Ahsanullah   University of Science & Technology

Department of Computer Science & Engineering

Course No   : CSE4114

Course Title   : Pattern Recognition and Machine Learning Lab

Assignment No   : 01

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Section: B1

Question a) In task 2, why do we need to take the sample points to a high dimension?

Ans. The points in the 'train.txt' file are not linearly separable; we can see it after plotting it. So, we need to take the points to a higher dimension.

Question b) In each of the three initial weight cases and for each learning rate, how many updates does the algorithm take before converging?

Ans.

Table1: (Initial Weight Vector All Zero)

Learning Rate	One At a Time	Many at a Time
0.1	94	105
0.2	94	105
0.3	94	92
0.4	94	105
0.5	94	92
0.6	94	105
0.7	94	105
0.8	94	105
0.9	94	105
10	94	92

Table2: (Initial Weight Vector All One)

Learning Rate	One At a Time	Many at a Time
0.1	6	102
0.2	92	104
0.3	104	91
0.4	106	116
0.5	93	105
0.6	93	114
0.7	108	91
0.8	115	91
0.9	94	105
10	94	93

Table1: (Initial Weight Vector Random Seed)

Learning Rate	One At a Time	Many at a Time
0.1	99	101
0.2	92	128
0.3	99	105
0.4	114	117
0.5	102	101
0.6	114	117
0.7	109	107
0.8	108	103
0.9	94	104
10	107	123

Bar Chart: