**Machine Learning Assignment 2 Report**

Question 1)

* Trained a CNN model using Fashion MNIST dataset which is present in file ML\_Question1.ipynb
* Training has been done on the model which has 2 layers in it.
* As an optimizer “adam” has been used and for error cross entropy has been used.
* Validated classification performance of the model using validation set and then tuned hyper parameters using validation set. This is present in file ML\_Question1.ipynb
* After hyper parameter tuning is completed, fixed the hyper-parameters and model parameter and then tested the model's performance on the testing set which is present in file named ML\_Question\_1\_testing.ipynb
* Plot is generated between training loss vs number of epochs. This is present in ML\_Question1.ipynb
* Saved the trained model using the name “cnnmodel” and then called the model while testing .
* Classes for all the images are generated and are present in the “predictions\_new”. This has been saved in the text file named “cnn.txt”. This is present in ML\_Question\_1\_testing.ipynb
* Accuracy on testing set is: 90.37
* Confusion Matrix

([[849, 0, 19, 15, 4, 1, 103, 0, 9, 0],

[ 1, 990, 1, 5, 0, 0, 2, 0, 1, 0],

[ 15, 1, 889, 8, 35, 0, 50, 0, 2, 0],

[ 19, 21, 16, 874, 27, 0, 41, 0, 2, 0],

[ 3, 4, 71, 21, 835, 1, 65, 0, 0, 0],

[ 0, 0, 0, 0, 0, 993, 0, 6, 0, 1],

[107, 3, 67, 23, 62, 0, 728, 0, 10, 0],

[ 0, 0, 0, 0, 0, 22, 0, 973, 0, 5],

[ 2, 3, 4, 1, 3, 1, 4, 1, 981, 0]

[ 1 , 0, 0, 0, 0, 16, 0, 58, 0, 925]])