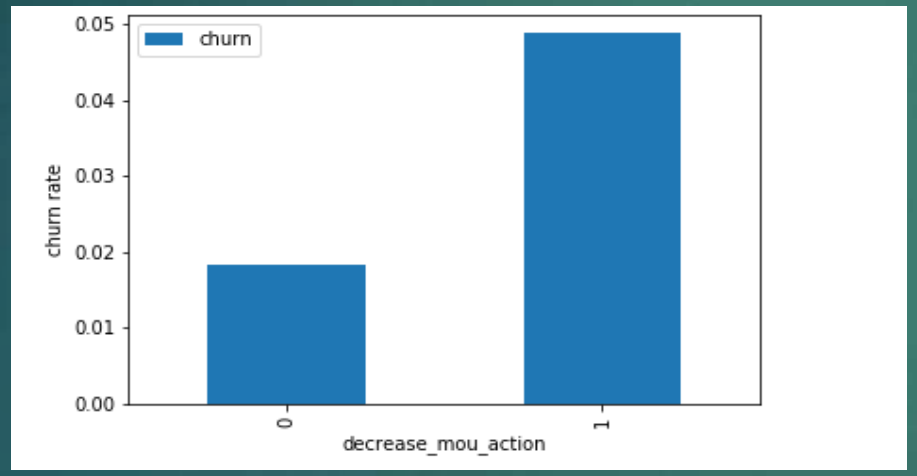
Telecom churn case study

Problem Statement

- In the telecom industry, customers are able to choose from multiple service providers and actively switch from one operator to another. In this highly competitive market, the telecommunications industry experiences an average of 15-25% 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.
- For many incumbent operators, *retaining high profitable customers is the number one business goal*.
- To reduce customer churn, telecom companies need to **predict which customers are at high risk of churn.**
- In this project, you will analyse customer-level data of a leading telecom firm, build predictive models to identify customers at high risk of churn and identify the main indicators of churn.

