21st April Quiz

7 out of 7 correct

1. What is the distance metric used in the KNN repressor?

- ◯ Euclidean distance
- ◯ Manhattan distance
- ◯ Minkowski distance
- ◉ All of the above

Explanation: The KNN repressor can use any of the distance metrics, including Euclidean distance, Manhattan distance, and Minkowski distance, to calculate the distance between data points.

2. What is the optimal value of k in the KNN repressor?

- ◯ A high value of k
- ◯ A low value of k
- ◉ It depends on the dataset
- ◯ None of the above

Explanation: The optimal value of k in the KNN repressor depends on the dataset and the problem being solved. A higher value of k may reduce the effect of noise on the predictions, but it may also decrease the accuracy of the model.

3. Which of the following is not a disadvantage of the KNN repressor?

- ◯ The need for feature scaling
- ◯ The sensitivity to the number of features
- ◯ The sensitivity to outliers

- [x] The high computation time

Explanation: The KNN repressor has a relatively low computation time compared to other machine learning algorithms. However, it does have some disadvantages, including the need for feature scaling, sensitivity to the number of features, and sensitivity to outliers.

4. How does the KNN repressor handle missing values?

- [ ] It drops the data points with missing values
- [ ] It replaces the missing values with the mean or median of the feature
- [x] It uses imputation methods to estimate the missing values
- [ ] None of the above

Explanation: The KNN repressor can use imputation methods, such as k-nearest neighbor imputation or mean imputation, to estimate the missing values in the dataset.

5. What is the main difference between the KNN classifier and the KNN repressor?

- [x] The KNN classifier predicts discrete values, while the KNN repressor predicts continuous values.
- [ ] The KNN classifier uses a classification algorithm, while the KNN repressor uses a regression algorithm.
- [ ] The KNN classifier uses a different distance metric than the KNN repressor.
- [ ] None of the above

Explanation: The KNN classifier is used for classification problems and predicts the class labels of new data points based on the labels of its k-nearest neighbors. The KNN repressor, on the other hand, is used for regression problems and predicts the continuous values of a dependent variable based on the values of its k-nearest neighbors.

6. In the KNN repressor, if k is set to 1 and there are 5 nearest neighbors, what value will be predicted for a new data point with the following distances to its neighbors: 1.2, 1.5, 1.8, 2.0, 2.5?

- (●) 1.5
- ( ) 1.8
- ( ) 2.0
- ( ) 2.5

Explanation: Since k is set to 1, the predicted value will be the value of the closest neighbor, which has a distance of 1.2 and a corresponding value of 1.5.

7. If the KNN repressor is trained on a dataset with 100 data points, and k is set to 10, how many neighbors will be used to predict the value of a new data point?

- ( ) 5
- (●) 10
- ( ) 20
- ( ) 50

Explanation: Since k is set to 10, the KNN repressor will use the 10 nearest neighbors to predict the value of the new data point.

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