Predicting Customer Churn: SyriaTel Telecommunications

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Overview

❑ **Business Problem:** SyriaTel Communications has tasked me to provide prediction analysis on which of their customers are likely to churn.

     ❑ **Churn -** "A measure of the number of individuals or items moving out of a collective group over a specific period"

❑ **Business Question:** What features in the dataset are weighed the most in predicting which customers will churn?

Data Understanding

❑ **Stakeholder:** SyriaTel Communications

❑ **Churn in Telecom's dataset from Kaggle.com**
   ❑ **state -** US state of customer residence
   ❑ **account_length** - Number of months the customer has been with the current telco provider.
   ❑ **international_plan** - (yes/no). The customer has international plan.
   ❑ **voice_mail_plan** - (yes/no). The customer has voice mail plan.
   ❑ **number_vmail_messages** - numerical. Number of voice mail messages.
   ❑ breakdown of call minutes, charges, and number of calls for day, evening, night, and international.
      ❑ **total_day_charge**
   ❑ **number_customer_service_calls** – Number of calls to customer service.
   ❑ **churn** - (yes/no). Customer churn – target variable.

Modeling

❑ Highest scoring method: **Decision Tree Classifier**
  ❑ **66 % Recall Score**

❑ Evaluation Metric:
  ❑ False negatives are costly
  ❑ Optimize for Recall
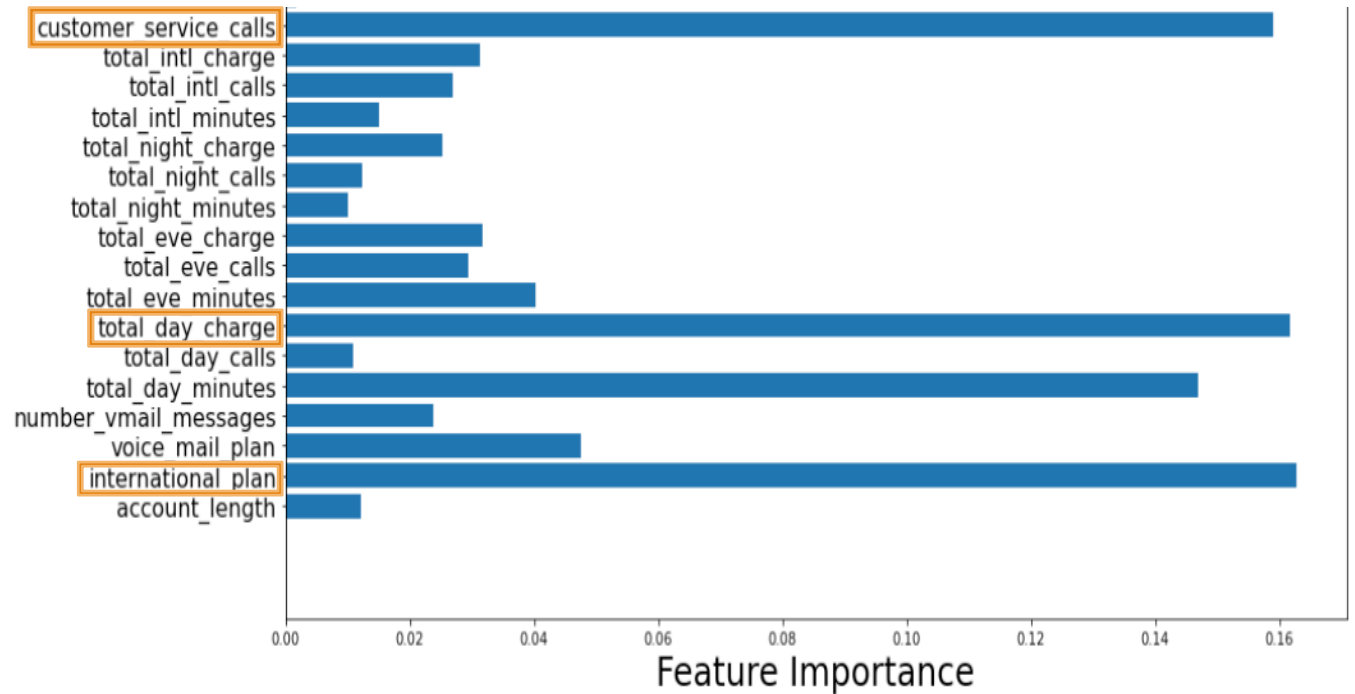   ❑ Recall is a measure of the correct positive predictions