Data Analysis

- In the below graph we can see that the churn rate is more for the customers



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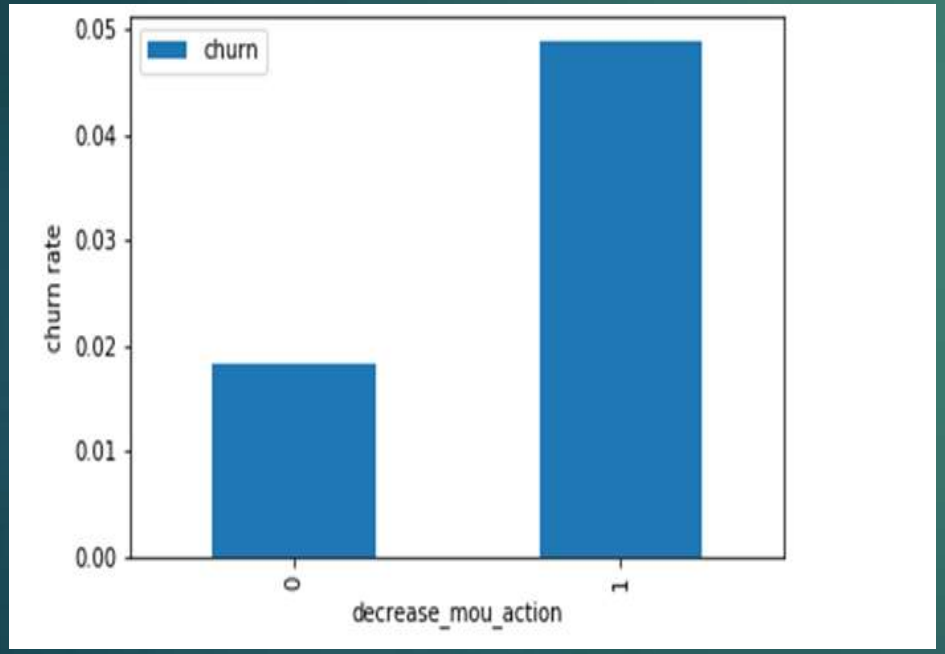
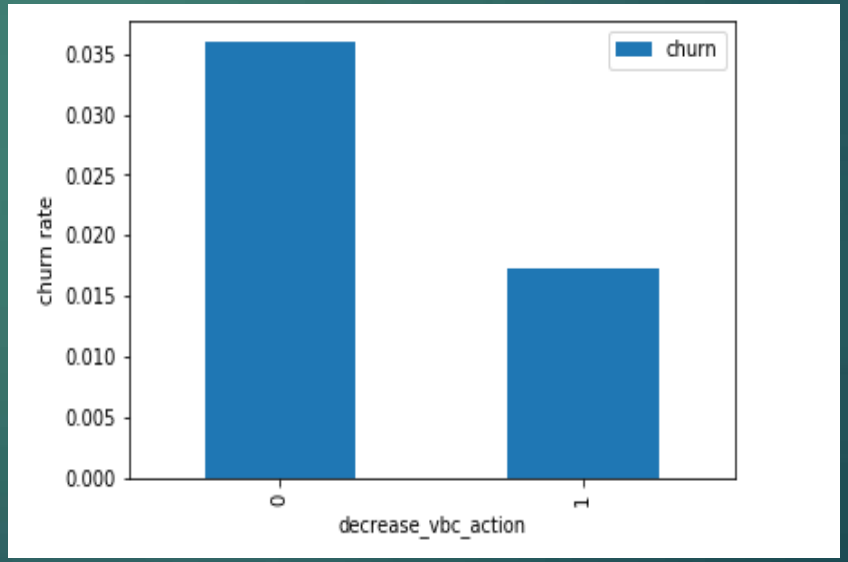
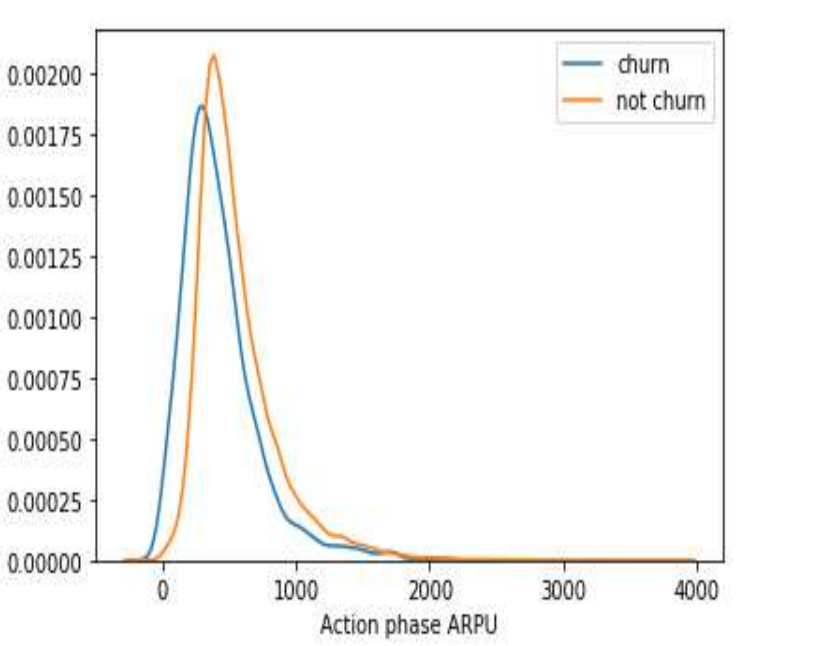


- In the below graph the churn rate is more for the customers, whose volume based cost in action month is increased. That means the customers do not do the monthly recharge.

