MACHINE LEARNING

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

Ans. A) Least Square Error

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

Ans. A) Linear regression is sensitive to outliers

3. A line falls from left to right if a slope is _____?
   A) Positive B) Negative
   C) Zero D) Undefined

Ans. B) Negative

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

Ans. B) Correlation

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

Ans. C) Low bias and high variance

6. If output involves label then that model is called as:
   A) Descriptive model B) Predictive modal
   C) Reinforcement learning D) All of the above

Ans. B) Predictive model

8. To overcome with imbalance dataset which technique can be used?
   A) Cross validation B) Regularization
   C) Kernel D) SMOTE

Ans. B) Regularization

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

Ans. A) TPR and FPR

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

Ans. 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

Ans. B) Apply PCA to project high dimensional data

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.

Ans. A),B) and C)

13. Explain the term regularization?

Ans.

Regularization method is very helpful when overfitting or underfitting occurs in model. It helps us to find out best fitting line.

Sometimes the ML model performs well with the training data but does not perform well with the test data. It means the model is not able to predict the output when deals with unseen data by introducing noise in the output, and hence the model is called overfitted. This problem can be deal with the help of a regularization technique.

This technique can be used in such a way that it will allow to maintain all variables or features in the model by reducing the magnitude of the variables. Hence, it maintains accuracy as well as a generalization of the model.

14. Which particular algorithms are used for regularization?

Ans.

There are three main regularization techniques, namely:

1. Ridge Regression (L2 Norm)
2. Lasso (L1 Norm)
3. Dropout

15. Explain the term error present in linear regression equation?

Ans.

Linear regression most often uses mean-square error (MSE) to calculate the error of the model. MSE is calculated by:

1. measuring the distance of the observed y-values from the predicted y-values at each value of x;
2. squaring each of these distances;
3. calculating the mean of each of the squared distances.

Linear regression fits a line to the data by finding the regression coefficient that results in the smallest MSE.