



SYRIATEL CHURN

PREDICTION





OVERVIEW

- **Problem Statement**
- **Business Understanding**
- **General Objectives**
- **Data Understanding**
- **Data Preparation**
- **Data Analysis and Visualization**
- **Conclusion**
- **Contact**





PROBLEM STATEMENT

SyriaTel is facing the challenge of customer churn, where customers discontinue their services. This churn results in lost revenue and increased customer acquisition costs.

My project aims to address this issue by using machine learning to build a customer churn prediction model.





BUSINESS UNDERSTANDING

Syriatel is a telecommunications company that operates in Syria. It is one of the two major mobile network operators in the country.

SyriaTel targets individual consumers in Syria, offering mobile subscriptions with voice, text, and data options to suit various usage patterns (personal, professional). Subscription-Based Revenue: SyriaTel's primary revenue stream comes from customer subscriptions to their mobile network plans. These plans offer a set amount of voice minutes, text messages, and data for a fixed monthly fee.





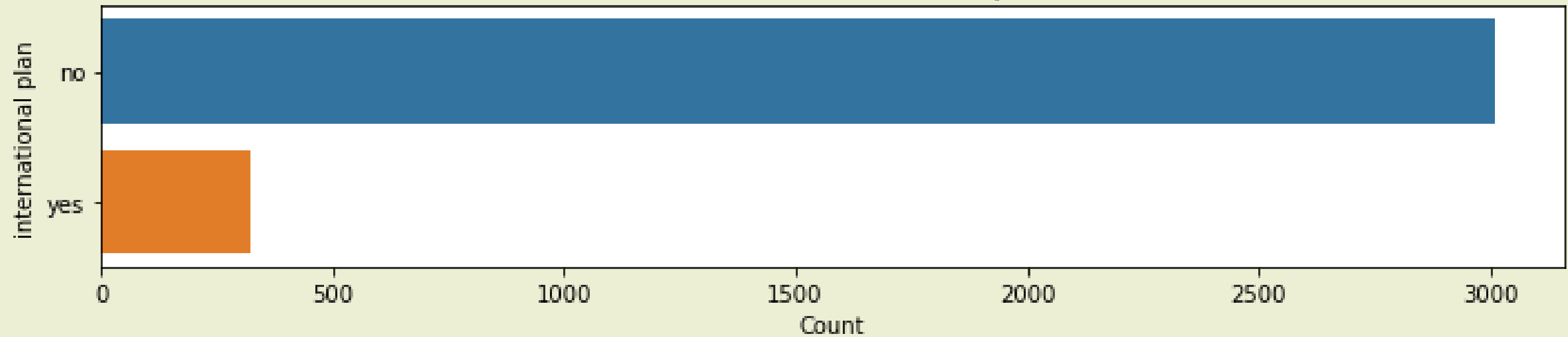
OBJECTIVES

- To understand the dataset's characteristics.
- To create a training and testing set for model evaluation.
- To develop a simple baseline model to establish a performance benchmark.
- To develop more complex models to improve performance.
- To tune on the complex models using GridSearchCV.
- To assess the final model's performance and interpret the results.
- To offer actionable insights and recommendations.

