

# Assignment 5 - Linear Discrimination

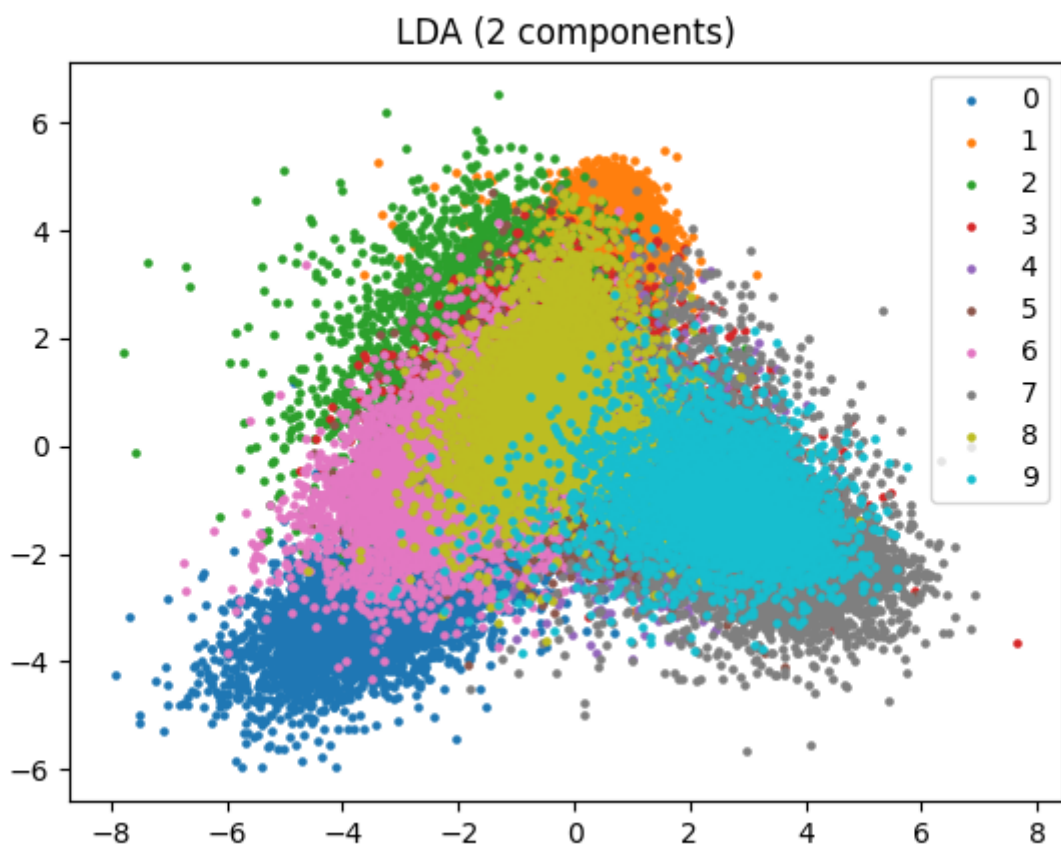
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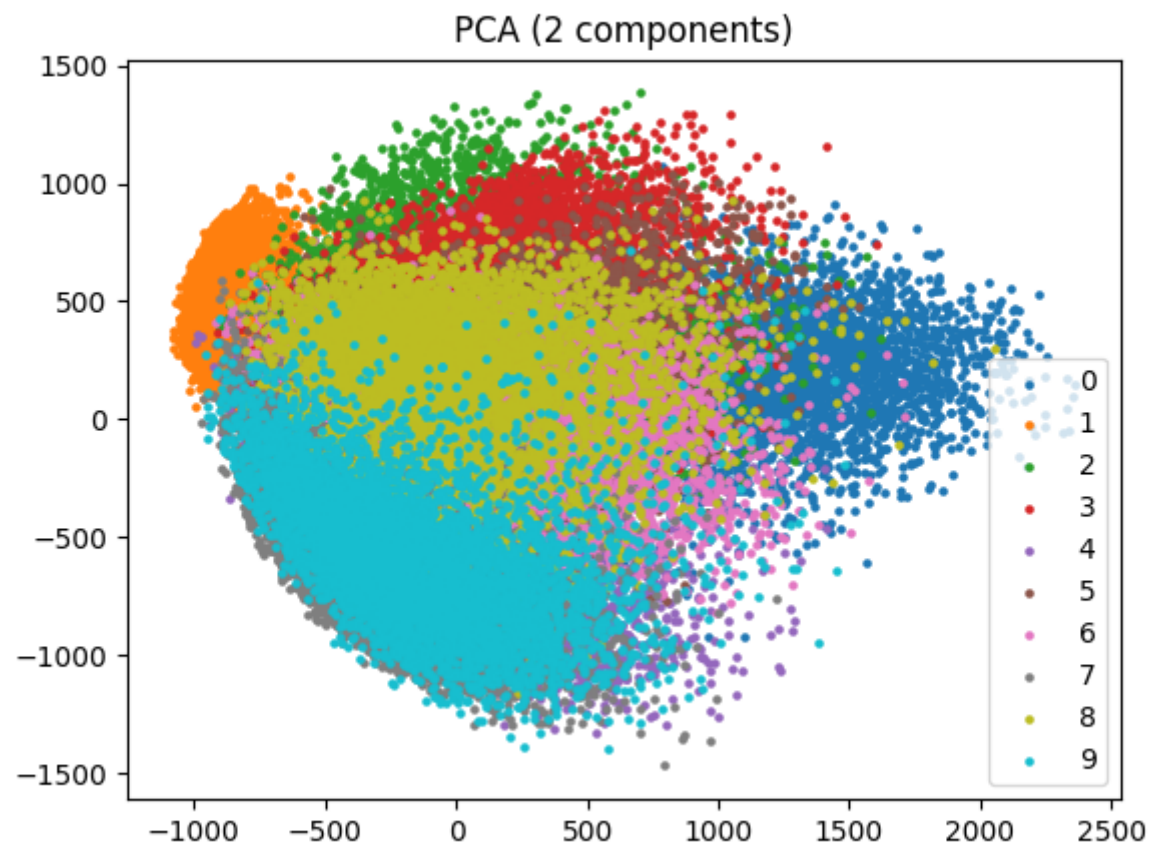
## Exercise

