Customer Churn Prediction

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The Process

Project Overview

Business Problem

Data Understanding

Data Preparation

- Data Cleaning
- Explanatory Data Analysis

Univariate Analysis

Bivariate Analysis

Modelling

Conlusions

Recommendations

14.49%

Customer Churn Rate

Project Overview

SyriaTel faces a challenge with customer churn, impacting revenue and market standing. This project aims to predict churn using key features like customer service calls, daytime call minutes, and international plan subscriptions

Business Problem

SyriaTel, is a telecommunications company facing a significant challenge: customer churn. They've noticed an increasing number of customers leaving their service, which is not only impacting their revenue but also their reputation in the market

Data Understanding

Syrial Tel dataset Contains data bout customer usage,calls and charges with churn column as the target variable

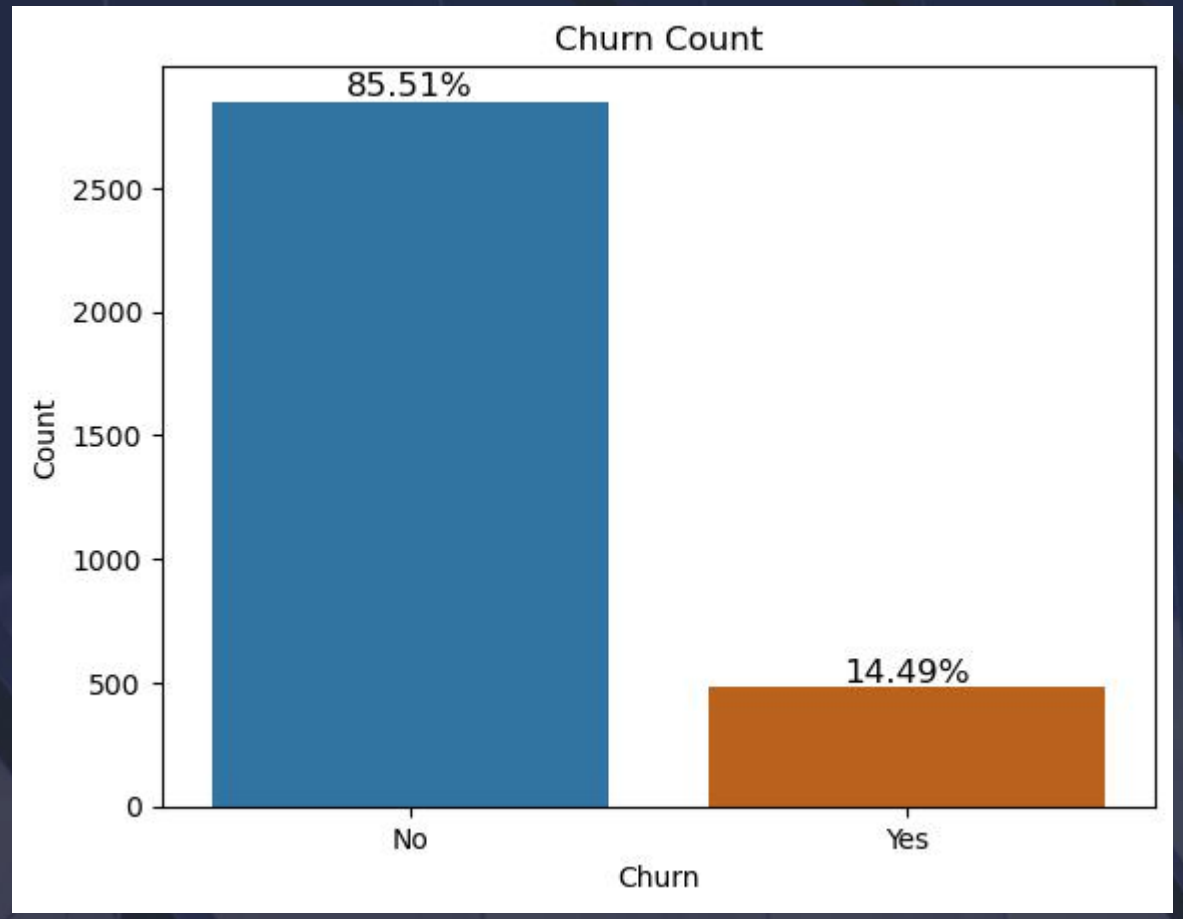
The data contains :
3333 rows
21 columns

