

SyriaTel Customer Churn Analysis



BUSINESS UNDERSTANDING

- SyriaTel, a telecommunications company, is dealing with a significant problem of customer churn, where a substantial number of customers are leaving their services for those of competitors. To tackle this challenge, the company seeks to build a predictive model for customer churn. By examining the dataset, SyriaTel aims to understand the factors contributing to customer attrition, with the ultimate objective of lowering the churn rate, enhancing customer retention, and boosting overall profitability.

Business Problem

Syriatel, a telecommunications company, is facing a high churn rate, with many customers discontinuing their services and switching to competitors.



Specific Objectives

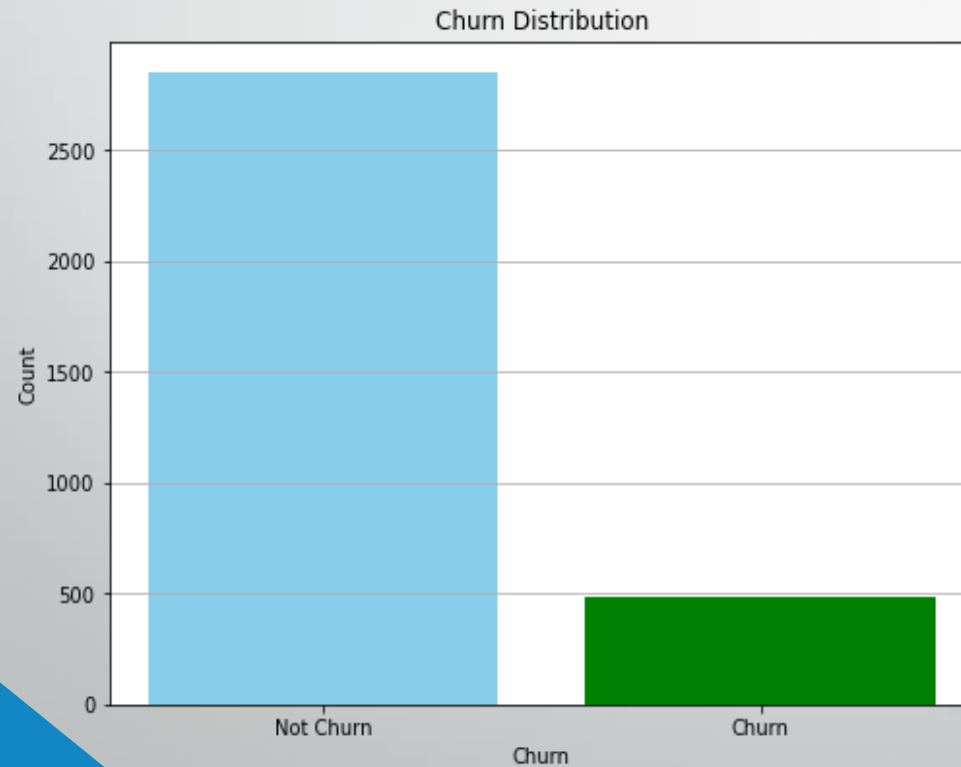
- Identify the key factors contributing to customer churn.
- Create a model that can accurately predict which customers are at risk of leaving.
- Implement strategies to proactively retain customers who are identified as at risk of churn.

DATA UNDERSTANDING

We are using customer churn dataset from the telecom industry sourced from Kaggle website. The data contains 3,333 records and 21 columns. There are 4 categorical features and 17 numerical features.



