By Jake Sherman

# SyriaTel Customer Churn

# Overview

- Business Problem
- Predictions with Classification Models
- Key Features Analysis
- Recommendations
- Next Steps

# Business Problem

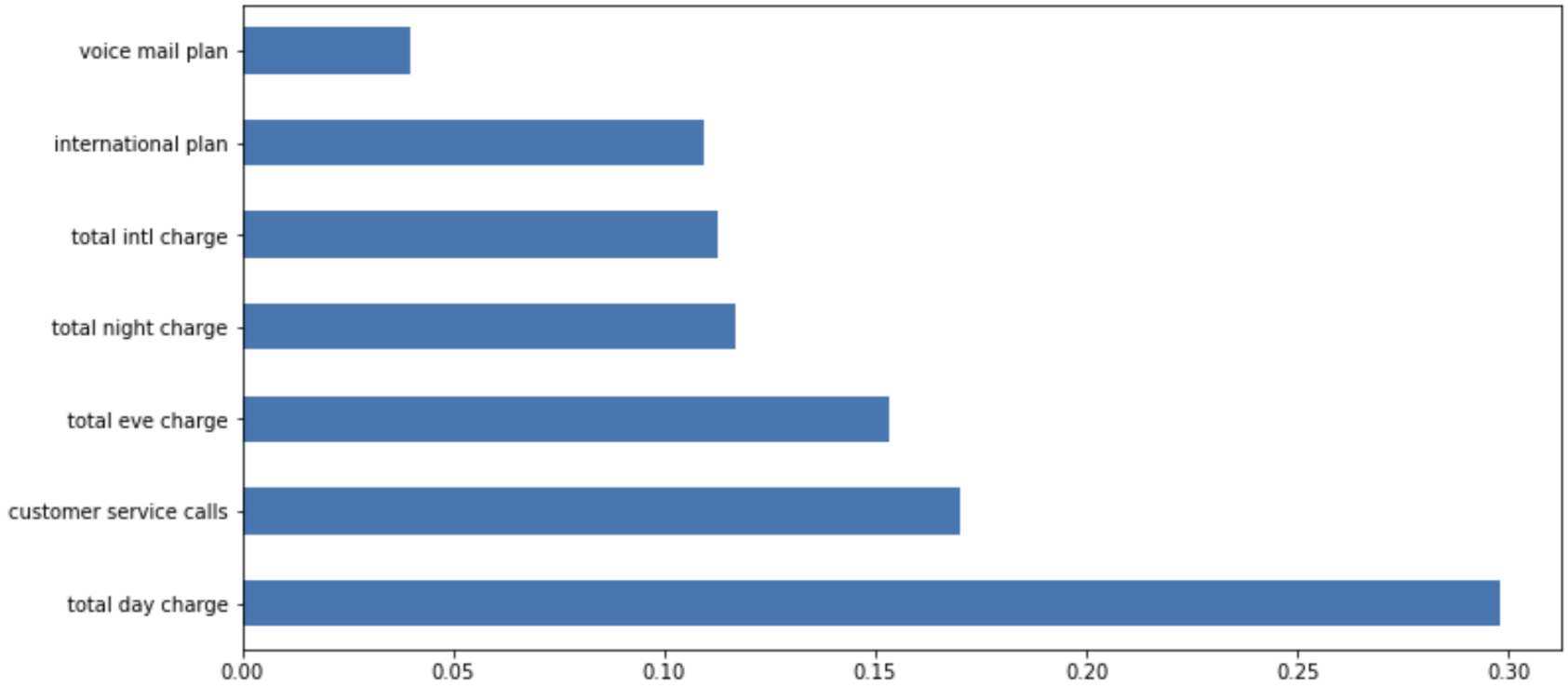
- 3,333 customers analyzed
- Churn rate of 14.49%
- Can we predict the customers that are going to churn so that we can deploy a plan to keep them before they leave?

