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 in 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: (A) Regression

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) Predective Model

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

Answer: (D) Regulaization

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: (A) True

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

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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: (B) It becomes slow when number of features is very large

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

13. Explain the term regularization?

Answer: In machine learning Regularization is about keeping a model from getting too complicated with the training data. It encourages the model to find simpler more general patterns that also work well for new data. This helps the model make better predictions overall, instead of just memorizing what it saw during training

14. Which particular algorithms are used for regularization?

Answer: Particular algorithms used for regularization are Ridge Regression and Lasso Regression

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

Answer: The term In linear regression, "error" means how much the predicted values of y differ from the actual values we see in the data. The aim of linear regression is to find a line (or curve) that fits the data points well, minimizing these differences between predicted and actual values