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
   Ans-A)

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)

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

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- c)

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)

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)

7. Lasso and Ridge regression techniques belong to _____?
   A) Cross validation B) Removing outliers
   C) SMOTE D) Regularization
   Ans- D)

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

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)

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

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)

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.

Ans-d)

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Q13 and Q15 are subjective answer type questions, Answer them briefly.

13. Explain the term regularization?

14. Which particular algorithms are used for regularization?

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

13 Ans) regularization is a technique to address overfitting in Machine learning. Overfitting mode fails to generalize estimation on test data. Overfitting is a typical problem, especially when the model is excessively complicated or there is insufficient data to justify the model's complexity. Regularization reduces the variance of model.

14 Ans) Some of the common algorithms are

A) Ridge Regression
B) LASSO (Least Absolute Shrinkage and Selection Operator) Regression
C) Elastic-Net Regression

15 Ans) In linear regression, the "error" represents the difference between predicted and observed values. It captures unobserved factors affecting the dependent variable. Minimizing these errors is the goal, typically achieved using methods like ordinary least squares.