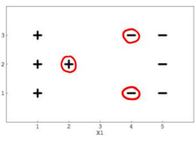
Unit 7 - Week 5

Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-04, 23:59 IST.

1) Suppose you are using a Linear SVM classifier with 2 class classification problem. Consider the following data in which the points circled red represent support vectors. *2 points*



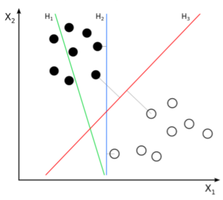
Will the decision boundary change if any of the red points are removed?

a. Yes
b. No

a
b

No, the answer is incorrect.
Score: 0
Accepted Answers:
a

2) Consider the data-points in the figure below. *2 points*



Let us assume that the black-colored circles represent positive class whereas the white-colored circles represent negative class. Which of the following among H1, H2 and H3 is the maximum-margin hyperplane?

(a) H1
(b) H2
(c) H3

a
b
c
d

No, the answer is incorrect.
Score: 0
Accepted Answers:
c

3) The soft margin SVM is more preferred than the hard-margin svm when: *2 points*

1. The data is linearly separable
2. The data is noisy and contains overlapping point

1
2

No, the answer is incorrect.
Score: 0
Accepted Answers:
2

4) After training an SVM, we can discard all examples which are not support vectors and can still classify new examples? *2 points*

a. True
b. False

a
b

No, the answer is incorrect.
Score: 0
Accepted Answers:
a

5) Suppose you are building a SVM model on data X. The data X can be error prone which means that you should not trust any specific data point too much. Now think that you want to build a SVM model which has quadratic kernel function of polynomial degree 2 that uses Slack variable C as one of its hyper parameter. *2 points*

What would happen when you use very large value of C (C->infinity)?

a. We can still classify data correctly for given setting of hyper parameter C.
b. We can not classify data correctly for given setting of hyper parameter C
c. None of the above

a
b
c

No, the answer is incorrect.
Score: 0
Accepted Answers:
a

6) Following Question 5, what would happen when you use very small C (C~0)? *2 points*

a. Data will be correctly classified
b. Misclassification would happen
c. None of these

a
b
c

No, the answer is incorrect.
Score: 0
Accepted Answers:
b

7) If g(z) is the sigmoid function, then its derivative with respect to z may be written in term of g(z) as *2 points*

a. g(z)(g(z)-1)
b. g(z)(1+g(z))
c. -g(z)(1+g(z))
d. g(z)(1-g(z))

a
b
c
d

No, the answer is incorrect.
Score: 0
Accepted Answers:
d

8) In the linearly non-separable case, what effect does the C parameter have on the SVM mode. *2 points*

a. it determines how many data points lie within the margin
b. it is a count of the number of data points which do not lie on their respective side of the hyperplane
c. it allows us to trade-off the number of misclassified points in the training data and the size of the margin
d. it counts the support vectors

a
b
c
d

No, the answer is incorrect.
Score: 0
Accepted Answers:
c

9) Suppose that we use a RBF kernel with appropriate parameters to perform classification on a particular two class data set where the data is not linearly separable. In this scenario *2 points*

a. the decision boundary in the transformed feature space is non-linear
b. the decision boundary in the transformed feature space is linear
c. the decision boundary in the original feature space is linear
d. the decision boundary in the original feature space is non-linear

a
b
c
d

No, the answer is incorrect.
Score: 0
Accepted Answers:
b
d

10) Which of the following statements is/are true about kernel in SVM? *2 points*

1. Kernel function map low dimensional data to high dimensional space

2. It's a similarity function

a. 1 is True but 2 is False
b. 1 is False but 2 is True
c. Both are True
d. Both are False

a
b
c
d

No, the answer is incorrect.
Score: 0
Accepted Answers:
c