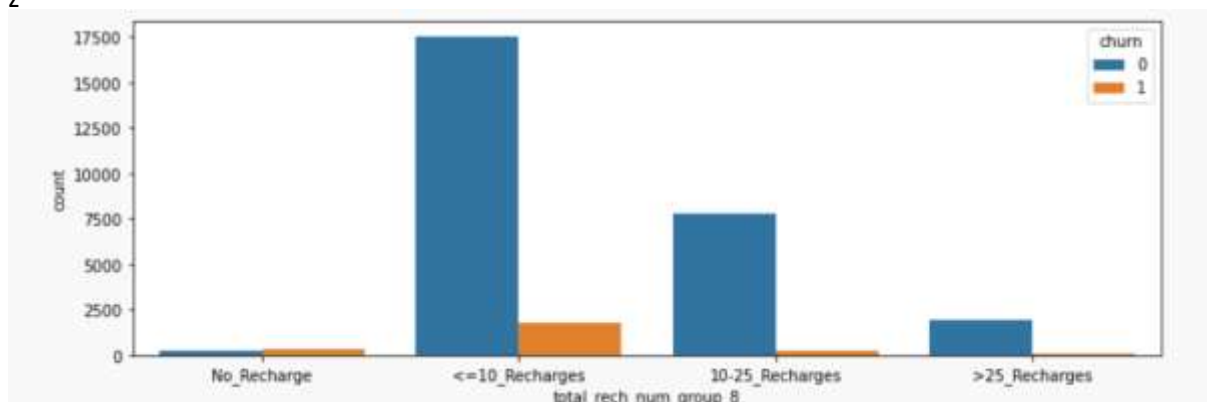


The Telecom churn analysis

The telecom churn analysis is required to predict the customer churn behaviour i.e., if a particular customer is likely to churn or not churn. As the problem preview said -

"In this highly competitive market, the telecommunications industry experiences an average of 10-25% annual churn rate. Given the fact that it costs 5-10 times more to acquire a new customer than to retain an existing one, customer retention has now become even more important than customer acquisition." As the number of recharge rate increases, the churn rate decreases clearly.

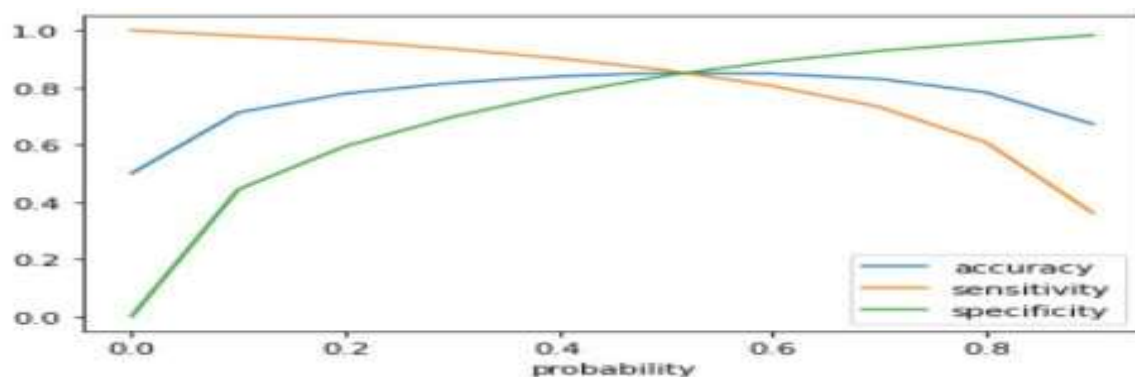
z

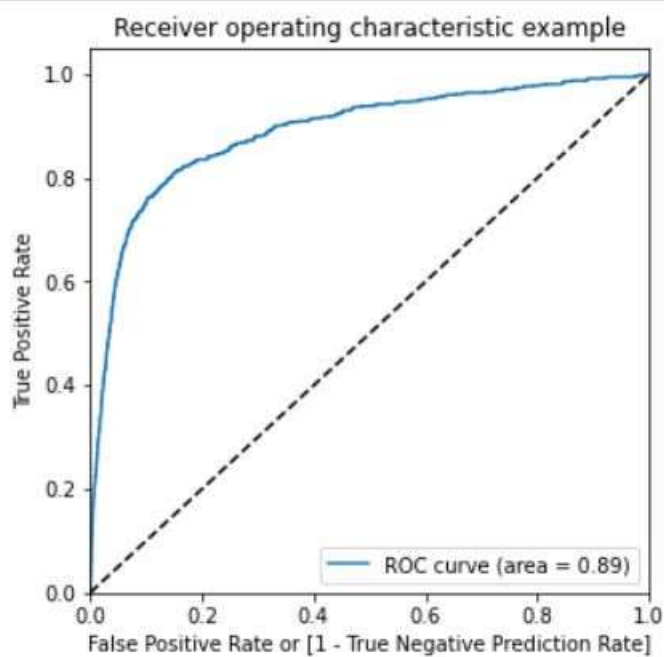
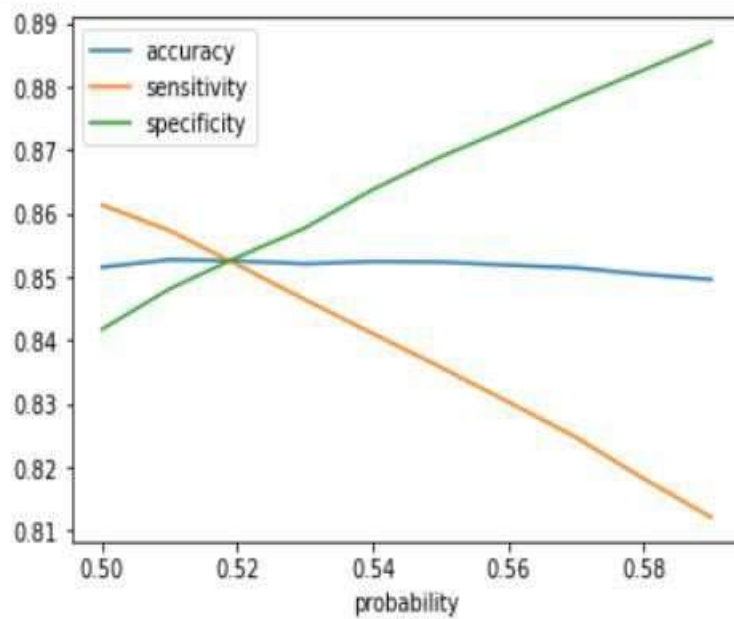


