# Telecom Churn – Domain Oriented Case Study

**To predict the churn in the ninth month using the data (features) from the first three months.**
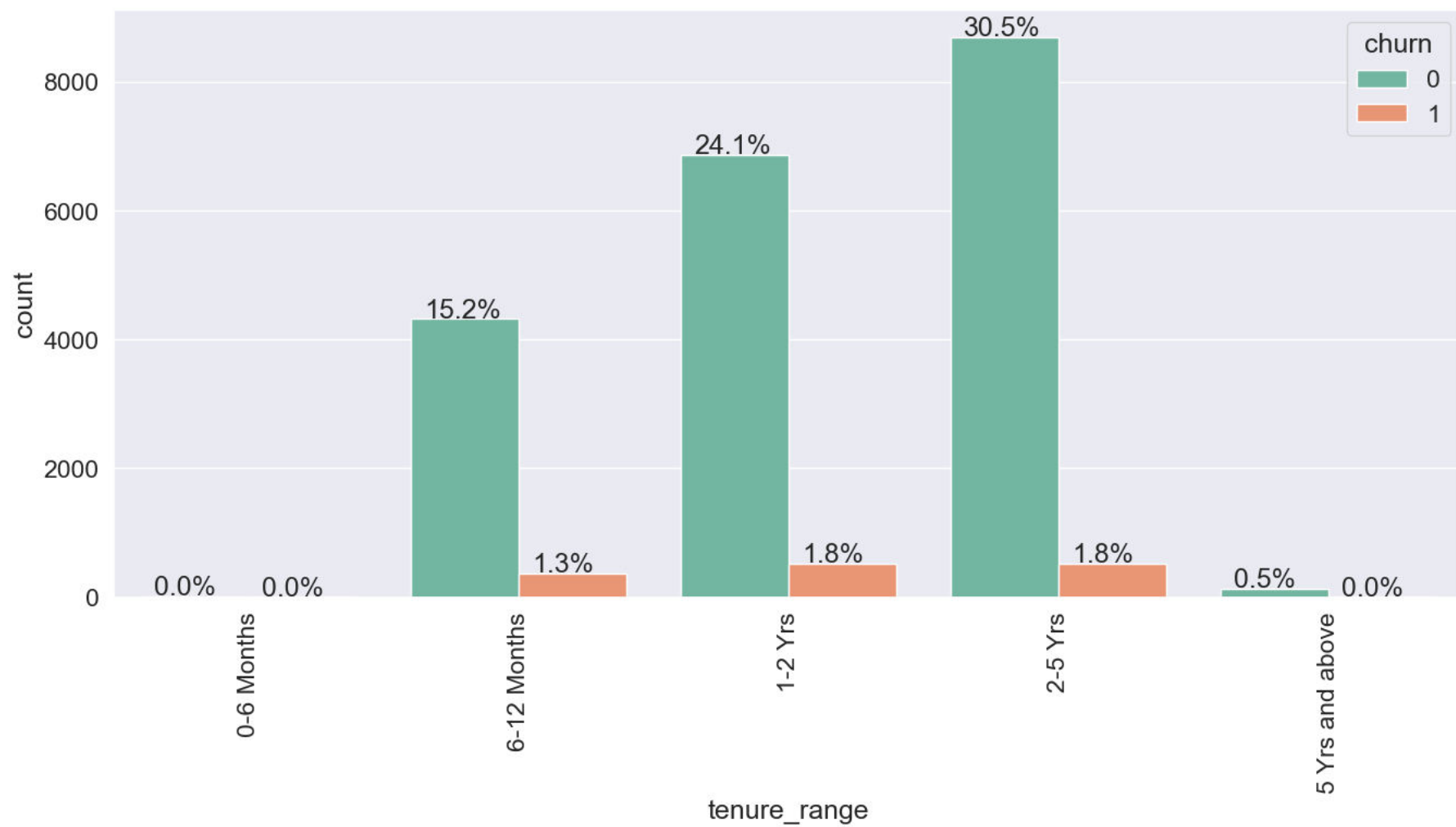
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# Problem Statement

- Analyze 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.

