**CSYE – 7374 (Cognitive Computing)**

**Assignment 1 Part 1:**

Changing the following parameters to see changes in loss and accuracy:

1. No. of epochs: If all other parameters are kept constant then if we increase the number of epochs , the accuracy slightly increases but the model still underfits.
2. Batch Size: Increasing the batch size sometimes increased the accuracy slightly but at times increasing the batch size gave less accuracy on the model.
3. Network configuration
4. Number of neurons: Increasing the number of neurons gave better accuracy till certain point. After a certain limit it didn’t matter much on the cifar-10 dataset.
5. Number of Layers: Number of layers increased the accuracy for its count.
6. Learning Rate: Decreasing the learning rate gave better accuracy. If learning rate was increased beyond certain point the accuracy at all epochs be consistent with no major changes.
7. Activation functions:

Used three different activation functions and kept other parameters constant.

1. Softmax: It gave the best accuracy when used in the output layer among other activation function.
2. Sigmoid: It performed little less than the softmax function.
3. Tanh: It has the least accuracy rate among the other.
4. Dropout Rates: Keeping the dropout rate around 20-30% gave the best accuracy while increasing or lowering it decreased the accuracy of the model.

My model gave the highest accuracy around the range of 55-60%. It was underfitting.   
The model can be improved if the we increase the epoch, keep the batch size around 150 and use softmax function and tweaking the learning rate to get the best result in cifar-10 MLP