Business Analytics

Telecom Churn Case Study

Predicting the churn in 9th month using the data from the first 3 months

Group Members:

Kashish Kundu

Sampath Kumar

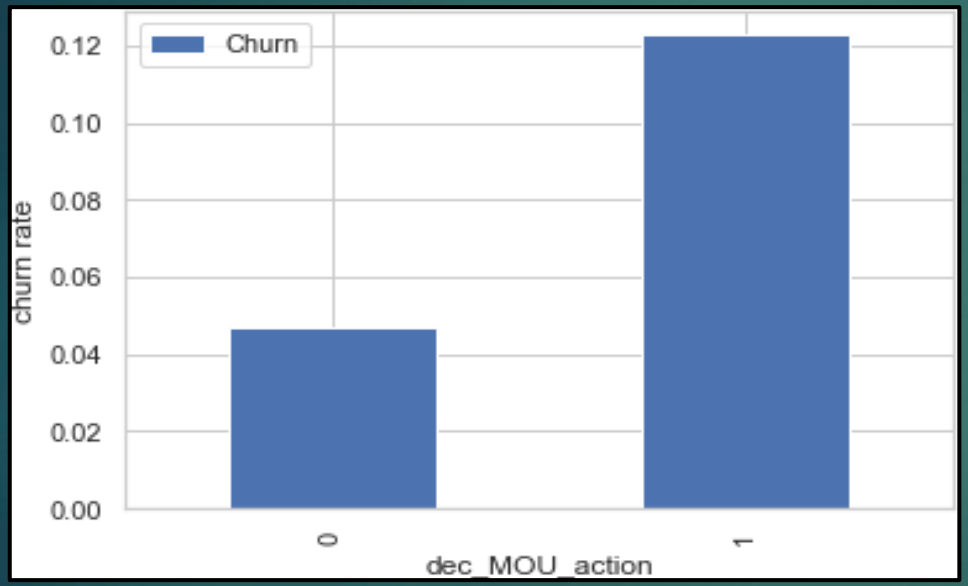
Royal Kumawat

Problem Statement

- Analyze customer-level data of a leading telecom firm,
- Build predictive models to identify customers at high risk of churn,
- Identify the main indicators of churn

Churn rate

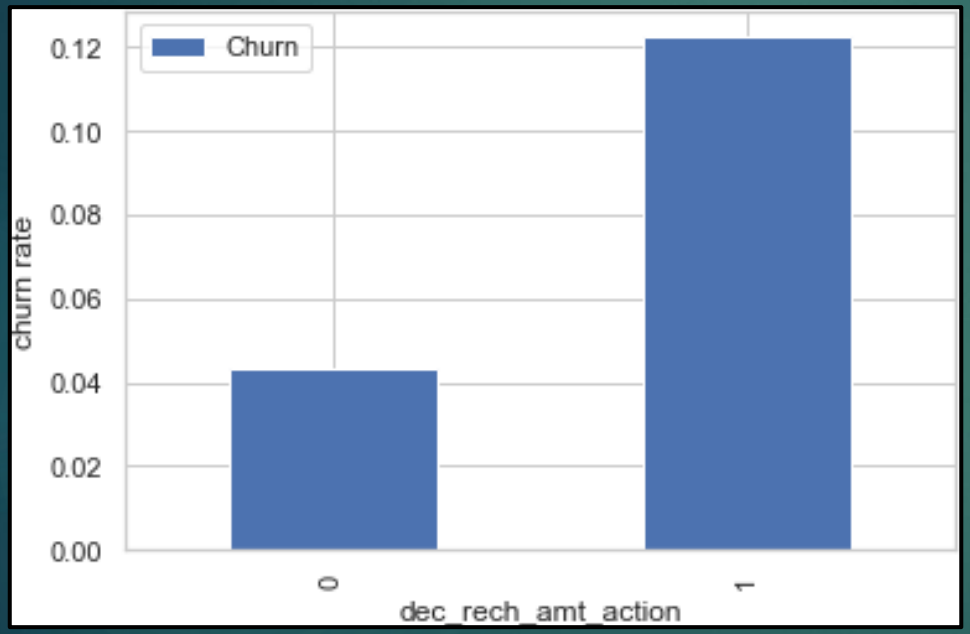
(decreased MOU in the action month)



- Customers with decreased Minutes Of Usage (MOU) in action phase have a higher churn rate than their counterpart in the good phase.

