

CUSTOMER CHURN PREDICTION FOR SYRIATEL

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INTRODUCTION

"Customer churn is a major challenge for SyriaTel, impacting revenue and increasing acquisition costs. This project analyzes customer behavior to identify churn patterns and develop a predictive model, helping reduce churn and improve customer satisfaction."



BUSINESS UNDERSTANDING



The goal is to predict customer churn for SyriaTel, a telecommunications company. This binary classification problem which identifies churn patterns by analyzing key factors, high-risk customer segments, and developing intervention strategies to improve retention

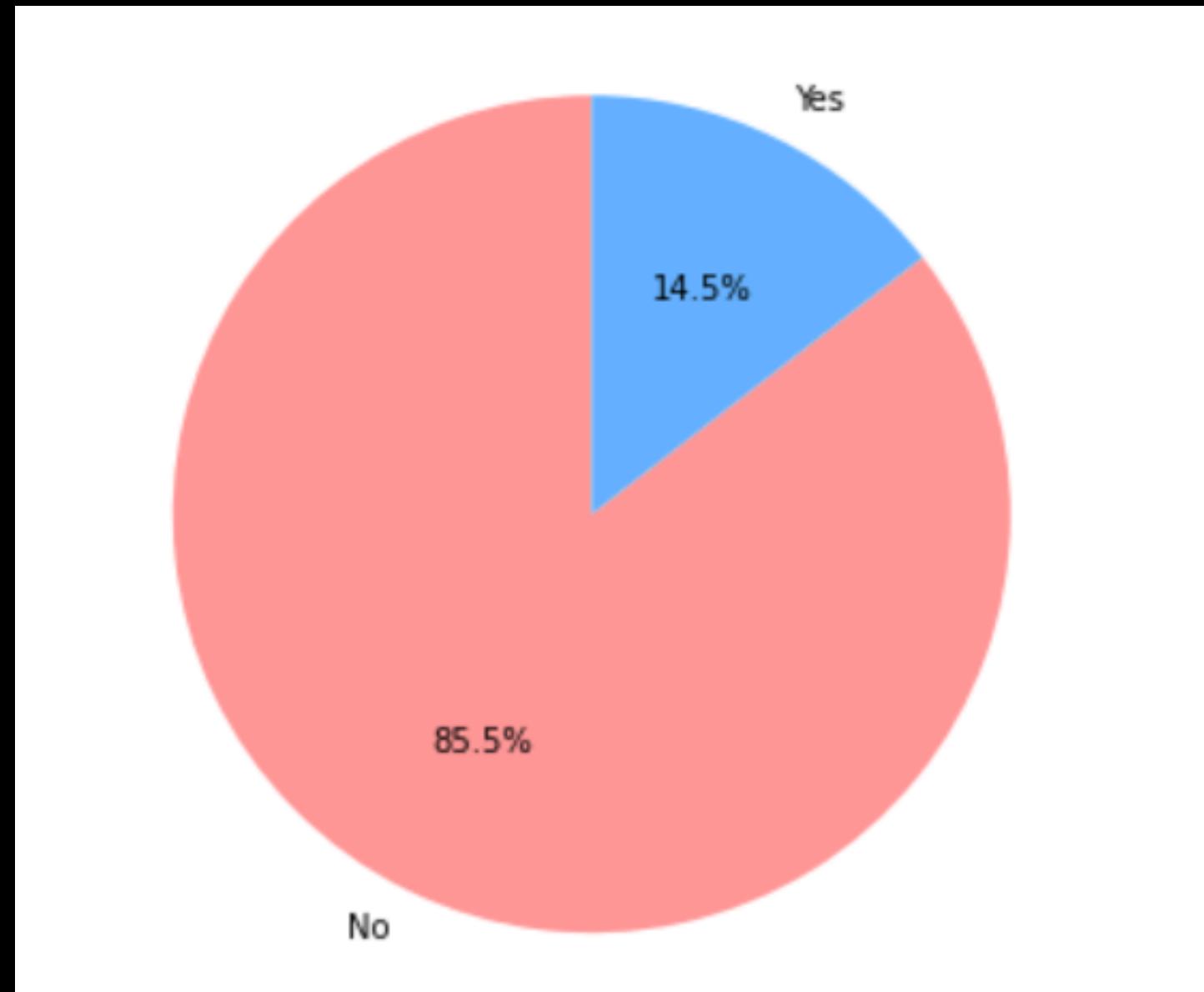
Data Understanding

The dataset, sourced from Kaggle, includes 3,333 customers with 21 attributes detailing customer behavior and service usage. Key attributes include account length, area code, service call frequency, and subscription details. The target variable, 'Churn,' indicates whether a customer has discontinued the service.

Churn Distribution

Findings

- This pie chart interprets that majority of customers remained with the company because its represented by 85.5% of customers who did not churn.
- The blue portion 14.5% represented customers who did churn, meaning they left the company.