❑ Important Features:
  ❑ International plan
  ❑ Customer service calls
  ❑ Total day charge

$$Recall = \frac{True\ Positive}{True\ Positive + False\ Negative}$$

$$= \frac{True\ Positive}{Total\ Actual\ Positive}$$

Important Features
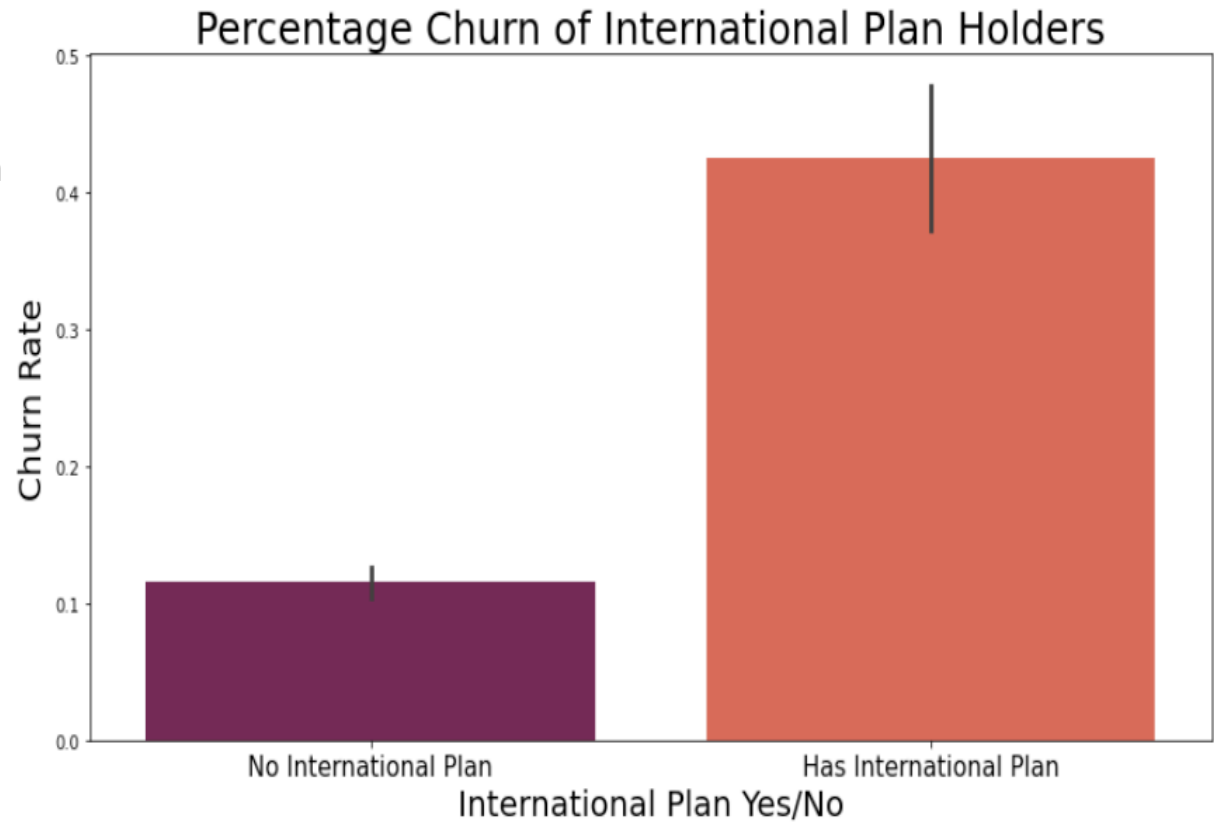