Churn rate

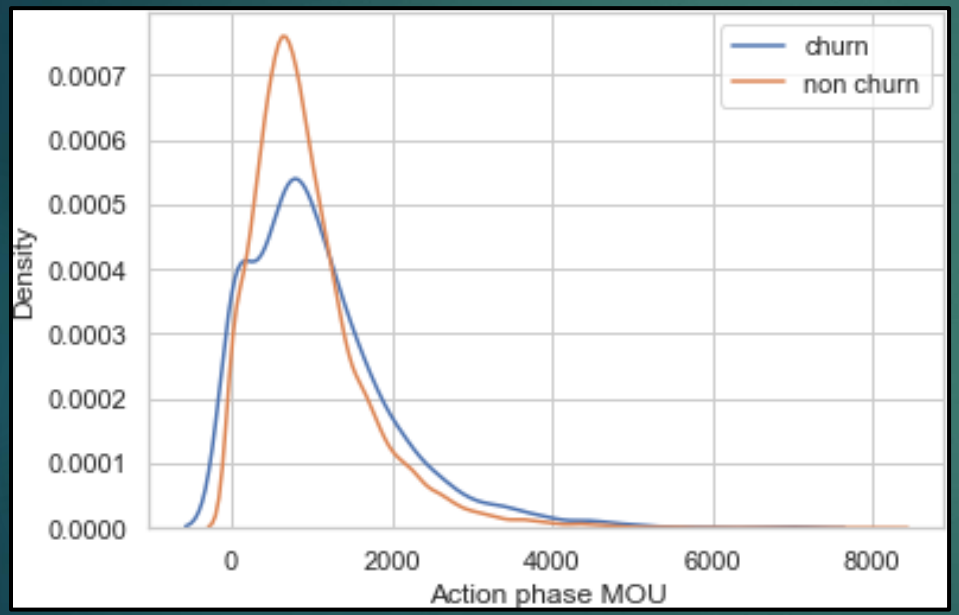
(decreased amount of recharge in the action month)



- Similar pattern observed here; The churn rate is more for customers with less amount of recharge in the action phase when compared with that in the good phase.

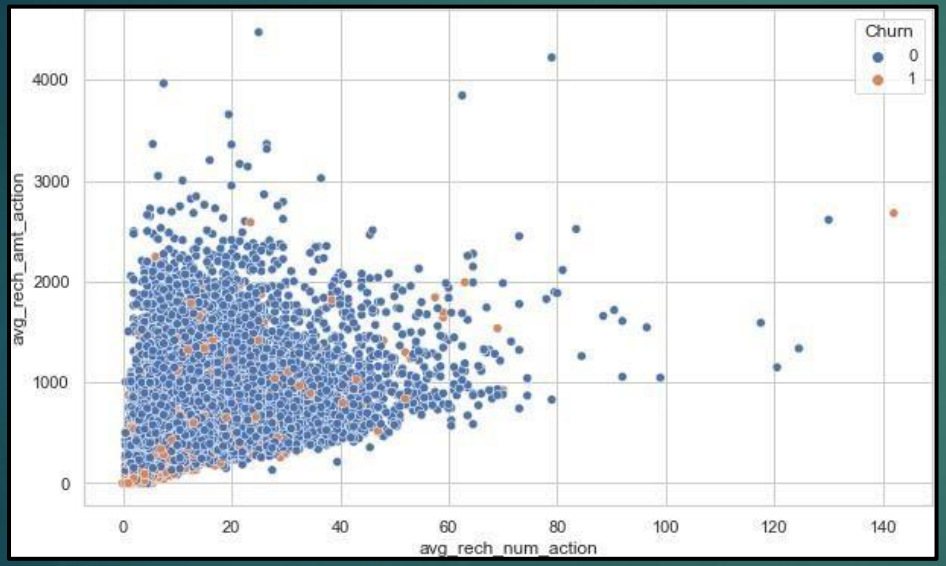
MOU Analysis

(churn and not churn in the action phase)



