MACHINE LEARNING

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- 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- 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-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-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-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- Predictive modal

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

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

Ans-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

Ans-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-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-) Construction bag of words from a email, apply PCA to project high dimensional data, Removing stop words

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- We don't have to choose the learning rate, it becomes slow when number of features is very large, we need to iterate

Answer them briefly

13. Explain the term regularization?

Ans- This is a form of regression, that constrains/ regularizes or shrinks the coefficient estimates towards zero. In other words, this technique discourages learning a more complex or flexible model, so as to avoid the risk of overfitting.

This is a form of regression, that constrains/ regularizes or shrinks the coefficient estimates towards zero. In other words, this technique discourages learning a more complex or flexible model, so as to avoid the risk of overfitting.

The fitting procedure involves a loss function, known as residual sum of squares or RSS. The coefficients are chosen, such that they minimize this loss function. Now, this will adjust the coefficients based on your training data. If there is noise in the training data, then the estimated coefficients won't generalize well to the future data. This is where regularization comes in and shrinks or regularizes these learned estimates towards zero.

14. Which particular algorithms are used for regularization?

Ans- Three Regularization algorithms are used namely,

Ridge Regression:

Ridge regression is a method for analyzing data that suffer from multi-collinearity. Ridge regression adds a penalty (1.2 penalty) to the loss function that is equivalent to the square of the magnitude of the coefficients.

LASSO Regression:

LASSO is a regression analysis method that performs both feature selection and regularization in order to enhance the prediction accuracy of the model. LASSO regression adds a penalty(1.1penalty) to the loss function that is equivalent to the magnitude of the coefficients.

Elastic-Net Regularization:

Elastic-Net is a regularized regression method that linearly combines the L1 and L2 penalties of the LASSO and Ridge methods respectively.

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

Ans- The error term of a regression equation represents all of the variation in the dependent variable not explained by the weighted independent variables.

A regression equation is the formula for a straight line — in this case, the best-fit line through a scatterplot of data. If there were no error, all the data points would be located on the regression line; to the extent they are not represents error; this is what the error term summarizes.