Reducing Churn to Increase Life Time Value

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Agenda

1. Problem
2. Business and data understanding
3. Modeling
4. Results
5. Recommendations
6. Limitations

Problem

Are there any predictable patterns that determine churn for the Telecom Company?

This analysis seeks to *classify* customers who leave the service (churn) and determine which levers can be pulled to *increase customer retention*.

Business and Data Understanding

The data:

- Telecom Data
- Includes 20 customer variables ranging from state to account length
- Omitted irrelevant variables such as phone number

Final variables include ➜

```
state
account length
area code
international plan
voice mail plan
number vmail messages
total day minutes
total day calls
total day charge
total eve minutes
total eve calls
total eve charge
total night minutes
total night calls
total night charge
total intl minutes
total intl calls
total intl charge
customer service calls
churn
```

Modeling

Approached the data with 3 modeling types:

- Logistic Regression, Decision Forest Classifier, and XGBoost Classifier
- Created baseline models, then tuned parameters through Grid Search
- Evaluated feature importances of best performing model: XGBoost

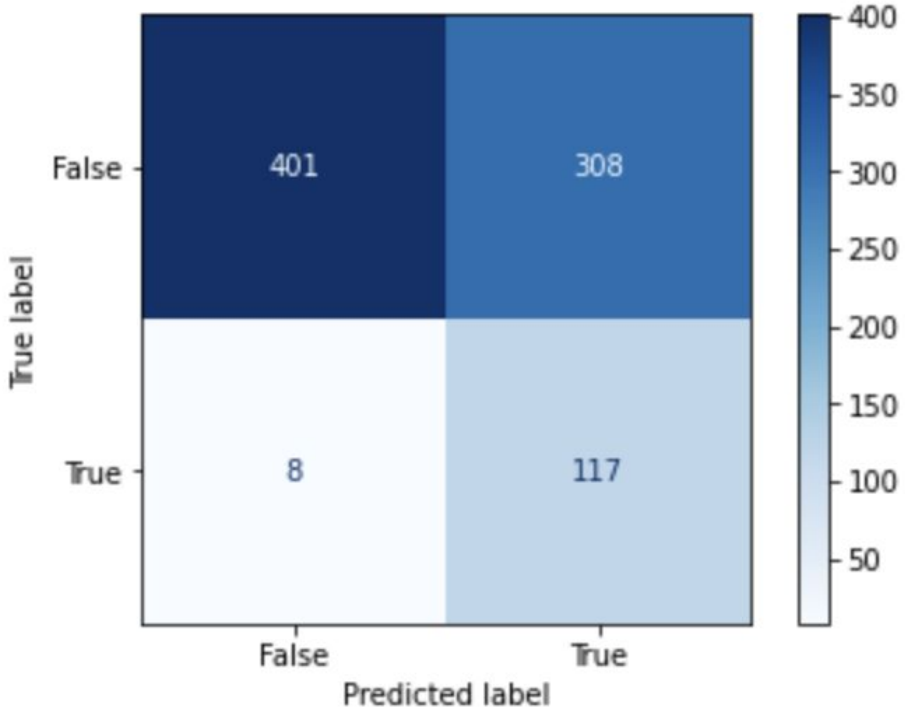
Recall

Optimized models for recall. This leaves us susceptible to false positives, but missing potential churners is a greater concern than misclassifying non-churners.

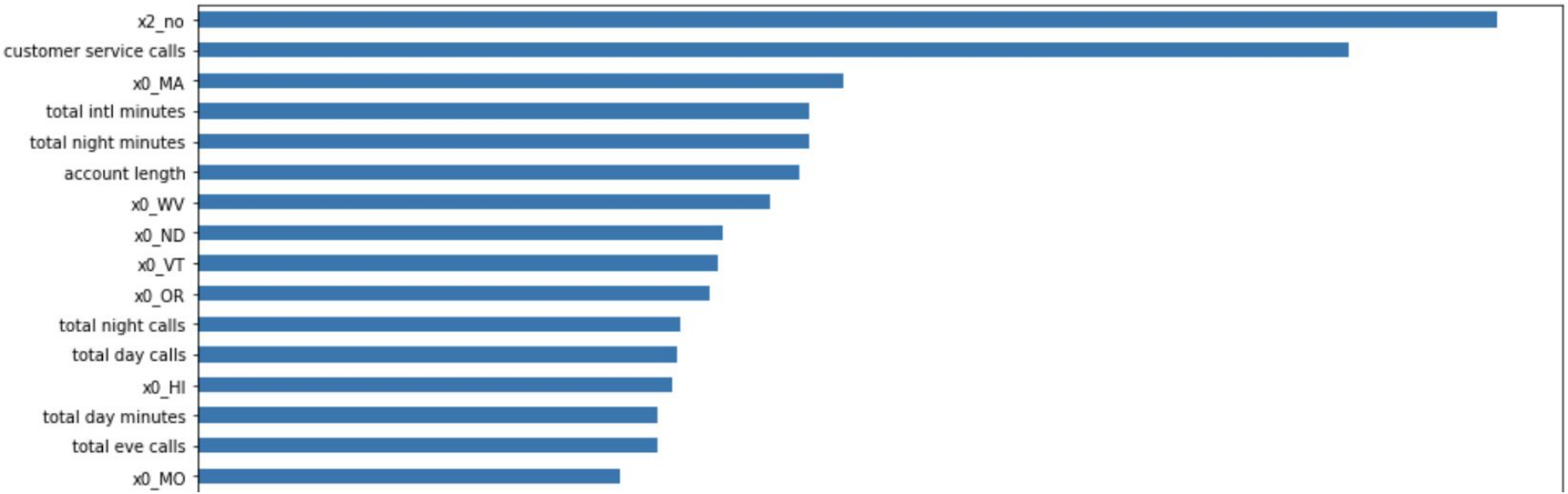
$$\text{Recall} = \frac{\text{Number of True Positives}}{\text{Number of Actual Total Positives}}$$

