

CUSTOMER CHURN PREDICTOR MODEL



MORINGA SCHOOL

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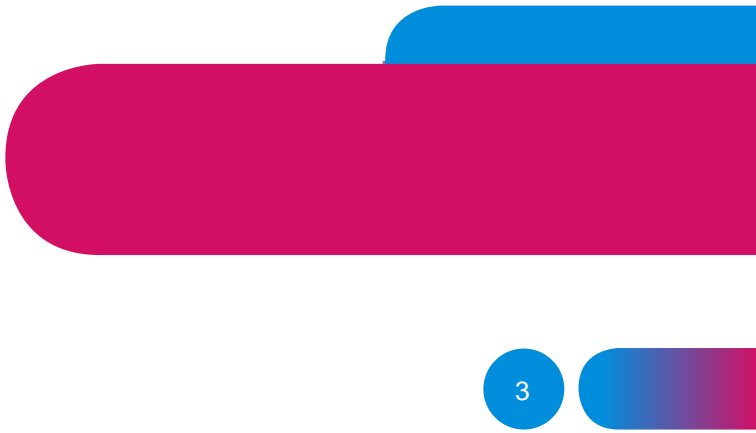
TABLE OF CONTENTS



1. INTRODUCTION
 2. PROBLEM STATEMENT
 3. OBJECTIVES
 4. EVALUATION
 5. CONCLUSION
 6. RECOMMENDATIONS
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INTRODUCTION



- In the telecom industry, keeping customers is tough. SyriaTel, a big company in Syria, faces the same problem. Lots of competition and changing customer needs make it hard to retain a customer. This project looks at SyriaTel's customer data to find out why customers leave and develops a model to predict customer churn cases in SyriaTel.
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PROBLEM STATEMENT




- SyriaTel is grappling with a pressing issue: customer churn. This project aims to analyze why customers are leaving and develop strategies to reduce it. By using advanced analytics, we aim to predict who might leave and find ways to keep them. These findings will help SyriaTel retain more customers and minimize financial losses. The target audience for this project is SyriaTel.
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OBJECTIVES

