Regression quiz

6 out of 6 correct

1. What is Lasso Regression?

- (●) A linear regression model that uses regularization
- ( ) A non-linear regression model
- ( ) A model that fits a polynomial curve to the data
- ( ) A model that uses decision trees to predict outcomes

Explanation: Lasso Regression is a linear regression model that uses regularization to prevent overfitting. It does this by adding a penalty term to the cost function that encourages the model to use fewer features. This penalty term is based on the L1 norm of the model coefficients.

2. What is the purpose of Lasso Regression?

- ( ) To maximize the R-squared value of the model
- ( ) To minimize the mean squared error of the model
- (●) To prevent overfitting in the model
- ( ) To fit a polynomial curve to the data

Explanation: The purpose of Lasso Regression is to prevent overfitting in the model by adding a penalty term to the cost function that encourages the model to use fewer features. This penalty term is based on the L1 norm of the model coefficients.

3. Which of the following is a hyperparameter of Lasso Regression?

- ( ) Learning rate
- (●) Regularization parameter

- ◯ Number of iterations
- ◯ Number of hidden layers

Explanation: The regularization parameter is a hyperparameter of Lasso Regression that controls the strength of the regularization penalty. A larger value of this parameter will result in a stronger penalty, which will encourage the model to use fewer features.

4. Which of the following is an advantage of Lasso Regression?

- ◯ It can handle non-linear relationships between features and the target variable
- ◯ It can handle missing values in the data
- ◉ It can select the most important features in the model
- ◯ It is computationally less expensive than other regression models

Explanation: Lasso Regression can select the most important features in the model by shrinking the coefficients of the less important features towards zero. This helps to simplify the model and reduce the risk of overfitting.

5. Which of the following is a disadvantage of Lasso Regression?

- ◯ It can only be used for linear regression problems
- ◉ It is sensitive to the scale of the features
- ◯ It is prone to underfitting
- ◯ It can handle missing values in the data

Explanation: Lasso Regression is sensitive to the scale of the features, which means that it can give different importance to features based on their scale. To avoid this problem, it is recommended to scale the features before applying Lasso Regression.

6. Which of the following is the penalty term used in Lasso Regression?

- ◉ L1 norm of the model coefficients

- ◯ L2 norm of the model coefficients
- ◯ Absolute difference between the predicted and actual values
- ◯ Square of the difference between the predicted and actual values

Explanation: The penalty term used in Lasso Regression is based on the L1 norm of the model coefficients. This penalty term encourages the model to use fewer features by shrinking the coefficients of the less important features towards zero.

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