PREDICTING CUSTOMER CHURN AT SYRIATEL

Business Understanding

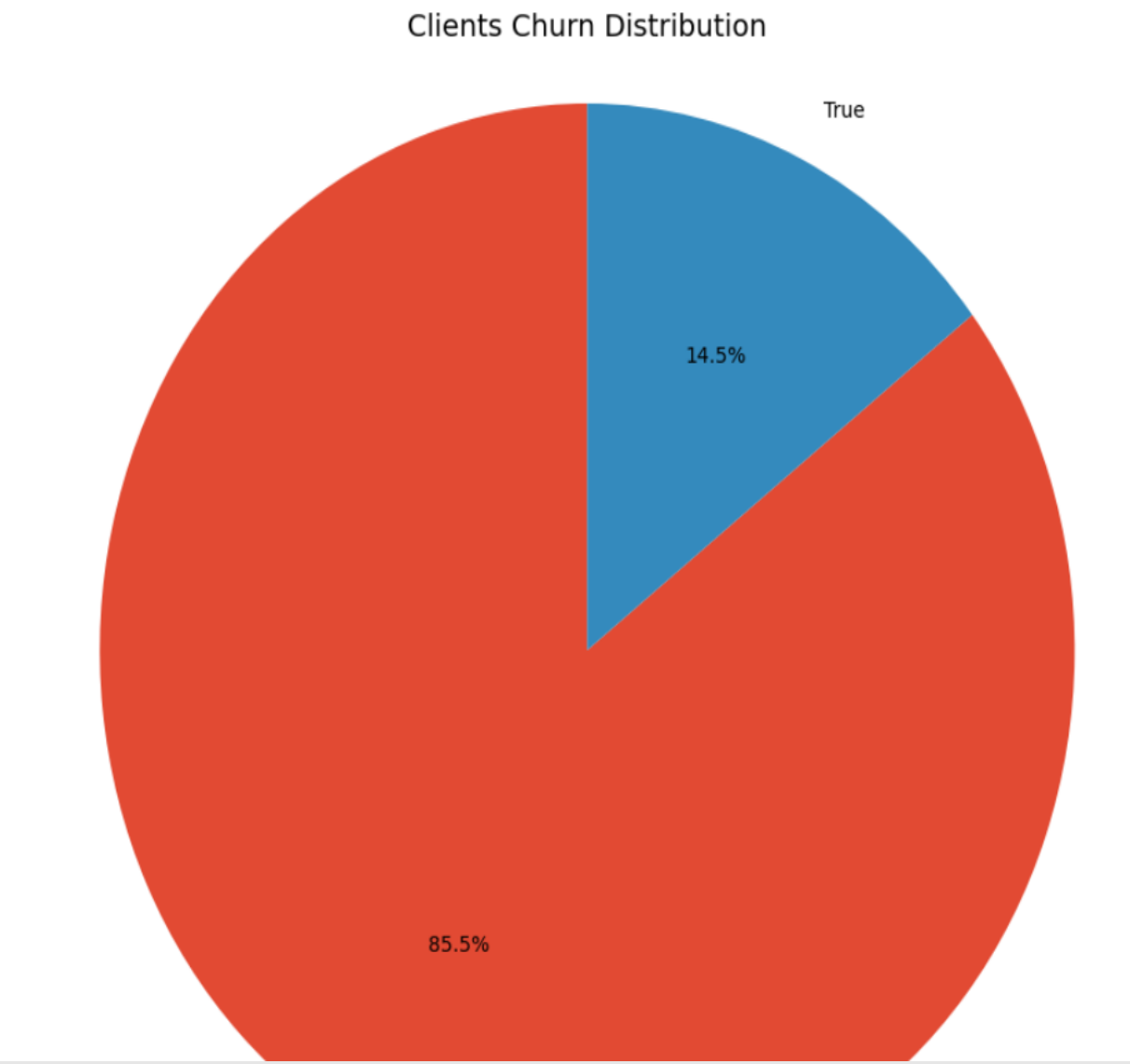
- The telecommunications industry has become highly competitive, especially with the rise of new technological innovations that offer customers alternative communication channels.
- The goal is to develop a predictive business model that will help Syriatel adopt strategies to reduce customer churn, retain and expand its customer base, and ultimately sustain overall growth and profitability.

Objective Questions

- What are the key predictors of customer churn for Syriatel Mobile Telecom?
- Which machine learning model is best suited for predicting customer churn?
- What strategies can Syriatel Mobile Telecom implement to retain customers and lower churn rates?