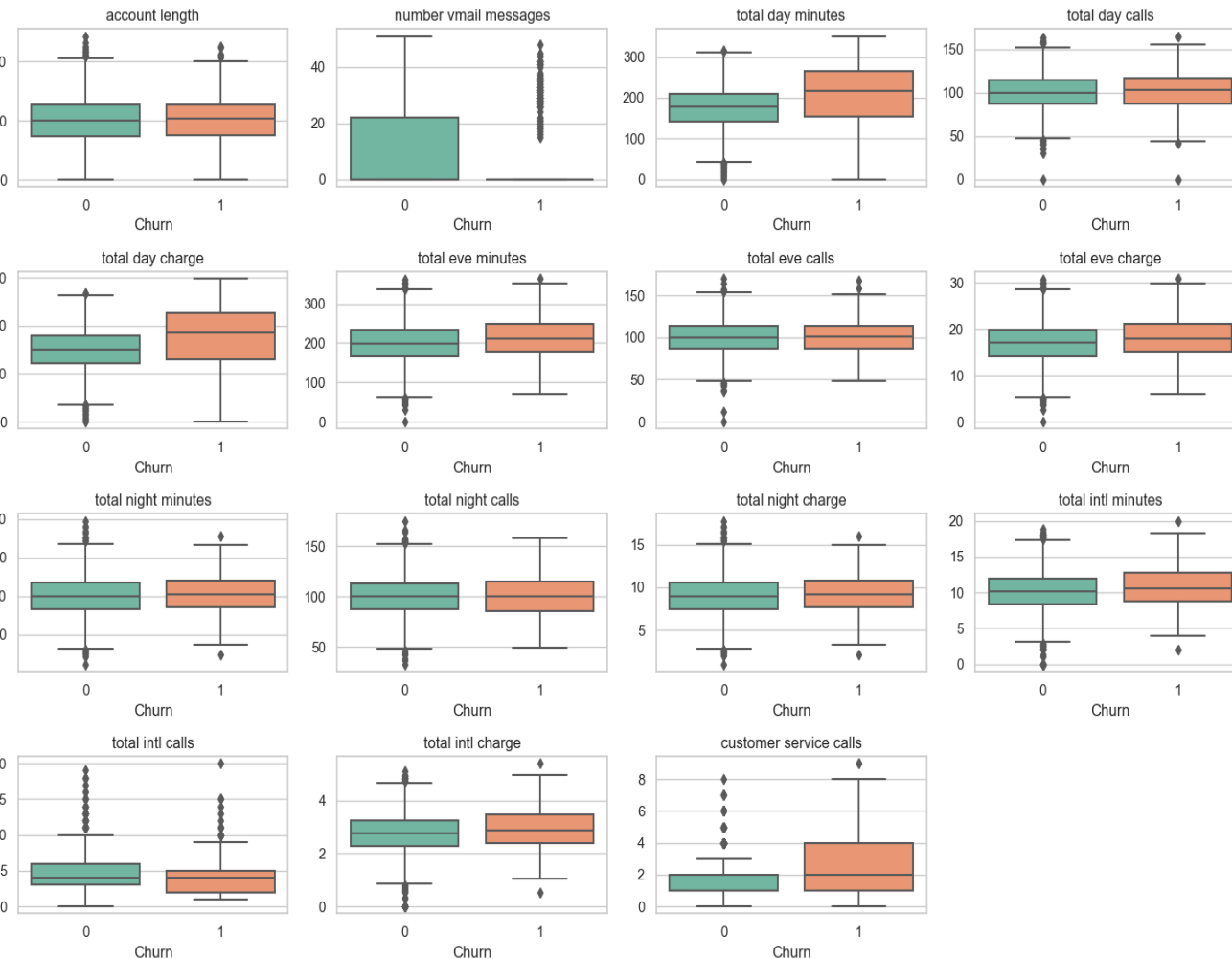


This project aims to tackle SyriaTel's customer churn issue through five key steps:

- **Data Exploration and Preprocessing:** Review and refine customer data for analysis.
 - **Feature Selection and Engineering:** Identify and create predictive features.
 - **Model Development and Evaluation:** Build and assess predictive models.
 - **Insights Generation:** Analyze model results for actionable insights.
 - **Recommendation Formulation:** Develop strategies to reduce churn and improve retention based on insights.
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EVALUATION AND FINDINGS



