

Predicting Customer Churn: SyriaTel Telecommunications

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Contents

☐ Overview

- ☐ Business Problem
- ☐ Business Question

☐ Data Understanding

- ☐ Stakeholder
- ☐ The data

☐ Modeling

- ☐ Winning Model
- ☐ Evaluation Metric

☐ Feature Visualizations

- ☐ International_plan
- ☐ Customer_service_calls
- ☐ Total_day_charge

☐ Recommendations



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**

❑ Evaluation Metric:

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

$$recall = \frac{TP}{TP+FN}$$

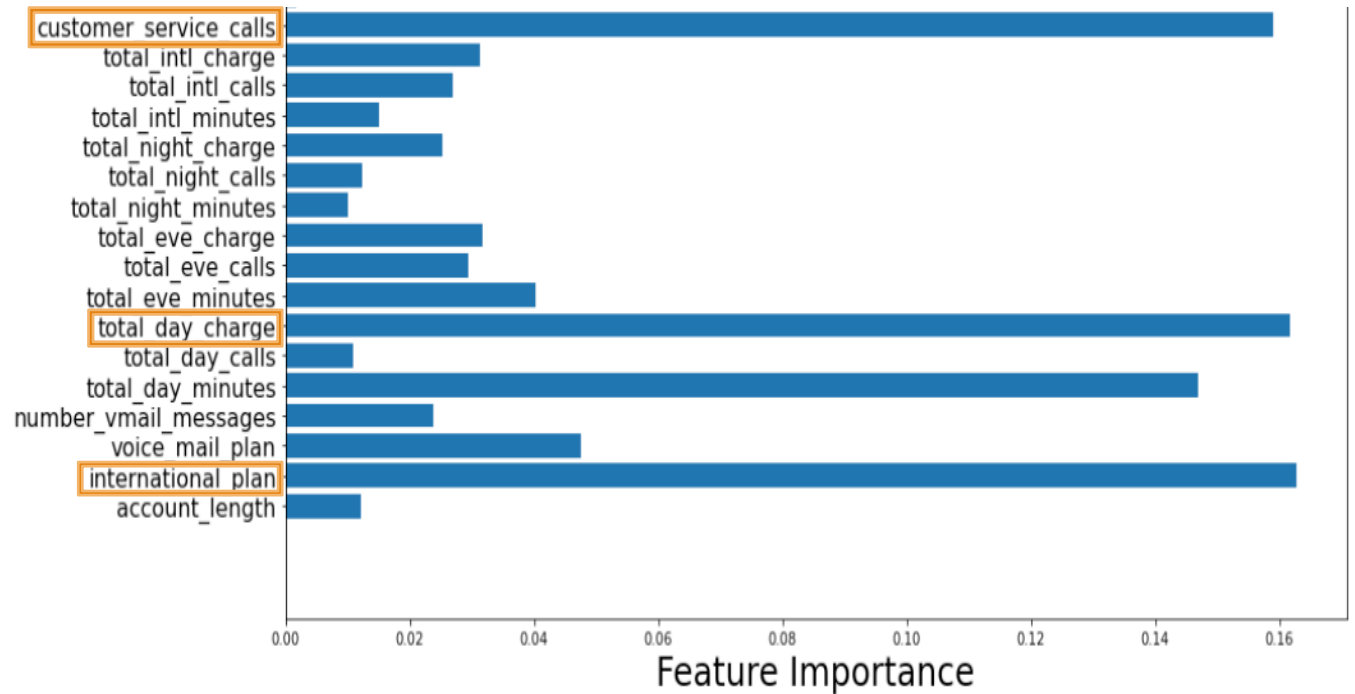
❑ Important Features:

