**Homework 5**

(Only NumPy and data visualization packages are allowed.)

1.Read through Slide11 and 12, watch video lectures of neural networks.

2.Run the code “8\_NN\_2layer.py” (blackboard)

﻿3. Trains the NN more than 1,000 times and observe the change of the loss value.

4. Implement a **“3-6-2” network** (using code 8\_NN\_2layer.py) to fit the following data:

﻿X=np.array(([0,0,1],[0,1,1],[1,0,1],[1,1,1]), dtype=float)

y=np.array(([0,1],[1,0],[1,0],[0,1]), dtype=float)

5. What are the dimension of weight matrix 1 and weight matrix 2? (5pts)

6. Test the two following samples and write down the predicted y values for them. (5 pts)

Testing sample one: X1 = [0, 0, 0] y1=[? ?]

Testing sample two: X2 = [1,1,1] y2=[? ?]

**Submission**:

Write a report to describe /answer required questions (5 and 6).

Upload your code with comments as a separate .py or zip file.

**File1: Assignment5\_FirstnameLastname.doc/.pdf (this is the report)**

**+**

**File2: Assignment5\_ FirstnameLastname.py (this is the code. only “.py” files accepted.**

***OR***

***Assignment5\_ FirstnameLastname.zip if you have multiple “.py” files.***