Started on	Wednesday, 8 May 2024, 10:22 PM
State	Finished
Completed on	Wednesday, 8 May 2024, 10:39 PM
Time taken	16 mins 37 secs
Grade	8.00 out of 9.00 (88.89%)

Question 1

Correct

Mark 1.00 out of 1.00

What do you mean by generalization error in terms of the SVM?

a. How far the hyperplane is from the support vectors

b. The threshold amount of error in an SVM

c. How accurately the SVM can predict outcomes for unseen data ✓

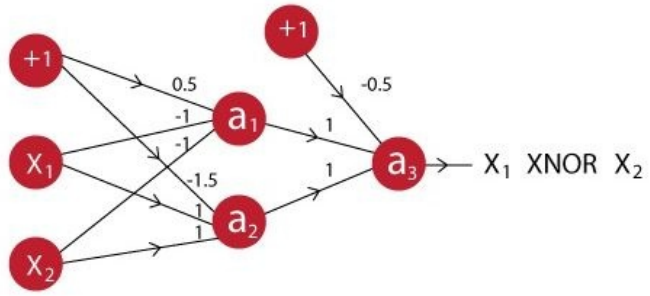
The correct answer is: How accurately the SVM can predict outcomes for unseen data

Question 2

Correct

Mark 1.00 out of 1.00

A network is created when we multiple neurons stack together. Let us take an example of a neural network simulating an XNOR function.



You can see that the last neuron takes input from two neurons before it. The activation function for all the neurons is given by:

$$f(x) = \begin{cases} 0, & for\ x < 0 \\ 1, & for\ x \geq 0 \end{cases}$$

Suppose X1 is 0 and X2 is 1, what will be the output for the above neural network?

a. 1

b. 0 ✓

The correct answer is: 0

Question 3

Incorrect

Mark 0.00 out of 1.00

What is the sequence of the following tasks in a perceptron?

1. Initialize weights of perceptron randomly
2. Go to the next batch of dataset
3. If the prediction does not match the output, change the weights
4. For a sample input, compute an output

a. 1, 4, 3, 2

b. 4, 3, 2, 1

c. 3, 1, 2, 4

d. 1, 2, 3, 4 ✗

The correct answer is: 1, 4, 3, 2

Question 4

Correct

Mark 1.00 out of 1.00

Which of the following is true about training and testing error in such case?

Suppose you want to apply AdaBoost algorithm on Data D which has T observations. You set half the data for training and half for testing initially. Now you want to increase the number of data points for training T1, T2 ... Tn where T1 < T2.... Tn-1 < Tn.

a. The difference between training error and test error will not change

b. The difference between training error and test error increases as number of observations increases

c. The difference between training error and test error decreases as number of observations increases ✓

d. None of These

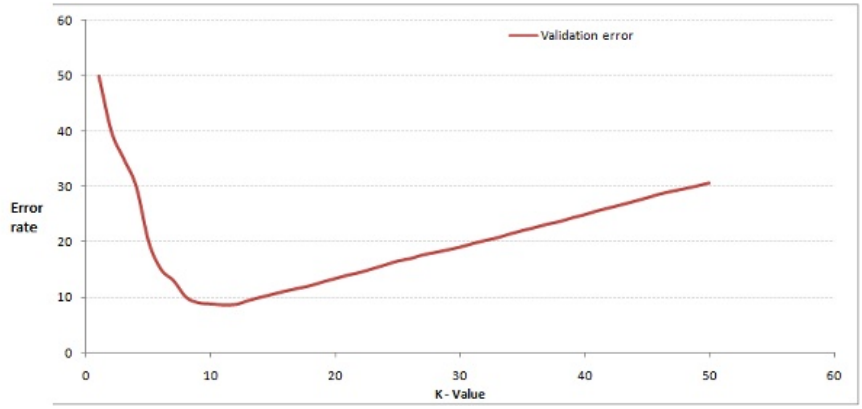
The correct answer is: The difference between training error and test error decreases as number of observations increases

Question 5

Correct

Mark 1.00 out of 1.00

In the image below, which would be the best value for k assuming that the algorithm you are using is k-Nearest Neighbor.



a. 10 ✓

b. 50

c. 20

d. 3

The correct answer is: 10

Question 6

Correct

Mark 1.00 out of 1.00

Which of the following will be Euclidean Distance between the two data point A(1,3) and B(2,3)?

a. 4

b. 2

c. 1 ✓

d. 8

The correct answer is: 1

Question 7

Correct

Mark 1.00 out of 1.00

The minimum time complexity for training an SVM is O(n2). According to this fact, what sizes of datasets are not best suited for SVMs?

a. Size does not matter

b. Medium-sized datasets

c. Large datasets ✓

d. Small datasets

The correct answer is: Large datasets

Question 8

Correct

Mark 1.00 out of 1.00

Which of the following statement(s) correctly represents a real neuron?

a. A neuron has a single input but multiple outputs

b. A neuron has multiple inputs but a single output only

c. A neuron has multiple inputs and multiple outputs

d. A neuron has a single input and a single output only

e. All of the above statements are valid ✓

The correct answer is: All of the above statements are valid

Question 9

Correct

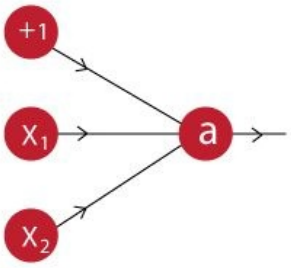
Mark 1.00 out of 1.00

Let us assume we implement an AND function to a single neuron. Below is a tabular representation of an AND function:

X_1	X_2	X_1 AND X_2
0	0	0
0	1	0
1	0	0
1	1	1

The activation function of our neuron is denoted as:

$$f(x) = \begin{cases} 0, & for\ x < 0 \\ 1, & for\ x \geq 0 \end{cases}$$



What would be the weights and bias?
(Hint: For which values of w1, w2 and b does our neuron implement an AND function?)

a. Bias = 1, w1 = 1.5, w2 = 1.5

b. None of these

c. Bias = -1.5, w1 = 1, w2 = 1 ✓

d. Bias = 1.5, w1 = 2, w2 = 2

The correct answer is: Bias = -1.5, w1 = 1, w2 = 1