

# SYRIATEL CUSTOMER CHURN ANALYSIS

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# OVERVIEW

- The telecommunications industry is highly competitive today, but it faces a common challenge: customer churn. Churn occurs when customers leave a business due to dissatisfaction with services or better offers from other providers. This can impact revenue and profitability. To address this, businesses strive to offer cutting-edge services and technology. Identifying potential churners in advance is crucial for retaining clients and improving business performance. This process is known as churn prediction.

# BUSINESS UNDERSTANDING

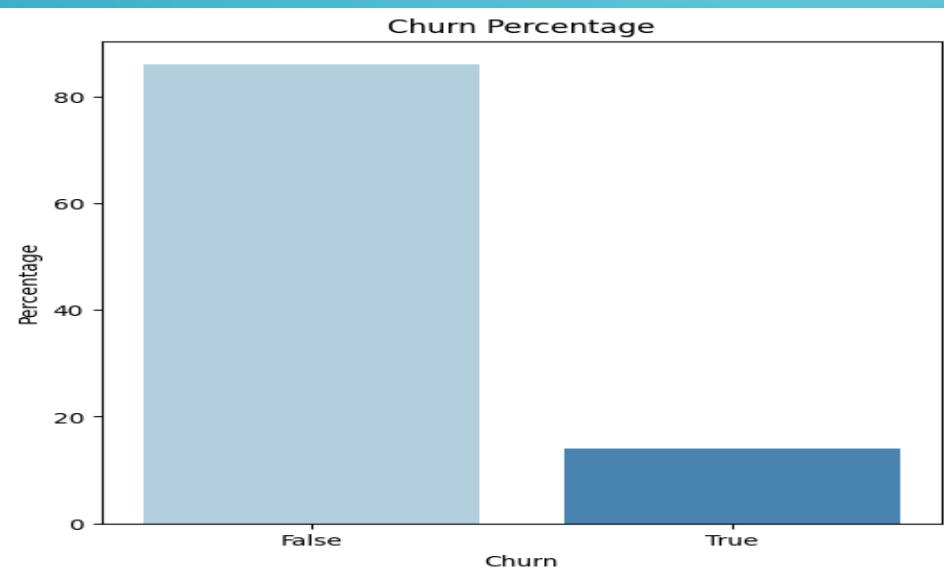
- In today's fiercely competitive business landscape, companies face saturation across industries. SyriaTel, a telecommunications company, recognizes the urgency of customer retention. The high cost associated with acquiring new customers far outweighs the expense of maintaining existing ones. To stabilize their market value and mitigate losses from customer churn, SyriaTel is proactively implementing strategies to retain its client base. By identifying potential churners early, they aim to enhance customer satisfaction and overall business performance.

# DATA UNDERSTANDING

- The dataset is composed of 3333 records and 21 features. The ‘churn’ feature, which is a boolean, serves as the target variable. A value of True in this column indicates that the customer has churned, while False signifies retention, thus setting up a binary classification scenario. Among the remaining features, 4 are categorical and 16 are numerical.

