Machine Learning Course
Project #4

1. The MNIST dataset contains 60,000 training images and 10,000 testing images. This dataset includes numbers written by high school students and employees of the US Census Bureau. Each image is labeled with the number in the image. In this project you must select part of the MNIST dataset (no need to use the entire dataset) and then reduce the size of the data using the PCA algorithm. In this section, reduce the data dimensions to 2 dimensions and plot the results on a coordinate page. Plot the data for each class in a different color.

Is it possible to classify data using this method?

2.In this section, using the same data you used in the previous section, first reduce the dimensions of the data to 50 dimensions using the PCA algorithm. Then, using the T-SNE algorithm, reduce the dimensions of the obtained data to 2 dimensions. Plot the results on the coordinate screen (show each class of data using a different color).

Can this method classify data better?

Notes: An additional score is provided for the implementation of PCA and TSNE algorithms.