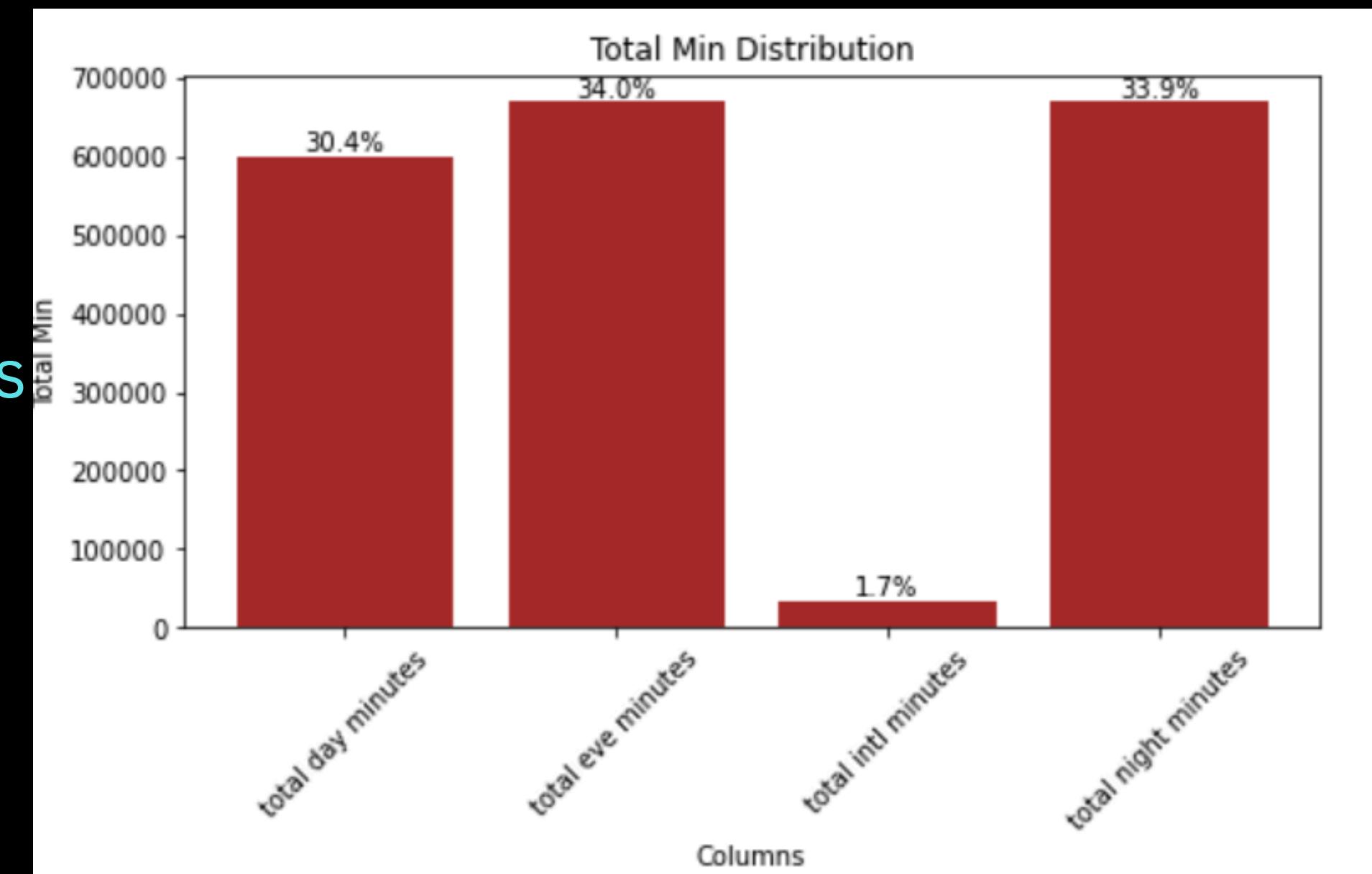


Minute Distribution

Findings

Evening minutes calls appears to be the used most used call which appears to be the most overall total minutes.

Understanding the distribution of minutes can help the syriatel company to provide valuable insights into customers behaviour and preferences..



MODELS EVALUATED

- Logistic Regression – A simple and interpretable model that predicts churn probability based on customer features. This is was a baseline model
- Decision Tree – A rule-based model that splits data into branches to classify customers as churn or not.
- Random Forest – An ensemble of multiple decision trees that improves accuracy and reduces overfitting.

Best model

- Random Forest performed the best with the highest accuracy and recall, making it the most reliable for predicting customer churn.
- It effectively captures complex patterns and reduces errors compared to individual models.

