Checking Dataset Shape

```
Training set: (17010, 28, 28, 1), Labels: (17010, 10)
Testing set: (3000, 28, 28, 1), Labels: (3000, 10)
```

Model Summary

```
/usr/local/lib/python3.11/dist-packages/keras/src/layers/reshaping/flatten.py:37: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model
  super().__init__(**kwargs)
Model: "sequential"
```

Layer (type)	Output Shape	Param #
flatten (Flatten)	(None, 784)	0
dense (Dense)	(None, 64)	50,240
dense_1 (Dense)	(None, 128)	8,320
dense_2 (Dense)	(None, 256)	33,024
dense_3 (Dense)	(None, 10)	2,570

```
Total params: 94,154 (367.79 KB)
Trainable params: 94,154 (367.79 KB)
Non-trainable params: 0 (0.00 B)
```

```
Epoch 1/20
102/107 ━━━━━━━━━━━━━━━━━━━━ 0s 7ms/step - accuracy: 0.2688 - loss: 1.9889WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or `keras.saving.save_model(model)`. This file format is considered legacy. We recommend using inste
107/107 ━━━━━━━━━━━━━━━━━━━━ 3s 12ms/step - accuracy: 0.2800 - loss: 1.9684 - val_accuracy: 2.9394e-04 - val_loss: 7.1684
Epoch 2/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 8ms/step - accuracy: 0.8182 - loss: 0.5973 - val_accuracy: 5.8789e-04 - val_loss: 8.6395
Epoch 3/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 8ms/step - accuracy: 0.8893 - loss: 0.3268 - val_accuracy: 5.8789e-04 - val_loss: 9.2648
Epoch 4/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 10ms/step - accuracy: 0.9404 - loss: 0.2140 - val_accuracy: 5.8789e-04 - val_loss: 9.7016
Epoch 5/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 7ms/step - accuracy: 0.9536 - loss: 0.1607 - val_accuracy: 5.8789e-04 - val_loss: 9.9004
Epoch 6/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 8ms/step - accuracy: 0.9627 - loss: 0.1262 - val_accuracy: 5.8789e-04 - val_loss: 10.1591
Epoch 7/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 8ms/step - accuracy: 0.9713 - loss: 0.1013 - val_accuracy: 5.8789e-04 - val_loss: 10.4596
Epoch 8/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 7ms/step - accuracy: 0.9790 - loss: 0.0786 - val_accuracy: 5.8789e-04 - val_loss: 10.5900
Epoch 9/20
107/107 ━━━━━━━━━━━━━━━━━━━━ 1s 10ms/step - accuracy: 0.9824 - loss: 0.0643 - val_accuracy: 5.8789e-04 - val_loss: 10.6177
```

Test Accuracy

```
94/94 - 0s - 4ms/step - accuracy: 0.7747 - loss: 2.1977
Test accuracy: 0.7747
```

Plot