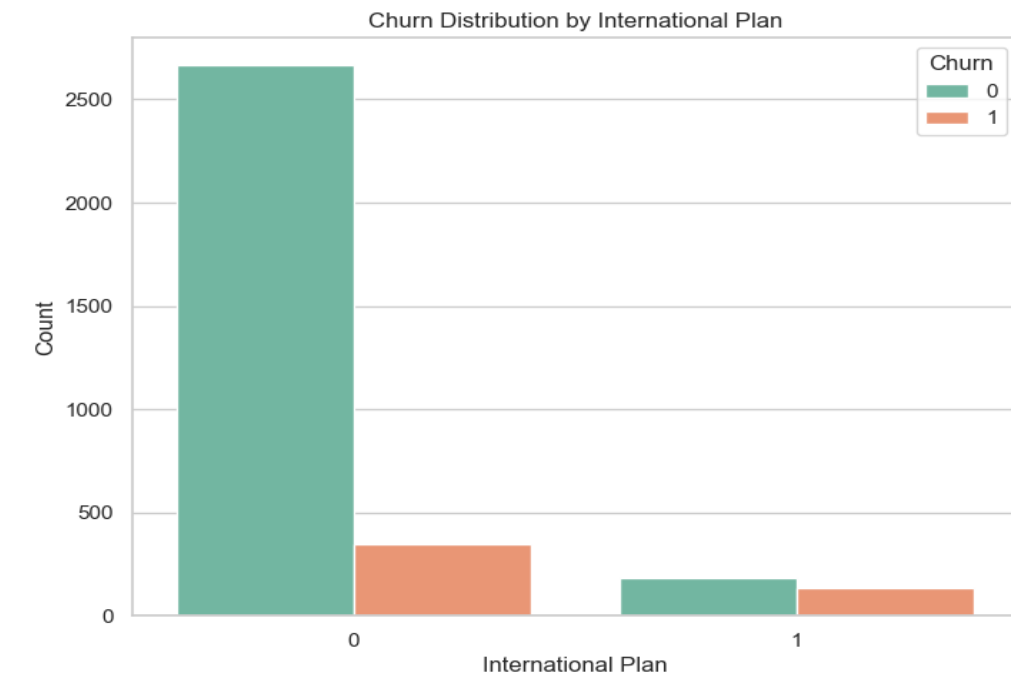
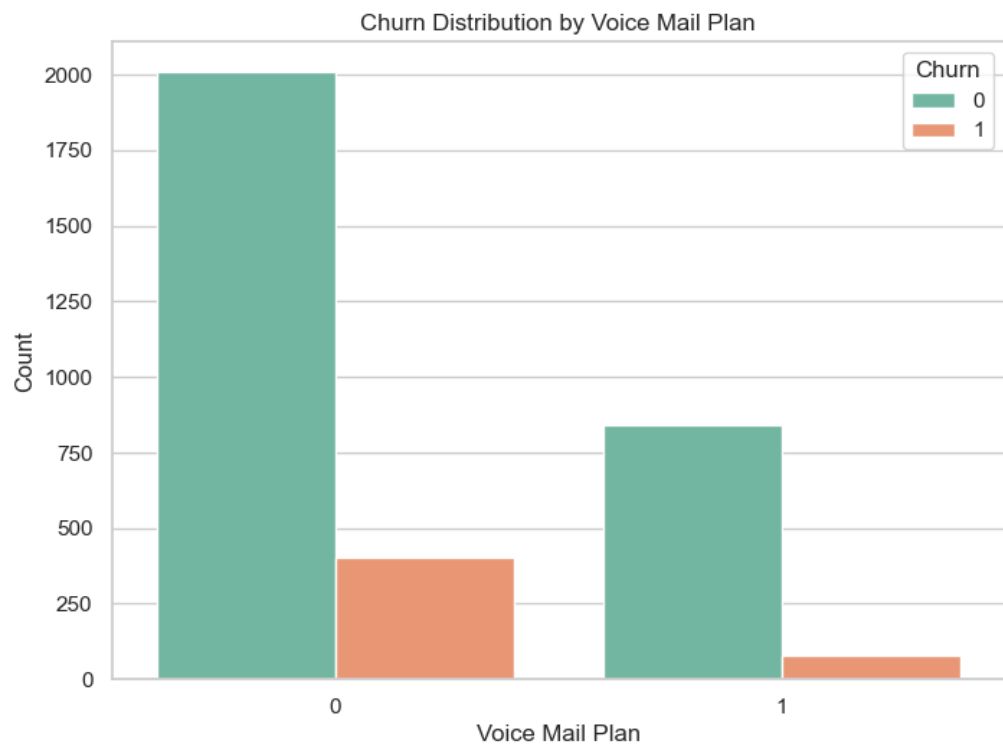
Each numeric feature is represented by a box plot against churn and non churn cases , with the median value depicted by a central line.

While most features display a balanced distribution around the median, deviations are noticeable.

Some features show clustering of values towards higher or lower extremes, indicating unusual values.

