - ETA: 13s - loss: 0.9026 - accuracy: 0.6819
## 264/781 [=========>....................] - ETA: 13s - loss: 0.9026 - accuracy: 0.6821
## 266/781 [=========>....................] - ETA: 13s - loss: 0.9023 - accuracy: 0.6821
## 269/781 [=========>....................] - ETA: 13s - loss: 0.9009 - accuracy: 0.6831
## 272/781 [=========>....................] - ETA: 13s - loss: 0.9022 - accuracy: 0.6823
## 274/781 [=========>....................] - ETA: 13s - loss: 0.9014 - accuracy: 0.6827
## 277/781 [=========>....................] - ETA: 13s - loss: 0.9020 - accuracy: 0.6822
## 279/781 [=========>....................] - ETA: 13s - loss: 0.9027 - accuracy: 0.6819
## 282/781 [=========>....................] - ETA: 13s - loss: 0.9016 - accuracy: 0.6822
## 284/781 [=========>....................] - ETA: 13s - loss: 0.9003 - accuracy: 0.6823
## 286/781 [=========>....................] - ETA: 13s - loss: 0.8993 - accuracy: 0.6828
## 289/781 [==========>...................] - ETA: 13s - loss: 0.9005 - accuracy: 0.6824
## 291/781 [==========>...................] - ETA: 12s - loss: 0.8994 - accuracy: 0.6830
## 294/781 [==========>...................] - ETA: 12s - loss: 0.8999 - accuracy: 0.6829
## 296/781 [==========>...................] - ETA: 12s - loss: 0.9008 - accuracy: 0.6825
## 299/781 [==========>...................] - ETA: 12s - loss: 0.9005 - accuracy: 0.6826
## 302/781 [==========>...................] - ETA: 12s - loss: 0.9001 - accuracy: 0.6829
## 304/781 [==========>...................] - ETA: 12s - loss: 0.9002 - accuracy: 0.6830
## 307/781 [==========>...................] - ETA: 12s - loss: 0.9001 - accuracy: 0.6832
```

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## 309/781 [==========>..................] - ETA: 12s - loss: 0.9006 - accuracy: 0.6831
## 311/781 [==========>..................] - ETA: 12s - loss: 0.9010 - accuracy: 0.6830
## 314/781 [===========>..................] - ETA: 12s - loss: 0.9017 - accuracy: 0.6832
## 317/781 [===========>..................] - ETA: 12s - loss: 0.9005 - accuracy: 0.6837
## 320/781 [===========>..................] - ETA: 12s - loss: 0.9025 - accuracy: 0.6832
## 322/781 [===========>..................] - ETA: 12s - loss: 0.9024 - accuracy: 0.6832
## 325/781 [===========>..................] - ETA: 12s - loss: 0.9027 - accuracy: 0.6833
## 327/781 [===========>..................] - ETA: 12s - loss: 0.9031 - accuracy: 0.6832
## 330/781 [===========>..................] - ETA: 11s - loss: 0.9040 - accuracy: 0.6830
## 332/781 [===========>..................] - ETA: 11s - loss: 0.9031 - accuracy: 0.6833
## 334/781 [===========>..................] - ETA: 11s - loss: 0.9026 - accuracy: 0.6835
## 336/781 [===========>..................] - ETA: 11s - loss: 0.9025 - accuracy: 0.6837
## 339/781 [============>.................] - ETA: 11s - loss: 0.9036 - accuracy: 0.6834
## 341/781 [============>.................] - ETA: 11s - loss: 0.9046 - accuracy: 0.6832
## 343/781 [============>.................] - ETA: 11s - loss: 0.9054 - accuracy: 0.6829
## 345/781 [============>.................] - ETA: 11s - loss: 0.9049 - accuracy: 0.6831
## 347/781 [============>.................] - ETA: 11s - loss: 0.9047 - accuracy: 0.6832
## 349/781 [============>.................] - ETA: 11s - loss: 0.9040 - accuracy: 0.6835
## 351/781 [============>.................] - ETA: 11s - loss: 0.9047 - accuracy: 0.6833
## 353/781 [============>.................] - ETA: 11s - loss: 0.9047 - accuracy: 0.6833
## 355/781 [============>.................] - ETA: 11s - loss: 0.9058 - accuracy: 0.6831
## 357/781 [============>.................] - ETA: 11s - loss: 0.9057 - accuracy: 0.6832
## 359/781 [============>.................] - ETA: 11s - loss: 0.9064 - accuracy: 0.6829
## 361/781 [============>.................] - ETA: 11s - loss: 0.9054 - accuracy: 0.6833
## 363/781 [============>.................] - ETA: 11s - loss: 0.9051 - accuracy: 0.6835
## 365/781 [============>.................] - ETA: 11s - loss: 0.9059 - accuracy: 0.6833
## 367/781 [=============>................] - ETA: 10s - loss: 0.9052 - accuracy: 0.6834
## 369/781 [=============>................] - ETA: 10s - loss: 0.9046 - accuracy: 0.6838
## 371/781 [=============>................] - ETA: 10s - loss: 0.9045 - accuracy: 0.6839
## 373/781 [=============>................] - ETA: 10s - loss: 0.9043 - accuracy: 0.6838
## 375/781 [=============>................] - ETA: 10s - loss: 0.9045 - accuracy: 0.6835
## 377/781 [=============>................] - ETA: 10s - loss: 0.9041 - accuracy: 0.6837
## 380/781 [=============>................] - ETA: 10s - loss: 0.9042 - accuracy: 0.6838
## 382/781 [=============>................] - ETA: 10s - loss: 0.9038 - accuracy: 0.6839
## 385/781 [=============>................] - ETA: 10s - loss: 0.9048 - accuracy: 0.6836
## 387/781 [=============>................] - ETA: 10s - loss: 0.9053 - accuracy: 0.6835
## 389/781 [=============>................] - ETA: 10s - loss: 0.9057 - accuracy: 0.6832
## 391/781 [==============>...............] - ETA: 10s - loss: 0.9056 - accuracy: 0.6833
## 393/781 [==============>...............] - ETA: 10s - loss: 0.9055 - accuracy: 0.6832
## 396/781 [==============>...............] - ETA: 10s - loss: 0.9057 - accuracy: 0.6833
## 398/781 [==============>...............] - ETA: 10s - loss: 0.9059 - accuracy: 0.6833
## 400/781 [==============>...............] - ETA: 10s - loss: 0.9061 - accuracy: 0.6834
## 402/781 [==============>...............] - ETA: 10s - loss: 0.9055 - accuracy: 0.6836
## 405/781 [==============>...............] - ETA: 9s - loss: 0.9047 - accuracy: 0.6837
## 407/781 [==============>...............] - ETA: 9s - loss: 0.9053 - accuracy: 0.6836
## 409/781 [==============>...............] - ETA: 9s - loss: 0.9050 - accuracy: 0.6836
## 412/781 [==============>...............] - ETA: 9s - loss: 0.9050 - accuracy: 0.6839
## 414/781 [==============>...............] - ETA: 9s - loss: 0.9051 - accuracy: 0.6841
## 417/781 [===============>..............] - ETA: 9s - loss: 0.9052 - accuracy: 0.6839
## 419/781 [===============>..............] - ETA: 9s - loss: 0.9055 - accuracy: 0.6835
## 421/781 [===============>..............] - ETA: 9s - loss: 0.9054 - accuracy: 0.6838
## 424/781 [===============>..............] - ETA: 9s - loss: 0.9059 - accuracy: 0.6839
## 426/781 [===============>..............] - ETA: 9s - loss: 0.9063 - accuracy: 0.6836
## 428/781 [===============>..............] - ETA: 9s - loss: 0.9061 - accuracy: 0.6835
```

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## 431/781 [===============>.............] - ETA: 9s - loss: 0.9054 - accuracy: 0.6837
## 433/781 [===============>.............] - ETA: 9s - loss: 0.9058 - accuracy: 0.6835
## 435/781 [===============>.............] - ETA: 9s - loss: 0.9069 - accuracy: 0.6833
## 437/781 [===============>.............] - ETA: 9s - loss: 0.9067 - accuracy: 0.6833
## 439/781 [===============>.............] - ETA: 9s - loss: 0.9070 - accuracy: 0.6832
## 441/781 [===============>.............] - ETA: 8s - loss: 0.9065 - accuracy: 0.6833
## 444/781 [================>............] - ETA: 8s - loss: 0.9063 - accuracy: 0.6833
## 447/781 [================>............] - ETA: 8s - loss: 0.9066 - accuracy: 0.6834
## 449/781 [================>............] - ETA: 8s - loss: 0.9059 - accuracy: 0.6836
## 451/781 [================>............] - ETA: 8s - loss: 0.9063 - accuracy: 0.6836
## 454/781 [================>............] - ETA: 8s - loss: 0.9058 - accuracy: 0.6838
## 456/781 [================>............] - ETA: 8s - loss: 0.9060 - accuracy: 0.6836
## 458/781 [================>............] - ETA: 8s - loss: 0.9066 - accuracy: 0.6835
## 460/781 [================>............] - ETA: 8s - loss: 0.9067 - accuracy: 0.6835
## 462/781 [================>............] - ETA: 8s - loss: 0.9066 - accuracy: 0.6836
## 465/781 [================>............] - ETA: 8s - loss: 0.9069 - accuracy: 0.6834
## 467/781 [================>............] - ETA: 8s - loss: 0.9072 - accuracy: 0.6834
## 469/781 [=================>...........] - ETA: 8s - loss: 0.9070 - accuracy: 0.6833
## 472/781 [=================>...........] - ETA: 8s - loss: 0.9068 - accuracy: 0.6836
## 474/781 [=================>...........] - ETA: 8s - loss: 0.9064 - accuracy: 0.6839
## 476/781 [=================>...........] - ETA: 8s - loss: 0.9058 - accuracy: 0.6841
## 478/781 [=================>...........] - ETA: 8s - loss: 0.9058 - accuracy: 0.6842
## 480/781 [=================>...........] - ETA: 7s - loss: 0.9049 - accuracy: 0.6846
## 482/781 [=================>...........] - ETA: 7s - loss: 0.9050 - accuracy: 0.6846
## 485/781 [=================>...........] - ETA: 7s - loss: 0.9050 - accuracy: 0.6845
## 488/781 [=================>...........] - ETA: 7s - loss: 0.9055 - accuracy: 0.6846
## 490/781 [=================>...........] - ETA: 7s - loss: 0.9057 - accuracy: 0.6843
## 492/781 [=================>...........] - ETA: 7s - loss: 0.9054 - accuracy: 0.6844
## 494/781 [=================>...........] - ETA: 7s - loss: 0.9051 - accuracy: 0.6845
## 496/781 [==================>..........] - ETA: 7s - loss: 0.9051 - accuracy: 0.6846
## 498/781 [==================>..........] - ETA: 7s - loss: 0.9053 - accuracy: 0.6846
## 500/781 [==================>..........] - ETA: 7s - loss: 0.9049 - accuracy: 0.6848
## 502/781 [==================>..........] - ETA: 7s - loss: 0.9054 - accuracy: 0.6847
## 504/781 [==================>..........] - ETA: 7s - loss: 0.9058 - accuracy: 0.6846
## 506/781 [==================>..........] - ETA: 7s - loss: 0.9058 - accuracy: 0.6845
## 508/781 [==================>..........] - ETA: 7s - loss: 0.9053 - accuracy: 0.6846
## 511/781 [==================>..........] - ETA: 7s - loss: 0.9060 - accuracy: 0.6844
## 513/781 [==================>..........] - ETA: 7s - loss: 0.9059 - accuracy: 0.6844
## 515/781 [==================>..........] - ETA: 7s - loss: 0.9057 - accuracy: 0.6843
## 517/781 [==================>..........] - ETA: 7s - loss: 0.9056 - accuracy: 0.6844
## 520/781 [==================>..........] - ETA: 6s - loss: 0.9058 - accuracy: 0.6844
## 522/781 [===================>.........] - ETA: 6s - loss: 0.9057 - accuracy: 0.6844
## 525/781 [===================>.........] - ETA: 6s - loss: 0.9051 - accuracy: 0.6847
## 527/781 [===================>.........] - ETA: 6s - loss: 0.9043 - accuracy: 0.6850
## 529/781 [===================>.........] - ETA: 6s - loss: 0.9044 - accuracy: 0.6849
## 531/781 [===================>.........] - ETA: 6s - loss: 0.9044 - accuracy: 0.6849
## 533/781 [===================>.........] - ETA: 6s - loss: 0.9045 - accuracy: 0.6849
## 535/781 [===================>.........] - ETA: 6s - loss: 0.9052 - accuracy: 0.6846
## 538/781 [===================>.........] - ETA: 6s - loss: 0.9041 - accuracy: 0.6851
## 541/781 [===================>.........] - ETA: 6s - loss: 0.9041 - accuracy: 0.6854
## 543/781 [===================>.........] - ETA: 6s - loss: 0.9039 - accuracy: 0.6854
## 545/781 [===================>.........] - ETA: 6s - loss: 0.9044 - accuracy: 0.6852
## 547/781 [====================>........] - ETA: 6s - loss: 0.9040 - accuracy: 0.6855
## 549/781 [====================>........] - ETA: 6s - loss: 0.9041 - accuracy: 0.6854
```

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## 552/781 [====================>.........] - ETA: 6s - loss: 0.9040 - accuracy: 0.6856
## 554/781 [====================>.........] - ETA: 6s - loss: 0.9044 - accuracy: 0.6856
## 556/781 [====================>.........] - ETA: 5s - loss: 0.9042 - accuracy: 0.6858
## 559/781 [====================>.........] - ETA: 5s - loss: 0.9039 - accuracy: 0.6858
## 562/781 [====================>.........] - ETA: 5s - loss: 0.9050 - accuracy: 0.6854
## 564/781 [====================>.........] - ETA: 5s - loss: 0.9046 - accuracy: 0.6856
## 567/781 [====================>.........] - ETA: 5s - loss: 0.9054 - accuracy: 0.6853
## 570/781 [====================>.........] - ETA: 5s - loss: 0.9055 - accuracy: 0.6851
## 572/781 [====================>.........] - ETA: 5s - loss: 0.9053 - accuracy: 0.6852
## 575/781 [=====================>........] - ETA: 5s - loss: 0.9045 - accuracy: 0.6856
## 578/781 [=====================>........] - ETA: 5s - loss: 0.9033 - accuracy: 0.6861
## 580/781 [=====================>........] - ETA: 5s - loss: 0.9035 - accuracy: 0.6862
## 583/781 [=====================>........] - ETA: 5s - loss: 0.9027 - accuracy: 0.6865
## 585/781 [=====================>........] - ETA: 5s - loss: 0.9023 - accuracy: 0.6867
## 588/781 [=====================>........] - ETA: 5s - loss: 0.9027 - accuracy: 0.6866
## 590/781 [=====================>........] - ETA: 5s - loss: 0.9032 - accuracy: 0.6866
## 592/781 [=====================>........] - ETA: 5s - loss: 0.9036 - accuracy: 0.6864
## 594/781 [=====================>........] - ETA: 4s - loss: 0.9036 - accuracy: 0.6864
## 597/781 [=====================>........] - ETA: 4s - loss: 0.9033 - accuracy: 0.6863
## 599/781 [======================>.......] - ETA: 4s - loss: 0.9035 - accuracy: 0.6861
## 602/781 [======================>.......] - ETA: 4s - loss: 0.9026 - accuracy: 0.6864
## 604/781 [======================>.......] - ETA: 4s - loss: 0.9021 - accuracy: 0.6865
## 606/781 [======================>.......] - ETA: 4s - loss: 0.9026 - accuracy: 0.6862
## 608/781 [======================>.......] - ETA: 4s - loss: 0.9025 - accuracy: 0.6862
## 611/781 [======================>.......] - ETA: 4s - loss: 0.9025 - accuracy: 0.6861
## 614/781 [======================>.......] - ETA: 4s - loss: 0.9023 - accuracy: 0.6861
## 617/781 [======================>.......] - ETA: 4s - loss: 0.9030 - accuracy: 0.6858
## 620/781 [======================>.......] - ETA: 4s - loss: 0.9033 - accuracy: 0.6857
## 622/781 [======================>.......] - ETA: 4s - loss: 0.9030 - accuracy: 0.6859
## 625/781 [=======================>......] - ETA: 4s - loss: 0.9029 - accuracy: 0.6859
## 628/781 [=======================>......] - ETA: 4s - loss: 0.9026 - accuracy: 0.6860
## 630/781 [=======================>......] - ETA: 3s - loss: 0.9030 - accuracy: 0.6860
## 633/781 [=======================>......] - ETA: 3s - loss: 0.9028 - accuracy: 0.6860
## 636/781 [=======================>......] - ETA: 3s - loss: 0.9023 - accuracy: 0.6861
## 639/781 [=======================>......] - ETA: 3s - loss: 0.9021 - accuracy: 0.6862
## 641/781 [=======================>......] - ETA: 3s - loss: 0.9019 - accuracy: 0.6861
## 643/781 [=======================>......] - ETA: 3s - loss: 0.9016 - accuracy: 0.6864
## 646/781 [=======================>......] - ETA: 3s - loss: 0.9023 - accuracy: 0.6860
## 648/781 [=======================>......] - ETA: 3s - loss: 0.9026 - accuracy: 0.6860
## 651/781 [========================>.....] - ETA: 3s - loss: 0.9023 - accuracy: 0.6862
## 653/781 [========================>.....] - ETA: 3s - loss: 0.9022 - accuracy: 0.6864
## 655/781 [========================>.....] - ETA: 3s - loss: 0.9020 - accuracy: 0.6865
## 657/781 [========================>.....] - ETA: 3s - loss: 0.9015 - accuracy: 0.6866
## 659/781 [========================>.....] - ETA: 3s - loss: 0.9010 - accuracy: 0.6867
## 662/781 [========================>.....] - ETA: 3s - loss: 0.9012 - accuracy: 0.6868
## 664/781 [========================>.....] - ETA: 3s - loss: 0.9011 - accuracy: 0.6868
## 666/781 [========================>.....] - ETA: 3s - loss: 0.9009 - accuracy: 0.6868
## 668/781 [========================>.....] - ETA: 2s - loss: 0.9011 - accuracy: 0.6868
## 671/781 [========================>.....] - ETA: 2s - loss: 0.9014 - accuracy: 0.6866
## 674/781 [========================>.....] - ETA: 2s - loss: 0.9015 - accuracy: 0.6867
## 677/781 [=========================>....] - ETA: 2s - loss: 0.9011 - accuracy: 0.6868
## 679/781 [=========================>....] - ETA: 2s - loss: 0.9012 - accuracy: 0.6868
## 682/781 [=========================>....] - ETA: 2s - loss: 0.9012 - accuracy: 0.6869
## 685/781 [=========================>....] - ETA: 2s - loss: 0.9013 - accuracy: 0.6868
```

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## 688/781 [=======================>....] - ETA: 2s - loss: 0.9013 - accuracy: 0.6867
## 690/781 [=======================>....] - ETA: 2s - loss: 0.9018 - accuracy: 0.6865
## 692/781 [=======================>....] - ETA: 2s - loss: 0.9018 - accuracy: 0.6866
## 695/781 [=======================>....] - ETA: 2s - loss: 0.9016 - accuracy: 0.6866
## 698/781 [=======================>....] - ETA: 2s - loss: 0.9019 - accuracy: 0.6865
## 701/781 [=======================>....] - ETA: 2s - loss: 0.9016 - accuracy: 0.6865
## 703/781 [=======================>...] - ETA: 2s - loss: 0.9021 - accuracy: 0.6863
## 705/781 [=======================>...] - ETA: 2s - loss: 0.9024 - accuracy: 0.6864
## 708/781 [=======================>...] - ETA: 1s - loss: 0.9023 - accuracy: 0.6864
## 710/781 [=======================>...] - ETA: 1s - loss: 0.9026 - accuracy: 0.6862
## 713/781 [=======================>...] - ETA: 1s - loss: 0.9025 - accuracy: 0.6863
## 716/781 [=======================>...] - ETA: 1s - loss: 0.9030 - accuracy: 0.6862
## 719/781 [=======================>...] - ETA: 1s - loss: 0.9030 - accuracy: 0.6862
## 721/781 [=======================>...] - ETA: 1s - loss: 0.9033 - accuracy: 0.6861
## 724/781 [=======================>...] - ETA: 1s - loss: 0.9033 - accuracy: 0.6862
## 727/781 [=======================>...] - ETA: 1s - loss: 0.9025 - accuracy: 0.6863
## 729/781 [=======================>..] - ETA: 1s - loss: 0.9023 - accuracy: 0.6864
## 732/781 [=======================>..] - ETA: 1s - loss: 0.9025 - accuracy: 0.6863
## 735/781 [=======================>..] - ETA: 1s - loss: 0.9022 - accuracy: 0.6865
## 737/781 [=======================>..] - ETA: 1s - loss: 0.9020 - accuracy: 0.6865
## 740/781 [=======================>..] - ETA: 1s - loss: 0.9017 - accuracy: 0.6867
## 743/781 [=======================>..] - ETA: 1s - loss: 0.9017 - accuracy: 0.6867
## 745/781 [=======================>..] - ETA: 0s - loss: 0.9016 - accuracy: 0.6865
## 747/781 [=======================>..] - ETA: 0s - loss: 0.9017 - accuracy: 0.6864
## 750/781 [=======================>..] - ETA: 0s - loss: 0.9011 - accuracy: 0.6867
## 752/781 [=======================>..] - ETA: 0s - loss: 0.9006 - accuracy: 0.6869
## 755/781 [=======================>.] - ETA: 0s - loss: 0.9010 - accuracy: 0.6868
## 758/781 [=======================>.] - ETA: 0s - loss: 0.9005 - accuracy: 0.6870
## 760/781 [=======================>.] - ETA: 0s - loss: 0.9006 - accuracy: 0.6870
## 763/781 [=======================>.] - ETA: 0s - loss: 0.9005 - accuracy: 0.6870
## 765/781 [=======================>.] - ETA: 0s - loss: 0.9000 - accuracy: 0.6872
## 767/781 [=======================>.] - ETA: 0s - loss: 0.9004 - accuracy: 0.6871
## 769/781 [=======================>.] - ETA: 0s - loss: 0.9001 - accuracy: 0.6872
## 771/781 [=======================>.] - ETA: 0s - loss: 0.9000 - accuracy: 0.6874
## 773/781 [=======================>.] - ETA: 0s - loss: 0.8999 - accuracy: 0.6874
## 776/781 [=======================>.] - ETA: 0s - loss: 0.8995 - accuracy: 0.6874
## 778/781 [=======================>.] - ETA: 0s - loss: 0.8993 - accuracy: 0.6874
## 780/781 [=======================>.] - ETA: 0s - loss: 0.8991 - accuracy: 0.6876
## 781/781 [==============================] - 22s 28ms/step - loss: 0.8992 - accuracy: 0.6875 - val_loss
## Epoch 15/20
##
##   1/781 [..............................] - ETA: 40s - loss: 1.4326 - accuracy: 0.5938
##   3/781 [..............................] - ETA: 19s - loss: 1.1501 - accuracy: 0.6354
##   6/781 [..............................] - ETA: 19s - loss: 1.0349 - accuracy: 0.6693
##   8/781 [..............................] - ETA: 20s - loss: 0.9980 - accuracy: 0.6699
##  11/781 [..............................] - ETA: 19s - loss: 0.9603 - accuracy: 0.6818
##  14/781 [..............................] - ETA: 19s - loss: 0.9284 - accuracy: 0.6864
##  17/781 [..............................] - ETA: 19s - loss: 0.9256 - accuracy: 0.6829
##  19/781 [..............................] - ETA: 19s - loss: 0.9087 - accuracy: 0.6875
##  21/781 [..............................] - ETA: 19s - loss: 0.9093 - accuracy: 0.6853
##  24/781 [..............................] - ETA: 19s - loss: 0.8989 - accuracy: 0.6921
##  26/781 [..............................] - ETA: 19s - loss: 0.8911 - accuracy: 0.6959
##  29/781 [>.............................] - ETA: 19s - loss: 0.8967 - accuracy: 0.6994
##  31/781 [>.............................] - ETA: 19s - loss: 0.8878 - accuracy: 0.7031
```

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##  33/781 [>.............................] - ETA: 19s - loss: 0.8793 - accuracy: 0.7069
##  36/781 [>.............................] - ETA: 19s - loss: 0.8841 - accuracy: 0.7023
##  39/781 [>.............................] - ETA: 19s - loss: 0.8880 - accuracy: 0.7019
##  42/781 [>.............................] - ETA: 19s - loss: 0.8855 - accuracy: 0.6994
##  45/781 [>.............................] - ETA: 18s - loss: 0.8967 - accuracy: 0.6938
##  48/781 [>.............................] - ETA: 18s - loss: 0.9030 - accuracy: 0.6914
##  50/781 [>.............................] - ETA: 18s - loss: 0.9009 - accuracy: 0.6909
##  52/781 [>.............................] - ETA: 18s - loss: 0.8976 - accuracy: 0.6920
##  54/781 [=>............................] - ETA: 18s - loss: 0.8994 - accuracy: 0.6898
##  56/781 [=>............................] - ETA: 18s - loss: 0.9098 - accuracy: 0.6858
##  58/781 [=>............................] - ETA: 18s - loss: 0.9036 - accuracy: 0.6878
##  60/781 [=>............................] - ETA: 18s - loss: 0.9030 - accuracy: 0.6880
##  62/781 [=>............................] - ETA: 18s - loss: 0.8984 - accuracy: 0.6895
##  64/781 [=>............................] - ETA: 18s - loss: 0.8948 - accuracy: 0.6917
##  66/781 [=>............................] - ETA: 18s - loss: 0.8967 - accuracy: 0.6896
##  69/781 [=>............................] - ETA: 18s - loss: 0.8898 - accuracy: 0.6911
##  71/781 [=>............................] - ETA: 18s - loss: 0.8868 - accuracy: 0.6912
##  73/781 [=>............................] - ETA: 18s - loss: 0.8824 - accuracy: 0.6937
##  75/781 [=>............................] - ETA: 18s - loss: 0.8841 - accuracy: 0.6929
##  77/781 [=>............................] - ETA: 18s - loss: 0.8788 - accuracy: 0.6944
##  79/781 [==>...........................] - ETA: 18s - loss: 0.8811 - accuracy: 0.6942
##  81/781 [==>...........................] - ETA: 18s - loss: 0.8793 - accuracy: 0.6944
##  84/781 [==>...........................] - ETA: 18s - loss: 0.8787 - accuracy: 0.6948
##  86/781 [==>...........................] - ETA: 18s - loss: 0.8772 - accuracy: 0.6951
##  88/781 [==>...........................] - ETA: 18s - loss: 0.8786 - accuracy: 0.6955
##  90/781 [==>...........................] - ETA: 18s - loss: 0.8788 - accuracy: 0.6958
##  92/781 [==>...........................] - ETA: 18s - loss: 0.8804 - accuracy: 0.6945
##  94/781 [==>...........................] - ETA: 18s - loss: 0.8826 - accuracy: 0.6941
##  97/781 [==>...........................] - ETA: 18s - loss: 0.8824 - accuracy: 0.6939
##  99/781 [==>...........................] - ETA: 18s - loss: 0.8810 - accuracy: 0.6940
## 101/781 [==>...........................] - ETA: 18s - loss: 0.8789 - accuracy: 0.6948
## 103/781 [==>...........................] - ETA: 17s - loss: 0.8802 - accuracy: 0.6949
## 105/781 [===>..........................] - ETA: 17s - loss: 0.8791 - accuracy: 0.6957
## 107/781 [===>..........................] - ETA: 17s - loss: 0.8779 - accuracy: 0.6961
## 109/781 [===>..........................] - ETA: 17s - loss: 0.8799 - accuracy: 0.6951
## 112/781 [===>..........................] - ETA: 17s - loss: 0.8808 - accuracy: 0.6946
## 114/781 [===>..........................] - ETA: 17s - loss: 0.8819 - accuracy: 0.6945
## 116/781 [===>..........................] - ETA: 17s - loss: 0.8821 - accuracy: 0.6941
## 118/781 [===>..........................] - ETA: 17s - loss: 0.8813 - accuracy: 0.6944
## 121/781 [===>..........................] - ETA: 17s - loss: 0.8788 - accuracy: 0.6951
## 123/781 [===>..........................] - ETA: 17s - loss: 0.8807 - accuracy: 0.6946
## 126/781 [===>..........................] - ETA: 17s - loss: 0.8800 - accuracy: 0.6949
## 128/781 [===>..........................] - ETA: 17s - loss: 0.8819 - accuracy: 0.6938
## 130/781 [===>..........................] - ETA: 17s - loss: 0.8791 - accuracy: 0.6950
## 132/781 [====>.........................] - ETA: 17s - loss: 0.8803 - accuracy: 0.6948
## 134/781 [====>.........................] - ETA: 17s - loss: 0.8801 - accuracy: 0.6947
## 136/781 [====>.........................] - ETA: 17s - loss: 0.8828 - accuracy: 0.6946
## 139/781 [====>.........................] - ETA: 17s - loss: 0.8836 - accuracy: 0.6940
## 142/781 [====>.........................] - ETA: 17s - loss: 0.8861 - accuracy: 0.6932
## 144/781 [====>.........................] - ETA: 17s - loss: 0.8848 - accuracy: 0.6939
## 146/781 [====>.........................] - ETA: 17s - loss: 0.8824 - accuracy: 0.6948
## 148/781 [====>.........................] - ETA: 17s - loss: 0.8808 - accuracy: 0.6957
## 150/781 [====>.........................] - ETA: 16s - loss: 0.8840 - accuracy: 0.6949
## 152/781 [====>.........................] - ETA: 16s - loss: 0.8827 - accuracy: 0.6952
```

