



CUSTOMER CHURN PROJECT

Analysing and Predicting Customer Churn Rates.

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Introduction



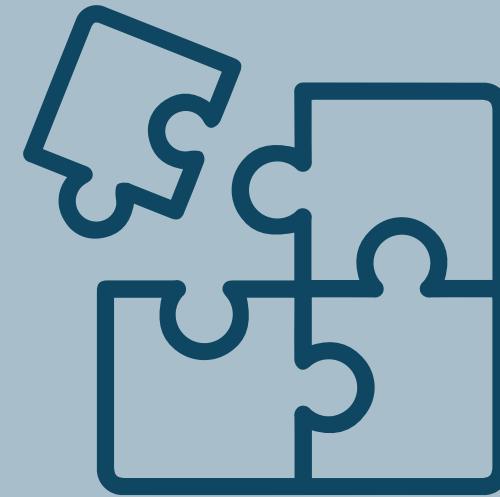
- Customer Churn is a major challenge for businesses. In the Telecommunication industry, it occurs when customers switch to different providers due to pricing, service quality, or even competitive offers.
- This project aims to analyze the patterns of customers who churn, then come up with a model that will predict if a customer will churn or not, to help the business strategize better and retain predicted churners.



Project Objectives

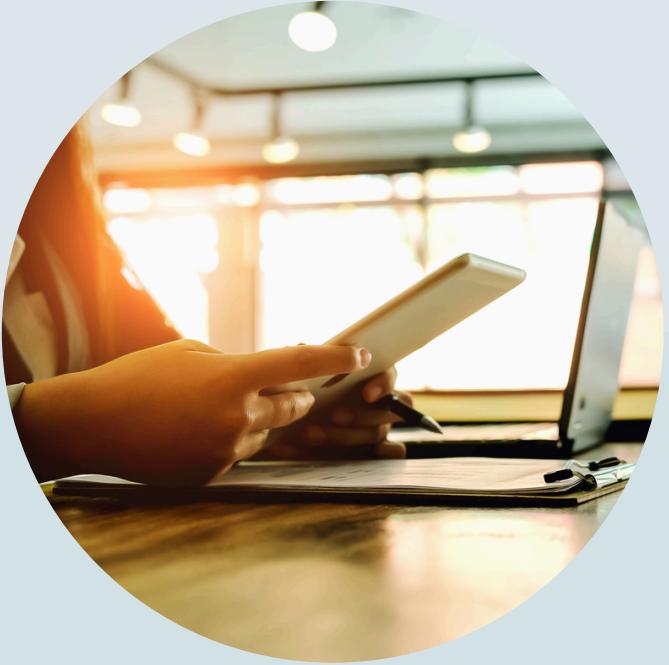


- Identify the factors that contribute to customer churn.



- Build a model to predict customer churn.

This project is for SyriaTel Company, and especially the following departments;



Executive Office



Customer Support and Relations Department



Marketing Department

Data Overview

- Data is from SyriaTel Telecommunications and it was obtained from Kaggle.
- The data has 21 columns and 3333 rows, with each row representing a customer.
- The target variable, Churn is a bool column, where True represents a customer churning and False represents a customer not churning.



