

Telecom Churn Study

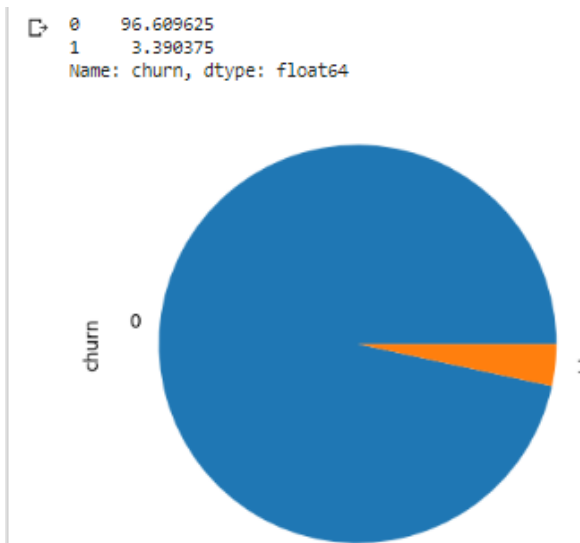


Business problem overview

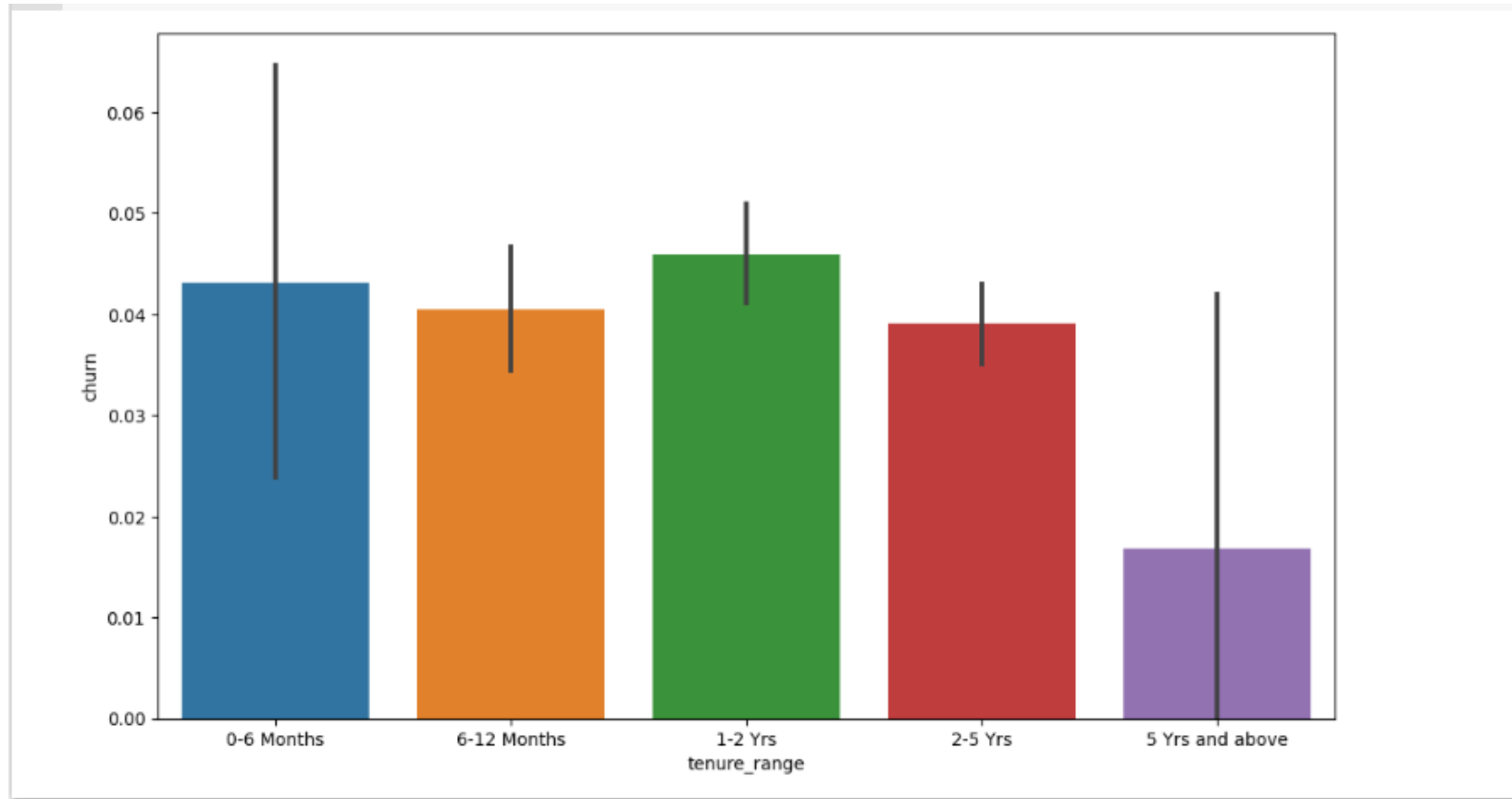
In the telecom industry, customers have options to choose from multiple service providers and actively switch from one operator to another. In this highly competitive market, the telecommunications industry experiences an average of 15-25% annual churn rate. Given the fact that it costs 5-10 times more to acquire a new customer than to retain an existing one, customer retention has now become even more important than customer acquisition.

