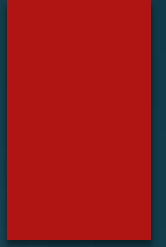# Customer Churn Prediction for SyriaTel Telecommunications

Project by: Wyclife Orimba

Project Overview

- This project focuses on addressing the issue of customer churn within SyriaTel Telecommunications, a prominent telecommunications company operating in a highly competitive industry.

- The primary goal is to create a classification model that predicts customer churn and identifies influential factors to inform strategies for customer retention.

Business Understanding/problem

▶ In the fiercely competitive telecommunications industry, predicting customer churn is critical for retaining customers and ensuring business sustainability.

▶ Customer churn not only signifies a departure but also poses a risk to the company's financial growth and long-term viability.

▶ To address this issue, SyriaTel is committed to understanding the factors and patterns associated with customer churn and building a classification model to accurately predict it.

▶ The ultimate goal is to implement specific strategies to prevent customer churn and secure the company's ongoing success.

Project Objectives

▶ Construct a predictive model using the available dataset to categorize customers as either having churned or remained with the company.

▶ Identify noticeable patterns or trends linked to customer churn.

▶ Provide practical insights to SyriaTel, enabling them to proactively implement measures for customer retention once the model is created.

▶ Evaluate the model's performance using appropriate evaluation metrics such as accuracy, precision, recall, and F1-score.

Project Stages

- **Business Understanding-** recognizing the significance of predicting customer churn in a highly competitive telecommunications industry.

- **Data Examination/understanding-** The dataset used contained 3333 rows and 21 columns with various data types. There were also no missing values, and no duplicated rows in the dataset.

- **Exploratory Data Analysis-** Uni-variate and bivariate analysis of numerical and categorical variables was performed, visualizing the distribution of each feature through histograms.

