

CUSTOMER RETENTION TACTICS:

INSIGHTS FROM SYRIATEL





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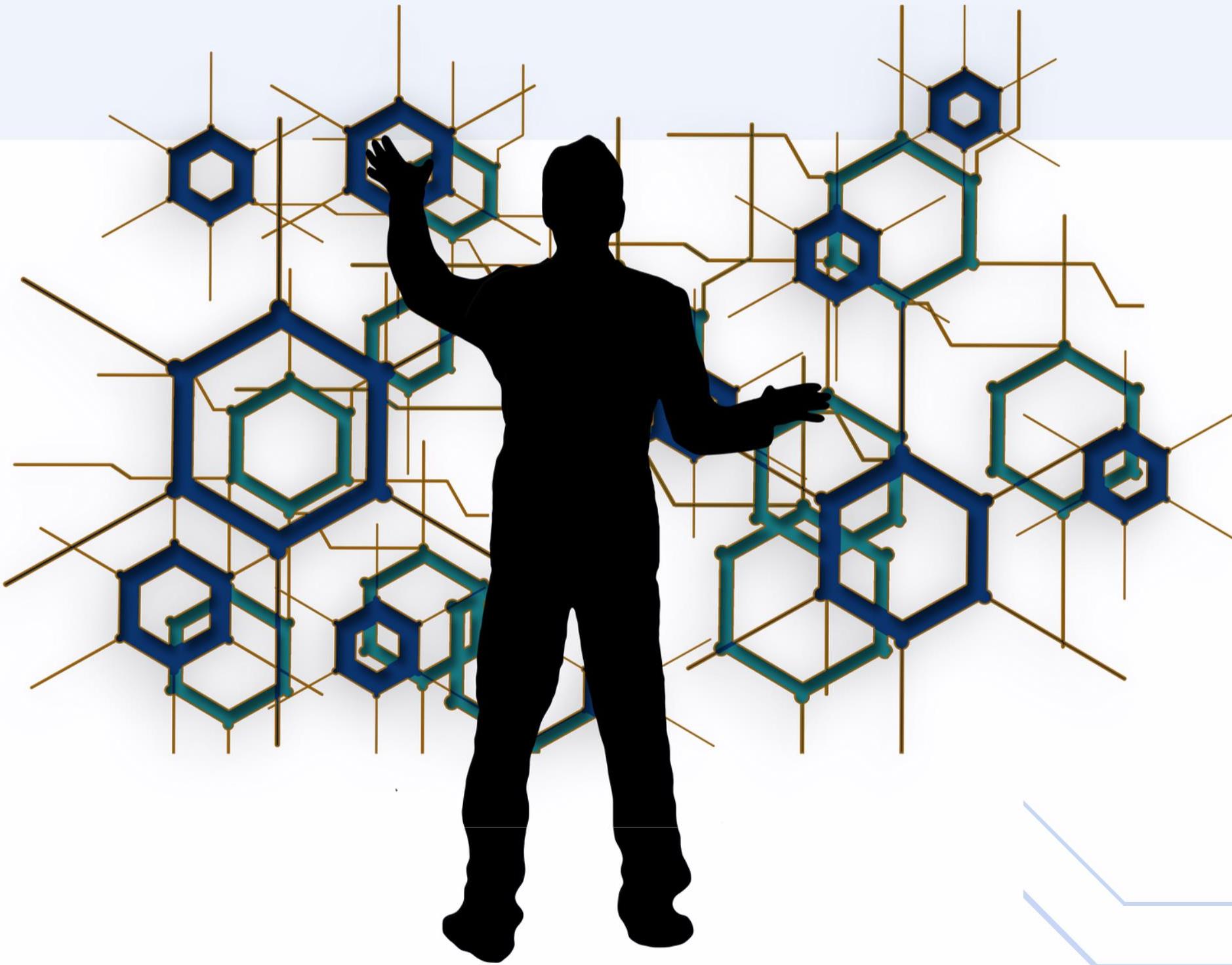
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INTRODUCTION

In the dynamic landscape of telecommunications, customer churn poses a formidable challenge for SyriaTel. With every lost customer comes not just a decrease in revenue, but also a dent in market competitiveness. Recognizing this pivotal issue, this analysis embarks on a journey to unravel predictive patterns and devise actionable strategies aimed at customer retention and revenue optimization.



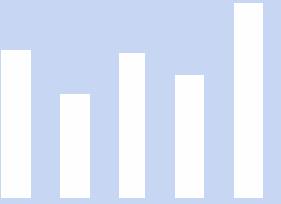
BUSINESS UNDERSTANDING

SyriaTel faces a critical issue: customer churn jeopardizes revenue and market stability.

