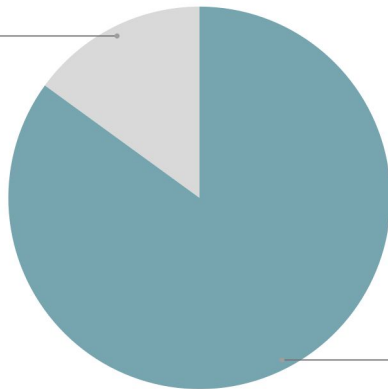# SyriaTel Customer Retention Program

8/16/2022

Business Problem

Develop a preventative customer retention plan that will decrease the current churn rate.

Customer Retention

Churn
15.0%

Retained
85.0%

The Data

Target Variable : Churn

Predictive Features:

| state	voicemail plan	total eve minutes	total night charge,
account length	number vmail messages	total eve calls	total intl minutes
area code	total day minutes	total eve charge	total intl calls
phone number	total day calls	total night minutes	total intl charge
international plan	total day charge	total night calls	customer service calls

Iterative Modeling Approach

DummyClassifier

Logistic Regression

Decision Tree
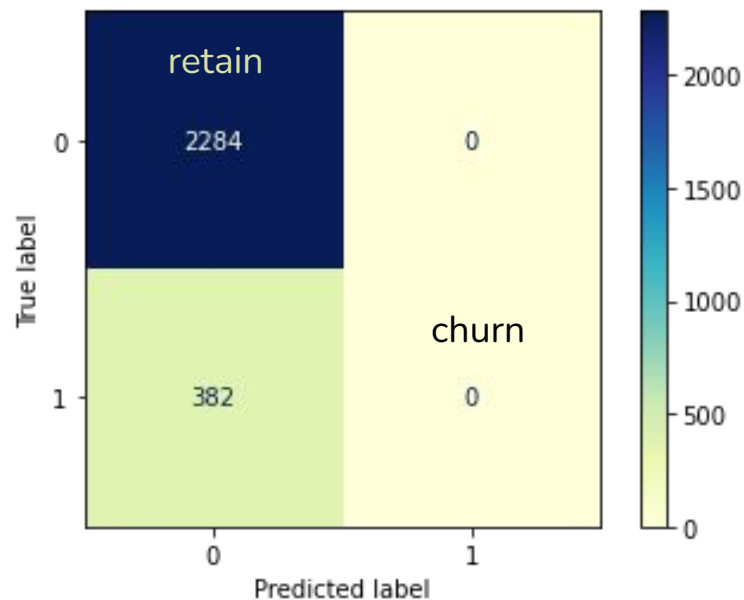
Random Forest Classifier
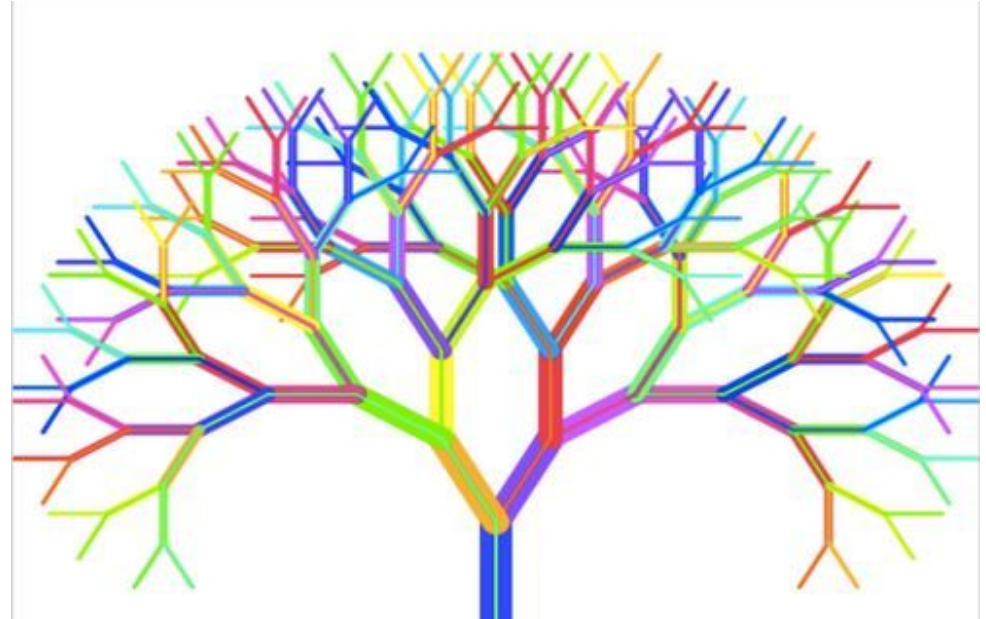
Baseline Model

A Dummy Classifier will predict the dominant class.