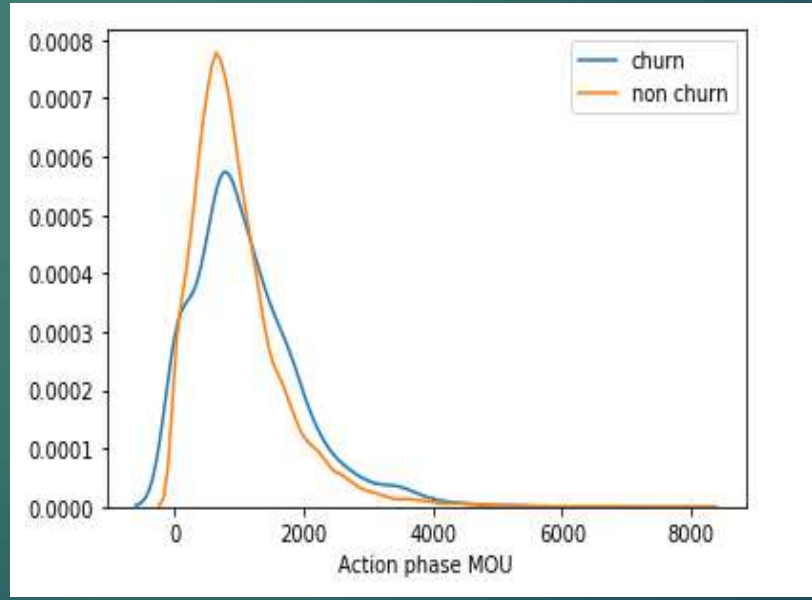


Data Analysis

- In the below graph average revenue per user for the churned customers is mostly between the 0 to 900. The higher ARPU customers are less likely to be churned.

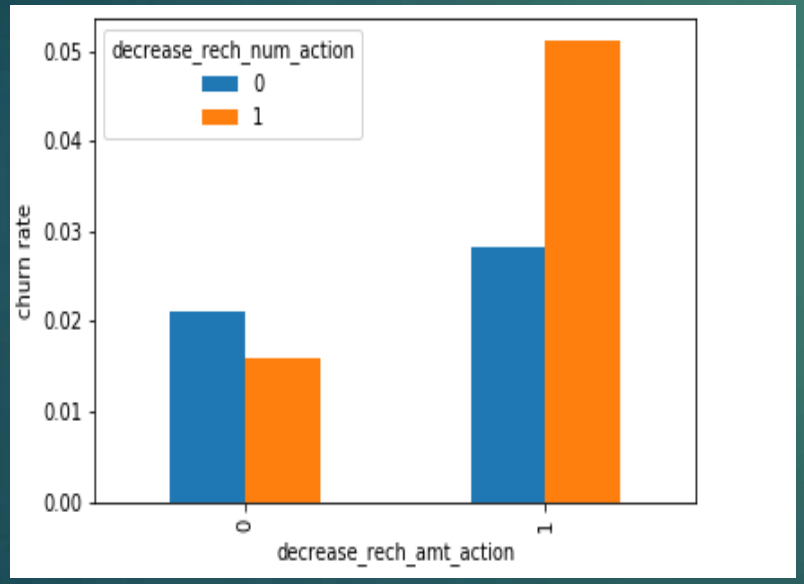


- In the below graph we can see minutes of usage(MOU) of the churn customers is mostly populated on the 0 to 2500 range. Higher the MOU, lesser the churn probability.