Top 3 weighted features:
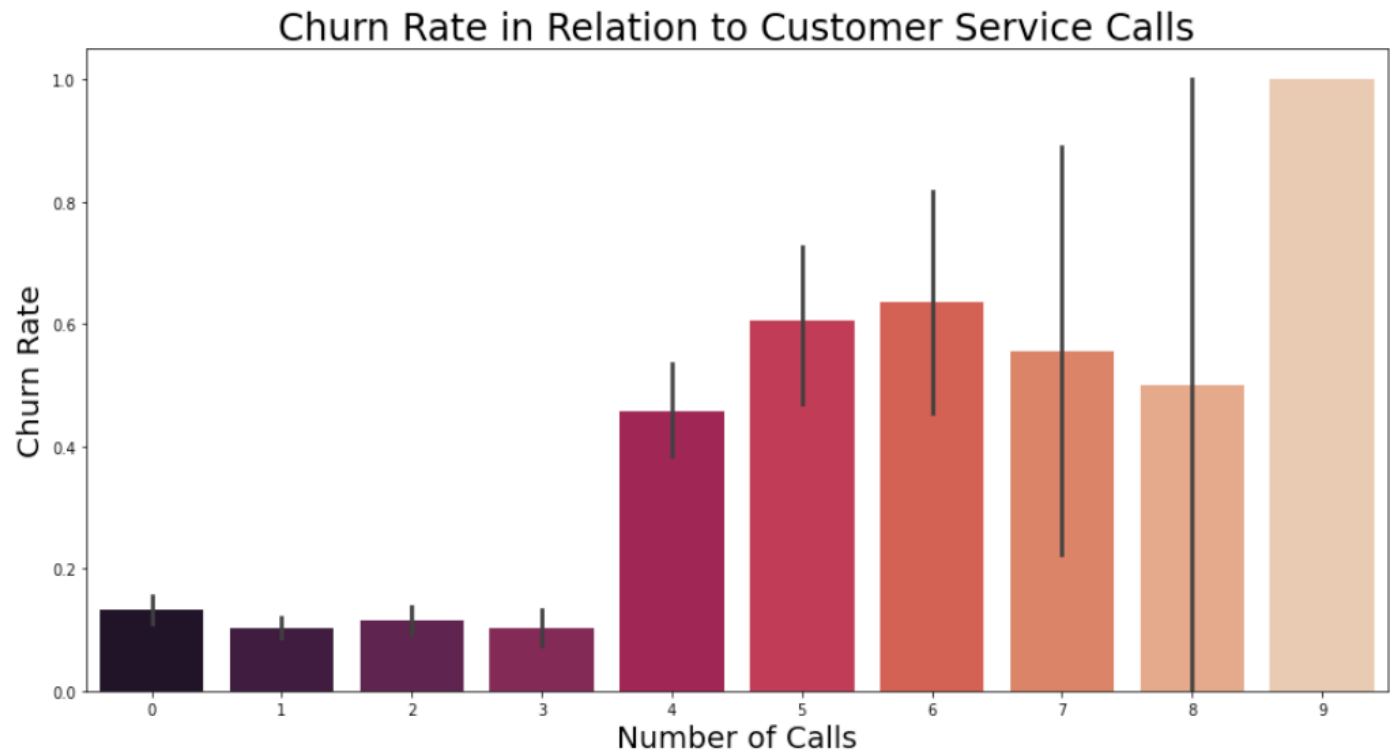- International plan
- Customer service calls
- Total day charge

International Plan

❑ 42% churn rate for international plan holders.

❑ 11% churn rate for customers with no international plan.