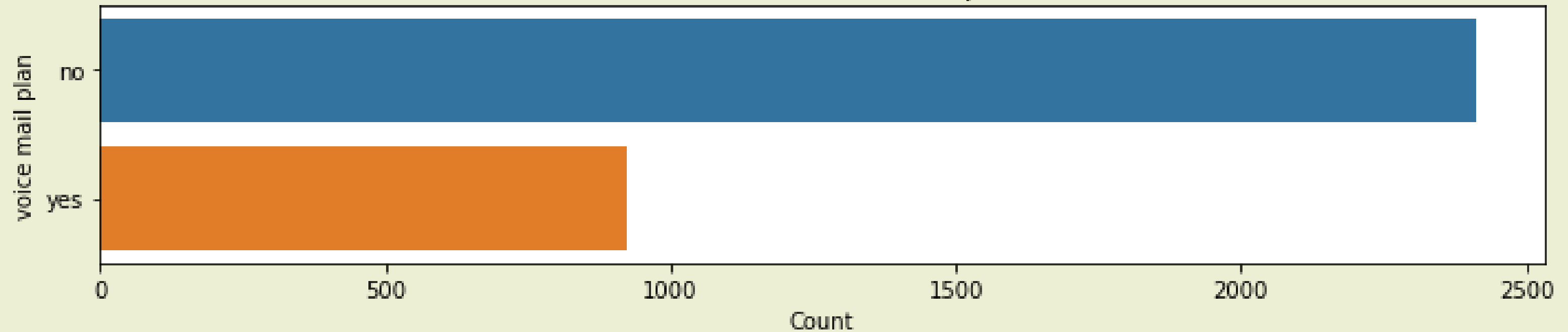


EXPLORATORY DATA ANALYSIS

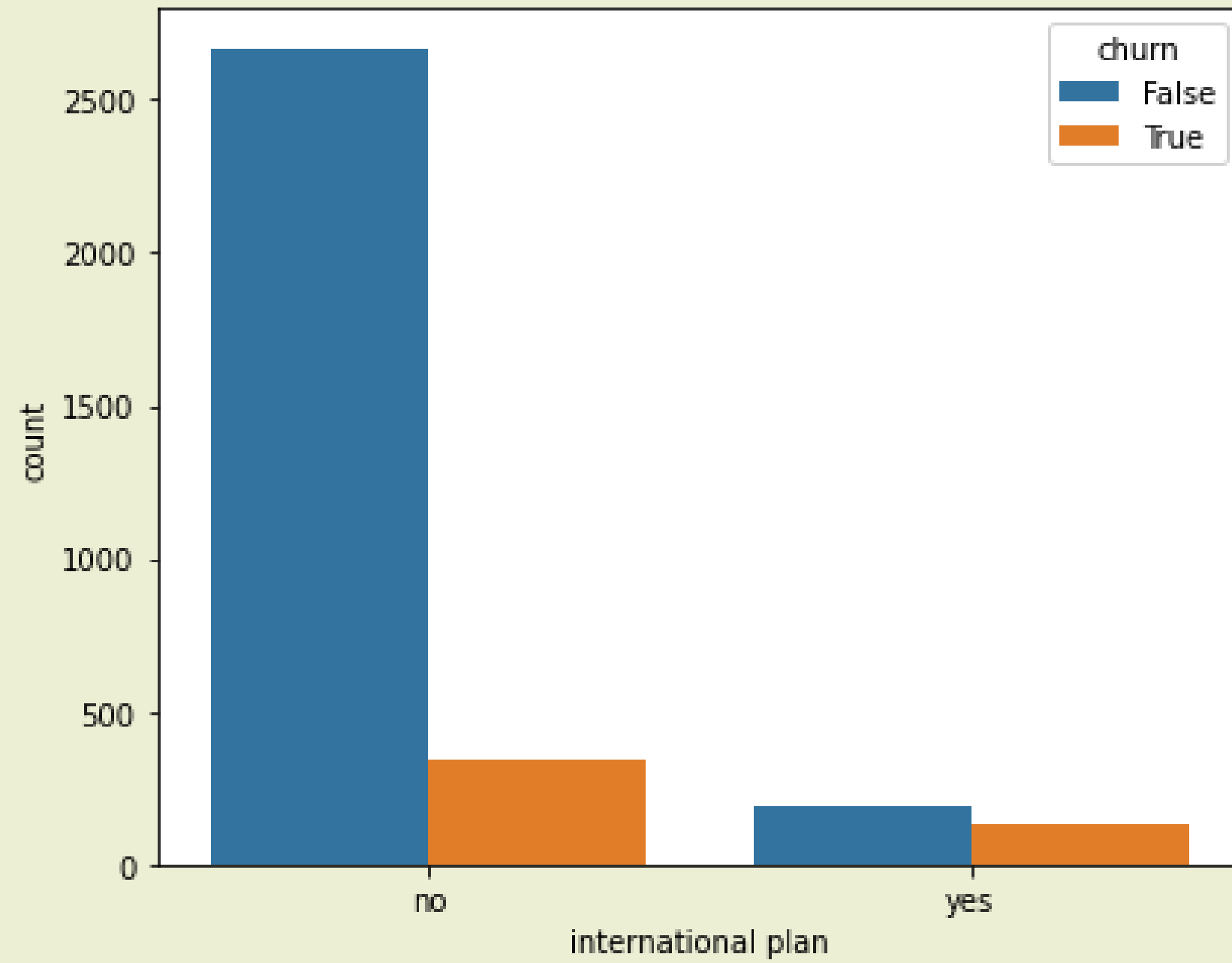
Distribution of international plan



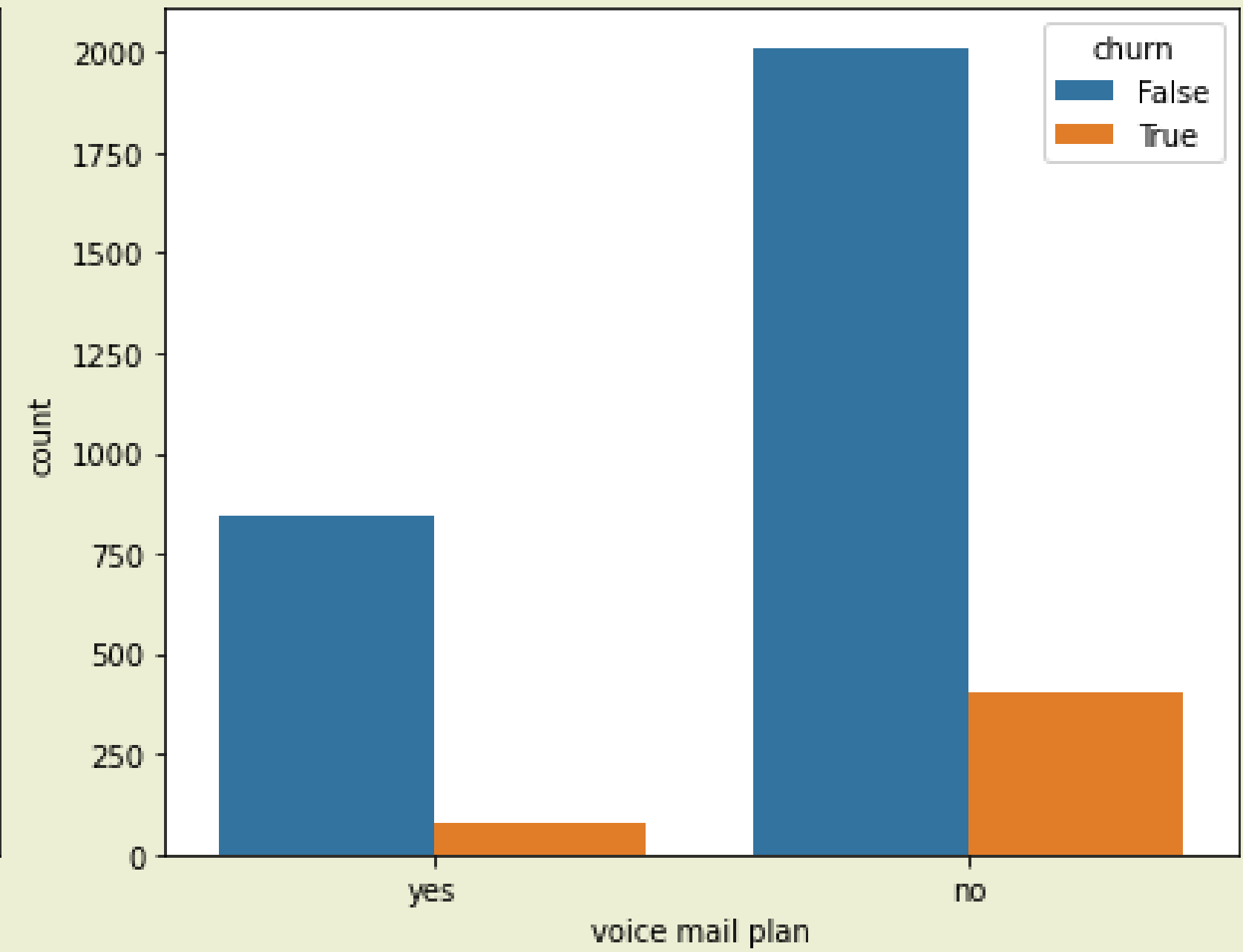
Distribution of voice mail plan