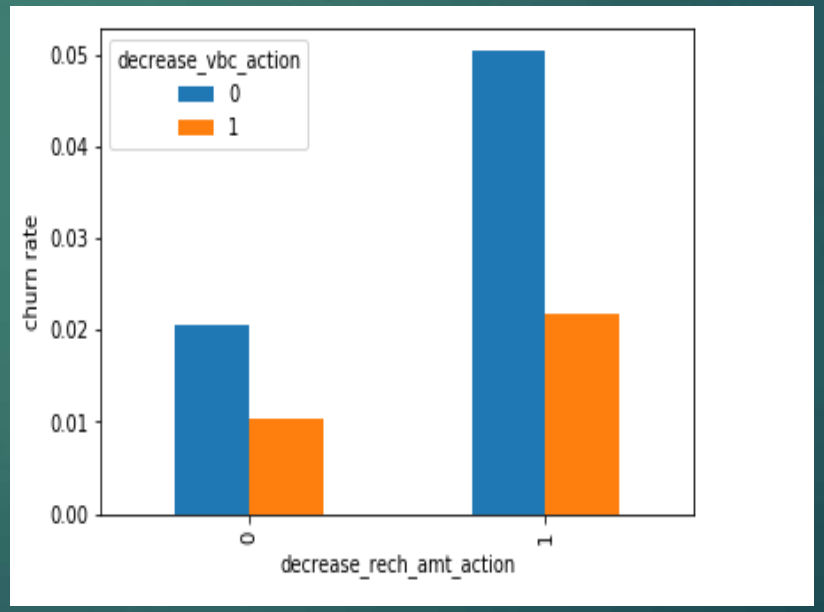


Bivariate analysis

- Here We can see from that the churn rate is more for the customers, whose recharge amount as well as number of recharge have decreased in the action phase than the good phase.

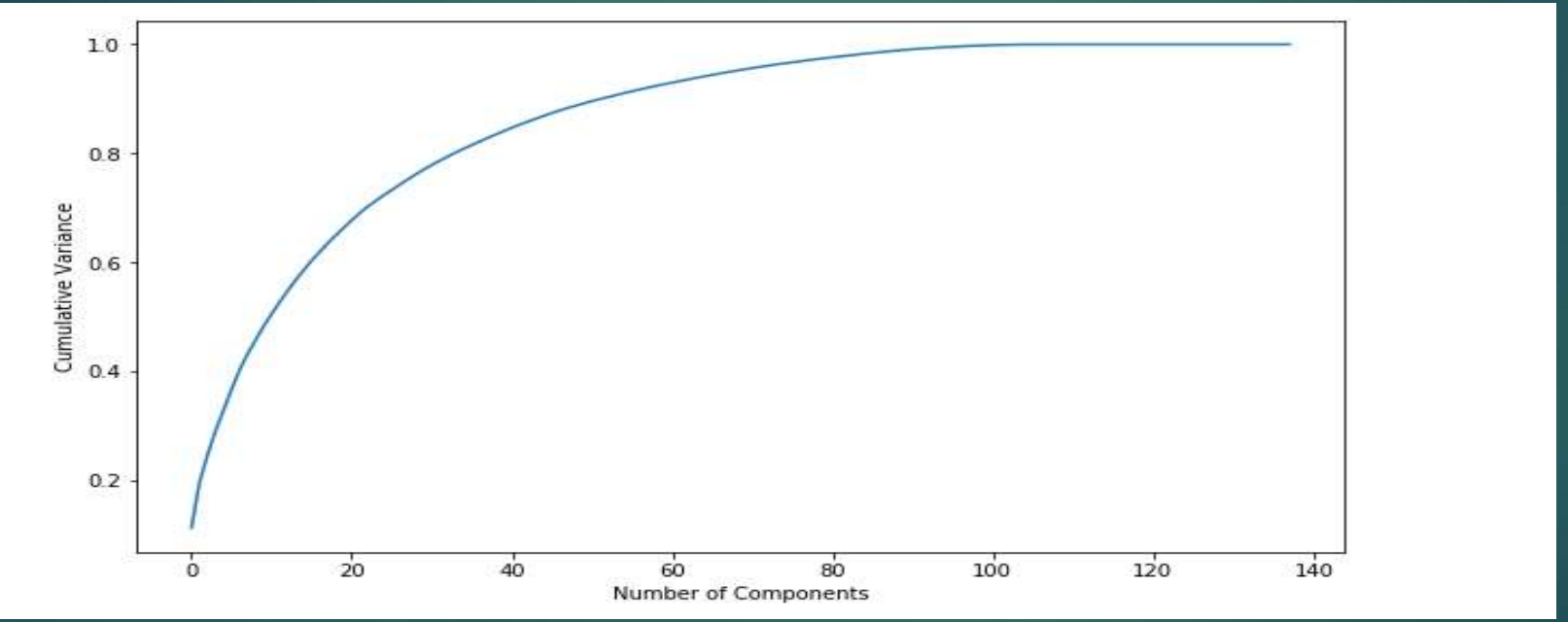


- Here, also we can see that the churn rate is more for the customers, whose recharge amount is decreased along with the volume based cost is increased in the action month.