# Modeling Results

- Random Forrest Classifier
- Precision: 95%
- Recall: 61%
- Accuracy 94%
- F1- Score 74%

# Key Features to Predict Churn

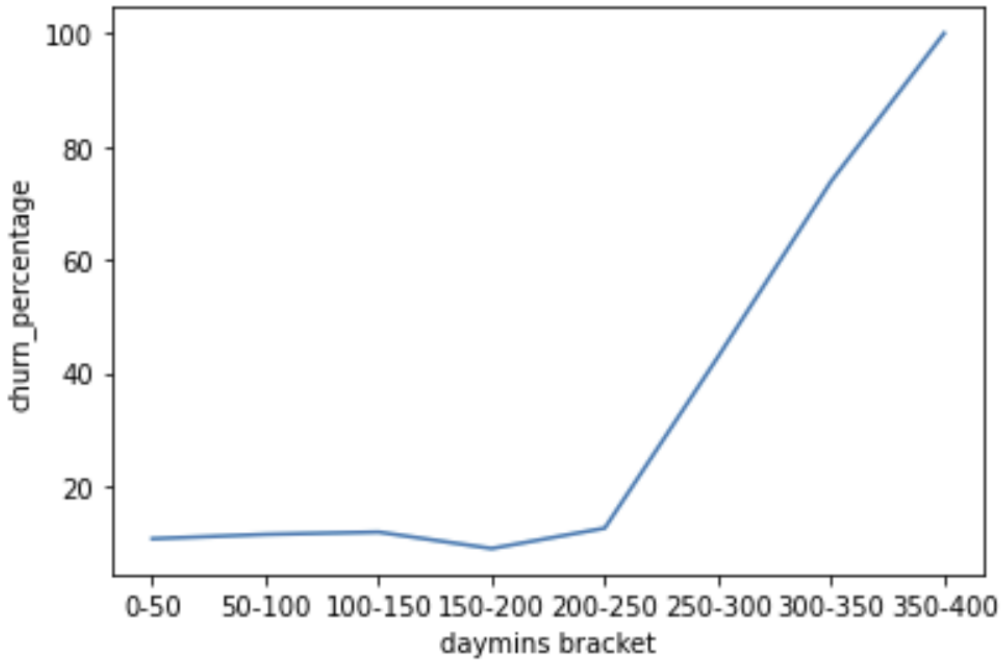
- Charge, specifically total daytime charge (function of minutes)
- Number of customer service calls



# Key Feature Analysis

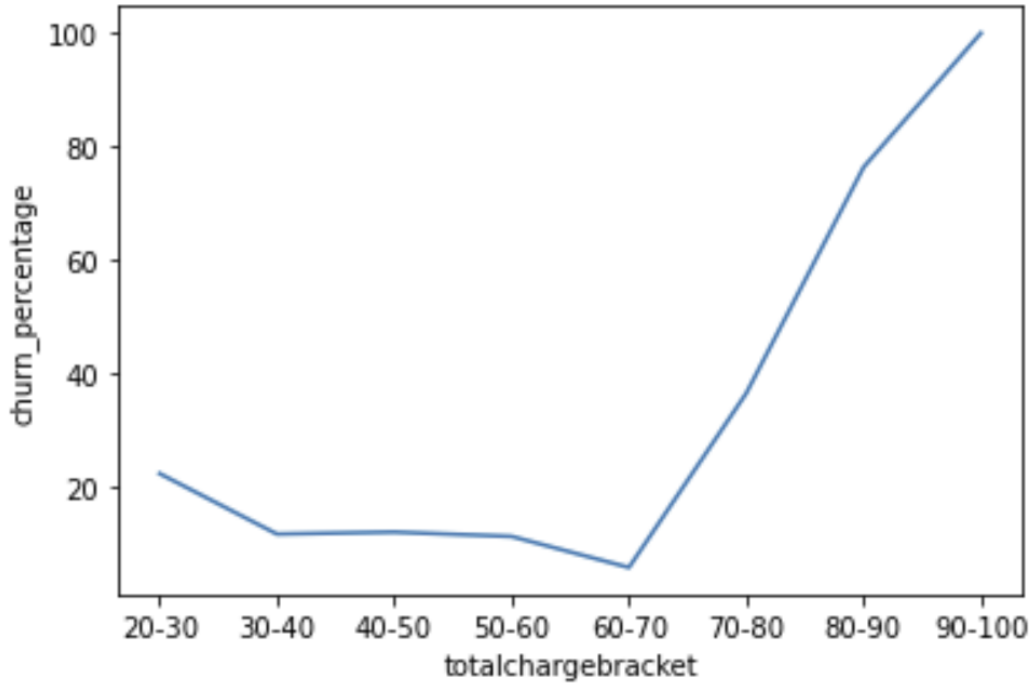
- After 250 daytime minutes per month, churn rate increases dramatically
- Day rate = .17c
- Evening rate = .085c
- Night = .045c

| churn | daymins bracket | False | True | churn_percentage |
|---|---|---|---|---|
| **0** | 0-50 | 25 | 3 | 10.714286 |
| **1** | 50-100 | 185 | 24 | 11.483254 |
| **2** | 100-150 | 652 | 88 | 11.891892 |
| **3** | 150-200 | 1063 | 105 | 8.989726 |
| **4** | 200-250 | 750 | 108 | 12.587413 |
| **5** | 250-300 | 163 | 122 | 42.807018 |
| **6** | 300-350 | 11 | 31 | 73.809524 |
| **7** | 350-400 | 0 | 1 | 100.000000 |



