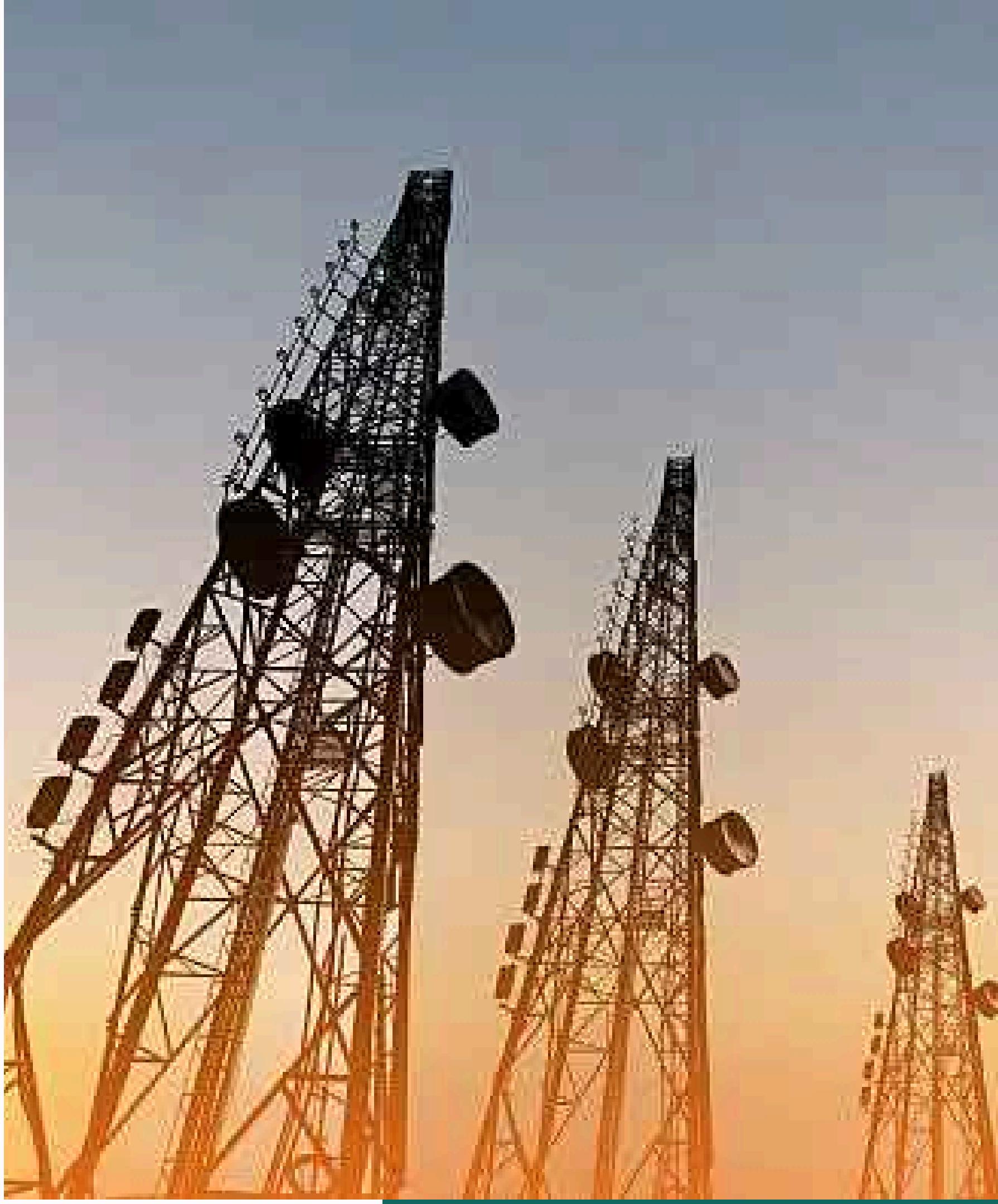


# **Predicting Customer Churn in SyriaTel to Enhance Customer Retention**



# Overview

- Introduction
- Business Understanding
- Objectives
- Data Understanding
- Data Cleaning
- Exploratory Data Analysis
- Data Modelling and Evaluation
- Conclusion
- Recommendations
- Future Steps



# Introduction

This project we will be working with the SyriaTel Customer churn dataset AS Customer\_churn, to solve our business problem. The Aim of this project is to analyse and determine how the SyrianTel company can reduce customer churn, retain customers leading to increased profits.