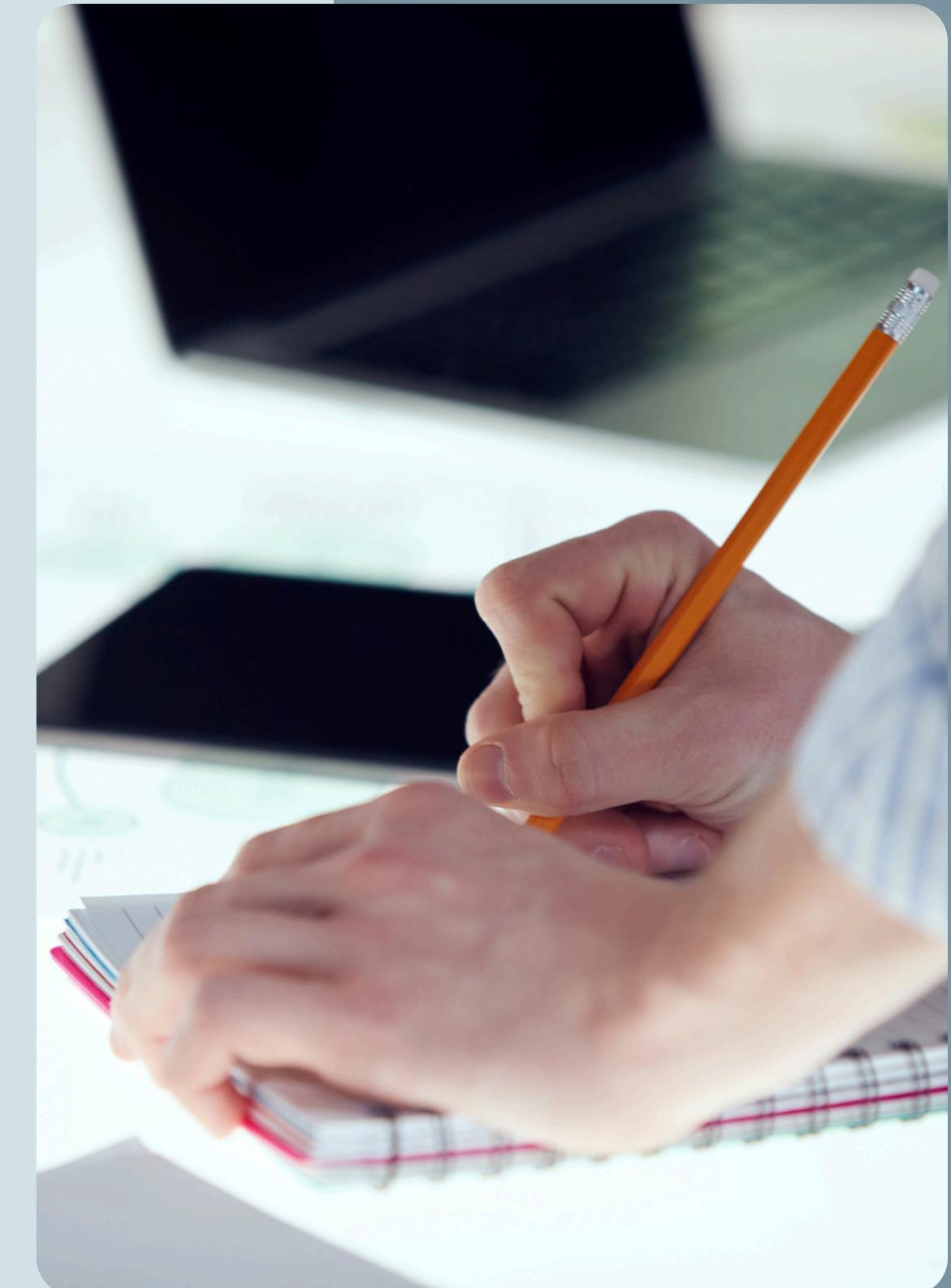
Methodology

Data Cleaning and Preprocessing Steps

- The dataset has no missing values.
- Column names had to be renamed to make them suitable for modelling.
- The phone number column is a unique identifier so we will not use it for modelling purposes.

Preprocessing Steps

- One hot encoded categorical columns.
- Standardize numeric columns



Exploratory Data Analysis

Let's explore the relationships between some features and the target variable 'churn' for patterns.

