MACHINE LEARNING

(Answers are shown in red colour)

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 modal
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.

Subjective Answers-

13. Explain the term regularization?

Answer- When we pass features to predict the label sometime there could be overfitting problem In order to reduce or avoid the overfitting problem we use regularization. The main idea behind regularization is that it will try to apply some kind of penalty, so that will reduce the weights of data in order to predict the label.

- Converts a complex model into simpler one.
- Avoids the risk of overfitting and shrinks the coefficient for lesser computational cost.

14. Which particular algorithms are used for regularization?

Answer- L1= LASSO & L2=Ridge are the two algorithms are used for regularization.

L2=Ridge

F1 F2 F3 Label

If suppose F1 is not contributing much to predict the label if there is no relation the Ridge gives very less importance to F1 while predict the label, it will give importance but in very less. And if F3 is going to add much weightage then it will add some penalty to F3 so that its weightage will reduce.

L1=LASSO

F1 F2 F3 Label

If F1 is not contributing to predict the label then LASSO will completely vanish F1, it will treat F1 like it does not exist in the dataset, it will make completely 0. And hence in this case we use F2 and F3. And if F3 is going to add much weightage then it will add some penalty to F3 so that its weightage will reduce.

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

Answer- Error is the difference between actual value and predictive value. The vertical distance between the data points and the regression line is called error or residual. Each data point has one error and the sum of all the difference is known as the sum of errors.