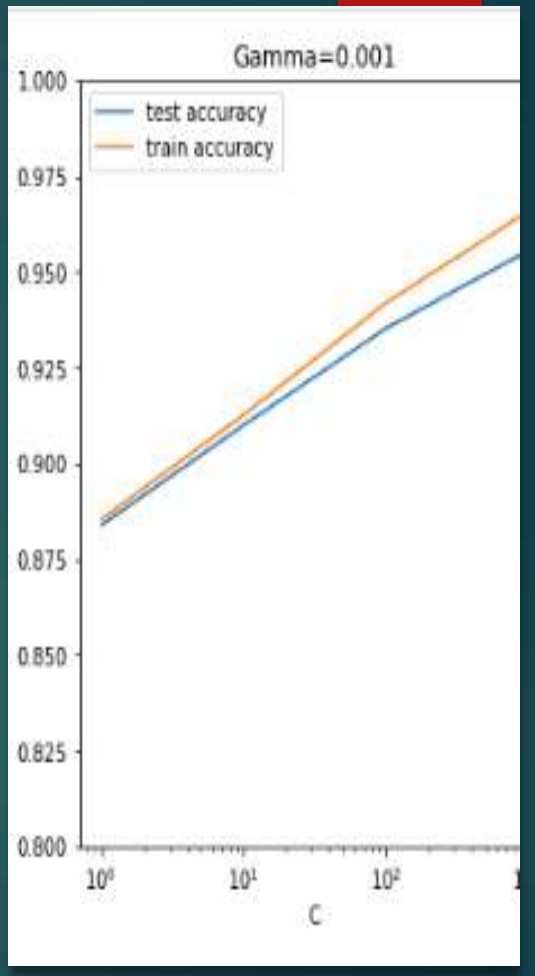
Bivariate analysis

- Here we can see that 60 components explain almost more than 90% variance of the data. So, we will perform PCA with 60 components.



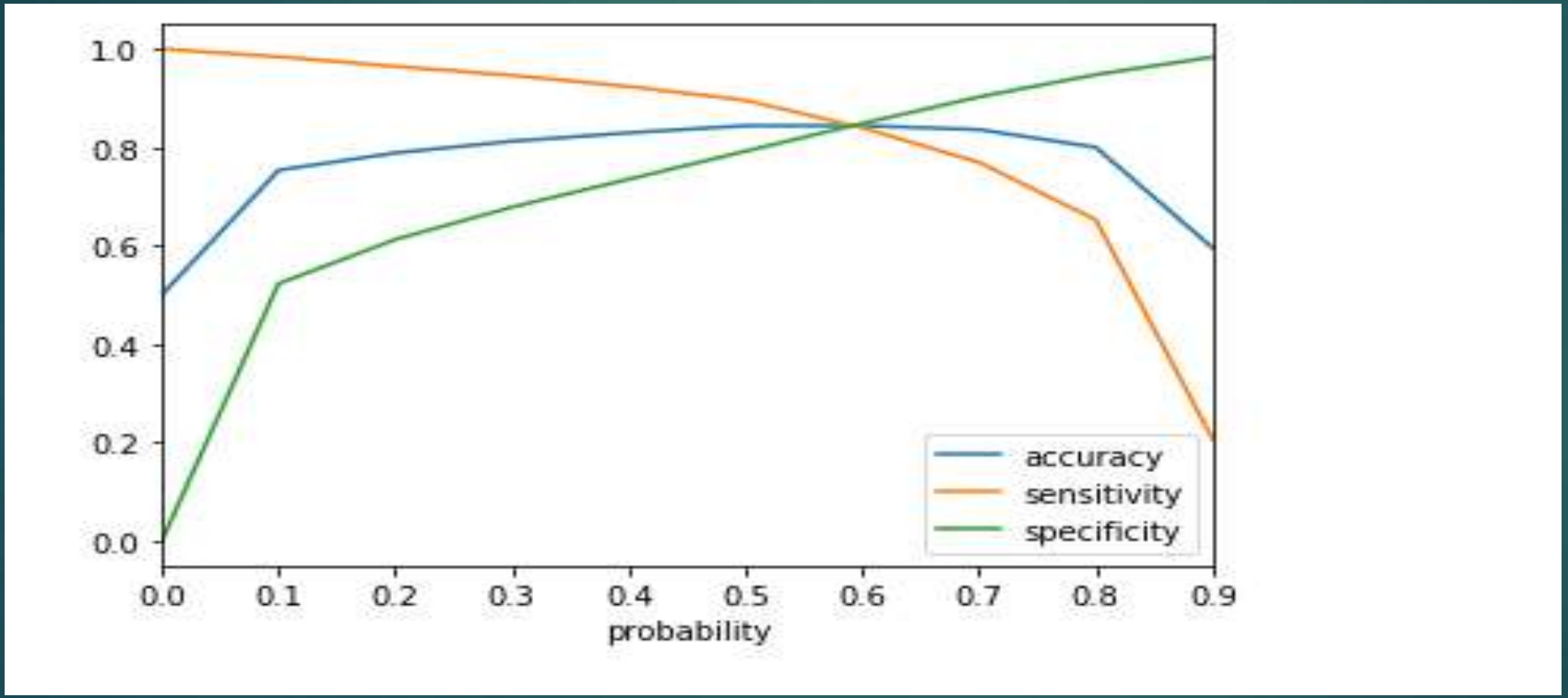
Plotting the accuracy with various C and gamma values