Large no of Customers are new to Telecom Company and fall under < 5 Yr Tenure
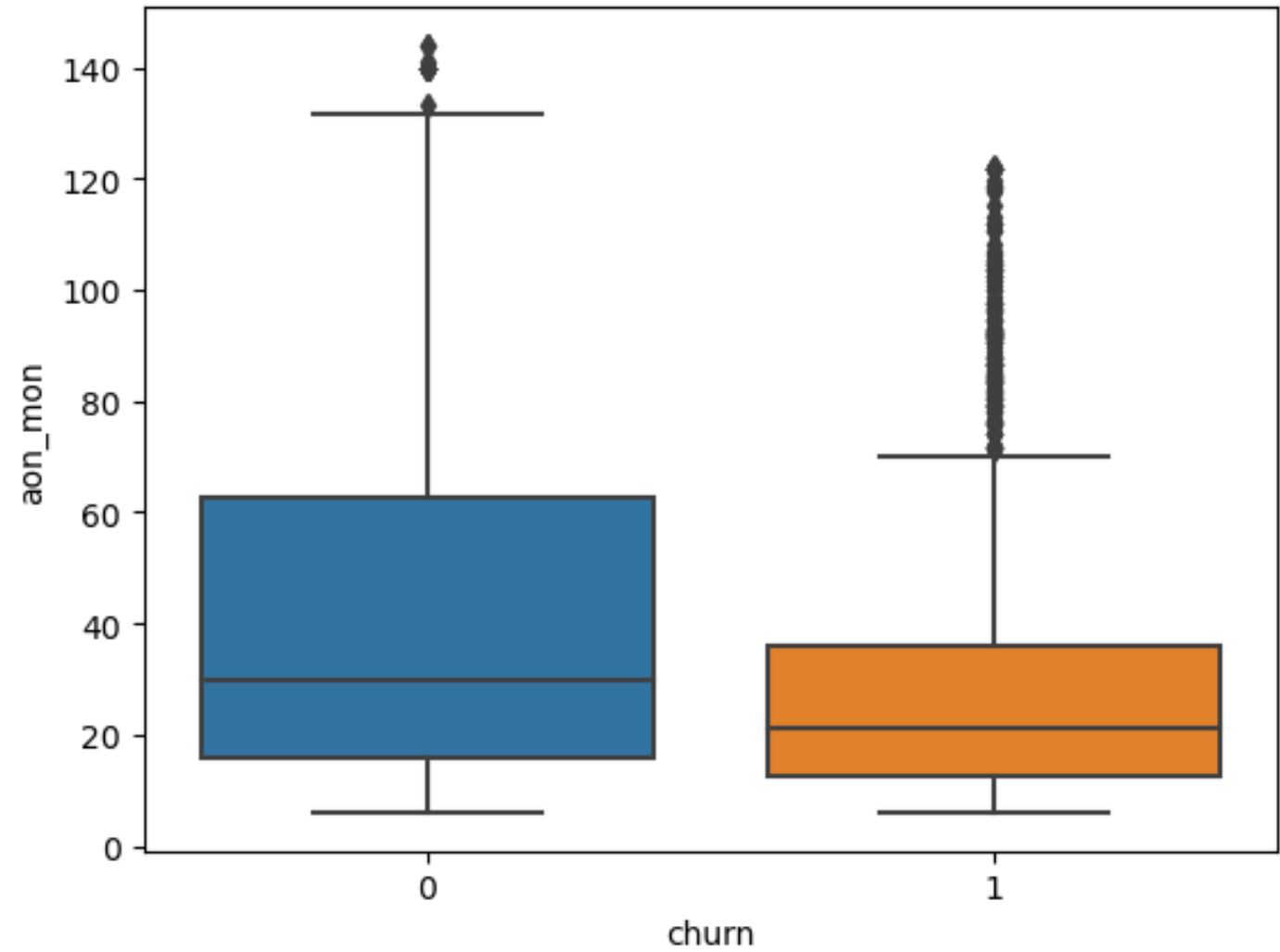
**Avg Outgoing Calls & calls on roaming for 6 & 