

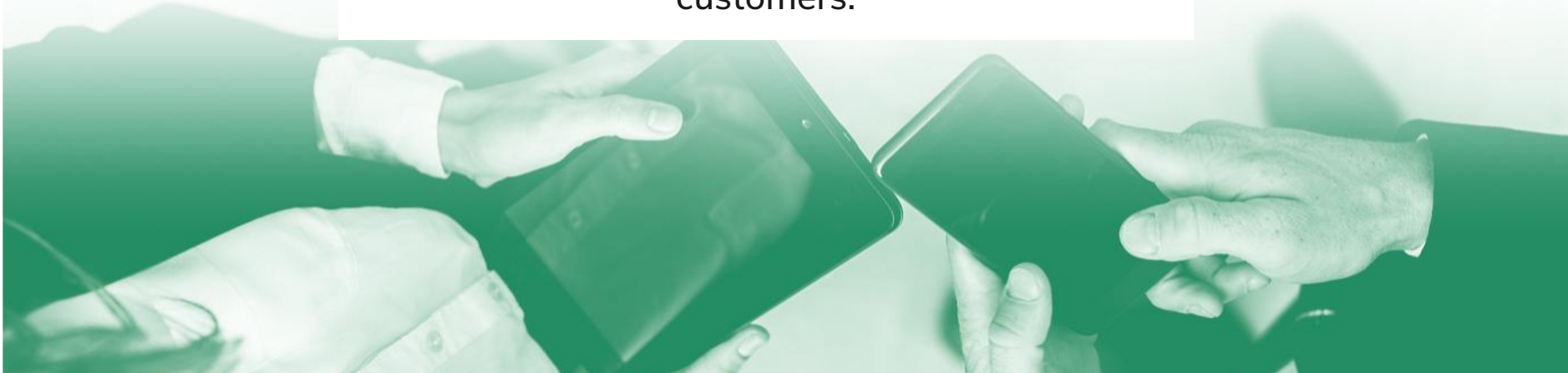
# Predicting Customer Churn: SyriaTel Telecom Company

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# Overview

With the company experiencing high customer churn, this project aims to develop a predictive model to identify customers likely to churn and identify proactive measures to retain the customers.



# Objectives



Identify the key factors  
influencing customer  
churn



Develop a predictive ML  
model to identify  
customers who are  
likely to churn and  
evaluate its  
performance.



Provide insights and  
recommendations for  
effective churn  
management

# Data

- The SyriaTel dataset used for this project contains information of 3,333 customers including their account length, usage patterns and customer service interactions.
- The dataset did not have any missing values
- By analyzing this data we developed a predictive model that can identify factors that are likely to make customers churn



# Methodology

## EDA

Exploratory Data Analysis used to gain insights into the data and identify the key factors influencing customer churn