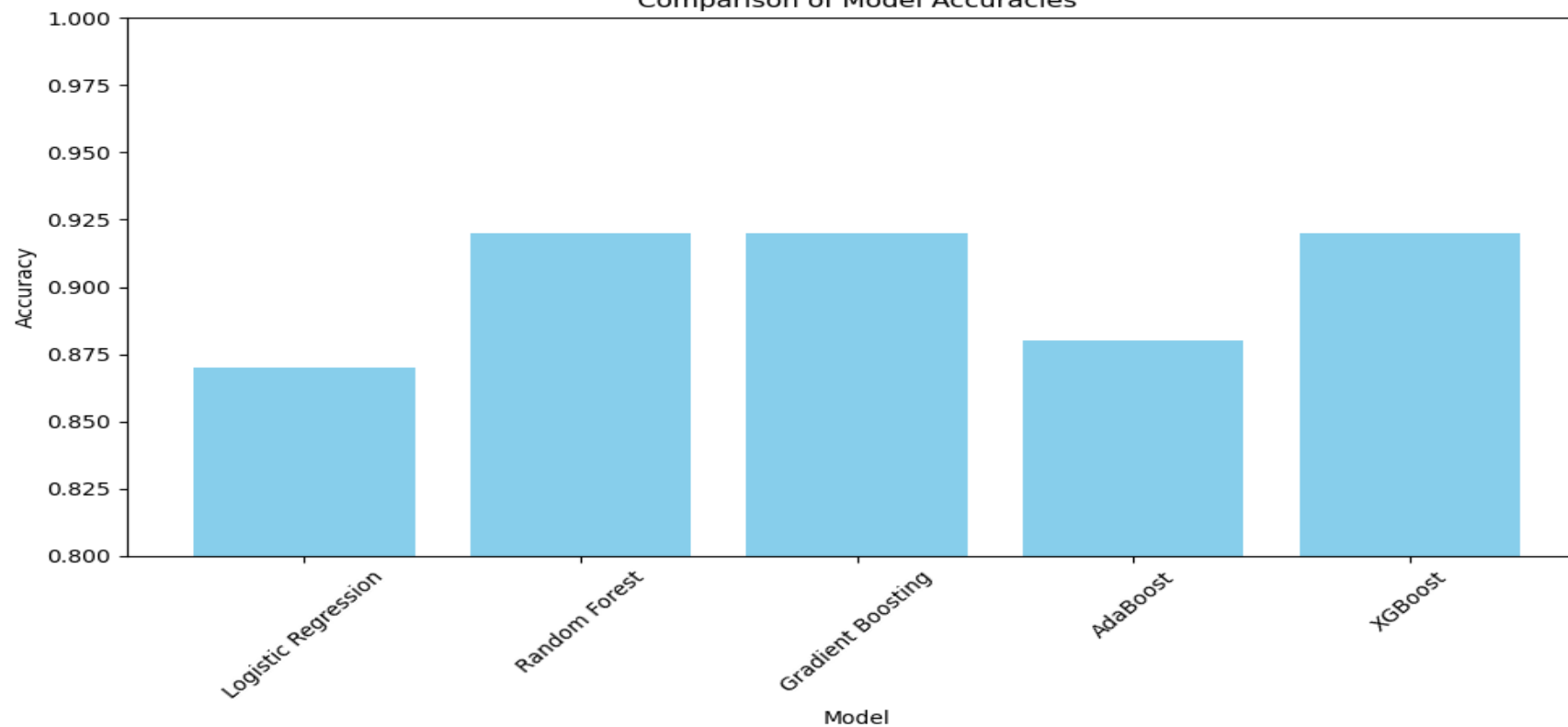
Outliers are present and are significant to customer churn analysis, as they represent unique cases of churn and non churn.





For the categorical variables, the plots show that customers without international are less likely to churn and also customers without voice mail plan are less likely to churn.