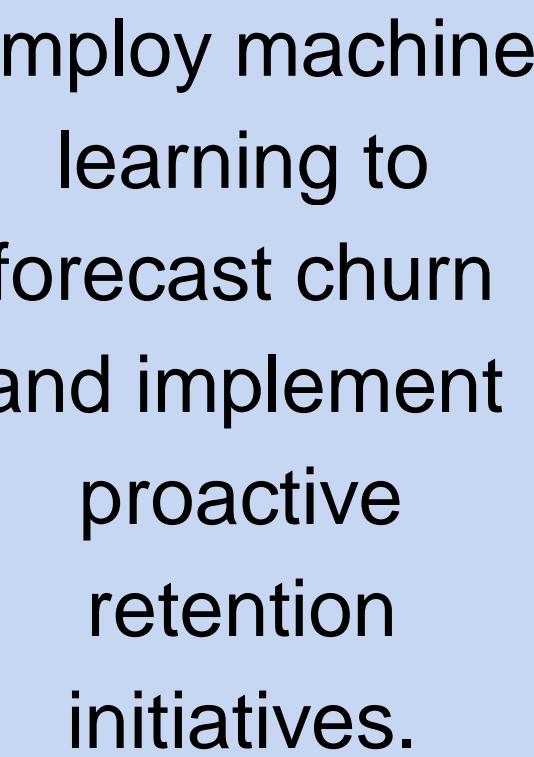
Leveraging data analytics and machine learning, SyriaTel aims to predict and address churn effectively. By anticipating departures and implementing targeted retention strategies, SyriaTel seeks to enhance loyalty, ensure business resilience, and drive revenue growth.



OBJECTIVES



Utilize advanced data analytics to uncover key indicators and behavioral patterns associated with customer churn.



Employ machine learning to forecast churn and implement proactive retention initiatives.



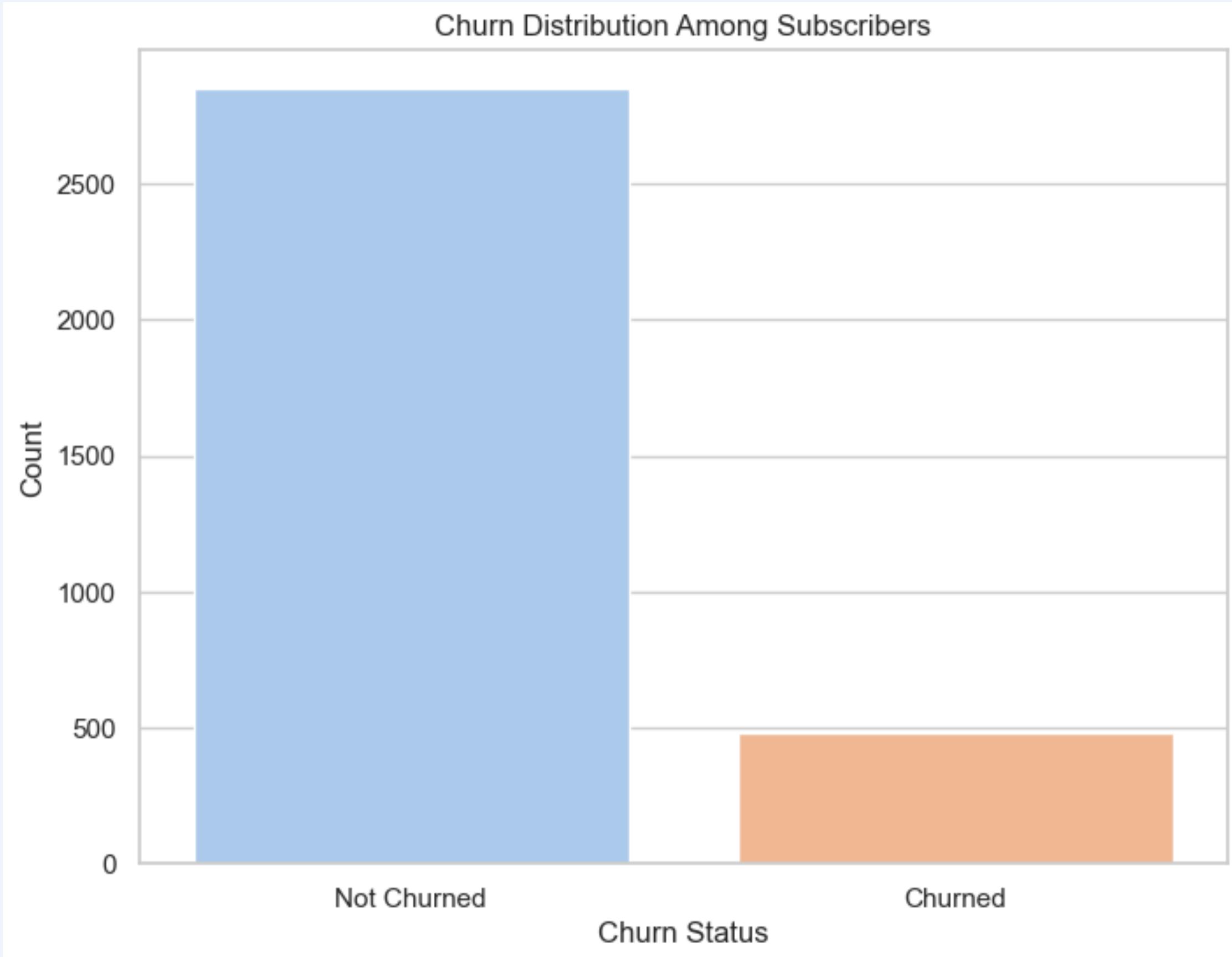
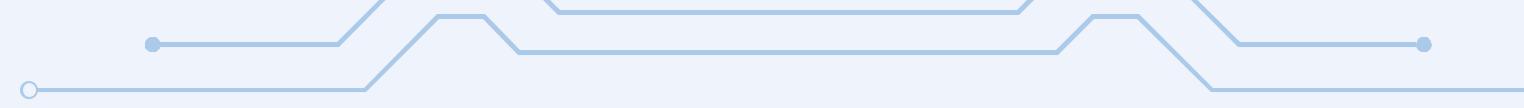
Translate insights into actionable strategies to minimize churn, enhance customer satisfaction, and maximize revenue potential.



