Homework 3

October 19, 2019

Chapter 4

1) Exercises: #2
   Remarks.
   a) Use initial weights $w_0 = -0.4, w_1 = 0.3, w_2 = 0.1$. Use 0.2 as the learning rate.
   b) You can solve this problem either by hand or by using a computer program.
2) Give it some thought: #2
   Remark. In this problem, you are asked to design a method to find the decision surface of a 1-NN classifier with 2 examples.
3) Computer Assignment: #2, #3
   Remarks.
   a) Download a data set from ILMS for programming problems #4.2 and #4.3.
   b) Assume initial weight of 0.2 for all attributes for the learning rate for problems #4.2 and #4.3.
   c) For problem #4.2, print the number of example-presentations in order to achieve zero error rate for $\eta = 0.2, 0.4, 0.6, 0.8$.
      - Note that the number of example-presentations is the number of training epochs to achieve zero error rate times the number of examples in the training set.
   d) For problem #4.3, print the number of example-presentations for $N = 1, 5, 10, 15, 20$, assuming $\eta = 0.2$.
      - Note that labels remain the same before or after N attributes are added.

Due date: Thursday, Oct. 29, 2019 (Note: You can submit the homework in class on the due date. Alternatively, you can submit your homework to Room 845 EECS building before 5 pm on the due date. No late homework is accepted.)