

**Neural Network- 19B16CS311**  
**Assignment Sheet**  
**Assignment-09(a)**  
**Topic: Keras, Tensorflow**

Ques:1 Use Keras, which is a high-level library developed over Tensorflow and perform the following operations

1. load [MNIST](#) dataset. MNIST data set is scanned handwritten training and test dataset. In training and test input and output vectors and convert the sample to floating from integer numbers.
2. Build keras sequential model and compile the model using adam optimizer and cross entropy loss function.
3. Finally train the model.

Code for above given assignment is available [Here](#)

Various hyper Parameters used by developers are needed to run this sequential / stacking model such as hidden layers, Neurons in hidden layer, activation function

Now evaluate the performance on varying hyper parameter and plot the graphs for each

- (a) Batch size - 1,2,4,8, 16, 32, 64, 128
- (b) Hidden Layers count – 1, 2, 4, 6, 8
- (c) Learning rate – 0.01, 0.05, 0.1, 0.2, 0.4,0.8

Show case confusion matrix of best model performance based on validation results of above given hyper parameters