7th months are positively correlated with churn.**
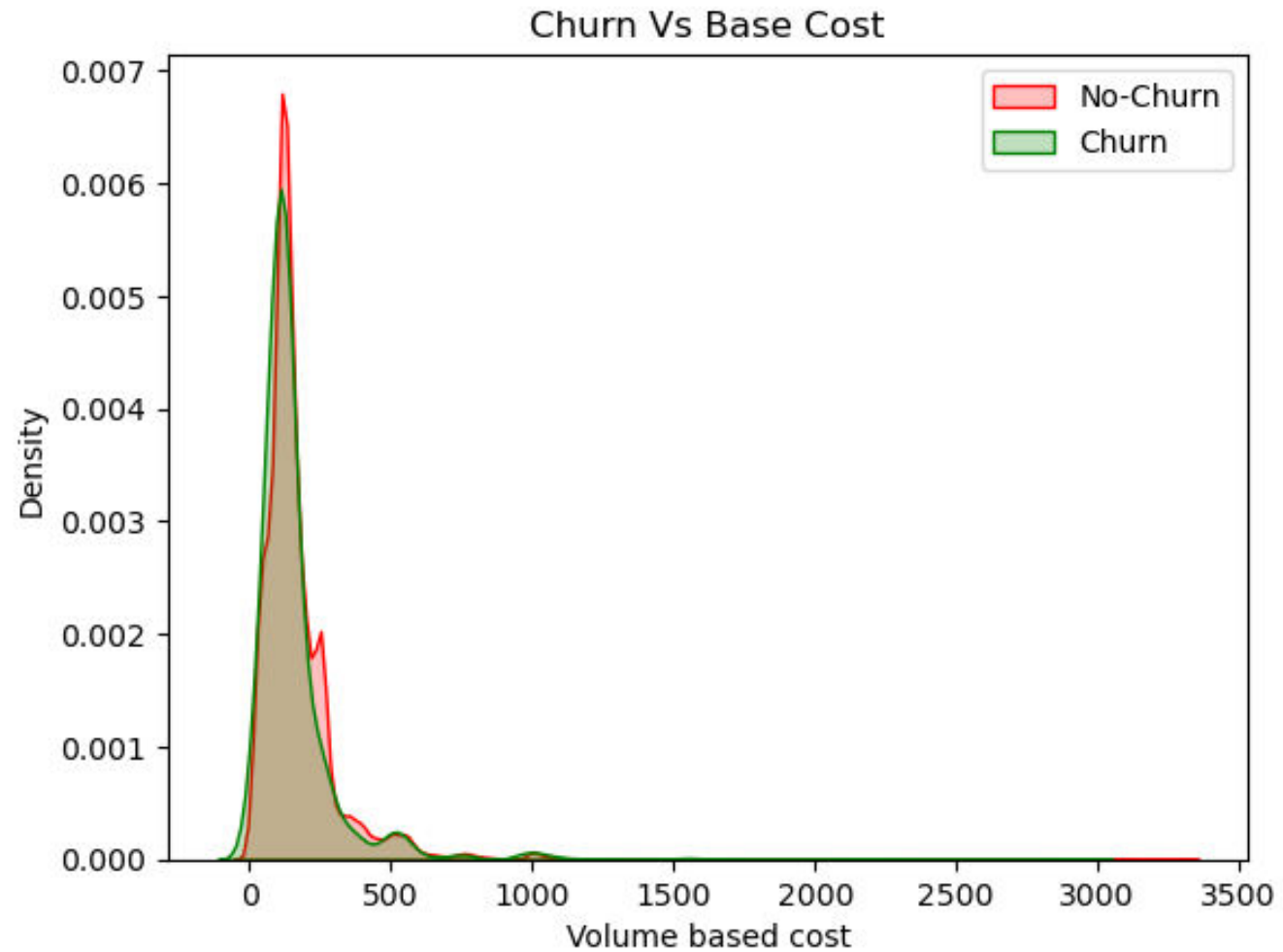
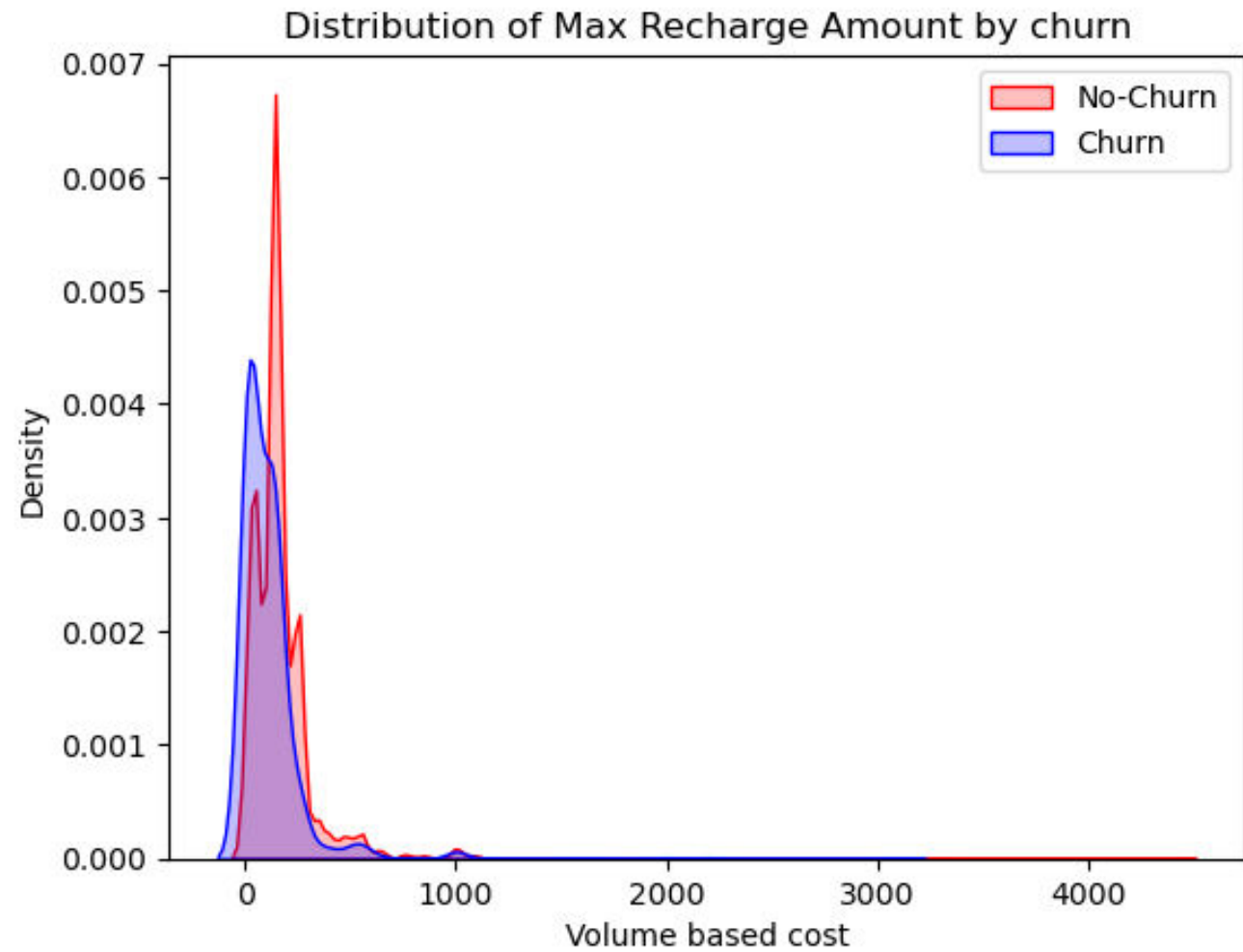**Avg Revenue, No. Of Recharge for 