

SYRIATEL

# PREDICTIVE ANALYSIS FOR CUSTOMER CHURN



DIVE IN >

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# INTRODUCTION

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- In the fast-paced world of telecommunications, customer churn poses a significant challenge.
- SyriaTel recognizes the importance of leveraging advanced analytics and machine learning to predict and address customer churn.
- Through analyzing vast amounts of historical data, SyriaTel seeks to uncover valuable insights.



# PROBLEM STATEMENT

## PREVAILING CIRCUMSTANCE

- High churn rates.

## THE PROBLEM

Inefficient management of customer churn within subscriber base.

## SOLVING

Leverage advanced analytics and machine learning techniques.

# OBJECTIVES

MAIN

develop a robust predictive model

SPECIFIC

Analyze Historical Data  
Develop Predictive Model  
Implement Retention Strategies

# BUSINESS



## STAKEHOLDERS

- Syriatel Management
- Finance department
- Marketing department
- Customer Service Management



# UNDERSTANDING



SyriaTel faces the pressing challenge of high customer churn rate.

It can harness the power of advanced analytics and machine learning.

By embracing proactive churn management, SyriaTel not only mitigates immediate revenue concerns.



iStock  
Credit: vichie81

# DATA UNDERSTANDING

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- The dataset encompasses various attributes relevant to understanding customer behavior and predicting churn in the telecommunications sector.
- It forms the foundation for developing a predictive model to identify churn risks accurately .

## DATA SOURCE

Sourced from Kaggle  
(Churn in Telecom's dataset)

## DATA SIZE

The dataset consists of 3333 rows and 21 columns

## KEY FEATURES

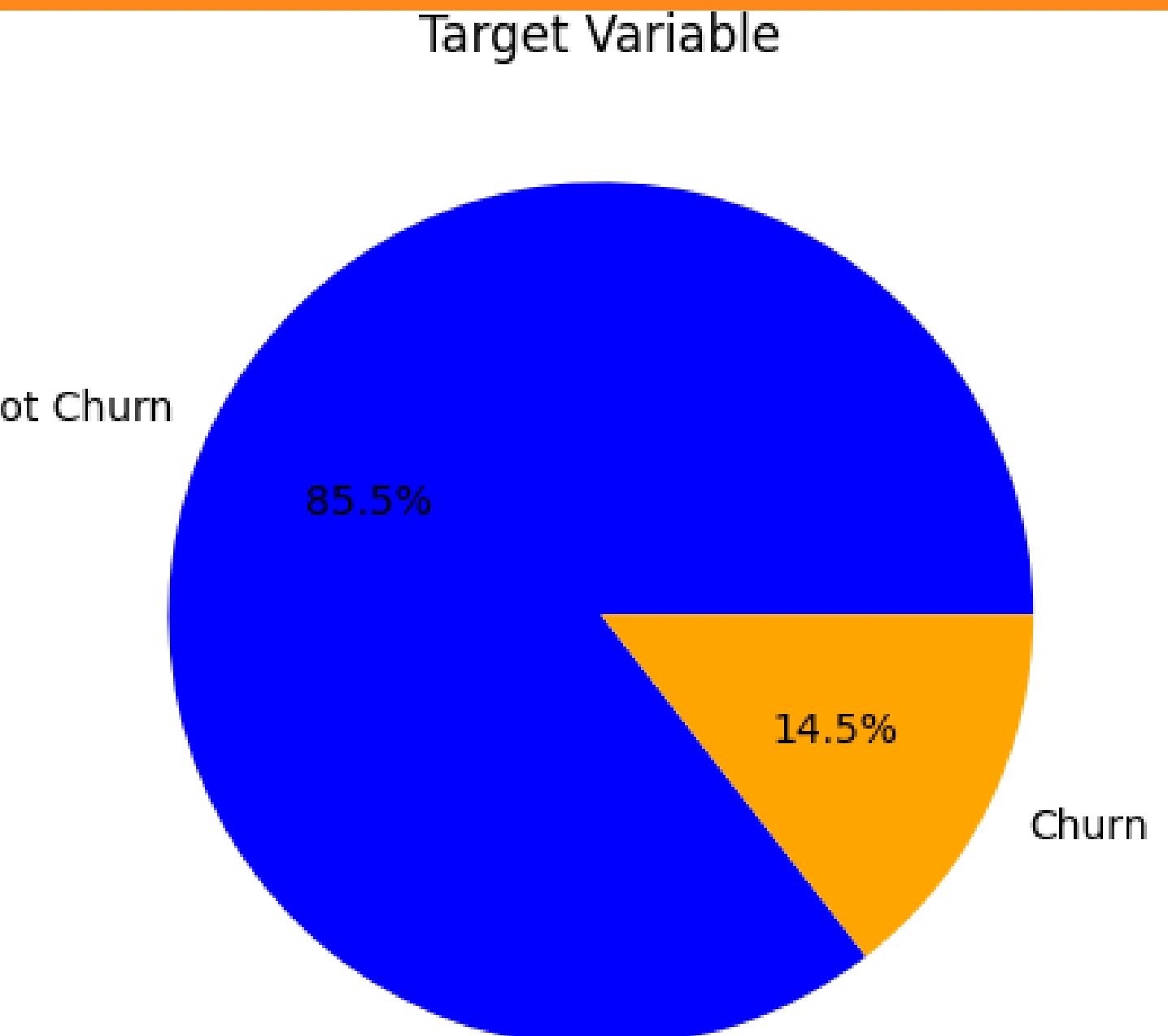
Customer demographics  
Service subscriptions  
Call usage metrics  
Churn status



