PREDICTING CUSTOMER CHURN FOR SYRIATEL

Predictive Model for Data Analysis

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BUSINESS UNDERSTANDING

BACKGROUND INFORMATION

Customer churn/turnover is a significant concern for telecommunications companies like SyriaTel. Churn occurs when customers discontinue their service, leading to revenue loss and increased costs for acquiring new customers.

Understanding and predicting churn enables companies like SyriaTel to take proactive measures to retain customers at risk of leaving, thereby improving customer satisfaction and reducing financial losses.

Objective

The primary objective of this project is to develop a predictive model that identifies SyriaTel customers likely to end their relationship with the company.

By accurately predicting the turnover, SyriaTel can focus its retention efforts on at-risk customers, ultimately reducing churn rates and enhancing the company's profitability.

Dataset Overview

The dataset used in this project contains records of 3,333 SyriaTel customers. The dataset includes various attributes related to customer demographics, account details, service usage, and customer service interactions. The target variable is churn, a binary indicator of whether a customer has stopped using SyriaTel's services.

Business Problem

For SyriaTel, retaining customers is crucial to maintaining a stable revenue stream. By analyzing data on customer behavior and service usage, the company can identify patterns that suggest a higher likelihood of turnover. The predictive model developed in this project will assist SyriaTel in implementing targeted retention strategies, such as personalized offers or improved customer support, to reduce churn.

Data Understanding

The dataset consists of 3,333 customer records, each containing 21 attributes with features such as:

- State: The U.S. state in which the customer resides.
- Account length: The duration of the customer's account.
- Area code: The area code of the customer's phone number.
- Phone number: The customer's phone number.
- International plan: Whether the customer has an international calling plan.
- Voice mail plan: Whether the customer has a voice mail plan.
- Churn: A binary column indicating if the customer has churned (True) or not (False)
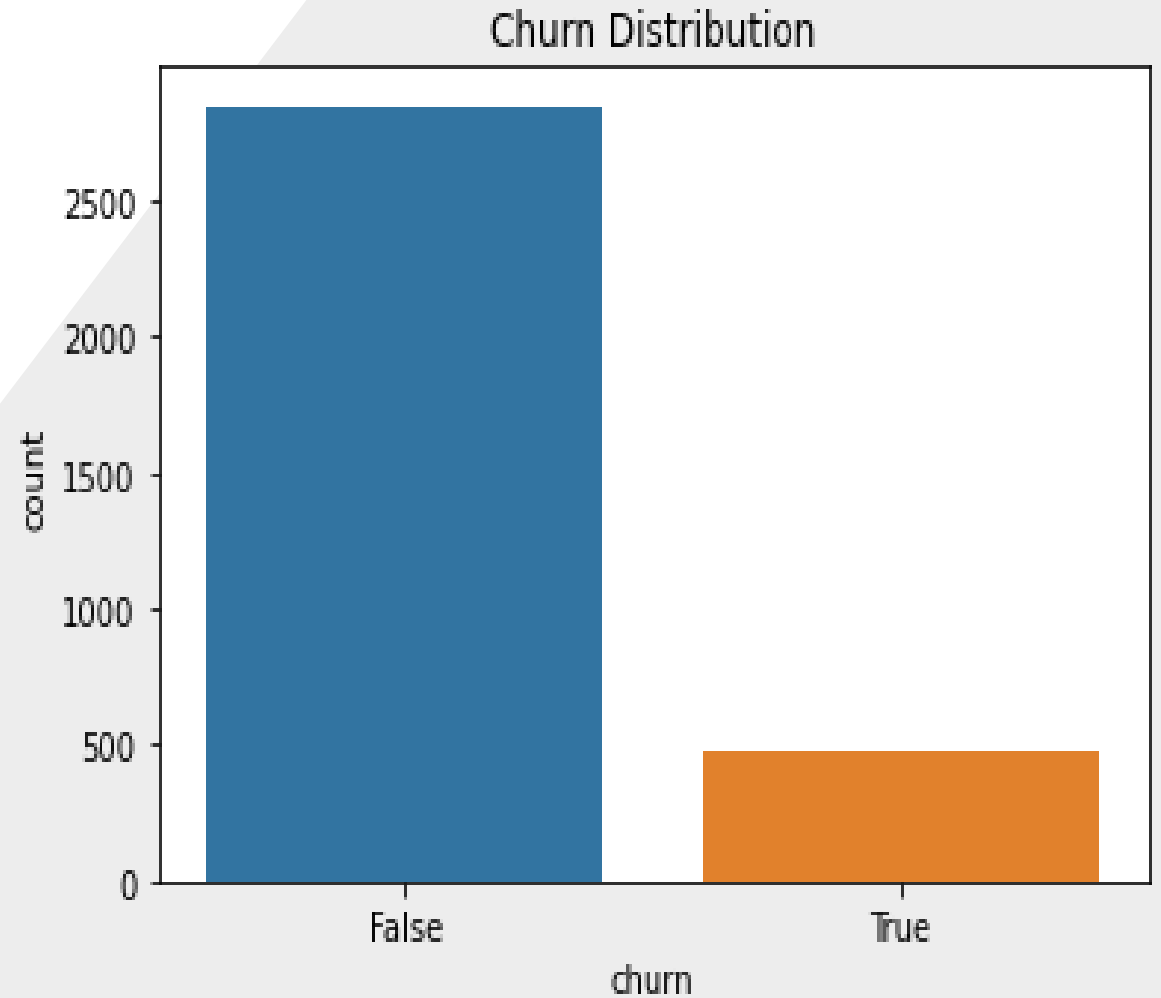
EXPLORATORY DATA ANALYSIS