8th month has negative correlation with churn**
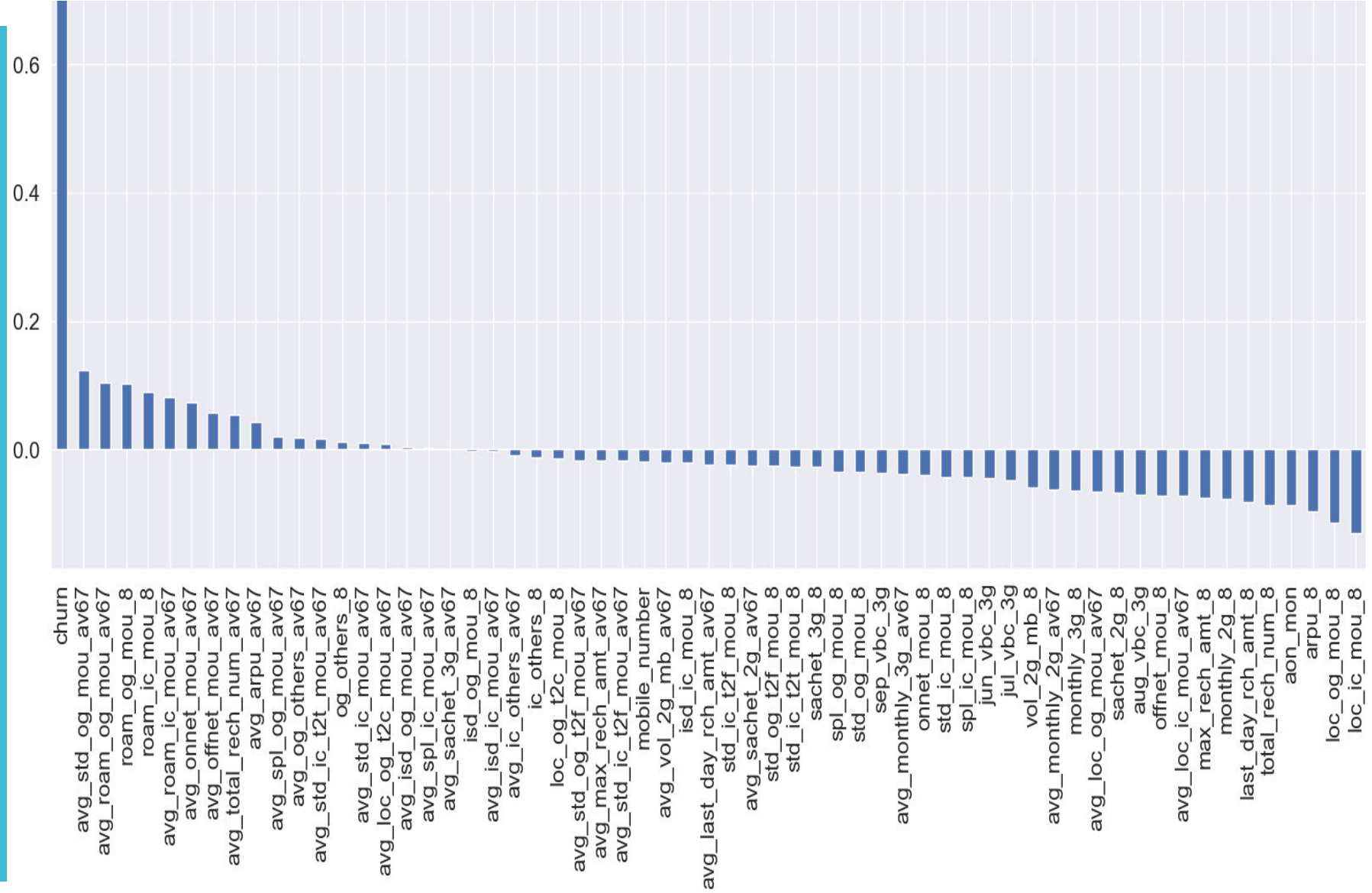
**The tenured customers do no churn and they keep availing telecom services**