Perform classification for the entire MNIST dataset (the notebook uses the mnist\_all.mat file attached to exercise 4) based on the algorithms introduced: Use LDA for dimensionality reduction to 2 or 9 dimensions, classify the dimension-reduced data and compare this classification performance with that of using PCA.

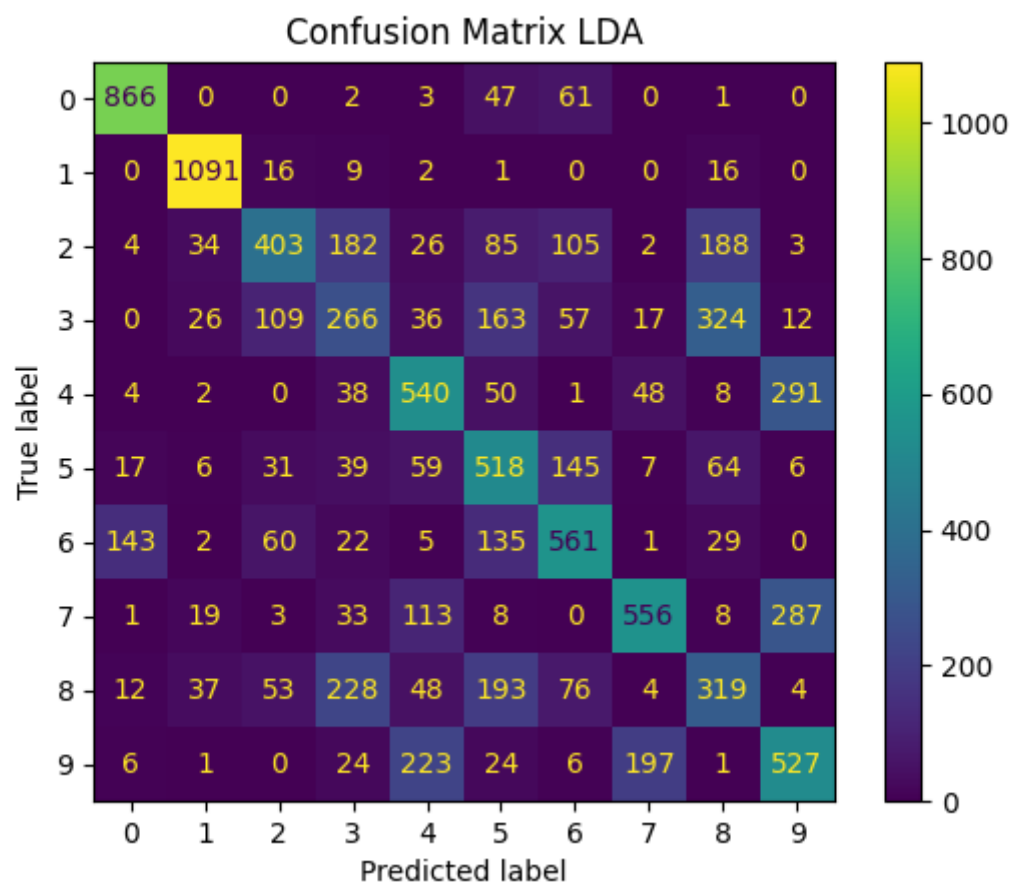
### For 2 components

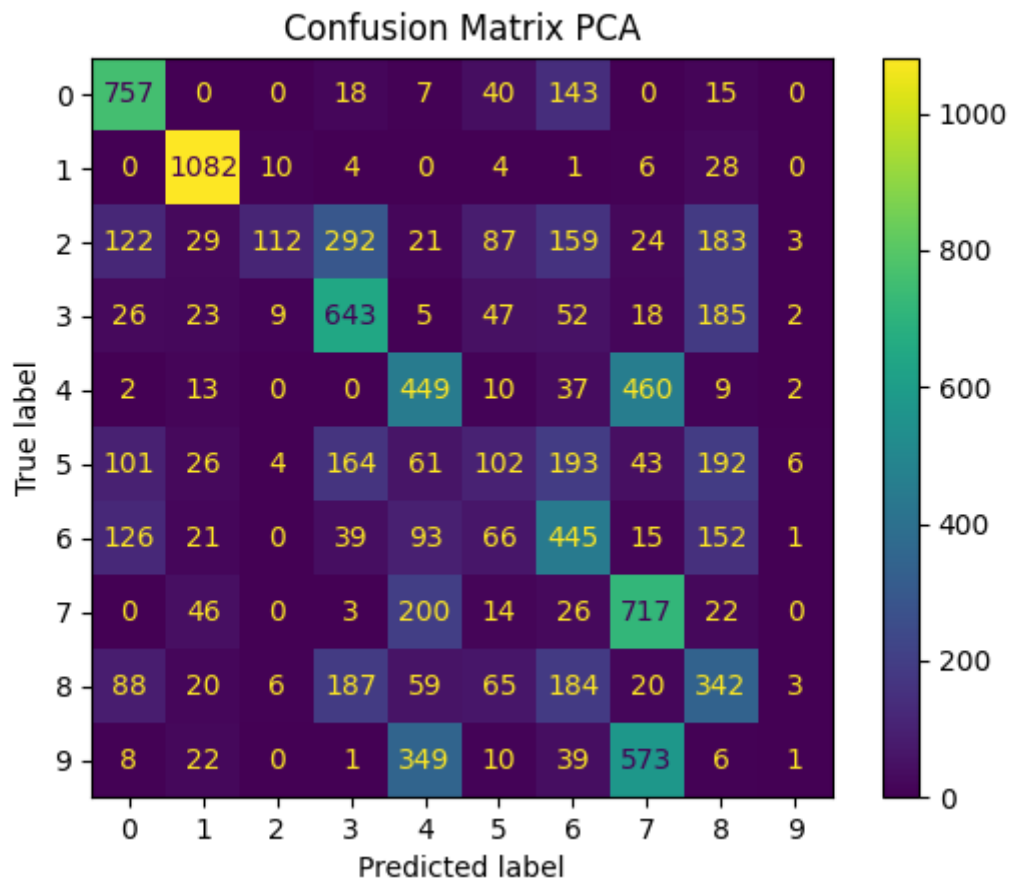
- Scatter Plots





- Confusion Matrix for 2 components