Percentage Churn of International Plan Holders
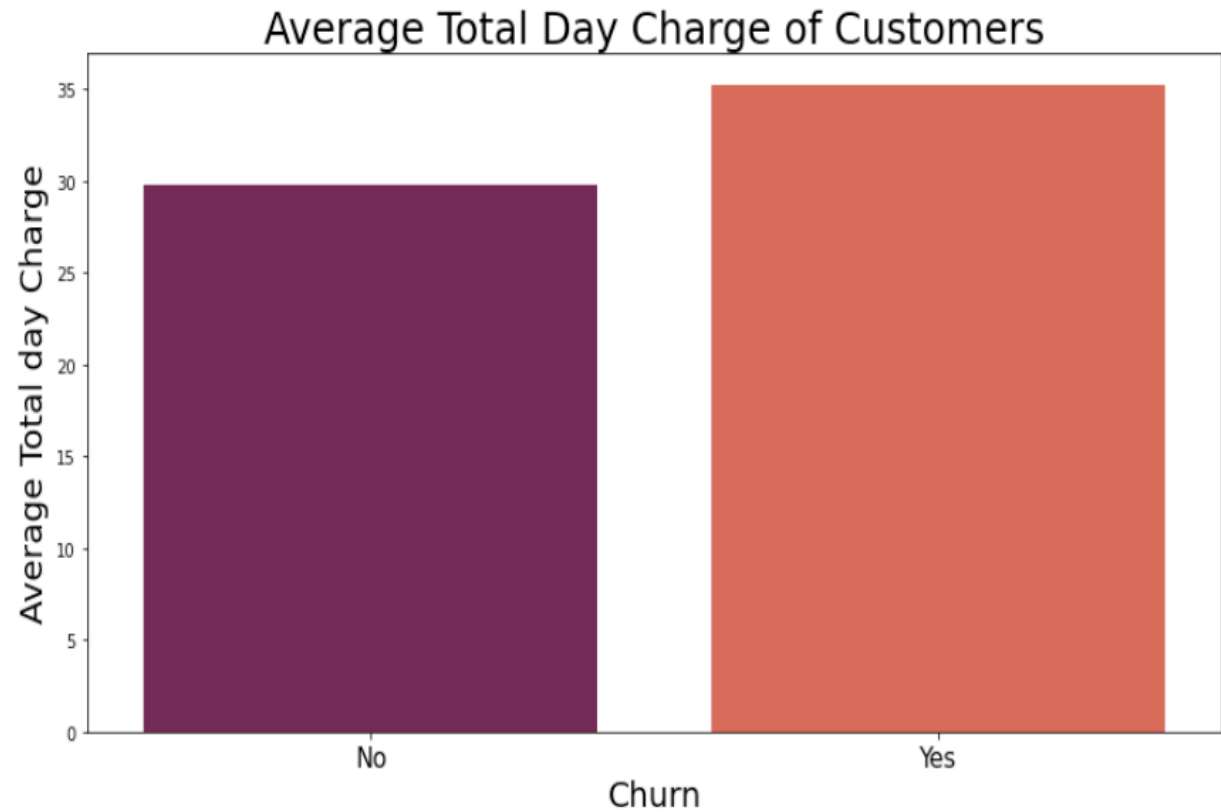
Customer Service Calls

□ Churn rate significantly increases
   when customers call customer
   service 4 times.

Churn Rate in Relation to Customer Service Calls

Total Day Charge

❑ Average total day charge for a customer who has churned is $35.18

❑ Average total day charge for a current active customer who has not churned is $29.78

Average Total Day Charge of Customers

Recommendations

❑ Determine if international plans are meeting the customers needs.
   ❑ Implement new plan features or cost reduction to retain international plan holders.

❑ Managers of the customer service department must strategize and train their teams to better assist customers with the goal of reducing the number of times a customer has to call in regards to their service.

❑ Explore ways to retain customers that have an average total day charge of $35.
   ❑ possibly with creating new incentives to their phone plans.

THANK YOU

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🔗 **https://github.com/MHolthouser
1024/dsc-phase-3-project-v2-3**