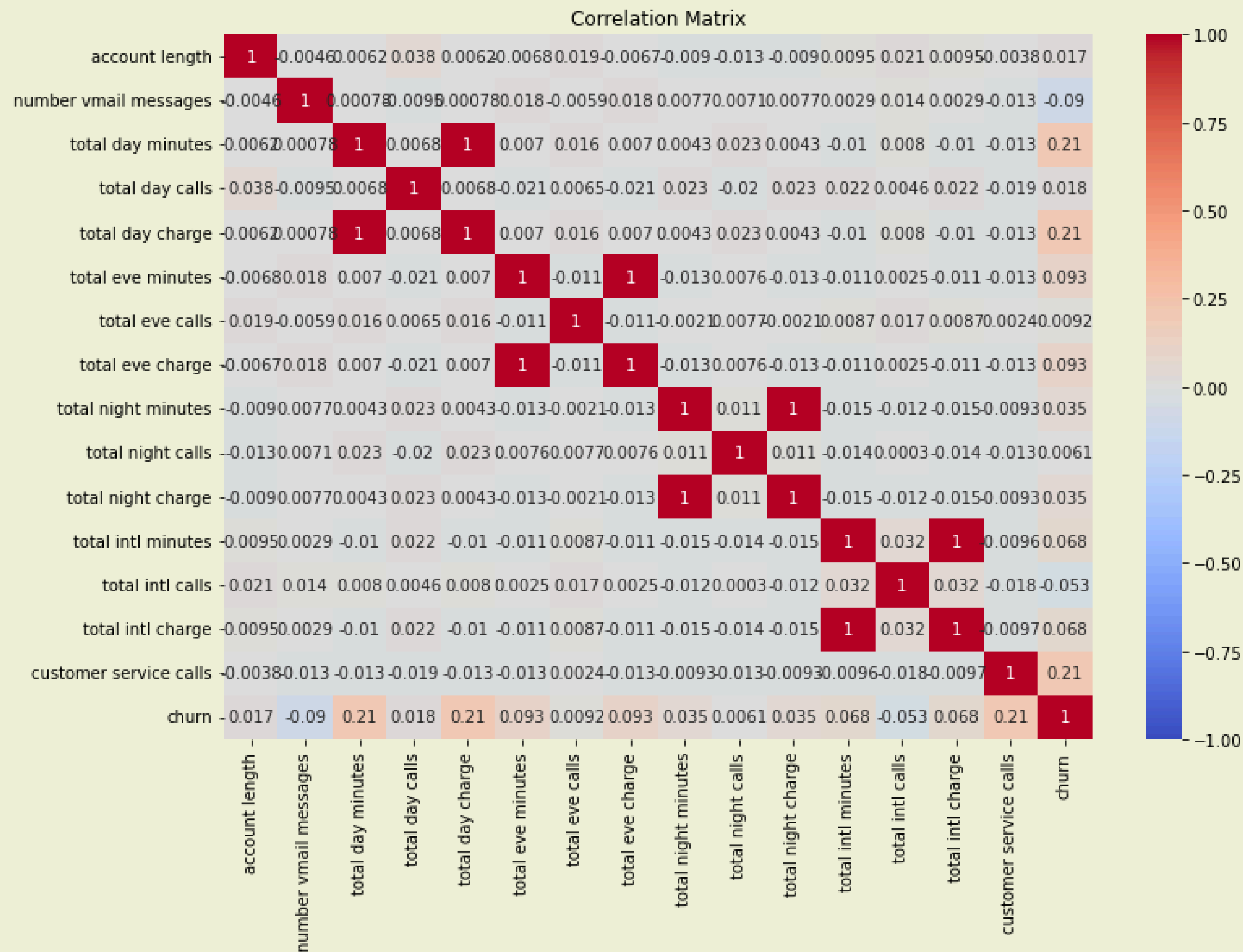


International Plan vs Churn



Voice Mail Plan vs Churn

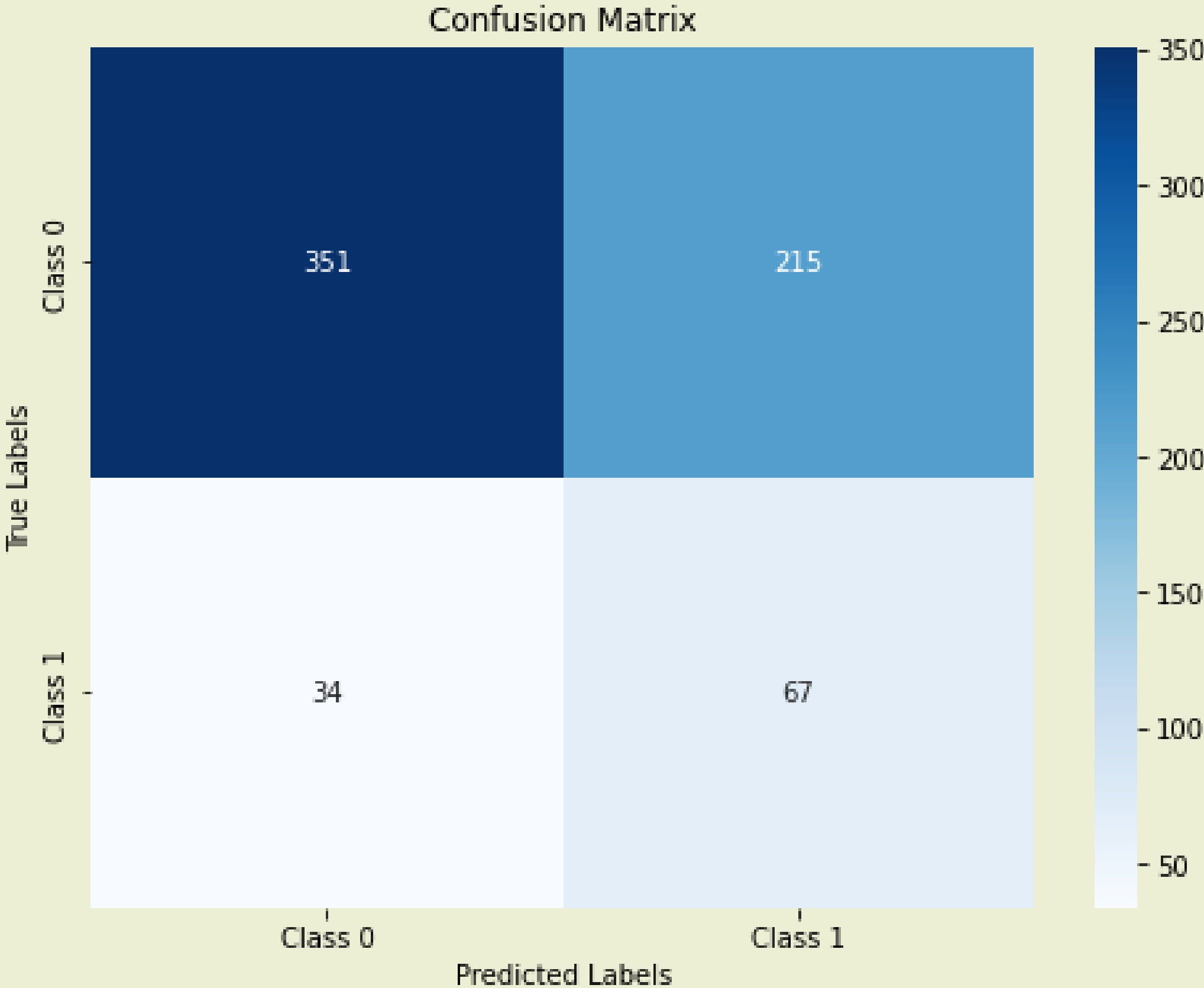




PREDICTION MODELS

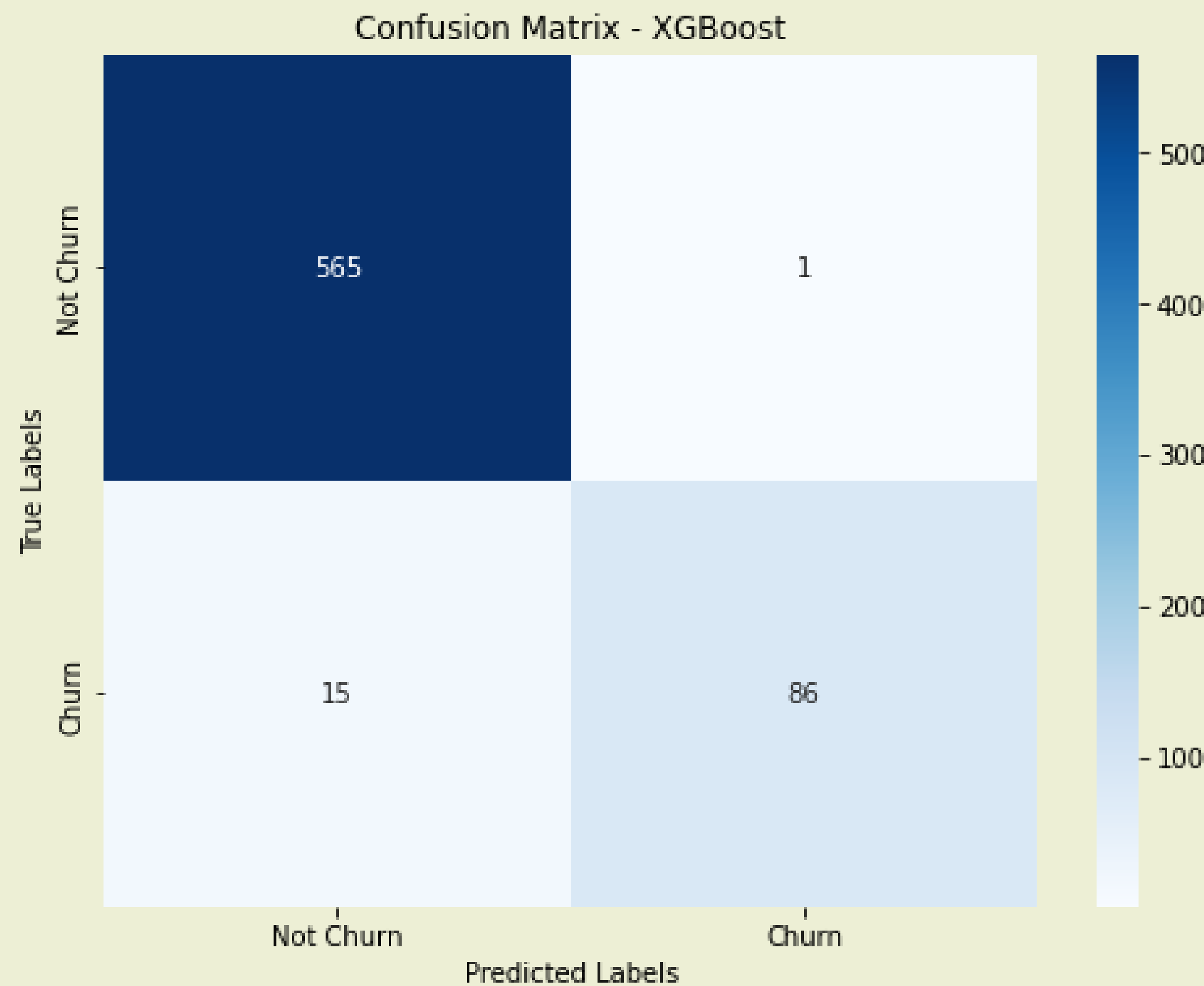
Base Model - Logistic
Regression

Accuracy: 62.6%



