

# CM23021

## Digit Recognition (MNIST Dataset)

### Output:


```
Loading MNIST dataset...
Training started...
Epoch 1: loss=2.3277, val_loss=2.2780, acc=0.1000, val_acc=0.1500
Epoch 2: loss=2.2856, val_loss=2.2899, acc=0.1300, val_acc=0.1500
Epoch 3: loss=2.2748, val_loss=2.2870, acc=0.1200, val_acc=0.1500
Training completed.
Use predictX(index) in console for predictions.
> predictX(8)
Predicted: 3, True Label: 9
< undefined
> predictX(4)
Predicted: 3, True Label: 1
< undefined
> |
```

```
Tracking Prevention blocked access to storage for <URL>.
Platform browser has already been set. Overwriting the platform with browser.
[NEW] Explain Console errors by using Copilot in Edge: click to explain an error. Learn more
> 5
< 5
> 9
< 9
> a
```

lab.assign\_2.html

C:/MLTL/Digital%20recognition/lab.assign\_2.html

Draw a Digit (0-9)



ClearClassify Digit

Prediction: 2

Elements

Console

Sources

Network

>>

top

Filter

Default levels

1 Issue

> 6

< 6

> 7

< 7

> 8

< 8

> 25

< 25

> |

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Clear

Search

8:29 PM

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MNIST: CNN vs Dense Compari

C:/MLTL/Digital%20recognition/lab.assign\_3.html

Task 3: Performance Comparison

Compare a **Convolutional Neural Network (CNN)** against a **Simple Dense Network** after 5 epochs.

Run Comparison Test

**Convolutional Network (CNN)**

Architecture: Conv2D -> MaxPooling -> Flatten -> Dense

--%

Status: Ready

**Simple Dense Network**

Architecture: Flatten -> Dense (128) -> Dense (10)

--%

Status: Ready

Feature	Simple Dense Network	CNN (Convolutional)
Spatial Awareness	None (treats image as a flat	High (detects edges, shapes, and

Elements

Console

Sources

Network

>>

top

Filter

Default levels

No Issues

> 5

< 5

> 6

< 6

> 7

< 7

> 8

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> |

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