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## 154/781 [====>.....................] - ETA: 16s - loss: 0.8823 - accuracy: 0.6954
## 156/781 [====>.....................] - ETA: 16s - loss: 0.8818 - accuracy: 0.6955
## 158/781 [=====>....................] - ETA: 16s - loss: 0.8831 - accuracy: 0.6949
## 161/781 [=====>....................] - ETA: 16s - loss: 0.8835 - accuracy: 0.6941
## 163/781 [=====>....................] - ETA: 16s - loss: 0.8825 - accuracy: 0.6944
## 165/781 [=====>....................] - ETA: 16s - loss: 0.8812 - accuracy: 0.6947
## 167/781 [=====>....................] - ETA: 16s - loss: 0.8815 - accuracy: 0.6941
## 169/781 [=====>....................] - ETA: 16s - loss: 0.8797 - accuracy: 0.6948
## 171/781 [=====>....................] - ETA: 16s - loss: 0.8810 - accuracy: 0.6940
## 173/781 [=====>....................] - ETA: 16s - loss: 0.8805 - accuracy: 0.6943
## 175/781 [=====>....................] - ETA: 16s - loss: 0.8803 - accuracy: 0.6946
## 177/781 [=====>....................] - ETA: 16s - loss: 0.8801 - accuracy: 0.6947
## 179/781 [=====>....................] - ETA: 16s - loss: 0.8809 - accuracy: 0.6939
## 181/781 [=====>....................] - ETA: 16s - loss: 0.8811 - accuracy: 0.6935
## 183/781 [======>...................] - ETA: 16s - loss: 0.8823 - accuracy: 0.6930
## 185/781 [======>...................] - ETA: 16s - loss: 0.8836 - accuracy: 0.6926
## 187/781 [======>...................] - ETA: 16s - loss: 0.8848 - accuracy: 0.6920
## 190/781 [======>...................] - ETA: 15s - loss: 0.8856 - accuracy: 0.6917
## 192/781 [======>...................] - ETA: 15s - loss: 0.8852 - accuracy: 0.6920
## 194/781 [======>...................] - ETA: 15s - loss: 0.8857 - accuracy: 0.6921
## 196/781 [======>...................] - ETA: 15s - loss: 0.8857 - accuracy: 0.6924
## 198/781 [======>...................] - ETA: 15s - loss: 0.8875 - accuracy: 0.6920
## 201/781 [======>...................] - ETA: 15s - loss: 0.8861 - accuracy: 0.6925
## 204/781 [======>...................] - ETA: 15s - loss: 0.8858 - accuracy: 0.6928
## 206/781 [======>...................] - ETA: 15s - loss: 0.8857 - accuracy: 0.6923
## 208/781 [======>...................] - ETA: 15s - loss: 0.8848 - accuracy: 0.6927
## 210/781 [=======>..................] - ETA: 15s - loss: 0.8846 - accuracy: 0.6929
## 212/781 [=======>..................] - ETA: 15s - loss: 0.8833 - accuracy: 0.6933
## 214/781 [=======>..................] - ETA: 15s - loss: 0.8828 - accuracy: 0.6935
## 216/781 [=======>..................] - ETA: 15s - loss: 0.8825 - accuracy: 0.6934
## 218/781 [=======>..................] - ETA: 15s - loss: 0.8832 - accuracy: 0.6932
## 220/781 [=======>..................] - ETA: 15s - loss: 0.8835 - accuracy: 0.6927
## 222/781 [=======>..................] - ETA: 15s - loss: 0.8828 - accuracy: 0.6924
## 225/781 [=======>..................] - ETA: 15s - loss: 0.8818 - accuracy: 0.6926
## 228/781 [=======>..................] - ETA: 14s - loss: 0.8802 - accuracy: 0.6934
## 230/781 [=======>..................] - ETA: 14s - loss: 0.8801 - accuracy: 0.6936
## 232/781 [=======>..................] - ETA: 14s - loss: 0.8807 - accuracy: 0.6932
## 235/781 [========>.................] - ETA: 14s - loss: 0.8812 - accuracy: 0.6928
## 237/781 [========>.................] - ETA: 14s - loss: 0.8818 - accuracy: 0.6923
## 239/781 [========>.................] - ETA: 14s - loss: 0.8810 - accuracy: 0.6923
## 241/781 [========>.................] - ETA: 14s - loss: 0.8819 - accuracy: 0.6920
## 243/781 [========>.................] - ETA: 14s - loss: 0.8832 - accuracy: 0.6915
## 245/781 [========>.................] - ETA: 14s - loss: 0.8836 - accuracy: 0.6913
## 247/781 [========>.................] - ETA: 14s - loss: 0.8834 - accuracy: 0.6913
## 250/781 [========>.................] - ETA: 14s - loss: 0.8841 - accuracy: 0.6913
## 253/781 [========>.................] - ETA: 14s - loss: 0.8843 - accuracy: 0.6906
## 256/781 [========>.................] - ETA: 14s - loss: 0.8856 - accuracy: 0.6902
## 259/781 [========>.................] - ETA: 14s - loss: 0.8864 - accuracy: 0.6898
## 261/781 [=========>................] - ETA: 14s - loss: 0.8866 - accuracy: 0.6900
## 263/781 [=========>................] - ETA: 13s - loss: 0.8861 - accuracy: 0.6901
## 265/781 [=========>................] - ETA: 13s - loss: 0.8860 - accuracy: 0.6903
## 268/781 [=========>................] - ETA: 13s - loss: 0.8849 - accuracy: 0.6908
## 270/781 [=========>................] - ETA: 13s - loss: 0.8838 - accuracy: 0.6913
## 273/781 [=========>................] - ETA: 13s - loss: 0.8836 - accuracy: 0.6914
```

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## 276/781 [=========>....................] - ETA: 13s - loss: 0.8836 - accuracy: 0.6913
## 279/781 [=========>....................] - ETA: 13s - loss: 0.8830 - accuracy: 0.6916
## 281/781 [=========>....................] - ETA: 13s - loss: 0.8824 - accuracy: 0.6918
## 283/781 [=========>....................] - ETA: 13s - loss: 0.8823 - accuracy: 0.6918
## 285/781 [=========>....................] - ETA: 13s - loss: 0.8822 - accuracy: 0.6918
## 287/781 [==========>...................] - ETA: 13s - loss: 0.8838 - accuracy: 0.6909
## 289/781 [==========>...................] - ETA: 13s - loss: 0.8838 - accuracy: 0.6906
## 292/781 [==========>...................] - ETA: 13s - loss: 0.8830 - accuracy: 0.6910
## 294/781 [==========>...................] - ETA: 13s - loss: 0.8824 - accuracy: 0.6913
## 296/781 [==========>...................] - ETA: 13s - loss: 0.8837 - accuracy: 0.6908
## 299/781 [==========>...................] - ETA: 13s - loss: 0.8839 - accuracy: 0.6908
## 301/781 [==========>...................] - ETA: 12s - loss: 0.8833 - accuracy: 0.6908
## 303/781 [==========>...................] - ETA: 12s - loss: 0.8831 - accuracy: 0.6907
## 306/781 [==========>...................] - ETA: 12s - loss: 0.8833 - accuracy: 0.6910
## 308/781 [==========>...................] - ETA: 12s - loss: 0.8830 - accuracy: 0.6910
## 310/781 [==========>...................] - ETA: 12s - loss: 0.8825 - accuracy: 0.6910
## 312/781 [==========>...................] - ETA: 12s - loss: 0.8827 - accuracy: 0.6910
## 314/781 [===========>..................] - ETA: 12s - loss: 0.8809 - accuracy: 0.6915
## 316/781 [===========>..................] - ETA: 12s - loss: 0.8809 - accuracy: 0.6912
## 318/781 [===========>..................] - ETA: 12s - loss: 0.8811 - accuracy: 0.6910
## 320/781 [===========>..................] - ETA: 12s - loss: 0.8818 - accuracy: 0.6905
## 322/781 [===========>..................] - ETA: 12s - loss: 0.8813 - accuracy: 0.6907
## 324/781 [===========>..................] - ETA: 12s - loss: 0.8811 - accuracy: 0.6908
## 326/781 [===========>..................] - ETA: 12s - loss: 0.8816 - accuracy: 0.6904
## 328/781 [===========>..................] - ETA: 12s - loss: 0.8817 - accuracy: 0.6905
## 330/781 [===========>..................] - ETA: 12s - loss: 0.8826 - accuracy: 0.6907
## 332/781 [===========>..................] - ETA: 12s - loss: 0.8839 - accuracy: 0.6901
## 334/781 [===========>..................] - ETA: 12s - loss: 0.8837 - accuracy: 0.6902
## 336/781 [===========>..................] - ETA: 12s - loss: 0.8830 - accuracy: 0.6903
## 338/781 [===========>..................] - ETA: 11s - loss: 0.8837 - accuracy: 0.6901
## 340/781 [============>.................] - ETA: 11s - loss: 0.8843 - accuracy: 0.6899
## 342/781 [============>.................] - ETA: 11s - loss: 0.8841 - accuracy: 0.6899
## 344/781 [============>.................] - ETA: 11s - loss: 0.8844 - accuracy: 0.6897
## 347/781 [============>.................] - ETA: 11s - loss: 0.8834 - accuracy: 0.6900
## 350/781 [============>.................] - ETA: 11s - loss: 0.8826 - accuracy: 0.6902
## 352/781 [============>.................] - ETA: 11s - loss: 0.8820 - accuracy: 0.6905
## 354/781 [============>.................] - ETA: 11s - loss: 0.8819 - accuracy: 0.6905
## 356/781 [============>.................] - ETA: 11s - loss: 0.8807 - accuracy: 0.6909
## 358/781 [============>.................] - ETA: 11s - loss: 0.8800 - accuracy: 0.6911
## 361/781 [============>.................] - ETA: 11s - loss: 0.8798 - accuracy: 0.6914
## 363/781 [============>.................] - ETA: 11s - loss: 0.8817 - accuracy: 0.6909
## 366/781 [=============>................] - ETA: 11s - loss: 0.8814 - accuracy: 0.6910
## 368/781 [=============>................] - ETA: 11s - loss: 0.8814 - accuracy: 0.6912
## 371/781 [=============>................] - ETA: 11s - loss: 0.8812 - accuracy: 0.6912
## 373/781 [=============>................] - ETA: 11s - loss: 0.8820 - accuracy: 0.6906
## 376/781 [=============>................] - ETA: 10s - loss: 0.8819 - accuracy: 0.6907
## 378/781 [=============>................] - ETA: 10s - loss: 0.8824 - accuracy: 0.6906
## 380/781 [=============>................] - ETA: 10s - loss: 0.8826 - accuracy: 0.6904
## 382/781 [=============>................] - ETA: 10s - loss: 0.8827 - accuracy: 0.6905
## 384/781 [=============>................] - ETA: 10s - loss: 0.8824 - accuracy: 0.6904
## 387/781 [=============>................] - ETA: 10s - loss: 0.8822 - accuracy: 0.6907
## 390/781 [=============>................] - ETA: 10s - loss: 0.8831 - accuracy: 0.6905
## 393/781 [==============>...............] - ETA: 10s - loss: 0.8830 - accuracy: 0.6904
## 395/781 [==============>...............] - ETA: 10s - loss: 0.8833 - accuracy: 0.6905
```

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## 397/781 [==============>..............] - ETA: 10s - loss: 0.8829 - accuracy: 0.6907
## 399/781 [==============>..............] - ETA: 10s - loss: 0.8833 - accuracy: 0.6907
## 402/781 [==============>..............] - ETA: 10s - loss: 0.8833 - accuracy: 0.6907
## 405/781 [==============>..............] - ETA: 10s - loss: 0.8837 - accuracy: 0.6907
## 408/781 [==============>..............] - ETA: 10s - loss: 0.8835 - accuracy: 0.6905
## 410/781 [==============>..............] - ETA: 10s - loss: 0.8836 - accuracy: 0.6904
## 412/781 [==============>..............] - ETA: 9s - loss: 0.8835 - accuracy: 0.6904
## 415/781 [==============>..............] - ETA: 9s - loss: 0.8830 - accuracy: 0.6905
## 417/781 [===============>.............] - ETA: 9s - loss: 0.8822 - accuracy: 0.6908
## 419/781 [===============>.............] - ETA: 9s - loss: 0.8819 - accuracy: 0.6907
## 421/781 [===============>.............] - ETA: 9s - loss: 0.8823 - accuracy: 0.6907
## 423/781 [===============>.............] - ETA: 9s - loss: 0.8823 - accuracy: 0.6909
## 425/781 [===============>.............] - ETA: 9s - loss: 0.8825 - accuracy: 0.6907
## 428/781 [===============>.............] - ETA: 9s - loss: 0.8825 - accuracy: 0.6906
## 431/781 [===============>.............] - ETA: 9s - loss: 0.8818 - accuracy: 0.6911
## 433/781 [===============>.............] - ETA: 9s - loss: 0.8812 - accuracy: 0.6911
## 435/781 [===============>.............] - ETA: 9s - loss: 0.8809 - accuracy: 0.6911
## 437/781 [===============>.............] - ETA: 9s - loss: 0.8813 - accuracy: 0.6910
## 439/781 [===============>.............] - ETA: 9s - loss: 0.8814 - accuracy: 0.6912
## 441/781 [===============>.............] - ETA: 9s - loss: 0.8814 - accuracy: 0.6912
## 443/781 [================>............] - ETA: 9s - loss: 0.8815 - accuracy: 0.6911
## 445/781 [================>............] - ETA: 9s - loss: 0.8816 - accuracy: 0.6910
## 447/781 [================>............] - ETA: 9s - loss: 0.8808 - accuracy: 0.6912
## 450/781 [================>............] - ETA: 8s - loss: 0.8807 - accuracy: 0.6913
## 452/781 [================>............] - ETA: 8s - loss: 0.8810 - accuracy: 0.6911
## 455/781 [================>............] - ETA: 8s - loss: 0.8805 - accuracy: 0.6913
## 458/781 [================>............] - ETA: 8s - loss: 0.8812 - accuracy: 0.6912
## 460/781 [================>............] - ETA: 8s - loss: 0.8806 - accuracy: 0.6914
## 463/781 [================>............] - ETA: 8s - loss: 0.8808 - accuracy: 0.6910
## 466/781 [================>............] - ETA: 8s - loss: 0.8822 - accuracy: 0.6909
## 468/781 [================>............] - ETA: 8s - loss: 0.8819 - accuracy: 0.6908
## 470/781 [=================>...........] - ETA: 8s - loss: 0.8829 - accuracy: 0.6905
## 472/781 [=================>...........] - ETA: 8s - loss: 0.8835 - accuracy: 0.6901
## 475/781 [=================>...........] - ETA: 8s - loss: 0.8826 - accuracy: 0.6904
## 478/781 [=================>...........] - ETA: 8s - loss: 0.8831 - accuracy: 0.6901
## 480/781 [=================>...........] - ETA: 8s - loss: 0.8835 - accuracy: 0.6899
## 482/781 [=================>...........] - ETA: 8s - loss: 0.8838 - accuracy: 0.6898
## 484/781 [=================>...........] - ETA: 8s - loss: 0.8835 - accuracy: 0.6899
## 487/781 [=================>...........] - ETA: 7s - loss: 0.8834 - accuracy: 0.6898
## 489/781 [=================>...........] - ETA: 7s - loss: 0.8830 - accuracy: 0.6900
## 491/781 [=================>...........] - ETA: 7s - loss: 0.8837 - accuracy: 0.6897
## 493/781 [=================>...........] - ETA: 7s - loss: 0.8844 - accuracy: 0.6896
## 495/781 [==================>..........] - ETA: 7s - loss: 0.8846 - accuracy: 0.6895
## 497/781 [==================>..........] - ETA: 7s - loss: 0.8842 - accuracy: 0.6896
## 499/781 [==================>..........] - ETA: 7s - loss: 0.8846 - accuracy: 0.6895
## 501/781 [==================>..........] - ETA: 7s - loss: 0.8840 - accuracy: 0.6897
## 503/781 [==================>..........] - ETA: 7s - loss: 0.8842 - accuracy: 0.6895
## 506/781 [==================>..........] - ETA: 7s - loss: 0.8843 - accuracy: 0.6896
## 508/781 [==================>..........] - ETA: 7s - loss: 0.8842 - accuracy: 0.6897
## 511/781 [==================>..........] - ETA: 7s - loss: 0.8846 - accuracy: 0.6894
## 514/781 [==================>..........] - ETA: 7s - loss: 0.8846 - accuracy: 0.6895
## 516/781 [==================>..........] - ETA: 7s - loss: 0.8841 - accuracy: 0.6899
## 518/781 [==================>..........] - ETA: 7s - loss: 0.8838 - accuracy: 0.6900
## 520/781 [==================>..........] - ETA: 7s - loss: 0.8841 - accuracy: 0.6899
```

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## 522/781 [==================>.....] - ETA: 7s - loss: 0.8843 - accuracy: 0.6900
## 524/781 [==================>.....] - ETA: 6s - loss: 0.8849 - accuracy: 0.6897
## 526/781 [==================>.....] - ETA: 6s - loss: 0.8846 - accuracy: 0.6898
## 528/781 [==================>.....] - ETA: 6s - loss: 0.8845 - accuracy: 0.6898
## 531/781 [==================>.....] - ETA: 6s - loss: 0.8841 - accuracy: 0.6900
## 533/781 [==================>.....] - ETA: 6s - loss: 0.8842 - accuracy: 0.6900
## 535/781 [==================>.....] - ETA: 6s - loss: 0.8837 - accuracy: 0.6900
## 537/781 [==================>.....] - ETA: 6s - loss: 0.8836 - accuracy: 0.6901
## 539/781 [==================>.....] - ETA: 6s - loss: 0.8841 - accuracy: 0.6901
## 541/781 [==================>.....] - ETA: 6s - loss: 0.8837 - accuracy: 0.6901
## 544/781 [==================>.....] - ETA: 6s - loss: 0.8836 - accuracy: 0.6904
## 547/781 [===================>....] - ETA: 6s - loss: 0.8839 - accuracy: 0.6904
## 549/781 [===================>....] - ETA: 6s - loss: 0.8835 - accuracy: 0.6907
## 552/781 [===================>....] - ETA: 6s - loss: 0.8837 - accuracy: 0.6905
## 554/781 [===================>....] - ETA: 6s - loss: 0.8844 - accuracy: 0.6902
## 556/781 [===================>....] - ETA: 6s - loss: 0.8841 - accuracy: 0.6904
## 558/781 [===================>....] - ETA: 6s - loss: 0.8843 - accuracy: 0.6904
## 560/781 [===================>....] - ETA: 5s - loss: 0.8839 - accuracy: 0.6906
## 562/781 [===================>....] - ETA: 5s - loss: 0.8836 - accuracy: 0.6906
## 564/781 [===================>....] - ETA: 5s - loss: 0.8839 - accuracy: 0.6904
## 566/781 [===================>....] - ETA: 5s - loss: 0.8834 - accuracy: 0.6906
## 569/781 [===================>....] - ETA: 5s - loss: 0.8834 - accuracy: 0.6906
## 571/781 [===================>....] - ETA: 5s - loss: 0.8832 - accuracy: 0.6907
## 573/781 [====================>...] - ETA: 5s - loss: 0.8836 - accuracy: 0.6905
## 575/781 [====================>...] - ETA: 5s - loss: 0.8832 - accuracy: 0.6906
## 577/781 [====================>...] - ETA: 5s - loss: 0.8832 - accuracy: 0.6906
## 579/781 [====================>...] - ETA: 5s - loss: 0.8832 - accuracy: 0.6907
## 581/781 [====================>...] - ETA: 5s - loss: 0.8831 - accuracy: 0.6906
## 583/781 [====================>...] - ETA: 5s - loss: 0.8838 - accuracy: 0.6905
## 585/781 [====================>...] - ETA: 5s - loss: 0.8845 - accuracy: 0.6902
## 587/781 [====================>...] - ETA: 5s - loss: 0.8843 - accuracy: 0.6902
## 589/781 [====================>...] - ETA: 5s - loss: 0.8845 - accuracy: 0.6901
## 592/781 [====================>...] - ETA: 5s - loss: 0.8846 - accuracy: 0.6902
## 595/781 [====================>...] - ETA: 5s - loss: 0.8844 - accuracy: 0.6903
## 597/781 [====================>...] - ETA: 4s - loss: 0.8846 - accuracy: 0.6903
## 599/781 [=====================>..] - ETA: 4s - loss: 0.8845 - accuracy: 0.6904
## 601/781 [=====================>..] - ETA: 4s - loss: 0.8844 - accuracy: 0.6905
## 604/781 [=====================>..] - ETA: 4s - loss: 0.8846 - accuracy: 0.6903
## 606/781 [=====================>..] - ETA: 4s - loss: 0.8846 - accuracy: 0.6904
## 608/781 [=====================>..] - ETA: 4s - loss: 0.8846 - accuracy: 0.6904
## 610/781 [=====================>..] - ETA: 4s - loss: 0.8845 - accuracy: 0.6905
## 612/781 [=====================>..] - ETA: 4s - loss: 0.8845 - accuracy: 0.6905
## 614/781 [=====================>..] - ETA: 4s - loss: 0.8844 - accuracy: 0.6906
## 617/781 [=====================>..] - ETA: 4s - loss: 0.8847 - accuracy: 0.6904
## 620/781 [=====================>..] - ETA: 4s - loss: 0.8849 - accuracy: 0.6904
## 623/781 [=====================>..] - ETA: 4s - loss: 0.8854 - accuracy: 0.6902
## 626/781 [======================>.] - ETA: 4s - loss: 0.8857 - accuracy: 0.6900
## 628/781 [======================>.] - ETA: 4s - loss: 0.8858 - accuracy: 0.6899
## 631/781 [======================>.] - ETA: 4s - loss: 0.8860 - accuracy: 0.6898
## 634/781 [======================>.] - ETA: 3s - loss: 0.8858 - accuracy: 0.6898
## 636/781 [======================>.] - ETA: 3s - loss: 0.8865 - accuracy: 0.6896
## 638/781 [======================>.] - ETA: 3s - loss: 0.8867 - accuracy: 0.6893
## 640/781 [======================>.] - ETA: 3s - loss: 0.8866 - accuracy: 0.6892
## 642/781 [======================>.] - ETA: 3s - loss: 0.8868 - accuracy: 0.6891
```

```
## 645/781 [=====================>......] - ETA: 3s - loss: 0.8864 - accuracy: 0.6891
## 648/781 [=====================>......] - ETA: 3s - loss: 0.8862 - accuracy: 0.6893
## 650/781 [=====================>......] - ETA: 3s - loss: 0.8860 - accuracy: 0.6895
## 653/781 [=====================>.....] - ETA: 3s - loss: 0.8862 - accuracy: 0.6894
## 655/781 [=====================>.....] - ETA: 3s - loss: 0.8862 - accuracy: 0.6895
## 658/781 [=====================>.....] - ETA: 3s - loss: 0.8864 - accuracy: 0.6896
## 660/781 [=====================>.....] - ETA: 3s - loss: 0.8863 - accuracy: 0.6896
## 663/781 [=====================>.....] - ETA: 3s - loss: 0.8862 - accuracy: 0.6897
## 666/781 [=====================>.....] - ETA: 3s - loss: 0.8861 - accuracy: 0.6896
## 669/781 [=====================>.....] - ETA: 3s - loss: 0.8862 - accuracy: 0.6896
## 671/781 [=====================>.....] - ETA: 2s - loss: 0.8863 - accuracy: 0.6896
## 673/781 [=====================>.....] - ETA: 2s - loss: 0.8860 - accuracy: 0.6896
## 675/781 [=====================>.....] - ETA: 2s - loss: 0.8859 - accuracy: 0.6897
## 677/781 [======================>....] - ETA: 2s - loss: 0.8857 - accuracy: 0.6899
## 680/781 [======================>....] - ETA: 2s - loss: 0.8860 - accuracy: 0.6899
## 683/781 [======================>....] - ETA: 2s - loss: 0.8860 - accuracy: 0.6899
## 685/781 [======================>....] - ETA: 2s - loss: 0.8860 - accuracy: 0.6899
## 687/781 [======================>....] - ETA: 2s - loss: 0.8860 - accuracy: 0.6899
## 690/781 [======================>....] - ETA: 2s - loss: 0.8857 - accuracy: 0.6902
## 693/781 [======================>....] - ETA: 2s - loss: 0.8858 - accuracy: 0.6901
## 696/781 [======================>....] - ETA: 2s - loss: 0.8860 - accuracy: 0.6900
## 698/781 [======================>....] - ETA: 2s - loss: 0.8860 - accuracy: 0.6900
## 701/781 [======================>....] - ETA: 2s - loss: 0.8859 - accuracy: 0.6901
## 703/781 [=======================>...] - ETA: 2s - loss: 0.8860 - accuracy: 0.6901
## 705/781 [=======================>...] - ETA: 2s - loss: 0.8864 - accuracy: 0.6899
## 708/781 [=======================>...] - ETA: 1s - loss: 0.8867 - accuracy: 0.6899
## 710/781 [=======================>...] - ETA: 1s - loss: 0.8868 - accuracy: 0.6897
## 713/781 [=======================>...] - ETA: 1s - loss: 0.8866 - accuracy: 0.6898
## 715/781 [=======================>...] - ETA: 1s - loss: 0.8867 - accuracy: 0.6897
## 717/781 [=======================>...] - ETA: 1s - loss: 0.8865 - accuracy: 0.6898
## 719/781 [=======================>...] - ETA: 1s - loss: 0.8862 - accuracy: 0.6899
## 721/781 [=======================>...] - ETA: 1s - loss: 0.8867 - accuracy: 0.6896
## 724/781 [=======================>...] - ETA: 1s - loss: 0.8861 - accuracy: 0.6900
## 727/781 [=======================>...] - ETA: 1s - loss: 0.8858 - accuracy: 0.6902
## 729/781 [========================>..] - ETA: 1s - loss: 0.8859 - accuracy: 0.6902
## 732/781 [========================>..] - ETA: 1s - loss: 0.8861 - accuracy: 0.6903
## 734/781 [========================>..] - ETA: 1s - loss: 0.8861 - accuracy: 0.6902
## 736/781 [========================>..] - ETA: 1s - loss: 0.8856 - accuracy: 0.6904
## 739/781 [========================>..] - ETA: 1s - loss: 0.8853 - accuracy: 0.6904
## 741/781 [========================>..] - ETA: 1s - loss: 0.8852 - accuracy: 0.6906
## 743/781 [========================>..] - ETA: 1s - loss: 0.8852 - accuracy: 0.6906
## 746/781 [========================>..] - ETA: 0s - loss: 0.8852 - accuracy: 0.6906
## 748/781 [========================>..] - ETA: 0s - loss: 0.8853 - accuracy: 0.6906
## 750/781 [========================>..] - ETA: 0s - loss: 0.8855 - accuracy: 0.6908
## 752/781 [========================>..] - ETA: 0s - loss: 0.8853 - accuracy: 0.6908
## 755/781 [=========================>.] - ETA: 0s - loss: 0.8849 - accuracy: 0.6910
## 758/781 [=========================>.] - ETA: 0s - loss: 0.8848 - accuracy: 0.6909
## 761/781 [=========================>.] - ETA: 0s - loss: 0.8851 - accuracy: 0.6910
## 763/781 [=========================>.] - ETA: 0s - loss: 0.8848 - accuracy: 0.6911
## 765/781 [=========================>.] - ETA: 0s - loss: 0.8850 - accuracy: 0.6908
## 768/781 [=========================>.] - ETA: 0s - loss: 0.8852 - accuracy: 0.6907
## 770/781 [=========================>.] - ETA: 0s - loss: 0.8852 - accuracy: 0.6908
## 772/781 [=========================>.] - ETA: 0s - loss: 0.8851 - accuracy: 0.6907
## 775/781 [=========================>.] - ETA: 0s - loss: 0.8853 - accuracy: 0.6907
```

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## 777/781 [============================>.] - ETA: 0s - loss: 0.8851 - accuracy: 0.6907
## 780/781 [============================>.] - ETA: 0s - loss: 0.8854 - accuracy: 0.6907
## 781/781 [==============================] - 22s 28ms/step - loss: 0.8852 - accuracy: 0.6907 - val_loss
## Epoch 16/20
##
##   1/781 [..............................] - ETA: 32s - loss: 0.8771 - accuracy: 0.7031
##   4/781 [..............................] - ETA: 19s - loss: 0.9057 - accuracy: 0.6953
##   6/781 [..............................] - ETA: 20s - loss: 0.9051 - accuracy: 0.6823
##   9/781 [..............................] - ETA: 18s - loss: 0.9023 - accuracy: 0.6788
##  11/781 [..............................] - ETA: 19s - loss: 0.9165 - accuracy: 0.6676
##  13/781 [..............................] - ETA: 20s - loss: 0.9078 - accuracy: 0.6635
##  16/781 [..............................] - ETA: 19s - loss: 0.9206 - accuracy: 0.6619
##  18/781 [..............................] - ETA: 19s - loss: 0.9097 - accuracy: 0.6676
##  21/781 [..............................] - ETA: 19s - loss: 0.9124 - accuracy: 0.6659
##  23/781 [..............................] - ETA: 19s - loss: 0.9011 - accuracy: 0.6728
##  25/781 [..............................] - ETA: 19s - loss: 0.9076 - accuracy: 0.6714
##  28/781 [>.............................] - ETA: 18s - loss: 0.8978 - accuracy: 0.6760
##  31/781 [>.............................] - ETA: 19s - loss: 0.9021 - accuracy: 0.6761
##  33/781 [>.............................] - ETA: 19s - loss: 0.8953 - accuracy: 0.6817
##  36/781 [>.............................] - ETA: 18s - loss: 0.8976 - accuracy: 0.6813
##  38/781 [>.............................] - ETA: 18s - loss: 0.8895 - accuracy: 0.6833
##  40/781 [>.............................] - ETA: 18s - loss: 0.8868 - accuracy: 0.6851
##  43/781 [>.............................] - ETA: 18s - loss: 0.8918 - accuracy: 0.6831
##  45/781 [>.............................] - ETA: 18s - loss: 0.8892 - accuracy: 0.6836
##  48/781 [>.............................] - ETA: 18s - loss: 0.8946 - accuracy: 0.6832
##  51/781 [>.............................] - ETA: 18s - loss: 0.8897 - accuracy: 0.6863
##  54/781 [=>............................] - ETA: 18s - loss: 0.8850 - accuracy: 0.6884
##  56/781 [=>............................] - ETA: 18s - loss: 0.8840 - accuracy: 0.6889
##  58/781 [=>............................] - ETA: 18s - loss: 0.8806 - accuracy: 0.6897
##  60/781 [=>............................] - ETA: 18s - loss: 0.8799 - accuracy: 0.6893
##  63/781 [=>............................] - ETA: 18s - loss: 0.8769 - accuracy: 0.6905
##  65/781 [=>............................] - ETA: 18s - loss: 0.8810 - accuracy: 0.6892
##  68/781 [=>............................] - ETA: 18s - loss: 0.8785 - accuracy: 0.6905
##  70/781 [=>............................] - ETA: 18s - loss: 0.8735 - accuracy: 0.6922
##  72/781 [=>............................] - ETA: 18s - loss: 0.8740 - accuracy: 0.6928
##  75/781 [=>............................] - ETA: 18s - loss: 0.8743 - accuracy: 0.6926
##  77/781 [=>............................] - ETA: 18s - loss: 0.8706 - accuracy: 0.6934
##  80/781 [==>...........................] - ETA: 18s - loss: 0.8718 - accuracy: 0.6936
##  82/781 [==>...........................] - ETA: 18s - loss: 0.8749 - accuracy: 0.6927
##  85/781 [==>...........................] - ETA: 18s - loss: 0.8741 - accuracy: 0.6934
##  87/781 [==>...........................] - ETA: 17s - loss: 0.8732 - accuracy: 0.6942
##  89/781 [==>...........................] - ETA: 17s - loss: 0.8780 - accuracy: 0.6932
##  92/781 [==>...........................] - ETA: 17s - loss: 0.8759 - accuracy: 0.6940
##  94/781 [==>...........................] - ETA: 17s - loss: 0.8791 - accuracy: 0.6942
##  97/781 [==>...........................] - ETA: 17s - loss: 0.8797 - accuracy: 0.6937
## 100/781 [==>...........................] - ETA: 17s - loss: 0.8828 - accuracy: 0.6927
## 103/781 [==>...........................] - ETA: 17s - loss: 0.8789 - accuracy: 0.6950
## 105/781 [===>..........................] - ETA: 17s - loss: 0.8790 - accuracy: 0.6954
## 108/781 [===>..........................] - ETA: 17s - loss: 0.8773 - accuracy: 0.6958
## 111/781 [===>..........................] - ETA: 17s - loss: 0.8822 - accuracy: 0.6942
## 113/781 [===>..........................] - ETA: 17s - loss: 0.8829 - accuracy: 0.6935
## 116/781 [===>..........................] - ETA: 17s - loss: 0.8836 - accuracy: 0.6941
## 119/781 [===>..........................] - ETA: 17s - loss: 0.8857 - accuracy: 0.6932
## 121/781 [===>..........................] - ETA: 17s - loss: 0.8876 - accuracy: 0.6930
```

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## 124/781 [===>..........................] - ETA: 17s - loss: 0.8848 - accuracy: 0.6942
## 126/781 [===>..........................] - ETA: 17s - loss: 0.8840 - accuracy: 0.6949
## 129/781 [===>..........................] - ETA: 17s - loss: 0.8858 - accuracy: 0.6941
## 131/781 [====>.........................] - ETA: 16s - loss: 0.8868 - accuracy: 0.6940
## 133/781 [====>.........................] - ETA: 16s - loss: 0.8868 - accuracy: 0.6944
## 135/781 [====>.........................] - ETA: 16s - loss: 0.8868 - accuracy: 0.6939
## 137/781 [====>.........................] - ETA: 16s - loss: 0.8862 - accuracy: 0.6942
## 139/781 [====>.........................] - ETA: 16s - loss: 0.8856 - accuracy: 0.6939
## 142/781 [====>.........................] - ETA: 16s - loss: 0.8840 - accuracy: 0.6942
## 144/781 [====>.........................] - ETA: 16s - loss: 0.8830 - accuracy: 0.6944
## 147/781 [====>.........................] - ETA: 16s - loss: 0.8827 - accuracy: 0.6944
## 149/781 [====>.........................] - ETA: 16s - loss: 0.8822 - accuracy: 0.6948
## 151/781 [====>.........................] - ETA: 16s - loss: 0.8827 - accuracy: 0.6942
## 153/781 [====>.........................] - ETA: 16s - loss: 0.8852 - accuracy: 0.6936
## 156/781 [====>.........................] - ETA: 16s - loss: 0.8848 - accuracy: 0.6934
## 158/781 [=====>........................] - ETA: 16s - loss: 0.8836 - accuracy: 0.6937
## 161/781 [=====>........................] - ETA: 16s - loss: 0.8842 - accuracy: 0.6932
## 164/781 [=====>........................] - ETA: 16s - loss: 0.8841 - accuracy: 0.6931
## 166/781 [=====>........................] - ETA: 16s - loss: 0.8841 - accuracy: 0.6937
## 169/781 [=====>........................] - ETA: 16s - loss: 0.8826 - accuracy: 0.6947
## 172/781 [=====>........................] - ETA: 15s - loss: 0.8813 - accuracy: 0.6951
## 174/781 [=====>........................] - ETA: 15s - loss: 0.8811 - accuracy: 0.6947
## 176/781 [=====>........................] - ETA: 15s - loss: 0.8816 - accuracy: 0.6948
## 179/781 [=====>........................] - ETA: 15s - loss: 0.8821 - accuracy: 0.6942
## 181/781 [=====>........................] - ETA: 15s - loss: 0.8813 - accuracy: 0.6945
## 184/781 [======>.......................] - ETA: 15s - loss: 0.8816 - accuracy: 0.6946
## 187/781 [======>.......................] - ETA: 15s - loss: 0.8824 - accuracy: 0.6947
## 189/781 [======>.......................] - ETA: 15s - loss: 0.8827 - accuracy: 0.6946
## 191/781 [======>.......................] - ETA: 15s - loss: 0.8826 - accuracy: 0.6946
## 193/781 [======>.......................] - ETA: 15s - loss: 0.8814 - accuracy: 0.6951
## 195/781 [======>.......................] - ETA: 15s - loss: 0.8810 - accuracy: 0.6952
## 197/781 [======>.......................] - ETA: 15s - loss: 0.8816 - accuracy: 0.6952
## 200/781 [======>.......................] - ETA: 15s - loss: 0.8813 - accuracy: 0.6958
## 203/781 [======>.......................] - ETA: 15s - loss: 0.8810 - accuracy: 0.6955
## 205/781 [======>.......................] - ETA: 15s - loss: 0.8815 - accuracy: 0.6950
## 207/781 [======>.......................] - ETA: 15s - loss: 0.8814 - accuracy: 0.6952
## 210/781 [=======>......................] - ETA: 14s - loss: 0.8805 - accuracy: 0.6955
## 212/781 [=======>......................] - ETA: 14s - loss: 0.8815 - accuracy: 0.6952
## 214/781 [=======>......................] - ETA: 14s - loss: 0.8821 - accuracy: 0.6950
## 216/781 [=======>......................] - ETA: 14s - loss: 0.8816 - accuracy: 0.6953
## 219/781 [=======>......................] - ETA: 14s - loss: 0.8825 - accuracy: 0.6952
## 221/781 [=======>......................] - ETA: 14s - loss: 0.8850 - accuracy: 0.6947
## 224/781 [=======>......................] - ETA: 14s - loss: 0.8846 - accuracy: 0.6951
## 226/781 [=======>......................] - ETA: 14s - loss: 0.8829 - accuracy: 0.6958
## 229/781 [=======>......................] - ETA: 14s - loss: 0.8824 - accuracy: 0.6957
## 231/781 [=======>......................] - ETA: 14s - loss: 0.8826 - accuracy: 0.6953
## 233/781 [=======>......................] - ETA: 14s - loss: 0.8832 - accuracy: 0.6950
## 235/781 [========>.....................] - ETA: 14s - loss: 0.8832 - accuracy: 0.6954
## 238/781 [========>.....................] - ETA: 14s - loss: 0.8823 - accuracy: 0.6958
## 241/781 [========>.....................] - ETA: 14s - loss: 0.8817 - accuracy: 0.6961
## 243/781 [========>.....................] - ETA: 14s - loss: 0.8808 - accuracy: 0.6967
## 246/781 [========>.....................] - ETA: 14s - loss: 0.8800 - accuracy: 0.6968
## 248/781 [========>.....................] - ETA: 14s - loss: 0.8787 - accuracy: 0.6970
## 250/781 [========>.....................] - ETA: 13s - loss: 0.8781 - accuracy: 0.6972
```

