# Machine Learning

1. A) Linear Square Error
2. A) Linear regression is sensitive to outliners.
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. A)We don't have to choose learning rate.
    B) It becomes slow when number of feature is very large.
    C) We need to iterate .

13. When we use regression model to train some data ,there is a good chance that model will overfit the given training set.
    Regularizations are techniques used to reduce the error by fitting a function approximately on the given training set and avoid overfitting
    Regularization sorts this overfitting problem by restricting the degrees of freedom of a given equation i.e simply reducing the number of degrees of a polynomial function by reducing their corresponding weights.

14. LASSO (L1)
    Ridge Regression(L2)
    Elastic Net (Less common)

15. In a Linear Regression , term 'Error' is the difference between the predicted result and the actual result. Lesser the result, better the model.

To evaluate the error in linear regression model,we use thse three techniques:

a) Mean Absolute Error(MAE) – Represnts Average error. Example – if we have three errors E1,E2,E3.
   MAE – (E1+E2+E3)/3
b) Mean Squared Error (MSE) – Similar to MAE but noise is exaggerated and large errors are "punished". MSE is mostly used in Linear Regression.
   MSE – $\{(E1+E2+E3)/3\}^2$
   Root Mean Squared Error (RMSE) – Similar to MSE,the result square rooted to make it more interpretable as it's in base units.It is recommended that RMSE be used as the primary metric to interpret your model. RMSE=S $\sqrt{\{(E1+E2+E3)/3\}^2}$