Provide accurate machine learning models that are suited, able to predict customer attrition and facilitate the adoption of effective retention tactics.

DATA ANALYSIS

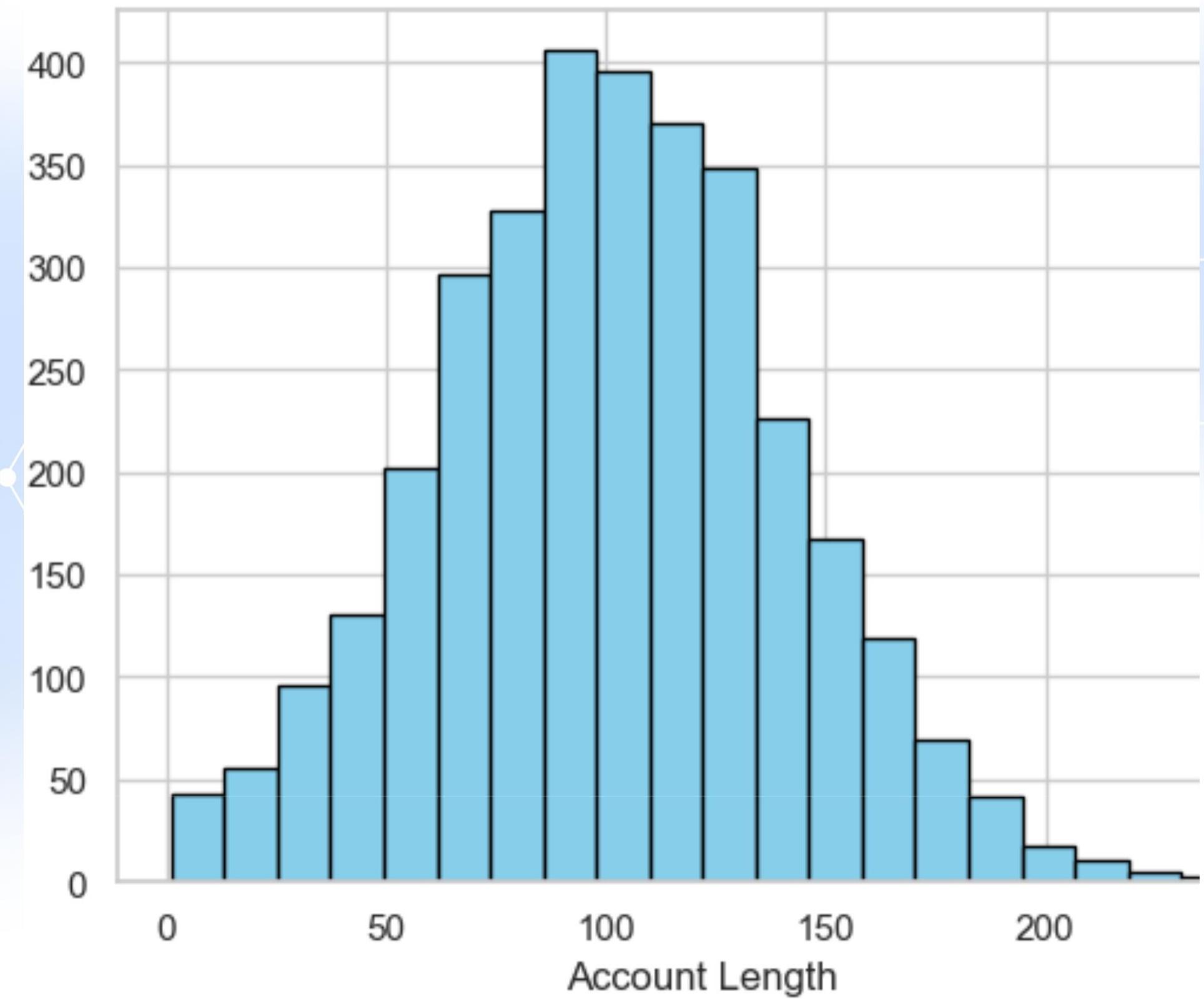
Leveraging sophisticated exploratory data analysis (EDA) techniques, we uncover crucial insights into feature correlations with churn. Through visually compelling visualizations and nuanced insights, we illuminate key distinctions between churned and non-churned customers, empowering strategic decision-making for effective churn management.



