# Predicting Customer

## Churn for SyriaTel Telecommunications

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# Overview



# Project Overview

The project aims to develop a reliable binary classification model for predicting customer churn in SyriaTel, enhancing the telecom company's ability to preemptively address issues and minimize revenue loss through pattern recognition.

# Business Understanding

SyriaTel's success hinges on understanding its business landscape to combat customer churn and boost revenue.

This understanding is crucial for strategic decisions, fostering sustainable growth in a competitive telecom industry

Identifying patterns of customer disengagement contributes to resource optimization, allowing SyriaTel to allocate efforts and resources effectively.

# Problem statement

The problem at hand is to develop a robust binary classification model to predict customer churn accurately in SyriaTel, enhancing the telecom company's ability to preemptively address issues and minimize revenue loss through pattern recognition.

# Data Understanding

## Data source:

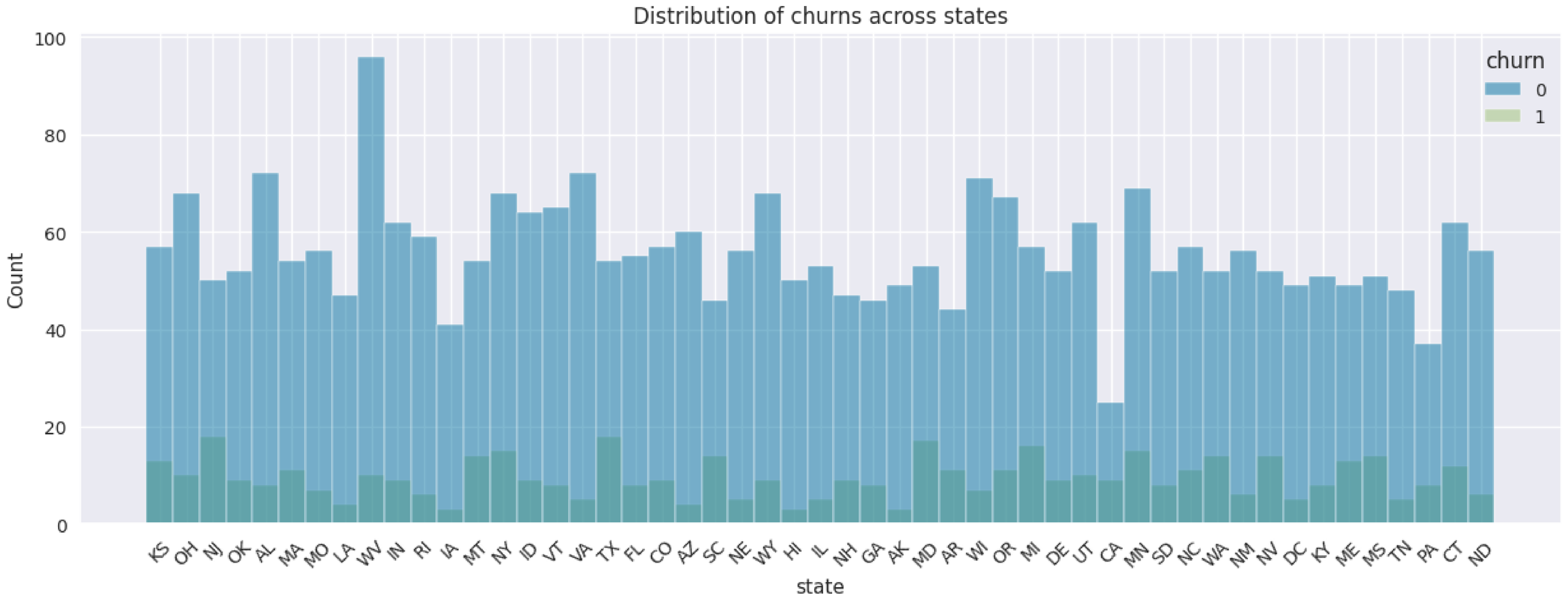
https://www.kaggle.com/datasets/becksddf/churn-in-telecoms-dataset

## The data set includes a record of:

'state', 'account length', 'area code', 'phone number', 'international plan', 'voice mail plan', 'number vmail messages', 'total day minutes', 'total day calls', 'total day charge', 'total eve minutes', 'total eve calls', 'total eve charge', 'total night minutes', 'total night calls', 'total night charge', 'total intl minutes', 'total intl calls', 'total intl charge', 'customer service calls', 'churn'