Thus, to predict or analyse the behaviour of a customer over a time of good phase and the action phase we created about 4 predictive models as mentioned below -

Logistic Regression Model:

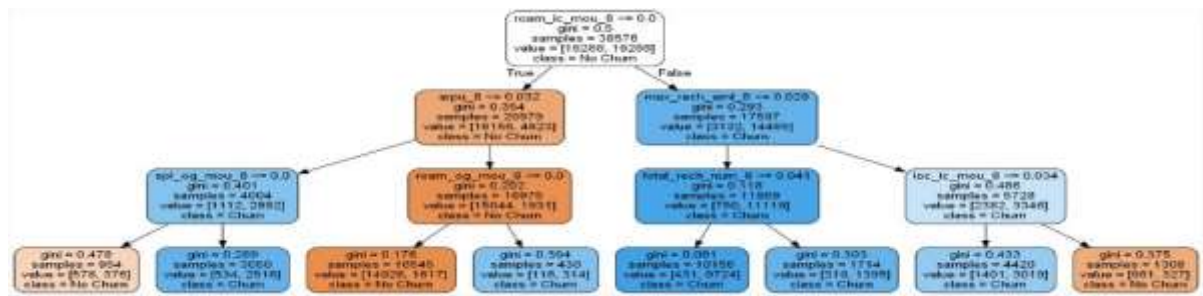
From the above graph, we can see the optimum cutoff is slightly higher than 0.5 but lies lower than 0.6. So, let's tweak a little more within this range and even in 2nd graph we can see From the above graph we can conclude, the optimal cutoff point in the probability to define the predicted churn variable converges at 0.52. With the help of ROC model





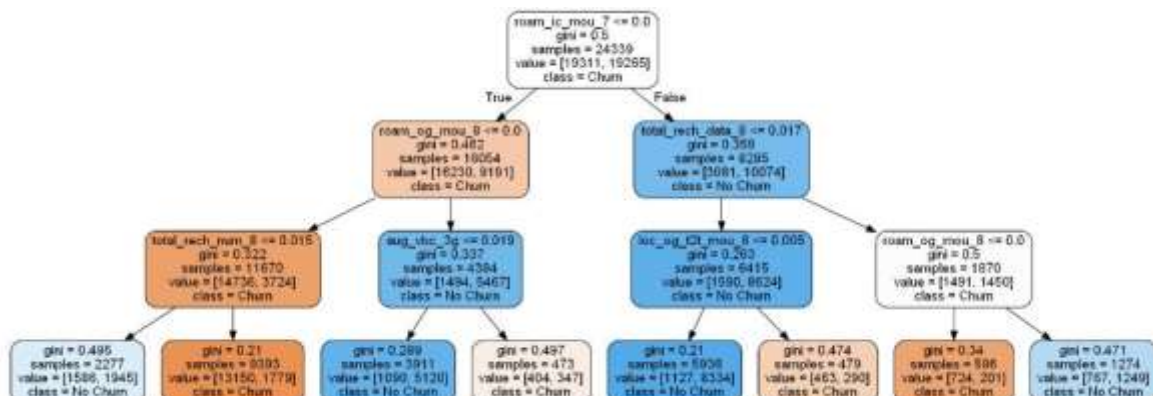
The AUC score for train dataset is 0.90 and the test dataset is 0.87. This model can be considered as a good model.

Decision Tree Classifier: Accuracy of Y_train is 0.8452 and accuracy of Y-test is 0.8436,



S.NO.	Model	Accuracy
0 1	Logistic Regression	84.000000
0 2	Logistic Regression with PCA	0.754583
0 3	Decision Tree	0.843462

Random Forest Classifier: after evaluate model Rf Train accuracy is 0.8610 and Test accuracy is 0.8512



The above models were initially created with default parameters Our Random Forest model is a decent model. We are able to predict with accuracy of 90.05 % .