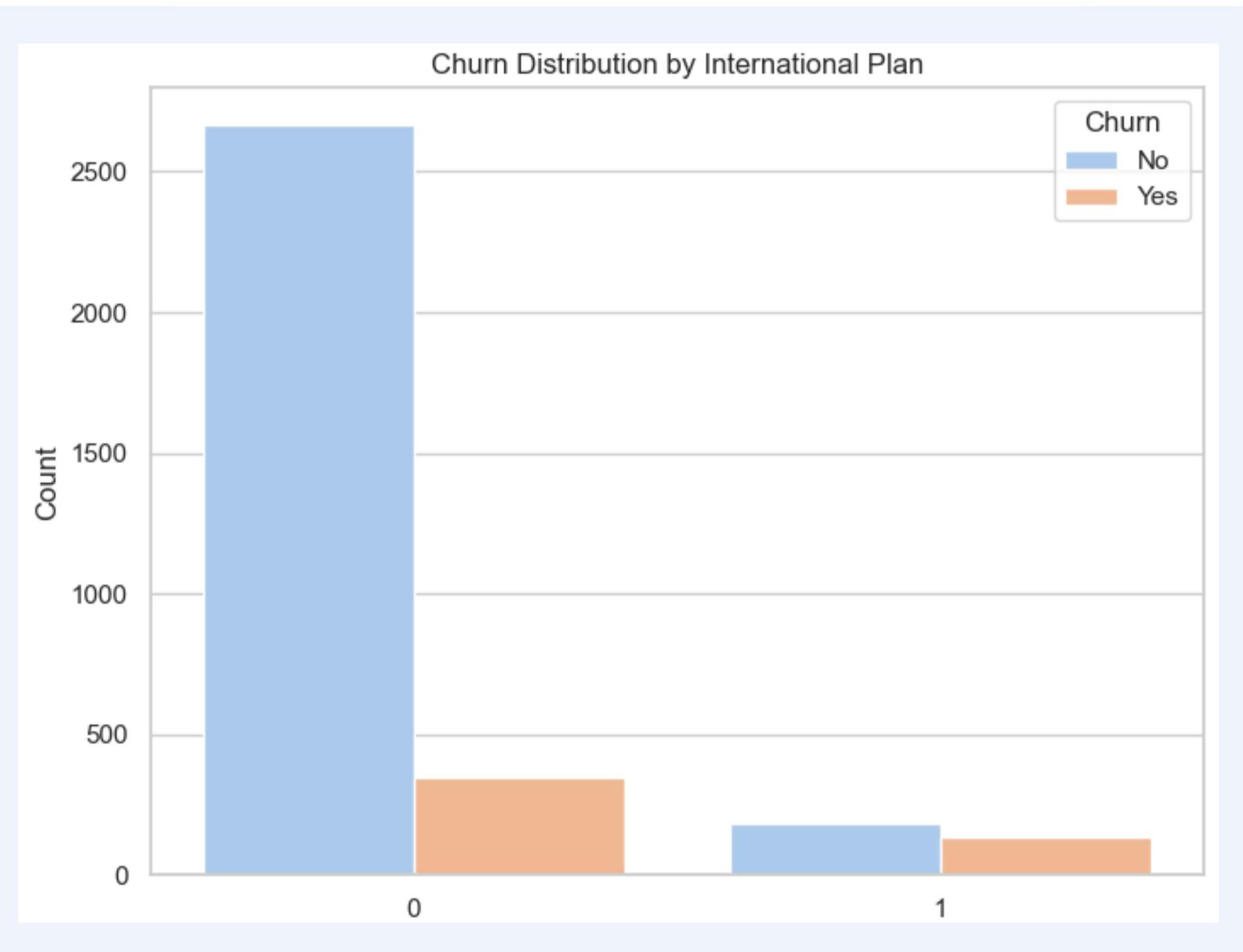
This visualization showcases subscriber distribution based on churn status, indicating a notable proportion of customers who have terminated their service ("Churned"). Additionally, SyriaTel's relatively low churn rate of 14.5% outperforms the industry average of 21%, reflecting the effectiveness of its retention strategies.