Churn and non churn percentage

As we can see that 96% of the customers do not churn, there is a possibility of class imbalance

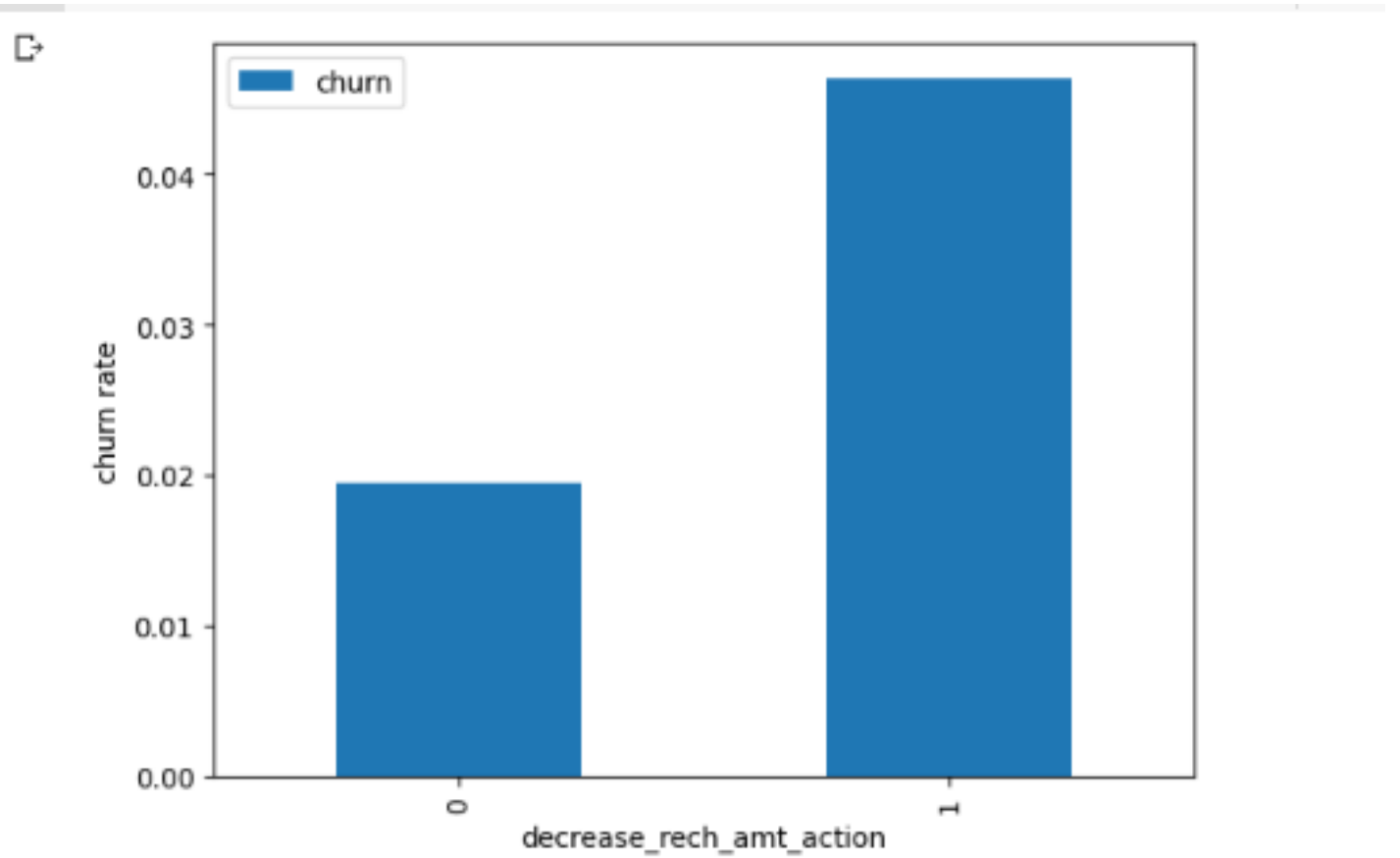


Churn Vs Tenure range



Maximum churn rate happens within 0-6 month, but it gradually decreases as the customer stays in the network.

Decrease_rech_amt_action
: Clearly indicates higher
churn



Conclusion

The top 15 features selected by RFE and manual inspection of VIF and p-values are

	Features	VIF
0	offnet_mou_7	1.92
1	offnet_mou_8	7.45
2	roam_og_mou_8	1.16
3	std_og_t2m_mou_8	6.27
4	isd_og_mou_8	1.01
5	og_others_7	1.04
6	og_others_8	1.05
7	loc_ic_t2f_mou_8	1.21
8	loc_ic_mou_8	1.68
9	std_ic_t2f_mou_8	1.02
10	ic_others_8	1.02
11	total_rech_num_8	1.19
12	monthly_2g_8	1.05
13	monthly_3g_8	1.06
14	decrease_vbc_action	1.08

Since reducing customer churns with attractive offers is less expensive than making new customers, sensitivity score is considered for the building the final predictor model.

- Logistic Regression trained with 15 principal components has accuracy score of 0.84 and sensitivity score of 0.89 for Probability Cutoff = 0.5
 - ✓ Accuracy:- 0.84
 - ✓ Sensitivity:- 0.89
 - ✓ Specificity:- 0.79
- The final model could predict 89% of the churned customers correctly out of all the churned customers. (sensitivity)
- Accuracy score 0.84 means 84% of the predictions made by the final model are correct out of all the predictions.

Recommendations :

- Customers with less than 1 years of tenure are more likely to churn and company should concentrate more on that segment by rolling out new schemes to that group.
- Average revenue per user seems to be most important feature in determining churn prediction.
- Better 3G area coverage where 3G services are not good, it's strong indicator of churn behavior. Telecom company may need to revise its 3g data plans in order to retain customers using 3g data.
- Sales team may focus on customers who have not made a recharge in last 17 days or more and provide them with special talk-time offers to reduce churn.
- Incoming and Outgoing Calls on roaming for 8th month are strong indicators of churn behavior