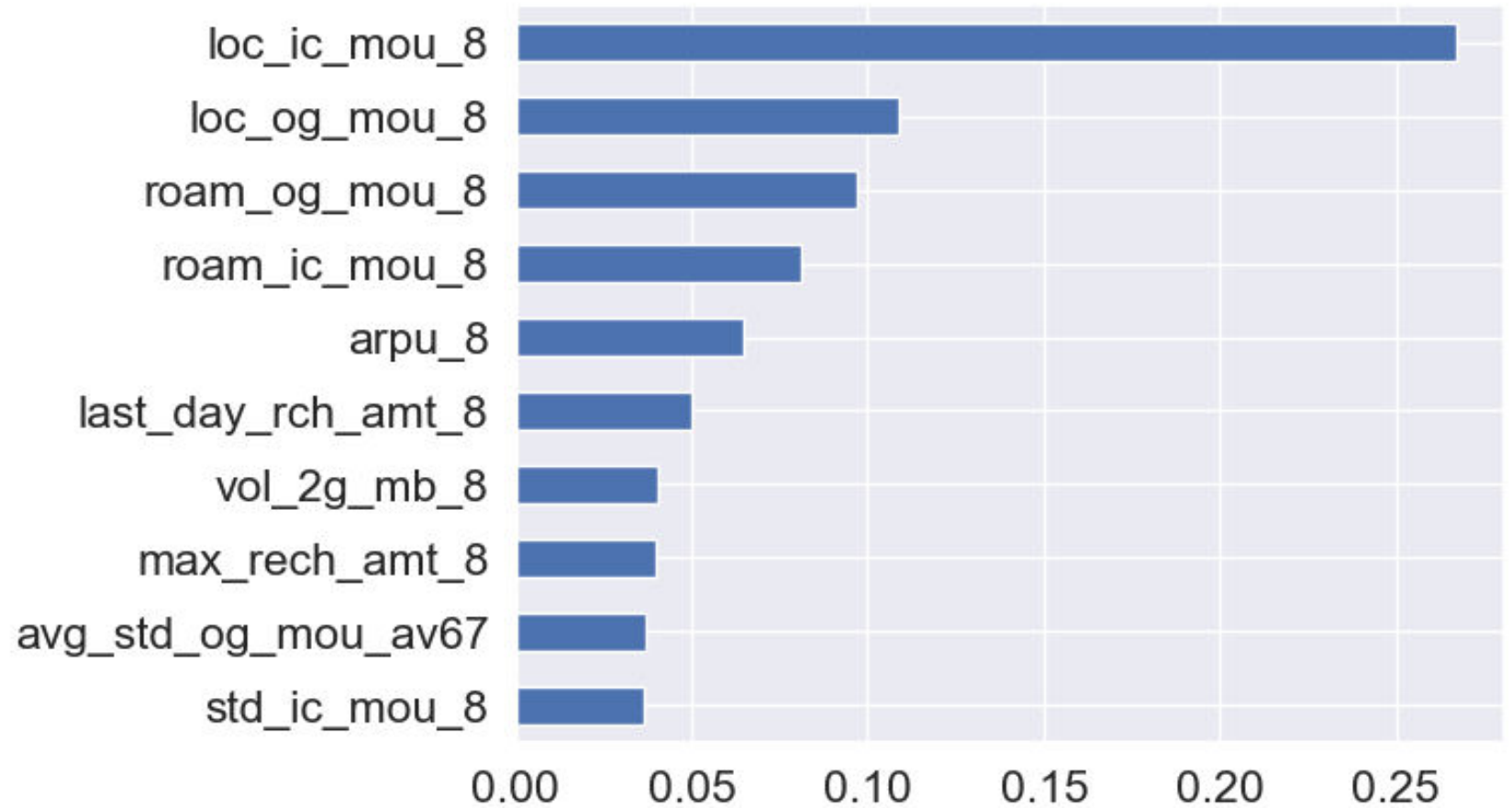•Behavior of Volume Based Cost is not a strong indicator of Churn

