Choose files | Train.csv

- **Train.csv**(text/csv) - 76775041 bytes, last modified: 05/05/2025 - 100% done

Saving Train.csv to Train (1).csv
Shape of train_data: (42000, 785)
Shape of X after separating features: (42000, 784)

	label	pixel0	pixel1	pixel2	pixel3	pixel4	pixel5	pixel6	pixel7	pixel8	...	pixel774	pixel775	pixel776	pixel777	pixel778	pixel779	pixel780	pixel78
0	1	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
2	1	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
3	4	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	

5 rows × 785 columns

Shape of X after reshaping: (42000, 28, 28, 1)

Shape of y after one-hot encoding: (42000, 10, 10, 10)

	label	pixel0	pixel1	pixel2	pixel3	pixel4	pixel5	pixel6	pixel7	pixel8	...	pixel774	pixel775	pixel776	pixel777	pixel778	pixel779	pixel780	pixel78
0	1	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
2	1	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
3	4	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0	0	0	

5 rows × 785 columns

```
X_train shape: (33600, 28, 28, 1)
```

```
/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
  super().__init__(**kwargs)
```
Model: "sequential"

Layer (type)	Output Shape	Param #
flatten (Flatten)	(None, 784)	0
dense (Dense)	(None, 128)	100,480
dense_1 (Dense)	(None, 64)	8,256
dense_2 (Dense)	(None, 10)	650