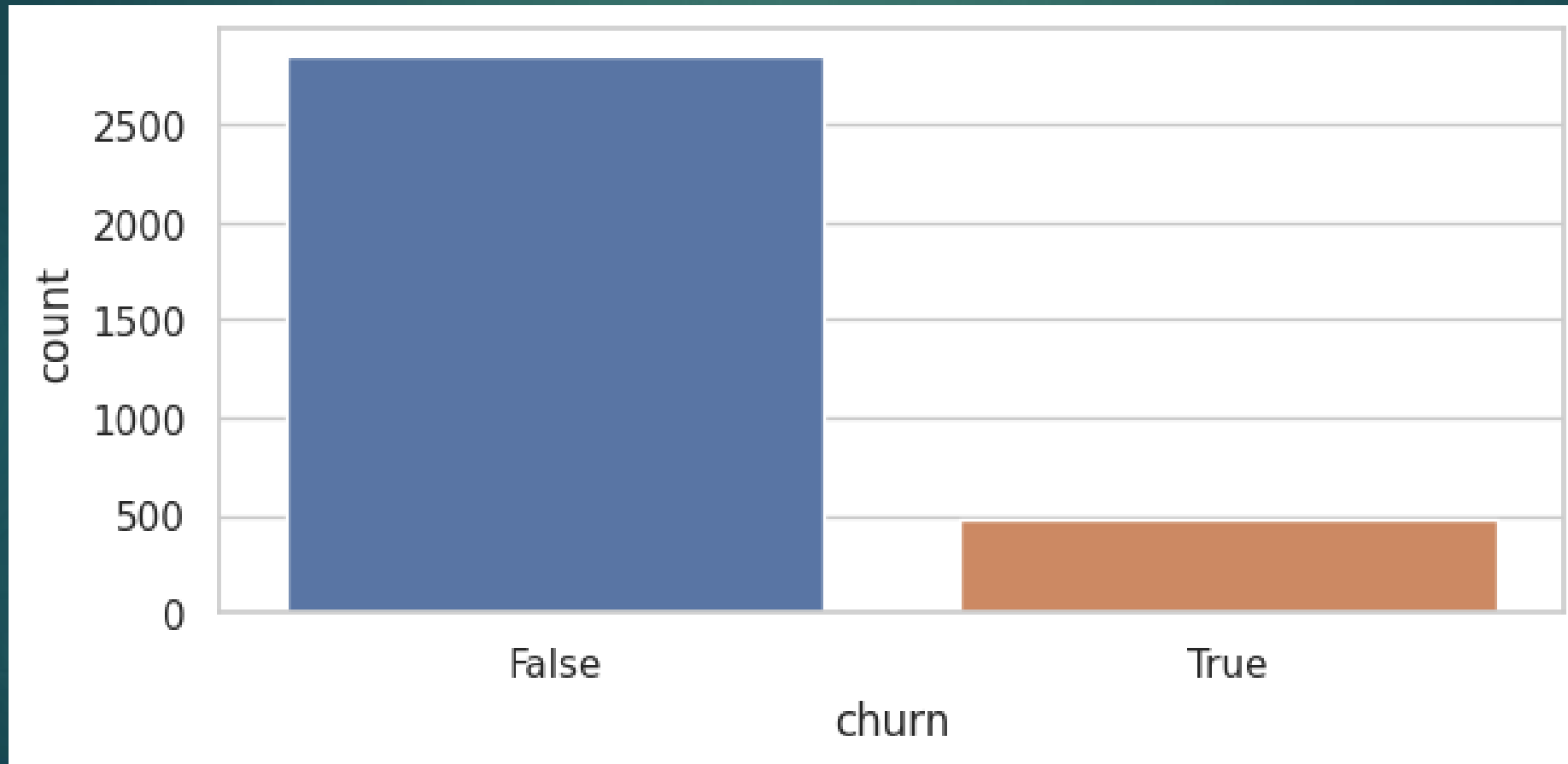- **Modeling-**Machine learning models were built and trained to predict customer churn.