THe datatypes of the column includes:

- int64
- object
- bool
- object
- int32

EXPLANATORY DATA ANALYSIS

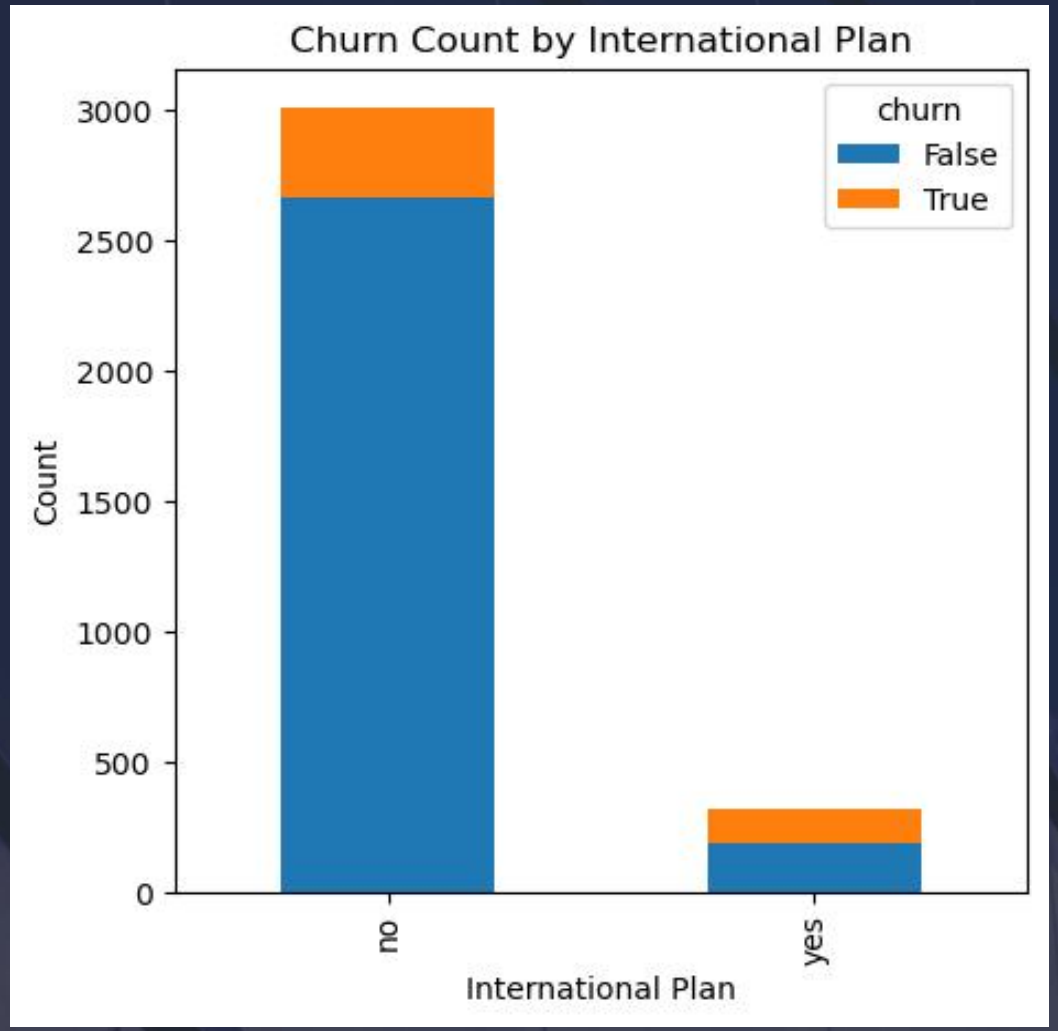
This shows that SyriaTel Telecommunication Comapny has a 14.49% churn rate