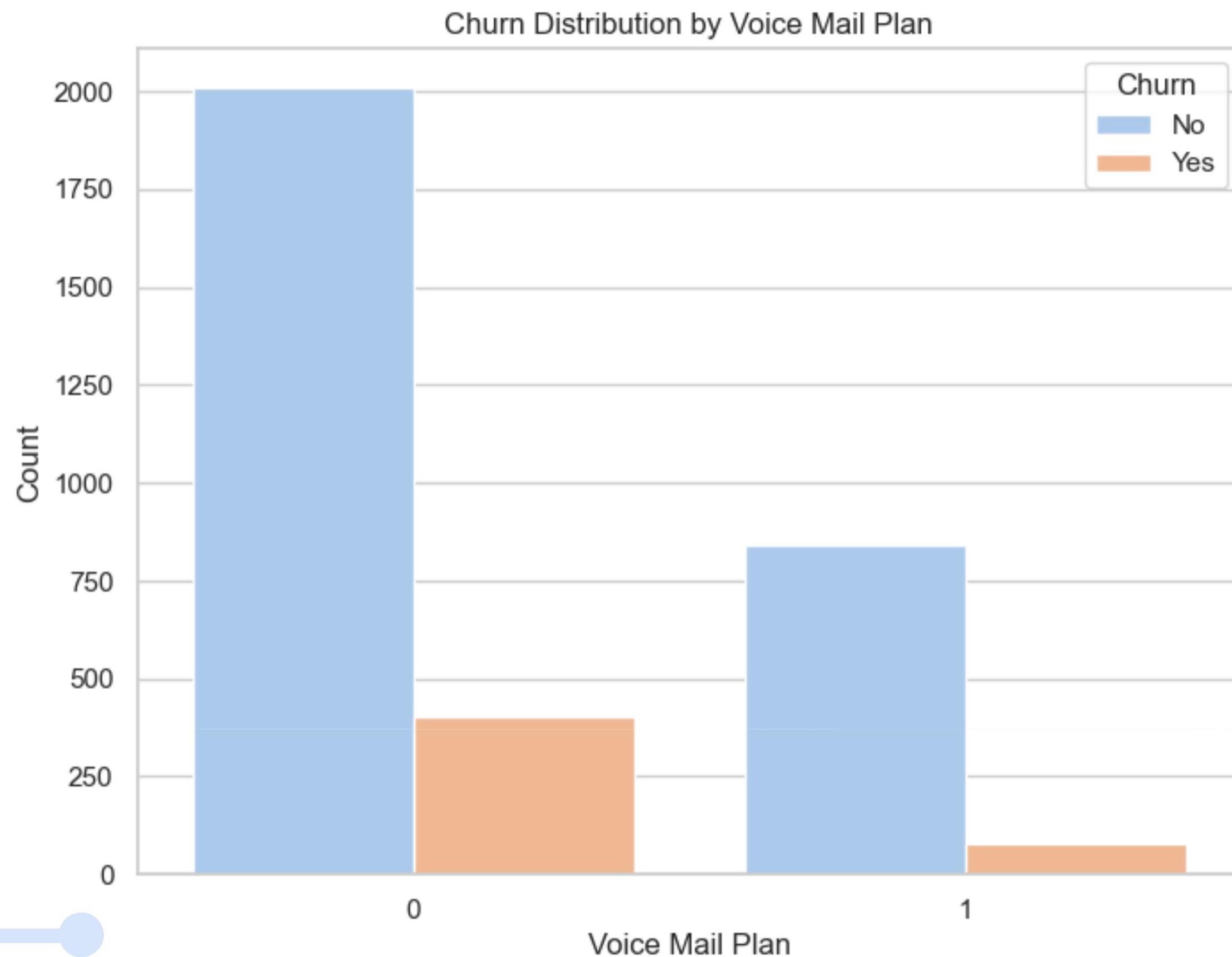
The histogram reveals a normal distribution of account lengths which suggests a stable customer base with consistent tenure durations, reflecting satisfaction with SyriaTel's services.

Distribution of Account Length



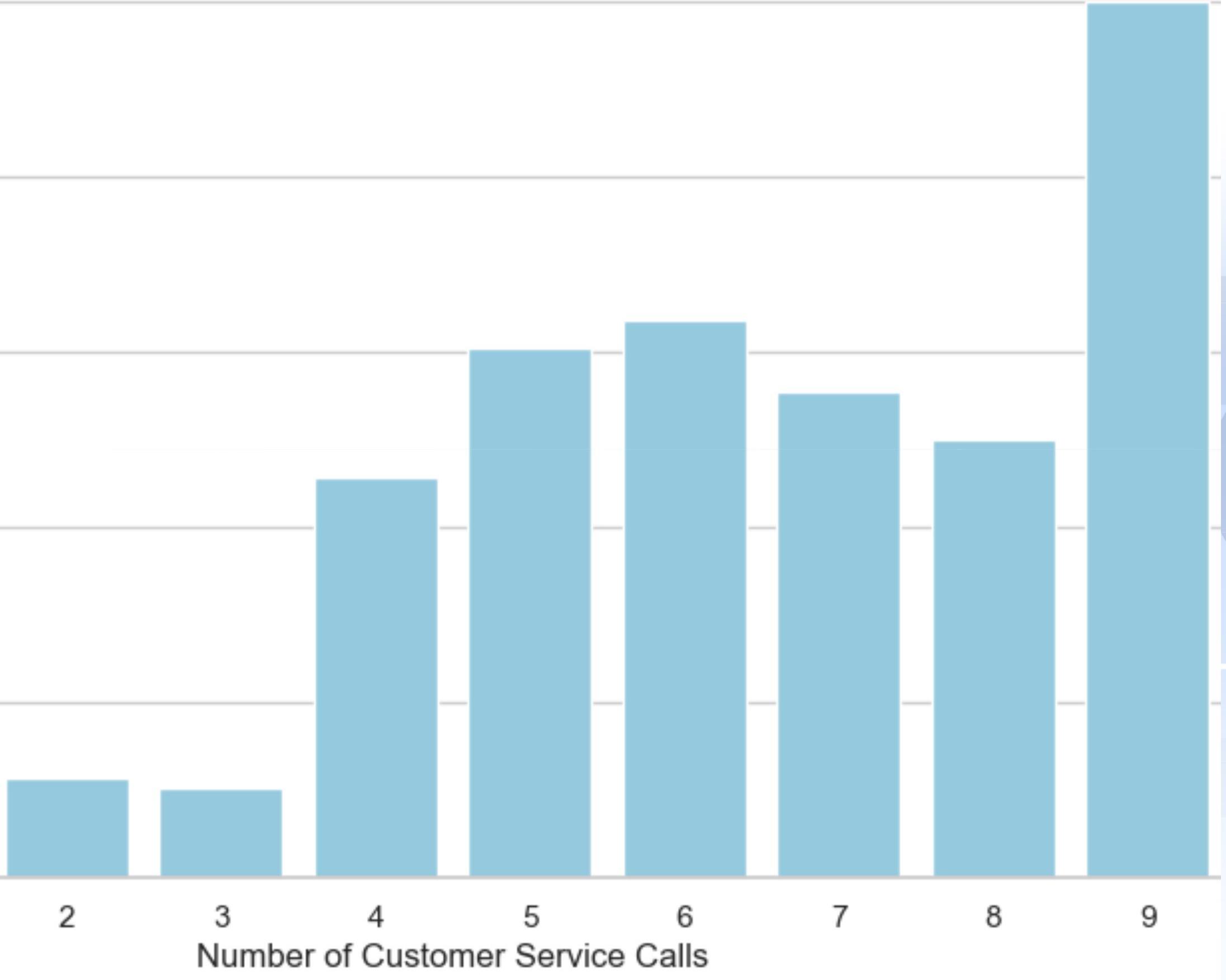
Customers with an international plan exhibit a significantly higher churn rate compared to those without, implying a potential correlation between international plans and churn likelihood.