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## 252/781 [========>.....................] - ETA: 13s - loss: 0.8783 - accuracy: 0.6973
## 255/781 [========>.....................] - ETA: 13s - loss: 0.8792 - accuracy: 0.6967
## 257/781 [========>.....................] - ETA: 13s - loss: 0.8805 - accuracy: 0.6963
## 260/781 [========>.....................] - ETA: 13s - loss: 0.8795 - accuracy: 0.6965
## 262/781 [=========>....................] - ETA: 13s - loss: 0.8783 - accuracy: 0.6968
## 265/781 [=========>....................] - ETA: 13s - loss: 0.8786 - accuracy: 0.6967
## 267/781 [=========>....................] - ETA: 13s - loss: 0.8791 - accuracy: 0.6965
## 269/781 [=========>....................] - ETA: 13s - loss: 0.8788 - accuracy: 0.6966
## 271/781 [=========>....................] - ETA: 13s - loss: 0.8788 - accuracy: 0.6968
## 274/781 [=========>....................] - ETA: 13s - loss: 0.8783 - accuracy: 0.6969
## 276/781 [=========>....................] - ETA: 13s - loss: 0.8798 - accuracy: 0.6963
## 279/781 [=========>....................] - ETA: 13s - loss: 0.8797 - accuracy: 0.6961
## 281/781 [=========>....................] - ETA: 13s - loss: 0.8792 - accuracy: 0.6964
## 284/781 [=========>....................] - ETA: 13s - loss: 0.8786 - accuracy: 0.6969
## 287/781 [==========>...................] - ETA: 12s - loss: 0.8780 - accuracy: 0.6968
## 289/781 [==========>...................] - ETA: 12s - loss: 0.8776 - accuracy: 0.6969
## 291/781 [==========>...................] - ETA: 12s - loss: 0.8777 - accuracy: 0.6967
## 293/781 [==========>...................] - ETA: 12s - loss: 0.8773 - accuracy: 0.6970
## 295/781 [==========>...................] - ETA: 12s - loss: 0.8786 - accuracy: 0.6965
## 298/781 [==========>...................] - ETA: 12s - loss: 0.8775 - accuracy: 0.6969
## 300/781 [==========>...................] - ETA: 12s - loss: 0.8763 - accuracy: 0.6973
## 302/781 [==========>...................] - ETA: 12s - loss: 0.8762 - accuracy: 0.6973
## 305/781 [==========>...................] - ETA: 12s - loss: 0.8762 - accuracy: 0.6971
## 307/781 [==========>...................] - ETA: 12s - loss: 0.8751 - accuracy: 0.6976
## 310/781 [==========>...................] - ETA: 12s - loss: 0.8743 - accuracy: 0.6978
## 312/781 [==========>...................] - ETA: 12s - loss: 0.8744 - accuracy: 0.6978
## 314/781 [===========>..................] - ETA: 12s - loss: 0.8736 - accuracy: 0.6982
## 317/781 [===========>..................] - ETA: 12s - loss: 0.8728 - accuracy: 0.6984
## 319/781 [===========>..................] - ETA: 12s - loss: 0.8731 - accuracy: 0.6982
## 322/781 [===========>..................] - ETA: 12s - loss: 0.8727 - accuracy: 0.6986
## 325/781 [===========>..................] - ETA: 12s - loss: 0.8729 - accuracy: 0.6984
## 327/781 [===========>..................] - ETA: 11s - loss: 0.8726 - accuracy: 0.6983
## 329/781 [===========>..................] - ETA: 11s - loss: 0.8722 - accuracy: 0.6983
## 332/781 [===========>..................] - ETA: 11s - loss: 0.8706 - accuracy: 0.6989
## 335/781 [===========>..................] - ETA: 11s - loss: 0.8705 - accuracy: 0.6986
## 337/781 [===========>..................] - ETA: 11s - loss: 0.8703 - accuracy: 0.6989
## 340/781 [============>.................] - ETA: 11s - loss: 0.8704 - accuracy: 0.6990
## 342/781 [============>.................] - ETA: 11s - loss: 0.8704 - accuracy: 0.6991
## 344/781 [============>.................] - ETA: 11s - loss: 0.8699 - accuracy: 0.6995
## 347/781 [============>.................] - ETA: 11s - loss: 0.8691 - accuracy: 0.6996
## 349/781 [============>.................] - ETA: 11s - loss: 0.8687 - accuracy: 0.6995
## 352/781 [============>.................] - ETA: 11s - loss: 0.8689 - accuracy: 0.6992
## 354/781 [============>.................] - ETA: 11s - loss: 0.8703 - accuracy: 0.6986
## 356/781 [============>.................] - ETA: 11s - loss: 0.8701 - accuracy: 0.6987
## 359/781 [============>.................] - ETA: 11s - loss: 0.8695 - accuracy: 0.6991
## 361/781 [============>.................] - ETA: 11s - loss: 0.8691 - accuracy: 0.6993
## 363/781 [============>.................] - ETA: 11s - loss: 0.8694 - accuracy: 0.6994
## 365/781 [=============>................] - ETA: 10s - loss: 0.8696 - accuracy: 0.6993
## 368/781 [=============>................] - ETA: 10s - loss: 0.8694 - accuracy: 0.6994
## 371/781 [=============>................] - ETA: 10s - loss: 0.8698 - accuracy: 0.6993
## 373/781 [=============>................] - ETA: 10s - loss: 0.8697 - accuracy: 0.6993
## 376/781 [=============>................] - ETA: 10s - loss: 0.8707 - accuracy: 0.6990
## 378/781 [=============>................] - ETA: 10s - loss: 0.8703 - accuracy: 0.6990
## 381/781 [=============>................] - ETA: 10s - loss: 0.8695 - accuracy: 0.6993
```

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## 383/781 [============>.............] - ETA: 10s - loss: 0.8696 - accuracy: 0.6993
## 386/781 [============>.............] - ETA: 10s - loss: 0.8708 - accuracy: 0.6988
## 389/781 [============>.............] - ETA: 10s - loss: 0.8712 - accuracy: 0.6986
## 392/781 [=============>............] - ETA: 10s - loss: 0.8712 - accuracy: 0.6984
## 395/781 [=============>............] - ETA: 10s - loss: 0.8720 - accuracy: 0.6982
## 397/781 [=============>............] - ETA: 10s - loss: 0.8719 - accuracy: 0.6983
## 399/781 [=============>............] - ETA: 10s - loss: 0.8721 - accuracy: 0.6983
## 401/781 [=============>............] - ETA: 10s - loss: 0.8717 - accuracy: 0.6983
## 404/781 [=============>............] - ETA: 9s - loss: 0.8726 - accuracy: 0.6980
## 407/781 [=============>............] - ETA: 9s - loss: 0.8750 - accuracy: 0.6975
## 409/781 [=============>............] - ETA: 9s - loss: 0.8750 - accuracy: 0.6975
## 411/781 [=============>............] - ETA: 9s - loss: 0.8749 - accuracy: 0.6977
## 413/781 [=============>............] - ETA: 9s - loss: 0.8753 - accuracy: 0.6977
## 415/781 [=============>............] - ETA: 9s - loss: 0.8763 - accuracy: 0.6974
## 417/781 [==============>...........] - ETA: 9s - loss: 0.8774 - accuracy: 0.6970
## 419/781 [==============>...........] - ETA: 9s - loss: 0.8770 - accuracy: 0.6972
## 422/781 [==============>...........] - ETA: 9s - loss: 0.8776 - accuracy: 0.6969
## 424/781 [==============>...........] - ETA: 9s - loss: 0.8779 - accuracy: 0.6968
## 426/781 [==============>...........] - ETA: 9s - loss: 0.8772 - accuracy: 0.6970
## 428/781 [==============>...........] - ETA: 9s - loss: 0.8780 - accuracy: 0.6965
## 430/781 [==============>...........] - ETA: 9s - loss: 0.8774 - accuracy: 0.6967
## 432/781 [==============>...........] - ETA: 9s - loss: 0.8767 - accuracy: 0.6971
## 434/781 [==============>...........] - ETA: 9s - loss: 0.8761 - accuracy: 0.6972
## 436/781 [==============>...........] - ETA: 9s - loss: 0.8758 - accuracy: 0.6972
## 438/781 [==============>...........] - ETA: 9s - loss: 0.8759 - accuracy: 0.6969
## 440/781 [==============>...........] - ETA: 9s - loss: 0.8761 - accuracy: 0.6971
## 443/781 [===============>..........] - ETA: 8s - loss: 0.8767 - accuracy: 0.6968
## 445/781 [===============>..........] - ETA: 8s - loss: 0.8766 - accuracy: 0.6969
## 448/781 [===============>..........] - ETA: 8s - loss: 0.8767 - accuracy: 0.6966
## 450/781 [===============>..........] - ETA: 8s - loss: 0.8771 - accuracy: 0.6964
## 453/781 [===============>..........] - ETA: 8s - loss: 0.8768 - accuracy: 0.6967
## 455/781 [===============>..........] - ETA: 8s - loss: 0.8777 - accuracy: 0.6964
## 458/781 [===============>..........] - ETA: 8s - loss: 0.8780 - accuracy: 0.6962
## 460/781 [===============>..........] - ETA: 8s - loss: 0.8786 - accuracy: 0.6961
## 463/781 [===============>..........] - ETA: 8s - loss: 0.8791 - accuracy: 0.6959
## 466/781 [===============>..........] - ETA: 8s - loss: 0.8785 - accuracy: 0.6960
## 468/781 [===============>..........] - ETA: 8s - loss: 0.8782 - accuracy: 0.6962
## 470/781 [================>.........] - ETA: 8s - loss: 0.8779 - accuracy: 0.6962
## 472/781 [================>.........] - ETA: 8s - loss: 0.8782 - accuracy: 0.6961
## 474/781 [================>.........] - ETA: 8s - loss: 0.8778 - accuracy: 0.6962
## 476/781 [================>.........] - ETA: 8s - loss: 0.8775 - accuracy: 0.6961
## 478/781 [================>.........] - ETA: 8s - loss: 0.8778 - accuracy: 0.6959
## 481/781 [================>.........] - ETA: 7s - loss: 0.8774 - accuracy: 0.6960
## 484/781 [================>.........] - ETA: 7s - loss: 0.8774 - accuracy: 0.6960
## 486/781 [================>.........] - ETA: 7s - loss: 0.8777 - accuracy: 0.6959
## 488/781 [================>.........] - ETA: 7s - loss: 0.8771 - accuracy: 0.6960
## 490/781 [================>.........] - ETA: 7s - loss: 0.8765 - accuracy: 0.6963
## 493/781 [================>.........] - ETA: 7s - loss: 0.8769 - accuracy: 0.6963
## 495/781 [=================>........] - ETA: 7s - loss: 0.8772 - accuracy: 0.6964
## 498/781 [=================>........] - ETA: 7s - loss: 0.8770 - accuracy: 0.6965
## 500/781 [=================>........] - ETA: 7s - loss: 0.8774 - accuracy: 0.6964
## 502/781 [=================>........] - ETA: 7s - loss: 0.8773 - accuracy: 0.6965
## 504/781 [=================>........] - ETA: 7s - loss: 0.8774 - accuracy: 0.6965
## 506/781 [=================>........] - ETA: 7s - loss: 0.8778 - accuracy: 0.6964
```

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## 508/781 [==================>...........] - ETA: 7s - loss: 0.8777 - accuracy: 0.6965
## 510/781 [==================>...........] - ETA: 7s - loss: 0.8775 - accuracy: 0.6966
## 512/781 [==================>...........] - ETA: 7s - loss: 0.8776 - accuracy: 0.6965
## 514/781 [==================>...........] - ETA: 7s - loss: 0.8780 - accuracy: 0.6965
## 517/781 [==================>...........] - ETA: 7s - loss: 0.8777 - accuracy: 0.6966
## 520/781 [==================>...........] - ETA: 6s - loss: 0.8772 - accuracy: 0.6966
## 522/781 [===================>..........] - ETA: 6s - loss: 0.8771 - accuracy: 0.6966
## 525/781 [===================>..........] - ETA: 6s - loss: 0.8773 - accuracy: 0.6967
## 527/781 [===================>..........] - ETA: 6s - loss: 0.8776 - accuracy: 0.6968
## 529/781 [===================>..........] - ETA: 6s - loss: 0.8777 - accuracy: 0.6968
## 531/781 [===================>..........] - ETA: 6s - loss: 0.8770 - accuracy: 0.6970
## 534/781 [===================>..........] - ETA: 6s - loss: 0.8770 - accuracy: 0.6971
## 537/781 [===================>..........] - ETA: 6s - loss: 0.8764 - accuracy: 0.6974
## 539/781 [===================>..........] - ETA: 6s - loss: 0.8766 - accuracy: 0.6975
## 541/781 [===================>..........] - ETA: 6s - loss: 0.8769 - accuracy: 0.6974
## 544/781 [===================>..........] - ETA: 6s - loss: 0.8771 - accuracy: 0.6974
## 546/781 [===================>..........] - ETA: 6s - loss: 0.8774 - accuracy: 0.6972
## 549/781 [====================>.........] - ETA: 6s - loss: 0.8779 - accuracy: 0.6972
## 551/781 [====================>.........] - ETA: 6s - loss: 0.8772 - accuracy: 0.6974
## 554/781 [====================>.........] - ETA: 6s - loss: 0.8767 - accuracy: 0.6976
## 556/781 [====================>.........] - ETA: 6s - loss: 0.8762 - accuracy: 0.6978
## 558/781 [====================>.........] - ETA: 5s - loss: 0.8763 - accuracy: 0.6978
## 560/781 [====================>.........] - ETA: 5s - loss: 0.8759 - accuracy: 0.6980
## 562/781 [====================>.........] - ETA: 5s - loss: 0.8760 - accuracy: 0.6980
## 564/781 [====================>.........] - ETA: 5s - loss: 0.8761 - accuracy: 0.6979
## 566/781 [====================>.........] - ETA: 5s - loss: 0.8765 - accuracy: 0.6975
## 568/781 [====================>.........] - ETA: 5s - loss: 0.8758 - accuracy: 0.6978
## 570/781 [====================>.........] - ETA: 5s - loss: 0.8758 - accuracy: 0.6979
## 573/781 [=====================>........] - ETA: 5s - loss: 0.8756 - accuracy: 0.6980
## 575/781 [=====================>........] - ETA: 5s - loss: 0.8763 - accuracy: 0.6978
## 577/781 [=====================>........] - ETA: 5s - loss: 0.8765 - accuracy: 0.6978
## 580/781 [=====================>........] - ETA: 5s - loss: 0.8762 - accuracy: 0.6979
## 582/781 [=====================>........] - ETA: 5s - loss: 0.8755 - accuracy: 0.6981
## 584/781 [=====================>........] - ETA: 5s - loss: 0.8757 - accuracy: 0.6981
## 586/781 [=====================>........] - ETA: 5s - loss: 0.8751 - accuracy: 0.6981
## 588/781 [=====================>........] - ETA: 5s - loss: 0.8752 - accuracy: 0.6979
## 591/781 [=====================>........] - ETA: 5s - loss: 0.8755 - accuracy: 0.6977
## 593/781 [=====================>........] - ETA: 5s - loss: 0.8756 - accuracy: 0.6976
## 596/781 [=====================>........] - ETA: 4s - loss: 0.8751 - accuracy: 0.6979
## 598/781 [=====================>........] - ETA: 4s - loss: 0.8754 - accuracy: 0.6977
## 600/781 [======================>.......] - ETA: 4s - loss: 0.8753 - accuracy: 0.6977
## 603/781 [======================>.......] - ETA: 4s - loss: 0.8756 - accuracy: 0.6977
## 605/781 [======================>.......] - ETA: 4s - loss: 0.8752 - accuracy: 0.6977
## 607/781 [======================>.......] - ETA: 4s - loss: 0.8750 - accuracy: 0.6977
## 609/781 [======================>.......] - ETA: 4s - loss: 0.8752 - accuracy: 0.6977
## 611/781 [======================>.......] - ETA: 4s - loss: 0.8749 - accuracy: 0.6977
## 613/781 [======================>.......] - ETA: 4s - loss: 0.8746 - accuracy: 0.6977
## 615/781 [======================>.......] - ETA: 4s - loss: 0.8745 - accuracy: 0.6977
## 617/781 [======================>.......] - ETA: 4s - loss: 0.8748 - accuracy: 0.6976
## 619/781 [======================>.......] - ETA: 4s - loss: 0.8749 - accuracy: 0.6975
## 622/781 [======================>.......] - ETA: 4s - loss: 0.8749 - accuracy: 0.6974
## 624/781 [======================>.......] - ETA: 4s - loss: 0.8746 - accuracy: 0.6974
## 626/781 [=======================>......] - ETA: 4s - loss: 0.8744 - accuracy: 0.6975
## 629/781 [=======================>......] - ETA: 4s - loss: 0.8741 - accuracy: 0.6977
```

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## 632/781 [=====================>......] - ETA: 3s - loss: 0.8741 - accuracy: 0.6978
## 634/781 [=====================>......] - ETA: 3s - loss: 0.8737 - accuracy: 0.6980
## 637/781 [=====================>......] - ETA: 3s - loss: 0.8742 - accuracy: 0.6976
## 640/781 [=====================>......] - ETA: 3s - loss: 0.8738 - accuracy: 0.6976
## 643/781 [=====================>......] - ETA: 3s - loss: 0.8747 - accuracy: 0.6974
## 645/781 [=====================>......] - ETA: 3s - loss: 0.8746 - accuracy: 0.6975
## 648/781 [=====================>......] - ETA: 3s - loss: 0.8749 - accuracy: 0.6974
## 650/781 [=====================>......] - ETA: 3s - loss: 0.8750 - accuracy: 0.6973
## 652/781 [=====================>.....] - ETA: 3s - loss: 0.8752 - accuracy: 0.6972
## 654/781 [=====================>.....] - ETA: 3s - loss: 0.8753 - accuracy: 0.6974
## 656/781 [=====================>.....] - ETA: 3s - loss: 0.8752 - accuracy: 0.6973
## 658/781 [=====================>.....] - ETA: 3s - loss: 0.8754 - accuracy: 0.6972
## 660/781 [=====================>.....] - ETA: 3s - loss: 0.8752 - accuracy: 0.6973
## 663/781 [=====================>.....] - ETA: 3s - loss: 0.8750 - accuracy: 0.6973
## 666/781 [=====================>.....] - ETA: 3s - loss: 0.8754 - accuracy: 0.6971
## 669/781 [=====================>.....] - ETA: 3s - loss: 0.8758 - accuracy: 0.6971
## 671/781 [=====================>.....] - ETA: 2s - loss: 0.8761 - accuracy: 0.6969
## 674/781 [=====================>.....] - ETA: 2s - loss: 0.8766 - accuracy: 0.6968
## 676/781 [=====================>.....] - ETA: 2s - loss: 0.8764 - accuracy: 0.6968
## 678/781 [======================>....] - ETA: 2s - loss: 0.8758 - accuracy: 0.6970
## 681/781 [======================>....] - ETA: 2s - loss: 0.8757 - accuracy: 0.6971
## 683/781 [======================>....] - ETA: 2s - loss: 0.8755 - accuracy: 0.6971
## 685/781 [======================>....] - ETA: 2s - loss: 0.8754 - accuracy: 0.6973
## 688/781 [======================>....] - ETA: 2s - loss: 0.8759 - accuracy: 0.6972
## 691/781 [======================>....] - ETA: 2s - loss: 0.8762 - accuracy: 0.6973
## 693/781 [======================>....] - ETA: 2s - loss: 0.8756 - accuracy: 0.6975
## 696/781 [======================>....] - ETA: 2s - loss: 0.8756 - accuracy: 0.6974
## 698/781 [======================>....] - ETA: 2s - loss: 0.8763 - accuracy: 0.6970
## 700/781 [======================>....] - ETA: 2s - loss: 0.8760 - accuracy: 0.6972
## 702/781 [======================>....] - ETA: 2s - loss: 0.8757 - accuracy: 0.6973
## 704/781 [=======================>...] - ETA: 2s - loss: 0.8755 - accuracy: 0.6972
## 706/781 [=======================>...] - ETA: 2s - loss: 0.8755 - accuracy: 0.6970
## 709/781 [=======================>...] - ETA: 1s - loss: 0.8756 - accuracy: 0.6969
## 711/781 [=======================>...] - ETA: 1s - loss: 0.8754 - accuracy: 0.6970
## 713/781 [=======================>...] - ETA: 1s - loss: 0.8749 - accuracy: 0.6971
## 715/781 [=======================>...] - ETA: 1s - loss: 0.8753 - accuracy: 0.6971
## 718/781 [=======================>...] - ETA: 1s - loss: 0.8755 - accuracy: 0.6971
## 720/781 [=======================>...] - ETA: 1s - loss: 0.8759 - accuracy: 0.6968
## 722/781 [=======================>...] - ETA: 1s - loss: 0.8760 - accuracy: 0.6967
## 724/781 [=======================>...] - ETA: 1s - loss: 0.8763 - accuracy: 0.6966
## 726/781 [=======================>...] - ETA: 1s - loss: 0.8761 - accuracy: 0.6966
## 729/781 [========================>..] - ETA: 1s - loss: 0.8756 - accuracy: 0.6967
## 731/781 [========================>..] - ETA: 1s - loss: 0.8757 - accuracy: 0.6966
## 733/781 [========================>..] - ETA: 1s - loss: 0.8761 - accuracy: 0.6966
## 735/781 [========================>..] - ETA: 1s - loss: 0.8762 - accuracy: 0.6965
## 737/781 [========================>..] - ETA: 1s - loss: 0.8760 - accuracy: 0.6966
## 739/781 [========================>..] - ETA: 1s - loss: 0.8760 - accuracy: 0.6966
## 741/781 [========================>..] - ETA: 1s - loss: 0.8757 - accuracy: 0.6968
## 743/781 [========================>..] - ETA: 1s - loss: 0.8760 - accuracy: 0.6968
## 745/781 [========================>..] - ETA: 0s - loss: 0.8757 - accuracy: 0.6969
## 747/781 [========================>..] - ETA: 0s - loss: 0.8755 - accuracy: 0.6970
## 750/781 [========================>..] - ETA: 0s - loss: 0.8754 - accuracy: 0.6970
## 752/781 [========================>..] - ETA: 0s - loss: 0.8758 - accuracy: 0.6969
## 754/781 [========================>..] - ETA: 0s - loss: 0.8762 - accuracy: 0.6969
```

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## 757/781 [============================>.] - ETA: 0s - loss: 0.8769 - accuracy: 0.6968
## 759/781 [============================>.] - ETA: 0s - loss: 0.8763 - accuracy: 0.6970
## 762/781 [============================>.] - ETA: 0s - loss: 0.8766 - accuracy: 0.6970
## 764/781 [============================>.] - ETA: 0s - loss: 0.8763 - accuracy: 0.6971
## 766/781 [============================>.] - ETA: 0s - loss: 0.8767 - accuracy: 0.6971
## 768/781 [============================>.] - ETA: 0s - loss: 0.8768 - accuracy: 0.6970
## 770/781 [============================>.] - ETA: 0s - loss: 0.8771 - accuracy: 0.6968
## 772/781 [============================>.] - ETA: 0s - loss: 0.8771 - accuracy: 0.6968
## 774/781 [============================>.] - ETA: 0s - loss: 0.8773 - accuracy: 0.6966
## 777/781 [============================>.] - ETA: 0s - loss: 0.8772 - accuracy: 0.6968
## 779/781 [============================>.] - ETA: 0s - loss: 0.8777 - accuracy: 0.6967
## 781/781 [==============================] - 22s 28ms/step - loss: 0.8775 - accuracy: 0.6968 - val_loss
## Epoch 17/20
##
##   1/781 [..............................] - ETA: 36s - loss: 0.8577 - accuracy: 0.6875
##   3/781 [..............................] - ETA: 20s - loss: 0.8027 - accuracy: 0.7240
##   6/781 [..............................] - ETA: 20s - loss: 0.8426 - accuracy: 0.7057
##   8/781 [..............................] - ETA: 20s - loss: 0.8356 - accuracy: 0.7051
##  10/781 [..............................] - ETA: 20s - loss: 0.8825 - accuracy: 0.6938
##  13/781 [..............................] - ETA: 20s - loss: 0.8531 - accuracy: 0.7019
##  15/781 [..............................] - ETA: 20s - loss: 0.8395 - accuracy: 0.7094
##  18/781 [..............................] - ETA: 19s - loss: 0.8382 - accuracy: 0.7092
##  20/781 [..............................] - ETA: 19s - loss: 0.8446 - accuracy: 0.7055
##  22/781 [..............................] - ETA: 20s - loss: 0.8332 - accuracy: 0.7102
##  25/781 [..............................] - ETA: 19s - loss: 0.8304 - accuracy: 0.7119
##  27/781 [>.............................] - ETA: 19s - loss: 0.8275 - accuracy: 0.7164
##  29/781 [>.............................] - ETA: 19s - loss: 0.8279 - accuracy: 0.7150
##  31/781 [>.............................] - ETA: 19s - loss: 0.8293 - accuracy: 0.7142
##  33/781 [>.............................] - ETA: 19s - loss: 0.8392 - accuracy: 0.7116
##  36/781 [>.............................] - ETA: 19s - loss: 0.8420 - accuracy: 0.7083
##  38/781 [>.............................] - ETA: 19s - loss: 0.8473 - accuracy: 0.7056
##  41/781 [>.............................] - ETA: 19s - loss: 0.8556 - accuracy: 0.7043
##  44/781 [>.............................] - ETA: 19s - loss: 0.8627 - accuracy: 0.7003
##  46/781 [>.............................] - ETA: 19s - loss: 0.8621 - accuracy: 0.7011
##  48/781 [>.............................] - ETA: 19s - loss: 0.8626 - accuracy: 0.7015
##  50/781 [>.............................] - ETA: 19s - loss: 0.8668 - accuracy: 0.6997
##  52/781 [>.............................] - ETA: 19s - loss: 0.8745 - accuracy: 0.6971
##  55/781 [=>............................] - ETA: 19s - loss: 0.8762 - accuracy: 0.6966
##  58/781 [=>............................] - ETA: 19s - loss: 0.8678 - accuracy: 0.6999
##  61/781 [=>............................] - ETA: 19s - loss: 0.8686 - accuracy: 0.6995
##  63/781 [=>............................] - ETA: 19s - loss: 0.8676 - accuracy: 0.6994
##  66/781 [=>............................] - ETA: 19s - loss: 0.8714 - accuracy: 0.6974
##  68/781 [=>............................] - ETA: 19s - loss: 0.8706 - accuracy: 0.6967
##  70/781 [=>............................] - ETA: 19s - loss: 0.8708 - accuracy: 0.6967
##  72/781 [=>............................] - ETA: 19s - loss: 0.8697 - accuracy: 0.6962
##  75/781 [=>............................] - ETA: 19s - loss: 0.8709 - accuracy: 0.6954
##  78/781 [=>............................] - ETA: 18s - loss: 0.8676 - accuracy: 0.6963
##  80/781 [==>...........................] - ETA: 18s - loss: 0.8700 - accuracy: 0.6957
##  82/781 [==>...........................] - ETA: 18s - loss: 0.8709 - accuracy: 0.6965
##  85/781 [==>...........................] - ETA: 18s - loss: 0.8683 - accuracy: 0.6980
##  87/781 [==>...........................] - ETA: 18s - loss: 0.8682 - accuracy: 0.6974
##  90/781 [==>...........................] - ETA: 18s - loss: 0.8665 - accuracy: 0.6983
##  93/781 [==>...........................] - ETA: 18s - loss: 0.8660 - accuracy: 0.6976
##  95/781 [==>...........................] - ETA: 18s - loss: 0.8660 - accuracy: 0.6984
```

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##  97/781 [==>...........................] - ETA: 18s - loss: 0.8656 - accuracy: 0.6989
##  99/781 [==>...........................] - ETA: 18s - loss: 0.8669 - accuracy: 0.6982
## 102/781 [==>...........................] - ETA: 18s - loss: 0.8679 - accuracy: 0.6968
## 104/781 [==>...........................] - ETA: 18s - loss: 0.8660 - accuracy: 0.6974
## 107/781 [===>..........................] - ETA: 18s - loss: 0.8660 - accuracy: 0.6963
## 109/781 [===>..........................] - ETA: 18s - loss: 0.8645 - accuracy: 0.6972
## 111/781 [===>..........................] - ETA: 18s - loss: 0.8645 - accuracy: 0.6966
## 113/781 [===>..........................] - ETA: 17s - loss: 0.8637 - accuracy: 0.6972
## 115/781 [===>..........................] - ETA: 17s - loss: 0.8649 - accuracy: 0.6965
## 117/781 [===>..........................] - ETA: 17s - loss: 0.8649 - accuracy: 0.6968
## 119/781 [===>..........................] - ETA: 17s - loss: 0.8646 - accuracy: 0.6970
## 121/781 [===>..........................] - ETA: 17s - loss: 0.8666 - accuracy: 0.6969
## 123/781 [===>..........................] - ETA: 17s - loss: 0.8644 - accuracy: 0.6973
## 126/781 [===>..........................] - ETA: 17s - loss: 0.8649 - accuracy: 0.6974
## 128/781 [===>..........................] - ETA: 17s - loss: 0.8645 - accuracy: 0.6984
## 130/781 [===>..........................] - ETA: 17s - loss: 0.8645 - accuracy: 0.6985
## 132/781 [====>.........................] - ETA: 17s - loss: 0.8649 - accuracy: 0.6980
## 134/781 [====>.........................] - ETA: 17s - loss: 0.8656 - accuracy: 0.6975
## 136/781 [====>.........................] - ETA: 17s - loss: 0.8641 - accuracy: 0.6978
## 138/781 [====>.........................] - ETA: 17s - loss: 0.8659 - accuracy: 0.6971
## 140/781 [====>.........................] - ETA: 17s - loss: 0.8697 - accuracy: 0.6964
## 142/781 [====>.........................] - ETA: 17s - loss: 0.8702 - accuracy: 0.6966
## 144/781 [====>.........................] - ETA: 17s - loss: 0.8685 - accuracy: 0.6973
## 147/781 [====>.........................] - ETA: 16s - loss: 0.8677 - accuracy: 0.6974
## 150/781 [====>.........................] - ETA: 16s - loss: 0.8684 - accuracy: 0.6972
## 152/781 [====>.........................] - ETA: 16s - loss: 0.8695 - accuracy: 0.6963
## 154/781 [====>.........................] - ETA: 16s - loss: 0.8692 - accuracy: 0.6966
## 156/781 [====>.........................] - ETA: 16s - loss: 0.8703 - accuracy: 0.6964
## 159/781 [=====>........................] - ETA: 16s - loss: 0.8712 - accuracy: 0.6963
## 161/781 [=====>........................] - ETA: 16s - loss: 0.8707 - accuracy: 0.6966
## 163/781 [=====>........................] - ETA: 16s - loss: 0.8717 - accuracy: 0.6964
## 165/781 [=====>........................] - ETA: 16s - loss: 0.8728 - accuracy: 0.6962
## 168/781 [=====>........................] - ETA: 16s - loss: 0.8707 - accuracy: 0.6971
## 170/781 [=====>........................] - ETA: 16s - loss: 0.8698 - accuracy: 0.6973
## 173/781 [=====>........................] - ETA: 16s - loss: 0.8669 - accuracy: 0.6982
## 175/781 [=====>........................] - ETA: 16s - loss: 0.8663 - accuracy: 0.6984
## 178/781 [=====>........................] - ETA: 16s - loss: 0.8664 - accuracy: 0.6990
## 180/781 [=====>........................] - ETA: 16s - loss: 0.8638 - accuracy: 0.7001
## 182/781 [=====>........................] - ETA: 16s - loss: 0.8653 - accuracy: 0.6992
## 185/781 [======>.......................] - ETA: 15s - loss: 0.8640 - accuracy: 0.6994
## 187/781 [======>.......................] - ETA: 15s - loss: 0.8632 - accuracy: 0.6997
## 190/781 [======>.......................] - ETA: 15s - loss: 0.8647 - accuracy: 0.6996
## 192/781 [======>.......................] - ETA: 15s - loss: 0.8638 - accuracy: 0.6997
## 194/781 [======>.......................] - ETA: 15s - loss: 0.8643 - accuracy: 0.6995
## 196/781 [======>.......................] - ETA: 15s - loss: 0.8634 - accuracy: 0.6995
## 199/781 [======>.......................] - ETA: 15s - loss: 0.8621 - accuracy: 0.7001
## 201/781 [======>.......................] - ETA: 15s - loss: 0.8608 - accuracy: 0.7005
## 203/781 [======>.......................] - ETA: 15s - loss: 0.8605 - accuracy: 0.7009
## 206/781 [======>.......................] - ETA: 15s - loss: 0.8600 - accuracy: 0.7012
## 208/781 [======>.......................] - ETA: 15s - loss: 0.8588 - accuracy: 0.7014
## 210/781 [=======>......................] - ETA: 15s - loss: 0.8584 - accuracy: 0.7016
## 213/781 [=======>......................] - ETA: 15s - loss: 0.8581 - accuracy: 0.7016
## 215/781 [=======>......................] - ETA: 15s - loss: 0.8569 - accuracy: 0.7019
## 217/781 [=======>......................] - ETA: 15s - loss: 0.8566 - accuracy: 0.7022
```