Customer chur

rate

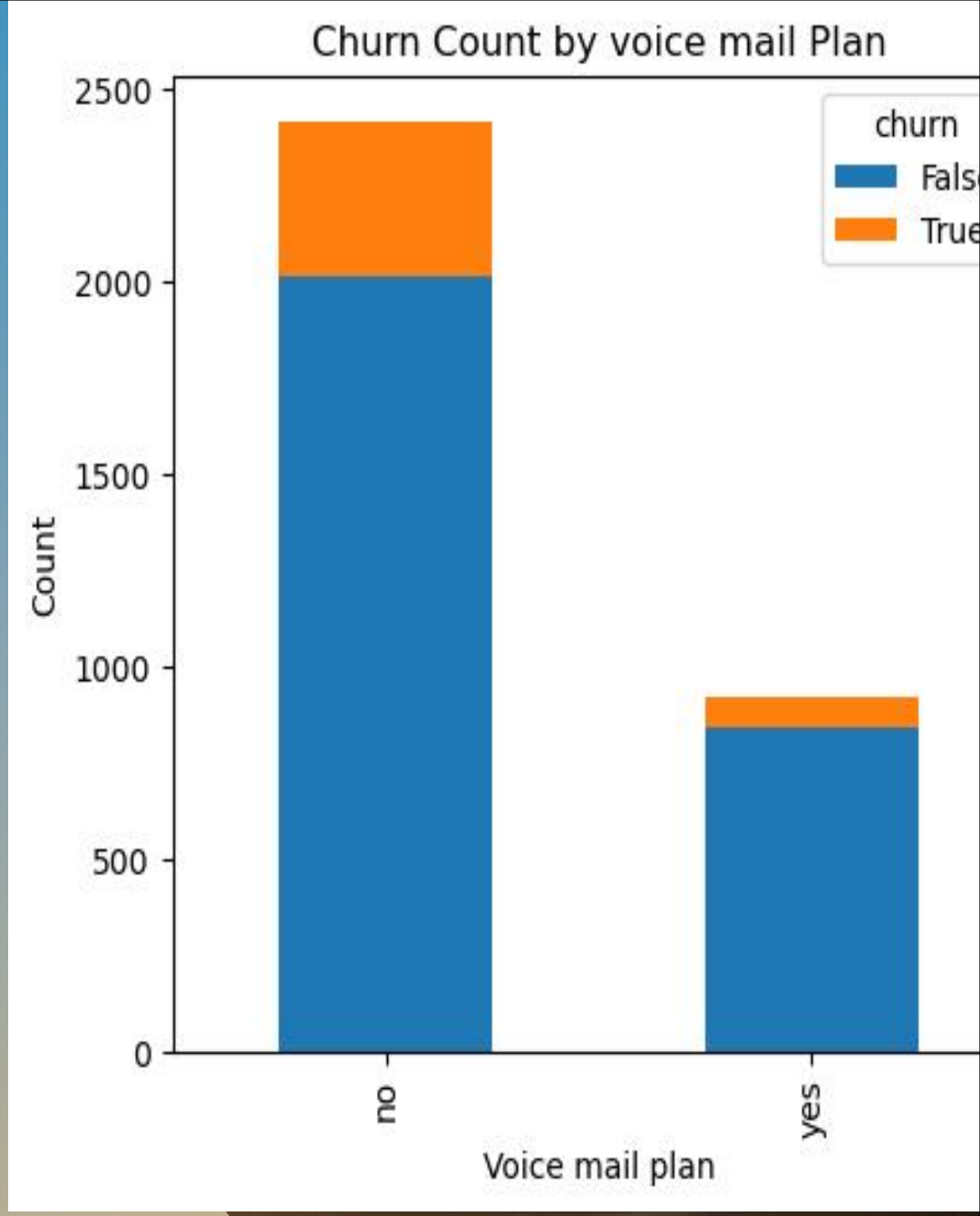
Churn by international plan



People with an international plan tend to churn more than people with no international plan.It is also evident that most customers in Syria Tel have no internal plan

Churn by voice mail plan

Customers with no voice mail plan tend to churn more than customers with voice mail plan



