Worksheet_Set_1 : Machine Learning

Q1 : A

Q2 : A

Q3: B

Q4:

Q5:

Q6:

Q7:

Q8:

Q9:

Q10:

Q11:

Q12:

13. Explain the term regularization?

Ans:

Regularization refers to techniques that are used to calibrate machine learning models in order to minimize the adjusted loss function and prevent overfitting or underfitting. Using Regularization, we can fit our machine learning model appropriately on a given test set and hence reduce the errors in it.

14. Which particular algorithms are used for regularization?

Ans:

Regularization Techniques:

There are two main types of regularization techniques: Ridge Regularization and Lasso Regularization.

Ridge Regularization:

Also known as Ridge Regression, it modifies the over-fitted or under fitted models by adding the penalty equivalent to the sum of the squares of the magnitude of coefficients.

This means that the mathematical function representing our machine learning model is minimized and coefficients are calculated. The magnitude of coefficients is squared and added. Ridge Regression performs regularization by shrinking the coefficients present.

Lasso Regression:

It modifies the over-fitted or under-fitted models by adding the penalty equivalent to the sum of the absolute values of coefficients.

Lasso regression also performs coefficient minimization, but instead of squaring the magnitudes of the coefficients, it takes the true values of coefficients. This means

that the coefficient sum can also be 0, because of the presence of negative coefficients.

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

Ans:

A Linear Regression model's main aim is to find the best fit linear line and the optimal values of intercept and coefficients such that the error is minimized. Error is the difference between the actual value and Predicted value and the goal is to reduce this difference.