# Key Feature Analysis

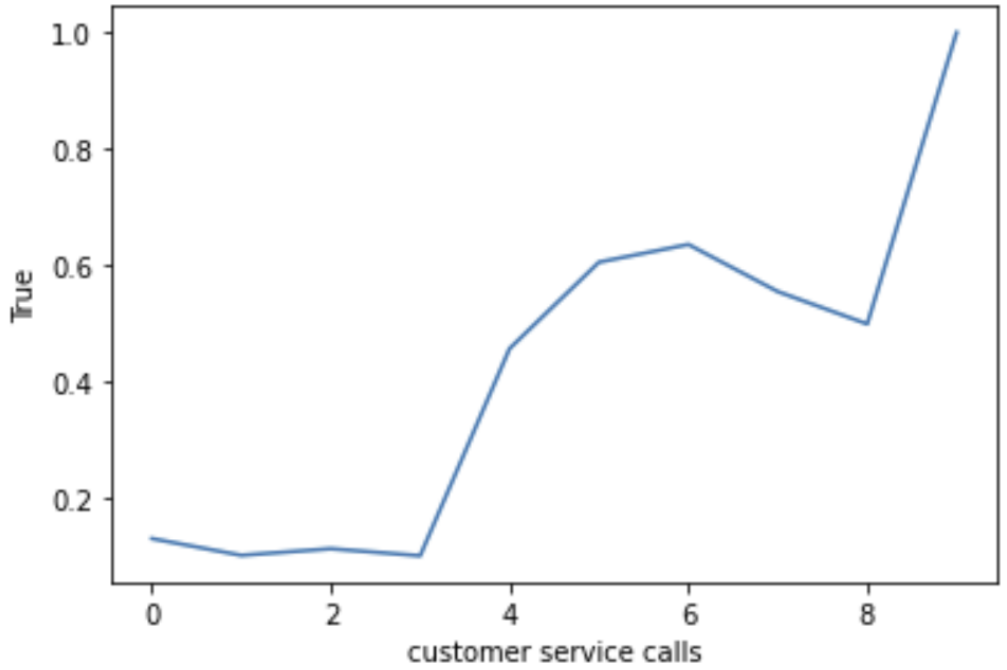
Total charge above $70 per month causes churn rate to spike dramatically.




| churn | totalchargebracket | False | True | churn_percentage |
|---|---|---|---|---|
| **0** | 20-30 | 7 | 2 | 22.222222 |
| **1** | 30-40 | 92 | 12 | 11.538462 |
| **2** | 40-50 | 430 | 58 | 11.885246 |
| **3** | 50-60 | 999 | 125 | 11.120996 |
| **4** | 60-70 | 1021 | 61 | 5.637708 |
| **5** | 70-80 | 283 | 162 | 36.404494 |
| **6** | 80-90 | 18 | 58 | 76.315789 |
| **7** | 90-100 | 0 | 5 | 100.000000 |

# Key Feature Analysis

- Above 3 customer service calls, churn rate spikes dramatically.




| CUSTOMER SERVICE CALLS | CHURN RATE |
|---|---|
| 9 | 100.0% |
| 6 | 63.6% |
| 5 | 60.6% |
| 7 | 55.5% |
| 8 | 50.0% |
| 4 | 45.8% |
| 0 | 13.1% |
| 2 | 11.5% |
| 1 | 10.3% |
| 3 | 10.2% |

# Recommendations

Reduce rates once a person has used 250 day minutes

Cap total monthly spend.

Once a person has called for support more than 3 times offer them a special promotion.

Create a pricing plan for people who plan to use a lot of minutes (above 250) such as unlimited minutes.

# Next Steps

Analyze churn rate for each SyriaTel pricing plan against their competitors.

Opportunity to optimize pricing model.

# Thank You

Github.com/jsherman918