Results

- Recall: 0.936
- Accuracy: 0.62



Feature Importance



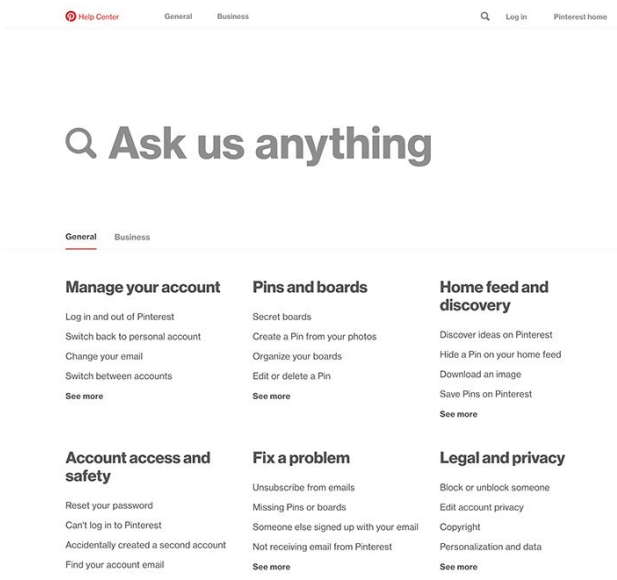
Recommendations

Our best performing model, XGBoost, identified the following features as most important to predicting churn:

1. Not having an international plan
2. Number of customer service calls
3. Being a MA customer

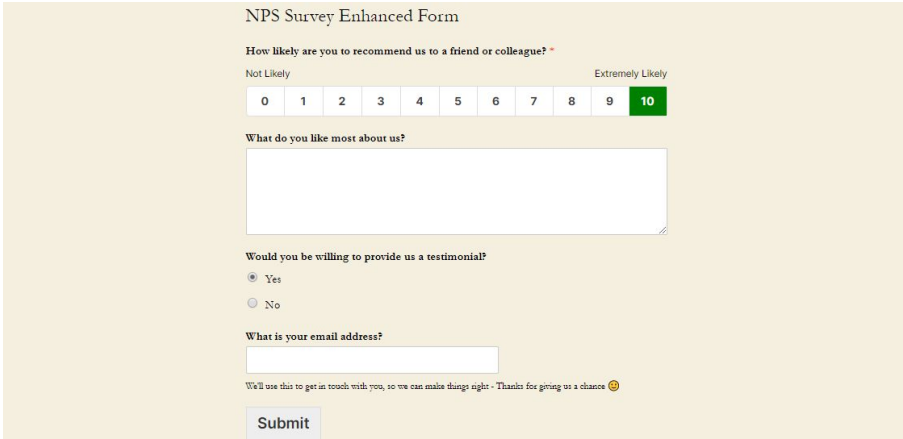
A tailored, automated email flow (Klaviyo) addressing common pain points to customers with more than 2 customer service calls.

- Assuage the most common concerns that customers have
- Likelihood of churn decreases



A **comprehensive investigation of the MA market.**

1. First, customers in MA should be sent a survey assessing their level of satisfaction with the service, as well as assessing their pain points and complaints.
2. These survey results should be analyzed to find why MA customers are more likely to churn.



A renewed focus on customers in the **international plan segment**.

- Target international customer segment with a new marketing campaign designed to bring these higher lifetime value customers into our network.
- Drive revenue growth with better quality customers who spend more and churn less.

Customer Lifetime Value = Average Revenue per User / Churn

Limitations

Our final algorithm optimized for recall produces false positives at a higher rate than the baseline.

- False positives may produce inefficiencies at scale, since the model may produce many false positives when used on large data sets.
- Problems may include wasted marketing communications and customer annoyance.

Questions