1. R-squared or Residual Sum of Squares (RSS) which one of these two is a better measure of goodness of fit model in regression and why?

2. What are TSS (Total Sum of Squares), ESS (Explained Sum of Squares) and RSS (Residual Sum of Squares) in regression. Also mention the equation relating these three metrics with each other.

3. What is the need of regularization in machine learning?

Answer- In machine learning model when we train the model it can easily be under fitted and over fitted.so, for avoiding this. we use regularization in machine learning.so ,our model can easily fit into test.

4. What is Gini–impurity index?

Answer-Ginni Index is powerful measure randomness values of the dataset. Gini index is used to decrease the impurity from the root nodes

5. Are unregularized decision-trees prone to overfitting? If yes, why?

6. What is an ensemble technique in machine learning?

Answer- Ensemble technique is used for create multiple model and combine the all model and produce the best result.it is used for more accurate result.

7. What is the difference between Bagging and Boosting techniques?

Answer- Bagging Is used from same types of predictions and boosting used from multiple types of prediction. bagging is minimize the variance and it is not bias,

8. What is out-of-bag error in random forests?

Answer-A random forest is combine the multiple decision tree to make accurate the predictions.the oob allows the random forest to be fit and validated being trained.

9. What is K-fold cross-validation?

Answer- K-fold validation approach involves the randomly dividing the set of observation into k groups or folds ,in approximately equal size .this technique is evaluating predictive models.

10. What is hyper parameter tuning in machine learning and why it is done?

Answer-Hyper parameter tunning is essential part of controlling the behaviour of ML. Model. when it is not correctly tune then our model produce suboptimal results .this means model make errors.

11. What issues can occur if we have a large learning rate in Gradient Descent?

Answer-Algorithm may overshoot minimum when learning rate of Gradient descent high

12. Can we use Logistic Regression for classification of Non-Linear Data? If not, why?

13. Differentiate between Adaboost and Gradient Boosting.

Answer-Adaboost is the first boosting ensemble model.this method automatically adjust its parameters to the data based on the actual performance in the current iteration.on the otherhand

gradient boosting is a robust machine learning algorithm made up of gradient descent and boosting .the gradient boosting has three main components. Additive model, loss function and weak learner

14. What is bias-variance trade off in machine learning?

Answer=it help to optimize the error in model and keeps it as low as possible .

15. Give short description each of Linear, RBF, Polynomial kernels used in SVM