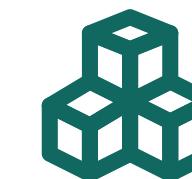
# **Business Understanding**

## **Business problem**

The SyriaTel Company is a telecommunication business that would like to address the issue of customer churning by creating a prediction model to understand why they are facing a high churn rate and their customers preferring their competitors. The main goal of SyriaTel Company is to reducing churn rate, increase customer retention hence increasing profitability.



# Objectives



Identify factors that may lead to customer churn



To create a model that will predict customer which are at a high risk of churning



The relevant steps that should be taken to retain customers

# Data Understanding

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Data Understanding is essential for identifying patterns, ensuring quality and making informed decisions based on accurate analysis.



We import the relevant libraries and load the dataset.

We check the shape to show the number of rows and columns .

Finally , we will check the data types and also display the numeric columns.

# Data Cleaning

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The data is cleaned by checking any missing values and any duplicates and dealing with them to ensure that the data is efficient for analysis.



# Exploratory Data Analysis

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Exploratory Data Analysis helps us identify the correlation between the features in the dataset and the distribution of the variables. This is essential for feature engineering and modelling.



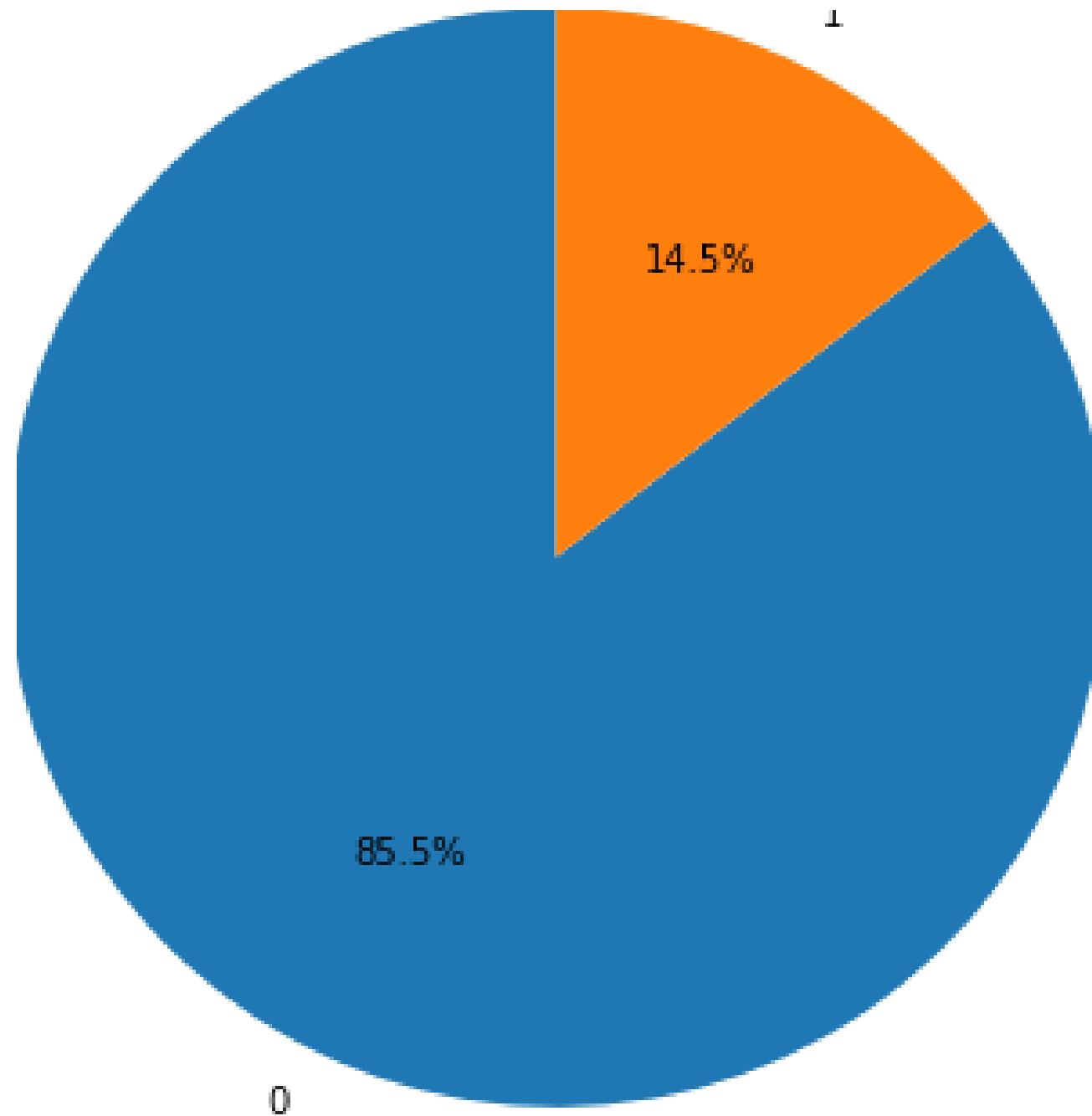
# Churn Distribution

The churn column is our target variable and it is categorical. We will use a pie chart to display its distribution.

## Findings

0 is False 1 is True

The pie chart represents the distribution of customers who left(churned), vs those who stayed. 85.5% represents customers who did not churn 14.5% represents customers who did churn.

