



Telecom Customer Retention Analysis

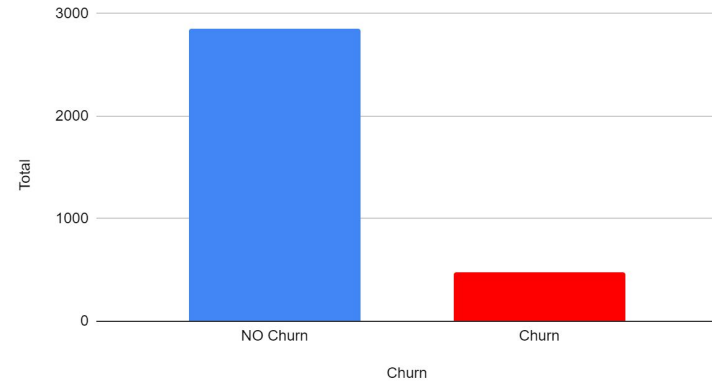
Business Overview

- Telecom customer subscription
 - [SyriaTel](#)
 - *Binary Data Classification*
 - **Classification Decision Tree**
 - **Logistic Regression Model**
- Goals
 - *Better predict likelihood of customers canceling subscriptions*
 - **Churn**
 - **Accuracy**
 - **True Positive**
 - **True Negative**

Data Overview

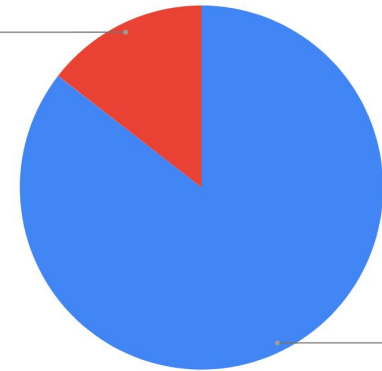
- 3333 Customers
 - Customer profile containing **20 features**
 - **X Variables**
 - Phone charges
 - Customer Service Calls
 - International Calls
 - **Y Variable**
 - Churn

No Churn vs. Churn



Total

Churn
14.5%



NO Churn
85.5%

Classification Modeling

- **Decision Tree Classifier**
- **Logistic Regression Model**
- Baselines and Improved Models
 - Building a baseline model and iteratively improving on it with business focus in mind
- ***Decision Tree will be our focus as it is the stronger model.***

