SyriaTel: Classifying Customers Based on Churn

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Business Overview

SyriaTel is a telecommunications company that wants to *gain better insight into its churn rates.* The company collects data tracking each client's usage behavior, and SyriaTel's dataset also indicates whether a given customer churns or not. To help SyriaTel better understand consumer behavior and improve brand loyalty, we used *machine learning processes to build a model that classifies customers based on churn and identifies factors influencing the probability of churn.*

The Data

- The raw dataset contains 21 columns
  - The target variable that we're classifying customers based on is "churn"
  - The remaining 20 columns describe customer behavior (i.e. "total day calls", "state", etc.)
- Since some columns come in different formats, we standardize the data
- We remove one of any pairs of columns that are highly similar and correlated
- For our analysis, we use 16 of the original 21 columns

Our findings show that the most relevant columns for classifying customers are:

- **Total day charge**
- **Total eve charge**
- **Customer service calls**

Results

Final Model: Decision Tree Classifier

Throughout our analysis, we tested three algorithms to classify customers into churn or no churn. Our final model uses a Decision Tree (a tree-like model of possible outcomes) to predict whether a customer continues doing business with SyriaTel.

Results: Decision Tree Model

Our decision tree predicts whether or not a customer will churn by splitting the data into subsets, based on the feature described at each tree node. We evaluated our model's performance against four metrics:

- Accuracy: 0.92
- Precision: 0.74
- Recall: 0.70
- F1: 0.72