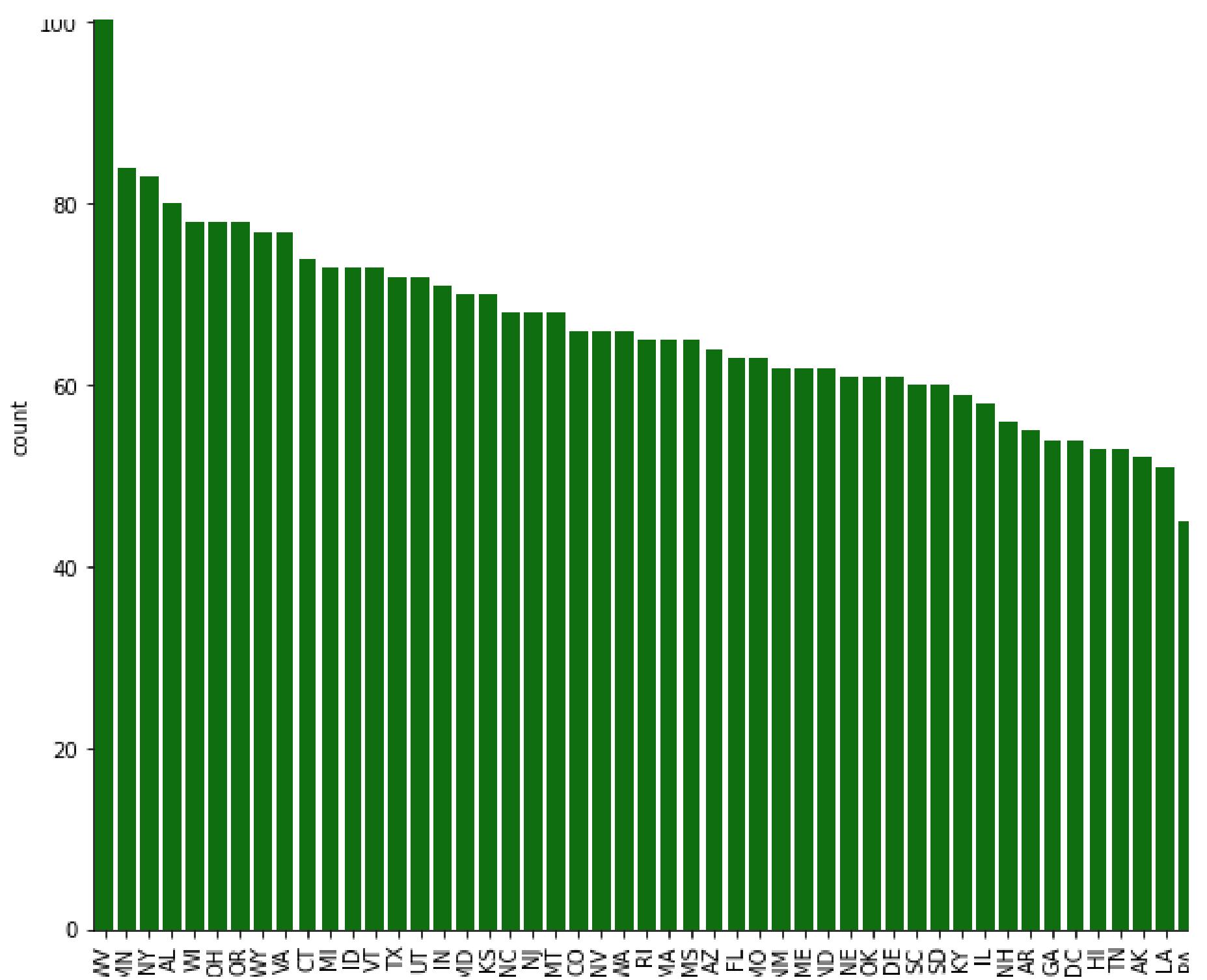


# Distribution by the State column

To find the states with the highest consumers.

## Findings

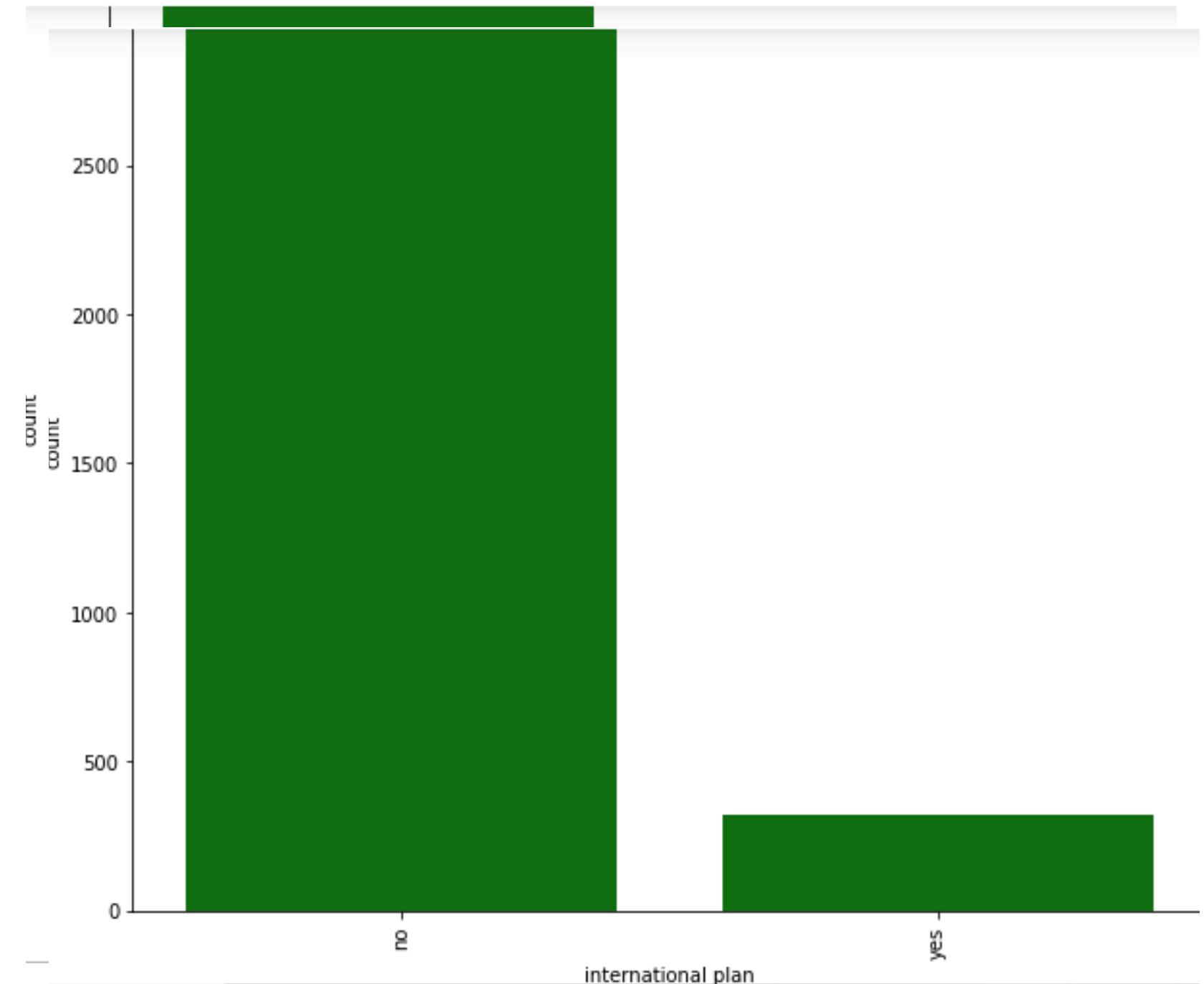
Most of the consumers are from West Virginia, Minnesota, New York, Alabama, Wisconsin. while California has the least number of consumers.



