**ML ASSIGNMENT**

**1.** A) Least Square Error

2. A) Linear regression is sensitive to outliers

3. B) Negative

4. C) Both of them

5. C) Low bias and high variance

6. B) Predictive model

7. D) Regularization

8. C) SMOTE

9. C) Sensitivity and Specificity

10. B) False

11. B) Apply PCA to project high-dimensional data

12. A), B), C)

**13. Explain the term regularization.**

When we use regression models to train the data, there is a chance that models will overfit the data set. Regularization helps to sort this overfitting problem by restricting the degree of freedom. It simply reduces the number of degrees of a function by reducing its corresponding weights. To regularize the model, a shrinkage penalty is added.

**14. Which particular algorithms are used for regularization?**

1. LASSO(least absolute shrinkage & selection operation) also known as L1 form. It is used in ML for the selection of the subset of variables
2. Ridge penalizes the model based on the sum of the square of the magnitude of the coefficient.
3. Elastic net linear regression uses the penalties from both the lasso and ridge techniques to regularize regression models.

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

Mean absolute error represents average error where Mean squared error is similar to mean absolute but noice is exaggerated and larger errors are punished. Root mean squared error is the most popolar metric similar to MSE. Can be used as primary metric to interpret model.