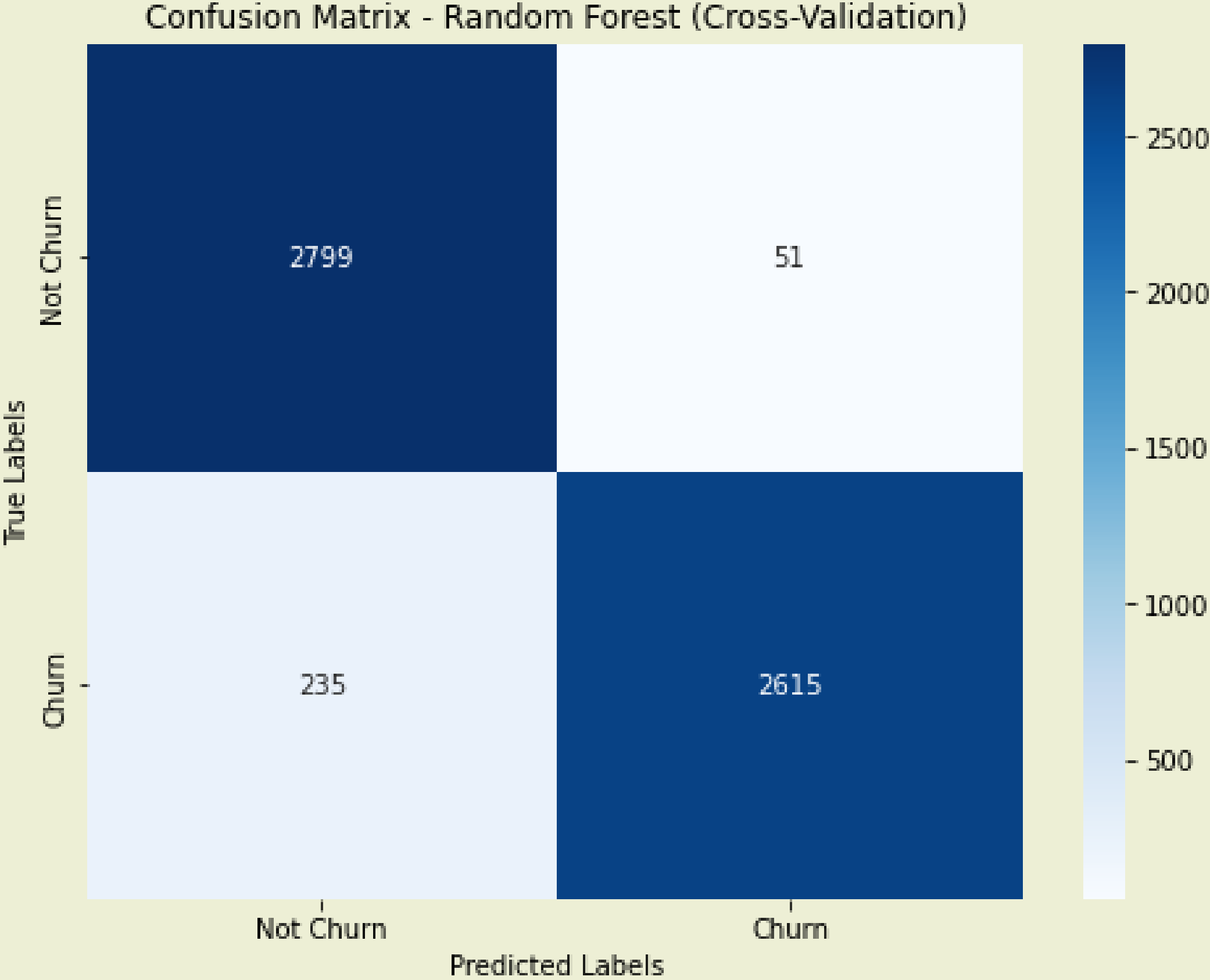
XGBoost Model

Accuracy: 97.6%

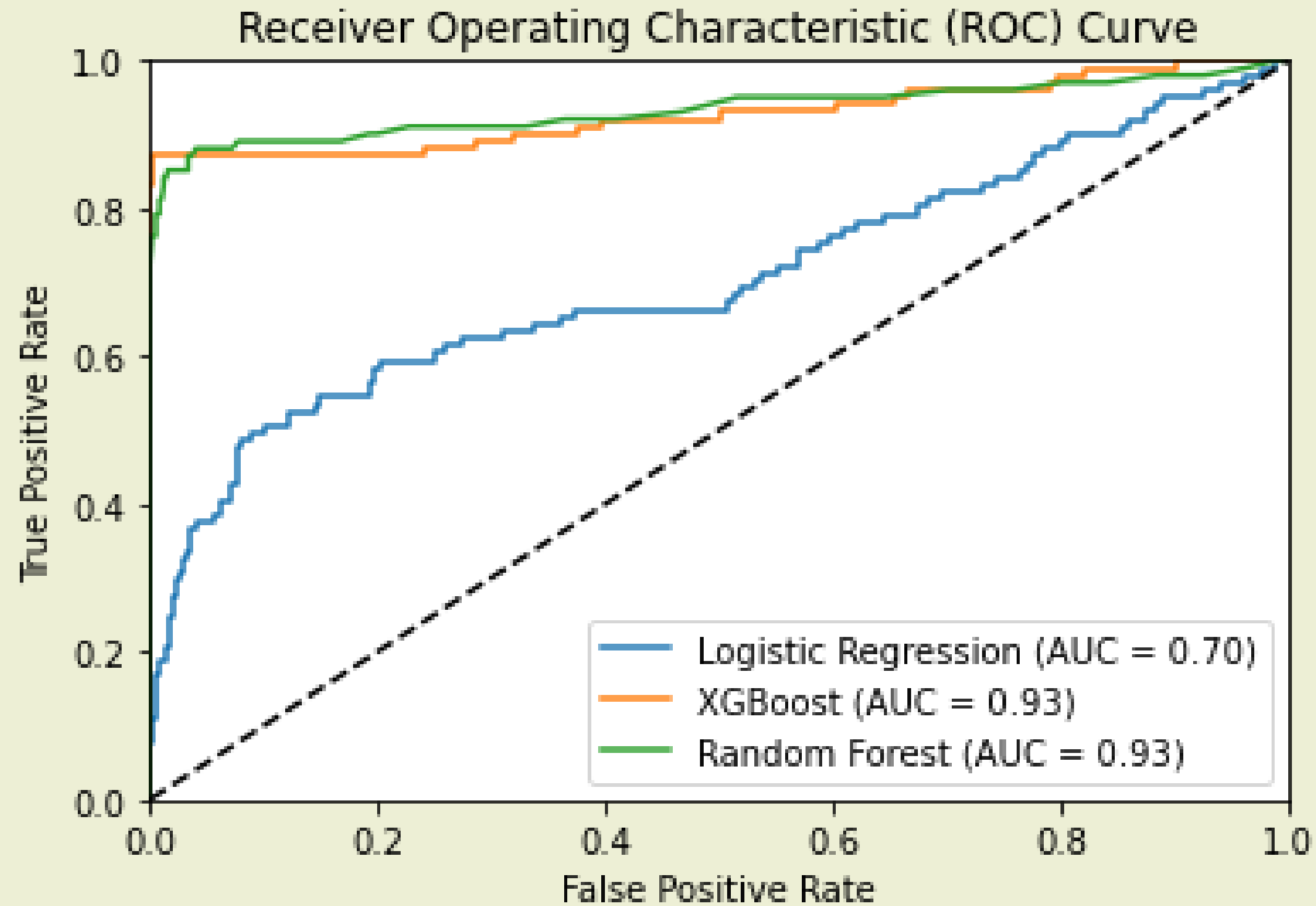


Random Forest Model

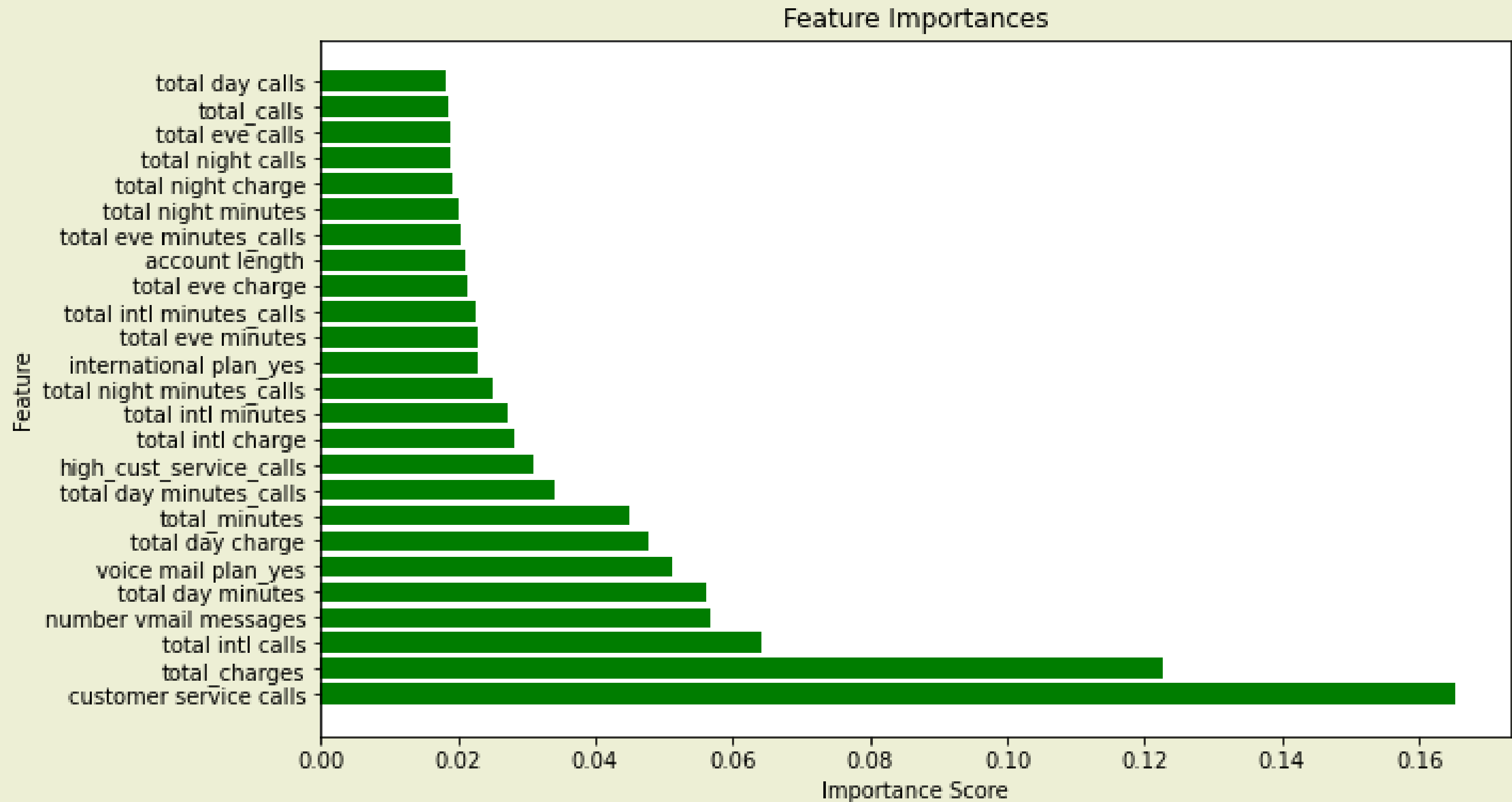
Accuracy: 95.0%



ROC CURVE



FEATURE IMPORTANCE GRAPH