This observation hints at a marginally elevated churn rate among customers with a voice mail plan, contrasting with those without, suggesting a subtle yet noteworthy impact on churn dynamics.

Churn Rate by Number of Customer Service Calls



The bar plot depicts a correlation between the frequency of customer service calls and churn rate, suggesting a direct relationship where heightened churn rates coincide with elevated customer service interactions.

MODEL EVALUATION

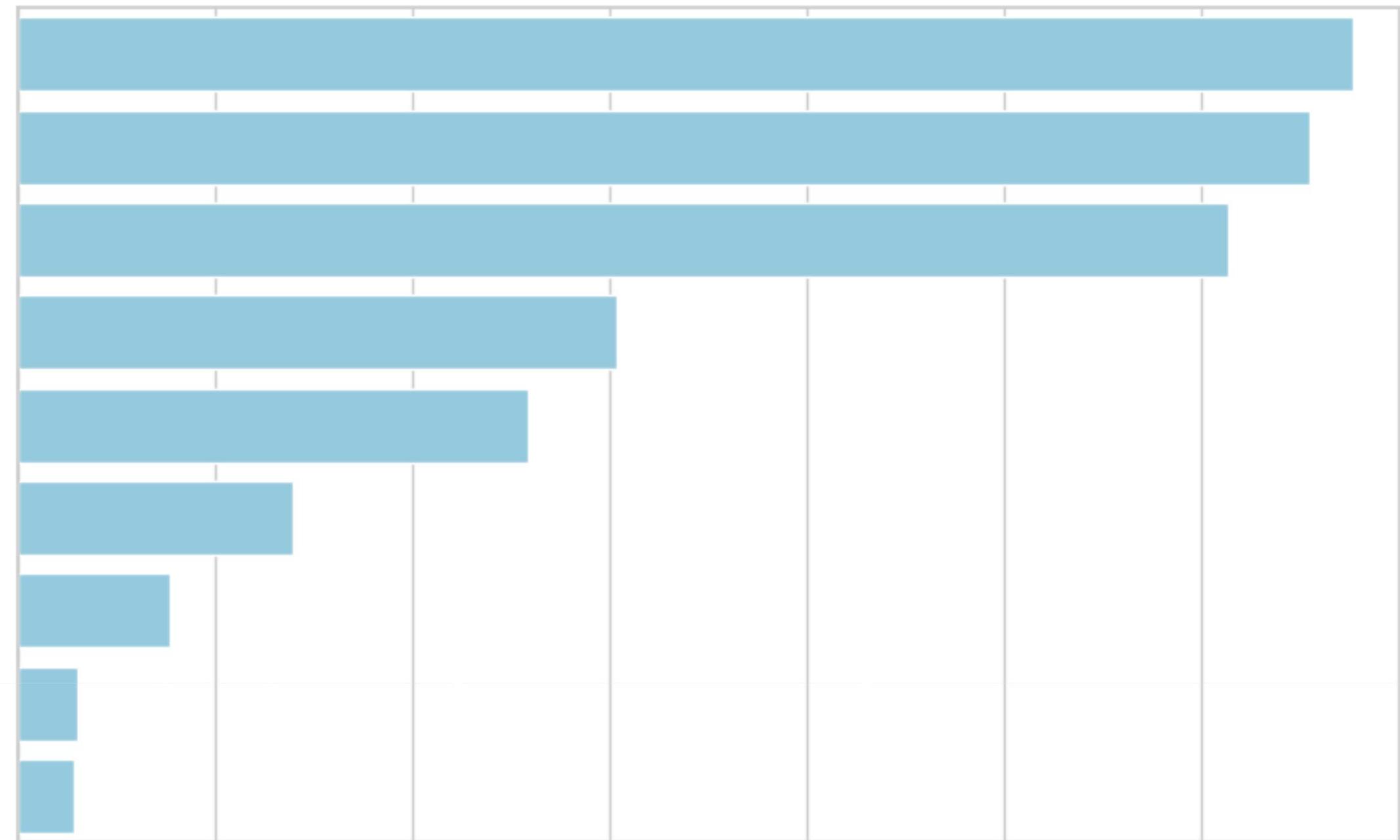
An overview of logistic regression, random forest, and gradient boosting classifiers as predictive models utilized for churn prediction.

