TASK 6:

It is often better to run some of the models when deploying a model to compare which models provide good accuracy. So, I compared some models and implemented Hyperparameter tuning that delivers a better precision rate. For XGBoost model, which is better than Random Forest and much better than other machine learning models, I obtained better accuracy.

The XGBoost library implements the gradient boosting decision tree algorithm. This algorithm goes by lots of different names such as gradient boosting, multiple additive regression trees, stochastic gradient boosting, or gradient boosting machines.

Boosting is an ensemble technique where new models are added to correct the errors made by existing models. Models are added sequentially until no further improvements can be made. A popular example is the AdaBoost algorithm that weights data points that are hard to predict.

Gradient boosting is an approach where new models are created that predict the residuals or errors of prior models and then added together to make the final prediction. It is called gradient boosting because it uses a gradient descent algorithm to minimize the loss when adding new models.

This approach supports both regression and classification predictive modelling problems.