

# PREDICTING CUSTOMER CHURN FOR SYRIATEL

Identifying patterns to improve customer retention

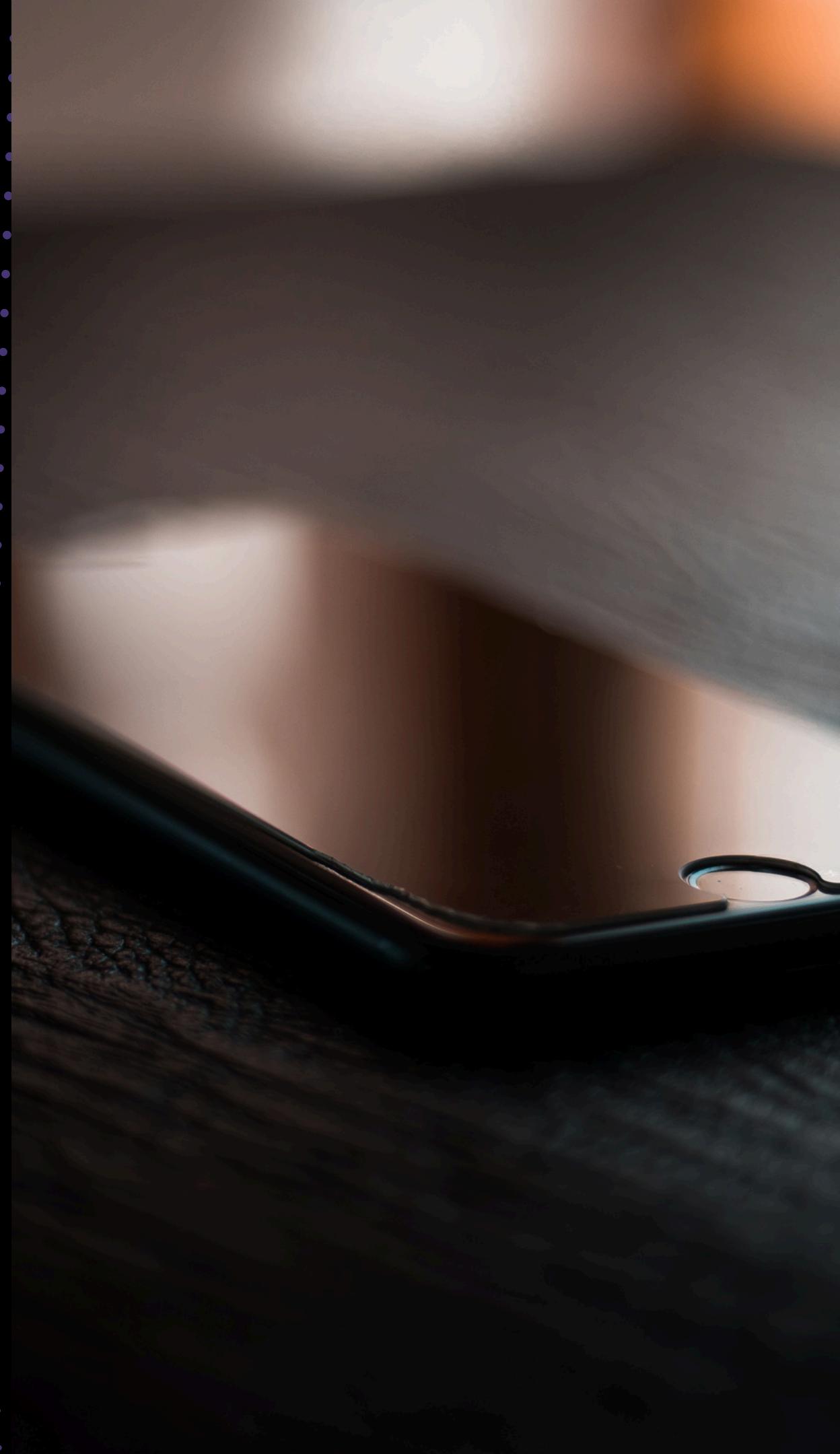
# Overview

In the highly competitive telecom industry, retaining customers is just as crucial as acquiring new ones. As the market expands, minimizing churn is vital to maintaining profitability.

SyriaTel can implement proactive retention strategies to enhance customer loyalty and reduce revenue loss by predicting which customers are likely to leave.

# Business Understanding

This project aims to predict customer churn using a binary classification model which would enable Syriatel to adopt strategies that would reduce churn, and maintain and grow its customer base, in a bid to sustain overall growth and profitability



# Business Questions

What factors influence customer churn?

Which model provides the highest accuracy in predicting churn?

What strategies can Syriatel implement to retain customers and reduce churn rates?