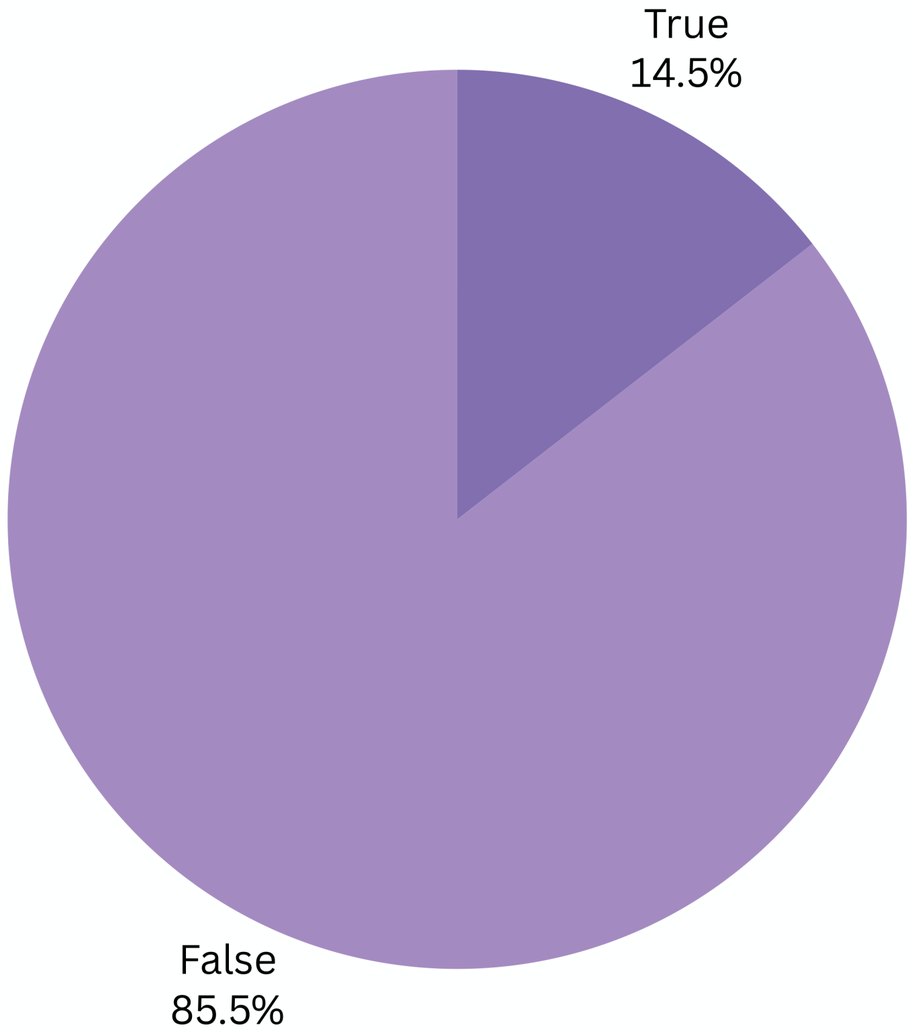
# Visulization

## Distribution of churns across states



# Count of churns

**Data indicates numerous non-churning customers; total churns appear comparatively lower.**

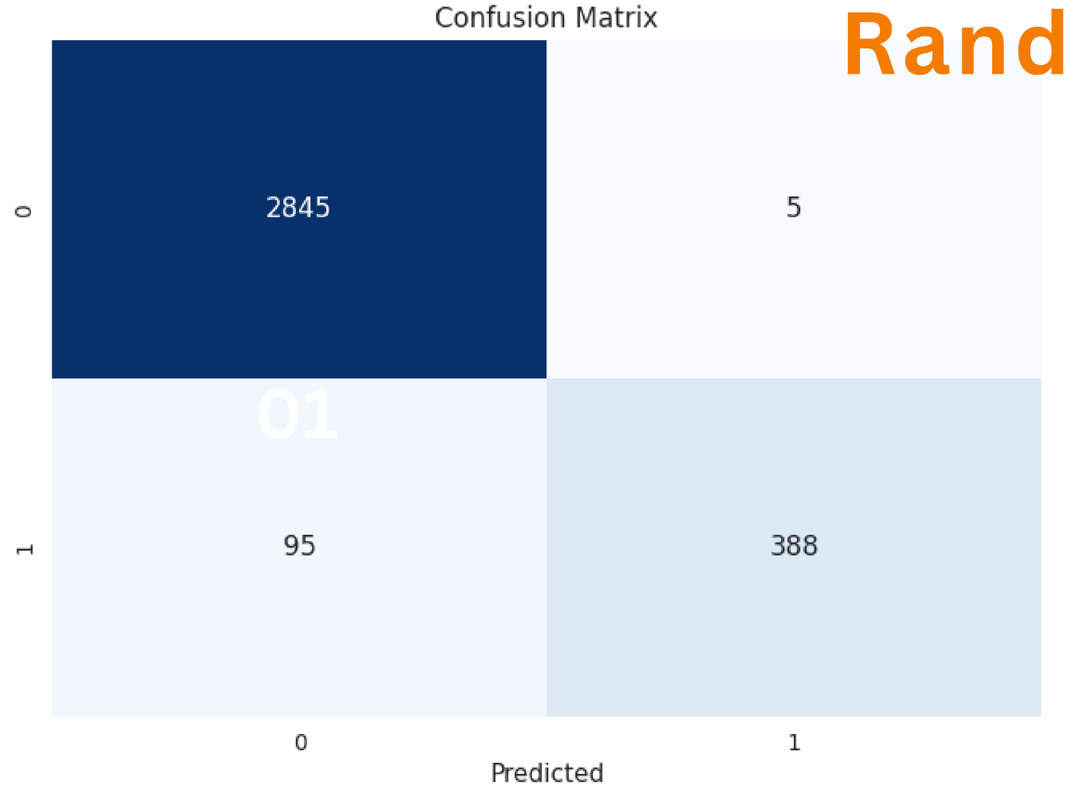


# Models used

**Decision Tree**

**The model achieved a classification accuracy of 93.31%, accurately predicting customer churn in 93.13% of cases**

# Random Forest




**The Random forest Classifier, integrated into a pipeline with standard scaling, demonstrates promising performance in predicting customer churn for SyriaTel, a telecommunications company. The model achieved a mean accuracy of approximately 96.89%, indicating its ability to generalize well to diverse subsets of the dataset.**

# EVALUATION

## Conclusion:

SyriaTel can strengthen customer retention using the Decision Tree Classifier for real-time churn predictions. Regular monitoring ensures model effectiveness, adapting to evolving behaviors and guiding targeted service improvements.

## Recommendation:

Leverage feature importance insights to inform personalized retention efforts. Collaborate with retention teams for seamless integration, combining quantitative predictions and qualitative feedback. Iterate on model improvements and invest in customer experience initiatives for sustained success in telecommunications

# THANK YOU

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