**CS 471-571**

**Artificial Intelligence**

**Programming Assignment 1**

(200pts.)

**Name:**

**Date:** 9-18-18

**Due:** 9-25-18 by 5 pm

**Problem 1:** Using a single hidden layer feed-forward neural network (FFNN) with 2 inputs and 3 hidden nodes and 1 output to model the data below.

0.374186 0.904727 166

0.397672 0.074281 221

0.387948 0.153990 244

0.541511 0.148609 61

**x** = 0.366906 0.760656 **y** = 190

0.389160 0.570398 131

0.892068 0.926974 164

0.507588 0.752778 216

0.316727 0.477287 134

0.727478 0.414801 146

Solve the above using sigmoid, ReLu and Linear activation functions.

**Problem 2:** Using a single hidden layer feed-forward neural network (FFNN) classify the iris data set. You should have 4 input nodes, 5 hidden nodes and 3 output nodes.

Sample:

Header: **features** (sepal\_length, sepal\_width, petal\_length, petal\_width), **label**(species)

5.1,3.5,1.4,0.2, setosa

4.9,3,1.4,0.2, setosa

4.7,3.2,1.3,0.2, setosa

4.6,3.1,1.5,0.2, setosa

**x** = 5,3.6,1.4,0.2, **y** = setosa

5.4,3.9,1.7,0.4, setosa

4.6,3.4,1.4,0.3, setosa

5,3.4,1.5,0.2, setosa

4.4,2.9,1.4,0.2, setosa

Solve the above using sigmoid and ReLu.

Try with 5 for each species 915 in total) to train