The best test score is 0.9754959911159373 corresponding to hyperparameters



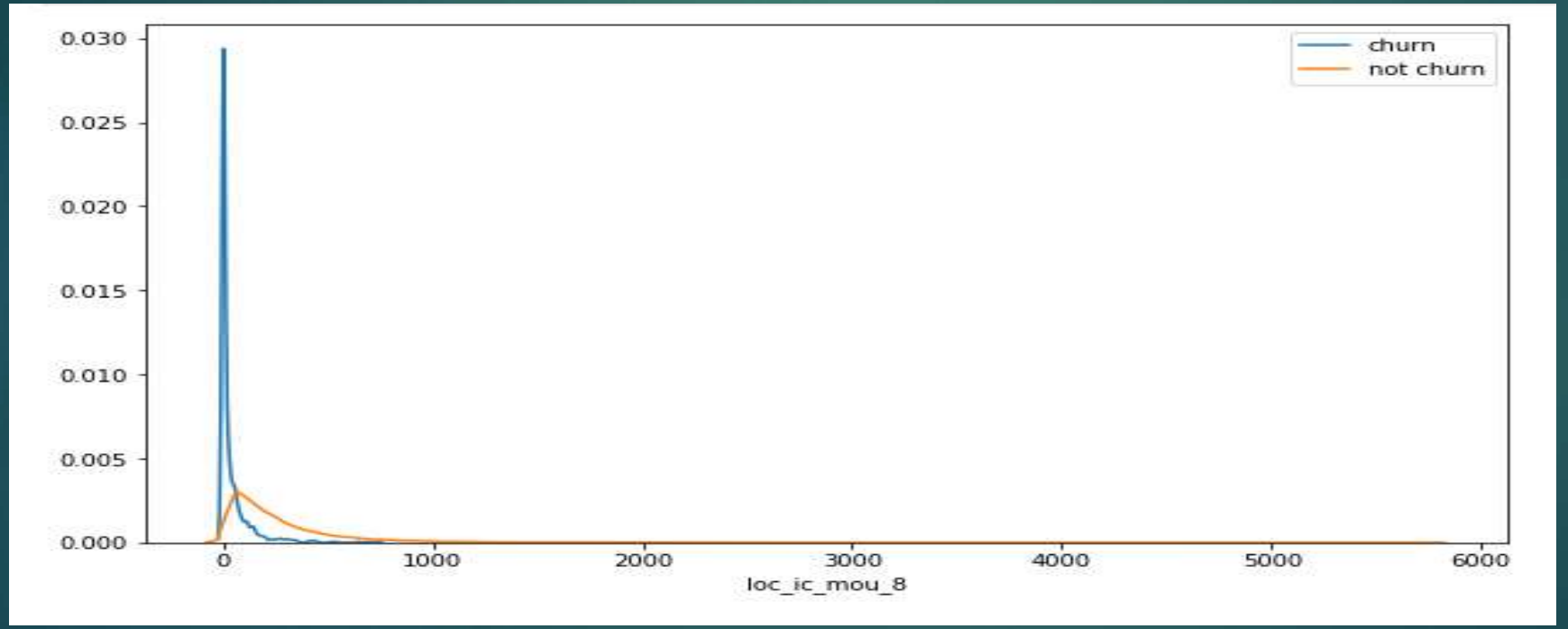
Conclusion

- By seeing the below graph we can understand that the accuracy become table around 0.6



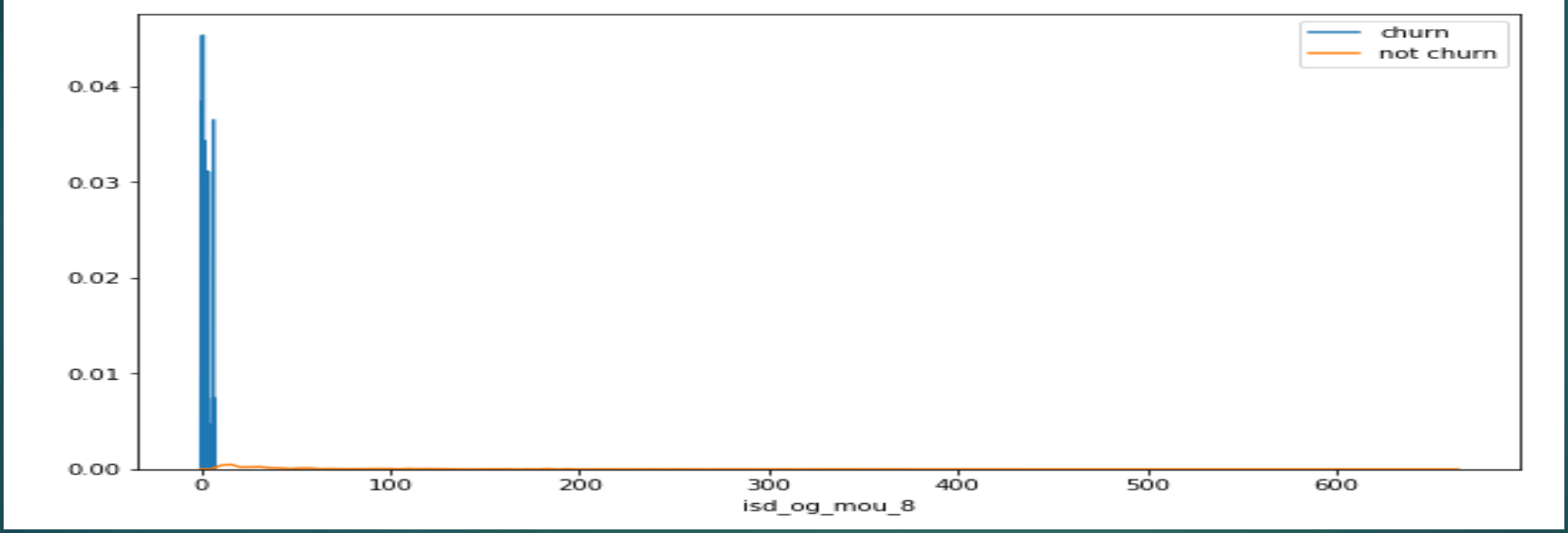
Plots of important predictors for churn and non churn customers

- We can see that for the churn customers the minutes of usage for the month of August is mostly populated on the lower side than the non churn customers.