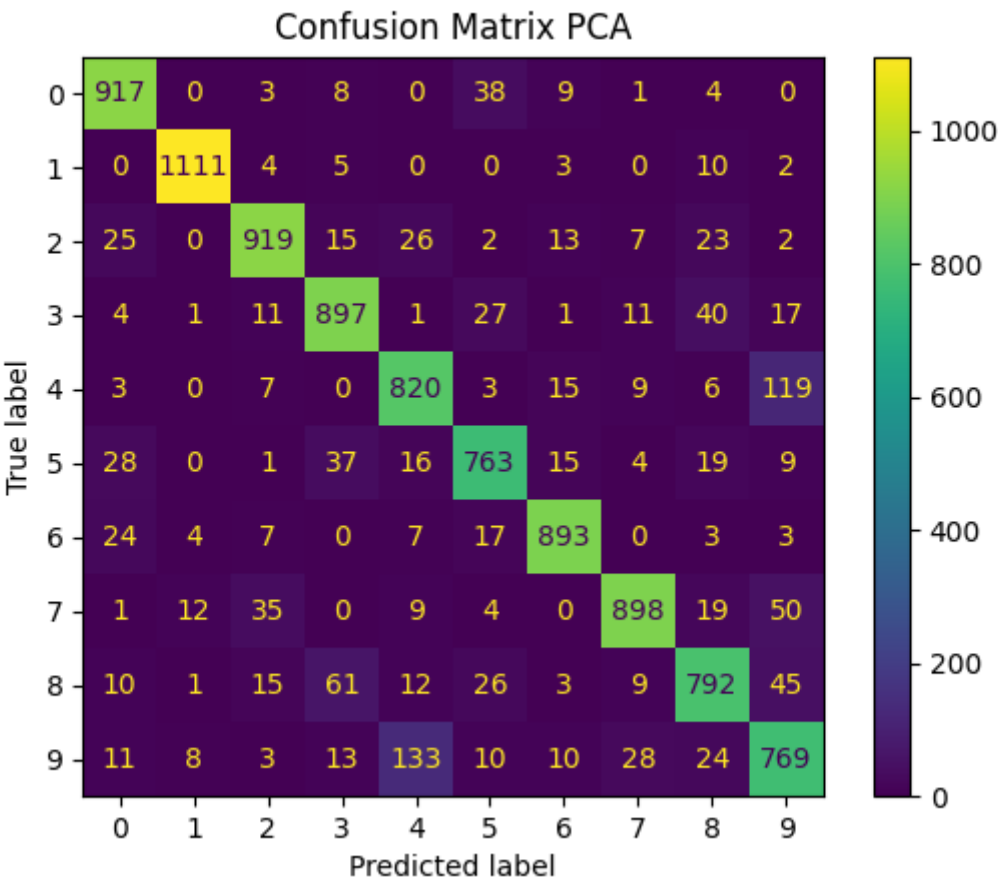
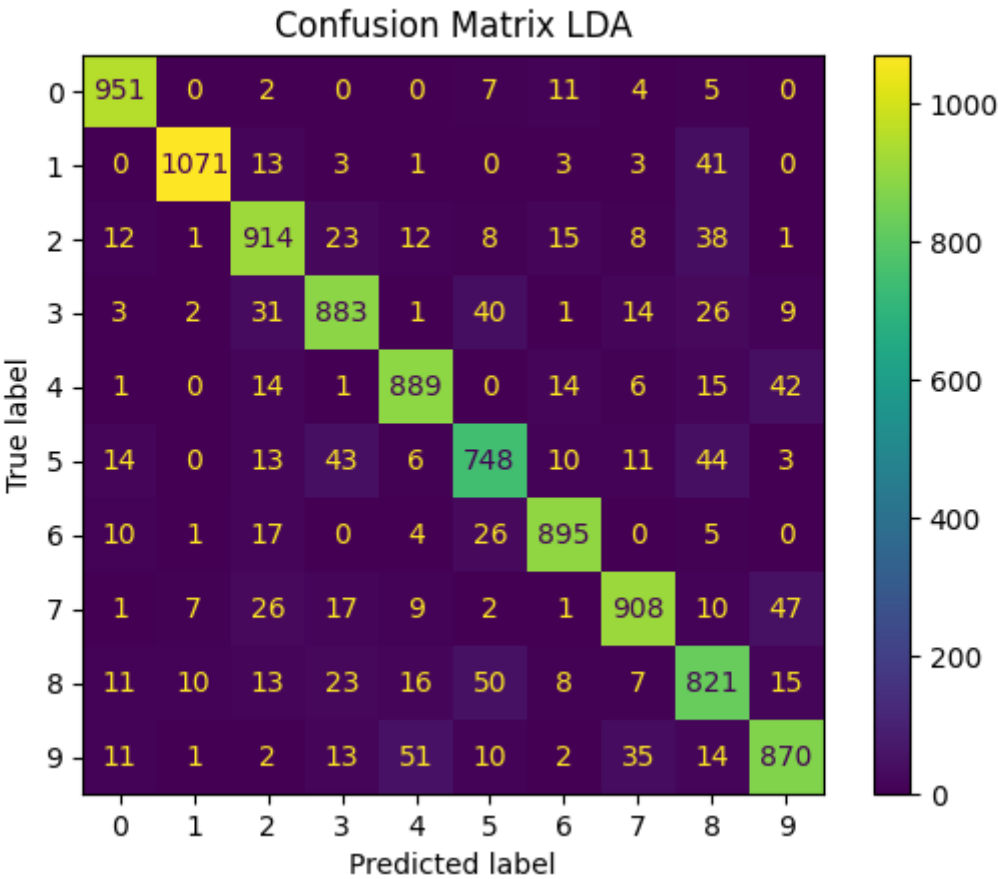




- Accuracy:
  - PCA accuracy: 0.465
  - LDA accuracy: 0.5647

For 9 components

- Confusion Matrix for 2 components



- Accuracy:
  - PCA accuracy: 0.8779
  - LDA accuracy: 0.895