- ❑ International plan
- ❑ Customer service calls
- ❑ Total day charge

Important Features

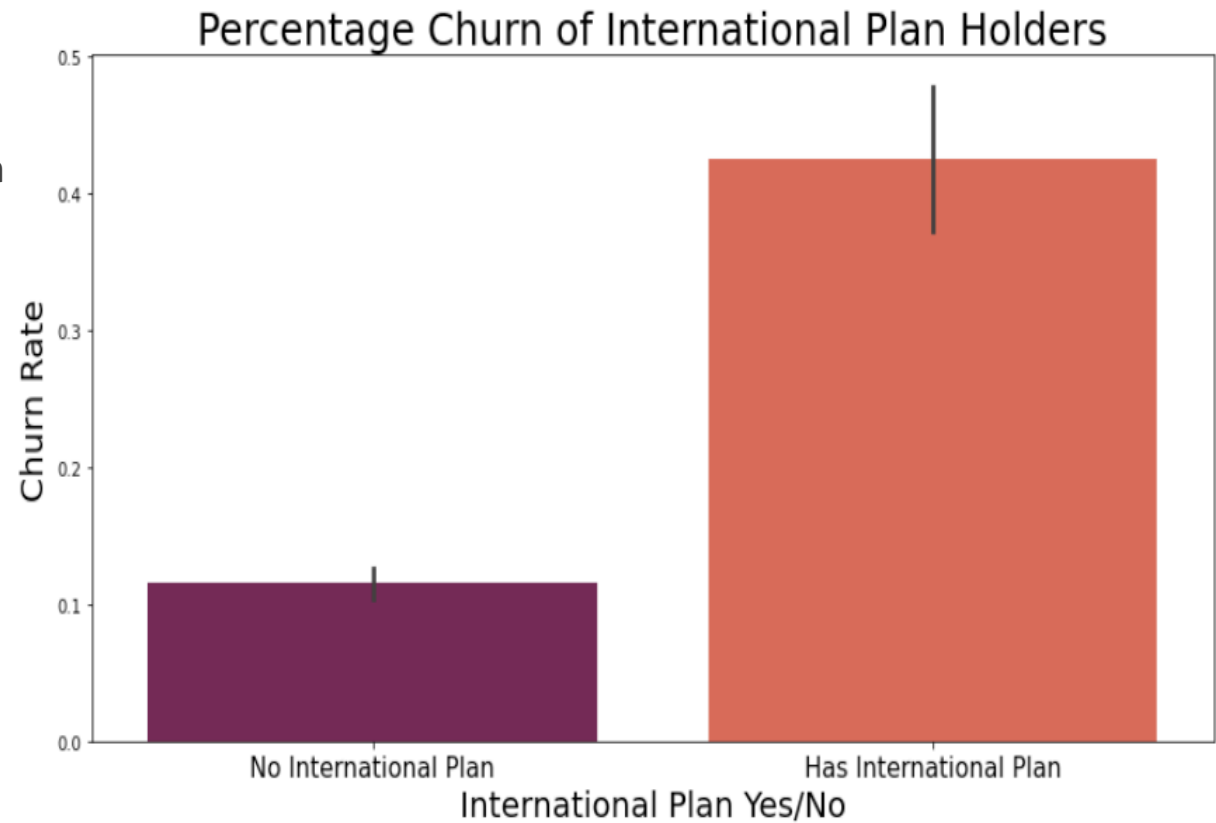
Top 3 weighted features:

