

1. Which of the following methods do we use to find the best fit line for data in Linear Regression?

- A) Least Square Error ✓**
- B) Maximum Likelihood
- C) Logarithmic Loss
- D) Both A and B

2. Which of the following statement is true about outliers in linear regression?

- A) Linear regression is sensitive to outliers ✓**
- B) linear regression is not sensitive to outliers
- C) Can't say
- D) none of these

3. A line falls from left to right if a slope is _____?

- A) Positive
- B) Negative ✓**
- C) Zero
- D) Undefined

4. Which of the following will have symmetric relation between dependent variable and independent variable?

- A) Regression
- B) Correlation ✓**
- C) Both of them
- D) None of these

5. Which of the following is the reason for over fitting condition?

- A) High bias and high variance
- B) Low bias and low variance
- C) Low bias and high variance ✓**
- D) none of these

6. If output involves label then that model is called as:

- A) Descriptive model
- B) Predictive model ✓**
- C) Reinforcement learning
- D) All of the above

7. Lasso and Ridge regression techniques belong to _____?

- A) Cross validation
- B) Removing outliers
- C) SMOTE
- D) Regularization ✓**

8. To overcome with imbalance dataset which technique can be used?

- A) Cross validation
- B) Regularization
- C) Kernel
- D) SMOTE ✓**

9. The AUC Receiver Operator Characteristic (AUCROC) curve is an evaluation metric for binary classification problems. It uses _____ to make graph?

- A) TPR and FPR ✓**
- B) Sensitivity and precision
- C) Sensitivity and Specificity
- D) Recall and precision

10. In AUC Receiver Operator Characteristic (AUCROC) curve for the better model area under the curve should be less.

- A) True
- B) False ✓**

11. Pick the feature extraction from below:

- A) Construction bag of words from a email
- B) Apply PCA to project high dimensional data ✓**
- C) Removing stop words
- D) Forward selection

12. Which of the following is true about Normal Equation used to compute the coefficient of the Linear Regression?

- A) We don't have to choose the learning rate. ✓**
- B) It becomes slow when number of features is very large. ✓**
- C) We need to iterate.
- D) It does not make use of dependent variable.

Explain the term regularization?

- **Regularization** is a technique used to reduce the errors by fitting the function appropriately on the given training set and avoid overfitting makes the model more robust, and decreases the complexity of a model.
- In summary, regularization chooses a with smaller weights of the features (or shrunken beta coefficients) that have less generalization error. In addition, it penalizes the model having higher variance by adding a penalty term to the loss function to prevent the larger values from being weighed too heavily.

Which particular algorithms are used for regularization?

There are three main regularization techniques, namely **Ridge Regression**, **Lasso Regression** and **Elastic-Net Regression**

- **Ridge regression** is one of the types of linear regression in which we introduce a small amount of bias, known as Ridge regression penalty so that we can get better long-term predictions.
- **Lasso regression** is another variant of the regularization technique used to reduce the complexity of the model. It stands for Least Absolute and Selection Operator.
- **Elastic-Net regression** is a regularized regression method that linearly combines the L1 and L2 penalties of the LASSO and Ridge methods respectively.

Explain the term error present in linear regression equation?

- An error term represents the margin of error within a statistical model; it refers to the sum of the deviations within the regression line, which provides an explanation for the difference between the theoretical
- An error term essentially means that the model is not completely accurate and results in differing results during real-world applications. Value of the model and the actual observed results. The regression line is used as a point of analysis when attempting to determine the correlation between one independent variable and one dependent variable.