



# **Telecom Churn - Capstone Project**

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**By**

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# Problem Statement

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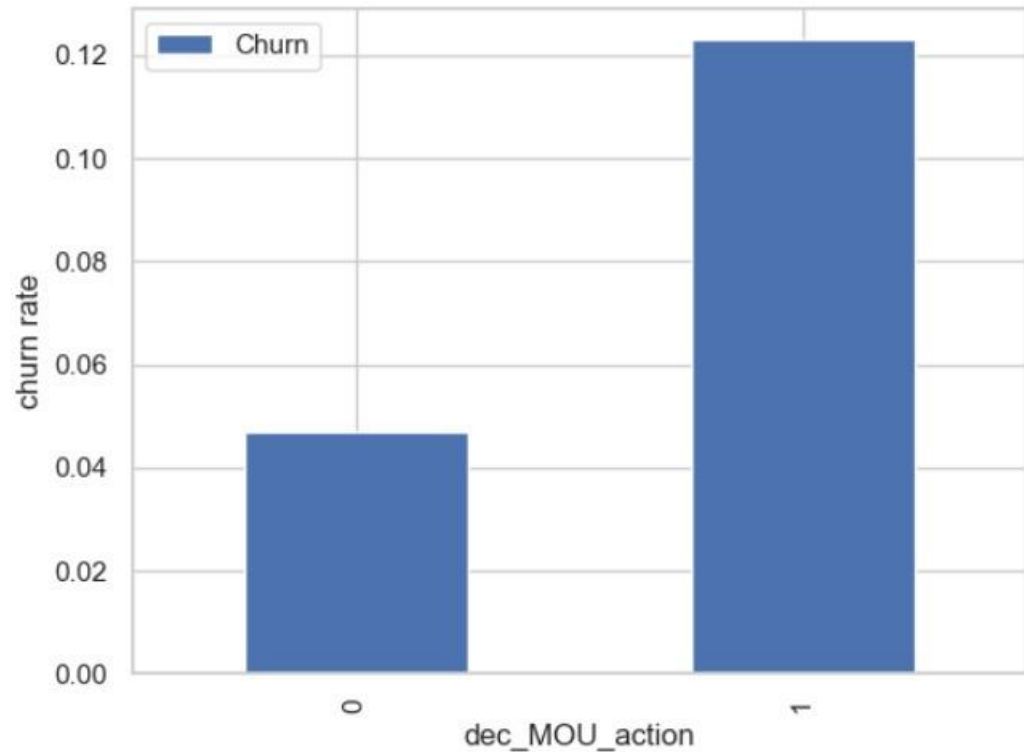
To predict the churn in the last (ninth) month using the data (Features) from the first three months.

- Analyze the 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.



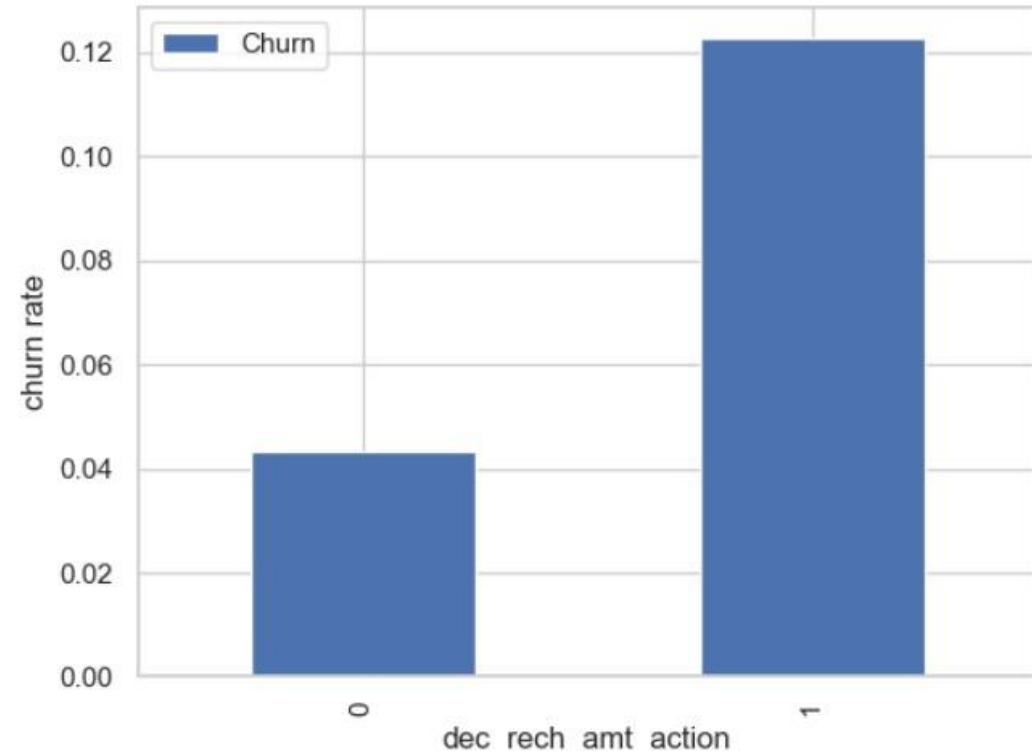
Churn Rate Based on whether the customer decreased his MOU in the action month