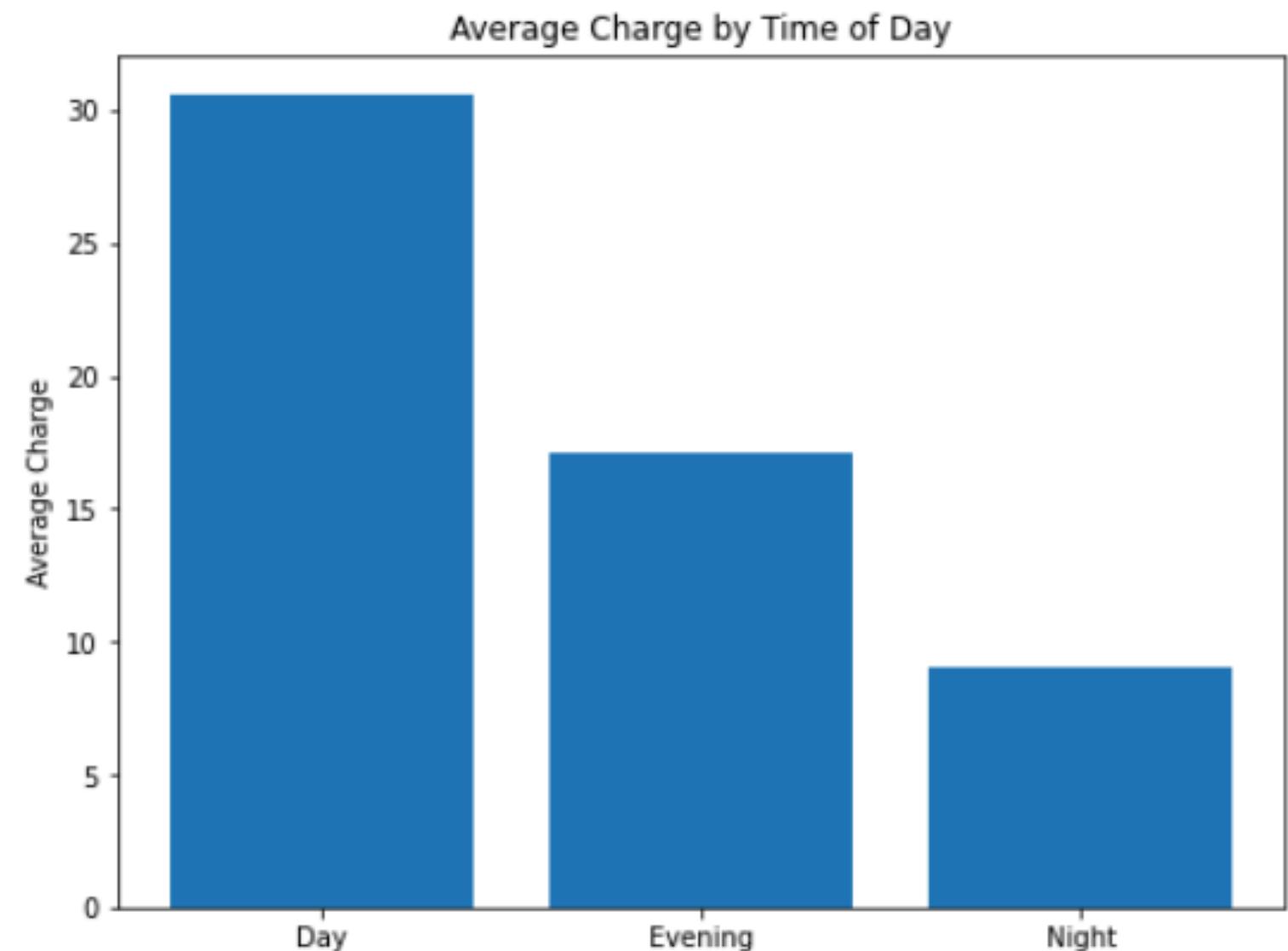
1. Customer Service Calls and Churn



From this plot, it is evident that most customers who call customer service have churned .