Model has 85% Accuracy but fails to identify any of the **churned** customers.

Evaluation Metric: Recall

TRUE NEGATIVE Correctly Identified Retain	FALSE POSITIVE Identified Churn But Retained $$
FALSE NEGATIVE Failed to Identify Churn $$$$	TRUE POSITIVE Correctly Identified Churn

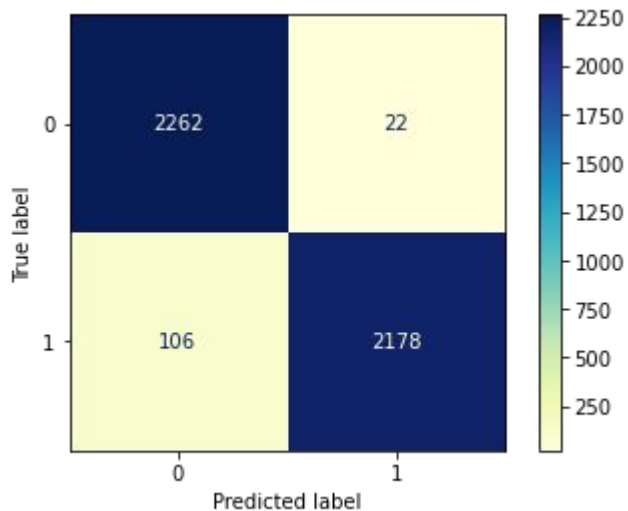Recall: How many churns can we identify.

Primary Concern: False Negatives
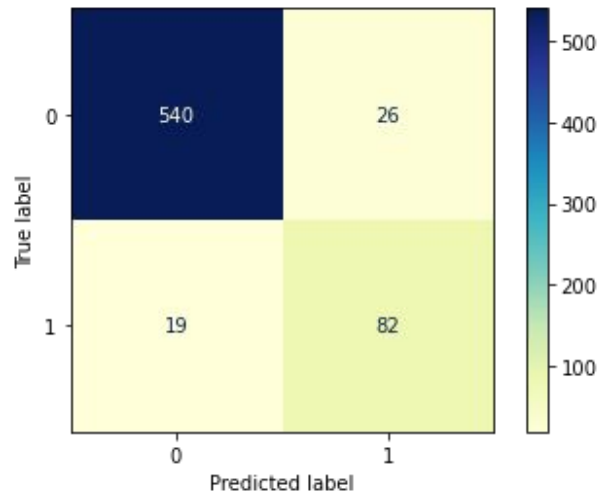
Final Model - Random Forest Classifier
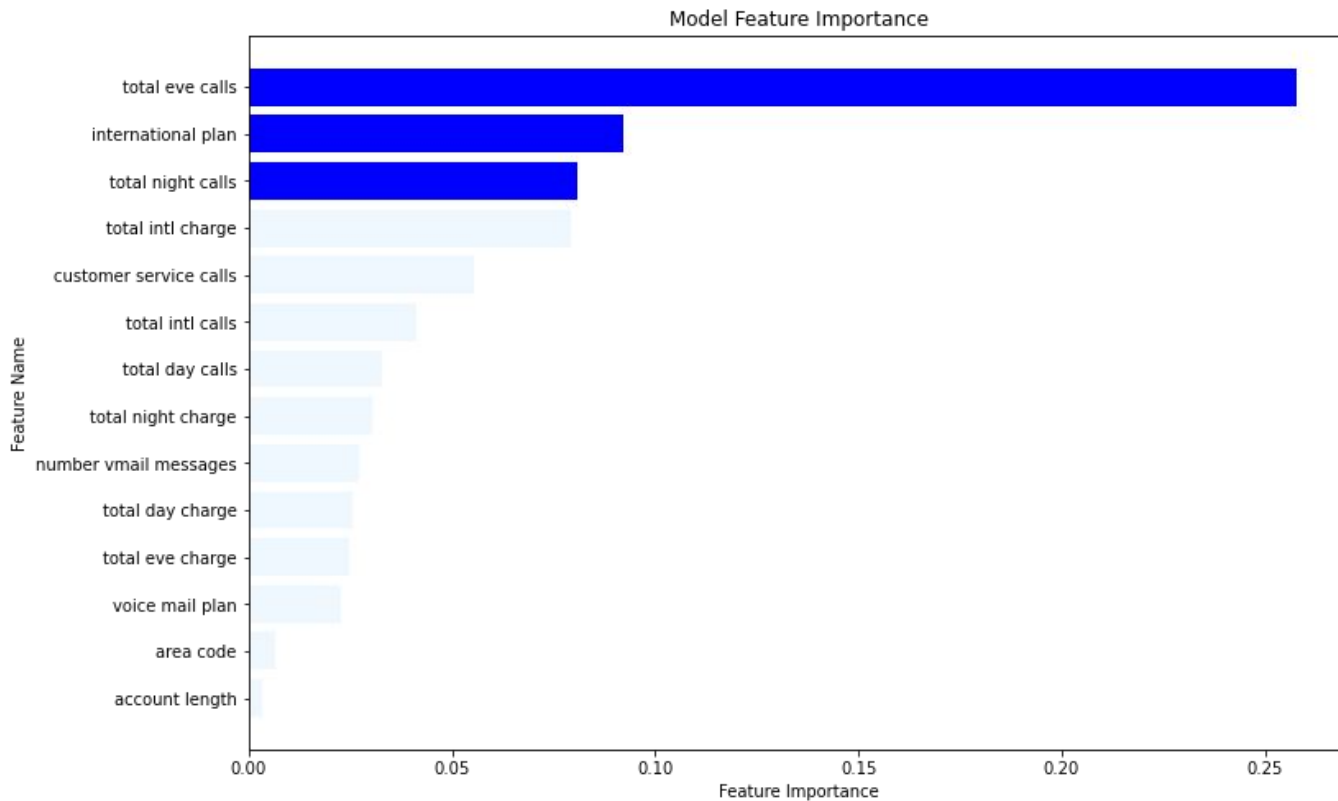
Training Results

