Homework 7 – Deep Neural Networks (CS525 191N, Whitehill, Spring 2017)

You may complete this homework assignment either individually or in teams up to 2 people.

1. **Implementing a Convolutional Neural Network (CNN) with TensorFlow** [20 points]: In this problem you will train a convolutional neural network to classify, yet again, images from the MNIST dataset. As with Homework 6, you will use TensorFlow. Specifically, you should read and implement the TensorFlow tutorial entitled "Build a Multilayer Convolutional Network" (`https://www.tensorflow.org/get_started/mnist/pros#build_a_multilayer_convolutional_network`). Reproduce the result cited in the tutorial, i.e., make sure that your network achieves a **test accuracy** of at least 99% classification rate. Create a screenshot showing the last 20 SGD iterations on the training set, along with a screenshot of your final accuracy and cost on the test set.

In addition to your Python code (`homework7_WPIUSERNAME1.py` or `homework7_WPIUSERNAME1_WPIUSERNAME2.py` for teams), create a PDF file (`homework7_WPIUSERNAME1.pdf` or `homework7_WPIUSERNAME1_WPIUSERNAME2.pdf` for teams) containing the screenshots described above. **Please submit both the PDF and Python files in a single Zip file.**