Exploratory Data Analysis

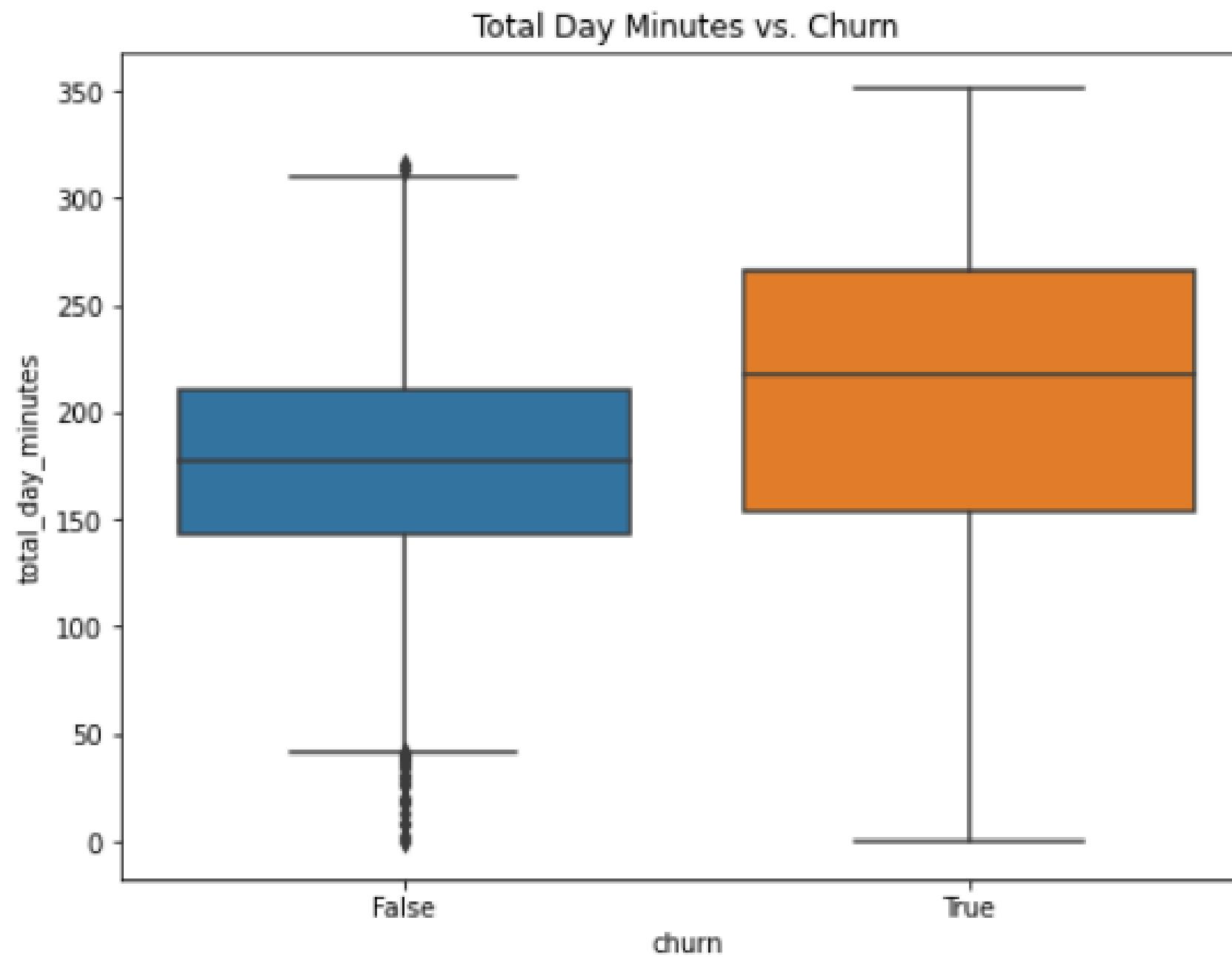
2.. Charges vs Churn



Charges are significantly higher during the day compared to the evening and the night time. It is cheaper to use this service at night.