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## 219/781 [=======>......................] - ETA: 15s - loss: 0.8570 - accuracy: 0.7020
## 222/781 [=======>......................] - ETA: 14s - loss: 0.8562 - accuracy: 0.7028
## 225/781 [=======>......................] - ETA: 14s - loss: 0.8572 - accuracy: 0.7023
## 227/781 [=======>......................] - ETA: 14s - loss: 0.8571 - accuracy: 0.7021
## 229/781 [=======>......................] - ETA: 14s - loss: 0.8581 - accuracy: 0.7019
## 231/781 [=======>......................] - ETA: 14s - loss: 0.8578 - accuracy: 0.7015
## 234/781 [=======>......................] - ETA: 14s - loss: 0.8582 - accuracy: 0.7008
## 236/781 [========>.....................] - ETA: 14s - loss: 0.8581 - accuracy: 0.7011
## 239/781 [========>.....................] - ETA: 14s - loss: 0.8575 - accuracy: 0.7016
## 242/781 [========>.....................] - ETA: 14s - loss: 0.8590 - accuracy: 0.7017
## 244/781 [========>.....................] - ETA: 14s - loss: 0.8585 - accuracy: 0.7018
## 246/781 [========>.....................] - ETA: 14s - loss: 0.8580 - accuracy: 0.7020
## 249/781 [========>.....................] - ETA: 14s - loss: 0.8582 - accuracy: 0.7027
## 251/781 [========>.....................] - ETA: 14s - loss: 0.8572 - accuracy: 0.7030
## 253/781 [========>.....................] - ETA: 14s - loss: 0.8576 - accuracy: 0.7028
## 255/781 [========>.....................] - ETA: 14s - loss: 0.8567 - accuracy: 0.7032
## 257/781 [========>.....................] - ETA: 14s - loss: 0.8576 - accuracy: 0.7031
## 260/781 [========>.....................] - ETA: 13s - loss: 0.8575 - accuracy: 0.7032
## 263/781 [=========>....................] - ETA: 13s - loss: 0.8573 - accuracy: 0.7032
## 266/781 [=========>....................] - ETA: 13s - loss: 0.8586 - accuracy: 0.7029
## 269/781 [=========>....................] - ETA: 13s - loss: 0.8601 - accuracy: 0.7028
## 271/781 [=========>....................] - ETA: 13s - loss: 0.8609 - accuracy: 0.7025
## 273/781 [=========>....................] - ETA: 13s - loss: 0.8617 - accuracy: 0.7025
## 275/781 [=========>....................] - ETA: 13s - loss: 0.8608 - accuracy: 0.7028
## 277/781 [=========>....................] - ETA: 13s - loss: 0.8603 - accuracy: 0.7028
## 279/781 [=========>....................] - ETA: 13s - loss: 0.8607 - accuracy: 0.7027
## 282/781 [=========>....................] - ETA: 13s - loss: 0.8625 - accuracy: 0.7020
## 285/781 [=========>....................] - ETA: 13s - loss: 0.8622 - accuracy: 0.7021
## 288/781 [==========>...................] - ETA: 13s - loss: 0.8622 - accuracy: 0.7018
## 290/781 [==========>...................] - ETA: 13s - loss: 0.8620 - accuracy: 0.7018
## 292/781 [==========>...................] - ETA: 13s - loss: 0.8612 - accuracy: 0.7021
## 295/781 [==========>...................] - ETA: 13s - loss: 0.8603 - accuracy: 0.7025
## 297/781 [==========>...................] - ETA: 12s - loss: 0.8600 - accuracy: 0.7023
## 300/781 [==========>...................] - ETA: 12s - loss: 0.8587 - accuracy: 0.7027
## 302/781 [==========>...................] - ETA: 12s - loss: 0.8590 - accuracy: 0.7026
## 304/781 [==========>...................] - ETA: 12s - loss: 0.8595 - accuracy: 0.7023
## 307/781 [==========>...................] - ETA: 12s - loss: 0.8590 - accuracy: 0.7027
## 309/781 [==========>...................] - ETA: 12s - loss: 0.8584 - accuracy: 0.7028
## 311/781 [==========>...................] - ETA: 12s - loss: 0.8588 - accuracy: 0.7024
## 314/781 [===========>..................] - ETA: 12s - loss: 0.8577 - accuracy: 0.7030
## 317/781 [===========>..................] - ETA: 12s - loss: 0.8579 - accuracy: 0.7030
## 319/781 [===========>..................] - ETA: 12s - loss: 0.8578 - accuracy: 0.7033
## 321/781 [===========>..................] - ETA: 12s - loss: 0.8571 - accuracy: 0.7034
## 323/781 [===========>..................] - ETA: 12s - loss: 0.8570 - accuracy: 0.7032
## 325/781 [===========>..................] - ETA: 12s - loss: 0.8576 - accuracy: 0.7029
## 328/781 [===========>..................] - ETA: 12s - loss: 0.8584 - accuracy: 0.7027
## 330/781 [===========>..................] - ETA: 12s - loss: 0.8577 - accuracy: 0.7028
## 333/781 [===========>..................] - ETA: 12s - loss: 0.8562 - accuracy: 0.7033
## 336/781 [===========>..................] - ETA: 11s - loss: 0.8558 - accuracy: 0.7033
## 338/781 [===========>..................] - ETA: 11s - loss: 0.8565 - accuracy: 0.7032
## 341/781 [============>.................] - ETA: 11s - loss: 0.8561 - accuracy: 0.7033
## 344/781 [============>.................] - ETA: 11s - loss: 0.8563 - accuracy: 0.7033
## 346/781 [============>.................] - ETA: 11s - loss: 0.8565 - accuracy: 0.7032
## 348/781 [============>.................] - ETA: 11s - loss: 0.8551 - accuracy: 0.7037
```

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## 350/781 [============>.................] - ETA: 11s - loss: 0.8551 - accuracy: 0.7039
## 353/781 [============>.................] - ETA: 11s - loss: 0.8558 - accuracy: 0.7036
## 356/781 [============>.................] - ETA: 11s - loss: 0.8565 - accuracy: 0.7031
## 359/781 [============>.................] - ETA: 11s - loss: 0.8565 - accuracy: 0.7032
## 361/781 [============>.................] - ETA: 11s - loss: 0.8566 - accuracy: 0.7032
## 363/781 [============>.................] - ETA: 11s - loss: 0.8564 - accuracy: 0.7032
## 365/781 [=============>................] - ETA: 11s - loss: 0.8561 - accuracy: 0.7033
## 368/781 [=============>................] - ETA: 11s - loss: 0.8558 - accuracy: 0.7034
## 370/781 [=============>................] - ETA: 11s - loss: 0.8556 - accuracy: 0.7037
## 373/781 [=============>................] - ETA: 10s - loss: 0.8563 - accuracy: 0.7036
## 375/781 [=============>................] - ETA: 10s - loss: 0.8570 - accuracy: 0.7033
## 377/781 [=============>................] - ETA: 10s - loss: 0.8568 - accuracy: 0.7032
## 379/781 [=============>................] - ETA: 10s - loss: 0.8570 - accuracy: 0.7033
## 382/781 [=============>................] - ETA: 10s - loss: 0.8571 - accuracy: 0.7034
## 384/781 [=============>................] - ETA: 10s - loss: 0.8572 - accuracy: 0.7035
## 386/781 [=============>................] - ETA: 10s - loss: 0.8570 - accuracy: 0.7034
## 389/781 [=============>................] - ETA: 10s - loss: 0.8571 - accuracy: 0.7033
## 391/781 [==============>...............] - ETA: 10s - loss: 0.8571 - accuracy: 0.7028
## 394/781 [==============>...............] - ETA: 10s - loss: 0.8561 - accuracy: 0.7034
## 397/781 [==============>...............] - ETA: 10s - loss: 0.8573 - accuracy: 0.7031
## 399/781 [==============>...............] - ETA: 10s - loss: 0.8570 - accuracy: 0.7031
## 402/781 [==============>...............] - ETA: 10s - loss: 0.8565 - accuracy: 0.7031
## 405/781 [==============>...............] - ETA: 10s - loss: 0.8558 - accuracy: 0.7035
## 407/781 [==============>...............] - ETA: 10s - loss: 0.8557 - accuracy: 0.7033
## 409/781 [==============>...............] - ETA: 9s - loss: 0.8550 - accuracy: 0.7033
## 412/781 [==============>...............] - ETA: 9s - loss: 0.8550 - accuracy: 0.7033
## 414/781 [==============>...............] - ETA: 9s - loss: 0.8554 - accuracy: 0.7031
## 416/781 [==============>...............] - ETA: 9s - loss: 0.8556 - accuracy: 0.7031
## 418/781 [===============>..............] - ETA: 9s - loss: 0.8551 - accuracy: 0.7032
## 421/781 [===============>..............] - ETA: 9s - loss: 0.8550 - accuracy: 0.7032
## 423/781 [===============>..............] - ETA: 9s - loss: 0.8544 - accuracy: 0.7033
## 426/781 [===============>..............] - ETA: 9s - loss: 0.8547 - accuracy: 0.7030
## 428/781 [===============>..............] - ETA: 9s - loss: 0.8549 - accuracy: 0.7029
## 430/781 [===============>..............] - ETA: 9s - loss: 0.8549 - accuracy: 0.7030
## 432/781 [===============>..............] - ETA: 9s - loss: 0.8552 - accuracy: 0.7030
## 434/781 [===============>..............] - ETA: 9s - loss: 0.8551 - accuracy: 0.7029
## 436/781 [===============>..............] - ETA: 9s - loss: 0.8563 - accuracy: 0.7024
## 439/781 [===============>..............] - ETA: 9s - loss: 0.8560 - accuracy: 0.7026
## 442/781 [===============>..............] - ETA: 9s - loss: 0.8559 - accuracy: 0.7027
## 444/781 [================>.............] - ETA: 9s - loss: 0.8554 - accuracy: 0.7029
## 446/781 [================>.............] - ETA: 9s - loss: 0.8551 - accuracy: 0.7029
## 448/781 [================>.............] - ETA: 8s - loss: 0.8553 - accuracy: 0.7028
## 450/781 [================>.............] - ETA: 8s - loss: 0.8551 - accuracy: 0.7028
## 452/781 [================>.............] - ETA: 8s - loss: 0.8562 - accuracy: 0.7025
## 455/781 [================>.............] - ETA: 8s - loss: 0.8562 - accuracy: 0.7025
## 457/781 [================>.............] - ETA: 8s - loss: 0.8564 - accuracy: 0.7026
## 459/781 [================>.............] - ETA: 8s - loss: 0.8565 - accuracy: 0.7025
## 461/781 [================>.............] - ETA: 8s - loss: 0.8568 - accuracy: 0.7024
## 463/781 [================>.............] - ETA: 8s - loss: 0.8570 - accuracy: 0.7022
## 465/781 [================>.............] - ETA: 8s - loss: 0.8566 - accuracy: 0.7021
## 468/781 [================>.............] - ETA: 8s - loss: 0.8572 - accuracy: 0.7020
## 470/781 [=================>............] - ETA: 8s - loss: 0.8578 - accuracy: 0.7016
## 473/781 [=================>............] - ETA: 8s - loss: 0.8581 - accuracy: 0.7016
## 475/781 [=================>............] - ETA: 8s - loss: 0.8580 - accuracy: 0.7015
```

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## 477/781 [================>.............] - ETA: 8s - loss: 0.8585 - accuracy: 0.7012
## 479/781 [================>.............] - ETA: 8s - loss: 0.8584 - accuracy: 0.7012
## 482/781 [================>.............] - ETA: 8s - loss: 0.8588 - accuracy: 0.7010
## 484/781 [================>.............] - ETA: 8s - loss: 0.8585 - accuracy: 0.7012
## 486/781 [================>.............] - ETA: 7s - loss: 0.8585 - accuracy: 0.7014
## 488/781 [================>.............] - ETA: 7s - loss: 0.8589 - accuracy: 0.7013
## 490/781 [================>.............] - ETA: 7s - loss: 0.8595 - accuracy: 0.7012
## 493/781 [================>.............] - ETA: 7s - loss: 0.8589 - accuracy: 0.7015
## 495/781 [================>.............] - ETA: 7s - loss: 0.8591 - accuracy: 0.7016
## 498/781 [================>.............] - ETA: 7s - loss: 0.8590 - accuracy: 0.7014
## 501/781 [================>.............] - ETA: 7s - loss: 0.8587 - accuracy: 0.7016
## 503/781 [================>.............] - ETA: 7s - loss: 0.8584 - accuracy: 0.7017
## 505/781 [================>.............] - ETA: 7s - loss: 0.8583 - accuracy: 0.7017
## 507/781 [================>.............] - ETA: 7s - loss: 0.8587 - accuracy: 0.7016
## 509/781 [================>.............] - ETA: 7s - loss: 0.8591 - accuracy: 0.7012
## 512/781 [================>.............] - ETA: 7s - loss: 0.8593 - accuracy: 0.7013
## 515/781 [================>.............] - ETA: 7s - loss: 0.8594 - accuracy: 0.7016
## 518/781 [================>.............] - ETA: 7s - loss: 0.8593 - accuracy: 0.7014
## 520/781 [================>.............] - ETA: 7s - loss: 0.8595 - accuracy: 0.7014
## 523/781 [================>.............] - ETA: 6s - loss: 0.8601 - accuracy: 0.7011
## 525/781 [================>.............] - ETA: 6s - loss: 0.8605 - accuracy: 0.7010
## 528/781 [================>.............] - ETA: 6s - loss: 0.8606 - accuracy: 0.7007
## 531/781 [================>.............] - ETA: 6s - loss: 0.8601 - accuracy: 0.7009
## 534/781 [================>.............] - ETA: 6s - loss: 0.8599 - accuracy: 0.7010
## 536/781 [================>.............] - ETA: 6s - loss: 0.8601 - accuracy: 0.7009
## 539/781 [================>.............] - ETA: 6s - loss: 0.8602 - accuracy: 0.7009
## 542/781 [================>.............] - ETA: 6s - loss: 0.8603 - accuracy: 0.7009
## 544/781 [================>.............] - ETA: 6s - loss: 0.8603 - accuracy: 0.7008
## 546/781 [================>.............] - ETA: 6s - loss: 0.8601 - accuracy: 0.7011
## 549/781 [=================>............] - ETA: 6s - loss: 0.8600 - accuracy: 0.7010
## 552/781 [=================>............] - ETA: 6s - loss: 0.8603 - accuracy: 0.7010
## 554/781 [=================>............] - ETA: 6s - loss: 0.8603 - accuracy: 0.7011
## 556/781 [=================>............] - ETA: 6s - loss: 0.8601 - accuracy: 0.7011
## 558/781 [=================>............] - ETA: 6s - loss: 0.8600 - accuracy: 0.7010
## 561/781 [=================>............] - ETA: 5s - loss: 0.8598 - accuracy: 0.7011
## 563/781 [=================>............] - ETA: 5s - loss: 0.8598 - accuracy: 0.7011
## 565/781 [=================>............] - ETA: 5s - loss: 0.8597 - accuracy: 0.7011
## 567/781 [=================>............] - ETA: 5s - loss: 0.8601 - accuracy: 0.7008
## 569/781 [=================>............] - ETA: 5s - loss: 0.8604 - accuracy: 0.7008
## 571/781 [=================>............] - ETA: 5s - loss: 0.8607 - accuracy: 0.7008
## 574/781 [=================>............] - ETA: 5s - loss: 0.8609 - accuracy: 0.7007
## 576/781 [=================>............] - ETA: 5s - loss: 0.8606 - accuracy: 0.7008
## 578/781 [=================>............] - ETA: 5s - loss: 0.8602 - accuracy: 0.7007
## 581/781 [=================>............] - ETA: 5s - loss: 0.8602 - accuracy: 0.7008
## 583/781 [=================>............] - ETA: 5s - loss: 0.8603 - accuracy: 0.7008
## 585/781 [=================>............] - ETA: 5s - loss: 0.8607 - accuracy: 0.7006
## 587/781 [=================>............] - ETA: 5s - loss: 0.8608 - accuracy: 0.7007
## 589/781 [=================>............] - ETA: 5s - loss: 0.8606 - accuracy: 0.7008
## 592/781 [=================>............] - ETA: 5s - loss: 0.8605 - accuracy: 0.7008
## 594/781 [=================>............] - ETA: 5s - loss: 0.8602 - accuracy: 0.7009
## 597/781 [=================>............] - ETA: 4s - loss: 0.8603 - accuracy: 0.7008
## 600/781 [==================>...........] - ETA: 4s - loss: 0.8601 - accuracy: 0.7007
## 602/781 [==================>...........] - ETA: 4s - loss: 0.8596 - accuracy: 0.7008
## 604/781 [==================>...........] - ETA: 4s - loss: 0.8595 - accuracy: 0.7008
```

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## 606/781 [=====================>.......] - ETA: 4s - loss: 0.8595 - accuracy: 0.7009
## 609/781 [=====================>.......] - ETA: 4s - loss: 0.8594 - accuracy: 0.7009
## 611/781 [=====================>.......] - ETA: 4s - loss: 0.8593 - accuracy: 0.7010
## 614/781 [=====================>.......] - ETA: 4s - loss: 0.8597 - accuracy: 0.7010
## 616/781 [=====================>.......] - ETA: 4s - loss: 0.8597 - accuracy: 0.7011
## 618/781 [=====================>.......] - ETA: 4s - loss: 0.8602 - accuracy: 0.7008
## 621/781 [=====================>.......] - ETA: 4s - loss: 0.8602 - accuracy: 0.7009
## 623/781 [=====================>.......] - ETA: 4s - loss: 0.8596 - accuracy: 0.7010
## 625/781 [======================>......] - ETA: 4s - loss: 0.8595 - accuracy: 0.7010
## 628/781 [======================>......] - ETA: 4s - loss: 0.8595 - accuracy: 0.7010
## 630/781 [======================>......] - ETA: 4s - loss: 0.8590 - accuracy: 0.7011
## 633/781 [======================>......] - ETA: 3s - loss: 0.8583 - accuracy: 0.7013
## 635/781 [======================>......] - ETA: 3s - loss: 0.8586 - accuracy: 0.7013
## 637/781 [======================>......] - ETA: 3s - loss: 0.8584 - accuracy: 0.7013
## 640/781 [======================>......] - ETA: 3s - loss: 0.8578 - accuracy: 0.7015
## 642/781 [======================>......] - ETA: 3s - loss: 0.8577 - accuracy: 0.7016
## 645/781 [======================>......] - ETA: 3s - loss: 0.8581 - accuracy: 0.7015
## 647/781 [======================>......] - ETA: 3s - loss: 0.8585 - accuracy: 0.7015
## 649/781 [======================>......] - ETA: 3s - loss: 0.8583 - accuracy: 0.7016
## 651/781 [=======================>.....] - ETA: 3s - loss: 0.8587 - accuracy: 0.7014
## 653/781 [=======================>.....] - ETA: 3s - loss: 0.8588 - accuracy: 0.7013
## 656/781 [=======================>.....] - ETA: 3s - loss: 0.8588 - accuracy: 0.7014
## 658/781 [=======================>.....] - ETA: 3s - loss: 0.8591 - accuracy: 0.7014
## 660/781 [=======================>.....] - ETA: 3s - loss: 0.8591 - accuracy: 0.7013
## 662/781 [=======================>.....] - ETA: 3s - loss: 0.8588 - accuracy: 0.7014
## 664/781 [=======================>.....] - ETA: 3s - loss: 0.8587 - accuracy: 0.7013
## 666/781 [=======================>.....] - ETA: 3s - loss: 0.8584 - accuracy: 0.7014
## 669/781 [=======================>.....] - ETA: 3s - loss: 0.8581 - accuracy: 0.7015
## 671/781 [=======================>.....] - ETA: 2s - loss: 0.8578 - accuracy: 0.7014
## 674/781 [=======================>.....] - ETA: 2s - loss: 0.8583 - accuracy: 0.7013
## 676/781 [=======================>.....] - ETA: 2s - loss: 0.8579 - accuracy: 0.7015
## 678/781 [========================>....] - ETA: 2s - loss: 0.8579 - accuracy: 0.7015
## 680/781 [========================>....] - ETA: 2s - loss: 0.8584 - accuracy: 0.7014
## 683/781 [========================>....] - ETA: 2s - loss: 0.8585 - accuracy: 0.7014
## 686/781 [========================>....] - ETA: 2s - loss: 0.8588 - accuracy: 0.7012
## 688/781 [========================>....] - ETA: 2s - loss: 0.8586 - accuracy: 0.7013
## 691/781 [========================>....] - ETA: 2s - loss: 0.8580 - accuracy: 0.7016
## 694/781 [========================>....] - ETA: 2s - loss: 0.8589 - accuracy: 0.7014
## 696/781 [========================>....] - ETA: 2s - loss: 0.8588 - accuracy: 0.7014
## 699/781 [========================>....] - ETA: 2s - loss: 0.8589 - accuracy: 0.7015
## 701/781 [========================>....] - ETA: 2s - loss: 0.8591 - accuracy: 0.7013
## 703/781 [=========================>...] - ETA: 2s - loss: 0.8594 - accuracy: 0.7012
## 706/781 [=========================>...] - ETA: 2s - loss: 0.8597 - accuracy: 0.7010
## 709/781 [=========================>...] - ETA: 1s - loss: 0.8595 - accuracy: 0.7008
## 711/781 [=========================>...] - ETA: 1s - loss: 0.8594 - accuracy: 0.7010
## 713/781 [=========================>...] - ETA: 1s - loss: 0.8594 - accuracy: 0.7009
## 715/781 [=========================>...] - ETA: 1s - loss: 0.8597 - accuracy: 0.7009
## 717/781 [=========================>...] - ETA: 1s - loss: 0.8600 - accuracy: 0.7008
## 719/781 [=========================>...] - ETA: 1s - loss: 0.8603 - accuracy: 0.7006
## 722/781 [=========================>...] - ETA: 1s - loss: 0.8603 - accuracy: 0.7008
## 724/781 [=========================>...] - ETA: 1s - loss: 0.8602 - accuracy: 0.7009
## 727/781 [=========================>...] - ETA: 1s - loss: 0.8600 - accuracy: 0.7010
## 730/781 [==========================>..] - ETA: 1s - loss: 0.8604 - accuracy: 0.7008
## 733/781 [==========================>..] - ETA: 1s - loss: 0.8607 - accuracy: 0.7007
```

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## 735/781 [===========================>..] - ETA: 1s - loss: 0.8606 - accuracy: 0.7007
## 738/781 [===========================>..] - ETA: 1s - loss: 0.8610 - accuracy: 0.7005
## 740/781 [===========================>..] - ETA: 1s - loss: 0.8613 - accuracy: 0.7004
## 743/781 [===========================>..] - ETA: 1s - loss: 0.8616 - accuracy: 0.7002
## 746/781 [===========================>..] - ETA: 0s - loss: 0.8617 - accuracy: 0.7002
## 749/781 [===========================>..] - ETA: 0s - loss: 0.8619 - accuracy: 0.7001
## 752/781 [===========================>..] - ETA: 0s - loss: 0.8622 - accuracy: 0.7000
## 754/781 [===========================>..] - ETA: 0s - loss: 0.8624 - accuracy: 0.6999
## 757/781 [===========================>.] - ETA: 0s - loss: 0.8622 - accuracy: 0.6999
## 760/781 [===========================>.] - ETA: 0s - loss: 0.8622 - accuracy: 0.7000
## 762/781 [===========================>.] - ETA: 0s - loss: 0.8625 - accuracy: 0.6999
## 765/781 [===========================>.] - ETA: 0s - loss: 0.8623 - accuracy: 0.6998
## 767/781 [===========================>.] - ETA: 0s - loss: 0.8624 - accuracy: 0.6998
## 769/781 [===========================>.] - ETA: 0s - loss: 0.8624 - accuracy: 0.6999
## 771/781 [===========================>.] - ETA: 0s - loss: 0.8620 - accuracy: 0.7001
## 774/781 [===========================>.] - ETA: 0s - loss: 0.8623 - accuracy: 0.7000
## 776/781 [===========================>.] - ETA: 0s - loss: 0.8621 - accuracy: 0.7001
## 779/781 [===========================>.] - ETA: 0s - loss: 0.8617 - accuracy: 0.7003
## 781/781 [============================] - ETA: 0s - loss: 0.8616 - accuracy: 0.7004
## 781/781 [============================] - 22s 28ms/step - loss: 0.8616 - accuracy: 0.7004 - val_loss
## Epoch 18/20
##
##   1/781 [..............................] - ETA: 37s - loss: 0.8192 - accuracy: 0.6875
##   4/781 [..............................] - ETA: 22s - loss: 0.8048 - accuracy: 0.7109
##   7/781 [..............................] - ETA: 22s - loss: 0.7755 - accuracy: 0.7411
##  10/781 [..............................] - ETA: 21s - loss: 0.7879 - accuracy: 0.7297
##  12/781 [..............................] - ETA: 21s - loss: 0.8011 - accuracy: 0.7279
##  15/781 [..............................] - ETA: 21s - loss: 0.8562 - accuracy: 0.7083
##  18/781 [..............................] - ETA: 20s - loss: 0.8571 - accuracy: 0.7101
##  20/781 [..............................] - ETA: 20s - loss: 0.8624 - accuracy: 0.7086
##  22/781 [..............................] - ETA: 20s - loss: 0.8748 - accuracy: 0.7017
##  24/781 [..............................] - ETA: 20s - loss: 0.8776 - accuracy: 0.6992
##  27/781 [>.............................] - ETA: 20s - loss: 0.8658 - accuracy: 0.7031
##  29/781 [>.............................] - ETA: 20s - loss: 0.8729 - accuracy: 0.6994
##  32/781 [>.............................] - ETA: 20s - loss: 0.8688 - accuracy: 0.6997
##  35/781 [>.............................] - ETA: 19s - loss: 0.8622 - accuracy: 0.7018
##  37/781 [>.............................] - ETA: 20s - loss: 0.8574 - accuracy: 0.7048
##  40/781 [>.............................] - ETA: 19s - loss: 0.8473 - accuracy: 0.7098
##  42/781 [>.............................] - ETA: 19s - loss: 0.8504 - accuracy: 0.7080
##  44/781 [>.............................] - ETA: 19s - loss: 0.8437 - accuracy: 0.7092
##  46/781 [>.............................] - ETA: 19s - loss: 0.8522 - accuracy: 0.7045
##  49/781 [>.............................] - ETA: 19s - loss: 0.8511 - accuracy: 0.7047
##  52/781 [>.............................] - ETA: 19s - loss: 0.8502 - accuracy: 0.7073
##  55/781 [=>............................] - ETA: 19s - loss: 0.8465 - accuracy: 0.7068
##  56/781 [=>............................] - ETA: 19s - loss: 0.8486 - accuracy: 0.7068
##  59/781 [=>............................] - ETA: 19s - loss: 0.8542 - accuracy: 0.7026
##  61/781 [=>............................] - ETA: 19s - loss: 0.8532 - accuracy: 0.7021
##  64/781 [=>............................] - ETA: 19s - loss: 0.8435 - accuracy: 0.7063
##  67/781 [=>............................] - ETA: 19s - loss: 0.8414 - accuracy: 0.7062
##  69/781 [=>............................] - ETA: 19s - loss: 0.8361 - accuracy: 0.7088
##  71/781 [=>............................] - ETA: 19s - loss: 0.8336 - accuracy: 0.7099
##  74/781 [=>............................] - ETA: 18s - loss: 0.8364 - accuracy: 0.7084
##  76/781 [=>............................] - ETA: 18s - loss: 0.8378 - accuracy: 0.7062
##  79/781 [==>...........................] - ETA: 18s - loss: 0.8393 - accuracy: 0.7061
```

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##  82/781 [==>............................] - ETA: 18s - loss: 0.8376 - accuracy: 0.7077
##  85/781 [==>............................] - ETA: 18s - loss: 0.8437 - accuracy: 0.7050
##  87/781 [==>............................] - ETA: 18s - loss: 0.8437 - accuracy: 0.7047
##  89/781 [==>............................] - ETA: 18s - loss: 0.8425 - accuracy: 0.7051
##  92/781 [==>............................] - ETA: 18s - loss: 0.8407 - accuracy: 0.7055
##  95/781 [==>............................] - ETA: 18s - loss: 0.8439 - accuracy: 0.7033
##  98/781 [==>............................] - ETA: 18s - loss: 0.8413 - accuracy: 0.7046
## 101/781 [==>............................] - ETA: 18s - loss: 0.8411 - accuracy: 0.7039
## 103/781 [==>............................] - ETA: 18s - loss: 0.8422 - accuracy: 0.7036
## 106/781 [===>...........................] - ETA: 18s - loss: 0.8448 - accuracy: 0.7019
## 108/781 [===>...........................] - ETA: 17s - loss: 0.8418 - accuracy: 0.7027
## 111/781 [===>...........................] - ETA: 17s - loss: 0.8429 - accuracy: 0.7034
## 113/781 [===>...........................] - ETA: 17s - loss: 0.8436 - accuracy: 0.7031
## 116/781 [===>...........................] - ETA: 17s - loss: 0.8436 - accuracy: 0.7035
## 118/781 [===>...........................] - ETA: 17s - loss: 0.8443 - accuracy: 0.7037
## 121/781 [===>...........................] - ETA: 17s - loss: 0.8417 - accuracy: 0.7049
## 124/781 [===>...........................] - ETA: 17s - loss: 0.8387 - accuracy: 0.7053
## 127/781 [===>...........................] - ETA: 17s - loss: 0.8367 - accuracy: 0.7060
## 129/781 [===>...........................] - ETA: 17s - loss: 0.8361 - accuracy: 0.7058
## 131/781 [====>..........................] - ETA: 17s - loss: 0.8335 - accuracy: 0.7069
## 133/781 [====>..........................] - ETA: 17s - loss: 0.8335 - accuracy: 0.7074
## 136/781 [====>..........................] - ETA: 17s - loss: 0.8350 - accuracy: 0.7071
## 138/781 [====>..........................] - ETA: 17s - loss: 0.8368 - accuracy: 0.7061
## 140/781 [====>..........................] - ETA: 17s - loss: 0.8360 - accuracy: 0.7059
## 142/781 [====>..........................] - ETA: 17s - loss: 0.8355 - accuracy: 0.7055
## 144/781 [====>..........................] - ETA: 17s - loss: 0.8358 - accuracy: 0.7056
## 147/781 [====>..........................] - ETA: 16s - loss: 0.8389 - accuracy: 0.7046
## 149/781 [====>..........................] - ETA: 16s - loss: 0.8398 - accuracy: 0.7043
## 151/781 [====>..........................] - ETA: 16s - loss: 0.8417 - accuracy: 0.7034
## 153/781 [====>..........................] - ETA: 16s - loss: 0.8391 - accuracy: 0.7039
## 156/781 [====>..........................] - ETA: 16s - loss: 0.8395 - accuracy: 0.7041
## 159/781 [=====>.........................] - ETA: 16s - loss: 0.8379 - accuracy: 0.7051
## 161/781 [=====>.........................] - ETA: 16s - loss: 0.8385 - accuracy: 0.7050
## 163/781 [=====>.........................] - ETA: 16s - loss: 0.8371 - accuracy: 0.7052
## 165/781 [=====>.........................] - ETA: 16s - loss: 0.8397 - accuracy: 0.7041
## 168/781 [=====>.........................] - ETA: 16s - loss: 0.8397 - accuracy: 0.7041
## 170/781 [=====>.........................] - ETA: 16s - loss: 0.8391 - accuracy: 0.7040
## 173/781 [=====>.........................] - ETA: 16s - loss: 0.8409 - accuracy: 0.7038
## 176/781 [=====>.........................] - ETA: 16s - loss: 0.8389 - accuracy: 0.7049
## 178/781 [=====>.........................] - ETA: 16s - loss: 0.8390 - accuracy: 0.7045
## 180/781 [=====>.........................] - ETA: 16s - loss: 0.8374 - accuracy: 0.7054
## 182/781 [=====>.........................] - ETA: 16s - loss: 0.8379 - accuracy: 0.7055
## 184/781 [======>........................] - ETA: 16s - loss: 0.8359 - accuracy: 0.7059
## 186/781 [======>........................] - ETA: 16s - loss: 0.8355 - accuracy: 0.7062
## 189/781 [======>........................] - ETA: 15s - loss: 0.8347 - accuracy: 0.7067
## 191/781 [======>........................] - ETA: 15s - loss: 0.8343 - accuracy: 0.7071
## 193/781 [======>........................] - ETA: 15s - loss: 0.8351 - accuracy: 0.7072
## 195/781 [======>........................] - ETA: 15s - loss: 0.8345 - accuracy: 0.7074
## 197/781 [======>........................] - ETA: 15s - loss: 0.8339 - accuracy: 0.7076
## 200/781 [======>........................] - ETA: 15s - loss: 0.8340 - accuracy: 0.7079
## 202/781 [======>........................] - ETA: 15s - loss: 0.8334 - accuracy: 0.7078
## 204/781 [======>........................] - ETA: 15s - loss: 0.8339 - accuracy: 0.7079
## 207/781 [======>........................] - ETA: 15s - loss: 0.8350 - accuracy: 0.7077
## 210/781 [=======>.......................] - ETA: 15s - loss: 0.8340 - accuracy: 0.7077
```