Recall : 95%

Test Results

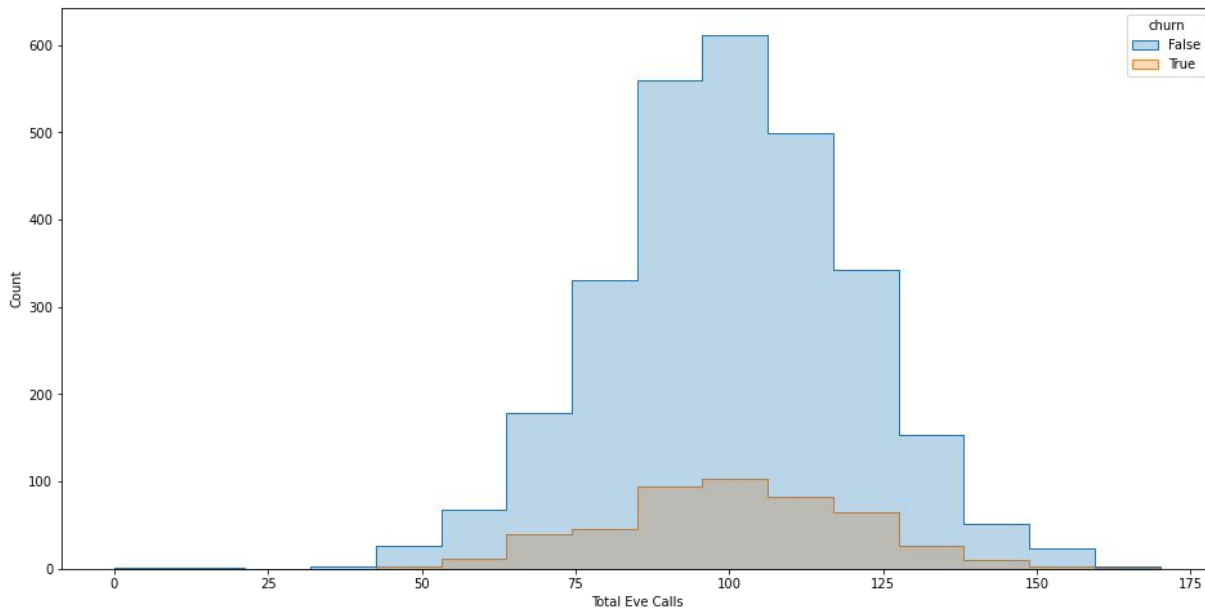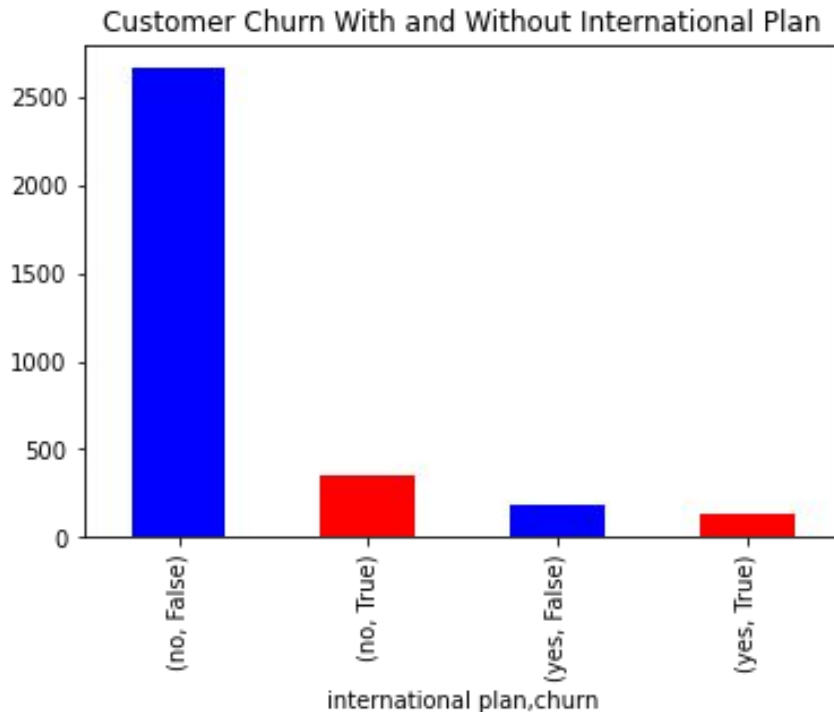Recall : 82%

