Final Exam: CS898BA **Possible points: 100**

Due date: May 11th , 2021

Please attempt ANY one of the two questions below. The work should be an individual effort.

Q1

(a) Please modify the neural network model in code (CNN_basic.ipynb) provided in the package to include stack of convolutional layers. Compare the performance of the existing neural network model in the code with your modified Convolutional Neural Network (CNN) version. Justify the observation noted.

(b) Please summarize the paper titled "Classification of Fashion Article Images using Convolutional Neural Networks" (https://ieeexplore.ieee.org/document/8313740) in one or two pages. Point out the limitations of this paper if applicable.

OR

Q2

(a) Fine-tune the CNN trained on MNIST digit classification (refer code MNIST_digit_classification.ipynb) or the subset of PASCAL VOC 2005 dataset, for classification of images in fashion MNIST dataset. Fine-tuning could be done by adding different dense layers along with the output layer with number of neurons equal to number of classes in Fashion MNIST dataset.

(b) Please summarize the paper titled "Convolutional Neural Networks for Fashion Classification and Object Detection" (http://cs231n.stanford.edu/reports/2015/pdfs/BLAO_KJAG_CS231N_FinalPaperFashionClassification.pdf) in one or two pages. Point out the difference between your model in Q2(a) and the one reported in this paper.

Deliverables to be uploaded at blackboard:

- A well-documented report containing steps involved, your model summary, information on hyperparameters (optimizer, epochs, loss function) used for training the model, and the test accuracy. The code should be uploaded as well. 60 points
- One- or two-page write-up of the paper in Q1(b) or Q2(b) 40 points

The report could follow the format of single line one-column A4 size page.