**PATTERNS AND  
FINDINGS**

# Churn Distribution

85.5% of the customers have not churned while 14.5% of the customers have churned.

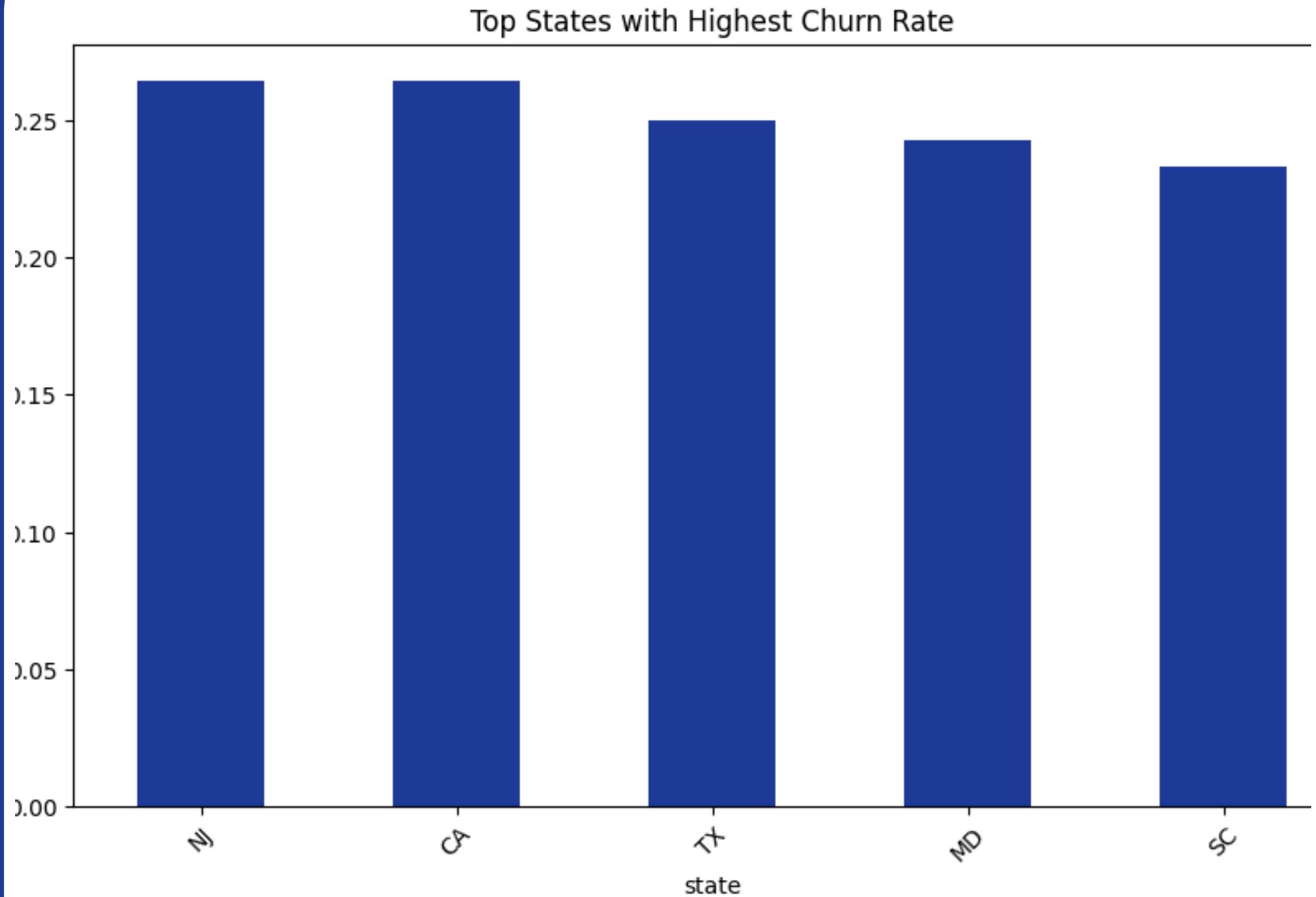


## TOP 5 STATES WITH HIGHEST CHURN RATE

The top 5 states with the highest churn rate are:

