Course Name: Soft Computing   **Semester: 20211**

Course Code: CSN403

Total Marks: 30

Assignment 1

Instructions:

- Solutions to be implemented in Python
- The submission deadline is to be strictly followed, failing which you will be awarded zero marks.
- In case the assignment is found to be copied from Internet/Fellow colleagues, you will be awarded zero marks in the current assignment.
- File name must be in format: <SID>_<Name>_Assignment1.py

Given is a csv file with 11 columns and 1000 rows. Each row corresponds to a single datapoint where the last column is the output and remaining 10 columns are the input values.

1. Implement a generic single McCulloch-Pitts (MP) Neuron from scratch which takes input vector of length m and generate output based on threshold t value set.

2. For the given csv file, using the above generic implementation, find the accuracy of the MP Neuron for all possible threshold values i.e. from 0 to 10.

3. For the accuracy values for various threshold values in question 2, Plot a line graph of threshold value (x-axis) vs. accuracy (y-axis). Label X and Y axes properly. X and Y axes limits should be 0-10 and 0-1 respectively.