# ANALYSIS

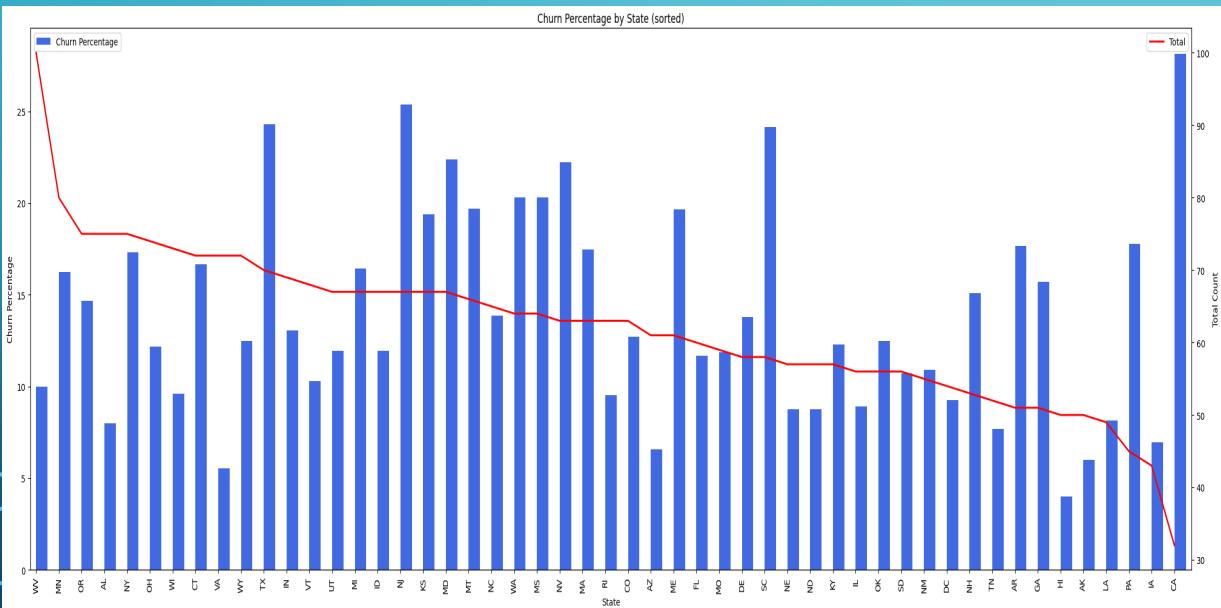
## CUSTOMER CHURN



- Number of churned customers is about 13.26% of the total customers
- Total churn was 442 out of 3333 customers

# ANALYSIS

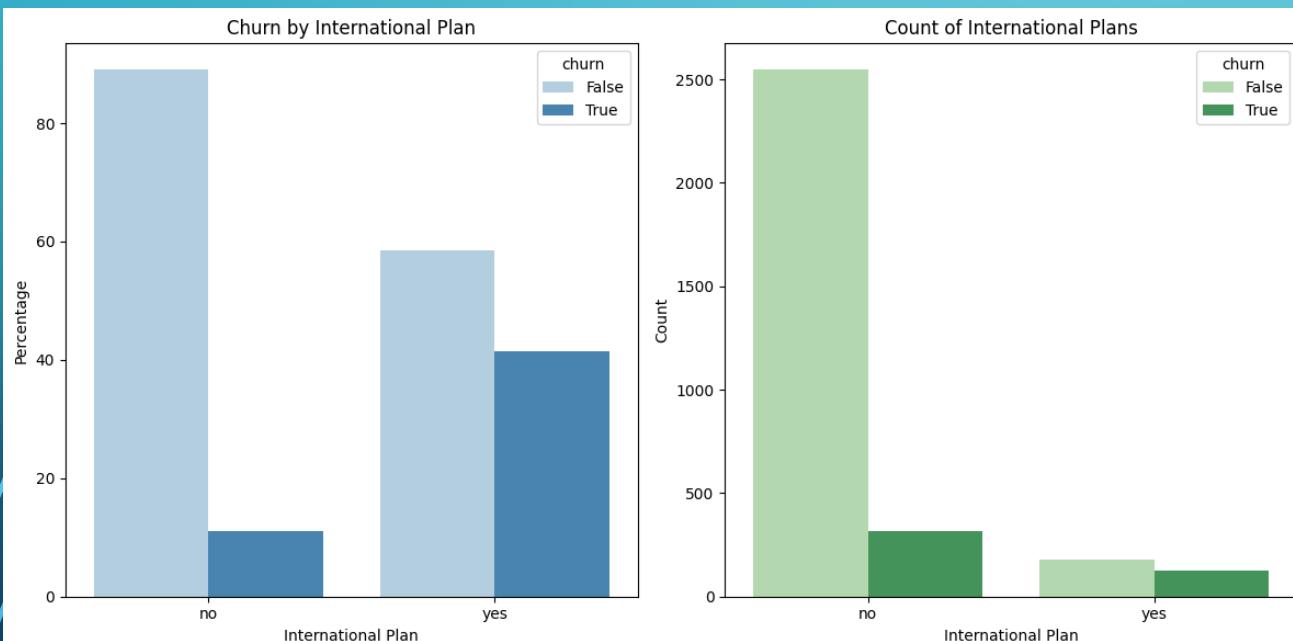
## CHURN IN STATES



- **High churn states** have a significant percentage of customers leaving, which might indicate customer dissatisfaction or competitive markets.
- **Low churn states** tend to have a higher total customer count, suggesting either better customer retention strategies or less competitive markets.**bold text**