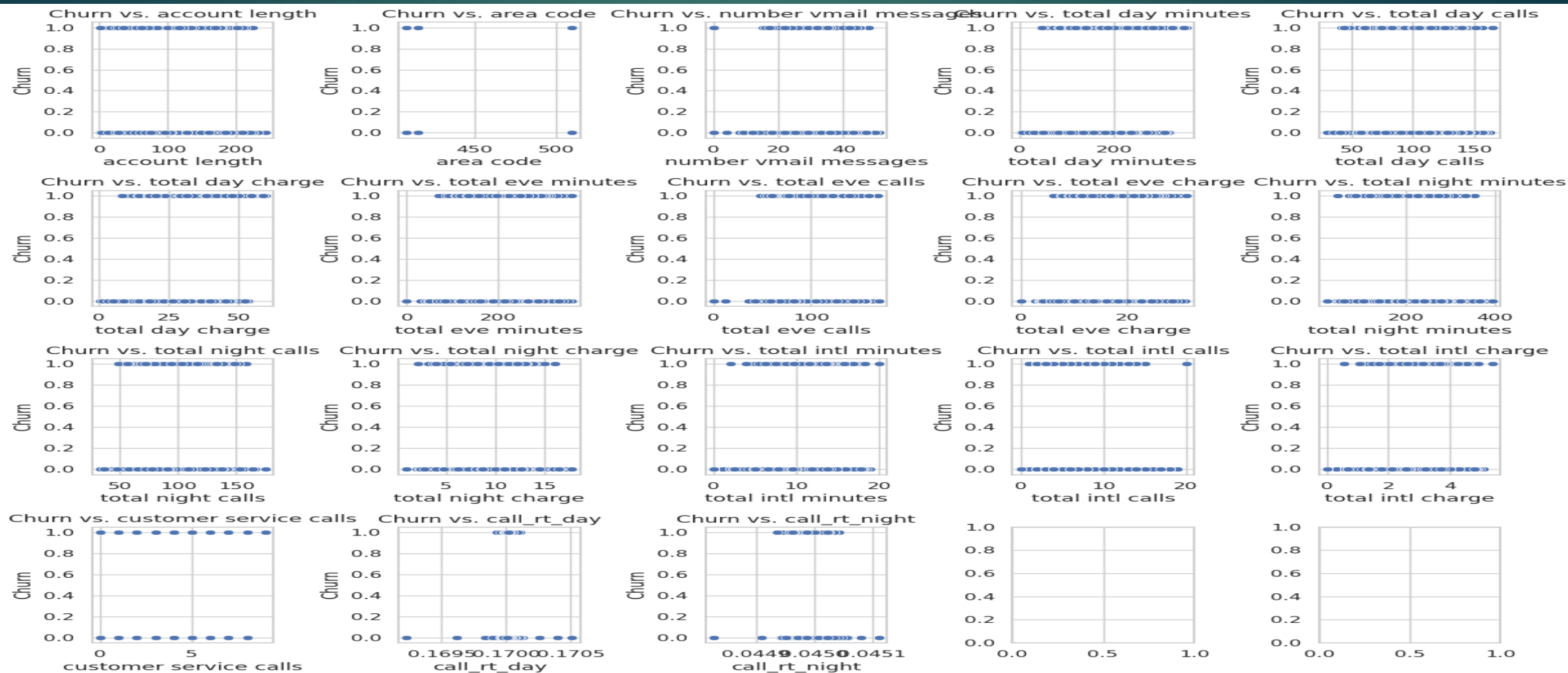
Univariate Analysis of Numerical Variables
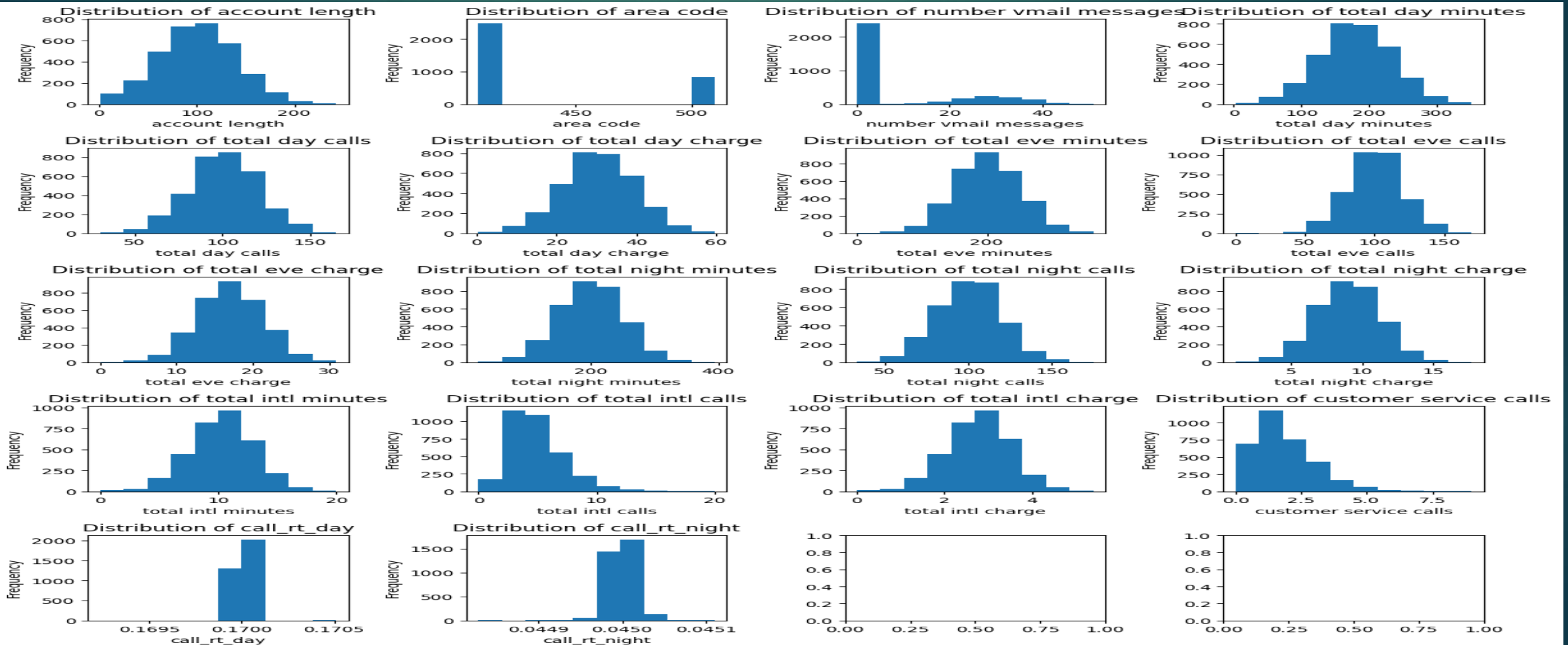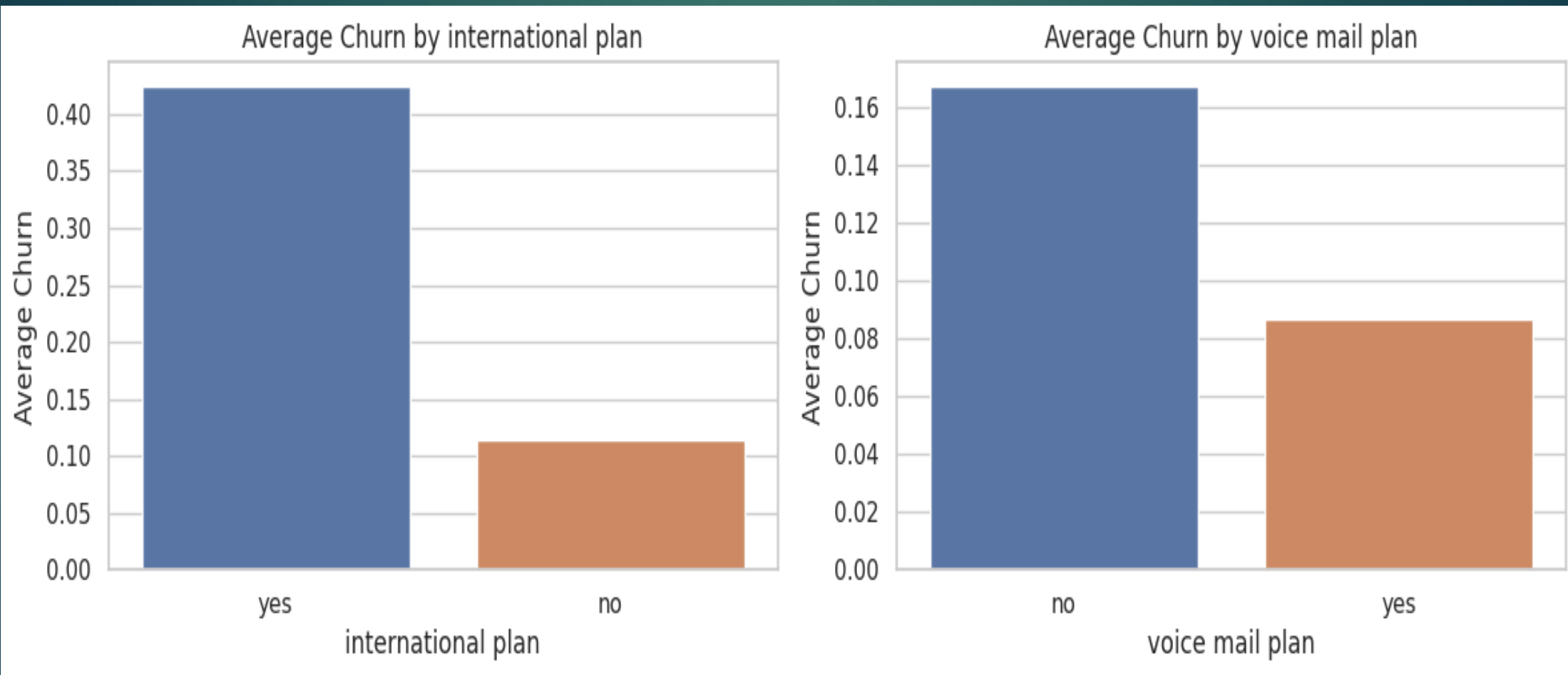