Comparison of Model Accuracies



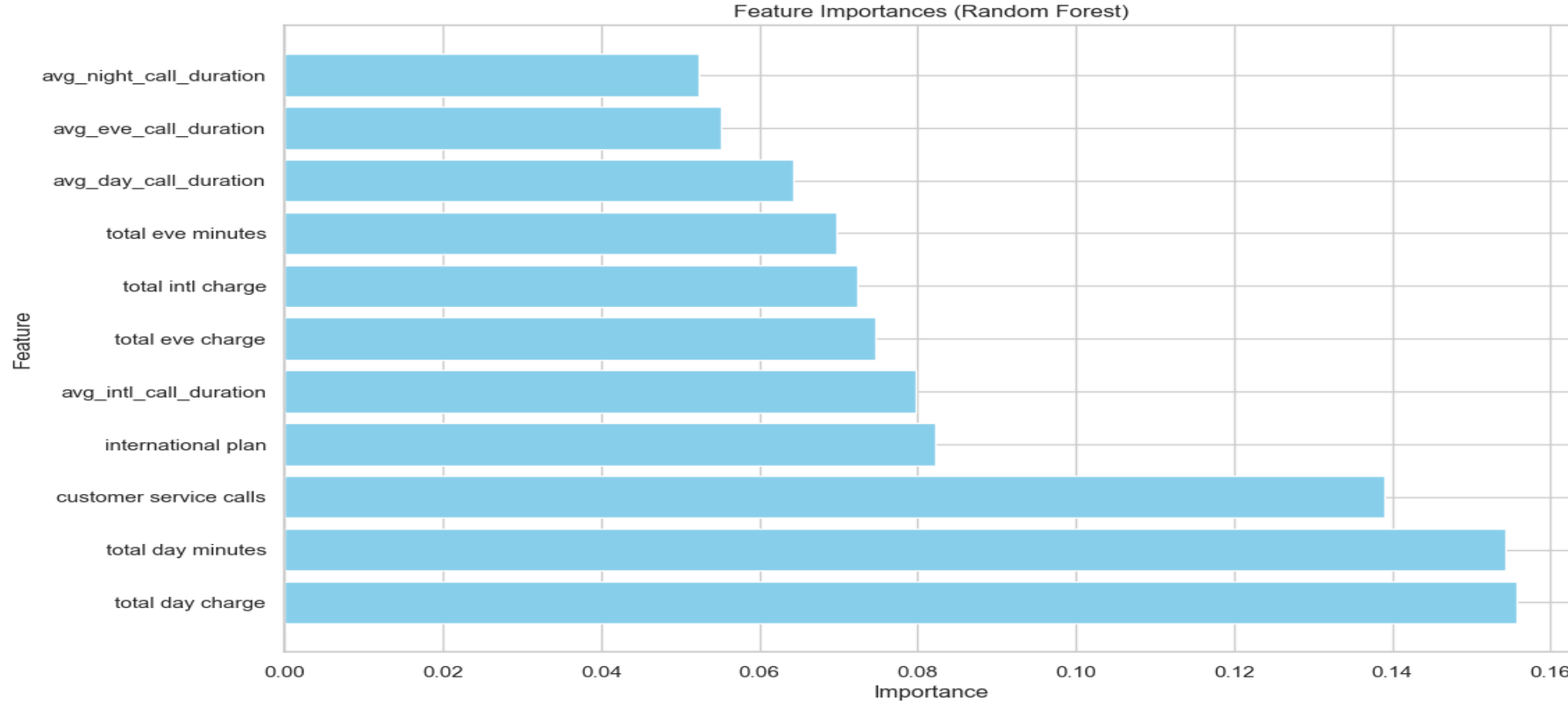
Random Forest, alongside other models that is; Logistic Regression, Adaboost, Gradient Boost, and XGBoost, was used to check the best fit model. Using hyperparameter tuning, Random Forest model achieved the highest accuracy of 92.46%.

It demonstrated high precision for non-churners (94%) and moderate precision for churners (78%).

The recall rate for churners was 61%, capturing a significant portion of actual churn cases.

With an F1-score of 68% for churners, Random Forest achieved a reasonable balance between precision and recall.

Overall, given its high accuracy and balanced precision and recall, Random Forest is the preferred model for predicting customer churn in this scenario.



Higher total day charges and longer day call durations suggest dissatisfaction with daytime calling plans or high costs, potentially driving customers to switch providers. An increased number of customer service calls indicates unresolved issues or dissatisfaction, highlighting the importance of prompt and effective problem resolution to enhance customer satisfaction. Customers with international plans and longer international call durations are more likely to churn, indicating dissatisfaction with international calling services or costs. Additionally, high evening and night call charges may signal dissatisfaction with service quality.

CONCLUSION



- This project focused on analyzing customer churn in the telecommunications industry to identify key factors influencing churn behavior. Using various machine learning models including logistic regression, random forest, AdaBoost, and gradient boosting, we found that factors like total day charges, total day minutes, customer service calls, international plan usage, and average international call duration significantly impact churn rates. By leveraging these insights, SyriaTel can implement targeted strategies to improve customer retention. Continuous analysis and adaptation of strategies based on evolving customer preferences are essential for maintaining competitiveness in the dynamic telecommunications market.

RECOMMENDATIONS



- **Enhance Customer Support:** Prioritize improving the quality and responsiveness of customer service through comprehensive training programs and efficient call handling processes.
- **Revise Calling Plans:** Review and adjust calling plans to align with customer expectations and market competitiveness, offering flexible options that cater to diverse needs.
- **Personalize Offers and Promotions:** Utilize customer data analytics to develop personalized incentives tailored to individual preferences and usage patterns.
- **Proactive Monitoring and Analysis:** Implement robust data monitoring and analysis practices to detect early signs of churn and intervene with targeted retention strategies.
- **Improve Communication Channels:** Establish effective communication channels to keep customers informed about relevant offers, updates, and service improvements.
- **Focus on Customer Experience:** Invest in user-friendly interfaces, self-service options, and seamless customer journeys to enhance overall satisfaction and foster long-term loyalty.



THANK YOU.