	Decision Tree Classifier	Logistic Regression
Cross Validation	90	85
AUC	88	67

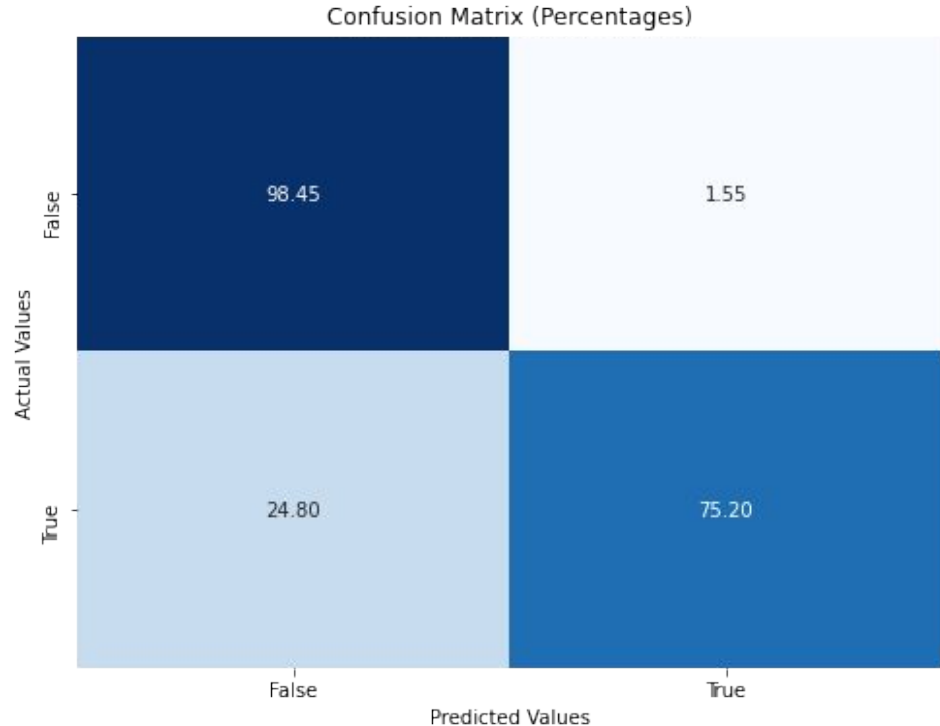
Evaluation

- Evaluate Models
 - Overall Accuracy
 - True Negatives
 - Currently predicting no churn
 - False Positive
 - Predicting Positive, actual value is negative
 - False Negative
 - Predicting Negative, actual value is positive
 - True Positives
 - Correctly predicting churn

Confusion Matrix Structure



Decision Tree



Further Analysis

Improvements

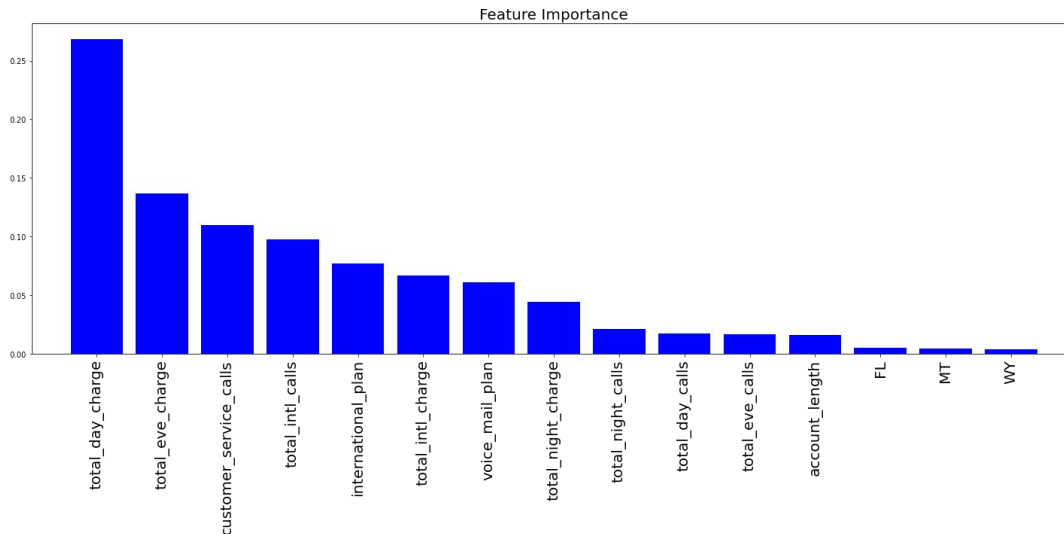
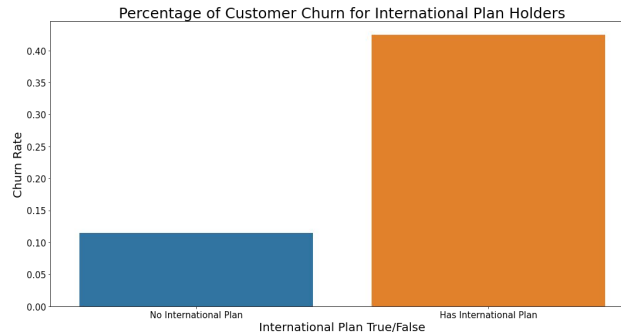
- We improved our Baseline Model to focus on overall accuracy and True Positive prediction rate.
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Decision Tree Classifier	Baseline	Improved
Accuracy	91	95
True Positives	71	90

*Feature Scaling and Parameter Tuning

Recommendations

- Characteristics of customers who churn:
 - Customers with **high bills**
 - Offer discounts to longtime customers
 - Customers who make **more customer service calls**
 - Improve Customer Service training
 - Customers who have **international plans**
 - Offer international discounts
- Use more sophisticated modeling methods and parameter tuning like clustering or GridSearchCV.



Additional Questions

Thank you!

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