MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY, JAIPUR

Department of Computer Science and Engineering

M.Tech Programming Lab 2019

Assignment-1

Note:

(1) All the problems are to be implemented in Python. The exercises are to be done individually.

(2) The submission date is the last lab day for the exercise. The number of labs for each exercise is mentioned alongside.

Following is a list of exercises to be done as part of Machine Learning Lab course.

1. (10 points, Labs - 1) Generate a linearly separable data (random) set of size 20. Plot the examples $\{(x_n,y_n)\}$ as well as the target function f on a plane. Be sure to mark the examples from different classes differently, and add labels to the axes of the plot.

2. Run the perceptron learning algorithm on the data set above. Report the number of updates that the algorithm takes before converging. Plot the examples $\{(x_n,y_n)\}$, the target function f , and the final hypothesis g in the same figure. Comment on whether f is close to g.

3. Repeat everything in (2) with another randomly generated data set of size 100. Compare your results with (2).