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## 212/781 [=======>......................] - ETA: 15s - loss: 0.8367 - accuracy: 0.7066
## 214/781 [=======>......................] - ETA: 15s - loss: 0.8376 - accuracy: 0.7060
## 216/781 [=======>......................] - ETA: 15s - loss: 0.8379 - accuracy: 0.7059
## 219/781 [=======>......................] - ETA: 15s - loss: 0.8400 - accuracy: 0.7052
## 222/781 [=======>......................] - ETA: 15s - loss: 0.8391 - accuracy: 0.7057
## 224/781 [=======>......................] - ETA: 14s - loss: 0.8393 - accuracy: 0.7058
## 227/781 [=======>......................] - ETA: 14s - loss: 0.8390 - accuracy: 0.7062
## 229/781 [=======>......................] - ETA: 14s - loss: 0.8401 - accuracy: 0.7060
## 232/781 [=======>......................] - ETA: 14s - loss: 0.8396 - accuracy: 0.7059
## 235/781 [========>.....................] - ETA: 14s - loss: 0.8405 - accuracy: 0.7057
## 237/781 [========>.....................] - ETA: 14s - loss: 0.8405 - accuracy: 0.7055
## 240/781 [========>.....................] - ETA: 14s - loss: 0.8429 - accuracy: 0.7047
## 243/781 [========>.....................] - ETA: 14s - loss: 0.8437 - accuracy: 0.7042
## 246/781 [========>.....................] - ETA: 14s - loss: 0.8434 - accuracy: 0.7041
## 249/781 [========>.....................] - ETA: 14s - loss: 0.8441 - accuracy: 0.7034
## 251/781 [========>.....................] - ETA: 14s - loss: 0.8442 - accuracy: 0.7034
## 253/781 [========>.....................] - ETA: 14s - loss: 0.8434 - accuracy: 0.7036
## 255/781 [========>.....................] - ETA: 14s - loss: 0.8441 - accuracy: 0.7036
## 258/781 [========>.....................] - ETA: 14s - loss: 0.8433 - accuracy: 0.7037
## 260/781 [========>.....................] - ETA: 13s - loss: 0.8437 - accuracy: 0.7037
## 262/781 [=========>....................] - ETA: 13s - loss: 0.8430 - accuracy: 0.7038
## 264/781 [=========>....................] - ETA: 13s - loss: 0.8425 - accuracy: 0.7041
## 266/781 [=========>....................] - ETA: 13s - loss: 0.8433 - accuracy: 0.7040
## 269/781 [=========>....................] - ETA: 13s - loss: 0.8431 - accuracy: 0.7039
## 271/781 [=========>....................] - ETA: 13s - loss: 0.8426 - accuracy: 0.7041
## 273/781 [=========>....................] - ETA: 13s - loss: 0.8429 - accuracy: 0.7040
## 275/781 [=========>....................] - ETA: 13s - loss: 0.8425 - accuracy: 0.7041
## 277/781 [=========>....................] - ETA: 13s - loss: 0.8422 - accuracy: 0.7043
## 280/781 [=========>....................] - ETA: 13s - loss: 0.8426 - accuracy: 0.7045
## 282/781 [=========>....................] - ETA: 13s - loss: 0.8433 - accuracy: 0.7045
## 284/781 [=========>....................] - ETA: 13s - loss: 0.8439 - accuracy: 0.7044
## 286/781 [=========>....................] - ETA: 13s - loss: 0.8432 - accuracy: 0.7044
## 289/781 [==========>...................] - ETA: 13s - loss: 0.8434 - accuracy: 0.7043
## 292/781 [==========>...................] - ETA: 13s - loss: 0.8428 - accuracy: 0.7042
## 294/781 [==========>...................] - ETA: 13s - loss: 0.8427 - accuracy: 0.7040
## 297/781 [==========>...................] - ETA: 12s - loss: 0.8419 - accuracy: 0.7044
## 299/781 [==========>...................] - ETA: 12s - loss: 0.8421 - accuracy: 0.7044
## 302/781 [==========>...................] - ETA: 12s - loss: 0.8426 - accuracy: 0.7041
## 304/781 [==========>...................] - ETA: 12s - loss: 0.8422 - accuracy: 0.7043
## 306/781 [==========>...................] - ETA: 12s - loss: 0.8432 - accuracy: 0.7041
## 308/781 [==========>...................] - ETA: 12s - loss: 0.8429 - accuracy: 0.7043
## 311/781 [==========>...................] - ETA: 12s - loss: 0.8440 - accuracy: 0.7040
## 314/781 [===========>..................] - ETA: 12s - loss: 0.8444 - accuracy: 0.7037
## 316/781 [===========>..................] - ETA: 12s - loss: 0.8446 - accuracy: 0.7035
## 319/781 [===========>..................] - ETA: 12s - loss: 0.8447 - accuracy: 0.7034
## 321/781 [===========>..................] - ETA: 12s - loss: 0.8445 - accuracy: 0.7034
## 324/781 [===========>..................] - ETA: 12s - loss: 0.8454 - accuracy: 0.7032
## 326/781 [===========>..................] - ETA: 12s - loss: 0.8452 - accuracy: 0.7031
## 328/781 [===========>..................] - ETA: 12s - loss: 0.8441 - accuracy: 0.7035
## 330/781 [===========>..................] - ETA: 12s - loss: 0.8444 - accuracy: 0.7031
## 332/781 [===========>..................] - ETA: 12s - loss: 0.8451 - accuracy: 0.7031
## 334/781 [===========>..................] - ETA: 11s - loss: 0.8454 - accuracy: 0.7032
## 337/781 [===========>..................] - ETA: 11s - loss: 0.8458 - accuracy: 0.7032
## 340/781 [============>.................] - ETA: 11s - loss: 0.8472 - accuracy: 0.7027
```

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## 342/781 [============>.................] - ETA: 11s - loss: 0.8465 - accuracy: 0.7030
## 345/781 [============>.................] - ETA: 11s - loss: 0.8468 - accuracy: 0.7028
## 347/781 [============>.................] - ETA: 11s - loss: 0.8456 - accuracy: 0.7033
## 349/781 [============>.................] - ETA: 11s - loss: 0.8447 - accuracy: 0.7035
## 351/781 [============>.................] - ETA: 11s - loss: 0.8453 - accuracy: 0.7032
## 354/781 [============>.................] - ETA: 11s - loss: 0.8452 - accuracy: 0.7034
## 356/781 [============>.................] - ETA: 11s - loss: 0.8457 - accuracy: 0.7033
## 359/781 [============>.................] - ETA: 11s - loss: 0.8452 - accuracy: 0.7034
## 362/781 [============>.................] - ETA: 11s - loss: 0.8449 - accuracy: 0.7033
## 364/781 [============>.................] - ETA: 11s - loss: 0.8444 - accuracy: 0.7037
## 367/781 [=============>................] - ETA: 11s - loss: 0.8446 - accuracy: 0.7036
## 370/781 [=============>................] - ETA: 10s - loss: 0.8444 - accuracy: 0.7037
## 372/781 [=============>................] - ETA: 10s - loss: 0.8436 - accuracy: 0.7039
## 375/781 [=============>................] - ETA: 10s - loss: 0.8442 - accuracy: 0.7042
## 377/781 [=============>................] - ETA: 10s - loss: 0.8453 - accuracy: 0.7040
## 379/781 [=============>................] - ETA: 10s - loss: 0.8451 - accuracy: 0.7042
## 382/781 [=============>................] - ETA: 10s - loss: 0.8452 - accuracy: 0.7041
## 385/781 [=============>................] - ETA: 10s - loss: 0.8460 - accuracy: 0.7036
## 388/781 [=============>................] - ETA: 10s - loss: 0.8468 - accuracy: 0.7036
## 390/781 [=============>................] - ETA: 10s - loss: 0.8463 - accuracy: 0.7037
## 393/781 [==============>...............] - ETA: 10s - loss: 0.8460 - accuracy: 0.7039
## 396/781 [==============>...............] - ETA: 10s - loss: 0.8459 - accuracy: 0.7039
## 398/781 [==============>...............] - ETA: 10s - loss: 0.8466 - accuracy: 0.7035
## 401/781 [==============>...............] - ETA: 10s - loss: 0.8462 - accuracy: 0.7036
## 404/781 [==============>...............] - ETA: 10s - loss: 0.8464 - accuracy: 0.7035
## 407/781 [==============>...............] - ETA: 10s - loss: 0.8464 - accuracy: 0.7035
## 410/781 [==============>...............] - ETA: 9s - loss: 0.8471 - accuracy: 0.7033
## 412/781 [==============>...............] - ETA: 9s - loss: 0.8468 - accuracy: 0.7035
## 415/781 [==============>...............] - ETA: 9s - loss: 0.8462 - accuracy: 0.7036
## 418/781 [===============>..............] - ETA: 9s - loss: 0.8461 - accuracy: 0.7038
## 420/781 [===============>..............] - ETA: 9s - loss: 0.8465 - accuracy: 0.7038
## 423/781 [===============>..............] - ETA: 9s - loss: 0.8458 - accuracy: 0.7042
## 425/781 [===============>..............] - ETA: 9s - loss: 0.8458 - accuracy: 0.7041
## 427/781 [===============>..............] - ETA: 9s - loss: 0.8456 - accuracy: 0.7040
## 429/781 [===============>..............] - ETA: 9s - loss: 0.8456 - accuracy: 0.7040
## 432/781 [===============>..............] - ETA: 9s - loss: 0.8455 - accuracy: 0.7041
## 434/781 [===============>..............] - ETA: 9s - loss: 0.8453 - accuracy: 0.7044
## 437/781 [===============>..............] - ETA: 9s - loss: 0.8464 - accuracy: 0.7041
## 440/781 [===============>..............] - ETA: 9s - loss: 0.8470 - accuracy: 0.7043
## 442/781 [===============>..............] - ETA: 9s - loss: 0.8468 - accuracy: 0.7043
## 444/781 [================>.............] - ETA: 9s - loss: 0.8464 - accuracy: 0.7045
## 446/781 [================>.............] - ETA: 8s - loss: 0.8459 - accuracy: 0.7047
## 449/781 [================>.............] - ETA: 8s - loss: 0.8459 - accuracy: 0.7047
## 451/781 [================>.............] - ETA: 8s - loss: 0.8466 - accuracy: 0.7046
## 454/781 [================>.............] - ETA: 8s - loss: 0.8458 - accuracy: 0.7048
## 456/781 [================>.............] - ETA: 8s - loss: 0.8453 - accuracy: 0.7048
## 459/781 [================>.............] - ETA: 8s - loss: 0.8452 - accuracy: 0.7047
## 462/781 [================>.............] - ETA: 8s - loss: 0.8451 - accuracy: 0.7046
## 465/781 [================>.............] - ETA: 8s - loss: 0.8452 - accuracy: 0.7044
## 467/781 [================>.............] - ETA: 8s - loss: 0.8458 - accuracy: 0.7042
## 470/781 [=================>............] - ETA: 8s - loss: 0.8460 - accuracy: 0.7041
## 472/781 [=================>............] - ETA: 8s - loss: 0.8465 - accuracy: 0.7041
## 475/781 [=================>............] - ETA: 8s - loss: 0.8460 - accuracy: 0.7041
## 477/781 [=================>............] - ETA: 8s - loss: 0.8462 - accuracy: 0.7042
```

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## 479/781 [================>.............] - ETA: 8s - loss: 0.8469 - accuracy: 0.7037
## 481/781 [================>.............] - ETA: 8s - loss: 0.8468 - accuracy: 0.7037
## 483/781 [================>.............] - ETA: 7s - loss: 0.8471 - accuracy: 0.7037
## 485/781 [================>.............] - ETA: 7s - loss: 0.8471 - accuracy: 0.7037
## 488/781 [================>.............] - ETA: 7s - loss: 0.8472 - accuracy: 0.7037
## 490/781 [================>.............] - ETA: 7s - loss: 0.8479 - accuracy: 0.7033
## 492/781 [================>.............] - ETA: 7s - loss: 0.8475 - accuracy: 0.7035
## 494/781 [================>.............] - ETA: 7s - loss: 0.8478 - accuracy: 0.7032
## 496/781 [================>.............] - ETA: 7s - loss: 0.8480 - accuracy: 0.7031
## 498/781 [================>.............] - ETA: 7s - loss: 0.8486 - accuracy: 0.7027
## 501/781 [================>.............] - ETA: 7s - loss: 0.8487 - accuracy: 0.7030
## 504/781 [================>.............] - ETA: 7s - loss: 0.8492 - accuracy: 0.7029
## 506/781 [================>.............] - ETA: 7s - loss: 0.8496 - accuracy: 0.7028
## 508/781 [================>.............] - ETA: 7s - loss: 0.8497 - accuracy: 0.7031
## 511/781 [================>.............] - ETA: 7s - loss: 0.8496 - accuracy: 0.7032
## 513/781 [================>.............] - ETA: 7s - loss: 0.8500 - accuracy: 0.7030
## 516/781 [================>.............] - ETA: 7s - loss: 0.8496 - accuracy: 0.7032
## 519/781 [================>.............] - ETA: 7s - loss: 0.8500 - accuracy: 0.7033
## 521/781 [================>.............] - ETA: 6s - loss: 0.8496 - accuracy: 0.7034
## 524/781 [================>.............] - ETA: 6s - loss: 0.8491 - accuracy: 0.7037
## 526/781 [================>.............] - ETA: 6s - loss: 0.8495 - accuracy: 0.7036
## 528/781 [================>.............] - ETA: 6s - loss: 0.8495 - accuracy: 0.7035
## 531/781 [================>.............] - ETA: 6s - loss: 0.8494 - accuracy: 0.7035
## 534/781 [================>.............] - ETA: 6s - loss: 0.8491 - accuracy: 0.7036
## 536/781 [================>.............] - ETA: 6s - loss: 0.8496 - accuracy: 0.7035
## 538/781 [================>.............] - ETA: 6s - loss: 0.8493 - accuracy: 0.7035
## 540/781 [================>.............] - ETA: 6s - loss: 0.8489 - accuracy: 0.7038
## 543/781 [================>.............] - ETA: 6s - loss: 0.8482 - accuracy: 0.7040
## 545/781 [================>.............] - ETA: 6s - loss: 0.8479 - accuracy: 0.7043
## 548/781 [================>.............] - ETA: 6s - loss: 0.8484 - accuracy: 0.7042
## 551/781 [================>.............] - ETA: 6s - loss: 0.8481 - accuracy: 0.7043
## 554/781 [================>.............] - ETA: 6s - loss: 0.8479 - accuracy: 0.7043
## 556/781 [================>.............] - ETA: 6s - loss: 0.8477 - accuracy: 0.7043
## 558/781 [================>.............] - ETA: 5s - loss: 0.8476 - accuracy: 0.7044
## 561/781 [================>.............] - ETA: 5s - loss: 0.8472 - accuracy: 0.7044
## 563/781 [================>.............] - ETA: 5s - loss: 0.8471 - accuracy: 0.7043
## 566/781 [================>.............] - ETA: 5s - loss: 0.8470 - accuracy: 0.7044
## 568/781 [================>.............] - ETA: 5s - loss: 0.8470 - accuracy: 0.7044
## 570/781 [================>.............] - ETA: 5s - loss: 0.8474 - accuracy: 0.7042
## 572/781 [================>.............] - ETA: 5s - loss: 0.8469 - accuracy: 0.7045
## 574/781 [================>.............] - ETA: 5s - loss: 0.8470 - accuracy: 0.7046
## 576/781 [================>.............] - ETA: 5s - loss: 0.8468 - accuracy: 0.7047
## 578/781 [================>.............] - ETA: 5s - loss: 0.8468 - accuracy: 0.7048
## 581/781 [================>.............] - ETA: 5s - loss: 0.8468 - accuracy: 0.7047
## 583/781 [================>.............] - ETA: 5s - loss: 0.8468 - accuracy: 0.7046
## 586/781 [================>.............] - ETA: 5s - loss: 0.8465 - accuracy: 0.7048
## 588/781 [================>.............] - ETA: 5s - loss: 0.8464 - accuracy: 0.7048
## 591/781 [================>.............] - ETA: 5s - loss: 0.8467 - accuracy: 0.7046
## 593/781 [================>.............] - ETA: 5s - loss: 0.8464 - accuracy: 0.7046
## 595/781 [================>.............] - ETA: 4s - loss: 0.8464 - accuracy: 0.7046
## 597/781 [================>.............] - ETA: 4s - loss: 0.8470 - accuracy: 0.7044
## 599/781 [================>.............] - ETA: 4s - loss: 0.8472 - accuracy: 0.7044
## 602/781 [================>.............] - ETA: 4s - loss: 0.8471 - accuracy: 0.7045
## 604/781 [================>.............] - ETA: 4s - loss: 0.8480 - accuracy: 0.7042
```

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## 606/781 [=====================>.......] - ETA: 4s - loss: 0.8475 - accuracy: 0.7044
## 608/781 [=====================>.......] - ETA: 4s - loss: 0.8474 - accuracy: 0.7045
## 610/781 [=====================>.......] - ETA: 4s - loss: 0.8467 - accuracy: 0.7047
## 612/781 [=====================>.......] - ETA: 4s - loss: 0.8467 - accuracy: 0.7047
## 615/781 [=====================>.......] - ETA: 4s - loss: 0.8471 - accuracy: 0.7046
## 618/781 [=====================>.......] - ETA: 4s - loss: 0.8474 - accuracy: 0.7046
## 620/781 [=====================>.......] - ETA: 4s - loss: 0.8467 - accuracy: 0.7049
## 622/781 [=====================>.......] - ETA: 4s - loss: 0.8470 - accuracy: 0.7047
## 624/781 [=====================>.......] - ETA: 4s - loss: 0.8470 - accuracy: 0.7048
## 626/781 [======================>......] - ETA: 4s - loss: 0.8470 - accuracy: 0.7048
## 629/781 [======================>......] - ETA: 4s - loss: 0.8468 - accuracy: 0.7049
## 631/781 [======================>......] - ETA: 4s - loss: 0.8465 - accuracy: 0.7051
## 634/781 [======================>......] - ETA: 3s - loss: 0.8466 - accuracy: 0.7051
## 636/781 [======================>......] - ETA: 3s - loss: 0.8463 - accuracy: 0.7052
## 639/781 [======================>......] - ETA: 3s - loss: 0.8456 - accuracy: 0.7055
## 641/781 [======================>......] - ETA: 3s - loss: 0.8453 - accuracy: 0.7055
## 643/781 [======================>......] - ETA: 3s - loss: 0.8455 - accuracy: 0.7055
## 646/781 [======================>......] - ETA: 3s - loss: 0.8455 - accuracy: 0.7057
## 649/781 [======================>......] - ETA: 3s - loss: 0.8457 - accuracy: 0.7057
## 652/781 [======================>......] - ETA: 3s - loss: 0.8461 - accuracy: 0.7055
## 654/781 [======================>......] - ETA: 3s - loss: 0.8463 - accuracy: 0.7053
## 656/781 [======================>......] - ETA: 3s - loss: 0.8462 - accuracy: 0.7053
## 658/781 [======================>......] - ETA: 3s - loss: 0.8460 - accuracy: 0.7054
## 661/781 [======================>......] - ETA: 3s - loss: 0.8455 - accuracy: 0.7056
## 663/781 [======================>......] - ETA: 3s - loss: 0.8453 - accuracy: 0.7057
## 665/781 [======================>......] - ETA: 3s - loss: 0.8457 - accuracy: 0.7056
## 668/781 [======================>......] - ETA: 3s - loss: 0.8463 - accuracy: 0.7055
## 670/781 [======================>......] - ETA: 2s - loss: 0.8467 - accuracy: 0.7054
## 673/781 [======================>......] - ETA: 2s - loss: 0.8470 - accuracy: 0.7054
## 675/781 [======================>......] - ETA: 2s - loss: 0.8470 - accuracy: 0.7053
## 677/781 [=======================>.....] - ETA: 2s - loss: 0.8471 - accuracy: 0.7053
## 679/781 [=======================>.....] - ETA: 2s - loss: 0.8475 - accuracy: 0.7052
## 682/781 [=======================>.....] - ETA: 2s - loss: 0.8475 - accuracy: 0.7052
## 684/781 [=======================>.....] - ETA: 2s - loss: 0.8476 - accuracy: 0.7052
## 686/781 [=======================>.....] - ETA: 2s - loss: 0.8475 - accuracy: 0.7052
## 689/781 [=======================>.....] - ETA: 2s - loss: 0.8477 - accuracy: 0.7051
## 691/781 [=======================>.....] - ETA: 2s - loss: 0.8474 - accuracy: 0.7051
## 693/781 [=======================>.....] - ETA: 2s - loss: 0.8476 - accuracy: 0.7051
## 695/781 [=======================>.....] - ETA: 2s - loss: 0.8479 - accuracy: 0.7049
## 698/781 [=======================>.....] - ETA: 2s - loss: 0.8481 - accuracy: 0.7050
## 700/781 [=======================>.....] - ETA: 2s - loss: 0.8478 - accuracy: 0.7050
## 703/781 [========================>....] - ETA: 2s - loss: 0.8479 - accuracy: 0.7048
## 705/781 [========================>....] - ETA: 2s - loss: 0.8479 - accuracy: 0.7048
## 707/781 [========================>....] - ETA: 1s - loss: 0.8484 - accuracy: 0.7048
## 709/781 [========================>....] - ETA: 1s - loss: 0.8481 - accuracy: 0.7049
## 712/781 [========================>....] - ETA: 1s - loss: 0.8481 - accuracy: 0.7050
## 715/781 [========================>....] - ETA: 1s - loss: 0.8485 - accuracy: 0.7047
## 718/781 [========================>....] - ETA: 1s - loss: 0.8486 - accuracy: 0.7046
## 721/781 [========================>....] - ETA: 1s - loss: 0.8485 - accuracy: 0.7045
## 723/781 [========================>....] - ETA: 1s - loss: 0.8487 - accuracy: 0.7045
## 725/781 [========================>....] - ETA: 1s - loss: 0.8489 - accuracy: 0.7045
## 728/781 [========================>....] - ETA: 1s - loss: 0.8492 - accuracy: 0.7042
## 731/781 [=========================>...] - ETA: 1s - loss: 0.8494 - accuracy: 0.7041
## 733/781 [=========================>...] - ETA: 1s - loss: 0.8492 - accuracy: 0.7041
```

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## 735/781 [===========================>..] - ETA: 1s - loss: 0.8495 - accuracy: 0.7040
## 737/781 [===========================>..] - ETA: 1s - loss: 0.8491 - accuracy: 0.7042
## 740/781 [===========================>..] - ETA: 1s - loss: 0.8491 - accuracy: 0.7043
## 742/781 [===========================>..] - ETA: 1s - loss: 0.8492 - accuracy: 0.7042
## 744/781 [===========================>..] - ETA: 0s - loss: 0.8495 - accuracy: 0.7039
## 747/781 [===========================>..] - ETA: 0s - loss: 0.8496 - accuracy: 0.7039
## 750/781 [===========================>..] - ETA: 0s - loss: 0.8499 - accuracy: 0.7038
## 752/781 [===========================>..] - ETA: 0s - loss: 0.8496 - accuracy: 0.7039
## 754/781 [===========================>..] - ETA: 0s - loss: 0.8498 - accuracy: 0.7038
## 756/781 [===========================>.] - ETA: 0s - loss: 0.8500 - accuracy: 0.7037
## 759/781 [===========================>.] - ETA: 0s - loss: 0.8504 - accuracy: 0.7036
## 762/781 [===========================>.] - ETA: 0s - loss: 0.8503 - accuracy: 0.7036
## 764/781 [===========================>.] - ETA: 0s - loss: 0.8504 - accuracy: 0.7035
## 767/781 [===========================>.] - ETA: 0s - loss: 0.8503 - accuracy: 0.7037
## 769/781 [===========================>.] - ETA: 0s - loss: 0.8505 - accuracy: 0.7036
## 772/781 [===========================>.] - ETA: 0s - loss: 0.8503 - accuracy: 0.7037
## 774/781 [===========================>.] - ETA: 0s - loss: 0.8503 - accuracy: 0.7036
## 776/781 [===========================>.] - ETA: 0s - loss: 0.8501 - accuracy: 0.7037
## 778/781 [===========================>.] - ETA: 0s - loss: 0.8499 - accuracy: 0.7038
## 780/781 [===========================>.] - ETA: 0s - loss: 0.8497 - accuracy: 0.7040
## 781/781 [==============================] - 22s 28ms/step - loss: 0.8499 - accuracy: 0.7039 - val_loss
## Epoch 19/20
##
##   1/781 [..............................] - ETA: 40s - loss: 0.6720 - accuracy: 0.7188
##   4/781 [..............................] - ETA: 18s - loss: 0.7231 - accuracy: 0.7266
##   6/781 [..............................] - ETA: 21s - loss: 0.7914 - accuracy: 0.7031
##   9/781 [..............................] - ETA: 20s - loss: 0.8270 - accuracy: 0.7118
##  12/781 [..............................] - ETA: 19s - loss: 0.8474 - accuracy: 0.7005
##  15/781 [..............................] - ETA: 19s - loss: 0.8511 - accuracy: 0.7000
##  18/781 [..............................] - ETA: 19s - loss: 0.8312 - accuracy: 0.7092
##  20/781 [..............................] - ETA: 19s - loss: 0.8249 - accuracy: 0.7148
##  22/781 [..............................] - ETA: 19s - loss: 0.8316 - accuracy: 0.7088
##  24/781 [..............................] - ETA: 19s - loss: 0.8453 - accuracy: 0.7051
##  27/781 [>.............................] - ETA: 19s - loss: 0.8407 - accuracy: 0.7072
##  30/781 [>.............................] - ETA: 19s - loss: 0.8405 - accuracy: 0.7073
##  32/781 [>.............................] - ETA: 19s - loss: 0.8409 - accuracy: 0.7104
##  34/781 [>.............................] - ETA: 19s - loss: 0.8437 - accuracy: 0.7077
##  36/781 [>.............................] - ETA: 19s - loss: 0.8499 - accuracy: 0.7062
##  38/781 [>.............................] - ETA: 19s - loss: 0.8441 - accuracy: 0.7072
##  41/781 [>.............................] - ETA: 19s - loss: 0.8390 - accuracy: 0.7088
##  43/781 [>.............................] - ETA: 19s - loss: 0.8413 - accuracy: 0.7082
##  45/781 [>.............................] - ETA: 19s - loss: 0.8423 - accuracy: 0.7076
##  48/781 [>.............................] - ETA: 19s - loss: 0.8479 - accuracy: 0.7070
##  51/781 [>.............................] - ETA: 19s - loss: 0.8547 - accuracy: 0.7050
##  54/781 [=>............................] - ETA: 19s - loss: 0.8529 - accuracy: 0.7052
##  56/781 [=>............................] - ETA: 18s - loss: 0.8517 - accuracy: 0.7048
##  58/781 [=>............................] - ETA: 18s - loss: 0.8483 - accuracy: 0.7053
##  60/781 [=>............................] - ETA: 18s - loss: 0.8460 - accuracy: 0.7063
##  63/781 [=>............................] - ETA: 18s - loss: 0.8470 - accuracy: 0.7051
##  66/781 [=>............................] - ETA: 18s - loss: 0.8460 - accuracy: 0.7053
##  69/781 [=>............................] - ETA: 18s - loss: 0.8383 - accuracy: 0.7088
##  72/781 [=>............................] - ETA: 18s - loss: 0.8417 - accuracy: 0.7070
##  74/781 [=>............................] - ETA: 18s - loss: 0.8455 - accuracy: 0.7048
##  77/781 [=>............................] - ETA: 18s - loss: 0.8493 - accuracy: 0.7031
```

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##  79/781 [==>............................] - ETA: 18s - loss: 0.8470 - accuracy: 0.7045
##  81/781 [==>............................] - ETA: 18s - loss: 0.8487 - accuracy: 0.7037
##  84/781 [==>............................] - ETA: 18s - loss: 0.8438 - accuracy: 0.7057
##  86/781 [==>............................] - ETA: 18s - loss: 0.8451 - accuracy: 0.7044
##  88/781 [==>............................] - ETA: 18s - loss: 0.8482 - accuracy: 0.7042
##  90/781 [==>............................] - ETA: 18s - loss: 0.8472 - accuracy: 0.7045
##  93/781 [==>............................] - ETA: 18s - loss: 0.8484 - accuracy: 0.7038
##  95/781 [==>............................] - ETA: 18s - loss: 0.8464 - accuracy: 0.7035
##  97/781 [==>............................] - ETA: 18s - loss: 0.8454 - accuracy: 0.7031
##  99/781 [==>............................] - ETA: 18s - loss: 0.8496 - accuracy: 0.7022
## 101/781 [==>............................] - ETA: 17s - loss: 0.8478 - accuracy: 0.7031
## 104/781 [==>............................] - ETA: 17s - loss: 0.8543 - accuracy: 0.7018
## 106/781 [===>...........................] - ETA: 17s - loss: 0.8552 - accuracy: 0.7017
## 108/781 [===>...........................] - ETA: 17s - loss: 0.8546 - accuracy: 0.7021
## 110/781 [===>...........................] - ETA: 17s - loss: 0.8540 - accuracy: 0.7020
## 112/781 [===>...........................] - ETA: 17s - loss: 0.8564 - accuracy: 0.7009
## 115/781 [===>...........................] - ETA: 17s - loss: 0.8544 - accuracy: 0.7015
## 118/781 [===>...........................] - ETA: 17s - loss: 0.8547 - accuracy: 0.7011
## 120/781 [===>...........................] - ETA: 17s - loss: 0.8565 - accuracy: 0.7001
## 122/781 [===>...........................] - ETA: 17s - loss: 0.8595 - accuracy: 0.6995
## 124/781 [===>...........................] - ETA: 17s - loss: 0.8607 - accuracy: 0.6996
## 127/781 [===>...........................] - ETA: 17s - loss: 0.8609 - accuracy: 0.7008
## 129/781 [===>...........................] - ETA: 17s - loss: 0.8600 - accuracy: 0.7014
## 131/781 [====>..........................] - ETA: 17s - loss: 0.8623 - accuracy: 0.7005
## 133/781 [====>..........................] - ETA: 17s - loss: 0.8644 - accuracy: 0.7003
## 136/781 [====>..........................] - ETA: 17s - loss: 0.8629 - accuracy: 0.7006
## 138/781 [====>..........................] - ETA: 17s - loss: 0.8654 - accuracy: 0.6996
## 140/781 [====>..........................] - ETA: 17s - loss: 0.8649 - accuracy: 0.7002
## 142/781 [====>..........................] - ETA: 17s - loss: 0.8653 - accuracy: 0.6999
## 145/781 [====>..........................] - ETA: 16s - loss: 0.8678 - accuracy: 0.6983
## 148/781 [====>..........................] - ETA: 16s - loss: 0.8675 - accuracy: 0.6984
## 151/781 [====>..........................] - ETA: 16s - loss: 0.8662 - accuracy: 0.6990
## 153/781 [====>..........................] - ETA: 16s - loss: 0.8658 - accuracy: 0.6988
## 156/781 [====>..........................] - ETA: 16s - loss: 0.8637 - accuracy: 0.6992
## 158/781 [=====>.........................] - ETA: 16s - loss: 0.8650 - accuracy: 0.6992
## 161/781 [=====>.........................] - ETA: 16s - loss: 0.8652 - accuracy: 0.6991
## 164/781 [=====>.........................] - ETA: 16s - loss: 0.8633 - accuracy: 0.6998
## 166/781 [=====>.........................] - ETA: 16s - loss: 0.8635 - accuracy: 0.7000
## 169/781 [=====>.........................] - ETA: 16s - loss: 0.8639 - accuracy: 0.7001
## 171/781 [=====>.........................] - ETA: 16s - loss: 0.8660 - accuracy: 0.6992
## 174/781 [=====>.........................] - ETA: 16s - loss: 0.8643 - accuracy: 0.6994
## 176/781 [=====>.........................] - ETA: 16s - loss: 0.8623 - accuracy: 0.7001
## 178/781 [=====>.........................] - ETA: 16s - loss: 0.8625 - accuracy: 0.7004
## 181/781 [=====>.........................] - ETA: 15s - loss: 0.8634 - accuracy: 0.7003
## 183/781 [======>........................] - ETA: 15s - loss: 0.8638 - accuracy: 0.7000
## 185/781 [======>........................] - ETA: 15s - loss: 0.8631 - accuracy: 0.7003
## 187/781 [======>........................] - ETA: 15s - loss: 0.8619 - accuracy: 0.7001
## 190/781 [======>........................] - ETA: 15s - loss: 0.8611 - accuracy: 0.7002
## 192/781 [======>........................] - ETA: 15s - loss: 0.8611 - accuracy: 0.7002
## 195/781 [======>........................] - ETA: 15s - loss: 0.8623 - accuracy: 0.7000
## 197/781 [======>........................] - ETA: 15s - loss: 0.8607 - accuracy: 0.7007
## 199/781 [======>........................] - ETA: 15s - loss: 0.8607 - accuracy: 0.7006
## 202/781 [======>........................] - ETA: 15s - loss: 0.8616 - accuracy: 0.7009
## 204/781 [======>........................] - ETA: 15s - loss: 0.8612 - accuracy: 0.7009
```