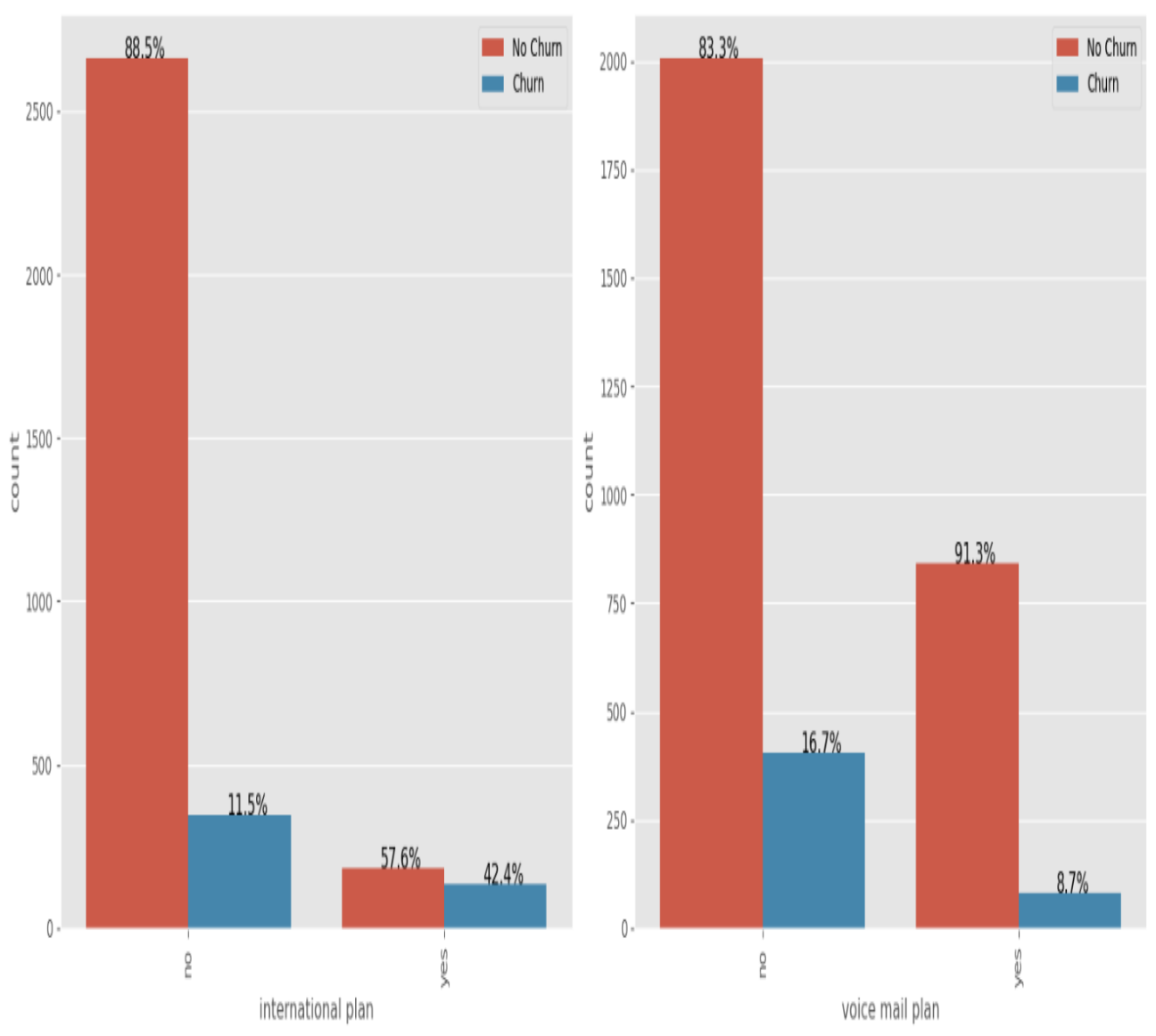
Data Understanding

- The dataset contains information about customer churn
- It contains a total of 21 columns and 3333 rows.
- Phone number is the unique identifier of the dataset.
- It contains both numerical and categorical values.
- The data is basically a binary classification problem.
- There are no missing values and duplicates



Univariate Analysis

- Of the 3,333 customers in the dataset, 483 terminated their contract with the company. That is 14.5% of customers lost.
- •True = churned
- •False = not churned