Feature Importance

Model Feature Importance

Recommendations: Total Eve Calls

Find the range/ranges of calls with highest churn rate

Recommendations: International Plan

Customer Churn With and Without International Plan
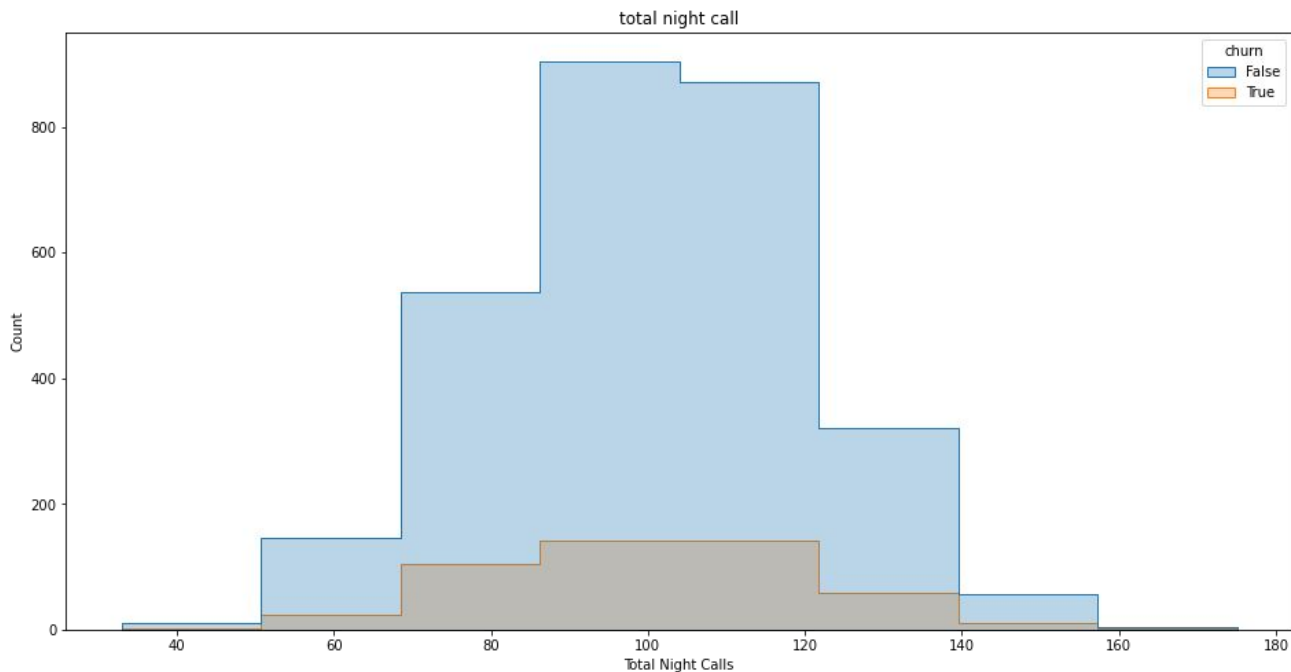
Focus on International Plan customers. Way more likely to churn

Recommendations: Total Night Calls

Recommendation: Find the range/ranges of calls with highest churn rate

Next Steps

Deep Dive

- Total Eve Calls
- International Plan Customers
- Total Day Charge

Future Work

- Customer Plan Data
- Competitor Data
- Detailed Customer Service Data

Questions

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