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## 206/781 [======>......................] - ETA: 15s - loss: 0.8622 - accuracy: 0.7004
## 209/781 [=======>.....................] - ETA: 15s - loss: 0.8606 - accuracy: 0.7010
## 211/781 [=======>.....................] - ETA: 15s - loss: 0.8604 - accuracy: 0.7011
## 214/781 [=======>.....................] - ETA: 15s - loss: 0.8596 - accuracy: 0.7008
## 217/781 [=======>.....................] - ETA: 14s - loss: 0.8591 - accuracy: 0.7013
## 219/781 [=======>.....................] - ETA: 14s - loss: 0.8582 - accuracy: 0.7013
## 221/781 [=======>.....................] - ETA: 14s - loss: 0.8571 - accuracy: 0.7018
## 223/781 [=======>.....................] - ETA: 14s - loss: 0.8563 - accuracy: 0.7019
## 225/781 [=======>.....................] - ETA: 14s - loss: 0.8582 - accuracy: 0.7013
## 227/781 [=======>.....................] - ETA: 14s - loss: 0.8581 - accuracy: 0.7013
## 230/781 [=======>.....................] - ETA: 14s - loss: 0.8568 - accuracy: 0.7016
## 232/781 [=======>.....................] - ETA: 14s - loss: 0.8566 - accuracy: 0.7017
## 235/781 [========>.....................] - ETA: 14s - loss: 0.8558 - accuracy: 0.7021
## 237/781 [========>.....................] - ETA: 14s - loss: 0.8561 - accuracy: 0.7022
## 239/781 [========>.....................] - ETA: 14s - loss: 0.8555 - accuracy: 0.7021
## 242/781 [========>.....................] - ETA: 14s - loss: 0.8526 - accuracy: 0.7028
## 245/781 [========>.....................] - ETA: 14s - loss: 0.8529 - accuracy: 0.7027
## 248/781 [========>.....................] - ETA: 14s - loss: 0.8524 - accuracy: 0.7026
## 250/781 [========>.....................] - ETA: 14s - loss: 0.8517 - accuracy: 0.7028
## 252/781 [========>.....................] - ETA: 14s - loss: 0.8511 - accuracy: 0.7029
## 255/781 [========>.....................] - ETA: 13s - loss: 0.8497 - accuracy: 0.7034
## 257/781 [========>.....................] - ETA: 13s - loss: 0.8494 - accuracy: 0.7034
## 259/781 [========>.....................] - ETA: 13s - loss: 0.8495 - accuracy: 0.7032
## 262/781 [=========>....................] - ETA: 13s - loss: 0.8492 - accuracy: 0.7034
## 265/781 [=========>....................] - ETA: 13s - loss: 0.8514 - accuracy: 0.7027
## 267/781 [=========>....................] - ETA: 13s - loss: 0.8511 - accuracy: 0.7025
## 269/781 [=========>....................] - ETA: 13s - loss: 0.8502 - accuracy: 0.7029
## 272/781 [=========>....................] - ETA: 13s - loss: 0.8488 - accuracy: 0.7035
## 274/781 [=========>....................] - ETA: 13s - loss: 0.8490 - accuracy: 0.7033
## 277/781 [=========>....................] - ETA: 13s - loss: 0.8483 - accuracy: 0.7037
## 279/781 [=========>....................] - ETA: 13s - loss: 0.8484 - accuracy: 0.7034
## 282/781 [=========>....................] - ETA: 13s - loss: 0.8479 - accuracy: 0.7035
## 284/781 [=========>....................] - ETA: 13s - loss: 0.8481 - accuracy: 0.7036
## 287/781 [==========>...................] - ETA: 13s - loss: 0.8471 - accuracy: 0.7039
## 289/781 [==========>...................] - ETA: 13s - loss: 0.8482 - accuracy: 0.7035
## 291/781 [==========>...................] - ETA: 13s - loss: 0.8480 - accuracy: 0.7035
## 294/781 [==========>...................] - ETA: 13s - loss: 0.8477 - accuracy: 0.7036
## 297/781 [==========>...................] - ETA: 12s - loss: 0.8459 - accuracy: 0.7040
## 300/781 [==========>...................] - ETA: 12s - loss: 0.8449 - accuracy: 0.7044
## 302/781 [==========>...................] - ETA: 12s - loss: 0.8450 - accuracy: 0.7044
## 305/781 [==========>...................] - ETA: 12s - loss: 0.8467 - accuracy: 0.7037
## 308/781 [==========>...................] - ETA: 12s - loss: 0.8472 - accuracy: 0.7037
## 310/781 [==========>...................] - ETA: 12s - loss: 0.8469 - accuracy: 0.7037
## 312/781 [==========>...................] - ETA: 12s - loss: 0.8469 - accuracy: 0.7036
## 314/781 [===========>..................] - ETA: 12s - loss: 0.8470 - accuracy: 0.7035
## 316/781 [===========>..................] - ETA: 12s - loss: 0.8471 - accuracy: 0.7035
## 318/781 [===========>..................] - ETA: 12s - loss: 0.8479 - accuracy: 0.7034
## 320/781 [===========>..................] - ETA: 12s - loss: 0.8488 - accuracy: 0.7029
## 322/781 [===========>..................] - ETA: 12s - loss: 0.8485 - accuracy: 0.7029
## 324/781 [===========>..................] - ETA: 12s - loss: 0.8488 - accuracy: 0.7028
## 326/781 [===========>..................] - ETA: 12s - loss: 0.8495 - accuracy: 0.7027
## 328/781 [===========>..................] - ETA: 12s - loss: 0.8485 - accuracy: 0.7027
## 331/781 [===========>..................] - ETA: 12s - loss: 0.8497 - accuracy: 0.7022
## 333/781 [===========>..................] - ETA: 12s - loss: 0.8500 - accuracy: 0.7023
```

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## 335/781 [===========>.................] - ETA: 11s - loss: 0.8496 - accuracy: 0.7025
## 337/781 [===========>.................] - ETA: 11s - loss: 0.8497 - accuracy: 0.7022
## 340/781 [============>................] - ETA: 11s - loss: 0.8502 - accuracy: 0.7022
## 342/781 [============>................] - ETA: 11s - loss: 0.8503 - accuracy: 0.7022
## 344/781 [============>................] - ETA: 11s - loss: 0.8499 - accuracy: 0.7022
## 346/781 [============>................] - ETA: 11s - loss: 0.8508 - accuracy: 0.7021
## 349/781 [============>................] - ETA: 11s - loss: 0.8497 - accuracy: 0.7027
## 352/781 [============>................] - ETA: 11s - loss: 0.8499 - accuracy: 0.7026
## 354/781 [============>................] - ETA: 11s - loss: 0.8506 - accuracy: 0.7022
## 357/781 [============>................] - ETA: 11s - loss: 0.8499 - accuracy: 0.7021
## 359/781 [============>................] - ETA: 11s - loss: 0.8497 - accuracy: 0.7019
## 361/781 [============>................] - ETA: 11s - loss: 0.8499 - accuracy: 0.7017
## 363/781 [============>................] - ETA: 11s - loss: 0.8496 - accuracy: 0.7018
## 365/781 [=============>...............] - ETA: 11s - loss: 0.8500 - accuracy: 0.7018
## 367/781 [=============>...............] - ETA: 11s - loss: 0.8491 - accuracy: 0.7021
## 370/781 [=============>...............] - ETA: 11s - loss: 0.8494 - accuracy: 0.7020
## 372/781 [=============>...............] - ETA: 11s - loss: 0.8490 - accuracy: 0.7021
## 374/781 [=============>...............] - ETA: 10s - loss: 0.8490 - accuracy: 0.7021
## 377/781 [=============>...............] - ETA: 10s - loss: 0.8486 - accuracy: 0.7023
## 379/781 [=============>...............] - ETA: 10s - loss: 0.8483 - accuracy: 0.7024
## 382/781 [=============>...............] - ETA: 10s - loss: 0.8484 - accuracy: 0.7021
## 384/781 [=============>...............] - ETA: 10s - loss: 0.8482 - accuracy: 0.7022
## 387/781 [=============>...............] - ETA: 10s - loss: 0.8483 - accuracy: 0.7021
## 390/781 [=============>...............] - ETA: 10s - loss: 0.8480 - accuracy: 0.7020
## 393/781 [==============>..............] - ETA: 10s - loss: 0.8482 - accuracy: 0.7021
## 396/781 [==============>..............] - ETA: 10s - loss: 0.8479 - accuracy: 0.7023
## 398/781 [==============>..............] - ETA: 10s - loss: 0.8481 - accuracy: 0.7021
## 400/781 [==============>..............] - ETA: 10s - loss: 0.8479 - accuracy: 0.7021
## 402/781 [==============>..............] - ETA: 10s - loss: 0.8480 - accuracy: 0.7021
## 405/781 [==============>..............] - ETA: 10s - loss: 0.8493 - accuracy: 0.7017
## 407/781 [==============>..............] - ETA: 10s - loss: 0.8496 - accuracy: 0.7016
## 409/781 [==============>..............] - ETA: 10s - loss: 0.8502 - accuracy: 0.7014
## 411/781 [==============>..............] - ETA: 9s - loss: 0.8490 - accuracy: 0.7019
## 414/781 [==============>..............] - ETA: 9s - loss: 0.8494 - accuracy: 0.7021
## 417/781 [===============>.............] - ETA: 9s - loss: 0.8492 - accuracy: 0.7019
## 419/781 [===============>.............] - ETA: 9s - loss: 0.8492 - accuracy: 0.7019
## 421/781 [===============>.............] - ETA: 9s - loss: 0.8487 - accuracy: 0.7023
## 423/781 [===============>.............] - ETA: 9s - loss: 0.8488 - accuracy: 0.7023
## 426/781 [===============>.............] - ETA: 9s - loss: 0.8489 - accuracy: 0.7023
## 428/781 [===============>.............] - ETA: 9s - loss: 0.8488 - accuracy: 0.7024
## 431/781 [===============>.............] - ETA: 9s - loss: 0.8486 - accuracy: 0.7026
## 433/781 [===============>.............] - ETA: 9s - loss: 0.8481 - accuracy: 0.7027
## 436/781 [===============>.............] - ETA: 9s - loss: 0.8489 - accuracy: 0.7023
## 438/781 [===============>.............] - ETA: 9s - loss: 0.8488 - accuracy: 0.7024
## 441/781 [===============>.............] - ETA: 9s - loss: 0.8479 - accuracy: 0.7025
## 443/781 [================>............] - ETA: 9s - loss: 0.8481 - accuracy: 0.7025
## 446/781 [================>............] - ETA: 9s - loss: 0.8486 - accuracy: 0.7020
## 449/781 [================>............] - ETA: 8s - loss: 0.8484 - accuracy: 0.7022
## 451/781 [================>............] - ETA: 8s - loss: 0.8480 - accuracy: 0.7024
## 453/781 [================>............] - ETA: 8s - loss: 0.8479 - accuracy: 0.7025
## 455/781 [================>............] - ETA: 8s - loss: 0.8479 - accuracy: 0.7025
## 457/781 [================>............] - ETA: 8s - loss: 0.8480 - accuracy: 0.7026
## 459/781 [================>............] - ETA: 8s - loss: 0.8479 - accuracy: 0.7027
## 461/781 [================>............] - ETA: 8s - loss: 0.8487 - accuracy: 0.7022
```

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## 463/781 [================>.............] - ETA: 8s - loss: 0.8480 - accuracy: 0.7023
## 466/781 [================>.............] - ETA: 8s - loss: 0.8479 - accuracy: 0.7022
## 468/781 [================>.............] - ETA: 8s - loss: 0.8480 - accuracy: 0.7022
## 470/781 [================>.............] - ETA: 8s - loss: 0.8478 - accuracy: 0.7022
## 473/781 [=================>............] - ETA: 8s - loss: 0.8471 - accuracy: 0.7024
## 475/781 [=================>............] - ETA: 8s - loss: 0.8472 - accuracy: 0.7024
## 478/781 [=================>............] - ETA: 8s - loss: 0.8463 - accuracy: 0.7026
## 481/781 [=================>............] - ETA: 8s - loss: 0.8451 - accuracy: 0.7030
## 483/781 [=================>............] - ETA: 8s - loss: 0.8455 - accuracy: 0.7029
## 485/781 [=================>............] - ETA: 7s - loss: 0.8453 - accuracy: 0.7031
## 488/781 [=================>............] - ETA: 7s - loss: 0.8453 - accuracy: 0.7032
## 490/781 [=================>............] - ETA: 7s - loss: 0.8456 - accuracy: 0.7031
## 493/781 [=================>............] - ETA: 7s - loss: 0.8453 - accuracy: 0.7031
## 495/781 [==================>...........] - ETA: 7s - loss: 0.8453 - accuracy: 0.7033
## 497/781 [==================>...........] - ETA: 7s - loss: 0.8452 - accuracy: 0.7034
## 499/781 [==================>...........] - ETA: 7s - loss: 0.8453 - accuracy: 0.7034
## 502/781 [==================>...........] - ETA: 7s - loss: 0.8454 - accuracy: 0.7032
## 504/781 [==================>...........] - ETA: 7s - loss: 0.8456 - accuracy: 0.7032
## 507/781 [==================>...........] - ETA: 7s - loss: 0.8454 - accuracy: 0.7034
## 509/781 [==================>...........] - ETA: 7s - loss: 0.8450 - accuracy: 0.7037
## 511/781 [==================>...........] - ETA: 7s - loss: 0.8450 - accuracy: 0.7037
## 513/781 [==================>...........] - ETA: 7s - loss: 0.8453 - accuracy: 0.7036
## 516/781 [==================>...........] - ETA: 7s - loss: 0.8453 - accuracy: 0.7036
## 518/781 [==================>...........] - ETA: 7s - loss: 0.8446 - accuracy: 0.7039
## 521/781 [===================>..........] - ETA: 7s - loss: 0.8444 - accuracy: 0.7041
## 524/781 [===================>..........] - ETA: 6s - loss: 0.8444 - accuracy: 0.7041
## 526/781 [===================>..........] - ETA: 6s - loss: 0.8447 - accuracy: 0.7040
## 528/781 [===================>..........] - ETA: 6s - loss: 0.8449 - accuracy: 0.7039
## 530/781 [===================>..........] - ETA: 6s - loss: 0.8446 - accuracy: 0.7040
## 533/781 [===================>..........] - ETA: 6s - loss: 0.8440 - accuracy: 0.7043
## 536/781 [===================>..........] - ETA: 6s - loss: 0.8440 - accuracy: 0.7045
## 538/781 [===================>..........] - ETA: 6s - loss: 0.8442 - accuracy: 0.7046
## 541/781 [===================>..........] - ETA: 6s - loss: 0.8442 - accuracy: 0.7046
## 543/781 [===================>..........] - ETA: 6s - loss: 0.8439 - accuracy: 0.7045
## 546/781 [===================>..........] - ETA: 6s - loss: 0.8443 - accuracy: 0.7043
## 549/781 [====================>.........] - ETA: 6s - loss: 0.8442 - accuracy: 0.7045
## 551/781 [====================>.........] - ETA: 6s - loss: 0.8443 - accuracy: 0.7045
## 554/781 [====================>.........] - ETA: 6s - loss: 0.8443 - accuracy: 0.7045
## 557/781 [====================>.........] - ETA: 6s - loss: 0.8439 - accuracy: 0.7045
## 560/781 [====================>.........] - ETA: 5s - loss: 0.8444 - accuracy: 0.7044
## 562/781 [====================>.........] - ETA: 5s - loss: 0.8440 - accuracy: 0.7045
## 565/781 [====================>.........] - ETA: 5s - loss: 0.8439 - accuracy: 0.7047
## 568/781 [====================>.........] - ETA: 5s - loss: 0.8443 - accuracy: 0.7046
## 570/781 [====================>.........] - ETA: 5s - loss: 0.8443 - accuracy: 0.7048
## 572/781 [====================>.........] - ETA: 5s - loss: 0.8440 - accuracy: 0.7050
## 575/781 [=====================>........] - ETA: 5s - loss: 0.8440 - accuracy: 0.7052
## 577/781 [=====================>........] - ETA: 5s - loss: 0.8440 - accuracy: 0.7051
## 580/781 [=====================>........] - ETA: 5s - loss: 0.8440 - accuracy: 0.7051
## 582/781 [=====================>........] - ETA: 5s - loss: 0.8442 - accuracy: 0.7049
## 584/781 [=====================>........] - ETA: 5s - loss: 0.8443 - accuracy: 0.7048
## 587/781 [=====================>........] - ETA: 5s - loss: 0.8440 - accuracy: 0.7050
## 589/781 [=====================>........] - ETA: 5s - loss: 0.8442 - accuracy: 0.7050
## 591/781 [=====================>........] - ETA: 5s - loss: 0.8445 - accuracy: 0.7049
## 593/781 [=====================>........] - ETA: 5s - loss: 0.8454 - accuracy: 0.7046
```

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## 596/781 [====================>........] - ETA: 4s - loss: 0.8455 - accuracy: 0.7047
## 599/781 [====================>........] - ETA: 4s - loss: 0.8450 - accuracy: 0.7049
## 601/781 [====================>........] - ETA: 4s - loss: 0.8450 - accuracy: 0.7049
## 604/781 [====================>........] - ETA: 4s - loss: 0.8451 - accuracy: 0.7049
## 606/781 [====================>........] - ETA: 4s - loss: 0.8450 - accuracy: 0.7049
## 608/781 [====================>........] - ETA: 4s - loss: 0.8455 - accuracy: 0.7048
## 611/781 [====================>........] - ETA: 4s - loss: 0.8459 - accuracy: 0.7047
## 614/781 [====================>........] - ETA: 4s - loss: 0.8454 - accuracy: 0.7048
## 616/781 [====================>........] - ETA: 4s - loss: 0.8455 - accuracy: 0.7049
## 618/781 [====================>........] - ETA: 4s - loss: 0.8456 - accuracy: 0.7049
## 620/781 [====================>........] - ETA: 4s - loss: 0.8460 - accuracy: 0.7048
## 623/781 [====================>........] - ETA: 4s - loss: 0.8461 - accuracy: 0.7048
## 626/781 [=====================>.......] - ETA: 4s - loss: 0.8462 - accuracy: 0.7047
## 628/781 [=====================>.......] - ETA: 4s - loss: 0.8460 - accuracy: 0.7049
## 630/781 [=====================>.......] - ETA: 4s - loss: 0.8455 - accuracy: 0.7050
## 632/781 [=====================>.......] - ETA: 4s - loss: 0.8456 - accuracy: 0.7051
## 634/781 [=====================>.......] - ETA: 3s - loss: 0.8453 - accuracy: 0.7051
## 636/781 [=====================>.......] - ETA: 3s - loss: 0.8453 - accuracy: 0.7051
## 638/781 [=====================>.......] - ETA: 3s - loss: 0.8456 - accuracy: 0.7049
## 640/781 [=====================>.......] - ETA: 3s - loss: 0.8456 - accuracy: 0.7050
## 642/781 [=====================>.......] - ETA: 3s - loss: 0.8456 - accuracy: 0.7049
## 645/781 [=====================>.......] - ETA: 3s - loss: 0.8448 - accuracy: 0.7052
## 647/781 [=====================>.......] - ETA: 3s - loss: 0.8449 - accuracy: 0.7052
## 649/781 [=====================>.......] - ETA: 3s - loss: 0.8451 - accuracy: 0.7051
## 652/781 [======================>......] - ETA: 3s - loss: 0.8452 - accuracy: 0.7052
## 654/781 [======================>......] - ETA: 3s - loss: 0.8449 - accuracy: 0.7052
## 657/781 [======================>......] - ETA: 3s - loss: 0.8450 - accuracy: 0.7051
## 659/781 [======================>......] - ETA: 3s - loss: 0.8448 - accuracy: 0.7052
## 662/781 [======================>......] - ETA: 3s - loss: 0.8450 - accuracy: 0.7051
## 664/781 [======================>......] - ETA: 3s - loss: 0.8448 - accuracy: 0.7052
## 666/781 [======================>......] - ETA: 3s - loss: 0.8450 - accuracy: 0.7051
## 668/781 [======================>......] - ETA: 3s - loss: 0.8455 - accuracy: 0.7050
## 670/781 [======================>......] - ETA: 2s - loss: 0.8457 - accuracy: 0.7049
## 672/781 [======================>......] - ETA: 2s - loss: 0.8448 - accuracy: 0.7054
## 675/781 [======================>......] - ETA: 2s - loss: 0.8446 - accuracy: 0.7054
## 678/781 [=======================>.....] - ETA: 2s - loss: 0.8445 - accuracy: 0.7054
## 681/781 [=======================>.....] - ETA: 2s - loss: 0.8442 - accuracy: 0.7055
## 683/781 [=======================>.....] - ETA: 2s - loss: 0.8438 - accuracy: 0.7057
## 686/781 [=======================>.....] - ETA: 2s - loss: 0.8437 - accuracy: 0.7057
## 688/781 [=======================>.....] - ETA: 2s - loss: 0.8437 - accuracy: 0.7056
## 690/781 [=======================>.....] - ETA: 2s - loss: 0.8434 - accuracy: 0.7057
## 693/781 [=======================>.....] - ETA: 2s - loss: 0.8434 - accuracy: 0.7057
## 695/781 [=======================>.....] - ETA: 2s - loss: 0.8430 - accuracy: 0.7060
## 697/781 [=======================>.....] - ETA: 2s - loss: 0.8428 - accuracy: 0.7061
## 699/781 [=======================>.....] - ETA: 2s - loss: 0.8428 - accuracy: 0.7061
## 701/781 [=======================>.....] - ETA: 2s - loss: 0.8428 - accuracy: 0.7062
## 703/781 [=======================>.....] - ETA: 2s - loss: 0.8422 - accuracy: 0.7064
## 705/781 [=======================>.....] - ETA: 2s - loss: 0.8417 - accuracy: 0.7065
## 707/781 [=======================>.....] - ETA: 1s - loss: 0.8416 - accuracy: 0.7067
## 709/781 [=======================>.....] - ETA: 1s - loss: 0.8419 - accuracy: 0.7066
## 711/781 [=======================>.....] - ETA: 1s - loss: 0.8421 - accuracy: 0.7066
## 713/781 [=======================>.....] - ETA: 1s - loss: 0.8422 - accuracy: 0.7065
## 715/781 [=======================>.....] - ETA: 1s - loss: 0.8418 - accuracy: 0.7067
## 717/781 [=======================>.....] - ETA: 1s - loss: 0.8418 - accuracy: 0.7067
```

