CS 156 Problem Set 7

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Problem 1

(D) - According to our code, when $k = 6$, we have a classification error of 0 in the validation set which is the best of the choices.

Problem 2

(E) - According to our code, when $k = 7$, we have a classification error of 0.076 which is the lowest of the answer choices. This shows that our validation set was not very good at predicting the output data.

Problem 3

(D) - Once again, according to our code when $k = 6$ we have the lowest classification error in the validation set of 0.0833.

Problem 4

(D) - This time, when $k = 6$ we also get the lowest classification error on the output set, though the error this time is 0.192 which is significantly higher than before which means our training set was not an accurate approximation of the output set.

Problem 5

(B) - Our errors of 0.076 and 0.192 are closest to answer choice B.

Problem 6

(D) - It makes sense for the expected value of e to be lower than 0.5 since there's a min function. According to the code, e should be around 1/3 which makes sense and is closest to answer choice D.

Problem 7

(C) - See attached sheet.

Problem 8

(C) - Using our code (implementing the sklearn package) we get that around 56% of the time SVC is more accurate than PLA which is closest to answer choice C.

Problem 9

(D) - The code returned 62.1% which is closest to answer choice D.

Problem 10

(B) - The code returned a value of 2.97 which is closest to answer choice B.