# Phase 3 Project

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# Business Problem

SyriaTel is trying to **optimize their retention strategies**, and to do so they are trying to understand what features of different customers indicate churn. The presentation will be made available for the VP of Customer Success, and the Chief Revenue Officer.

Data

**3,333** records from SyriaTel customers

**US** based customers

**21** data attributes

# Approach & Goals

**Classification model** to determine who is likely to churn

**Minimize** false negatives

Evaluate multiple methodologies, and pick the best one (Logistic Regression, Random Forest, Decision Tree, XGBoost, Ridge)

# Final Model

Tuned XGBoost

**82%** Churn Prediction (Recall)

**78%** Precision





Best XGBoost Confusion Matrix - Test
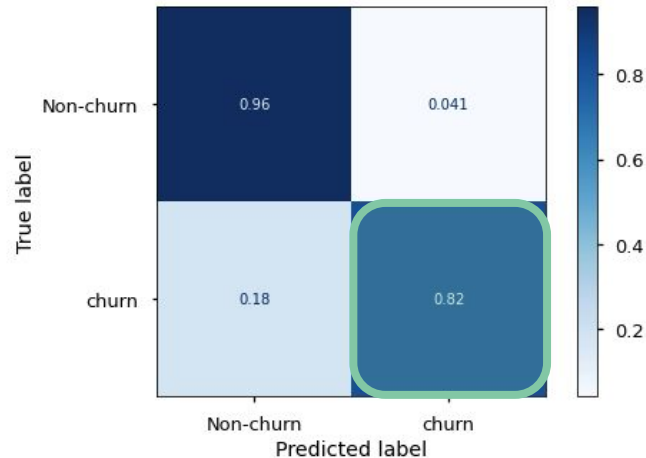
*To put it simply, precision is the ability to get the highest ratio of at risk customers, recall is the ability to not miss out on high risk customers.*

Performance Comparison

```
--------------------------------------------------
Train ROC Score: 90.15%
Test ROC Score: 88.75%
--------------------------------------------------
Train Recall score: 82.80%
Test Recall score: 81.60%
Mean Cross Validated Recall Score: 81.90%
--------------------------------------------------
Train F1 score: 81.86%
Test F1 score: 79.69%
--------------------------------------------------
Train Precision score: 80.00%
Test Precision score: 77.86%
--------------------------------------------------
```