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## 719/781 [=========================>...] - ETA: 1s - loss: 0.8416 - accuracy: 0.7068
## 721/781 [=========================>...] - ETA: 1s - loss: 0.8417 - accuracy: 0.7067
## 723/781 [=========================>...] - ETA: 1s - loss: 0.8414 - accuracy: 0.7068
## 725/781 [=========================>...] - ETA: 1s - loss: 0.8410 - accuracy: 0.7070
## 728/781 [=========================>...] - ETA: 1s - loss: 0.8409 - accuracy: 0.7071
## 730/781 [==========================>..] - ETA: 1s - loss: 0.8410 - accuracy: 0.7070
## 732/781 [==========================>..] - ETA: 1s - loss: 0.8415 - accuracy: 0.7069
## 734/781 [==========================>..] - ETA: 1s - loss: 0.8413 - accuracy: 0.7068
## 737/781 [==========================>..] - ETA: 1s - loss: 0.8415 - accuracy: 0.7069
## 739/781 [==========================>..] - ETA: 1s - loss: 0.8414 - accuracy: 0.7070
## 741/781 [==========================>..] - ETA: 1s - loss: 0.8415 - accuracy: 0.7068
## 743/781 [==========================>..] - ETA: 1s - loss: 0.8417 - accuracy: 0.7068
## 745/781 [==========================>..] - ETA: 0s - loss: 0.8421 - accuracy: 0.7066
## 747/781 [==========================>..] - ETA: 0s - loss: 0.8423 - accuracy: 0.7064
## 749/781 [==========================>..] - ETA: 0s - loss: 0.8420 - accuracy: 0.7065
## 751/781 [==========================>..] - ETA: 0s - loss: 0.8420 - accuracy: 0.7065
## 753/781 [==========================>..] - ETA: 0s - loss: 0.8423 - accuracy: 0.7064
## 755/781 [==========================>.] - ETA: 0s - loss: 0.8424 - accuracy: 0.7064
## 757/781 [==========================>.] - ETA: 0s - loss: 0.8423 - accuracy: 0.7065
## 760/781 [==========================>.] - ETA: 0s - loss: 0.8419 - accuracy: 0.7067
## 762/781 [==========================>.] - ETA: 0s - loss: 0.8417 - accuracy: 0.7068
## 764/781 [==========================>.] - ETA: 0s - loss: 0.8416 - accuracy: 0.7068
## 766/781 [==========================>.] - ETA: 0s - loss: 0.8414 - accuracy: 0.7069
## 768/781 [==========================>.] - ETA: 0s - loss: 0.8409 - accuracy: 0.7071
## 770/781 [==========================>.] - ETA: 0s - loss: 0.8406 - accuracy: 0.7072
## 772/781 [==========================>.] - ETA: 0s - loss: 0.8410 - accuracy: 0.7072
## 775/781 [==========================>.] - ETA: 0s - loss: 0.8407 - accuracy: 0.7074
## 777/781 [==========================>.] - ETA: 0s - loss: 0.8408 - accuracy: 0.7073
## 779/781 [==========================>.] - ETA: 0s - loss: 0.8409 - accuracy: 0.7074
## 781/781 [==============================] - 22s 29ms/step - loss: 0.8408 - accuracy: 0.7073 - val_loss
## Epoch 20/20
##
##   1/781 [..............................] - ETA: 32s - loss: 1.0626 - accuracy: 0.5469
##   3/781 [..............................] - ETA: 21s - loss: 0.9888 - accuracy: 0.6354
##   5/781 [..............................] - ETA: 21s - loss: 0.9517 - accuracy: 0.6687
##   8/781 [..............................] - ETA: 19s - loss: 0.8760 - accuracy: 0.6836
##  10/781 [..............................] - ETA: 19s - loss: 0.8689 - accuracy: 0.6859
##  12/781 [..............................] - ETA: 20s - loss: 0.8922 - accuracy: 0.6836
##  14/781 [..............................] - ETA: 20s - loss: 0.8895 - accuracy: 0.6842
##  16/781 [..............................] - ETA: 20s - loss: 0.8889 - accuracy: 0.6846
##  18/781 [..............................] - ETA: 20s - loss: 0.8911 - accuracy: 0.6823
##  20/781 [..............................] - ETA: 20s - loss: 0.8798 - accuracy: 0.6828
##  23/781 [..............................] - ETA: 20s - loss: 0.8851 - accuracy: 0.6814
##  25/781 [..............................] - ETA: 20s - loss: 0.8762 - accuracy: 0.6837
##  27/781 [>.............................] - ETA: 20s - loss: 0.8870 - accuracy: 0.6794
##  29/781 [>.............................] - ETA: 21s - loss: 0.8812 - accuracy: 0.6827
##  31/781 [>.............................] - ETA: 21s - loss: 0.8813 - accuracy: 0.6840
##  33/781 [>.............................] - ETA: 21s - loss: 0.8736 - accuracy: 0.6870
##  35/781 [>.............................] - ETA: 21s - loss: 0.8761 - accuracy: 0.6871
##  37/781 [>.............................] - ETA: 21s - loss: 0.8760 - accuracy: 0.6875
##  39/781 [>.............................] - ETA: 21s - loss: 0.8720 - accuracy: 0.6871
##  41/781 [>.............................] - ETA: 20s - loss: 0.8637 - accuracy: 0.6917
##  43/781 [>.............................] - ETA: 20s - loss: 0.8562 - accuracy: 0.6937
##  45/781 [>.............................] - ETA: 20s - loss: 0.8530 - accuracy: 0.6948
```

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##  47/781 [>.............................] - ETA: 20s - loss: 0.8468 - accuracy: 0.6958
##  49/781 [>.............................] - ETA: 20s - loss: 0.8539 - accuracy: 0.6936
##  51/781 [>.............................] - ETA: 20s - loss: 0.8488 - accuracy: 0.6961
##  53/781 [=>............................] - ETA: 20s - loss: 0.8511 - accuracy: 0.6958
##  55/781 [=>............................] - ETA: 20s - loss: 0.8479 - accuracy: 0.6972
##  57/781 [=>............................] - ETA: 20s - loss: 0.8473 - accuracy: 0.6963
##  59/781 [=>............................] - ETA: 20s - loss: 0.8503 - accuracy: 0.6962
##  61/781 [=>............................] - ETA: 20s - loss: 0.8494 - accuracy: 0.6970
##  63/781 [=>............................] - ETA: 20s - loss: 0.8462 - accuracy: 0.6982
##  65/781 [=>............................] - ETA: 20s - loss: 0.8435 - accuracy: 0.6983
##  67/781 [=>............................] - ETA: 20s - loss: 0.8414 - accuracy: 0.6999
##  69/781 [=>............................] - ETA: 20s - loss: 0.8438 - accuracy: 0.6990
##  71/781 [=>............................] - ETA: 20s - loss: 0.8396 - accuracy: 0.7009
##  73/781 [=>............................] - ETA: 20s - loss: 0.8361 - accuracy: 0.7016
##  75/781 [=>............................] - ETA: 20s - loss: 0.8366 - accuracy: 0.7021
##  77/781 [=>............................] - ETA: 20s - loss: 0.8341 - accuracy: 0.7019
##  79/781 [==>...........................] - ETA: 20s - loss: 0.8349 - accuracy: 0.7023
##  81/781 [==>...........................] - ETA: 20s - loss: 0.8325 - accuracy: 0.7024
##  83/781 [==>...........................] - ETA: 20s - loss: 0.8285 - accuracy: 0.7033
##  85/781 [==>...........................] - ETA: 20s - loss: 0.8249 - accuracy: 0.7051
##  87/781 [==>...........................] - ETA: 20s - loss: 0.8238 - accuracy: 0.7067
##  89/781 [==>...........................] - ETA: 20s - loss: 0.8243 - accuracy: 0.7066
##  91/781 [==>...........................] - ETA: 20s - loss: 0.8221 - accuracy: 0.7078
##  93/781 [==>...........................] - ETA: 20s - loss: 0.8226 - accuracy: 0.7077
##  95/781 [==>...........................] - ETA: 20s - loss: 0.8219 - accuracy: 0.7079
##  98/781 [==>...........................] - ETA: 20s - loss: 0.8192 - accuracy: 0.7087
## 100/781 [==>...........................] - ETA: 20s - loss: 0.8173 - accuracy: 0.7094
## 102/781 [==>...........................] - ETA: 20s - loss: 0.8191 - accuracy: 0.7080
## 104/781 [==>...........................] - ETA: 20s - loss: 0.8184 - accuracy: 0.7087
## 106/781 [===>..........................] - ETA: 20s - loss: 0.8154 - accuracy: 0.7101
## 108/781 [===>..........................] - ETA: 20s - loss: 0.8201 - accuracy: 0.7089
## 110/781 [===>..........................] - ETA: 20s - loss: 0.8173 - accuracy: 0.7102
## 112/781 [===>..........................] - ETA: 20s - loss: 0.8217 - accuracy: 0.7097
## 114/781 [===>..........................] - ETA: 20s - loss: 0.8203 - accuracy: 0.7101
## 116/781 [===>..........................] - ETA: 19s - loss: 0.8192 - accuracy: 0.7101
## 118/781 [===>..........................] - ETA: 19s - loss: 0.8195 - accuracy: 0.7108
## 120/781 [===>..........................] - ETA: 19s - loss: 0.8185 - accuracy: 0.7106
## 122/781 [===>..........................] - ETA: 19s - loss: 0.8185 - accuracy: 0.7106
## 124/781 [===>..........................] - ETA: 19s - loss: 0.8162 - accuracy: 0.7115
## 126/781 [===>..........................] - ETA: 19s - loss: 0.8170 - accuracy: 0.7117
## 128/781 [===>..........................] - ETA: 19s - loss: 0.8173 - accuracy: 0.7113
## 130/781 [===>..........................] - ETA: 19s - loss: 0.8167 - accuracy: 0.7117
## 132/781 [====>.........................] - ETA: 19s - loss: 0.8153 - accuracy: 0.7123
## 134/781 [====>.........................] - ETA: 19s - loss: 0.8130 - accuracy: 0.7134
## 136/781 [====>.........................] - ETA: 19s - loss: 0.8158 - accuracy: 0.7128
## 138/781 [====>.........................] - ETA: 19s - loss: 0.8156 - accuracy: 0.7131
## 140/781 [====>.........................] - ETA: 19s - loss: 0.8141 - accuracy: 0.7142
## 142/781 [====>.........................] - ETA: 19s - loss: 0.8129 - accuracy: 0.7145
## 144/781 [====>.........................] - ETA: 19s - loss: 0.8143 - accuracy: 0.7139
## 146/781 [====>.........................] - ETA: 19s - loss: 0.8140 - accuracy: 0.7139
## 148/781 [====>.........................] - ETA: 19s - loss: 0.8136 - accuracy: 0.7136
## 150/781 [====>.........................] - ETA: 19s - loss: 0.8114 - accuracy: 0.7148
## 152/781 [====>.........................] - ETA: 19s - loss: 0.8125 - accuracy: 0.7140
## 154/781 [====>.........................] - ETA: 18s - loss: 0.8129 - accuracy: 0.7143
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## 156/781 [====>.....................] - ETA: 18s - loss: 0.8145 - accuracy: 0.7133
## 158/781 [=====>....................] - ETA: 18s - loss: 0.8154 - accuracy: 0.7123
## 160/781 [=====>....................] - ETA: 18s - loss: 0.8152 - accuracy: 0.7129
## 162/781 [=====>....................] - ETA: 18s - loss: 0.8136 - accuracy: 0.7138
## 164/781 [=====>....................] - ETA: 18s - loss: 0.8149 - accuracy: 0.7134
## 166/781 [=====>....................] - ETA: 18s - loss: 0.8144 - accuracy: 0.7132
## 168/781 [=====>....................] - ETA: 18s - loss: 0.8156 - accuracy: 0.7128
## 170/781 [=====>....................] - ETA: 18s - loss: 0.8133 - accuracy: 0.7140
## 172/781 [=====>....................] - ETA: 18s - loss: 0.8128 - accuracy: 0.7146
## 174/781 [=====>....................] - ETA: 18s - loss: 0.8140 - accuracy: 0.7138
## 176/781 [=====>....................] - ETA: 18s - loss: 0.8143 - accuracy: 0.7134
## 178/781 [=====>....................] - ETA: 18s - loss: 0.8140 - accuracy: 0.7138
## 180/781 [=====>....................] - ETA: 18s - loss: 0.8131 - accuracy: 0.7146
## 182/781 [=====>....................] - ETA: 18s - loss: 0.8130 - accuracy: 0.7142
## 184/781 [======>...................] - ETA: 18s - loss: 0.8122 - accuracy: 0.7144
## 186/781 [======>...................] - ETA: 17s - loss: 0.8108 - accuracy: 0.7146
## 188/781 [======>...................] - ETA: 17s - loss: 0.8110 - accuracy: 0.7146
## 190/781 [======>...................] - ETA: 17s - loss: 0.8115 - accuracy: 0.7151
## 192/781 [======>...................] - ETA: 17s - loss: 0.8108 - accuracy: 0.7156
## 194/781 [======>...................] - ETA: 17s - loss: 0.8106 - accuracy: 0.7157
## 196/781 [======>...................] - ETA: 17s - loss: 0.8110 - accuracy: 0.7158
## 198/781 [======>...................] - ETA: 17s - loss: 0.8100 - accuracy: 0.7165
## 200/781 [======>...................] - ETA: 17s - loss: 0.8098 - accuracy: 0.7169
## 202/781 [======>...................] - ETA: 17s - loss: 0.8077 - accuracy: 0.7179
## 204/781 [======>...................] - ETA: 17s - loss: 0.8090 - accuracy: 0.7176
## 206/781 [======>...................] - ETA: 17s - loss: 0.8099 - accuracy: 0.7174
## 208/781 [======>...................] - ETA: 17s - loss: 0.8099 - accuracy: 0.7173
## 210/781 [=======>..................] - ETA: 17s - loss: 0.8095 - accuracy: 0.7173
## 212/781 [=======>..................] - ETA: 17s - loss: 0.8089 - accuracy: 0.7176
## 214/781 [=======>..................] - ETA: 16s - loss: 0.8105 - accuracy: 0.7170
## 216/781 [=======>..................] - ETA: 16s - loss: 0.8106 - accuracy: 0.7170
## 218/781 [=======>..................] - ETA: 16s - loss: 0.8117 - accuracy: 0.7161
## 220/781 [=======>..................] - ETA: 16s - loss: 0.8126 - accuracy: 0.7161
## 222/781 [=======>..................] - ETA: 16s - loss: 0.8137 - accuracy: 0.7159
## 224/781 [=======>..................] - ETA: 16s - loss: 0.8157 - accuracy: 0.7156
## 226/781 [=======>..................] - ETA: 16s - loss: 0.8149 - accuracy: 0.7162
## 228/781 [=======>..................] - ETA: 16s - loss: 0.8155 - accuracy: 0.7164
## 230/781 [=======>..................] - ETA: 16s - loss: 0.8176 - accuracy: 0.7153
## 232/781 [=======>..................] - ETA: 16s - loss: 0.8166 - accuracy: 0.7155
## 234/781 [=======>..................] - ETA: 16s - loss: 0.8157 - accuracy: 0.7156
## 236/781 [========>.................] - ETA: 16s - loss: 0.8167 - accuracy: 0.7155
## 238/781 [========>.................] - ETA: 16s - loss: 0.8174 - accuracy: 0.7155
## 240/781 [========>.................] - ETA: 16s - loss: 0.8181 - accuracy: 0.7155
## 242/781 [========>.................] - ETA: 16s - loss: 0.8181 - accuracy: 0.7152
## 244/781 [========>.................] - ETA: 15s - loss: 0.8179 - accuracy: 0.7151
## 246/781 [========>.................] - ETA: 15s - loss: 0.8184 - accuracy: 0.7149
## 248/781 [========>.................] - ETA: 15s - loss: 0.8177 - accuracy: 0.7154
## 250/781 [========>.................] - ETA: 15s - loss: 0.8181 - accuracy: 0.7153
## 252/781 [========>.................] - ETA: 15s - loss: 0.8182 - accuracy: 0.7150
## 254/781 [========>.................] - ETA: 15s - loss: 0.8184 - accuracy: 0.7150
## 256/781 [========>.................] - ETA: 15s - loss: 0.8188 - accuracy: 0.7148
## 258/781 [========>.................] - ETA: 15s - loss: 0.8191 - accuracy: 0.7148
## 260/781 [========>.................] - ETA: 15s - loss: 0.8190 - accuracy: 0.7146
## 262/781 [=========>................] - ETA: 15s - loss: 0.8195 - accuracy: 0.7142
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## 264/781 [=========>....................] - ETA: 15s - loss: 0.8184 - accuracy: 0.7144
## 266/781 [=========>....................] - ETA: 15s - loss: 0.8178 - accuracy: 0.7144
## 268/781 [=========>....................] - ETA: 15s - loss: 0.8176 - accuracy: 0.7146
## 270/781 [=========>....................] - ETA: 15s - loss: 0.8172 - accuracy: 0.7145
## 272/781 [=========>....................] - ETA: 15s - loss: 0.8169 - accuracy: 0.7151
## 274/781 [=========>....................] - ETA: 14s - loss: 0.8172 - accuracy: 0.7153
## 276/781 [=========>....................] - ETA: 14s - loss: 0.8174 - accuracy: 0.7155
## 278/781 [=========>....................] - ETA: 14s - loss: 0.8176 - accuracy: 0.7156
## 280/781 [=========>....................] - ETA: 14s - loss: 0.8178 - accuracy: 0.7156
## 282/781 [=========>....................] - ETA: 14s - loss: 0.8191 - accuracy: 0.7148
## 284/781 [=========>....................] - ETA: 14s - loss: 0.8191 - accuracy: 0.7148
## 286/781 [=========>....................] - ETA: 14s - loss: 0.8194 - accuracy: 0.7147
## 288/781 [==========>...................] - ETA: 14s - loss: 0.8182 - accuracy: 0.7150
## 290/781 [==========>...................] - ETA: 14s - loss: 0.8182 - accuracy: 0.7148
## 292/781 [==========>...................] - ETA: 14s - loss: 0.8190 - accuracy: 0.7145
## 294/781 [==========>...................] - ETA: 14s - loss: 0.8184 - accuracy: 0.7148
## 296/781 [==========>...................] - ETA: 14s - loss: 0.8196 - accuracy: 0.7141
## 298/781 [==========>...................] - ETA: 14s - loss: 0.8204 - accuracy: 0.7139
## 300/781 [==========>...................] - ETA: 14s - loss: 0.8210 - accuracy: 0.7137
## 302/781 [==========>...................] - ETA: 14s - loss: 0.8210 - accuracy: 0.7137
## 304/781 [==========>...................] - ETA: 14s - loss: 0.8201 - accuracy: 0.7141
## 306/781 [==========>...................] - ETA: 13s - loss: 0.8203 - accuracy: 0.7139
## 308/781 [==========>...................] - ETA: 13s - loss: 0.8205 - accuracy: 0.7139
## 310/781 [==========>...................] - ETA: 13s - loss: 0.8215 - accuracy: 0.7134
## 312/781 [==========>...................] - ETA: 13s - loss: 0.8222 - accuracy: 0.7134
## 314/781 [===========>..................] - ETA: 13s - loss: 0.8220 - accuracy: 0.7134
## 316/781 [===========>..................] - ETA: 13s - loss: 0.8214 - accuracy: 0.7137
## 318/781 [===========>..................] - ETA: 13s - loss: 0.8214 - accuracy: 0.7135
## 320/781 [===========>..................] - ETA: 13s - loss: 0.8216 - accuracy: 0.7134
## 322/781 [===========>..................] - ETA: 13s - loss: 0.8224 - accuracy: 0.7133
## 324/781 [===========>..................] - ETA: 13s - loss: 0.8215 - accuracy: 0.7138
## 326/781 [===========>..................] - ETA: 13s - loss: 0.8213 - accuracy: 0.7137
## 328/781 [===========>..................] - ETA: 13s - loss: 0.8207 - accuracy: 0.7139
## 330/781 [===========>..................] - ETA: 13s - loss: 0.8208 - accuracy: 0.7140
## 332/781 [===========>..................] - ETA: 13s - loss: 0.8209 - accuracy: 0.7140
## 334/781 [===========>..................] - ETA: 13s - loss: 0.8219 - accuracy: 0.7136
## 336/781 [===========>..................] - ETA: 13s - loss: 0.8221 - accuracy: 0.7137
## 338/781 [===========>..................] - ETA: 12s - loss: 0.8229 - accuracy: 0.7137
## 340/781 [============>.................] - ETA: 12s - loss: 0.8230 - accuracy: 0.7137
## 342/781 [============>.................] - ETA: 12s - loss: 0.8232 - accuracy: 0.7136
## 344/781 [============>.................] - ETA: 12s - loss: 0.8239 - accuracy: 0.7135
## 346/781 [============>.................] - ETA: 12s - loss: 0.8248 - accuracy: 0.7133
## 348/781 [============>.................] - ETA: 12s - loss: 0.8243 - accuracy: 0.7135
## 350/781 [============>.................] - ETA: 12s - loss: 0.8242 - accuracy: 0.7136
## 352/781 [============>.................] - ETA: 12s - loss: 0.8249 - accuracy: 0.7134
## 354/781 [============>.................] - ETA: 12s - loss: 0.8245 - accuracy: 0.7134
## 356/781 [============>.................] - ETA: 12s - loss: 0.8249 - accuracy: 0.7135
## 358/781 [============>.................] - ETA: 12s - loss: 0.8251 - accuracy: 0.7135
## 360/781 [============>.................] - ETA: 12s - loss: 0.8245 - accuracy: 0.7136
## 362/781 [============>.................] - ETA: 12s - loss: 0.8248 - accuracy: 0.7135
## 364/781 [============>.................] - ETA: 12s - loss: 0.8254 - accuracy: 0.7134
## 366/781 [=============>................] - ETA: 12s - loss: 0.8260 - accuracy: 0.7132
## 369/781 [=============>................] - ETA: 12s - loss: 0.8263 - accuracy: 0.7131
## 371/781 [=============>................] - ETA: 11s - loss: 0.8262 - accuracy: 0.7129
```

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## 373/781 [============>.............] - ETA: 11s - loss: 0.8269 - accuracy: 0.7127
## 375/781 [============>.............] - ETA: 11s - loss: 0.8274 - accuracy: 0.7123
## 377/781 [============>.............] - ETA: 11s - loss: 0.8277 - accuracy: 0.7119
## 379/781 [============>.............] - ETA: 11s - loss: 0.8278 - accuracy: 0.7117
## 381/781 [============>.............] - ETA: 11s - loss: 0.8278 - accuracy: 0.7118
## 383/781 [============>.............] - ETA: 11s - loss: 0.8278 - accuracy: 0.7117
## 385/781 [============>.............] - ETA: 11s - loss: 0.8281 - accuracy: 0.7117
## 387/781 [============>.............] - ETA: 11s - loss: 0.8289 - accuracy: 0.7112
## 389/781 [============>.............] - ETA: 11s - loss: 0.8291 - accuracy: 0.7111
## 391/781 [=============>.............] - ETA: 11s - loss: 0.8284 - accuracy: 0.7112
## 393/781 [=============>.............] - ETA: 11s - loss: 0.8288 - accuracy: 0.7110
## 395/781 [=============>.............] - ETA: 11s - loss: 0.8290 - accuracy: 0.7108
## 397/781 [=============>.............] - ETA: 11s - loss: 0.8282 - accuracy: 0.7110
## 399/781 [=============>.............] - ETA: 11s - loss: 0.8276 - accuracy: 0.7111
## 401/781 [=============>.............] - ETA: 11s - loss: 0.8280 - accuracy: 0.7110
## 403/781 [=============>.............] - ETA: 11s - loss: 0.8281 - accuracy: 0.7109
## 405/781 [=============>.............] - ETA: 10s - loss: 0.8275 - accuracy: 0.7113
## 407/781 [=============>.............] - ETA: 10s - loss: 0.8274 - accuracy: 0.7114
## 409/781 [=============>.............] - ETA: 10s - loss: 0.8269 - accuracy: 0.7116
## 411/781 [=============>.............] - ETA: 10s - loss: 0.8269 - accuracy: 0.7117
## 413/781 [=============>.............] - ETA: 10s - loss: 0.8268 - accuracy: 0.7118
## 415/781 [=============>.............] - ETA: 10s - loss: 0.8265 - accuracy: 0.7118
## 417/781 [==============>.............] - ETA: 10s - loss: 0.8265 - accuracy: 0.7117
## 419/781 [==============>.............] - ETA: 10s - loss: 0.8261 - accuracy: 0.7118
## 421/781 [==============>.............] - ETA: 10s - loss: 0.8262 - accuracy: 0.7119
## 423/781 [==============>.............] - ETA: 10s - loss: 0.8263 - accuracy: 0.7118
## 425/781 [==============>.............] - ETA: 10s - loss: 0.8263 - accuracy: 0.7117
## 427/781 [==============>.............] - ETA: 10s - loss: 0.8262 - accuracy: 0.7117
## 429/781 [==============>.............] - ETA: 10s - loss: 0.8260 - accuracy: 0.7117
## 431/781 [==============>.............] - ETA: 10s - loss: 0.8259 - accuracy: 0.7117
## 433/781 [==============>.............] - ETA: 10s - loss: 0.8274 - accuracy: 0.7113
## 435/781 [==============>.............] - ETA: 10s - loss: 0.8273 - accuracy: 0.7114
## 437/781 [==============>.............] - ETA: 9s - loss: 0.8278 - accuracy: 0.7114
## 439/781 [==============>.............] - ETA: 9s - loss: 0.8281 - accuracy: 0.7113
## 441/781 [==============>.............] - ETA: 9s - loss: 0.8282 - accuracy: 0.7111
## 443/781 [===============>.............] - ETA: 9s - loss: 0.8281 - accuracy: 0.7109
## 445/781 [===============>.............] - ETA: 9s - loss: 0.8283 - accuracy: 0.7109
## 447/781 [===============>.............] - ETA: 9s - loss: 0.8279 - accuracy: 0.7111
## 449/781 [===============>.............] - ETA: 9s - loss: 0.8275 - accuracy: 0.7111
## 451/781 [===============>.............] - ETA: 9s - loss: 0.8282 - accuracy: 0.7110
## 453/781 [===============>.............] - ETA: 9s - loss: 0.8287 - accuracy: 0.7107
## 455/781 [===============>.............] - ETA: 9s - loss: 0.8279 - accuracy: 0.7110
## 457/781 [===============>.............] - ETA: 9s - loss: 0.8287 - accuracy: 0.7110
## 459/781 [===============>.............] - ETA: 9s - loss: 0.8284 - accuracy: 0.7110
## 461/781 [===============>.............] - ETA: 9s - loss: 0.8280 - accuracy: 0.7111
## 463/781 [===============>.............] - ETA: 9s - loss: 0.8280 - accuracy: 0.7112
## 465/781 [===============>.............] - ETA: 9s - loss: 0.8284 - accuracy: 0.7111
## 467/781 [===============>.............] - ETA: 9s - loss: 0.8291 - accuracy: 0.7108
## 469/781 [================>.............] - ETA: 9s - loss: 0.8288 - accuracy: 0.7108
## 471/781 [================>.............] - ETA: 8s - loss: 0.8284 - accuracy: 0.7108
## 473/781 [================>.............] - ETA: 8s - loss: 0.8285 - accuracy: 0.7107
## 475/781 [================>.............] - ETA: 8s - loss: 0.8288 - accuracy: 0.7107
## 477/781 [================>.............] - ETA: 8s - loss: 0.8290 - accuracy: 0.7106
## 479/781 [================>.............] - ETA: 8s - loss: 0.8289 - accuracy: 0.7105
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## 481/781 [================>.............] - ETA: 8s - loss: 0.8290 - accuracy: 0.7103
## 483/781 [================>.............] - ETA: 8s - loss: 0.8287 - accuracy: 0.7104
## 485/781 [================>.............] - ETA: 8s - loss: 0.8287 - accuracy: 0.7103
## 487/781 [================>.............] - ETA: 8s - loss: 0.8280 - accuracy: 0.7107
## 489/781 [================>.............] - ETA: 8s - loss: 0.8280 - accuracy: 0.7107
## 491/781 [================>.............] - ETA: 8s - loss: 0.8278 - accuracy: 0.7109
## 493/781 [================>.............] - ETA: 8s - loss: 0.8278 - accuracy: 0.7107
## 495/781 [=================>............] - ETA: 8s - loss: 0.8275 - accuracy: 0.7106
## 497/781 [=================>............] - ETA: 8s - loss: 0.8275 - accuracy: 0.7106
## 499/781 [=================>............] - ETA: 8s - loss: 0.8285 - accuracy: 0.7101
## 501/781 [=================>............] - ETA: 8s - loss: 0.8288 - accuracy: 0.7101
## 503/781 [=================>............] - ETA: 8s - loss: 0.8287 - accuracy: 0.7102
## 505/781 [=================>............] - ETA: 8s - loss: 0.8287 - accuracy: 0.7103
## 508/781 [=================>............] - ETA: 7s - loss: 0.8290 - accuracy: 0.7101
## 510/781 [=================>............] - ETA: 7s - loss: 0.8294 - accuracy: 0.7102
## 512/781 [=================>............] - ETA: 7s - loss: 0.8292 - accuracy: 0.7101
## 514/781 [=================>............] - ETA: 7s - loss: 0.8292 - accuracy: 0.7099
## 516/781 [=================>............] - ETA: 7s - loss: 0.8302 - accuracy: 0.7097
## 518/781 [=================>............] - ETA: 7s - loss: 0.8299 - accuracy: 0.7098
## 520/781 [=================>............] - ETA: 7s - loss: 0.8303 - accuracy: 0.7096
## 522/781 [==================>...........] - ETA: 7s - loss: 0.8304 - accuracy: 0.7097
## 524/781 [==================>...........] - ETA: 7s - loss: 0.8304 - accuracy: 0.7098
## 526/781 [==================>...........] - ETA: 7s - loss: 0.8305 - accuracy: 0.7098
## 528/781 [==================>...........] - ETA: 7s - loss: 0.8307 - accuracy: 0.7095
## 530/781 [==================>...........] - ETA: 7s - loss: 0.8304 - accuracy: 0.7095
## 533/781 [==================>...........] - ETA: 7s - loss: 0.8312 - accuracy: 0.7094
## 535/781 [==================>...........] - ETA: 7s - loss: 0.8317 - accuracy: 0.7091
## 537/781 [==================>...........] - ETA: 7s - loss: 0.8321 - accuracy: 0.7089
## 539/781 [==================>...........] - ETA: 7s - loss: 0.8328 - accuracy: 0.7087
## 541/781 [==================>...........] - ETA: 6s - loss: 0.8328 - accuracy: 0.7087
## 543/781 [==================>...........] - ETA: 6s - loss: 0.8328 - accuracy: 0.7088
## 545/781 [==================>...........] - ETA: 6s - loss: 0.8327 - accuracy: 0.7087
## 547/781 [===================>..........] - ETA: 6s - loss: 0.8333 - accuracy: 0.7084
## 549/781 [===================>..........] - ETA: 6s - loss: 0.8330 - accuracy: 0.7085
## 551/781 [===================>..........] - ETA: 6s - loss: 0.8340 - accuracy: 0.7083
## 553/781 [===================>..........] - ETA: 6s - loss: 0.8343 - accuracy: 0.7082
## 555/781 [===================>..........] - ETA: 6s - loss: 0.8350 - accuracy: 0.7079
## 558/781 [===================>..........] - ETA: 6s - loss: 0.8354 - accuracy: 0.7078
## 560/781 [===================>..........] - ETA: 6s - loss: 0.8348 - accuracy: 0.7080
## 562/781 [===================>..........] - ETA: 6s - loss: 0.8343 - accuracy: 0.7081
## 564/781 [===================>..........] - ETA: 6s - loss: 0.8340 - accuracy: 0.7082
## 566/781 [===================>..........] - ETA: 6s - loss: 0.8338 - accuracy: 0.7083
## 568/781 [===================>..........] - ETA: 6s - loss: 0.8334 - accuracy: 0.7084
## 570/781 [===================>..........] - ETA: 6s - loss: 0.8336 - accuracy: 0.7083
## 572/781 [===================>..........] - ETA: 6s - loss: 0.8328 - accuracy: 0.7086
## 574/781 [====================>.........] - ETA: 6s - loss: 0.8325 - accuracy: 0.7086
## 576/781 [====================>.........] - ETA: 5s - loss: 0.8325 - accuracy: 0.7086
## 578/781 [====================>.........] - ETA: 5s - loss: 0.8334 - accuracy: 0.7084
## 580/781 [====================>.........] - ETA: 5s - loss: 0.8336 - accuracy: 0.7084
## 582/781 [====================>.........] - ETA: 5s - loss: 0.8339 - accuracy: 0.7082
## 584/781 [====================>.........] - ETA: 5s - loss: 0.8340 - accuracy: 0.7083
## 586/781 [====================>.........] - ETA: 5s - loss: 0.8341 - accuracy: 0.7083
## 588/781 [====================>.........] - ETA: 5s - loss: 0.8342 - accuracy: 0.7084
## 590/781 [====================>.........] - ETA: 5s - loss: 0.8342 - accuracy: 0.7083
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## 592/781 [====================>........] - ETA: 5s - loss: 0.8345 - accuracy: 0.7082
## 593/781 [====================>........] - ETA: 5s - loss: 0.8345 - accuracy: 0.7082
## 595/781 [====================>........] - ETA: 5s - loss: 0.8341 - accuracy: 0.7083
## 597/781 [====================>........] - ETA: 5s - loss: 0.8343 - accuracy: 0.7084
## 599/781 [=====================>.......] - ETA: 5s - loss: 0.8340 - accuracy: 0.7086
## 601/781 [=====================>.......] - ETA: 5s - loss: 0.8336 - accuracy: 0.7088
## 603/781 [=====================>.......] - ETA: 5s - loss: 0.8340 - accuracy: 0.7087
## 605/781 [=====================>.......] - ETA: 5s - loss: 0.8337 - accuracy: 0.7088
## 607/781 [=====================>.......] - ETA: 5s - loss: 0.8341 - accuracy: 0.7086
## 609/781 [=====================>.......] - ETA: 5s - loss: 0.8339 - accuracy: 0.7087
## 611/781 [=====================>.......] - ETA: 4s - loss: 0.8343 - accuracy: 0.7087
## 613/781 [=====================>.......] - ETA: 4s - loss: 0.8346 - accuracy: 0.7085
## 615/781 [=====================>.......] - ETA: 4s - loss: 0.8349 - accuracy: 0.7083
## 617/781 [=====================>.......] - ETA: 4s - loss: 0.8351 - accuracy: 0.7082
## 619/781 [=====================>.......] - ETA: 4s - loss: 0.8349 - accuracy: 0.7081
## 621/781 [=====================>.......] - ETA: 4s - loss: 0.8350 - accuracy: 0.7081
## 623/781 [=====================>.......] - ETA: 4s - loss: 0.8351 - accuracy: 0.7080
## 625/781 [======================>......] - ETA: 4s - loss: 0.8353 - accuracy: 0.7079
## 627/781 [======================>......] - ETA: 4s - loss: 0.8354 - accuracy: 0.7078
## 629/781 [======================>......] - ETA: 4s - loss: 0.8352 - accuracy: 0.7078
## 631/781 [======================>......] - ETA: 4s - loss: 0.8347 - accuracy: 0.7081
## 633/781 [======================>......] - ETA: 4s - loss: 0.8353 - accuracy: 0.7080
## 635/781 [======================>......] - ETA: 4s - loss: 0.8350 - accuracy: 0.7081
## 637/781 [======================>......] - ETA: 4s - loss: 0.8348 - accuracy: 0.7082
## 639/781 [======================>......] - ETA: 4s - loss: 0.8351 - accuracy: 0.7082
## 641/781 [======================>......] - ETA: 4s - loss: 0.8353 - accuracy: 0.7081
## 643/781 [======================>......] - ETA: 4s - loss: 0.8354 - accuracy: 0.7081
## 645/781 [======================>......] - ETA: 4s - loss: 0.8354 - accuracy: 0.7081
## 647/781 [======================>......] - ETA: 3s - loss: 0.8360 - accuracy: 0.7080
## 649/781 [======================>......] - ETA: 3s - loss: 0.8359 - accuracy: 0.7080
## 651/781 [=======================>.....] - ETA: 3s - loss: 0.8361 - accuracy: 0.7079
## 653/781 [=======================>.....] - ETA: 3s - loss: 0.8359 - accuracy: 0.7079
## 655/781 [=======================>.....] - ETA: 3s - loss: 0.8361 - accuracy: 0.7079
## 657/781 [=======================>.....] - ETA: 3s - loss: 0.8365 - accuracy: 0.7079
## 659/781 [=======================>.....] - ETA: 3s - loss: 0.8367 - accuracy: 0.7078
## 661/781 [=======================>.....] - ETA: 3s - loss: 0.8371 - accuracy: 0.7077
## 663/781 [=======================>.....] - ETA: 3s - loss: 0.8372 - accuracy: 0.7077
## 665/781 [=======================>.....] - ETA: 3s - loss: 0.8370 - accuracy: 0.7077
## 667/781 [=======================>.....] - ETA: 3s - loss: 0.8372 - accuracy: 0.7076
## 669/781 [=======================>.....] - ETA: 3s - loss: 0.8374 - accuracy: 0.7077
## 671/781 [=======================>.....] - ETA: 3s - loss: 0.8370 - accuracy: 0.7078
## 673/781 [=======================>.....] - ETA: 3s - loss: 0.8370 - accuracy: 0.7078
## 675/781 [=======================>.....] - ETA: 3s - loss: 0.8368 - accuracy: 0.7078
## 677/781 [========================>....] - ETA: 3s - loss: 0.8366 - accuracy: 0.7079
## 679/781 [========================>....] - ETA: 3s - loss: 0.8363 - accuracy: 0.7079
## 681/781 [========================>....] - ETA: 2s - loss: 0.8364 - accuracy: 0.7079
## 683/781 [========================>....] - ETA: 2s - loss: 0.8363 - accuracy: 0.7081
## 685/781 [========================>....] - ETA: 2s - loss: 0.8368 - accuracy: 0.7079
## 687/781 [========================>....] - ETA: 2s - loss: 0.8377 - accuracy: 0.7076
## 689/781 [========================>....] - ETA: 2s - loss: 0.8376 - accuracy: 0.7076
## 691/781 [========================>....] - ETA: 2s - loss: 0.8374 - accuracy: 0.7075
## 693/781 [========================>....] - ETA: 2s - loss: 0.8371 - accuracy: 0.7077
## 695/781 [========================>....] - ETA: 2s - loss: 0.8371 - accuracy: 0.7075
## 697/781 [========================>....] - ETA: 2s - loss: 0.8379 - accuracy: 0.7071
```

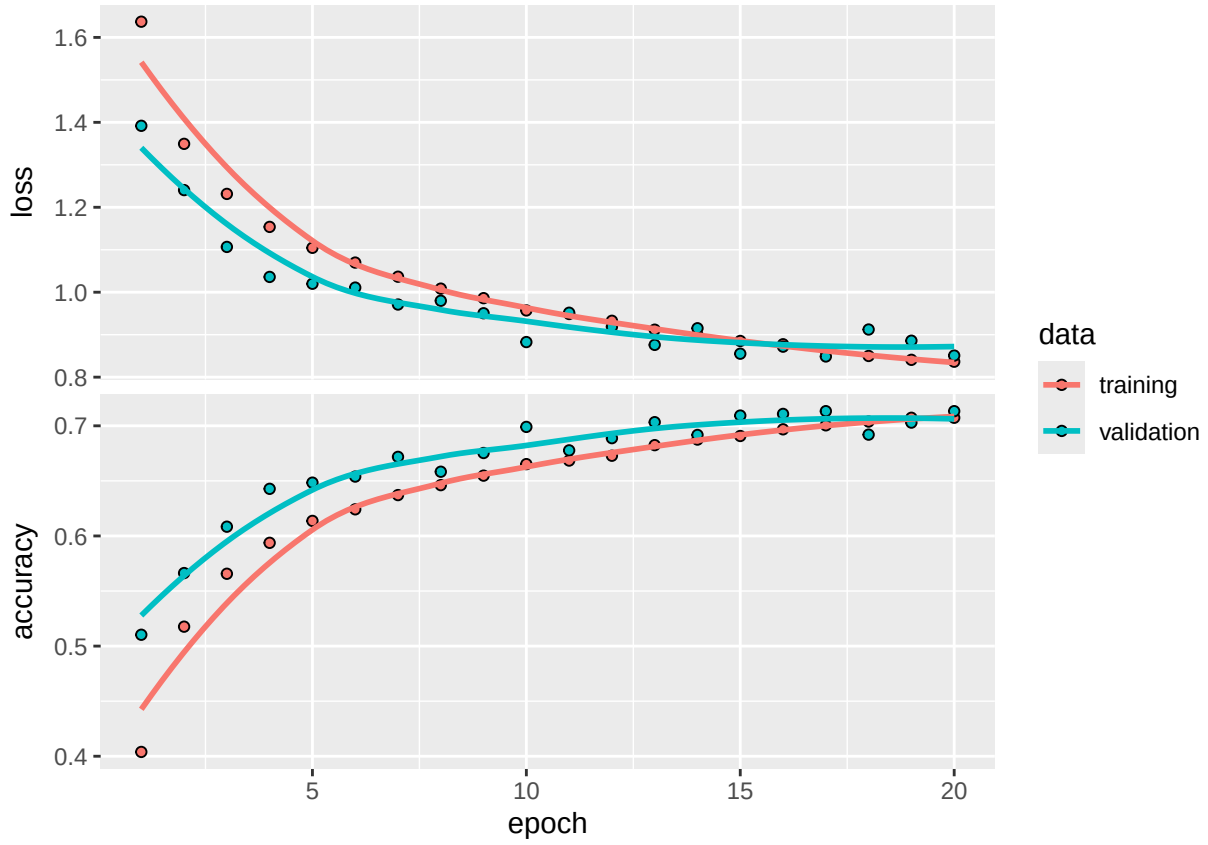
```
## 699/781 [=======================>....] - ETA: 2s - loss: 0.8378 - accuracy: 0.7071
## 701/781 [=======================>....] - ETA: 2s - loss: 0.8378 - accuracy: 0.7072
## 703/781 [=======================>...] - ETA: 2s - loss: 0.8379 - accuracy: 0.7072
## 705/781 [=======================>...] - ETA: 2s - loss: 0.8376 - accuracy: 0.7072
## 707/781 [=======================>...] - ETA: 2s - loss: 0.8377 - accuracy: 0.7071
## 709/781 [=======================>...] - ETA: 2s - loss: 0.8381 - accuracy: 0.7070
## 711/781 [=======================>...] - ETA: 2s - loss: 0.8375 - accuracy: 0.7072
## 713/781 [=======================>...] - ETA: 2s - loss: 0.8378 - accuracy: 0.7070
## 715/781 [=======================>...] - ETA: 1s - loss: 0.8378 - accuracy: 0.7071
## 717/781 [=======================>...] - ETA: 1s - loss: 0.8374 - accuracy: 0.7072
## 719/781 [=======================>...] - ETA: 1s - loss: 0.8369 - accuracy: 0.7074
## 721/781 [=======================>...] - ETA: 1s - loss: 0.8372 - accuracy: 0.7073
## 723/781 [=======================>...] - ETA: 1s - loss: 0.8369 - accuracy: 0.7074
## 725/781 [=======================>...] - ETA: 1s - loss: 0.8367 - accuracy: 0.7075
## 727/781 [=======================>...] - ETA: 1s - loss: 0.8365 - accuracy: 0.7076
## 729/781 [=======================>..] - ETA: 1s - loss: 0.8363 - accuracy: 0.7076
## 731/781 [=======================>..] - ETA: 1s - loss: 0.8367 - accuracy: 0.7075
## 733/781 [=======================>..] - ETA: 1s - loss: 0.8367 - accuracy: 0.7076
## 735/781 [=======================>..] - ETA: 1s - loss: 0.8370 - accuracy: 0.7074
## 737/781 [=======================>..] - ETA: 1s - loss: 0.8369 - accuracy: 0.7074
## 739/781 [=======================>..] - ETA: 1s - loss: 0.8372 - accuracy: 0.7073
## 741/781 [=======================>..] - ETA: 1s - loss: 0.8369 - accuracy: 0.7074
## 743/781 [=======================>..] - ETA: 1s - loss: 0.8368 - accuracy: 0.7074
## 745/781 [=======================>..] - ETA: 1s - loss: 0.8364 - accuracy: 0.7075
## 747/781 [=======================>..] - ETA: 1s - loss: 0.8360 - accuracy: 0.7077
## 749/781 [=======================>..] - ETA: 0s - loss: 0.8359 - accuracy: 0.7077
## 751/781 [=======================>..] - ETA: 0s - loss: 0.8360 - accuracy: 0.7076
## 753/781 [=======================>..] - ETA: 0s - loss: 0.8363 - accuracy: 0.7074
## 755/781 [=======================>.] - ETA: 0s - loss: 0.8362 - accuracy: 0.7074
## 757/781 [=======================>.] - ETA: 0s - loss: 0.8366 - accuracy: 0.7074
## 759/781 [=======================>.] - ETA: 0s - loss: 0.8368 - accuracy: 0.7073
## 761/781 [=======================>.] - ETA: 0s - loss: 0.8365 - accuracy: 0.7075
## 763/781 [=======================>.] - ETA: 0s - loss: 0.8367 - accuracy: 0.7075
## 765/781 [=======================>.] - ETA: 0s - loss: 0.8367 - accuracy: 0.7074
## 767/781 [=======================>.] - ETA: 0s - loss: 0.8367 - accuracy: 0.7074
## 769/781 [=======================>.] - ETA: 0s - loss: 0.8365 - accuracy: 0.7075
## 771/781 [=======================>.] - ETA: 0s - loss: 0.8366 - accuracy: 0.7075
## 773/781 [=======================>.] - ETA: 0s - loss: 0.8363 - accuracy: 0.7075
## 775/781 [=======================>.] - ETA: 0s - loss: 0.8365 - accuracy: 0.7075
## 777/781 [=======================>.] - ETA: 0s - loss: 0.8367 - accuracy: 0.7073
## 779/781 [=======================>.] - ETA: 0s - loss: 0.8366 - accuracy: 0.7073
## 781/781 [==============================] - ETA: 0s - loss: 0.8364 - accuracy: 0.7073
## 781/781 [==============================] - 25s 32ms/step - loss: 0.8364 - accuracy: 0.7073 - val_loss
```

