ASSIGNMENT MACHINE LEARNING

1-A) Least Square Error

2- A) Linear regression is sensitive to outliers

3- B) Negative

4- B) Correlation

5- C) Low bias and high variance

6- B) Predictive model

7- D) Regularization

8. - D) SMOTE

9. - A) TPR and FPR

10 - B) False

11 - B) Apply PCA to project high dimensional data

12 - B) It becomes slow when the number of features is very large.

SUBJECTIVE QUESTIONS

13. - Regularization is a technique used to prevent over fitting in machine learning models by adding a penalty to the loss function for large coefficients. This encourages the model to keep the coefficients small, leading to a simpler and more generalizable model. Common regularization techniques include L1 (Lasso) and L2 (Ridge) regularization.

14. - The algorithms commonly used for regularization include:
    - Lasso Regression (L1 Regularization)
    - Ridge Regression (L2 Regularization)
    - Elastic Net (combination of L1 and L2 Regularization)

15. - In the context of linear regression, error (also known as residual) refers to the difference between the actual value and the predicted value for each data point. The goal of linear regression is to minimize these errors. The overall error is often measured using metrics such as Mean Squared Error (MSE), Mean Absolute Error (MAE), or Root Mean Squared Error (RMSE). These errors represent how well the regression line fits the data.