MODELS USED

Logistic Regression Model

Decision Trees Model

Random Forest Model

Models Evaluation

This are the results of my models explained by the ROC-AUC curve

76%

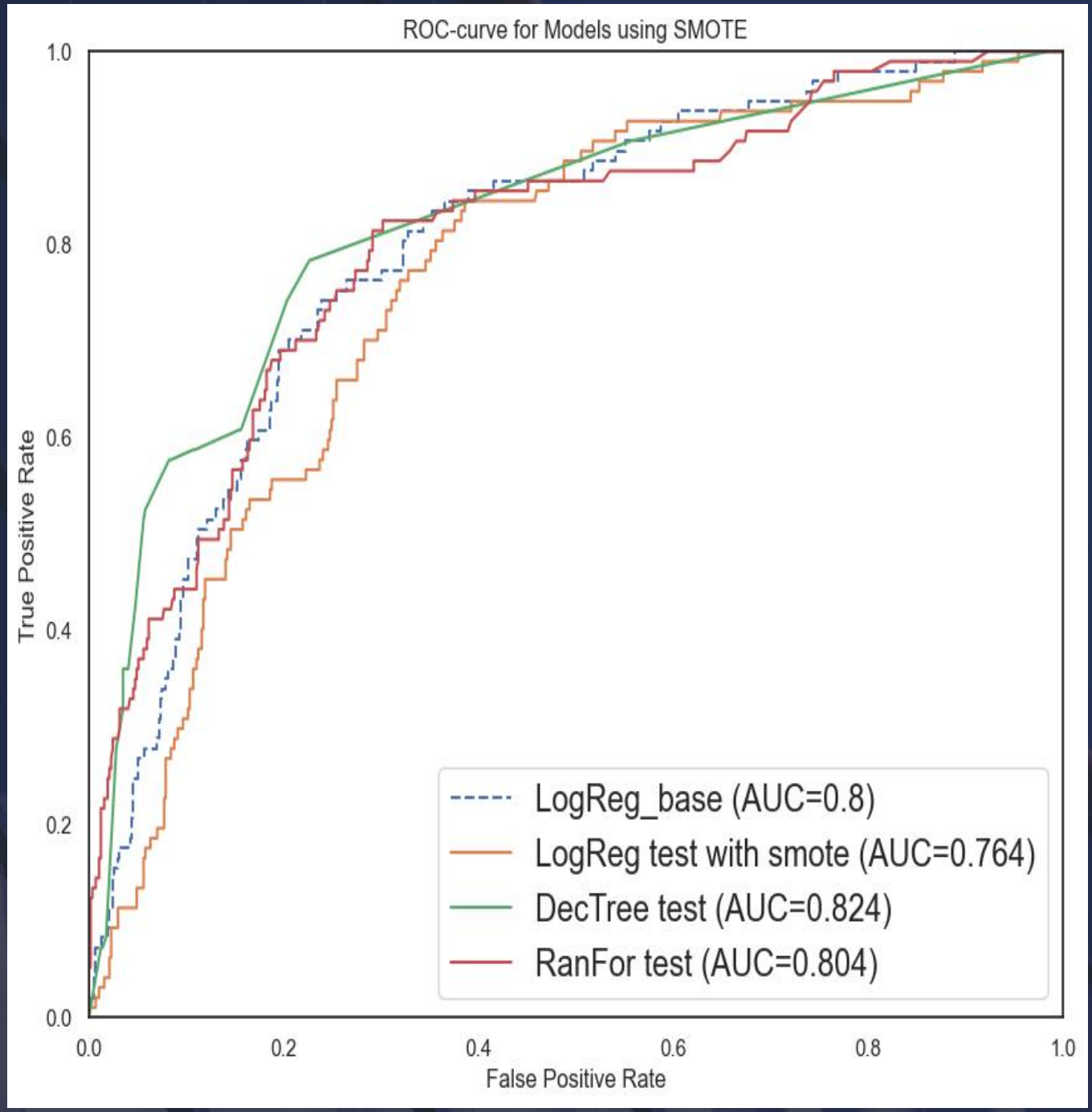
Logistic regression model with smotel

80.4%

Random Forest model

82%

Decison Tree regressor model



Conclusion

The best model, a Decision tree regressor model, achieved 82% accuracy. The most influential features were whether the client had an internal plan, the total minutes talked during the day, and the number of customer service calls. These features significantly contributed to the model's predictive power and overall performance

Recommendations

- **Recommendation 1**

  Focus marketing efforts on clients with internal plans to increase retention and satisfaction through targeted incentives.

- **Recommendation 2**

  Monitor and optimize daily call minutes, offering tailored plans for heavy users to improve customer experience.

- **Recommendation 3**

  Enhance customer service quality, reducing the number of calls by addressing common issues effectively and proactively.

NEXT STEPS

- **Step 1**

Integrating datetime data enables temporal analysis, tracking trends, and identifying seasonality in customer interactions for actionable insights.

- **Step 2**

Leveraging NLP models extracts sentiment and topics from customer feedback, correlating sentiments with churn, satisfaction, and preferences.

- **step 3**

Continuous monitoring, iteration, and automation ensure effectiveness, enabling refinement and optimization of analysis and modeling processes.


Thank you