DATA VISUALIZATION

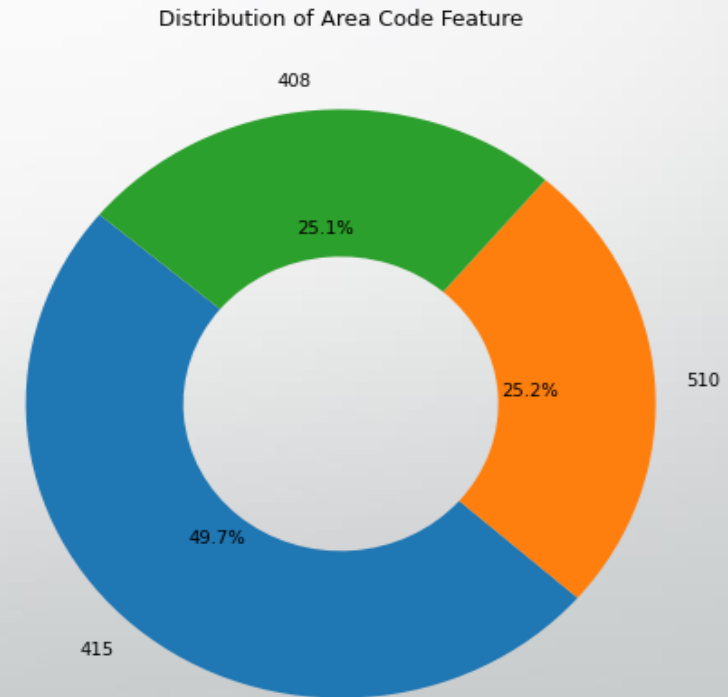


Churn Distribution

- The distribution shows how many customers churned.
- Number of customers that churned was 483 which makes 14.5% of our data.

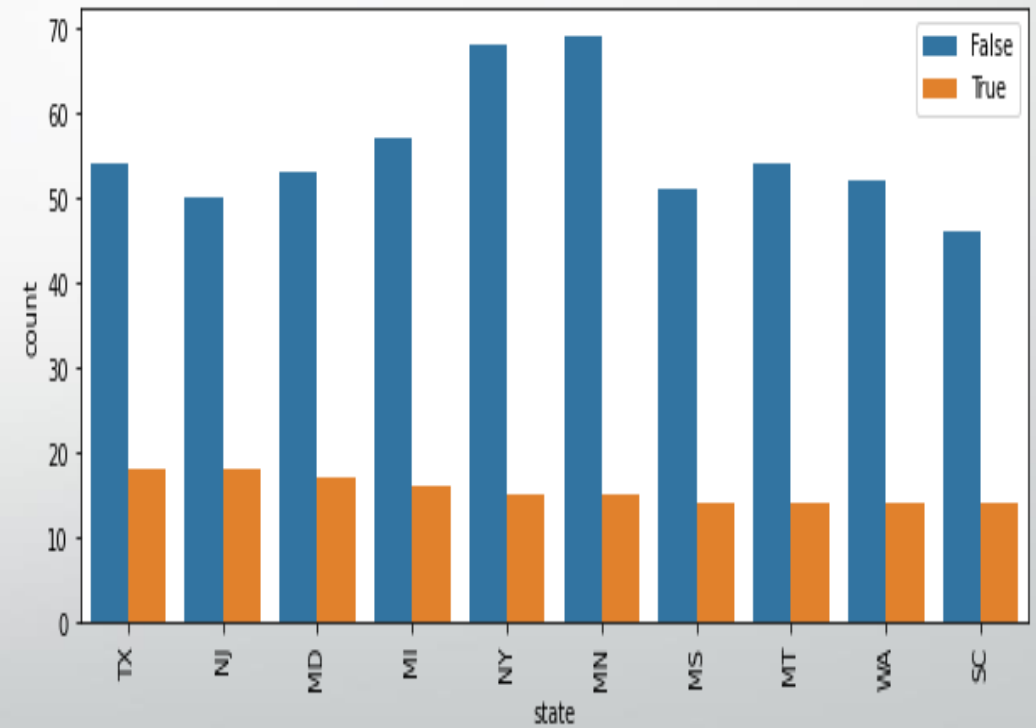
Area code distribution

- The area code 415 has the highest proportion, accounting for (49.7%)of the total customer base.
- Both area codes 510 and 408 have an equal number of customers.(25.2%and 25.1%)respectively.



