

Telecom Churn

Problem Statement

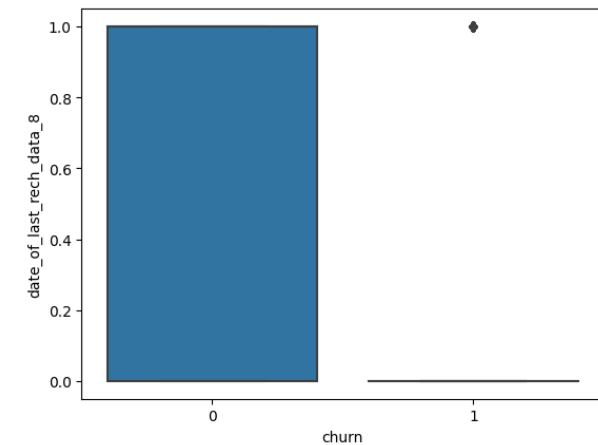
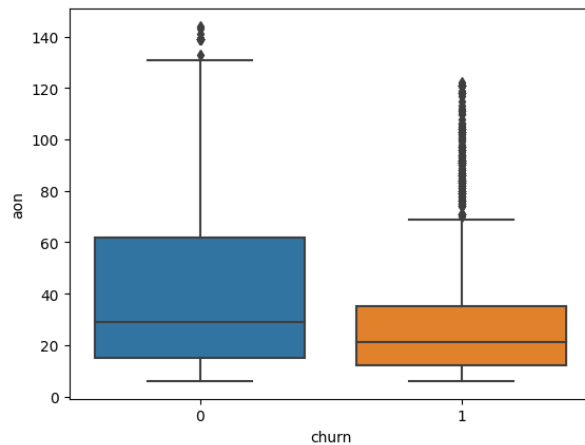
- Analyse customer-level data of a leading telecom firm, build predictive models to identify customers at high risk of churn and identify the main indicators of churn.

Pre-Process Approach

- Initially, high valued customers are filtered out to use as the main dataset.
- Compute churn based on 9 month data and remove all data pertaining to _9.
- Remove columns with constant values.
- Columns with more than 30% of missing value percentage is removed.
- Remove rows with null for any column.
- Highly correlated columns are removed to reduce bias.
- Last date of recharge is converted to binary to indicate a recharge for the month.
- AON days is formatted to months.

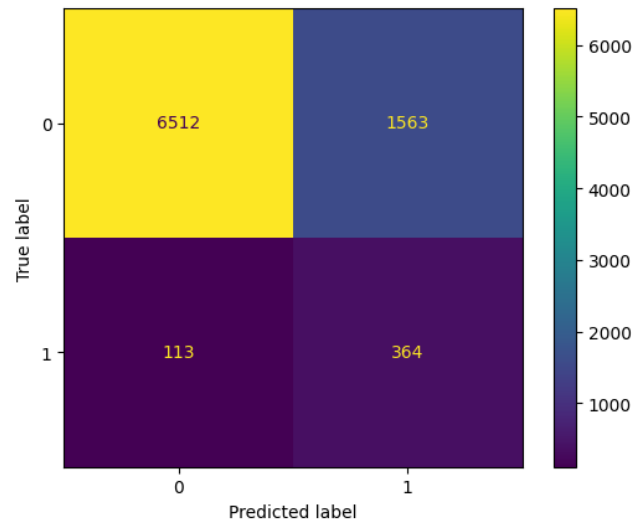
EDA

- EDA was carried out using correlation matrix, scatter plots and box plots.
- The customers using the network for longer period has less chance to churn. This implies a sense of loyalty.
- Customers with max recharge amounts in high values seems to have less churn which is expected.
- Customers with more number of recharges per month seems to show a slight increase in churn.
- Customers with more minutes of outgoing calls to another networks seems to have less churn effect but with roaming outgoing seems to churn more.
- Recharge in previous month seems to be a strong indicator for churn.

