

## OUTPUT SCREENSHOT

```
libs\debugpy\launcher' '63535' '--' 'C:\Users\Admin\OneDrive\Desktop\PLP\wk3.py'
```

Accuracy: 1.0

Precision: 1.0

Recall: 1.0

Classification Report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	10
1	1.00	1.00	1.00	9
2	1.00	1.00	1.00	11
accuracy			1.00	30
macro avg	1.00	1.00	1.00	30
weighted avg	1.00	1.00	1.00	30

Confusion Matrix:

```
[[10 0 0]
 [ 0 9 0]
 [ 0 0 11]]
```

2025-10-15 02:57:50.687847: I tensorflow/core/util/port.cc:153] oneDNN custom operations are on. You may see slightly different numerical results due to floating-point round-off errors from different computation orders. To turn them off, set the environment variable 'TF\_ENABLE\_ONEDNN\_OPTS=0'.

2025-10-15 02:58:02.529117: I tensorflow/core/util/port.cc:153] oneDNN custom operations are on. You may see slightly different numerical results due to floating-point round-off errors from different computation orders. To turn them off, set the environment variable 'TF\_ENABLE\_ONEDNN\_OPTS=0'.

Downloading data from <https://storage.googleapis.com/tensorflow/tf-keras-datasets/mnist.npz>

11490434/11490434 ————— 7s 1us/step

MNIST dataset loaded successfully!

Training data shape: (60000, 28, 28)

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PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Testing data shape: (10000, 28, 28)

c:\Users\Admin\AppData\Local\Programs\Python\Python311\Lib\site-packages\keras\src\layers\convolutional\base\_conv.py:113: 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 instead.

super().\_\_init\_\_(activity\_regularizer=activity\_regularizer, \*\*kwargs)

2025-10-15 02:58:15.584520: I tensorflow/core/platform/cpu\_feature\_guard.cc:210] This TensorFlow binary is optimized to use available CPU instructions in performance-critical operations.

To enable the following instructions: SSE3 SSE4.1 SSE4.2 AVX AVX2 FMA, in other operations, rebuild TensorFlow with the appropriate compiler flags.

Epoch 1/5

1875/1875 ————— 49s 23ms/step - accuracy: 0.9511 - loss: 0.1561 - val\_accuracy: 0.9827 - val\_loss: 0.0529

Epoch 2/5

1875/1875 ————— 38s 20ms/step - accuracy: 0.9845 - loss: 0.0507 - val\_accuracy: 0.9883 - val\_loss: 0.0373

Epoch 3/5

1875/1875 ————— 44s 23ms/step - accuracy: 0.9890 - loss: 0.0350 - val\_accuracy: 0.9893 - val\_loss: 0.0340

Epoch 4/5

1875/1875 ————— 84s 25ms/step - accuracy: 0.9917 - loss: 0.0268 - val\_accuracy: 0.9893 - val\_loss: 0.0322

Epoch 5/5

1875/1875 ————— 50s 27ms/step - accuracy: 0.9938 - loss: 0.0197 - val\_accuracy: 0.9891 - val\_loss: 0.0360

Test Accuracy: 0.9891

WARNING: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 instead the native Keras format, e.g. 'model.save('my\_model.keras')' or 'keras.saving.save\_model(model, 'my\_model.keras')'.

PS C:\Users\Admin\OneDrive\Desktop\PLP>

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