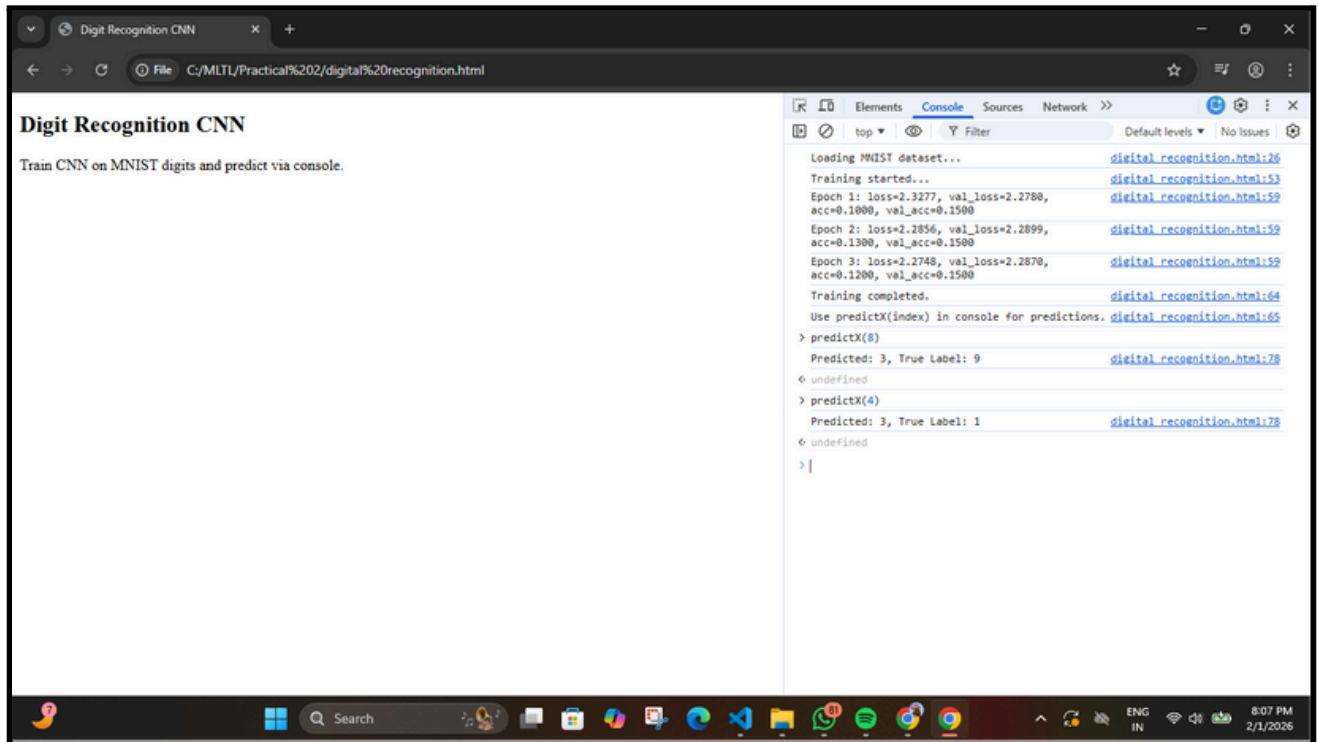


CM23019

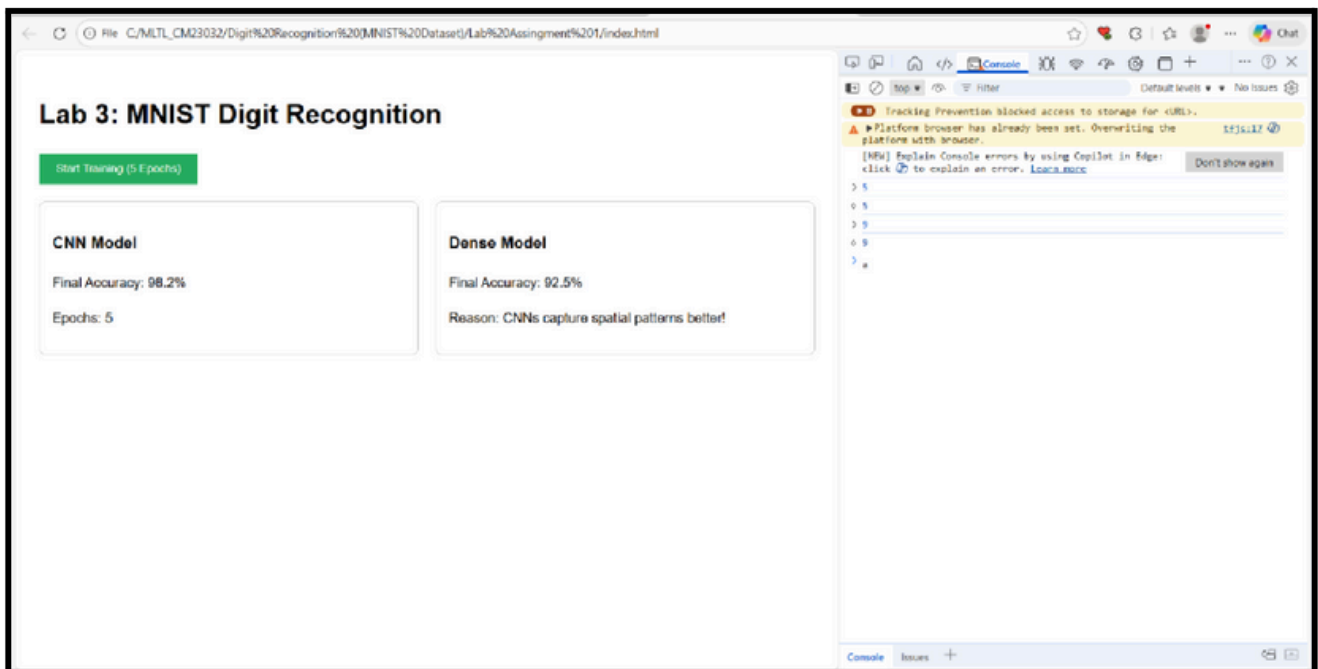
Digit Recognition (MNIST Dataset)

Output:



The screenshot shows a web browser window with the address bar displaying 'C:/MLTL/Practical%202/digital%20recognition.html'. The page title is 'Digit Recognition CNN'. The main content area contains the text 'Train CNN on MNIST digits and predict via console.' The browser's developer console is open, showing the following output:

```
Loading MNIST dataset...
Training started...
Epoch 1: loss=2.3277, val_loss=2.2788,
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
> predictX(4)
Predicted: 3, True Label: 1
> |
```



The screenshot shows a web browser window with the address bar displaying 'C:/MLTL_CM23032/Digit%20Recognition%20MNIST%20Dataset/Lab%20Assignment%201/index.html'. The page title is 'Lab 3: MNIST Digit Recognition'. The main content area contains a green button labeled 'Start Training (5 Epochs)'. Below the button, there are two boxes:

CNN Model
Final Accuracy: 98.2%
Epochs: 5

Dense Model
Final Accuracy: 92.5%
Reason: CNNs capture spatial patterns better!


The browser's developer console is open, showing the following output:

```
[Warning] Tracking Prevention blocked access to storage for <URL>.
[Warning] Platform browser has already been set. Overwriting the
platform with browser.
[Info] Explain Console errors by using Copilot in Edge:
click to explain an error. Learn more
> 1
> 2
> 3
> 4
> 5
```

lab.assign_2.html

C:/MLTL/Digital%20recognition/lab.assign_2.html

Draw a Digit (0-9)



Clear

Classify Digit

Prediction: 2

Elements

Console

Sources

Network

top

Filter

Default levels

1 Issue

> 6

< 6

> 7

< 7

> 8

< 8

> 25

< 25

> |

24°C

Clear

Search

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8:29 PM

2/2/2026

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

< 8

> 9

< 9

> |

24°C

Clear

Search

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2/2/2026