Exploratory analysis Categorical Variables
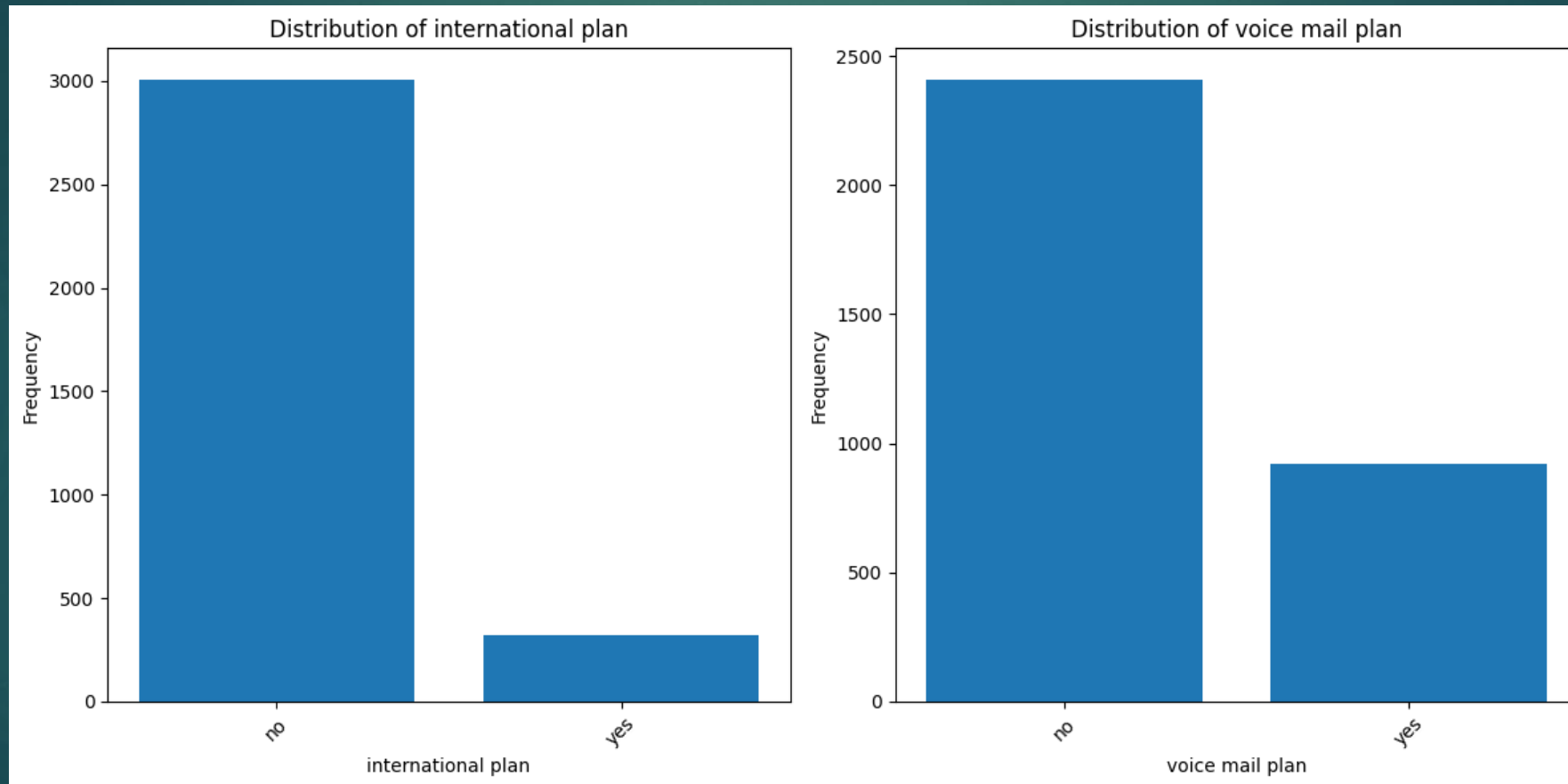
Bar-graph plot for the target variable(Churn)