CONCLUSION

XGBoost demonstrates the best overall performance across multiple metrics. It consistently outperforms both Logistic Regression and Random Forest, indicating its effectiveness in predicting churn.



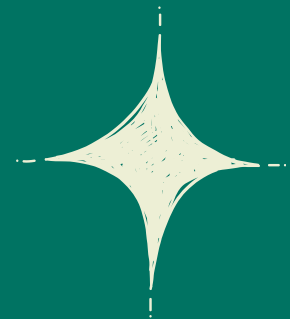


RECOMMENDATIONS

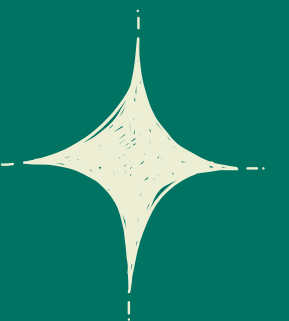
Based on the feature importance graph, I would recommend SyriaTel to:

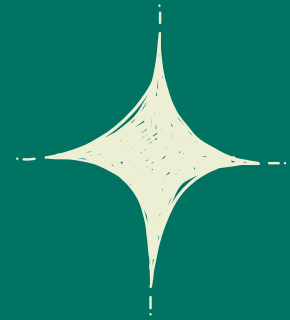
- **Focus on improving customer service quality.**
- **Implement proactive measures such as follow-up calls.**
- **Review the pricing strategy and provide transparent billing to mitigate churn caused by the high total charges.**
- **Offer attractive international calling plans and promotions so as to retain customers who make frequent international calls.**





Questions?

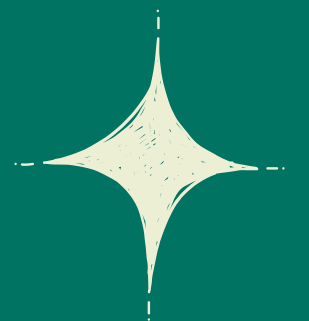




Thank You

email: wanjirudoreen13@gmail.com

github link: [DoreenMolly](#).



Presented By : Doreen Wanjiru