Read me:

I am using mac os and the IDE that i have used is VS studio code,if all the plugins are installed.make sure Torch is installed and i have run all the program through terminal and i have used python3 for running the code

The project folder contain the 3 folders
1)code_and _data - contains the code and csv files
2)screenshots - contains all the screenshots added in the report
3)report - contains the report

To run the codes

1) **MNIST Tutorial:**

   I have implemented using the blog and data folder are added along with this Project and name of the folder is 'data'. The python program to run this '***1.py'*** , that is

   Python3 1.py

2) **Experiment with Network Variations:**

   the Three dimensions that i have chosen for experimenting with the networks are :

1. Varying the number of epochs of training
2. The number of convolution layers
3. The activation function for each layer

   Each of this are done in separate python file, i have implemented in a linear way, keep on of the changing and other as different

   Python file for Varying the number of epochs of training is **Python3 2a.py**

   Python file for Varying the number of convolution layers is **Python3 2b.py**

   Python file for Varying the activation function for each layer is **Python3 2c.py**

3) **Transfer Learning on Greek Letters:**

   The dataset is downloaded from the canvas, it is kept in the folder 'greek_train'. The python program to run is ***'3.py'***, that is

   Python3 3.py

4) Heart Disease Prediction Using an ANN:

The dataset is taken from the project 3 and I have kept along with the folder and the name of the file is 'heart.csv'. Make sure it is kept in the same folder. The python code to run this is ***'4.py'*** that is

Python3 4.py

I have done two extensions for this project

First Extensions:

I have explored more architectures for the Heart Disease data set. I have tried to make 4 more extra models or networks and tried to compare the accuracy of these models with different epochs. Make sure heart.csv is in the same folder. The python program to run this code is '***extensions_1.py'***, that is

Python3 extensions_1.py

Second Extensions:

I have explored creating networks for other data sets. The dataset I have used for this extension is the wine data set. The dataset is kept in the same folder and the name of the csv file is **' winequality-red.csv'.** The Wine Quality dataset, which can be downloaded from the UCI Machine Learning Repository (https://archive.ics.uci.edu/ml/datasets/wine+quality), The python program to run this is ***'extensions_2.py'***

Python3 extensions_2.py

PS: I have not used any time travel days for this project and the project is submitted before the due date.