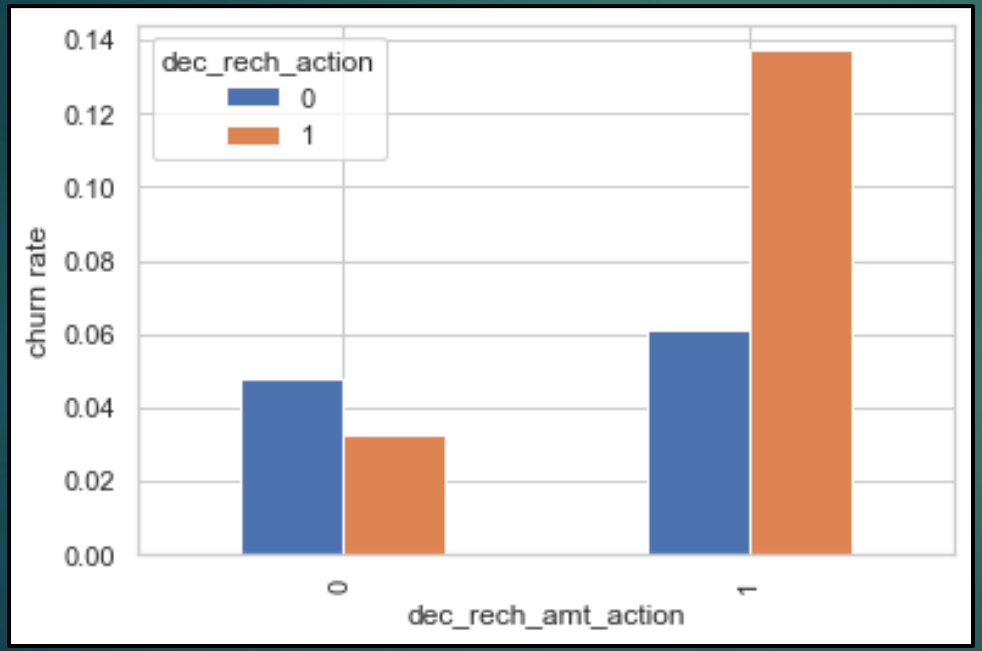
- Customers that churn tend to have MOU with range from 0 to 2500.
- It is also observed- Higher the MOU, lesser the churn probability.

Recharge amount v/s number of recharge (Action month)



- From the plot: *Recharge number* and the *recharge amount* are almost proportional.
- With increased number of recharges, the amount of recharge is increasing as well.

Churn rate v/s decreasing recharge amount and number of recharge



- Churn rate is higher for customers with decreased recharge amount and number of recharges in action phase, relative to that in the good phase.

Complete Model Stats

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

Conclusions

- EDA:
  There is a considerable drop in recharge, call usage and data usage in the 8th month which is the`Action Phase`.
  Important features include:
  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 `7th month` plays an important role; A sudden drop can be inferred as customers with plans of churning in mind, relevant actions should be taken.
- Local Minutes of usage (outgoing) are the most affecting features on churning; Roaming Minutes of usage (incoming & outgoing) also affect the customer churning.
- Total minutes of usage for outgoing is also an important factor to give attention.

Strategies

- Efforts shall be made to provide a better network and focus on customer satisfaction, to avoid sudden drop in Local Minutes of usage due to poor network or unsuitable customer schemes/plans.
- Based on 'usage / last recharge/ net usage', routine feedback calls should be made for customer satisfaction and services for understanding their grievances & expectations. Appropriate action should be taken to avoid them from churning.
- Various attractive offers can be introduced to customers showing a sudden drop in the total amount spent on calls & data recharge in the action phase to lure them.
- Customized plans should be provided to customers to stop them from churning, based on their churning patterns.
- Promotional offers can also be very helpful to attract new customers and stay competitive in the market.