The states in the USA with the initials NJ, CA, TX, MD, and SC corresponding to :

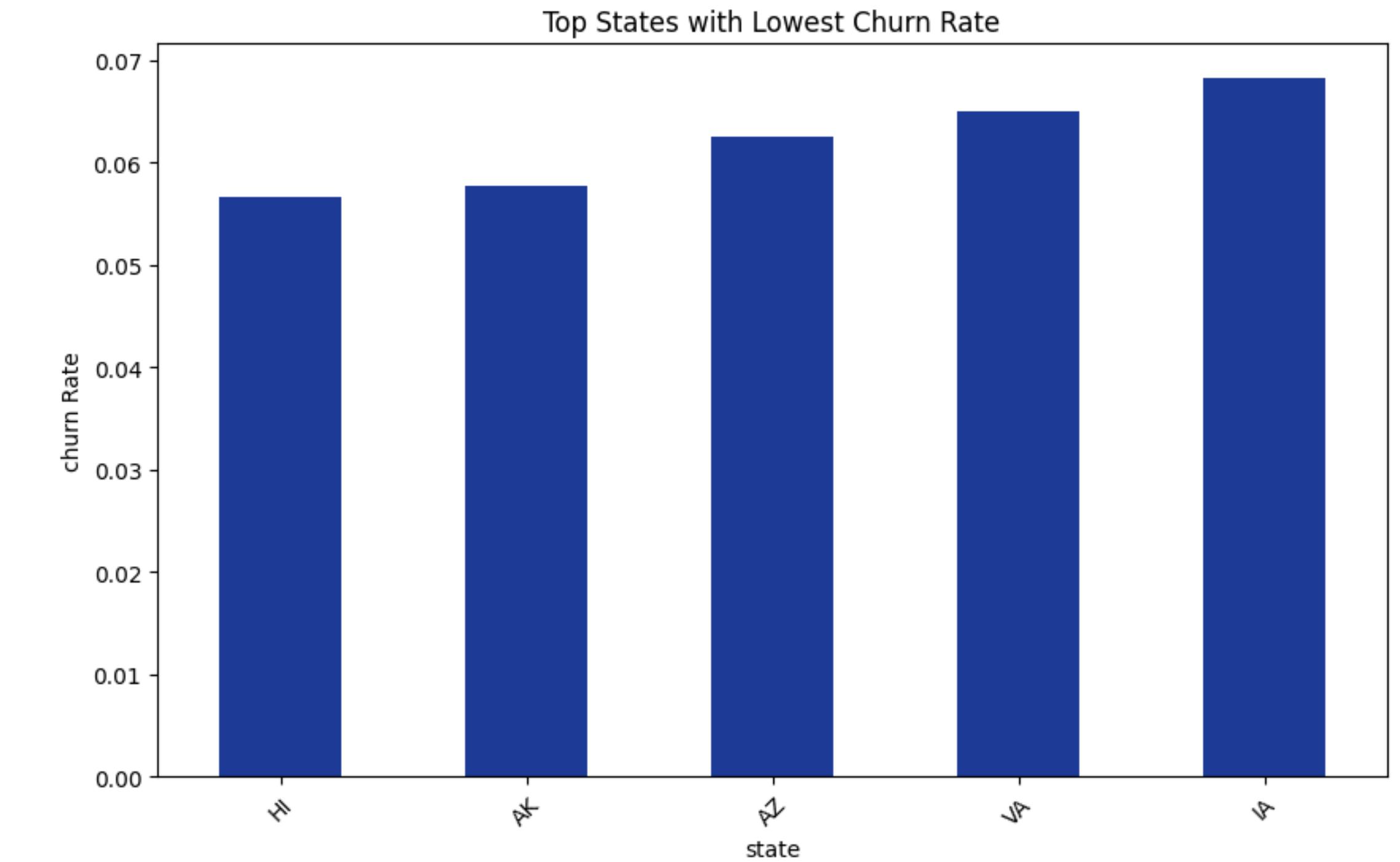
- NJ: New Jersey
- CA: California
- TX: Texas
- MD: Maryland
- SC: South Carolina