# International plan Distribution

## Findings

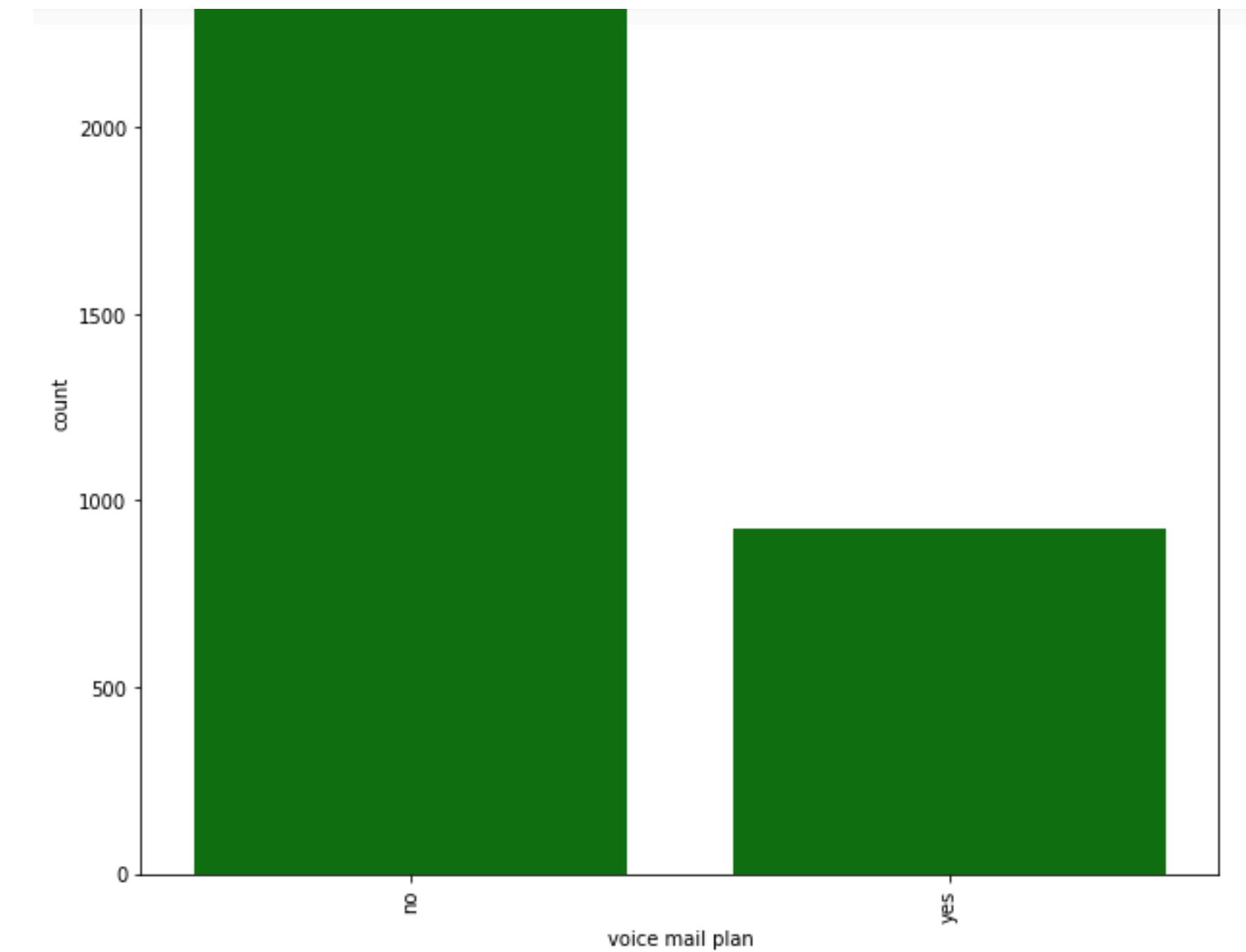
Only 323 customers have subscribed to the are international plans out of 3333..



