Mini-Project 2 AI

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*See Attached Code for implementation details

Decision tree on IRIS

Confusion Matrix:

[[11 0 0]

 [0 13 0]

 [0 0 6]]

Decision tree on MNIST

Confusion Matrix:

 [[27 0 0 0 0 0 0 0 0 0]

 [0 35 0 0 0 0 0 0 0 0]

 [0 0 36 0 0 0 0 0 0 0]

 [0 0 0 29 0 0 0 0 0 0]

 [0 0 0 0 30 0 0 0 0 0]

 [0 0 0 0 0 40 0 0 0 0]

 [0 0 0 0 0 0 44 0 0 0]

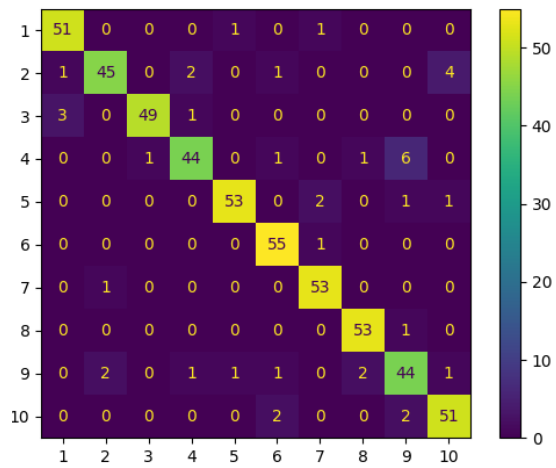 [0 0 0 0 0 0 0 39 0 0]

 [0 0 0 0 0 0 0 0 39 0]

 [0 0 0 0 0 0 0 0 0 41]]

Multilayer perceptron on MNIST
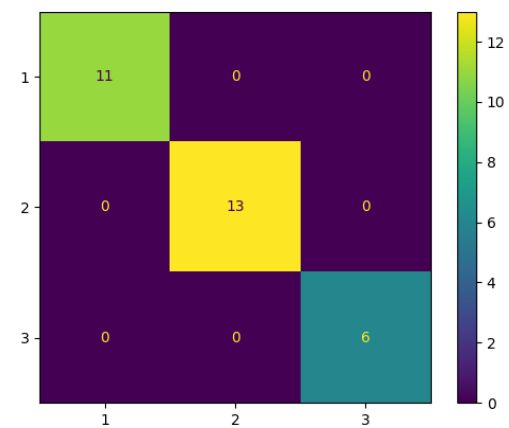
Accuracy: 0.92

Confusion Matrix:

Multilayer perceptron on IRIS

Accuracy: 1.00

Confusion Matrix:

<u>Comparison</u>

Both classifiers perform well on the IRIS dataset, achieving perfect classification. This is likely due to the relatively small size and simplicity of the dataset, which allows both methods to effectively learn the decision boundaries.

For the MNIST dataset, the Decision Tree classifier achieves perfect classification, while the Multilayer Perceptron classifier has an accuracy of 0.92. This indicates that the Decision Tree classifier is more effective at classifying handwritten digits in this case.