Customers whose MOU (minutes of usage) decreased in the action phase have the higher churn rate than those whose minutes of usage increased in the good phase.



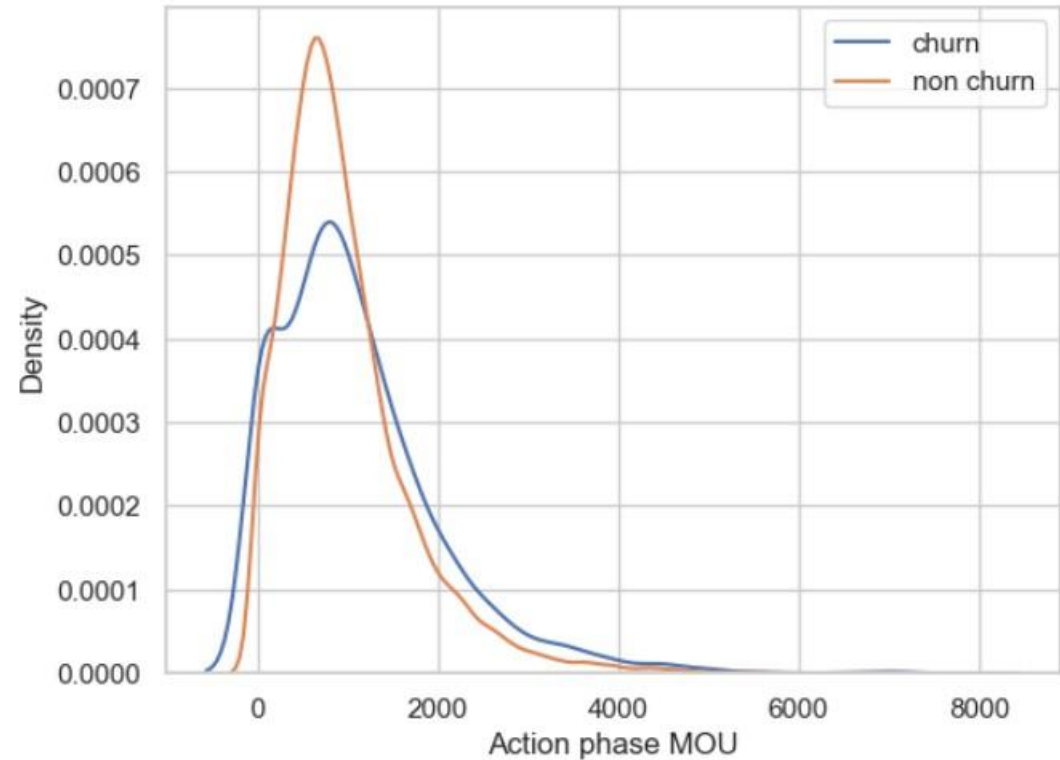
## Churn Rate Based on whether the customer decreased the amount of recharge in the action month

Here also we see the same behavior. The churn rate is more for customers, whose amount of recharge in the action phase is lesser than the amount in the good phase.