# Voice Mail plan Distribution

## Findings

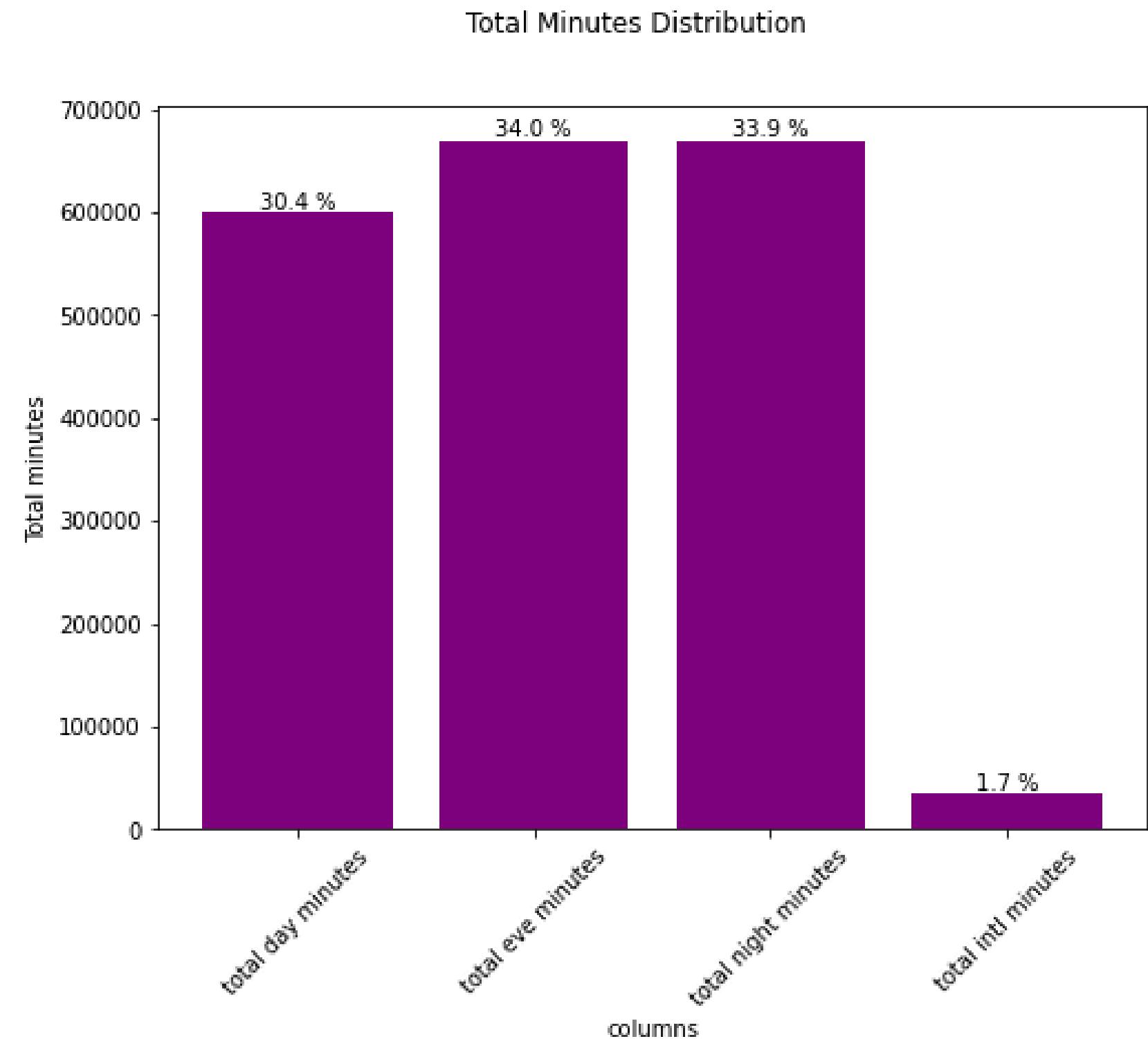
Only 922 customers have subscribed to the voice mail plan services out of 3333.