Bivariate Analysis of numerical Variables

Bivariate analysis of categorical Variables

Modelling summary

▶ the Tuned Decision Tree Classifier outperforms both the Enhanced KNN Classifier and the tuned logistic regression in terms of accuracy.

▶ This tuned model is highly effective in identifying churned customers and is well-suited for the project objective of maximizing the identification of churned customers to gain insights into the reasons for churn and customer behavior patterns.

▶ The accuracy is also greater that the project's metric of success which was set at an accuracy of 75%.

Conclusion

- -This project followed the CRISP-DM methodology and entailed key stages, including a business overview, business understanding, data examination, exploratory data analysis, modeling, and recommendations. This project is crucial Syriatel company as it will provide the best model which will be able to predict customers likely to churn and therefore, equip the company with data on customers likely to churn to enable the company to take appropriate action.

- -In summary, when customers depart, more often than not they migrate to competitors. By understanding the factors behind this, SyriaTel can not only grasp the reasons for customer churn but also gauge how these dissatisfaction factors impact its operations. This insight presents an opportunity for the company to enhance its appeal to customers and compete effectively in the market.

Recommendations

- -Elevate customer service quality by providing comprehensive agent training, establishing efficient communication channels, and closely monitoring the customer service workflow.

- Provide customized plans by designing offerings that align with individual customer usage behaviors, preferences, and financial constraints to deliver added value and cater to unique requirements.

- Analyze pricing strategies by appraising their competitive edge, conducting market research, and contemplating potential modifications to pricing, discounts, or bundled service packages.

Cont'd

- -Continuously examine usage patterns, such as total daily charges and international charges, to detect customers at risk and take proactive steps to address their needs and concerns.

- The adoption of these strategies has the potential to enhance customer retention, lower churn rates, and draw in new customers. By prioritizing the improvement of the customer experience and delivering tailor-made solutions, the telecommunications company can cultivate loyalty and optimize its financial performance.

THANK YOU