**In class Programming Assignment - 6**

**GitHub Link:** <https://github.com/Viditha2277/CS-5720/tree/main/Assignment%206>

**Problem 1:** To make predictions on the diabetes disease dataset using Neural Networks

**Input**: .csv file

**Solution:**

1. Predictions are made on the diabetes dataset using deep neural network.

A screen shot of a computer program

Description automatically generated

A graph of a graph

Description automatically generated with medium confidence

1. Predictions are made on the diabetes dataset by adding more dense layers to the previous network.

A computer screen shot of a program code

Description automatically generated

A graph of a graph

Description automatically generated

1. Diabetes dataset is replaced with the breast cancer dataset and training is done on the same model again with same parameters.

A screen shot of a computer program

Description automatically generated

A graph with numbers and lines

Description automatically generated

1. Breast cancer data is normalized, and the training is done with the same neural network again with the same parameters.

A screen shot of a computer screen

Description automatically generated

**Problem 2:** To make predictions on MINST dataset using Image classification.

**Solution:**

1. Predictions are made on the MINST dataset loaded from keras.dataset module in TensorFlow and graphs for accuracy and loss are plotted.

A screen shot of a computer program

Description automatically generated

A computer screen shot of text

Description automatically generated

A graph of a graph of a test

Description automatically generated with medium confidence

1. Plotting one of the images in the test data, doing inferencing to check what is the prediction of the model on that single image.

A computer screen with text and images

Description automatically generated

A screen shot of a computer

Description automatically generated

1. Changing the number of hidden layers and the activation to tanh or sigmoid and training the network again on same data.

A screen shot of a computer program

Description automatically generated

A graph of a graph of a test

Description automatically generated with medium confidence

1. Running the same code without scaling the images and checking the performance.

A screen shot of a computer screen

Description automatically generated

A graph of a line and a line

Description automatically generated with medium confidence