Distribution of Max Recharge Amount by churn

**Random forest:**

**Local Incoming & Outgoing for Month 8, Average Revenue Per Customer for Month 8 and Max Recharge Amount for Month 8 are the most important predictor variables to predict churn.**

# Model Comparison

| Model | Accuracy | Recall | Specificity |
|---|---|---|---|
| Logical Regression with RFE | 77.16% | 81.87% | 76.87% |
| PCA Model | 80.62% | 80.71% | 80.62% |
| PCA with Optimum features 33 | 80.00% | 78.40% | 80.13% |
| Decision Tree | 85.78% | 70.64% | 86.67% |
| Decision Tree  with hyperparameter tuning | 88.08% | 65.00% | 89.44% |
| Randon forest | 94.09% | 52.62% | 96.54% |
| Random Forest with hypertuning | 95.21% | 18.87% | 99.48% |

# Conclusion

- Very Less Amount of High Value customers are churning which is a good service indicator.

- Large no of Customers are new to Telecom Company and fall under < 5 Yr Tenure

- Std Outgoing Calls and Revenue Per Customer are strong indicators of Churn

- People with less than 4 Yrs of Tenure are more likely to Churn

- Behavior of Volume Based Cost is not a strong indicator of Churn

- Max Recharge Amount could be a good Churn Indicator

- Random Forest is the best method to Predict Churn followed by SVM, other models too do a fair job

- Behavior is 8 Month can be the base of Churn Analysis

- Local Incoming and Outgoing Calls for 8th Month and Average Revenue in 8th Month are strong indicators of Churn Behaviour

# Strategies

❑ A sudden drop in Local Minutes of usage might be because of unsatisfactory customer service because of poor network or unsuitable customer schemes/plans. Efforts shall be made to provide a better network and focus on customer satisfaction.

❑ Based on the usage / last recharge/ net usage, routine feedback calls should be made for customer satisfaction and services that can understand 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 such customers to stop them from churning.

❑ Promotional offers can also be very helpful.