Logistic Regression Model

The model achieved an overall accuracy of approximately 86%. However, its ability to identify potential churners was limited, with a lower recall score. While it performed well in recognizing customers unlikely to leave, its effectiveness in detecting potential churners was lacking. This underscores the importance of improving the model's recall to better capture customers at risk of leaving.

Top 10 Feature Importances

customer service calls
total day minutes
international plan
total eve minutes
total intl minutes
total night minutes
area code
total eve calls
account length

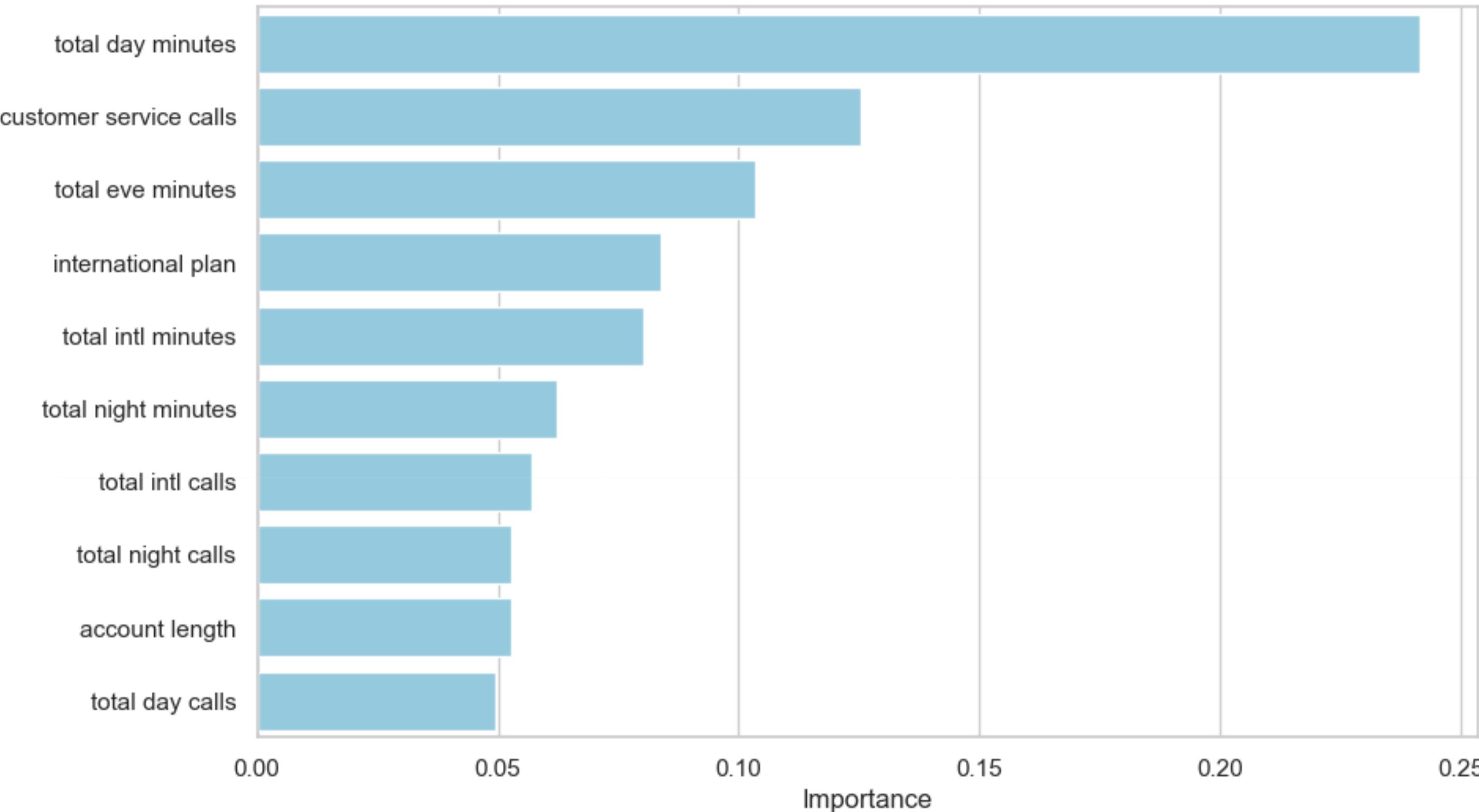


Feature importance analysis reveals the most influential factors in predicting customer churn. For instance, a high volume of customer service calls may signal dissatisfaction, while extensive call duration, particularly during peak hours or for international plans, could indicate behavior patterns linked to churn.

Random Forest Classifier

The second model, the Random Forest Classifier, achieved a notable success in identifying customers likely to churn. With a recall of 64% for churned customers, it demonstrates a significant improvement over our baseline model, indicating its effectiveness in capturing churn cases.

