**EECE680C Neural Networks & Deep Learning**

**Homework 1**

Due: Tuesday, Feb. 6, 2018

1. Find a set of values for weight w and bias b for a single-layer perceptron with input x and output y, where the input-output data are: (x=1,y=0), (x=0,y=1).
2. Considering using the following single-layer perceptron for the 3-class classification problem:

 

Note that if the class is C1, then the output is y1=1, and y2=y3=0. Similarly for the other two classes.

1. Can the single-layer perceptron be able to separate the samples? No need to solve for the weights, but justify your answer.
2. Add the sample (-1,6) to class C1. Repeat part (a).
3. Problem 1.3 (a), Page 67. Please solve for the weights and bias.
4. **Python programming**: Problem 1.6, Page 67. You can use the Python source code demonstrated in class, but please change all the outputs from (1,-1) to (1,0). Just submit your results (figures and weights), not need to print the entire Python source code.