A. How are the churned and non-churned customers distributed?

Majority of SyriaTel customers are non-churned with only a few churned.

This indicates an imbalanced dataset which could greatly impact model performance.

B. What is the correlation between the elements in the dataset?

Most of the elements show weak correlations (close to 0). This indicates that most features are not strongly correlated with each other.

The weak correlation indicates that each feature contributes independently to predicting SyriaTel's customer turnover.

Feature Correlation Matrix
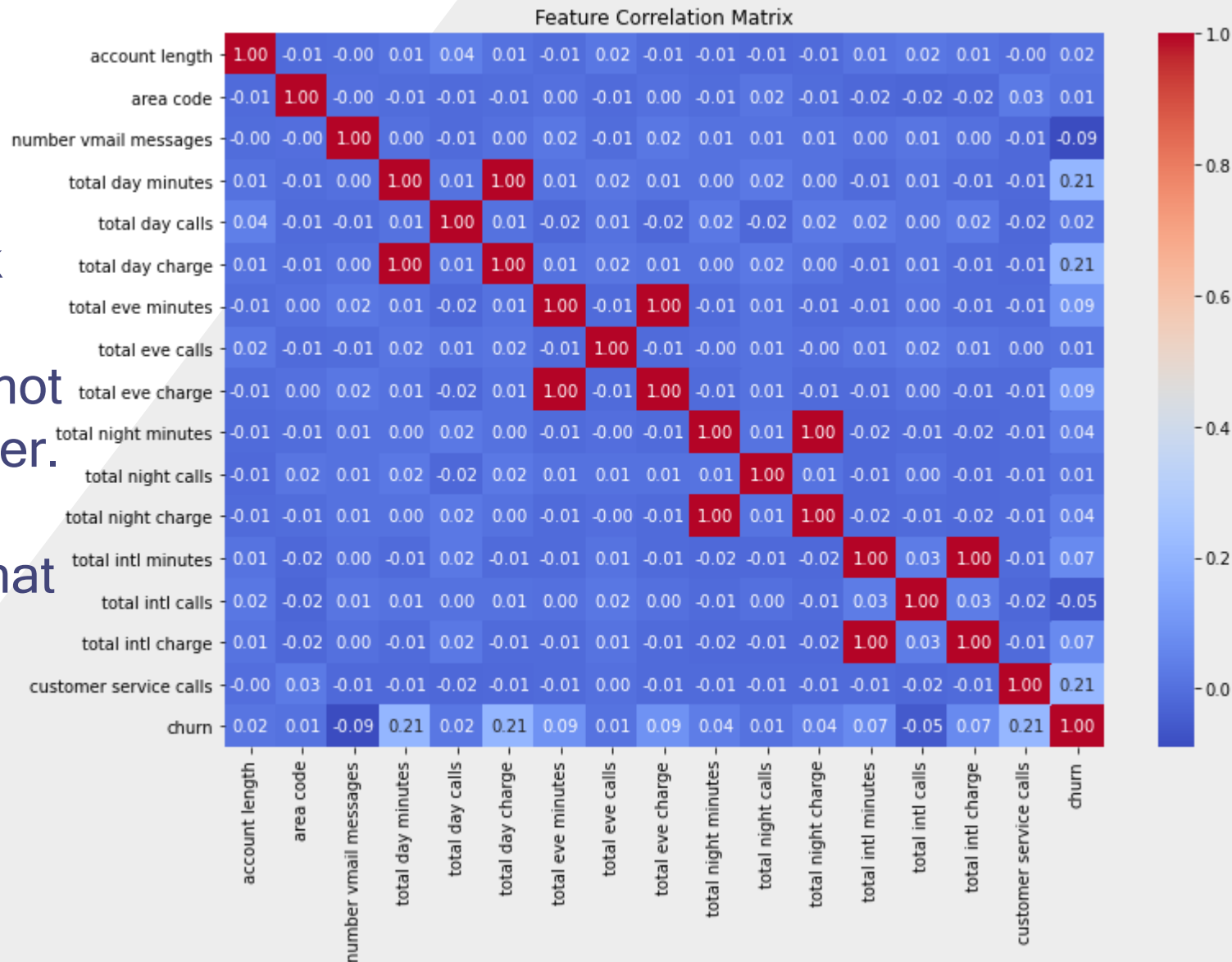
C. How does one of the features "Total Day Minutes" influence churning?

The distribution of non-churned customers is fairly normal, dorminates the plot and peaks around the middle while churned customers' distribution is spread out with a lower peak.