# Feature Importance
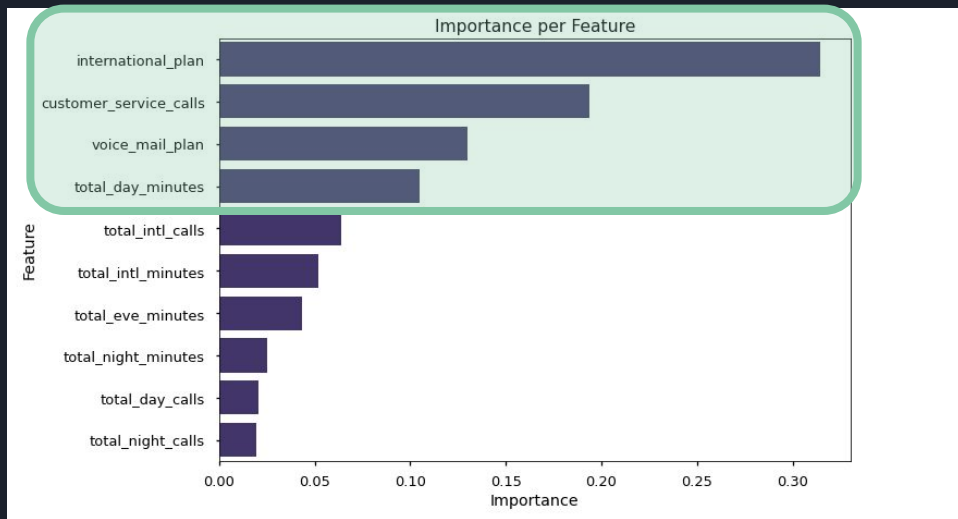
**Product Features**

- International
- Voice Mail

**Usage**

- Total Day Minutes

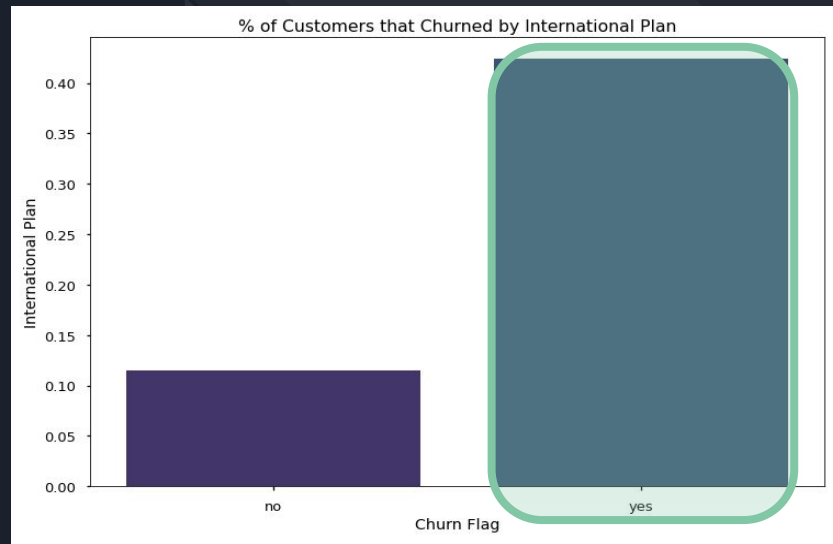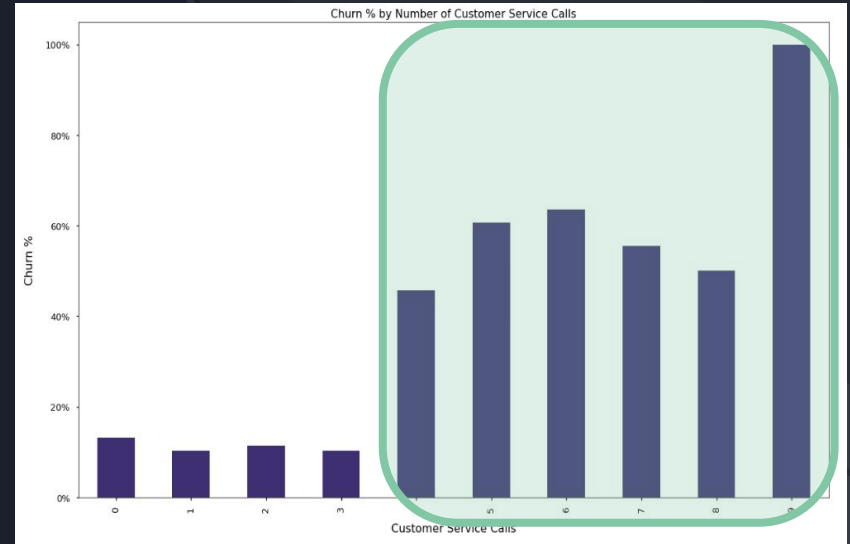**Account**

- Customer Service Calls

4x

More likely to churn
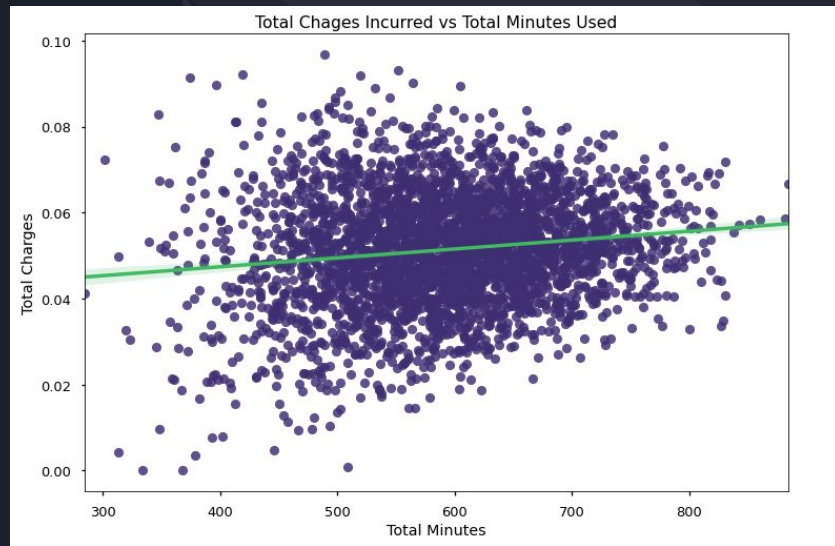
# 50%

Likely to churn once reaching >= 4 customer service calls



Churn % by Number of Customer Service Calls

# $0.055

Per minute average for customers, with churn customer paying close to 10% more

# Recommendations

**Survey** customers that have the international plan and the voicemail plan

Once a customer reaches 3 customer service calls, **flag** the account as at risk.

**Evaluate** additional pricing strategies

# Thank you!

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