Exploratory Data Analysis

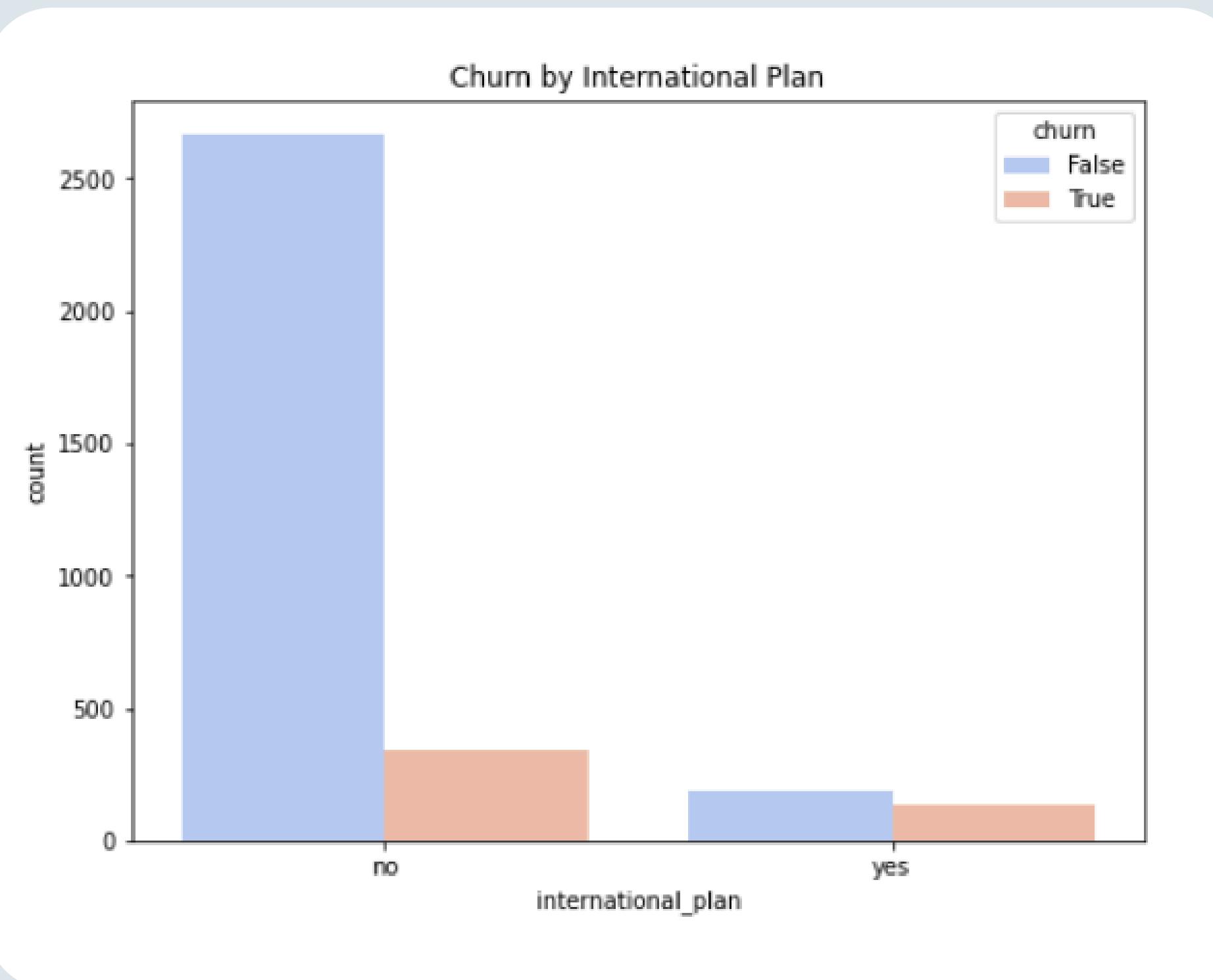
3. Total Day Minutes and Churn



Higher churn rates are involved with customers who have a lot of daily minutes

Exploratory Data Analysis

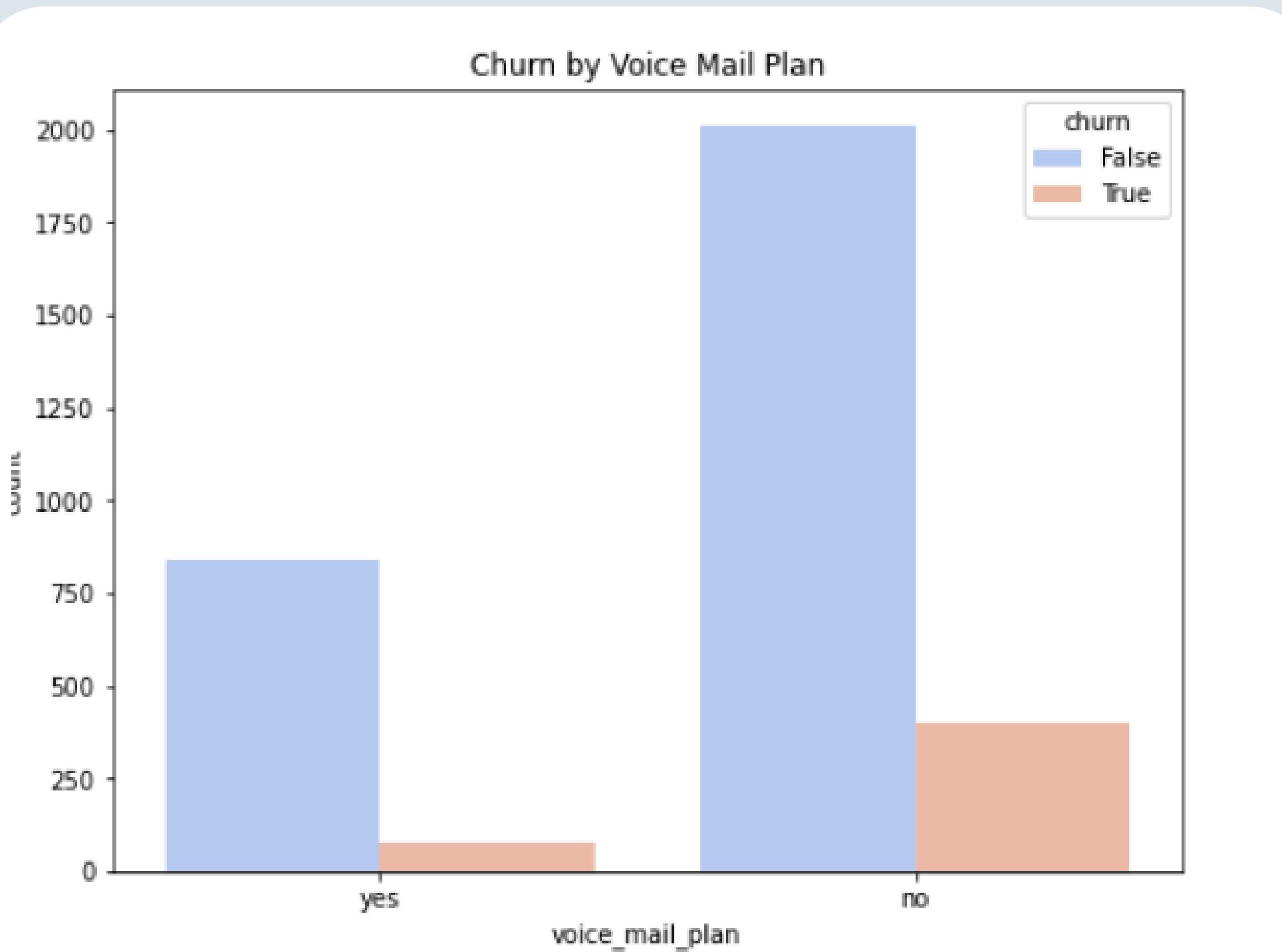
4. International plan and Churn



- Those who have an international plan and churn are less than those who are retained but have an international plan.
- This shows that having an international plan is not the main factor causing churning.

Exploratory Data Analysis

5. Voice Mail Plan and Churn



For those with a voice mail plan, those who churn are still less than those who dont. This also shows that having a voicemail plan is really not a huge factor causing churning.

Modelling

- For this classification problem, three classification models were fit and the best was chosen based on the recall metric, which is the true positive rate.
- Recall is basically the ability of the model to correctly predict cases when customers will churn.
- The Random Forest model has a recall of 81% compared to 66% for the Decision Tree and 22% for the Logistic Regression model.



Model Evaluation



The top 10 features that drive the Random Forest model's predictions are:

- Total Day Charge
- Total Day Units
- Customer Service Calls
- Having an international plan
- Total evening Minutes
- Total Evening Charge
- Total International Charge
- Total International Minutes
- Total Night Charge



Overall Findings

- International plans and voicemail plans dont play a significant role in the customer churn rate.
- High daily charges and poor customer service are leading to high customer churn rates.

Recommendations



- Reduce the daily charges to be able to retain customers. The marketing team should come up with campaigns that will inform customers when this happens.
- Train the Customer Relations and Support department on client management.

Future Work



Product Development Department

The products and services offered by SyriaTel should strike a balance between making profit and being affordable for customers.

Marketing Department

The marketing department should come up with campaigns that will let customers know there are offers and discounts on services.



Model Performance

While the model has good performance, we should continue monitoring and evaluating its performance on new data so as to keep it relevant with the changing customer preferences.



Conclusion



By analyzing and predicting Customer churn for SyriiaTel Telecommunications, the goal is to not only maintain a high customer retention rate, but also improve business performance and have continuous growth.





Thank you!

