



ML quiz 2022 2023

Machine Learning (Birla Institute of Technology and Science, Pilani)



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Quiz: Quiz 2

bits-pilani.instructure.com/courses/1949/quizzes/4429/take/questions/66217

e-Learning Portal CANVAS BITS Learn the Basics of... first self learning ta... Decision Tree Algor...

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 1 0.5 pts

1-nearest neighbors has _____ bias and _____ variance than 100-nearest neighbors.

☐ more, more

☐ less, less

☐ more, less

☒ less, more

Next >

Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ✓ Question 4
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- ✓ Question 8

Time Running: [Hide Time](#)

Attempt due: Sep 3 at 23:59

33 Minutes, 35 Seconds

Quiz: Quiz 2

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 2 0.5 pts

3-NN classifier has _____ than a 1-NN classifier.

☐ lower bias

☐ lower training error

☐ higher variance

☒ lower variance

Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ✓ Question 7
- ✓ Question 8

Time Running: [Hide Time](#)

Attempt due: Sep 3 at 23:59

33 Minutes, 25 Seconds

Quiz: Quiz 2

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 3 0.5 pts

Assume that we are using the 5-nearest neighbor algorithm to determine the house price of a new instance. The 5-nearest neighbors have house prices of 150,000, 200,000, 300,000, 500,000 and 250,000. Then the house price of the new instance should be

☐ 150,000

☐ 300,000

☒ 280,000

☐ 600,000

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Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ✓ Question 7
- ✓ Question 8

Time Running: Hide Time
Attempt due: Sep 3 at 23:59
33 Minutes, 17 Seconds

Quiz: Quiz 2

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Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 4 0.5 pts

Which of the following are true for the k-nearest neighbor (k-NN) algorithm?

☐ The decision boundary looks smoother with smaller values of k.

☐ As k increases, the variance usually increases.

☒ As k increases, the bias usually increases

☐ k-NN can be used only for classification.

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Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ✓ Question 7
- ✓ Question 8

Time Running: Hide Time
Attempt due: Sep 3 at 23:59
33 Minutes, 5 Seconds

Quiz: Quiz 2

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Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 5 0.25 pts

In SVM's which of the following do we look for?

- ☐ None of the above
- ☒ Maximizing the margin size
- ☐ Higher misclassification rates
- ☐ Longer training duration

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Time Running: 32 Minutes, 55 Seconds

Attempt due: Sep 3 at 23:59

Quiz: Quiz 2

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Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 6 0.25 pts

A linear SVM _____ find the same decision boundary as a logistic regression classifier.

- ☐ can definitely not
- ☒ can

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Time Running: 32 Minutes, 46 Seconds

Attempt due: Sep 3 at 23:59

Submit Quiz

Quiz: Quiz 2

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 6 0.25 pts

A linear SVM _____ find the same decision boundary as a logistic regression classifier.

☐ can definitely not

☒ can

Previous Next

Submit Quiz

Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ✓ Question 7
- ✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

32 Minutes, 46 Seconds

Quiz: Quiz 2

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 8 0.25 pts

Which of the following factors determines the dimensionality of the hyperplane in SVMs?

☐ Number of samples

☐ Number of target variables

☒ Number of features

☐ All of the above

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Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
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- ✓ Question 5
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- ✓ Question 7
- ✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

32 Minutes, 28 Seconds

Quiz: Quiz 2

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 9 0.25 pts

The training examples closest to the separating hyperplane are called

☐ Test vectors

☐ None of the above

☒ Support vectors

☐ Train vectors

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Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ✓ Question 7
- ✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

32 Minutes, 20 Seconds

Quiz: Quiz 2

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 10 0.25 pts

In SVM, what is a hyperplane?

☐ None of the above

☒ Decision boundary

☐ Data points

☐ Features

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Not saved Submit Quiz

Questions

- ✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

32 Minutes, 10 Seconds

Quiz: Quiz 2

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Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 11 0.25 pts

We found S_{hard} to be the set of support vectors using hard margin linear SVM and S_{soft} to be the set of support vectors using soft margin linear SVM while solving a linearly separable problem. We also found θ_{hard} and θ_{soft} to be the learned parameter vectors for the decision boundary. Which of the following is correct?

☐ S_{hard} is a subset of S_{soft}

☐ $\theta_{\text{hard}} = \theta_{\text{soft}}$

☒ θ_{hard} may not be equal to θ_{soft}

☐ None of them

Time Running: Hide Time
Attempt due: Sep 3 at 23:59
31 Minutes, 59 Seconds

Talking: Arun

Quiz: Quiz 2

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Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Started: Sep 3 at 8:40

Question 12 0.25 pts

Which of the following is false about support vectors?

☐ they influence the position and orientation of the hyperplane

☐ these are supporting points closer to the hyperplane

☒ More number of examples are bound to increase the number of support vectors

☐ None of the above

Time Running: Hide Time
Attempt due: Sep 3 at 23:59
31 Minutes, 49 Seconds

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 13 0.25 pts

What is the minimum possible number of Support Vectors for an N-dimensional dataset?

☐ The number of support vectors are independent of the dimensionality of data

☐ N

☒ N-1

☐ N-2

Questions

✓ Question 1

✓ Question 2

✓ Question 3

✓ Question 4

✓ Question 5

✓ Question 6

✓ Question 7

✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

31 Minutes, 38 Seconds

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 14 0.25 pts

State True or False. SVM cannot be used in the case of linearly non-separable data.

☐ True

☒ False

Questions

✓ Question 1

✓ Question 2

✓ Question 3

✓ Question 4

✓ Question 5

✓ Question 6

✓ Question 7

✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

31 Minutes, 30 Seconds

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 15 0.25 pts

Support vectors are the only examples needed to determine the decision boundary in a linear SVM.

☒ True

☐ False

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Questions

- ✓ Question 1
- ✓ Question 2
- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ✓ Question 7
- ✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

31 Minutes, 22 Seconds

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Quiz 2

Started: Sep 3 at 8:40

Quiz Instructions

Questions include topics up to SVM from the beginning. Some questions require numerical calculations.

Question 16 0.25 pts

Say you have a linear SVM classifier that correctly classifies a point that is very far away from the decision boundary. If you remove this point from the training set and retrain the SVM classifier, what happens to the decision boundary?

☐ Will likely change

☐ Can't say

☒ Will likely stay the same

◀ Previous

Questions

- ✓ Question 3
- ✓ Question 4
- ✓ Question 5
- ✓ Question 6
- ✓ Question 7
- ✓ Question 8

Time Running: Hide Time

Attempt due: Sep 3 at 23:59

31 Minutes, 14 Seconds