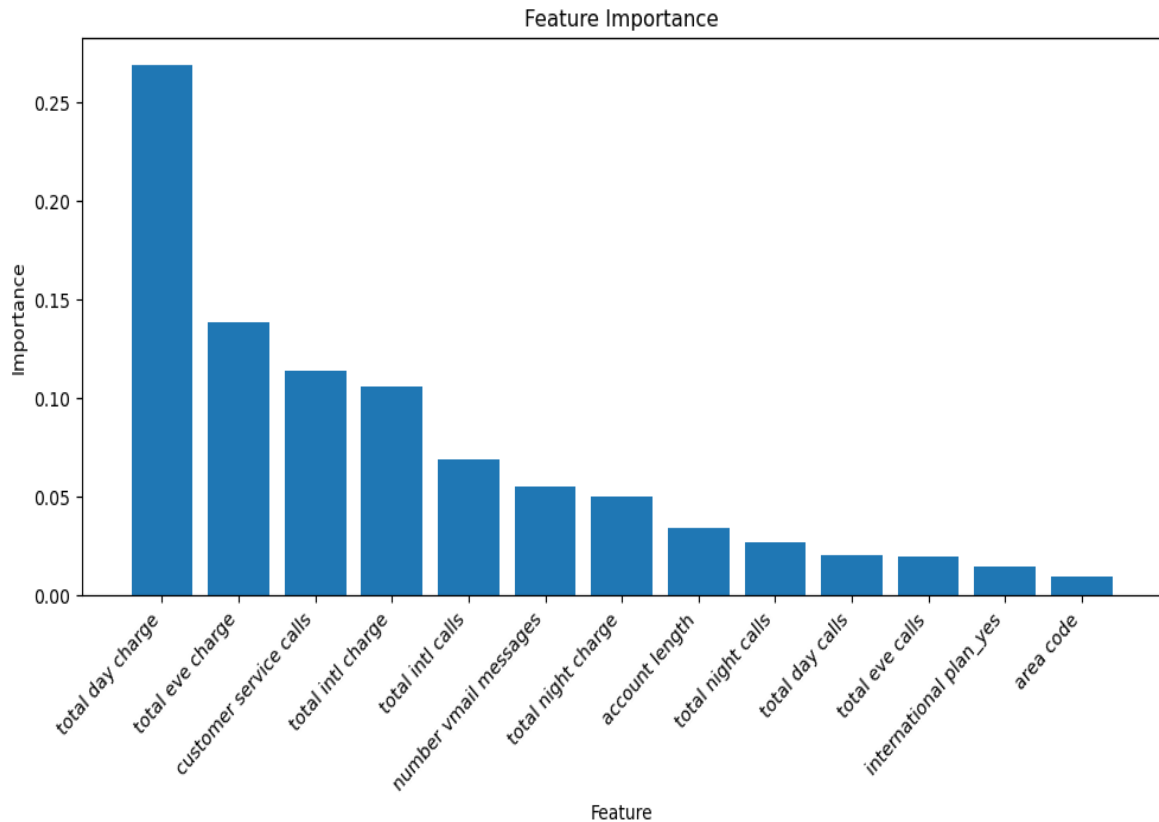
## Modelling

A predictive model developed using a variety of machine learning algorithms

## Evaluation

The performance of the predictive models were evaluated using accuracy, precision, recall and F-1 Score

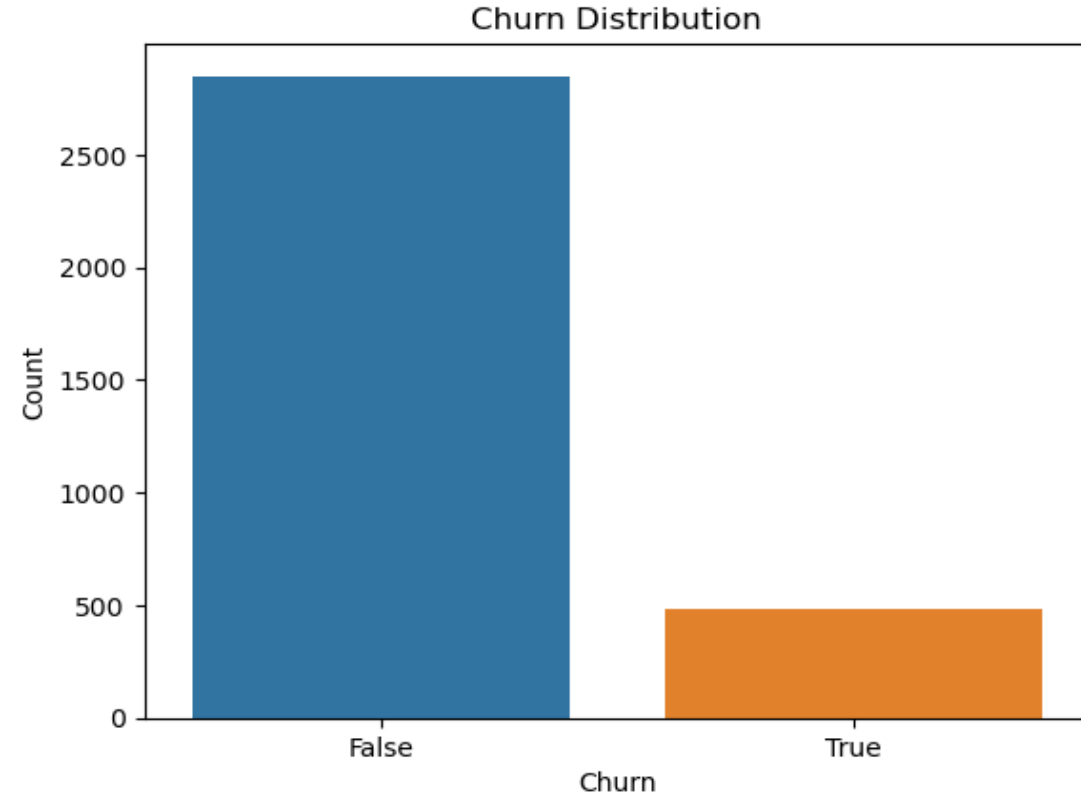
# Key Factors Affecting Customer Churn



The most important features for predicting churn are:

- Total day charge
- Customer service call
- Total Evening charge
- Total International charge