- International plan
- Customer service calls
- Total day charge

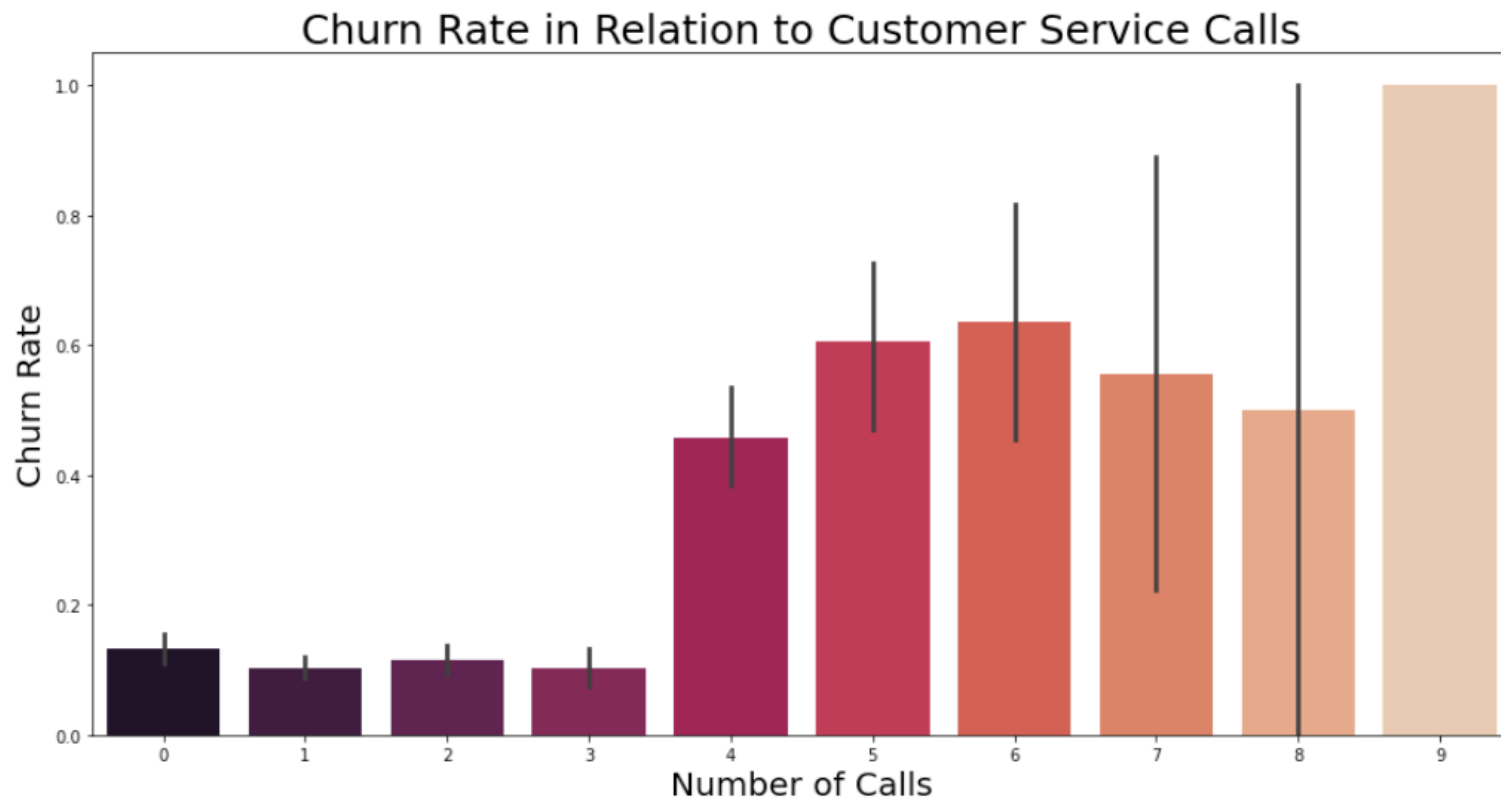


International Plan

- ❑ 42% churn rate for international plan holders.
- ❑ 11% churn rate for customers with no international plan.



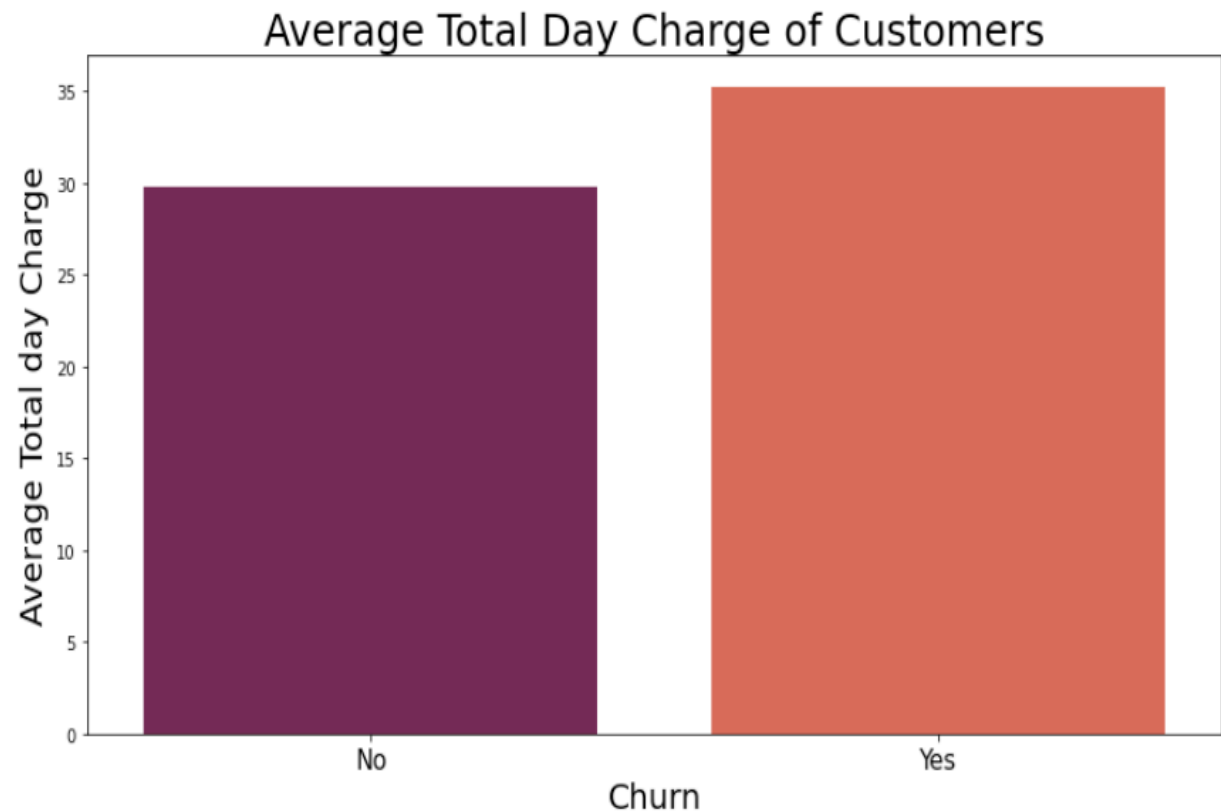
Customer Service Calls



Total Day Charge

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

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



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/MHolthouser1024/dsc-phase-3-project-v2-3>