CSCE 509
Assignment 2
Due: April 24, 2019

1. Build your own data generator in Python; use the data set we used for Clustering (March 25 lecture) but attach labels to the two classes
2. Save your training and test data sets as npy files
3. Plot your data sets and verify that they are not linearly separable
4. From the plot, what might be the best linear classifier to separate the two classes?
5. Build these classifiers:
   a. Perceptron using sklearn
   b. Pseudo-inverse linear classifier using Python code
   c. Batch gradient descent using Python code
   d. Mini-batch gradient descent using Python code
   e. Mini-batch gradient descent using TensorFlow
6. For the TensorFlow implementation, plot the performance over the iterations and show the computation graph
7. For each implementation, discuss the result (including the classifier found and use performance metrics, such as test data accuracy)