The plot suggests that higher usage might be associated with an increased likelihood of churn.
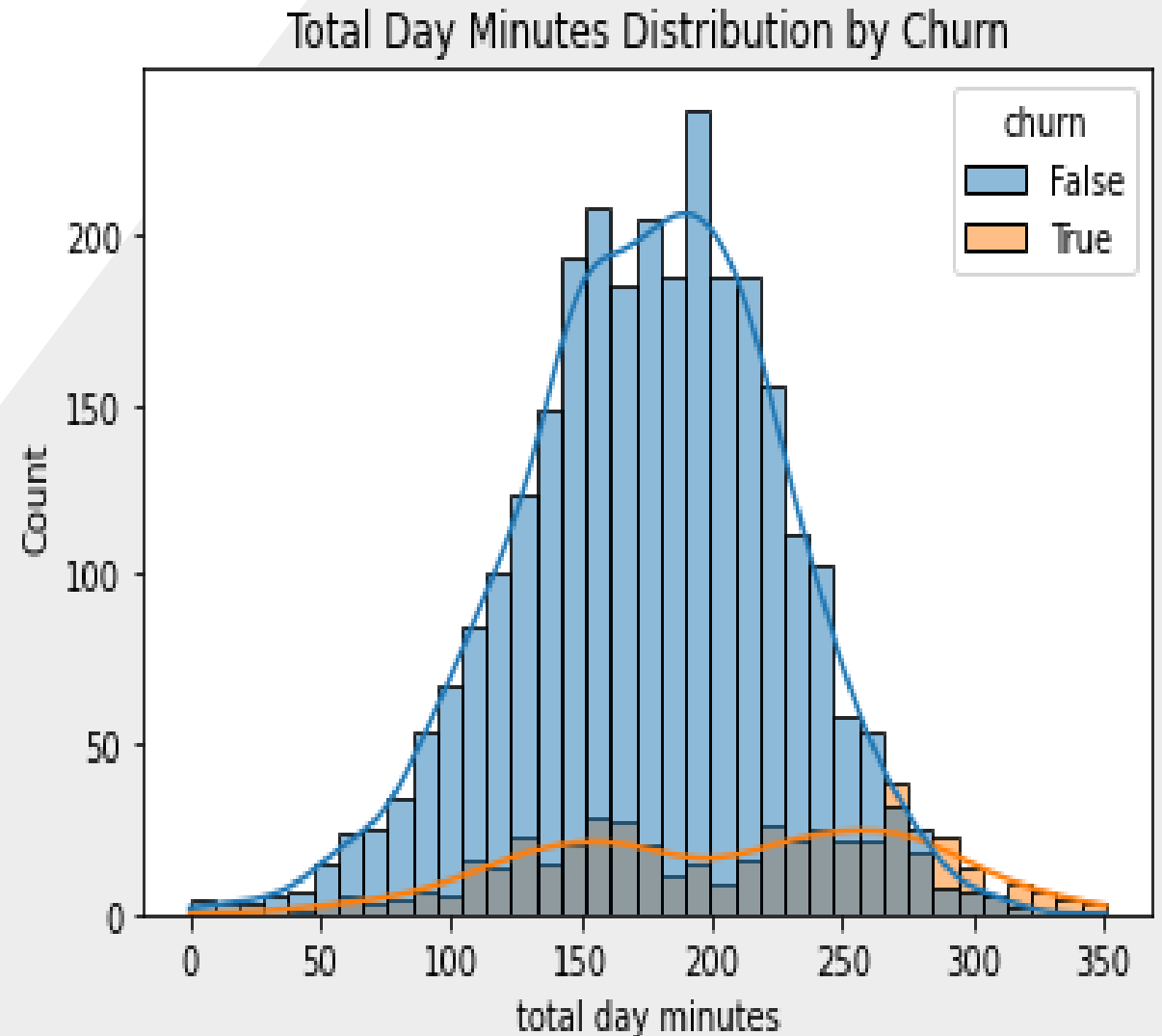
Total Day Minutes Distribution by Churn

## A. How important is each feature in predicting customer churn?

Total day minutes, customer service calls, international plans, total international charges and voice mail plans are the 5 most important features in predicting customer churn.