# Minutes Distribution

## Findings

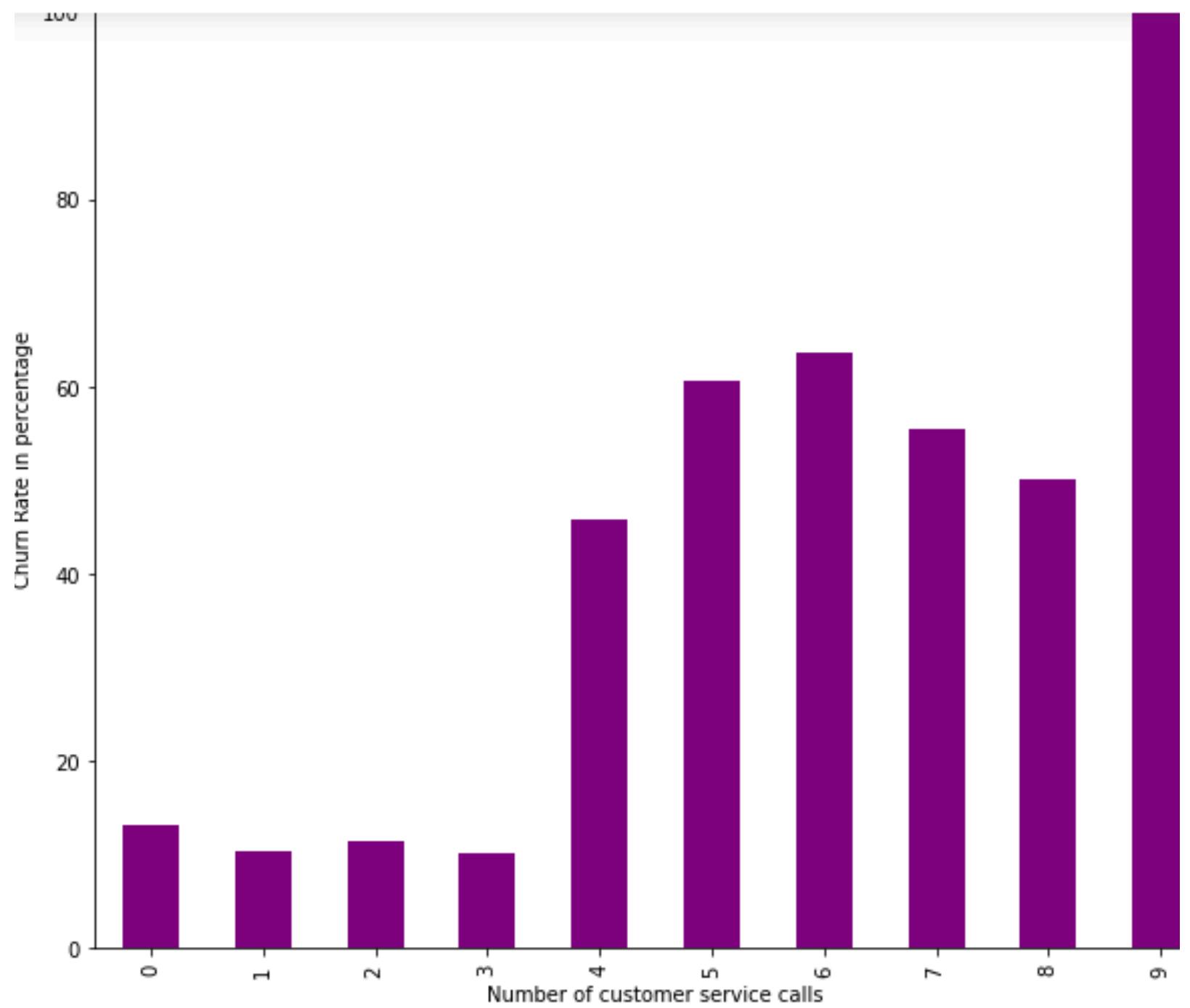
The above bar graph shows total minutes across different call categories. The total evening minutes have the highest percentage compared to other call categories. This shows that most customers spend more time on calls in the evening.



# Churn Rate by Customer Service Call

## Findings

As the number of calls increases the rate of churn also increases. However after the sixth call the rate of churn is evident suggesting that more interactions could make customers more unhappy, causing more people to churn.



# Data Modelling and Evaluation

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In the data modelling we used the Logistic Regression as the baseline model then also used Random Forest and Decision Trees.

The Decision Trees had the best accuracy and showed a balance between recall and precision and has a strong AUC hence was the best model to predict churn.

# Conclusion

- Desision Tree has emerged as our best model.
- West virginia has the highest number of customers while California has the lowest number of customers.
- There are more total evening calls compared to the rest of the calls, meaning that the syria tel customers prefer evening calls.
- There are more subsciptions to voice mail plan than international plan.
- As the number of customer service call increases the number of churn increases. This shows that the customers experience negative customer service, where their issues are not solved leading to increase in customer churn.

# Recommendations

- The best model to be used to predict customer churn is The Decision Tree Model, since, it has a good balance between precision and recall, identifying the positive class instances and minimizing the false negatives and false positive sand has a 92% accuracy hence can predict churn.
- Most customers neither have an international plan nor a voice mail plan. The SyriaTel company should consider promotion services to their customers by displaying the benefits hence attracting more.
- The SyriaTel Company should identify influential predictors and usage patterns identified by the model to develop retention strategies.
- The company should put in place systems and the qualified personnel for customer serve, in order to solve the customers needs fast and efficiency to ensure satisfaction hence customer retention.

# Future Steps

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The Decision Tree Model has good accuracy and performance, despite this the company should continue monitoring and evaluating its performance on new data. This is because customer behaviours and preferences shift over time hence ensure the model remains effective and up-to-date.



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# THANK YOU

# Resource Page