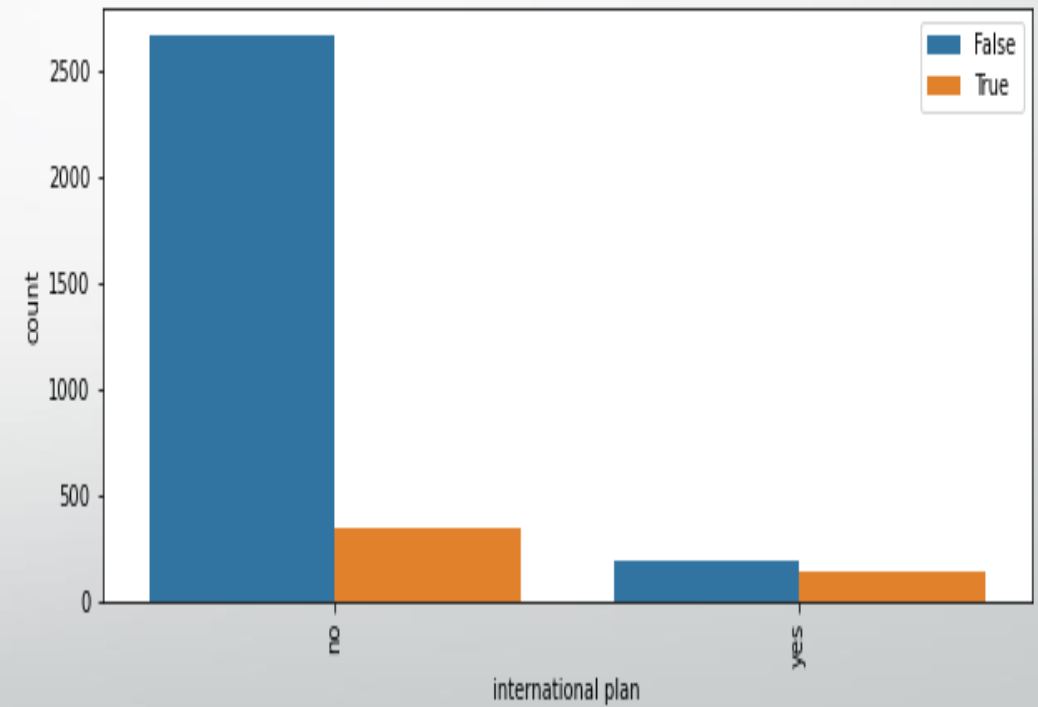
States Churn rate

- Texas and New Jersey are leading states.



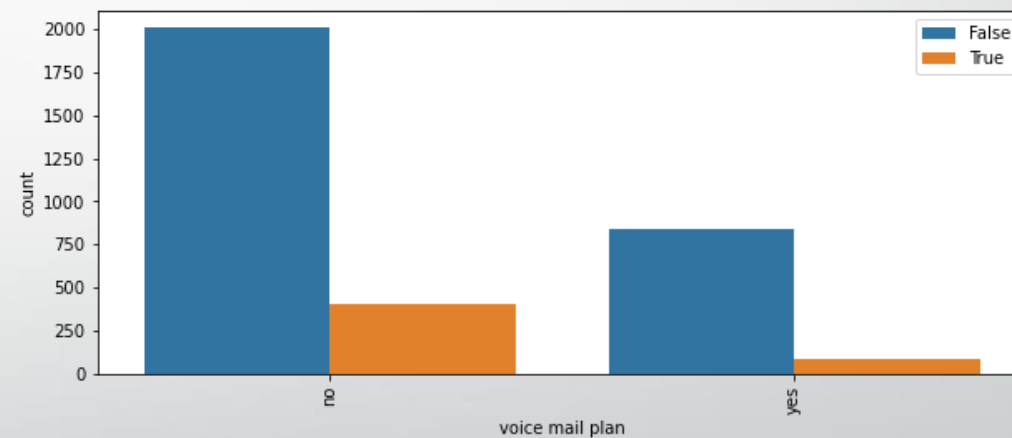
International Plan churn rate

- Majority of 483 customers that churned did not have international plan.



Voice mail plan churn rate

- Majority of 483 customers that churned did not have a voice mail plan.



MODELLING

I used Logistic regression and Decision Tree models.