# Data Understanding

## Dataset Overview

Size: 3,333 rows, 21 columns

Target Variable: Churn (Binary: True/False)

## Feature Categories

**Customer Demographics:** State, account length, area code, phone number

**Service Plans:** International plan, voicemail plan

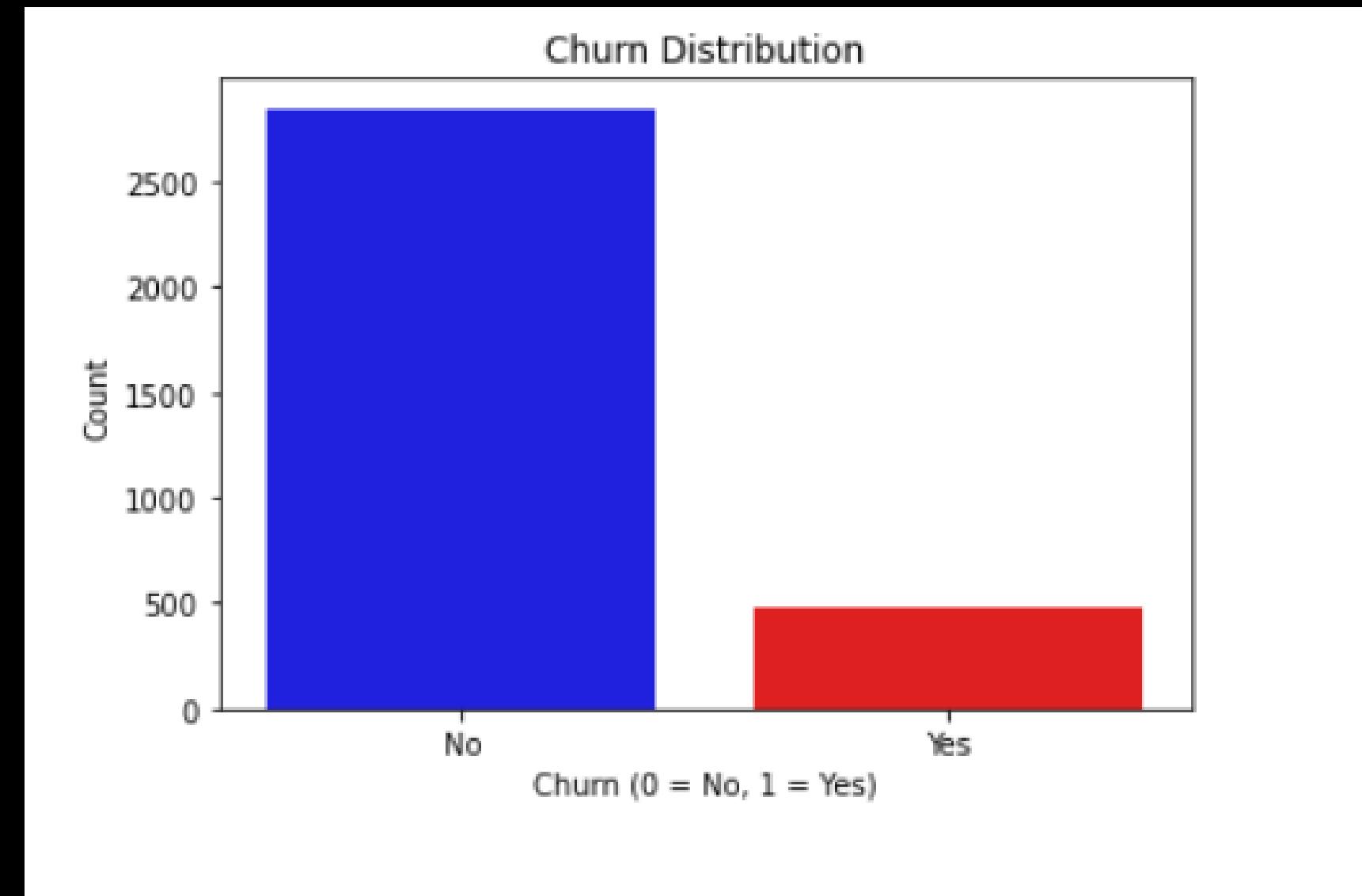
**Usage Behavior:** Total minutes, calls, and charges across different periods (day, evening, night, international)

**Customer Support Interaction:** Number of customer service calls

# Exploratory Data Analysis

Out of the 3,333 customers in the dataset, 483 have canceled their contracts with the company, accounting for a 14.5% churn rate.