Random Forest Metrics:

Accuracy: 0.9280359820089955

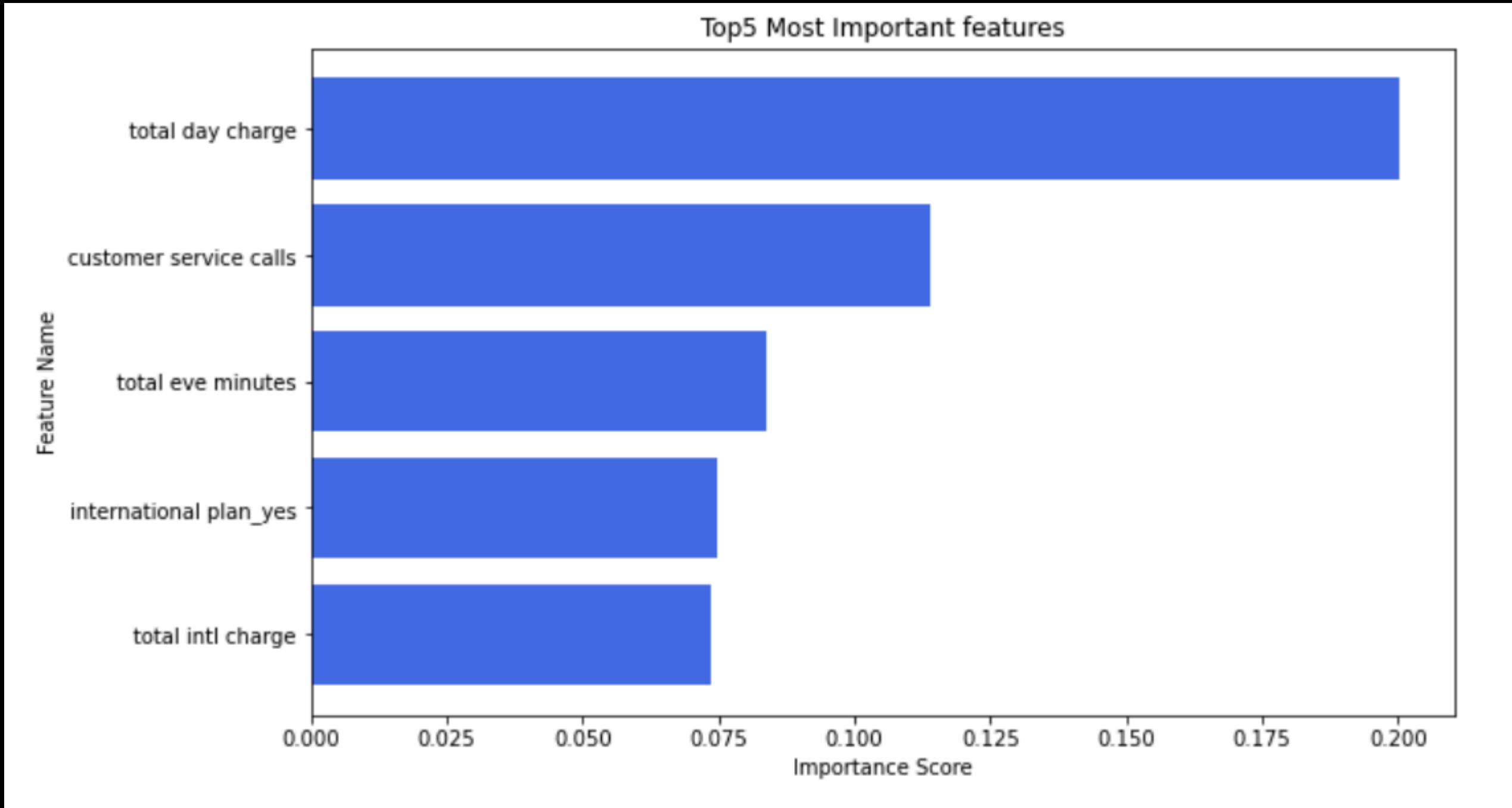
Precision 1.0

Recall: 0.5247524752475248

F1-score: 0.6883116883116883

ROC AUC Score: 0.7623762376237624

CONCLUSION



- The feature importance analysis reveals the factors influencing customer churn. Higher total day and international call charges increases churn probability .Frequent customer service calls indicate dissatisfaction,leading to a higher churn risk.
- customers with international plans are more likely to leave and longer evening call durations impact retention.

RECCOMENDATION

1. Monitor High-spending customers: by identifying customers with high total day and international charges and offer discounts or Loyalty rewards to encourage retention or provide personalized plans to reduce churn due to costs concerns.
2. Improve Customer support - by analyzing customer service interactions to determine common complaints and investing in proactive customer support to resolve issues before they escalate.
3. Developing a churn Prevention strategy -use early warning systems to detect at risk customers and send targeted retention offers by implementing feedback loops where customers can express concerns before they decide to leave.



NEXT STEPS

The company should :

Improve the Model performance

Enhancing data quality

Deploy for Business Use



- Track and Maintain Accuracy



THANK YOU