# ANALYSIS

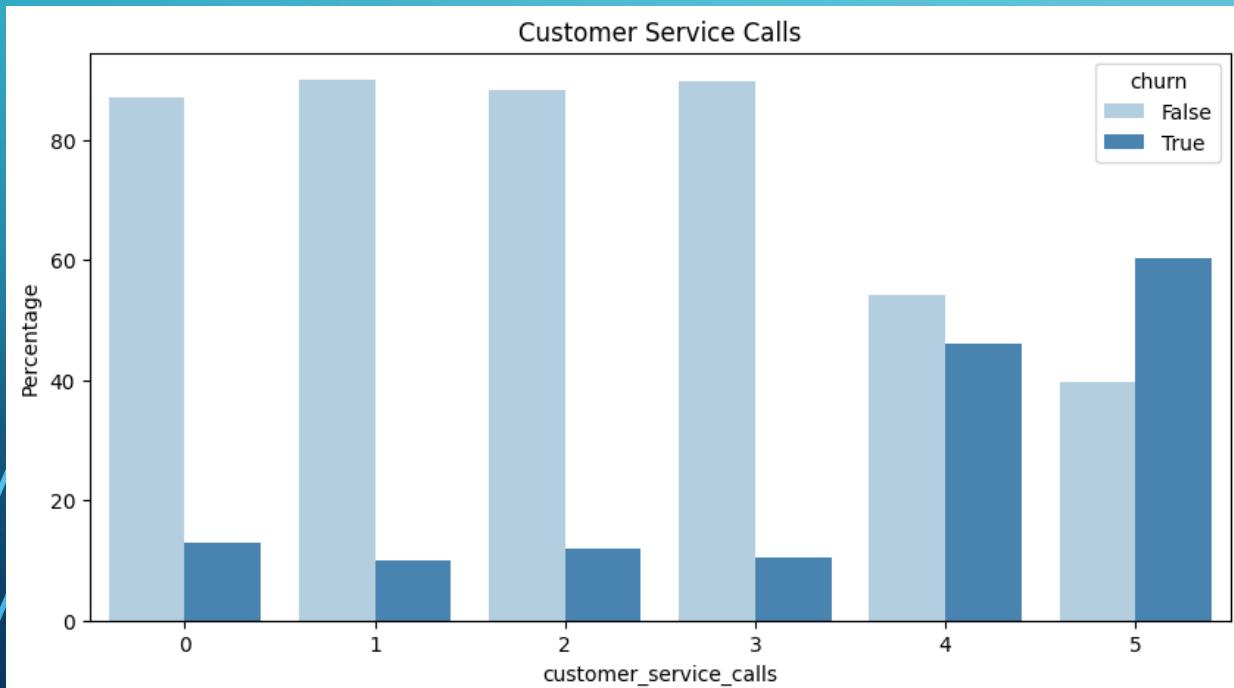
## CHURN ACCORDING TO PLANS



- These graphs suggest that having an international plan is associated with a higher churn rate. However, the majority of customers do not have an international plan. This could indicate that the international plan might not be meeting the expectations of the customers, leading to a higher churn rate.

# ANALYSIS

## CHURN ACCORDING TO CUSTOMER SERVICE CALLS



- This graph suggests that customers who need to make more calls to customer service are more likely to stop doing business with the company. This could be due to various reasons such as dissatisfaction with the service, unresolved issues, or poor customer service experience. Conversely, customers who make fewer service calls are more likely to continue doing business with the company. This could indicate that they are satisfied with the product or service, or they do not encounter many issues that require contacting customer service.

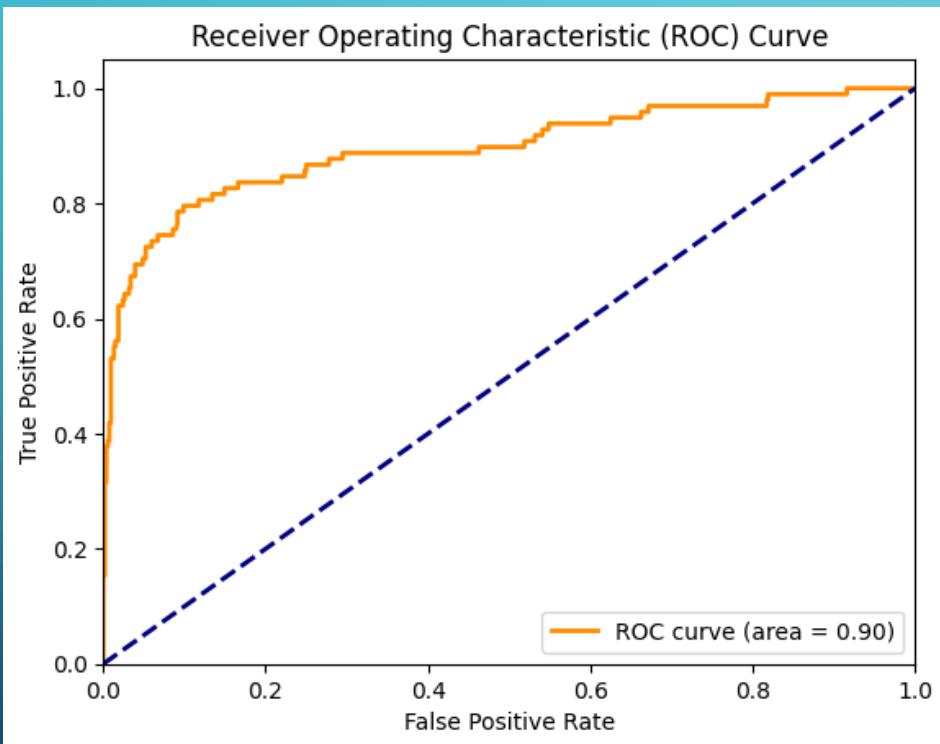
# MODELING AND EVALUATION

- I used the following models:
  - Gradient Boosting
  - Random Forest
  - K – Nearest Neighbors
  - Support Vector Machine