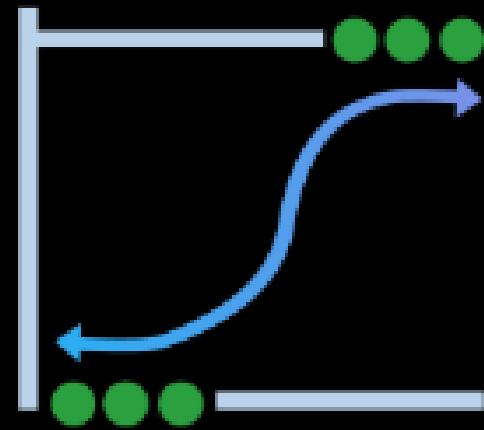
Yes(Red) = Customer churned  
No(Blue) = Customer retained



# Modeling

Three models were built to predict Churn and further improvements were made to achieve the best predictive results.

They include:



Logistic  
Regression

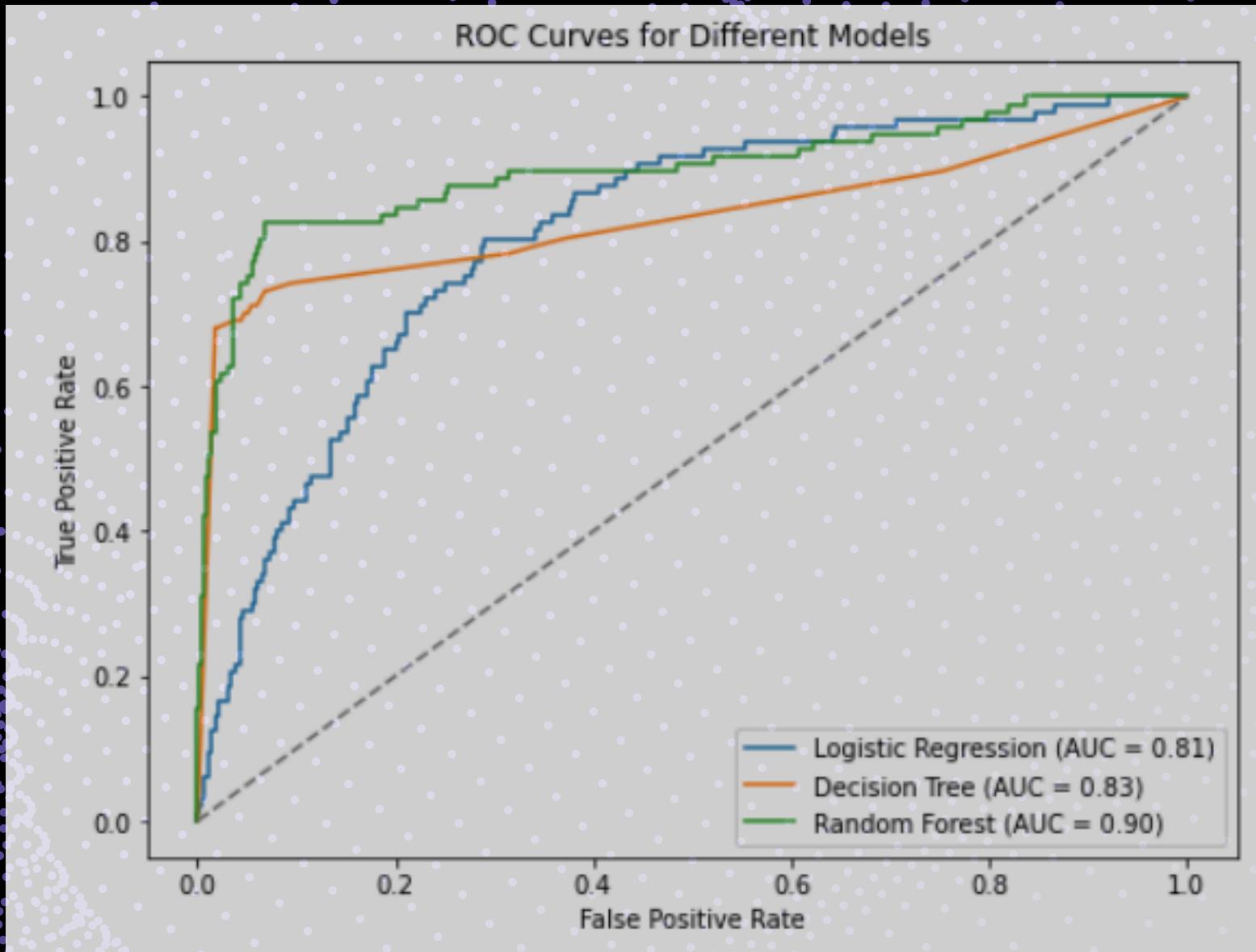


Decision  
Tree



Random Forest

# Model performance



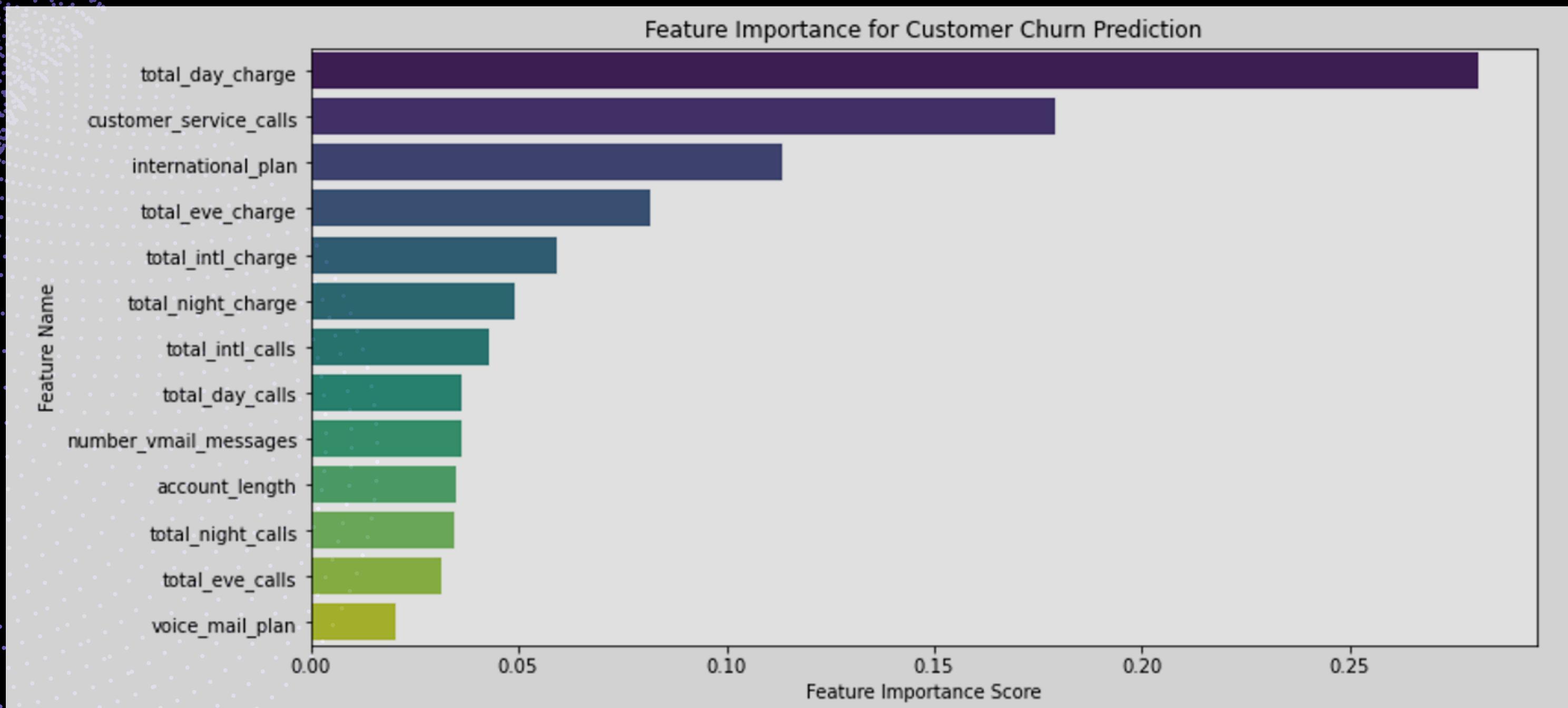
Best model to use: **Random Forest Classifier**

The model achieved

- Accuracy Score: 92%
- Precision Score: 70%
- Recall Score: 75%
- AUC Score: 90%

	Model	Accuracy (Test set)	Precision (Class 1)	Recall (Class 1)	F1-Score (Class 1)	ROC AUC Score
0	Logistic Regression (SMOTE)	0.76	0.76	0.35	0.47	0.8095
1	Decision Tree (Grid Search)	0.94	0.94	0.86	0.76	0.8300
2	Random Forest(ROS & RUS)	0.92	0.92	0.70	0.72	0.8976

# Feature Importance



# Conclusion

We recommend Random Forest Classifier as the best model for predicting customer churn due to its superior performance in accuracy, F1-score, recall, and precision.

## Key Recommendations

1. **Enhance Customer Support** – Reduce response times and improve service quality, as frequent customer service calls are a strong churn indicator.
2. **Optimize Pricing Plans** – High charges for calls suggest pricing may drive churn; offering competitive rates or flexible plans can help.
3. **Personalized Plan Offers** – Proactively suggest customized plans based on customer usage patterns (e.g., bonuses for frequent international callers).
4. **Loyalty Programs** – Reward high-usage customers with discounts or incentives to boost retention and engagement.

These strategies can help SyriaTel reduce churn and improve customer loyalty.

# THANK YOU!!

## Any questions?

Please feel free to reach out  
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