Feature Engineering quiz

6 out of 6 correct

1. Which of the following is a feature selection method that selects a subset of features based on their correlation with the target variable?

- ⦿ **Filter method**
- ◯ Wrapper method
- ◯ Embedded method
- ◯ All of the above

Explanation: The filter method is a feature selection method that selects a subset of features based on their correlation with the target variable. It involves ranking features based on a statistical metric and selecting a subset of the top-ranked features. This method is independent of the model used and is generally faster than other methods.

2. Which of the following is a feature selection method that selects a subset of features based on their ability to improve the performance of a given model?

- ◯ Filter method
- ◯ Wrapper method
- ◯ Embedded method
- ⦿ **None of the above**

Explanation: The wrapper method is a feature selection method that selects a subset of features based on their ability to improve the performance of a given model. It involves evaluating different subsets of features by training and

testing the model on each subset. This method is dependent on the model used and can be computationally expensive.

3. Which of the following is a feature selection method that combines feature selection with the model training process?

○ Filter method

○ Wrapper method

◉ **Embedded method**

○ None of the above

Explanation: The embedded method is a feature selection method that combines feature selection with the model training process. It involves integrating feature selection into the model training process and selecting a subset of features based on their contribution to the model's performance. This method is model-specific and can be computationally efficient.

4. Which of the following is a disadvantage of the filter method for feature selection?

○ It is model-specific

○ It is computationally expensive

◉ **It does not consider the interactions between features**

○ It is not based on a statistical metric

Explanation: The filter method for feature selection does not consider the interactions between features, which can lead to the selection of redundant features. This can result in suboptimal performance of the model.

5. Which of the following is an advantage of the wrapper method for feature selection?

○ It is computationally efficient

○ It is independent of the model used

🔘 **It considers the interactions between features**

⚪ It is based on a statistical metric

Explanation: The wrapper method for feature selection considers the interactions between features, which can lead to the selection of a more optimal subset of features. This can result in improved performance of the model. However, this method can be computationally expensive compared to the filter method.

6. What is the primary difference between the filter method and the wrapper method for feature selection?

⚪ The filter method is model-specific, while the wrapper method is independent of the model used.

🔘 **The filter method selects features based on their correlation with the target variable, while the wrapper method evaluates subsets of features based on their ability to improve model performance.**

⚪ The filter method considers the interactions between features, while the wrapper method does not.

⚪ The filter method combines feature selection with the model training process, while the wrapper method does not.

Explanation: The primary difference between the filter method and the wrapper method is that the filter method selects features based on their correlation with the target variable, while the wrapper method evaluates subsets of features based on their ability to improve model performance.

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