- **Classification Metrics Used**
- Recall which focuses on the model's ability to correctly identify positive cases.
- ROC_AUC Curve plots showing true positive rate (sensitivity) against the false positive rate (1 - specificity) at various classification thresholds.

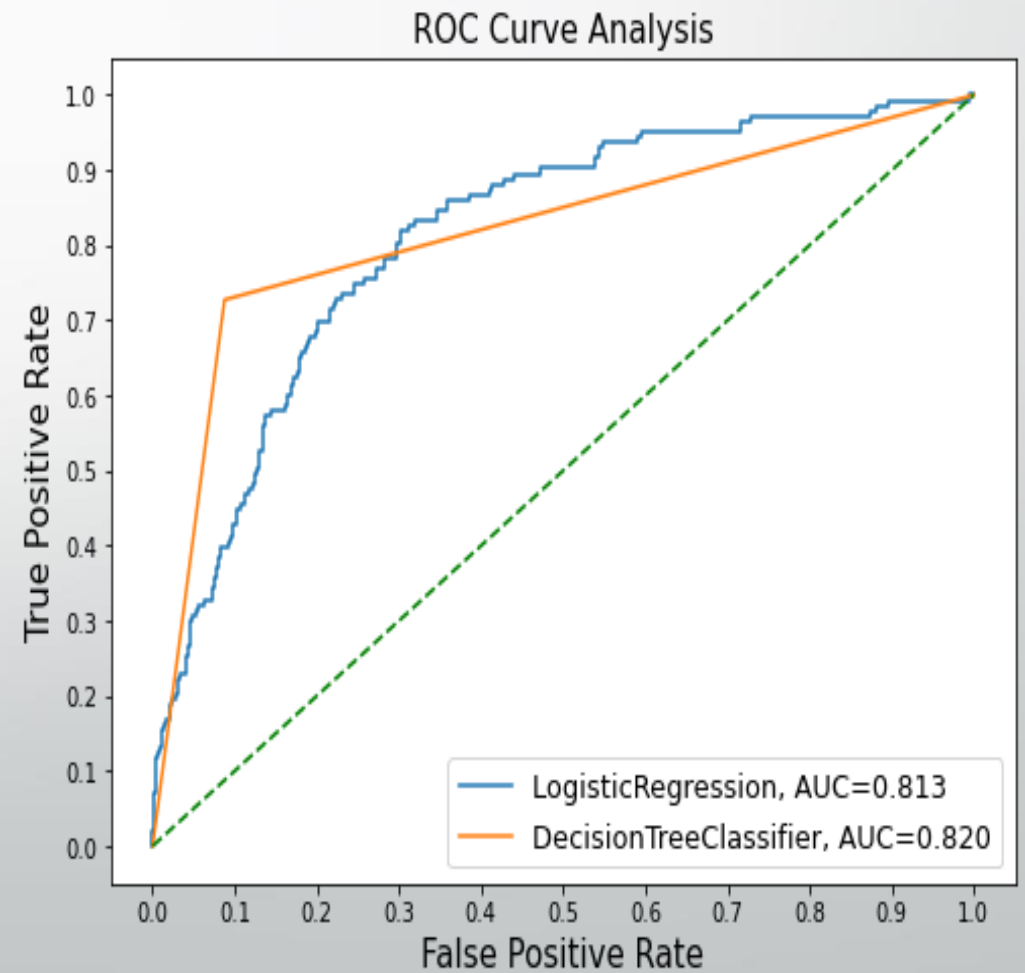
EVALUATION

recall

classifiers

LogisticRegression 0.699301

DecisionTreeClassifier 0.748252

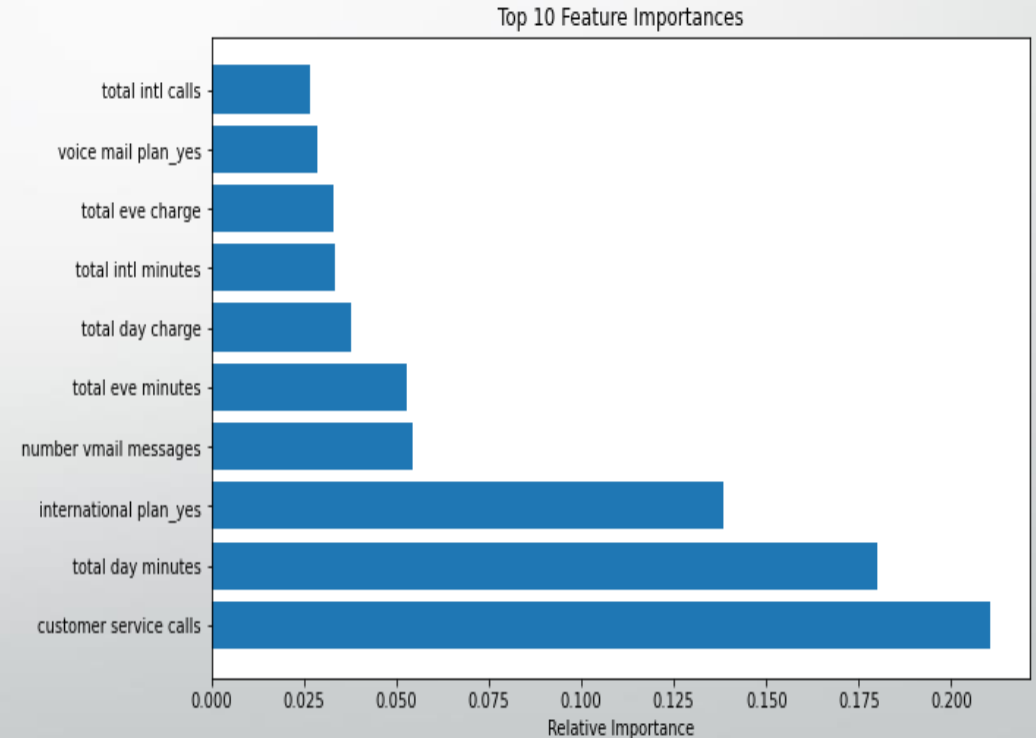


EVALUATION

- ***Recall score;***
- Logistic Regression –0.699301
- Decision Tree –0.748252
- The recall score of Decision Tree Classifier is better than the one of Logistic regression.
- The Decision Tree model correctly identifies approximately 74.8% of the actual churn cases. This suggests that the Decision Tree classifier has a better ability to detect churn compared to the Logistic Regression model.
- ***Based on ROC_AUC curve;***
- Decision Tree–0.82
- Logistic Regression –0.813
- The ROC curve analysis indicates that the DecisionTreeClassifier outperforms the LogisticRegression model. The DecisionTreeClassifier achieved the highest AUC score of 0.82, surpassing the LogisticRegression, which obtained an AUC score of 0.813. A higher AUC score signifies that the classifier is more effective at differentiating between positive and negative instances.

Key features contributing to customer churn

- **Customer service calls** ; customers who made more customer service calls churned the most.
- **Total day minutes**; customers who spoke more during the day churned the most.
- **International plan**; customers who had international plan subscription churned the most.



Conclusion

- According to the visualizations, the following features are classified under important features hence they contribute more to customer churn; 'international plan', 'total day minutes', 'customer service calls' and 'total day charge'. The identification of these key features indicates areas where targeted interventions can significantly impact customer retention. By focusing on the international plan, daytime usage, customer service interactions, and total daytime charges, SyriaTel can implement strategies to address customer concerns and reduce churn rates.

Recommendations

- Adjust pricing strategies to offer better value for customers who incur high daytime charges. Introduce tiered pricing or loyalty discounts to mitigate churn.
- There is high churn rate in area code 415 and 510. SyriaTel can introduce promotional offers to customers these area code to enable them stay with the company.
- Improve customer service quality and reduce the number of customer service calls. This will lead to effective resolution to customers problems and lead to higher satisfaction hence reduced churn.
- Consider revising the international plan to offer more competitive rates or additional benefits to retain customers who are heavy international users.



Thank You.

Q & A