MACHINE LEARNING – 1

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 : OPTION 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

ANSWER : OPTION 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 : OPTION 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 : OPTION C (Both of them)

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 : OPTION 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 : OPTION B (Predictive modal)

7. Lasso and Ridge regression techniques belong to _____?

A) Cross validation

B) Removing outliers

C) SMOTE

D) Regularization

ANSWER : OPTION D (Regularization)

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

A) Cross validation

B) Regularization

C) Kernel

D) SMOT

ANSWER : OPTION D (SMOT)

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 : OPTION 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 : OPTION 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 : OPTION B (Apply PCA to project high dimensional data)

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 : OPTION B & D (It becomes slow when number of features is very large & It does not make use of dependent variable)

13. Explain the term regularization?

ANSWER : Regularization helps sort overfitting problem by restricting degree of freedom of the given equation by reducing the number of a function by reducing corresponding weights. In Linear equation we don't want large weight or coefficient as a small change in weight make a large difference for dependent variable. Hence, regularization constrains the weight of such feature to avoid overfitting.

Below types of Regularization:

1. **Ridge**
2. **LASSO**

14. Which particular algorithms are used for regularization?

ANSWER : In Regularization 2 types of algorithms are mainly used,

1. **Ridge**
2. **LASSO**

1. **Ridge – Ridge regression penalize the model based on the sum of square of magnitude of the coefficient. The Regularization term is given as, lambda = Summation of mod of Beta^2, Where lambda is shrinkage factor.**
2. **LASSO – LASSO regression penalize the model based on the sum of magnitude of the coefficient. The Regularization term is given as, Summation of mod of Beta, Where lambda is shrinkage factor.**

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

ANSWER :

1. **Type 1 Error - If Ho is True and you reject Ho -** if average car milage is really 25 or >25kmpl and rental agency rejects it. Its type 1 error.
2. **Type 2 Error - If Ho is false and you failed to reject Ho. -** If average car milage is really <25 kmpl but rental agency buying cars(Failed to reject Ho). Its type 2 error.