Feature Importance after SMOTE
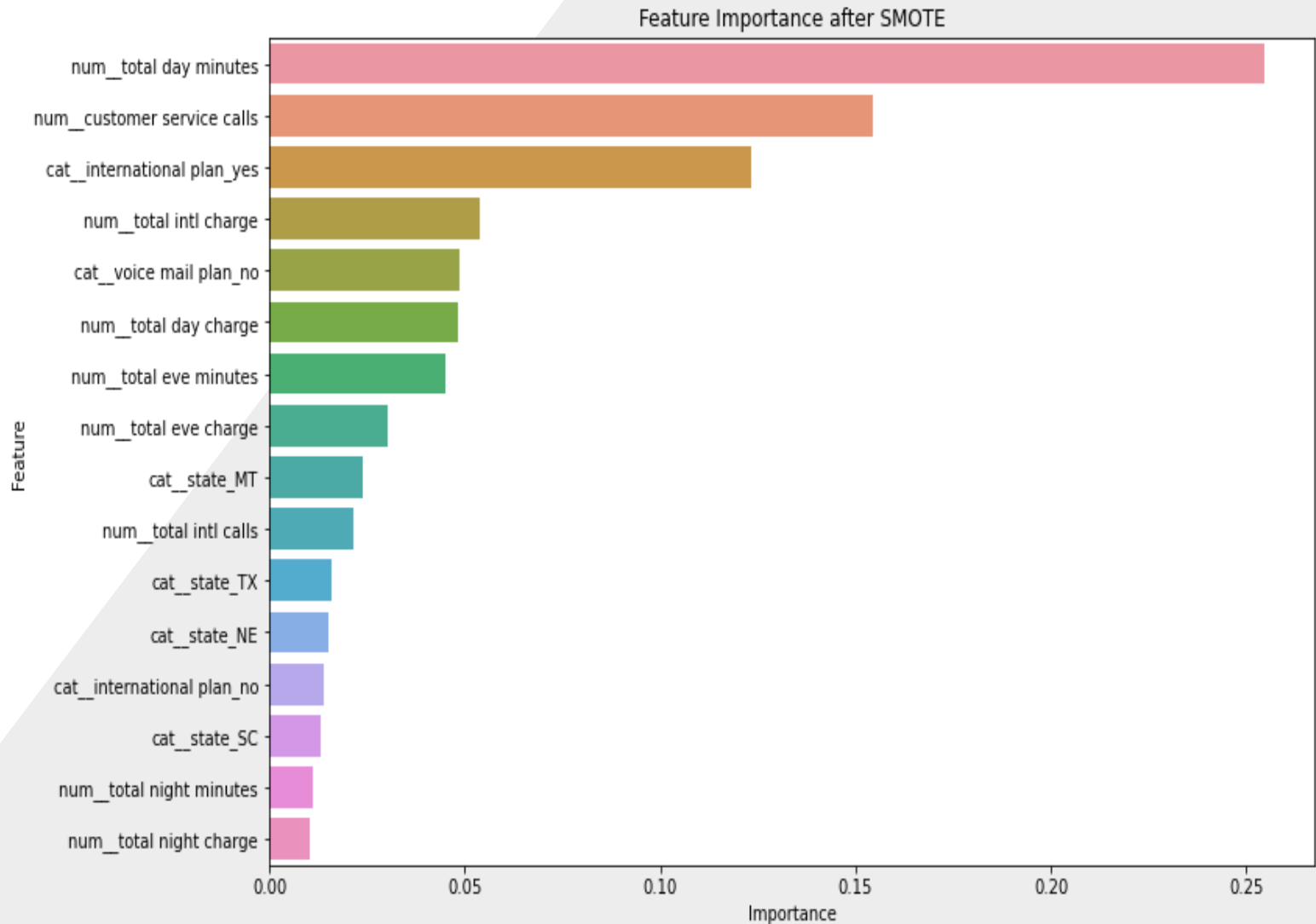
# B. What is the predicted customer churn for SyriaTel?

Our model has predicted 503 customers who are likely to churn.

This enables the SyriaTel to make data-driven decisions, proactively address potential issues, optimize resource allocation, and ultimately improve customer retention and profitability.