 Total params: 109,386 (427.29 KB)
 Trainable params: 109,386 (427.29 KB)
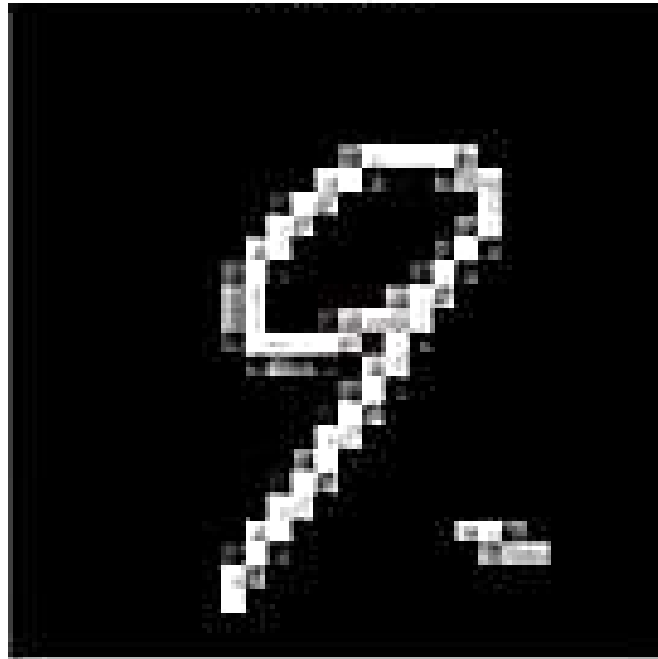 Non-trainable params: 0 (0.00 B)

```
Epoch 1/10
1050/1050 ──────────────── 8s 6ms/step - accuracy: 0.8389 - loss: 0.5440 - val_accuracy: 0.9464 - val_loss: 0.1747
Epoch 2/10
1050/1050 ──────────────── 9s 5ms/step - accuracy: 0.9604 - loss: 0.1343 - val_accuracy: 0.9618 - val_loss: 0.1309
Epoch 3/10
1050/1050 ──────────────── 5s 5ms/step - accuracy: 0.9733 - loss: 0.0927 - val_accuracy: 0.9608 - val_loss: 0.1282
Epoch 4/10
1050/1050 ──────────────── 5s 4ms/step - accuracy: 0.9790 - loss: 0.0679 - val_accuracy: 0.9623 - val_loss: 0.1239
Epoch 5/10
1050/1050 ──────────────── 6s 6ms/step - accuracy: 0.9845 - loss: 0.0486 - val_accuracy: 0.9644 - val_loss: 0.1111
Epoch 6/10
1050/1050 ──────────────── 5s 4ms/step - accuracy: 0.9886 - loss: 0.0366 - val_accuracy: 0.9680 - val_loss: 0.1110
Epoch 7/10
1050/1050 ──────────────── 7s 6ms/step - accuracy: 0.9901 - loss: 0.0308 - val_accuracy: 0.9680 - val_loss: 0.1151
Epoch 8/10
1050/1050 ──────────────── 5s 4ms/step - accuracy: 0.9916 - loss: 0.0248 - val_accuracy: 0.9690 - val_loss: 0.1099
Epoch 9/10
1050/1050 ──────────────── 5s 4ms/step - accuracy: 0.9941 - loss: 0.0179 - val_accuracy: 0.9652 - val_loss: 0.1258
Epoch 10/10
1050/1050 ──────────────── 6s 5ms/step - accuracy: 0.9944 - loss: 0.0173 - val_accuracy: 0.9686 - val_loss: 0.1398
```

```
263/263 ─────────────────────── 1s 2ms/step - accuracy: 0.9683 - loss: 0.1574
Validation Accuracy: 96.86%
```
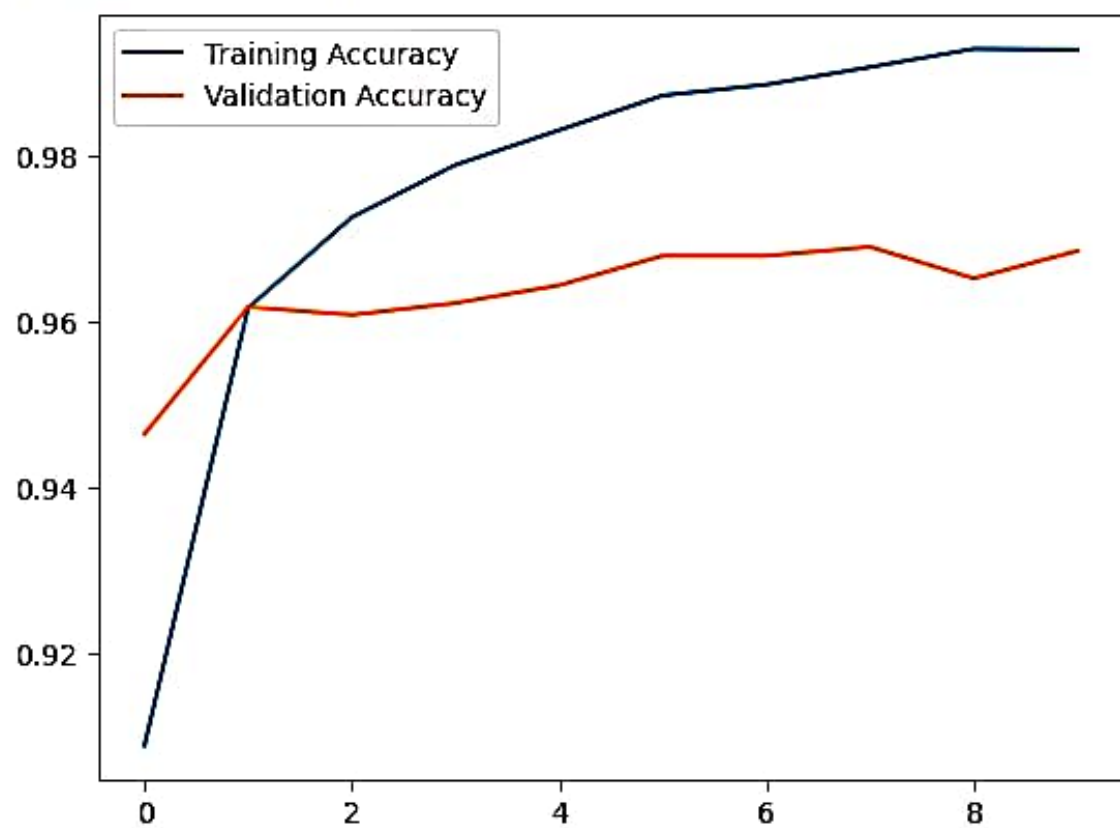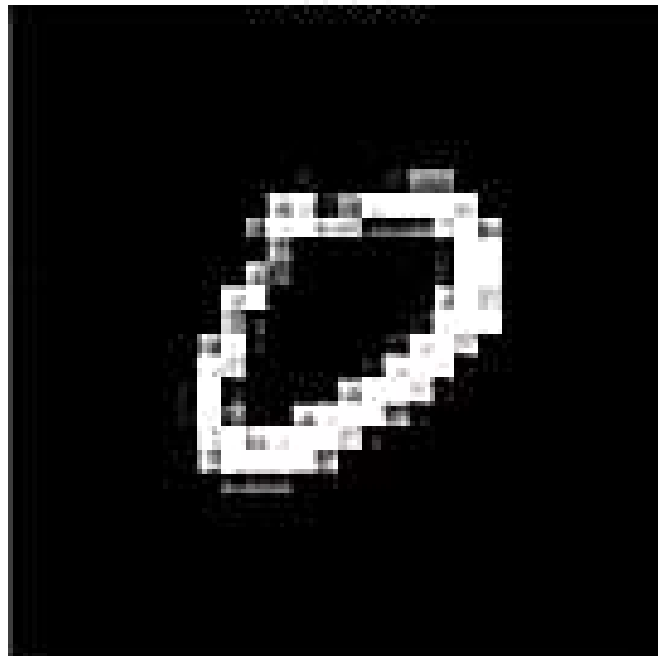
Predicted: 9

Predicted: 0

Predicted: 3