Question 1. Getting Started with TensorFlow.

(a) (1%) Read `https://www.tensorflow.org/get_started/get_started` carefully and write a short one/two paragraph summary.

(b) (2%) Complete the four functions in `a4q1.py`. You may use `a4q1_test.py` for testing your solution. These files are included in the supplemental material.

Question 2. Linear Regressor. (3%)

Use TensorFlow `LinearRegressor` to fit a linear model on a simulated data provided in the supplements. The simulated data has multiple lines with three numbers in each line. The first two numbers are the inputs x_1 and x_2 and the last one is the output y. Write a function that reads the training data `a4q2_train.txt` and the test data `a4q2_test.txt`, fits a linear model and prints training and test loss values and the weights of the linear model. Report the loss values and the learned regression function. Hint: You can achieve loss value less than 0.1.

Question 3. Multinomial Logistics Regression.

(a) (1%) Read `https://www.tensorflow.org/get_started/mnist/beginners` carefully and write a short one/two paragraph summary.

(b) (1%) Change `mnist_softmax.py` (included in the supplement) to get an accuracy greater than 92.5% and submit your code. You cannot change the Logistics Regression classifier, but you may try a regularizer, change the optimizer or change the parameters of learning algorithm. Report your changes and hand in the changed code.

Question 4. Feed-forward Neural Network.

(a) (1%) Read `https://www.tensorflow.org/get_started/mnist/mechanics` carefully and write a short one/two paragraph summary.

(b) (1%) Change `mnist.py` and/or `fully_connected_feed.py` (included in the supplement) to get an accuracy greater than 98% on the test data. You may try more than two layers, change the number of units in each layer, use dropout or change other hyper parameters. Report your changes, hand in the output (stdout) of the code in a text file named `q4_stats.txt` and also, the changed code.