

csd3186s25-a.sg

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Started on	Monday, 3 February 2025, 10:45 AM
State	Finished
Completed on	Monday, 3 February 2025, 10:48 AM
Time taken	3 mins 21 secs
Grade	20.00 out of 20.00 (100%)

Question 1

Correct

Mark 2.00 out of 2.00

Flag question

Which of the following is a disadvantage of Decision Trees?

Select one:

- ☐ They are easy to interpret
- ☐ They handle missing values well
- ☐ They are not sensitive to small changes in the data
- ☒ They can easily overfit the data ✓

Your answer is correct.

The correct answer is: They can easily overfit the data

Question 2

Correct

Mark 2.00 out of 2.00

Flag question

Which of the following is a commonly used Decision Tree algorithm for classification tasks?

Select one:

- ☐ Support Vector Machine
- ☒ CART (Classification and Regression Trees) ✓
- ☐ Naive Bayes
- ☐ K-Means

Your answer is correct.

The correct answer is: CART (Classification and Regression Trees)

Question 3

Correct

Mark 2.00 out of 2.00

Flag question

Which of the following is the main objective of the Decision Tree algorithm?

Select one:

- ☐ To find a linear relationship between features
- ☐ To cluster data into similar groups
- ☒ To split data into subsets based on feature values ✓
- ☐ To make decisions based on probability

Your answer is correct.

The correct answer is: To split data into subsets based on feature values

Question 4

Correct

Mark 2.00 out of 2.00

Flag question

Which of the following methods can prevent overfitting in Decision Trees?

Select one:

- ☒ Pruning the tree ✓
- ☐ Increasing the depth of the tree
- ☐ Ignoring the leaf nodes
- ☐ Using more features

Your answer is correct.

The correct answer is: Pruning the tree

Question 5

Correct

Mark 2.00 out of 2.00

🚩 Flag question

Which hyperparameter in Decision Trees controls the maximum depth of the tree?

Select one:

- ☐ criterion
- ☐ max_features
- ☒ max_depth ✓
- ☐ min_samples_split

Your answer is correct.

The correct answer is: max_depth

Question 6

Correct

Mark 2.00 out of 2.00

Flag question

Which of the following is used in Decision Trees for regression tasks to split the data?

Select one:

- ☐ Entropy
- ☐ Information Gain
- ☒ Mean Squared Error (MSE) ✓
- ☐ Gini Impurity

Your answer is correct.

The correct answer is: Mean Squared Error (MSE)

Question 7

Correct

Mark 2.00 out of 2.00

Flag question

Which of the following is a common criterion used to split nodes in Decision Trees for classification tasks?

Select one:

- ☒ Gini Impurity ✓
- ☐ Euclidean Distance
- ☐ Standard Deviation
- ☐ Mean Squared Error (MSE)

Your answer is correct.

The correct answer is: Gini Impurity

Question 8

Correct

Mark 2.00 out of 2.00

Flag question

What is the purpose of the "Gini Index" in Decision Trees?

Select one:

- ☒ To measure the quality of a split in classification tasks ✓
- ☐ To calculate the average error in regression tasks
- ☐ To select the best feature for clustering
- ☐ To calculate the entropy of the dataset

Your answer is correct.

The correct answer is: To measure the quality of a split in classification tasks

Question 9

Correct

Mark 2.00 out of 2.00

Flag question

What is "pruning" in Decision Trees?

Select one:

☐ Increasing the depth of the tree

☐ Splitting the data into more branches

☒ Removing unnecessary branches to reduce overfitting ✓

☐ Adding more data to the tree

Your answer is correct.

The correct answer is: Removing unnecessary branches to reduce overfitting

Question **10**

Correct

Mark 2.00 out of 2.00

Flag question

In which case would Decision Trees typically perform poorly?

Select one:

- ☐ When the data is non-linear
- ☒ When the data is highly imbalanced ✓
- ☐ When there is a clear decision boundary
- ☐ When there is a large amount of missing data

Your answer is correct.

The correct answer is: When the data is highly imbalanced

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