Churn Probability Distribution
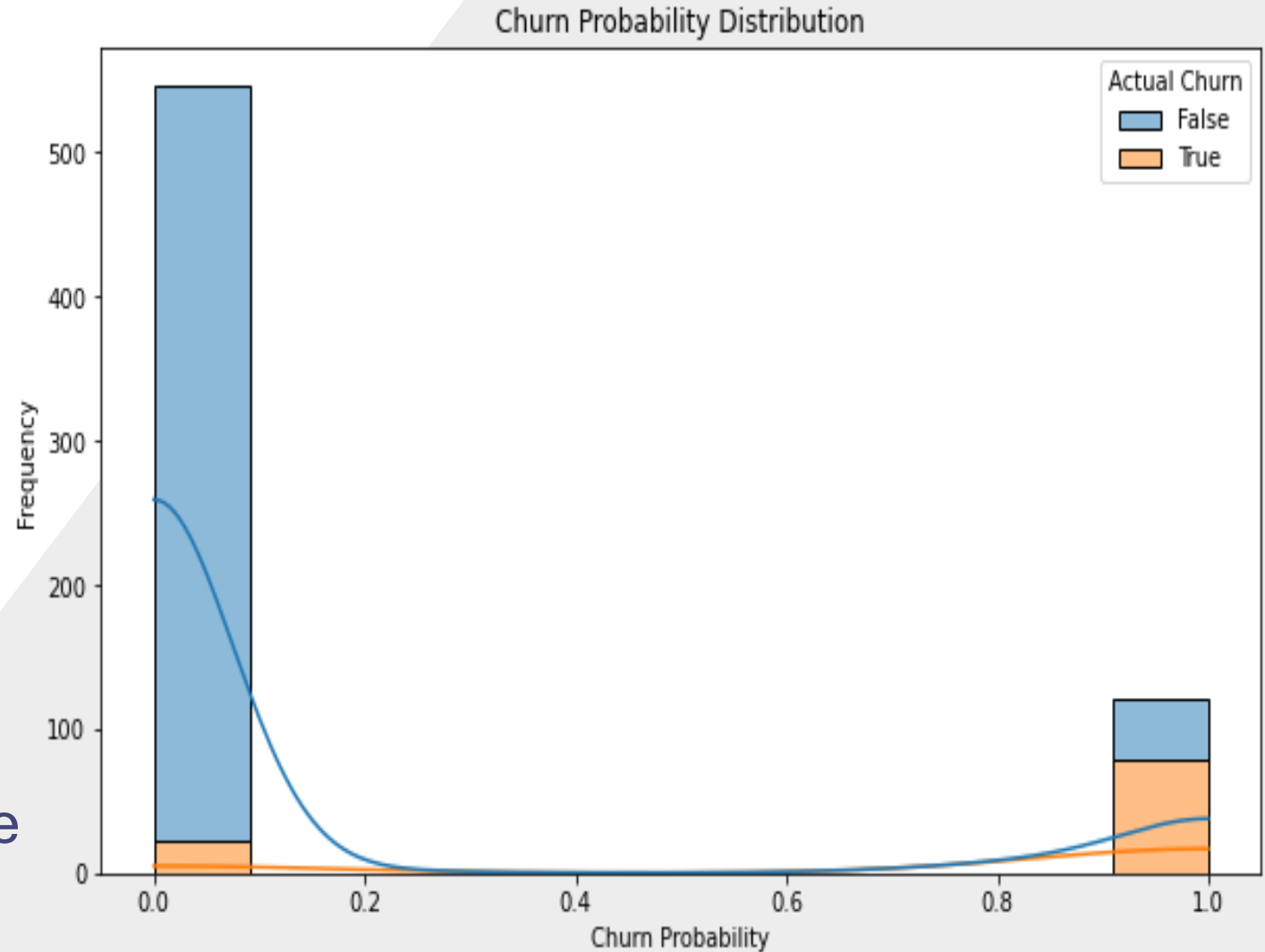
C. How does Decision Tree make this decisions?