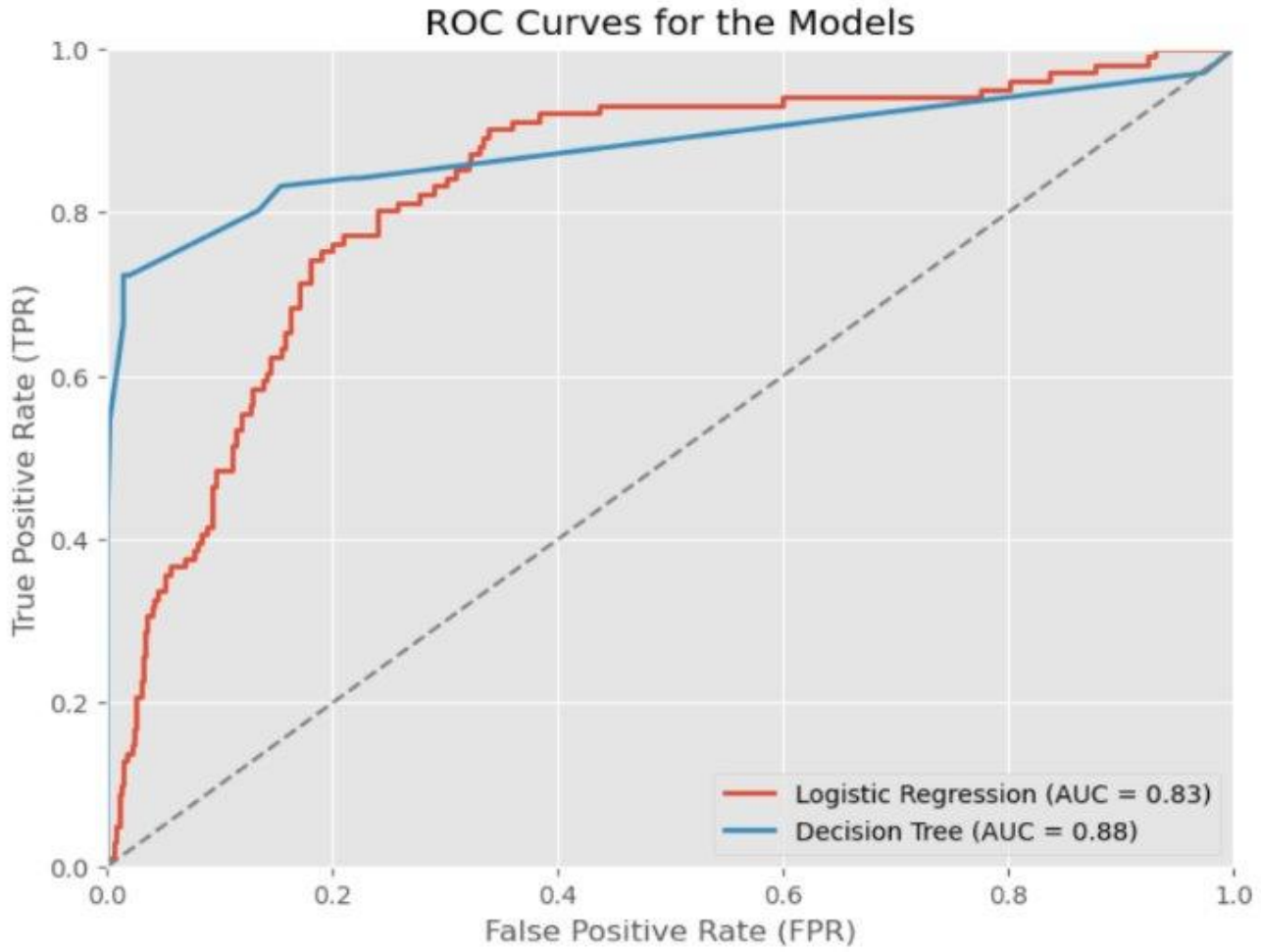
Bivariate Analysis

- For the international plan, a higher proportion of customers who subscribed to the plan churned that is 42.4% compared to those who did not subscribe 11.5%. This indicates that subscribing to the international plan may be associated with a higher likelihood of clients leaving. This could indicate that there are issues associated with the international plans that could be making the plan less preffered by the clients.
- For the voice mail plan, a lower proportion of customers who subscribed to the plan churned that is 8.7% compared to those who did not subscribe 16.7%. This suggests that subscribing to the voice mail plan may be associated with a lower likelihood of churning.

Modelling

- Two models were built to predict Customer Churn and further improvements were made to achieve the best predictive results. They models:
- Logistic Regression Model
- Decision Tree Classifier