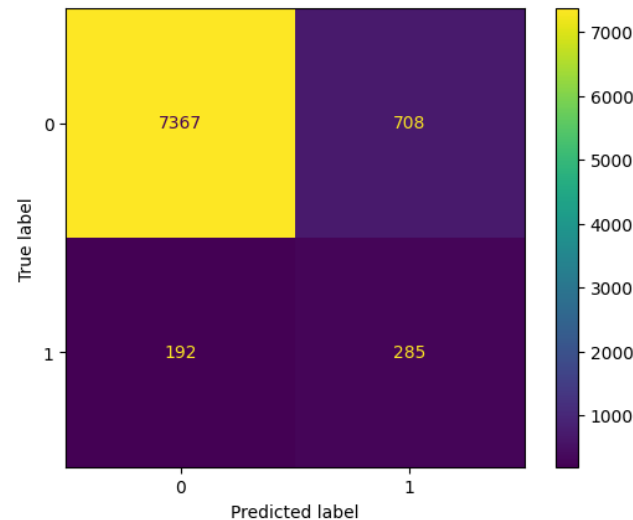


Model Training and Performance

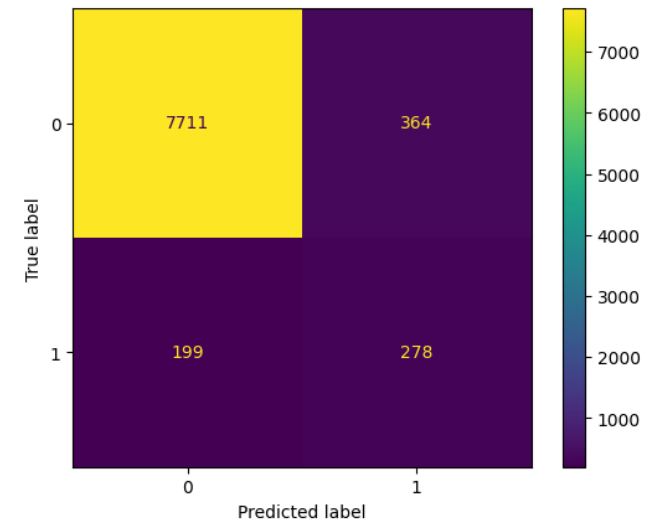
- Logistic Regression, Decision Tree and Random Forest models were used.
- Data imbalance was overcome using SMOTE.
- Hypertuning was done with the help of Grid Search.
- The evaluation metrics used were accuracy and confusion matrix.



Logistic regression: 81%

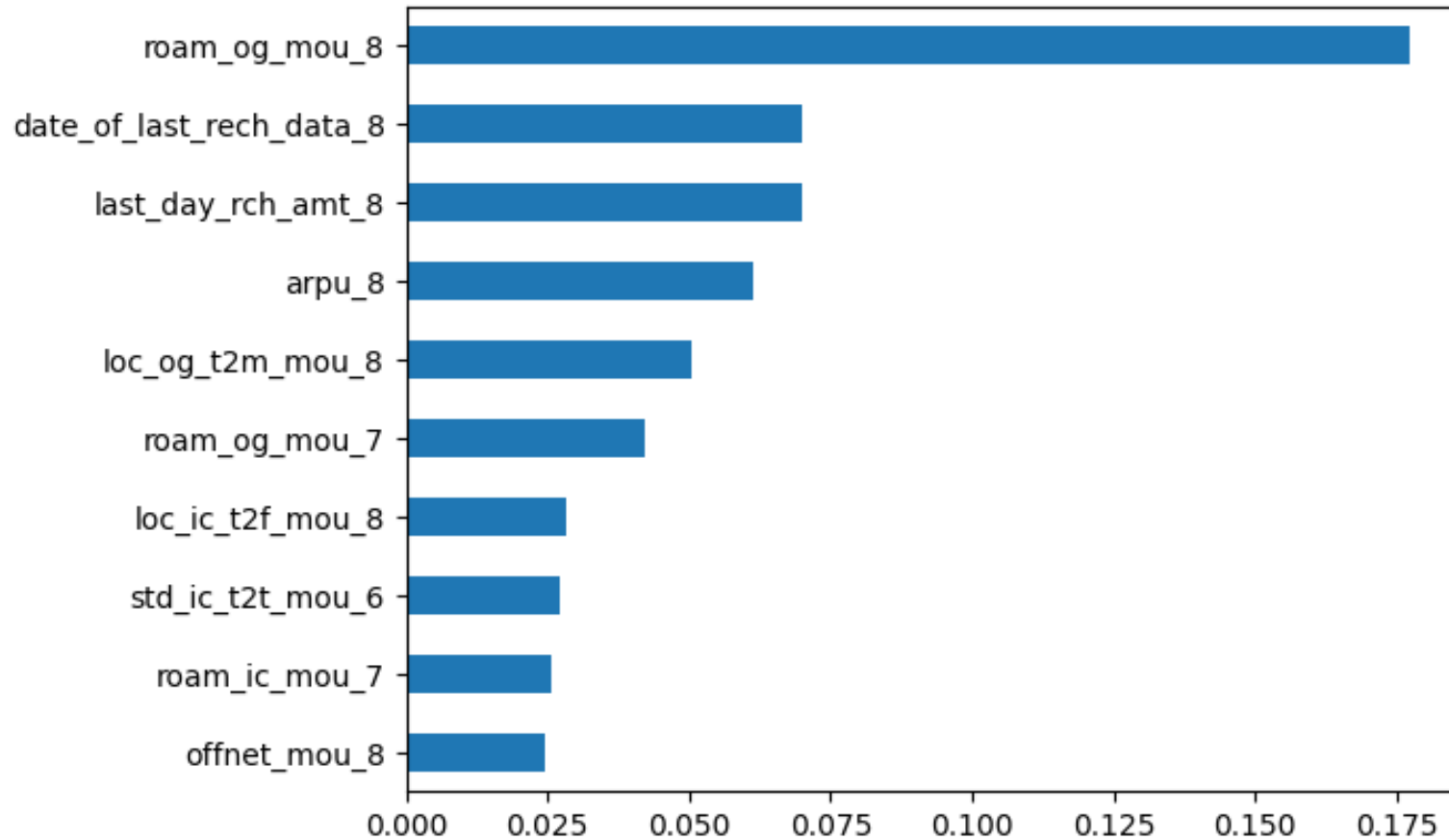


Decision Tree: 90%



Random Forest: 94%

Model Training and Performance



Conclusion

- Random Forest produced the best prediction results with about 94% accuracy.
- Good offers to roaming outgoing calls will help in retaining customers.
- Revenue Per Customer is a strong indicator of Churn which needs to be monitored and recharge done in previous month also should be tracked to take preventive measures.
- Customers having more years with the network shows a sense of loyalty which should be rewarded. This would also induce word of mouth marketing.
- Customers with tenure less than 3 years are more likely to churn. So, the company should invest in promotional offers to new customers for longer tenure.