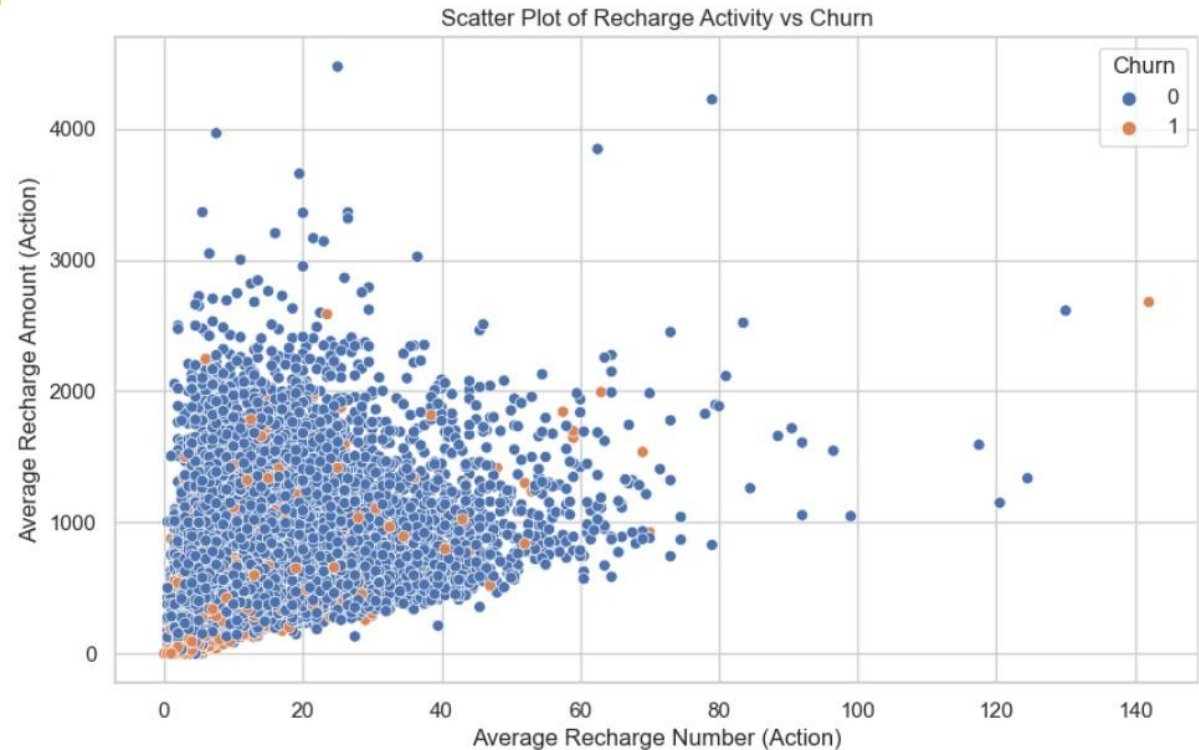
## Analysis of the minutes of usage MOU (churn and not churn) in the action phase

Customers that churn tend to have minutes of usage (MOU) that range from 0 to 2500. Higher the MOU, the lesser the churn probability.