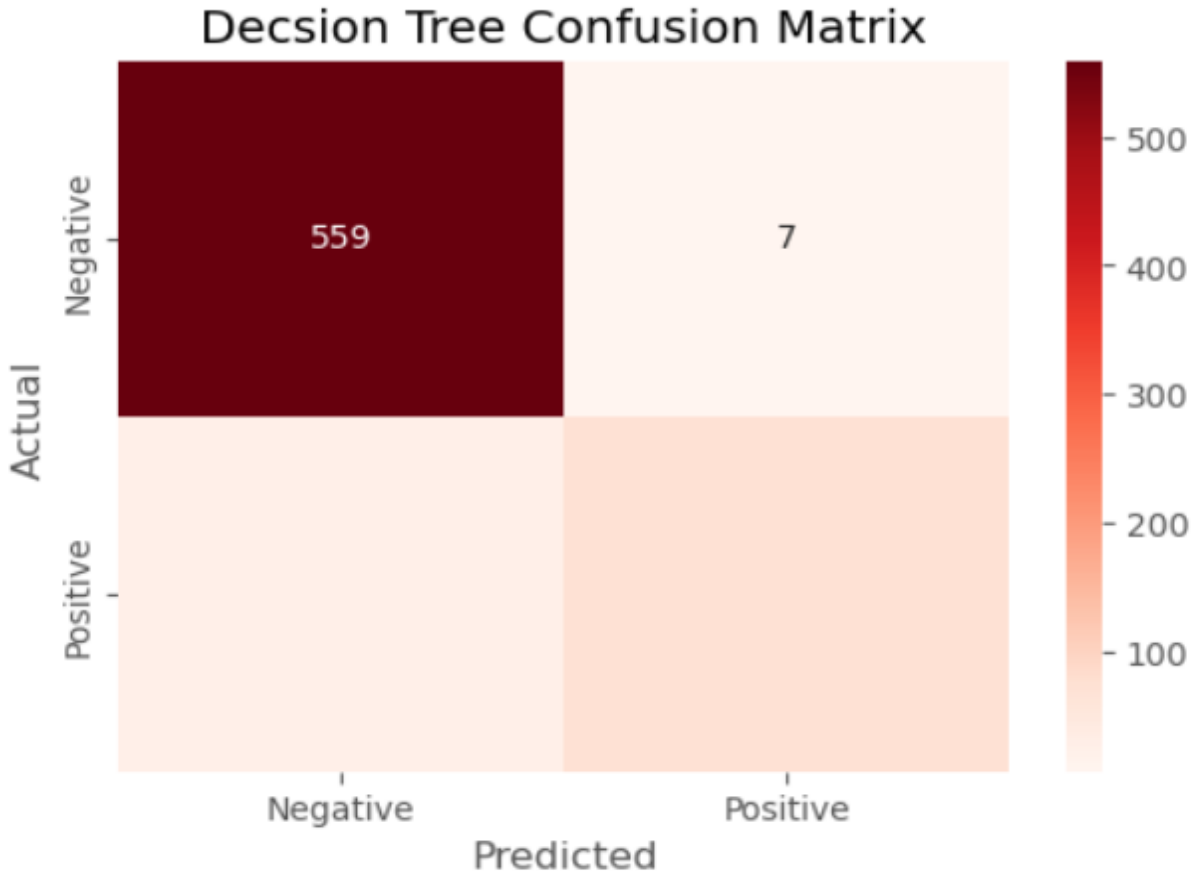
Models Performance



	Model	Accuracy (Test Set)	F1 Score (Test Set)	Recall (Test Set)	Precision (Test Set)
0	Logistic Regression	0.780000	0.510000	0.770000	0.390000
1	Decision Trees Classifier	0.950000	0.810000	0.730000	0.900000

The best model is the Decision Classifier Model

Decision Tree Model Performance Results

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The Model Achieved:
Accuracy : 94.75%
Precision: 91.25%
Recall: 72.28%
F1 score: 80.66%
Train score: 96.32%
Test score: 94.75%

Decision Tree Performance Interpretation

The model's accuracy, reflecting its ability to correctly predict churn, is 94.75%

Precision measures the accuracy of positive predictions, and a precision of 91.25% suggests that when the model predicts a positive outcome, it is correct 91.25% of the time

Recall, (sensitivity), represents the model's ability to identify actual positive instances, this indicates that the model captures 72.28% of the total positive instances.

The F1 score, which combines precision and recall, is 80.66%, indicating a balanced performance between precision and recall for the positive predictions made by the model.
Given the Train score of 96.32% and Test score of 94.9%, the model does not overfit as demonstrating its ability to generalize and make accurate predictions on new and unseen data.

Recommendations

- Syriatel make use of the Decision Tree Classifier as the primary model for predicting customer churn. This model has a higher ROC curve and strong overall performance.
- Have a customer retention strategy that addresses key features in relation to call minutes and charges. These efforts could include personalized offers or discounts on day charges.
- I would recommend, that Syriatel comes up with strategies to reduce on Customer Service calls, as this is among the top features that would likely lead to Customer Churn.

Next Steps

- Do further analysis to understand Customer churning reasons
- Investigate what competitors in the industry are offering and come up with business strategies to improve on products and service offering


THANK YOU