```
# Test
scores <- model_ca %>% evaluate(x_test, y_test, verbose = 0)

cat("Test loss:", scores[[1]], "\n",
    "Test accuracy:", scores[[2]], "\n")
```

```
## Test loss: 0.8508328
##  Test accuracy: 0.7133
```

```
# Plot training history
plot(history)
```




```
# Additional plot: confusion matrix

predictions <- model_ca %>% predict(x_test)%>% k_argmax()
```

```
## 313/313 - 1s - 1s/epoch - 4ms/step
```

```
y_true <- cifar10$test$y
confusion_matrix <- confusionMatrix(factor(as.vector(predictions)), factor(y_true))
print(confusion_matrix$table)
```

```
##           Reference
## Prediction   0   1   2   3   4   5   6   7   8   9
##          0 782  18  69  28  16   8  10   7  74  29
##          1  17 831   5   6   2   3   2   0  33  54
##          2  22   1 479  24  30  12  26  11   2   3
##          3  17  10  47 420  39  83  43   7  10  11
##          4  17   2  75  50 577  21  31  15   6   2
##          5  16   6 127 295  69 737  59  57  11   9
##          6   5   8  49  48  60  15 788   1   3   5
##          7  51  14 119 104 198 109  27 895  25  40
##          8  37  10  17   8   8   3   4   0 795  18
##          9  36 100  13  17   1   9  10   7  41 829
```

a)

1. Increased size of the training dataset: Data augmentation allows for the creation of new training examples from the existing ones, which increases the size of the training dataset. A larger dataset helps in building more robust machine learning models that are less likely to overfit to the training data.
2. Improved generalization: By augmenting the training data, the model is exposed to more diverse examples, which helps it to generalize better to new, unseen data.
3. Increased model performance: Data augmentation can improve the performance of the model by reducing overfitting, especially in cases where the original dataset is small.
4. Cost-effectiveness: Data augmentation can be a cost-effective way of creating new training data, especially when collecting new data is expensive or time-consuming.
5. Reduced bias: Data augmentation can help to reduce bias in the dataset by balancing the class distribution, which is particularly important in cases where the original dataset is imbalanced.
6. Robustness to input variations: Data augmentation can make the model more robust to input variations such as rotation, scaling, and translation, which is useful in applications such as object recognition and natural language processing.

Problem 5: Univariate Time Series Classification with CNN

```
# load the Wafer dataset
train <- read.delim("dataset/Wafer/Wafer_TRAIN.tsv", header = FALSE, sep = "\t")
test <- read.delim("dataset/Wafer/Wafer_TEST.tsv", header = FALSE, sep = "\t")

# the first column in `train` and `test` contains label info.
# therefore we separate them into `x` and `y`.
x_train <- train[,2:dim(train)[2]]
y_train <- clip(train[,1], 0, 1) #- 1
y_train <- to_categorical(y_train)
x_test <- test[,2:dim(test)[2]]
y_test <- clip(test[,1], 0, 1) #- 1
y_test <- to_categorical(y_test)

# create a channel dimension so that `x` has dimension of (batch, channel, length)
x_train <- array(as.matrix(x_train), dim = c(nrow(x_train), ncol(x_train), 1))
x_test <- array(as.matrix(x_test), dim = c(nrow(x_test), ncol(x_test), 1))

# preprocess
# The provided dataset has already been preprocessed, therefore no need for it.
```

1. Load and preprocess data

a)

```
# Define the model
model_1dc <- keras_model_sequential() %>%
    layer_conv_1d(filters = 16, kernel_size = 8, activation = "relu", input_shape = c(dim(x_train)[2], 
    layer_max_pooling_1d(pool_size = 2) %>%
    layer_conv_1d(filters = 32, kernel_size = 5, activation = "relu") %>%
    layer_max_pooling_1d(pool_size = 2) %>%
    layer_conv_1d(filters = 64, kernel_size = 3, activation = "relu") %>%
    layer_max_pooling_1d(pool_size = 2) %>%
    layer_flatten() %>%
    layer_dense(units = 2, activation = "softmax")

summary(model_1dc)
```

2. Define the model

```
## Model: "sequential_2"
## _________________________________________________________________________________
##  Layer (type)                       Output Shape                    Param #
## =================================================================================
##  conv1d_2 (Conv1D)                  (None, 145, 16)                 144
##  max_pooling1d_2 (MaxPooling1D)     (None, 72, 16)                  0
##  conv1d_1 (Conv1D)                  (None, 68, 32)                  2592
##  max_pooling1d_1 (MaxPooling1D)     (None, 34, 32)                  0
##  conv1d (Conv1D)                    (None, 32, 64)                  6208
##  max_pooling1d (MaxPooling1D)       (None, 16, 64)                  0
##  flatten_2 (Flatten)                (None, 1024)                    0
##  dense_4 (Dense)                    (None, 2)                       2050
## =================================================================================
## Total params: 10994 (42.95 KB)
## Trainable params: 10994 (42.95 KB)
## Non-trainable params: 0 (0.00 Byte)
## _________________________________________________________________________________
```

```
model_1dc %>% compile(
  loss = "categorical_crossentropy",
  optimizer = optimizer_adam(learning_rate = 0.001),
  metrics = c("accuracy")
)
```

3. Compile

```
history <- model_1dc %>% fit(
  x_train, y_train,
  epochs = 100,
  batch_size = 64,
  validation_data = list(x_test, y_test)
)
```

4. Train the model

```
## Epoch 1/100
## 16/16 - 1s - loss: 0.3777 - accuracy: 0.8880 - val_loss: 0.2952 - val_accuracy: 0.8921 - 761ms/epoch
## Epoch 2/100
## 16/16 - 0s - loss: 0.2195 - accuracy: 0.9030 - val_loss: 0.1916 - val_accuracy: 0.9104 - 256ms/epoch
## Epoch 3/100
## 16/16 - 0s - loss: 0.1228 - accuracy: 0.9580 - val_loss: 0.0937 - val_accuracy: 0.9622 - 246ms/epoch
## Epoch 4/100
## 16/16 - 0s - loss: 0.0474 - accuracy: 0.9840 - val_loss: 0.0370 - val_accuracy: 0.9909 - 251ms/epoch
## Epoch 5/100
## 16/16 - 0s - loss: 0.0191 - accuracy: 0.9950 - val_loss: 0.0238 - val_accuracy: 0.9933 - 238ms/epoch
## Epoch 6/100
## 16/16 - 0s - loss: 0.0121 - accuracy: 0.9960 - val_loss: 0.0203 - val_accuracy: 0.9937 - 232ms/epoch
## Epoch 7/100
## 16/16 - 0s - loss: 0.0087 - accuracy: 0.9970 - val_loss: 0.0184 - val_accuracy: 0.9945 - 254ms/epoch
## Epoch 8/100
## 16/16 - 0s - loss: 0.0067 - accuracy: 0.9990 - val_loss: 0.0181 - val_accuracy: 0.9943 - 232ms/epoch
## Epoch 9/100
## 16/16 - 0s - loss: 0.0049 - accuracy: 1.0000 - val_loss: 0.0162 - val_accuracy: 0.9959 - 238ms/epoch
## Epoch 10/100
## 16/16 - 0s - loss: 0.0044 - accuracy: 1.0000 - val_loss: 0.0156 - val_accuracy: 0.9958 - 216ms/epoch
## Epoch 11/100
## 16/16 - 0s - loss: 0.0039 - accuracy: 0.9990 - val_loss: 0.0159 - val_accuracy: 0.9953 - 216ms/epoch
## Epoch 12/100
## 16/16 - 0s - loss: 0.0031 - accuracy: 1.0000 - val_loss: 0.0154 - val_accuracy: 0.9961 - 216ms/epoch
## Epoch 13/100
## 16/16 - 0s - loss: 0.0032 - accuracy: 1.0000 - val_loss: 0.0149 - val_accuracy: 0.9968 - 232ms/epoch
## Epoch 14/100
## 16/16 - 0s - loss: 0.0025 - accuracy: 1.0000 - val_loss: 0.0153 - val_accuracy: 0.9961 - 285ms/epoch
## Epoch 15/100
## 16/16 - 0s - loss: 0.0023 - accuracy: 1.0000 - val_loss: 0.0153 - val_accuracy: 0.9964 - 238ms/epoch
## Epoch 16/100
## 16/16 - 0s - loss: 0.0021 - accuracy: 1.0000 - val_loss: 0.0152 - val_accuracy: 0.9958 - 232ms/epoch
## Epoch 17/100
## 16/16 - 0s - loss: 0.0017 - accuracy: 1.0000 - val_loss: 0.0152 - val_accuracy: 0.9963 - 216ms/epoch
## Epoch 18/100
## 16/16 - 0s - loss: 0.0016 - accuracy: 1.0000 - val_loss: 0.0159 - val_accuracy: 0.9958 - 232ms/epoch
## Epoch 19/100
## 16/16 - 0s - loss: 0.0015 - accuracy: 1.0000 - val_loss: 0.0155 - val_accuracy: 0.9968 - 216ms/epoch
## Epoch 20/100
## 16/16 - 0s - loss: 0.0013 - accuracy: 1.0000 - val_loss: 0.0155 - val_accuracy: 0.9968 - 232ms/epoch
## Epoch 21/100
## 16/16 - 0s - loss: 0.0011 - accuracy: 1.0000 - val_loss: 0.0159 - val_accuracy: 0.9959 - 232ms/epoch
## Epoch 22/100
## 16/16 - 0s - loss: 0.0010 - accuracy: 1.0000 - val_loss: 0.0155 - val_accuracy: 0.9964 - 238ms/epoch
## Epoch 23/100
## 16/16 - 0s - loss: 8.9516e-04 - accuracy: 1.0000 - val_loss: 0.0158 - val_accuracy: 0.9969 - 247ms/ep
## Epoch 24/100
## 16/16 - 0s - loss: 9.3782e-04 - accuracy: 1.0000 - val_loss: 0.0164 - val_accuracy: 0.9963 - 238ms/ep
## Epoch 25/100
## 16/16 - 0s - loss: 9.7637e-04 - accuracy: 1.0000 - val_loss: 0.0160 - val_accuracy: 0.9966 - 232ms/ep
## Epoch 26/100
## 16/16 - 0s - loss: 6.7413e-04 - accuracy: 1.0000 - val_loss: 0.0164 - val_accuracy: 0.9968 - 216ms/ep
```

```
## Epoch 27/100
## 16/16 - 0s - loss: 6.8781e-04 - accuracy: 1.0000 - val_loss: 0.0159 - val_accuracy: 0.9966 - 232ms/ep
## Epoch 28/100
## 16/16 - 0s - loss: 5.3602e-04 - accuracy: 1.0000 - val_loss: 0.0166 - val_accuracy: 0.9969 - 223ms/ep
## Epoch 29/100
## 16/16 - 0s - loss: 5.4070e-04 - accuracy: 1.0000 - val_loss: 0.0163 - val_accuracy: 0.9966 - 232ms/ep
## Epoch 30/100
## 16/16 - 0s - loss: 4.7917e-04 - accuracy: 1.0000 - val_loss: 0.0163 - val_accuracy: 0.9966 - 232ms/ep
## Epoch 31/100
## 16/16 - 0s - loss: 4.8725e-04 - accuracy: 1.0000 - val_loss: 0.0169 - val_accuracy: 0.9969 - 232ms/ep
## Epoch 32/100
## 16/16 - 0s - loss: 3.8477e-04 - accuracy: 1.0000 - val_loss: 0.0166 - val_accuracy: 0.9966 - 223ms/ep
## Epoch 33/100
## 16/16 - 0s - loss: 4.0368e-04 - accuracy: 1.0000 - val_loss: 0.0167 - val_accuracy: 0.9966 - 232ms/ep
## Epoch 34/100
## 16/16 - 0s - loss: 4.2164e-04 - accuracy: 1.0000 - val_loss: 0.0170 - val_accuracy: 0.9966 - 216ms/ep
## Epoch 35/100
## 16/16 - 0s - loss: 3.2342e-04 - accuracy: 1.0000 - val_loss: 0.0169 - val_accuracy: 0.9966 - 270ms/ep
## Epoch 36/100
## 16/16 - 0s - loss: 2.9831e-04 - accuracy: 1.0000 - val_loss: 0.0169 - val_accuracy: 0.9964 - 234ms/ep
## Epoch 37/100
## 16/16 - 0s - loss: 2.8572e-04 - accuracy: 1.0000 - val_loss: 0.0170 - val_accuracy: 0.9966 - 235ms/ep
## Epoch 38/100
## 16/16 - 0s - loss: 2.6724e-04 - accuracy: 1.0000 - val_loss: 0.0172 - val_accuracy: 0.9966 - 254ms/ep
## Epoch 39/100
## 16/16 - 0s - loss: 2.4987e-04 - accuracy: 1.0000 - val_loss: 0.0172 - val_accuracy: 0.9966 - 243ms/ep
## Epoch 40/100
## 16/16 - 0s - loss: 2.2843e-04 - accuracy: 1.0000 - val_loss: 0.0171 - val_accuracy: 0.9966 - 269ms/ep
## Epoch 41/100
## 16/16 - 0s - loss: 2.3460e-04 - accuracy: 1.0000 - val_loss: 0.0173 - val_accuracy: 0.9968 - 248ms/ep
## Epoch 42/100
## 16/16 - 0s - loss: 1.9726e-04 - accuracy: 1.0000 - val_loss: 0.0174 - val_accuracy: 0.9968 - 245ms/ep
## Epoch 43/100
## 16/16 - 0s - loss: 1.8993e-04 - accuracy: 1.0000 - val_loss: 0.0176 - val_accuracy: 0.9966 - 304ms/ep
## Epoch 44/100
## 16/16 - 0s - loss: 1.9525e-04 - accuracy: 1.0000 - val_loss: 0.0175 - val_accuracy: 0.9966 - 255ms/ep
## Epoch 45/100
## 16/16 - 0s - loss: 1.6333e-04 - accuracy: 1.0000 - val_loss: 0.0174 - val_accuracy: 0.9966 - 245ms/ep
## Epoch 46/100
## 16/16 - 0s - loss: 1.7005e-04 - accuracy: 1.0000 - val_loss: 0.0176 - val_accuracy: 0.9966 - 236ms/ep
## Epoch 47/100
## 16/16 - 0s - loss: 1.5912e-04 - accuracy: 1.0000 - val_loss: 0.0179 - val_accuracy: 0.9969 - 273ms/ep
## Epoch 48/100
## 16/16 - 0s - loss: 1.5124e-04 - accuracy: 1.0000 - val_loss: 0.0178 - val_accuracy: 0.9966 - 239ms/ep
## Epoch 49/100
## 16/16 - 0s - loss: 1.4222e-04 - accuracy: 1.0000 - val_loss: 0.0177 - val_accuracy: 0.9966 - 234ms/ep
## Epoch 50/100
## 16/16 - 0s - loss: 1.2760e-04 - accuracy: 1.0000 - val_loss: 0.0178 - val_accuracy: 0.9966 - 246ms/ep
## Epoch 51/100
## 16/16 - 0s - loss: 1.2308e-04 - accuracy: 1.0000 - val_loss: 0.0180 - val_accuracy: 0.9966 - 236ms/ep
## Epoch 52/100
## 16/16 - 0s - loss: 1.1590e-04 - accuracy: 1.0000 - val_loss: 0.0178 - val_accuracy: 0.9966 - 234ms/ep
## Epoch 53/100
## 16/16 - 0s - loss: 1.1057e-04 - accuracy: 1.0000 - val_loss: 0.0180 - val_accuracy: 0.9966 - 241ms/ep
```

```
## Epoch 54/100
## 16/16 - 0s - loss: 1.0492e-04 - accuracy: 1.0000 - val_loss: 0.0180 - val_accuracy: 0.9966 - 242ms/ep
## Epoch 55/100
## 16/16 - 0s - loss: 9.7222e-05 - accuracy: 1.0000 - val_loss: 0.0180 - val_accuracy: 0.9966 - 233ms/ep
## Epoch 56/100
## 16/16 - 0s - loss: 9.6881e-05 - accuracy: 1.0000 - val_loss: 0.0182 - val_accuracy: 0.9966 - 249ms/ep
## Epoch 57/100
## 16/16 - 0s - loss: 8.8634e-05 - accuracy: 1.0000 - val_loss: 0.0180 - val_accuracy: 0.9966 - 247ms/ep
## Epoch 58/100
## 16/16 - 0s - loss: 8.7070e-05 - accuracy: 1.0000 - val_loss: 0.0183 - val_accuracy: 0.9968 - 227ms/ep
## Epoch 59/100
## 16/16 - 0s - loss: 8.1496e-05 - accuracy: 1.0000 - val_loss: 0.0181 - val_accuracy: 0.9966 - 231ms/ep
## Epoch 60/100
## 16/16 - 0s - loss: 7.4764e-05 - accuracy: 1.0000 - val_loss: 0.0183 - val_accuracy: 0.9968 - 233ms/ep
## Epoch 61/100
## 16/16 - 0s - loss: 7.5906e-05 - accuracy: 1.0000 - val_loss: 0.0183 - val_accuracy: 0.9966 - 226ms/ep
## Epoch 62/100
## 16/16 - 0s - loss: 6.7868e-05 - accuracy: 1.0000 - val_loss: 0.0185 - val_accuracy: 0.9968 - 234ms/ep
## Epoch 63/100
## 16/16 - 0s - loss: 6.9150e-05 - accuracy: 1.0000 - val_loss: 0.0187 - val_accuracy: 0.9968 - 230ms/ep
## Epoch 64/100
## 16/16 - 0s - loss: 6.9111e-05 - accuracy: 1.0000 - val_loss: 0.0184 - val_accuracy: 0.9968 - 216ms/ep
## Epoch 65/100
## 16/16 - 0s - loss: 6.1378e-05 - accuracy: 1.0000 - val_loss: 0.0184 - val_accuracy: 0.9968 - 228ms/ep
## Epoch 66/100
## 16/16 - 0s - loss: 5.8777e-05 - accuracy: 1.0000 - val_loss: 0.0185 - val_accuracy: 0.9968 - 243ms/ep
## Epoch 67/100
## 16/16 - 0s - loss: 5.5595e-05 - accuracy: 1.0000 - val_loss: 0.0185 - val_accuracy: 0.9968 - 235ms/ep
## Epoch 68/100
## 16/16 - 0s - loss: 5.4339e-05 - accuracy: 1.0000 - val_loss: 0.0186 - val_accuracy: 0.9968 - 231ms/ep
## Epoch 69/100
## 16/16 - 0s - loss: 5.1699e-05 - accuracy: 1.0000 - val_loss: 0.0185 - val_accuracy: 0.9966 - 238ms/ep
## Epoch 70/100
## 16/16 - 0s - loss: 5.0268e-05 - accuracy: 1.0000 - val_loss: 0.0187 - val_accuracy: 0.9968 - 229ms/ep
## Epoch 71/100
## 16/16 - 0s - loss: 4.7449e-05 - accuracy: 1.0000 - val_loss: 0.0186 - val_accuracy: 0.9968 - 240ms/ep
## Epoch 72/100
## 16/16 - 0s - loss: 4.8043e-05 - accuracy: 1.0000 - val_loss: 0.0187 - val_accuracy: 0.9968 - 228ms/ep
## Epoch 73/100
## 16/16 - 0s - loss: 4.5773e-05 - accuracy: 1.0000 - val_loss: 0.0187 - val_accuracy: 0.9968 - 257ms/ep
## Epoch 74/100
## 16/16 - 0s - loss: 4.2590e-05 - accuracy: 1.0000 - val_loss: 0.0188 - val_accuracy: 0.9968 - 249ms/ep
## Epoch 75/100
## 16/16 - 0s - loss: 4.1167e-05 - accuracy: 1.0000 - val_loss: 0.0189 - val_accuracy: 0.9968 - 251ms/ep
## Epoch 76/100
## 16/16 - 0s - loss: 3.9163e-05 - accuracy: 1.0000 - val_loss: 0.0189 - val_accuracy: 0.9968 - 238ms/ep
## Epoch 77/100
## 16/16 - 0s - loss: 3.7708e-05 - accuracy: 1.0000 - val_loss: 0.0189 - val_accuracy: 0.9968 - 217ms/ep
## Epoch 78/100
## 16/16 - 0s - loss: 3.7995e-05 - accuracy: 1.0000 - val_loss: 0.0189 - val_accuracy: 0.9968 - 237ms/ep
## Epoch 79/100
## 16/16 - 0s - loss: 3.4984e-05 - accuracy: 1.0000 - val_loss: 0.0190 - val_accuracy: 0.9968 - 222ms/ep
## Epoch 80/100
## 16/16 - 0s - loss: 3.4490e-05 - accuracy: 1.0000 - val_loss: 0.0191 - val_accuracy: 0.9968 - 239ms/ep
```

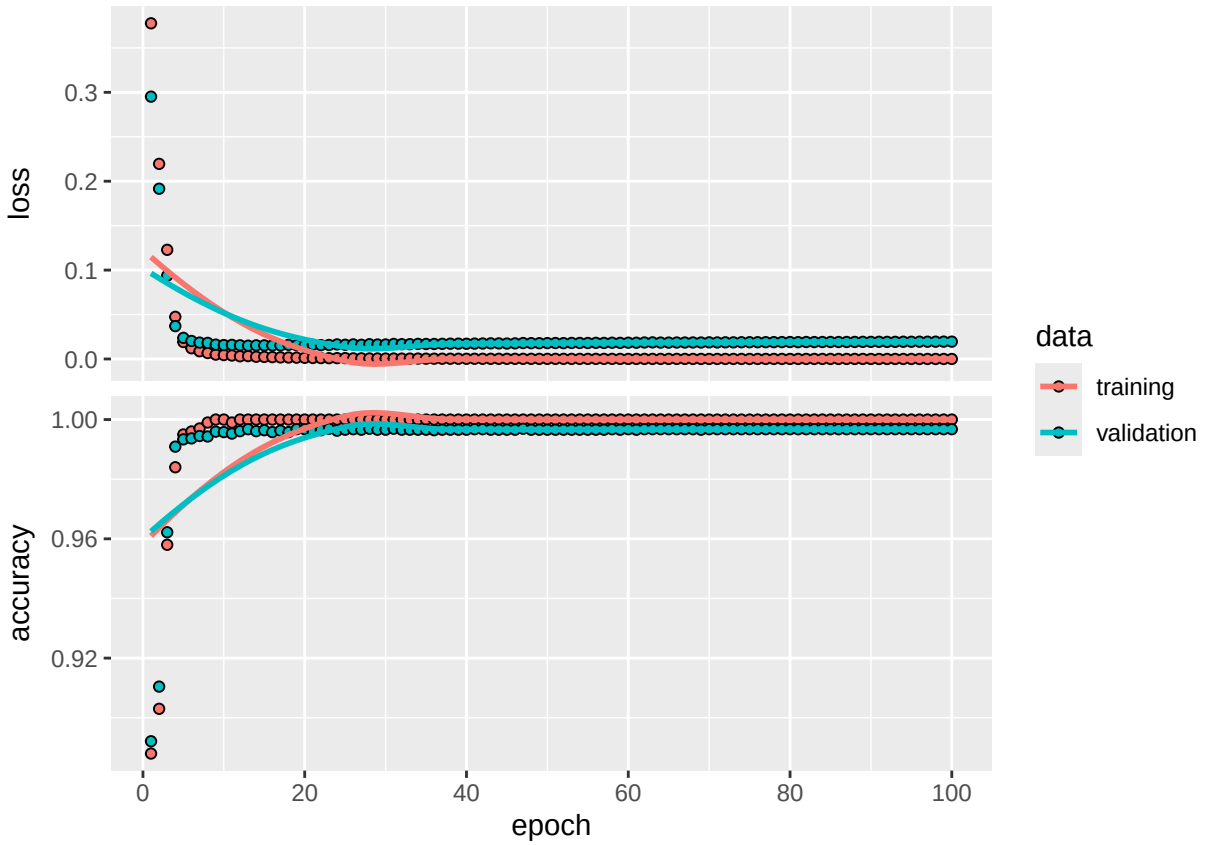
```
## Epoch 81/100
## 16/16 - 0s - loss: 3.4808e-05 - accuracy: 1.0000 - val_loss: 0.0189 - val_accuracy: 0.9968 - 222ms/ep
## Epoch 82/100
## 16/16 - 0s - loss: 3.2127e-05 - accuracy: 1.0000 - val_loss: 0.0191 - val_accuracy: 0.9968 - 224ms/ep
## Epoch 83/100
## 16/16 - 0s - loss: 3.1030e-05 - accuracy: 1.0000 - val_loss: 0.0190 - val_accuracy: 0.9968 - 243ms/ep
## Epoch 84/100
## 16/16 - 0s - loss: 2.9838e-05 - accuracy: 1.0000 - val_loss: 0.0191 - val_accuracy: 0.9968 - 214ms/ep
## Epoch 85/100
## 16/16 - 0s - loss: 2.8913e-05 - accuracy: 1.0000 - val_loss: 0.0191 - val_accuracy: 0.9968 - 222ms/ep
## Epoch 86/100
## 16/16 - 0s - loss: 2.7808e-05 - accuracy: 1.0000 - val_loss: 0.0191 - val_accuracy: 0.9968 - 232ms/ep
## Epoch 87/100
## 16/16 - 0s - loss: 2.7144e-05 - accuracy: 1.0000 - val_loss: 0.0191 - val_accuracy: 0.9968 - 227ms/ep
## Epoch 88/100
## 16/16 - 0s - loss: 2.6285e-05 - accuracy: 1.0000 - val_loss: 0.0192 - val_accuracy: 0.9968 - 235ms/ep
## Epoch 89/100
## 16/16 - 0s - loss: 2.5698e-05 - accuracy: 1.0000 - val_loss: 0.0193 - val_accuracy: 0.9968 - 227ms/ep
## Epoch 90/100
## 16/16 - 0s - loss: 2.5134e-05 - accuracy: 1.0000 - val_loss: 0.0193 - val_accuracy: 0.9968 - 247ms/ep
## Epoch 91/100
## 16/16 - 0s - loss: 2.3911e-05 - accuracy: 1.0000 - val_loss: 0.0193 - val_accuracy: 0.9968 - 253ms/ep
## Epoch 92/100
## 16/16 - 0s - loss: 2.3820e-05 - accuracy: 1.0000 - val_loss: 0.0192 - val_accuracy: 0.9968 - 250ms/ep
## Epoch 93/100
## 16/16 - 0s - loss: 2.3180e-05 - accuracy: 1.0000 - val_loss: 0.0193 - val_accuracy: 0.9968 - 234ms/ep
## Epoch 94/100
## 16/16 - 0s - loss: 2.2739e-05 - accuracy: 1.0000 - val_loss: 0.0194 - val_accuracy: 0.9968 - 238ms/ep
## Epoch 95/100
## 16/16 - 0s - loss: 2.1315e-05 - accuracy: 1.0000 - val_loss: 0.0194 - val_accuracy: 0.9968 - 253ms/ep
## Epoch 96/100
## 16/16 - 0s - loss: 2.0873e-05 - accuracy: 1.0000 - val_loss: 0.0195 - val_accuracy: 0.9968 - 248ms/ep
## Epoch 97/100
## 16/16 - 0s - loss: 2.0392e-05 - accuracy: 1.0000 - val_loss: 0.0194 - val_accuracy: 0.9968 - 246ms/ep
## Epoch 98/100
## 16/16 - 0s - loss: 1.9556e-05 - accuracy: 1.0000 - val_loss: 0.0194 - val_accuracy: 0.9968 - 235ms/ep
## Epoch 99/100
## 16/16 - 0s - loss: 1.9175e-05 - accuracy: 1.0000 - val_loss: 0.0195 - val_accuracy: 0.9968 - 245ms/ep
## Epoch 100/100
## 16/16 - 0s - loss: 1.8848e-05 - accuracy: 1.0000 - val_loss: 0.0195 - val_accuracy: 0.9968 - 271ms/ep
```

```
# Test
scores <- model_1dc %>% evaluate(x_test, y_test, verbose = 0)

cat("Test loss:", scores[[1]], "\n",
    "Test accuracy:", scores[[2]], "\n")
```

```
## Test loss: 0.0195029
##  Test accuracy: 0.9967554
```

```
# Plot training history
plot(history)
```



b)

```r
# dataset
x_train <- train[,2:dim(train)[2]]
y_train <- clip(train[,1], 0, 1)
x_test <- test[,2:dim(test)[2]]
y_test <- clip(test[,1], 0, 1)

# Fit a linear regression model
#linear_model <- lm(y_train ~ ., data = as.data.frame(cbind(x_train, y_train)))
logit_reg <- glm(y_train ~ ., data = as.data.frame(cbind(x_train, y_train)), family = "binomial")

# Make predictions on the test set
predictions <- predict(logit_reg, newdata = x_test, type = "response")
predictions <- as.integer(predictions > 0.5)  # cutoff = 0.5
predictions <- as.factor(predictions)

result <- confusionMatrix(predictions, as.factor(y_test))

cat("=== [1D CNN] === \n", "Test accuracy:", scores[[2]],
    "\n",
    "============================== \n\n",
    "=== [Logistic Regression] === \n",
```

```
    "Test accuracy:", result$overall["Accuracy"], "\n",
    "============================\n\n")
```

Comparison to a Logistic Regression Model

```
## === [1D CNN] ===
##  Test accuracy: 0.9967554
##  ============================
##
##  === [Logistic Regression] ===
##  Test accuracy: 0.9018494
##  ============================
```