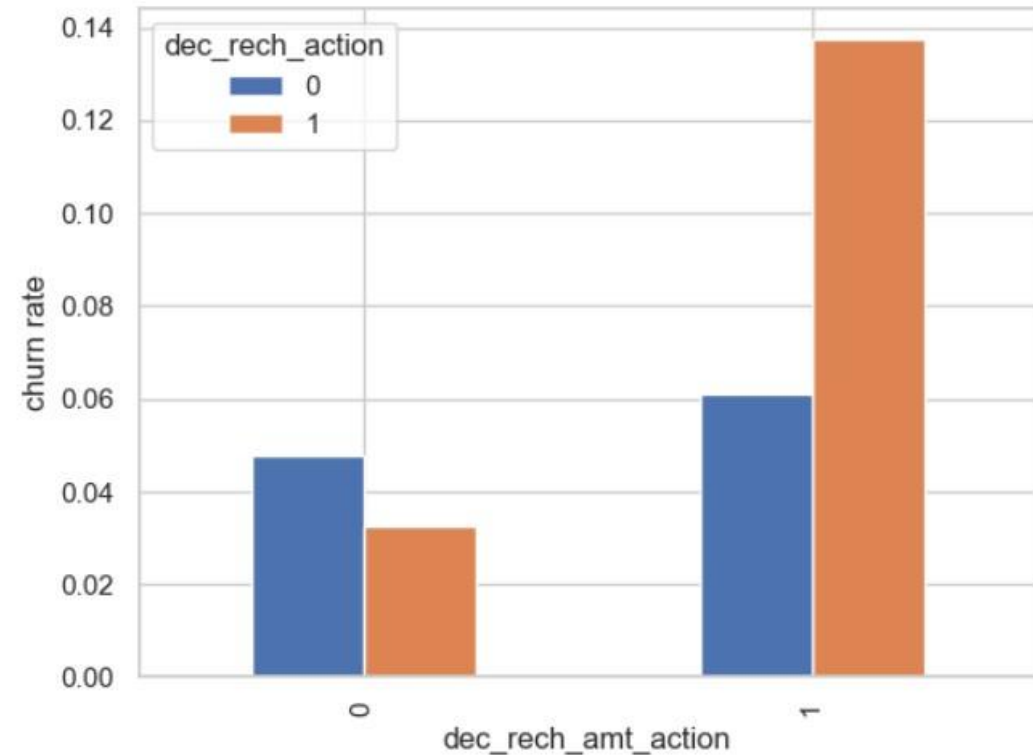
Analyzing recharge amount and number of recharge in action month.

We can see from the pattern that the recharge number and recharge amount are almost proportional. The higher the number of recharges, the higher the amount of recharge.



Analyzing churn rate WRT the decreasing recharge amount and number of recharge during the action phase

We can see from the plot, that the churn rate is higher for the customers, whose recharge amount as well as number of recharges are decreased in the action phase when compared to the good phase.



# Complete Model Stats

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	Model	Recall	Test Accuracy	Roc_auc_score
1	Decision Tree with PCA	0.89	0.83	0.77
0	Logistic Regression with PCA	0.87	0.83	0.88
3	Logistic without PCA	0.82	0.79	0.76
2	Random Forest with PCA	0.70	0.87	0.88



# Conclusion and STRATEGY ahead

- From EDA, we observed that there is a considerable drop in recharge, call usage and data usage in the 8<sup>th</sup> month which is the Action Phase. Below are the important features:  
loc\_og\_t2m\_mou\_7, total\_og\_mou\_6, loc\_og\_t2t\_mou\_7, roam\_ic\_mou\_7, onnet\_mou\_7, arpu\_7, loc\_og\_t2c\_mou\_7, onnet\_mou\_8, roam\_og\_mou\_8, arpu\_6
- Average revenue per user in the 7<sup>th</sup> month plays a vital role in deciding churn. A sudden drop in it might indicate that the customer might be thinking about churning and appropriate actions should be taken.
- Local minutes of usage (outgoing) is the most affecting feature on the customer churn.
- Roaming minutes of usage (incoming and outgoing) are also affecting features on the customer churn.
- Total minutes of usage for outgoing is also an important factor affecting the churn.

# Recommending following Strategies -

- A sudden drop in Local Minutes of usage might be because of unsatisfactory customer service, poor network or unsuitable customer schemes. Efforts should be made to provide a better network and focus on customer satisfaction.
- Based on the usage/net usage/last recharge, routine feedback call should be made for customer satisfaction and incorporate services that can understand their grievances and expectations. Appropriate action should be taken to prevent them from churning.
- Various attractive offers can be introduced to customers showing a sudden drop in the total amount spent on calls and data recharge in the action phase to lure them.
- Customized plans should be offered to such customers to stop them from churning.
- Promotional offers can also be very helpful.