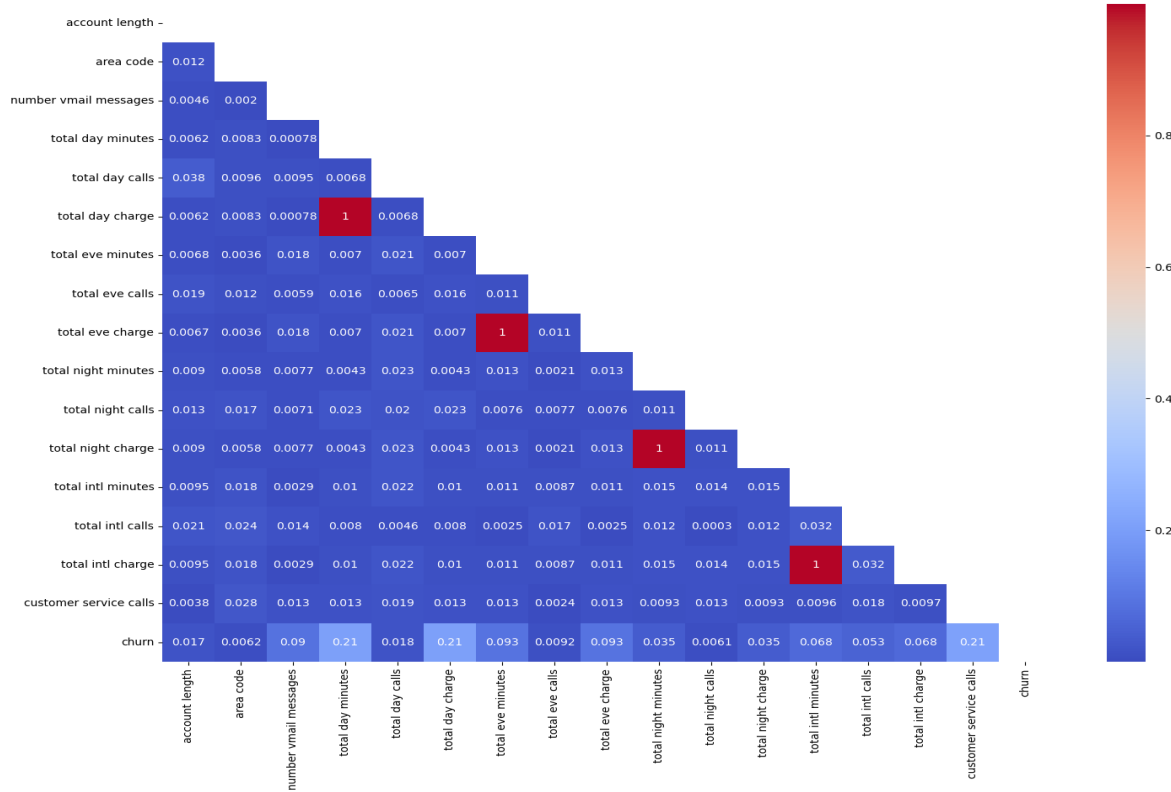
# Univariate Analysis: Churn Distribution



- The majority of customers in the dataset did not churn (represented by 'False' in the 'churn' variable).

# Bivariate Analysis: Dealing with Multicollinearity

Correlation Matrix of SyriaTel Customer Churn data



- Due to high multicollinearity between each other, we dropped the following columns:
- total day minutes
- total eve minutes
- Total intl minutes
- total night minutes



# Predictive Modelling & Model Evaluation

Model	Accuracy	Precision	Recall	F1 Score	ROC AUC Score
Logistic Regression	0.850	0.515	0.168	0.254	0.799
K-Nearest Neighbors	0.855	1.000	0.040	0.076	0.520
Decision Trees	0.930	0.781	0.743	0.761	0.853
Random Forest	0.919	1.000	0.465	0.635	0.733

# Conclusion

- The number of churned customers is noticeably smaller compared to the number of customers who did not churn
- The most important feature for predicting churn is **total day charge**. This means that the amount of money a customer spends on day calls is a strong predictor of whether they will churn.
- The second most important feature is **customer service calls**. This means that customers who make more customer service calls are more likely to churn.
- Other important features include **total eve charge**, **total intl charge**, and **international plan**. These features all relate to the amount of money a customer spends on their phone service, which is a strong predictor of churn.
- The least important features are **account length**, **area code**, and **number vmail messages**. These features do not seem to be very predictive of churn.



A photograph of two women, one with long dark hair and one with curly dark hair, both smiling and looking at a tablet held by the woman with curly hair. The image is overlaid with a semi-transparent green filter.

# Recommendations

Based on our findings, these are our recommendations in order to reduce customer churn::

- **Reduce the amount of money customers spend on day calls:** SyriaTel could offer discounts on day calls, or they could offer a package that includes unlimited day calls.
- **Reduce the number of customer service calls:** SyriaTel could create a knowledge base where customers can find answers to their questions, or they could offer live chat support.
- **Consider offering international plans.** Customers who have international plans are less likely to churn. This could be done by offering more affordable international plans, or by making it easier for customers to sign up for international plans.
- **Ignore account length, area code, and number vmail messages.** These features are not very predictive of churn, so there is no need to focus on them.

# Thank you!

Do you have any questions?

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