This is a visual representation of how decisions were made in our model
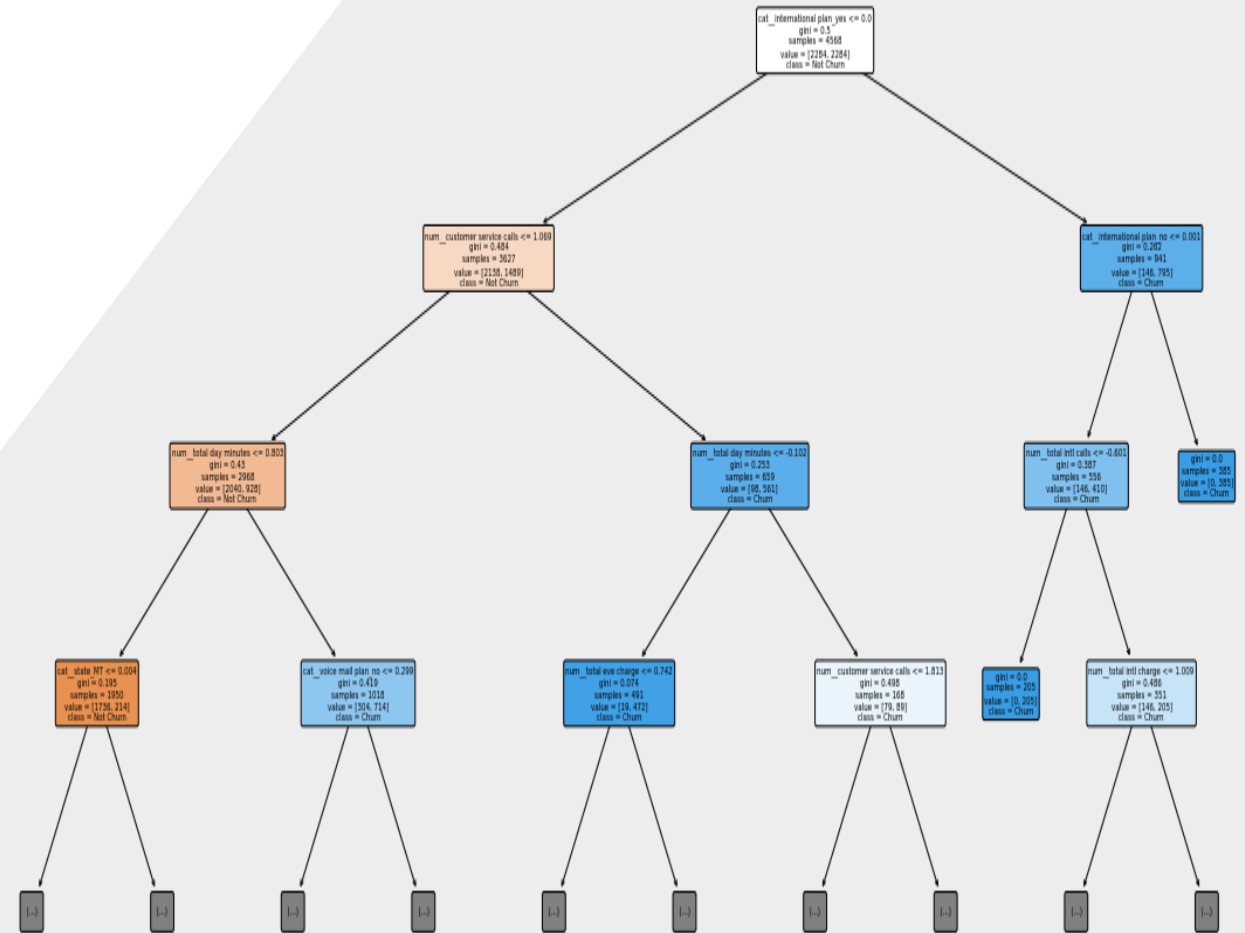
Business Implications and Recommendations

1. **Customer Retention**

SyriaTel need to implement targeted retention strategies, such as reducing charges for day calls to increase total day minutes spent by customers, improved customer service, introducing international and voicemail plans, and reducing international charges which can reduce churn rates.

2. **Resource Allocation**

Effectively allocating resources based on factors affecting churn involves understanding the specific issues driving customer turnover and implementing targeted strategies to address them.

Syriatel therefore need to allocate their resources to areas such as customer service, pricing, introducing favorable plans, and personalized engagement, which can enhance customer satisfaction, reduce churn, and ultimately drive business growth.

3. **Predictive Monitoring**

We identified 503 customers who are likely to stop using SyriaTel services. Identifying potential churners allows Syriatel to implement targeted retention strategies, such as personalized offers or improved customer service, which can reduce churn rates.

Retaining customers is often less costly than acquiring new ones. By predicting churn, the Syriatel can focus its efforts and resources on high-risk customers, optimizing marketing and customer support efforts thus safeguard its revenue streams and improve profitability.

QUESTIONS AND CLARIFICATIONS

THANK YOU