# RESULTS

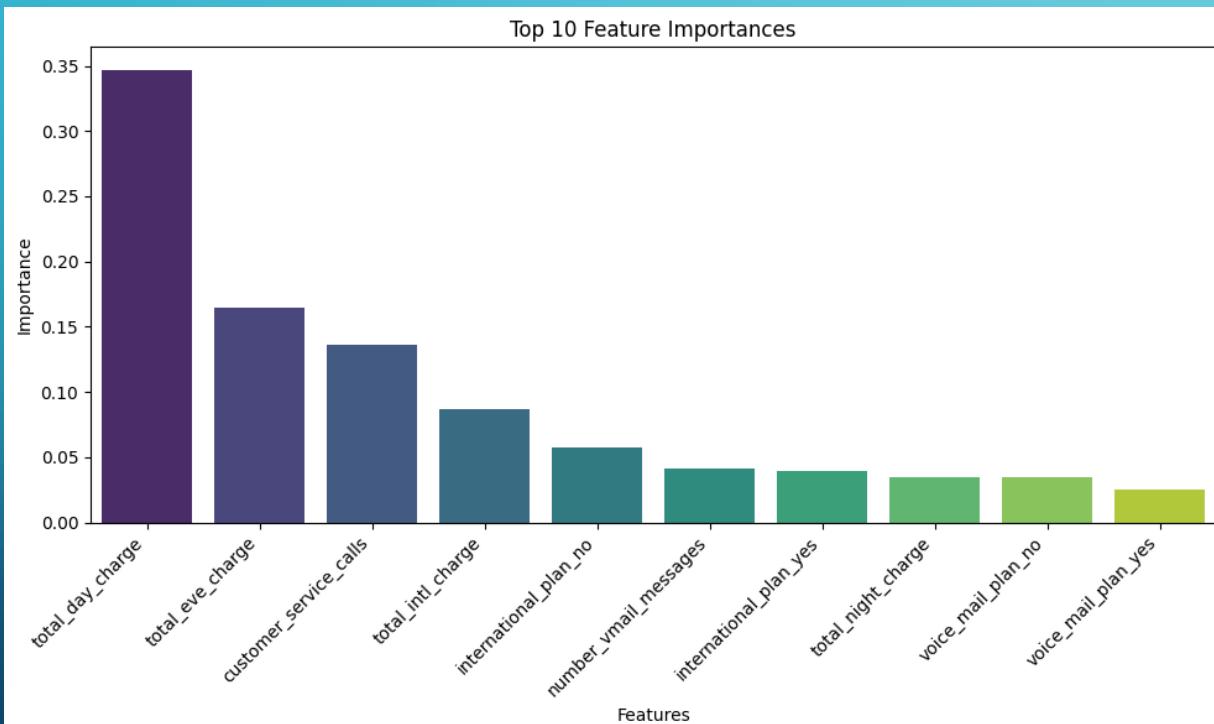
- Both Random Forest and Gradient Boosting classifiers achieve high accuracy, with Gradient Boosting slightly outperforming Random Forest
- KNN, while still achieving a decent accuracy, performs noticeably worse. This suggests that KNN may not be as effective as Random Forest and Gradient Boosting for this particular dataset and problem.
- The SVM model achieves an accuracy of around 83.8%, which is decent but considerably lower compared to the other models, indicating that the SVM model has difficulties accurately identifying churn cases.
- Based on these results, Gradient Boosting seems to be the best-performing model among the three for churn prediction in this scenario.

# RESULTS



- Both the fine-tuned Gradient Boosting and Random Forest models show good performance, with the Gradient Boosting model slightly outperforming the Random Forest model in terms of recall and F1-score for the True class (churn).

# CONCLUSION



- Daytime charges had a significant impact on churn rates, with customers who incurred higher charges during the day exhibiting the highest churn rates. Similarly, a lower number of voicemail messages corresponded to higher churn rates among customers. Additionally, elevated evening charges were associated with increased churn among customers during that time period.

# RECOMMENDATION

- Identifying customer service calls as a key predictor of churn emphasizes the need for excellent support to reduce customer turnover. Analyzing usage patterns like day minutes, evening charges, night minutes, and international calls can reveal trends linked to churn, enabling targeted strategies for retention. Promoting underutilized services like international plans and voicemail to eligible customers can enhance their experience and potentially lower churn rates by offering added value.



THANK YOU!