Machine Learning

In Q1 to Q11, only one option is correct, choose the correct option:

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

   Answer – 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

   Answer – 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

   Answer – 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

   Answer – 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

   Answer – 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

   Answer – B) Predictive modal

7. Lasso and Ridge regression techniques belong to _____?

   A) Cross validation
   B) Removing outliers
   C) SMOTE
   D) Regularization

   Answer – D) Regularization

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

A) Cross validation
B) Regularization
C) Kernel
D) SMOTE

Answer – 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

Answer – 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

Answer – 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

Answer – B) Apply PCA to project high dimensional data

In Q12, more than one options are correct, choose all the correct options:

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.

Answer - A) We don't have to choose the learning rate.
B) It becomes slow when number of features is very large.

13. Explain the term regularization?

It is prediction adjusting technique used by ML engineers to reduce errors and overfitting/underfitting of model during training of model.

Also, it can be defined as calibration technique used to calibrate ML model.

Below are some methods, that comes under regularization

- Lasso
- Ridge
- Dropout

14. Which particular algorithms are used for regularization?

Below algorithms are used in regularization technique:

- Lasso - In these methods absolute weights are added to original loss function in order to achieve desired result.
- Ridge – In these methods weights are added to original loss function in order to achieve desired result.
- Dropout – It is used in deep learning (Neural networks), to avoid unnecessary networks.

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

In linear regressing, error is termed as "Those point which doesn't lies in regression line i.e., some deviation present in data points from model". This can be indicated by goodness of fit.

If data point lies closure to regression line, then we can conclude that "Developed regression model has less errors/has good accuracy".

Error (ε) is difference between actual value and model predicted value. The regression model with error term as

$$Y = \beta x_1 + \beta x_2 + \beta x_3 + ...+\beta x_n + \varepsilon$$