ASSIGNMENT 11 – FEED-FORWARD MLP

1. Assignment 11 - 15 points, Due Monday, March 26 @ 11:59 PM

- This assignment is to be completed individually.
- This assignment is worth 15 points and is due Monday, March 26.
- You may solve this problem by hand and push a scan of your work in a file called "assignment11.pdf".
- Answer the following questions:
- Suppose you had the following neural network:

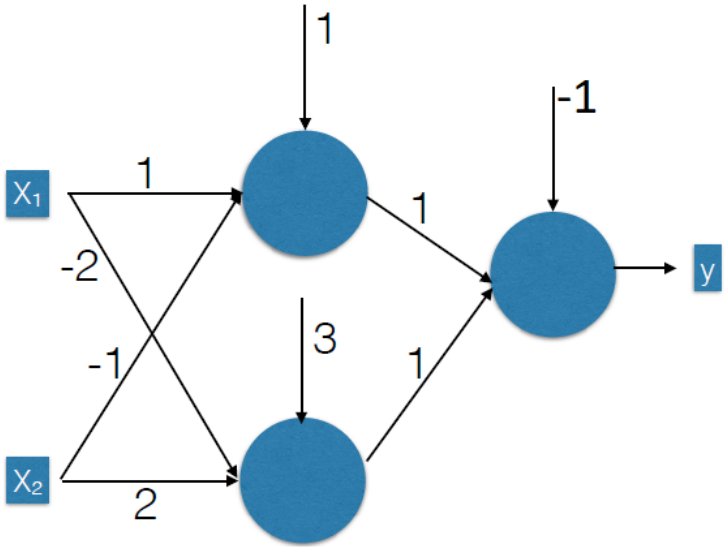

Figure 1. In class assignment 2 Example NN

with a hard-limit activation function: $\phi(v) = \begin{cases} 1, & \text{if } v > 0 \\ 0, & \text{if } v \leq 0 \end{cases}$

(1) What is the expression of the output value y in terms of the input values $x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$?

(2) What is the output with the following input values?
   - $[0, 0]$
   - $[-2, -2.5]$
   - $[-5, 5]$
   - $[10, 3]$

(3) What does the decision surface of this network look like graphically? Draw it out by hand.