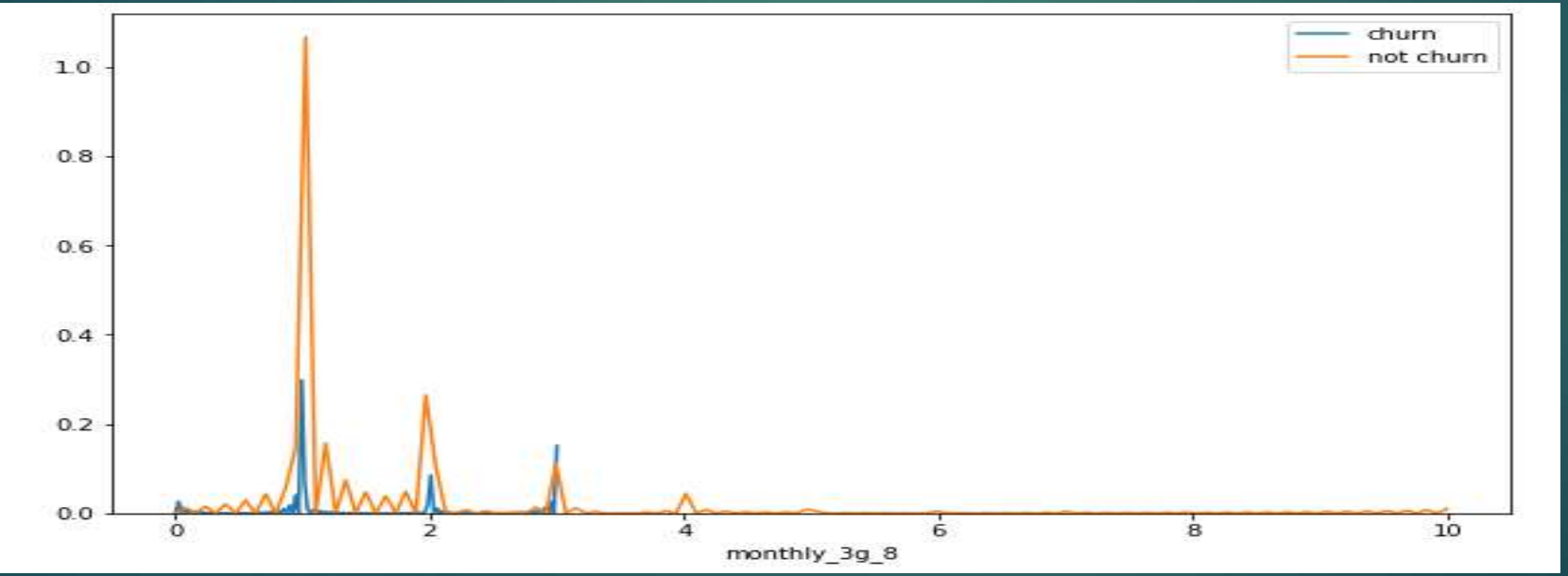
Plots of important predictors for churn and non churn customers

- We can see that the ISD outgoing minutes of usage for the month of August for churn customers is dense approximately to zero. On the other hand for the non churn customers it is little more than the churn customers.



Plots of important predictors for churn and non churn customers

- The number of monthly 3g data for August for the churn customers are very much populated around 1, whereas of non churn customers it spreader across various numbers.



Recommendation

- Target the customers, whose minutes of usage of the incoming local calls and outgoing ISD calls are less in the action phase (mostly in the month of August).
- Target the customers, whose outgoing others charge in July and incoming others on August are less.
- Customers, whose monthly 3G recharge in August is more, are likely to be churned.
- Customers having decreasing STD incoming minutes of usage for operators T to fixed lines of T for the month of August are more likely to churn.
- Customers decreasing monthly 2g usage for August are most probable to churn.
- Customers having decreasing incoming minutes of usage for operators T to fixed lines of T for August are more likely to churn.

Thank you

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