Top 10 Feature Importances (Random Forest)

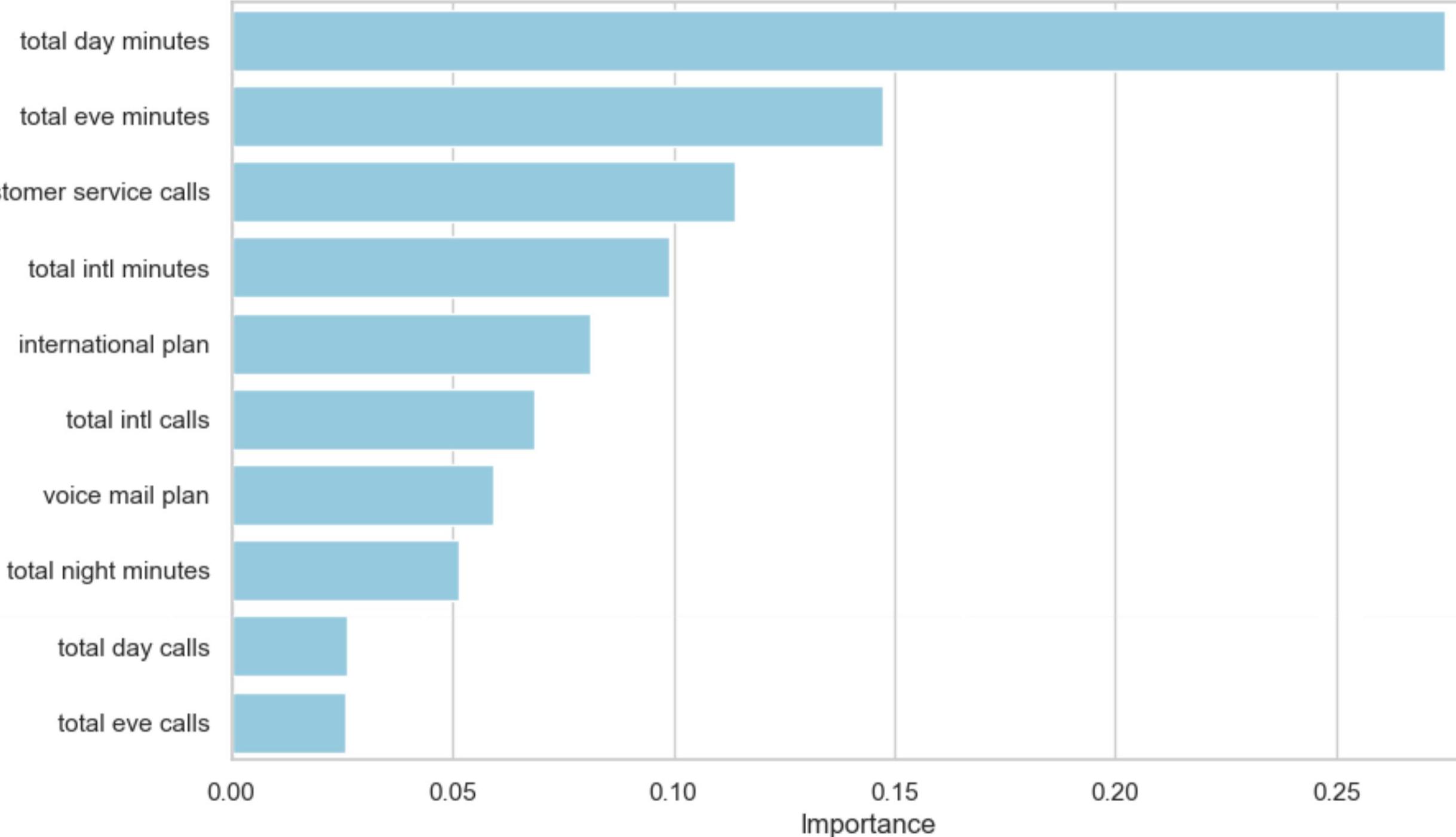


The Random Forest Classifier identified key churn predictors: Total Day Minutes, Customer Service Calls, Total Eve Minutes, and International Plan. These factors indicate behaviors linked to higher churn likelihood.

Hyperparameter tuning

Hyperparameter tuning was pivotal in refining our gradient boosting classifier, ensuring it's finely tuned to detect potential churners accurately. Through meticulous adjustment of hyperparameters, we achieved a significant improvement in recall, with the model now identifying 78% of customers likely to churn. This enhancement empowers SyriaTel to proactively address churn, safeguarding revenue and bolstering customer retention efforts.

Top 10 Feature Importances



Total Day Minutes and Customer Service Calls are identified as the key predictors of churn in this model

RECOMMENDATIONS

1. Prioritize Proactive Retention: Use insights from our gradient boosting model to focus on proactive retention strategies like personalized offers and targeted communication.
2. Tailor Efforts with Customer Insights: Leverage feature importance analysis to address specific issues such as customer service calls and international plans, tailoring retention efforts accordingly.
3. Continuous Model Monitoring: Implement a robust monitoring system to regularly assess model performance, ensuring accuracy and effectiveness through ongoing data analysis and customer feedback.

CONCLUSION



In conclusion, this project has provided valuable insights into the dynamics of customer churn within SyriaTel. Through advanced data analysis and machine learning techniques, this analysis has developed predictive models capable of identifying customers at risk of churning with a high degree of accuracy. By leveraging these insights and adopting proactive retention strategies, SyriaTel can effectively mitigate churn, foster long-term customer loyalty, and drive sustainable business growth in the highly competitive telecom industry.



THANK YOU