# TOP 5 STATES WITH LOWEST CHURN RATE

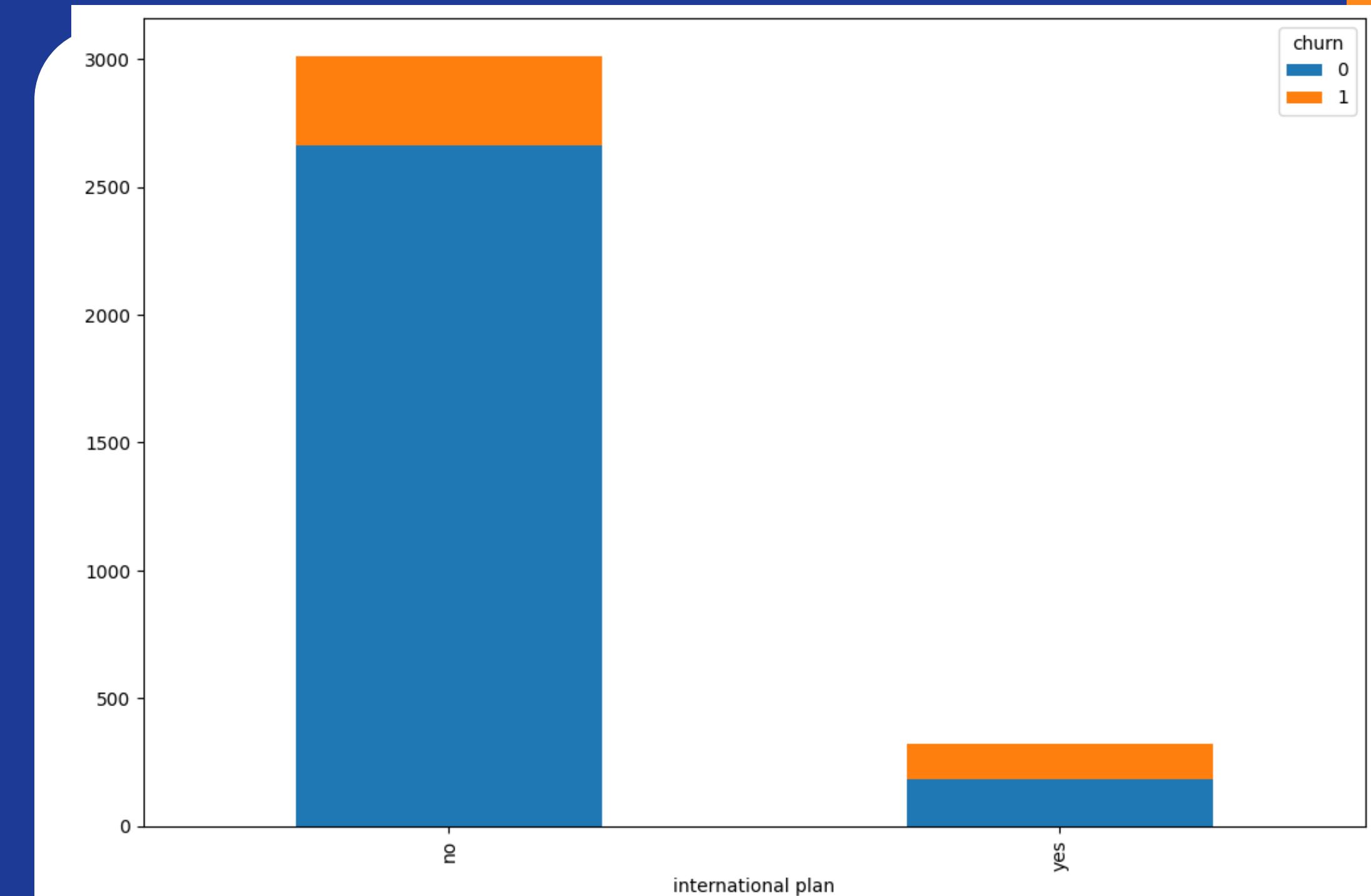
The top 5 states with the lowest churn rate are: The states in the USA with the initials HI, AK, AZ, VA, and LA corresponding to:

- HI: Hawaii
- AK: Alaska
- AZ: Arizona
- VA: Virginia
- LA: Louisiana



## ARE CUSTOMERS SUBSCRIBED TO A INTERNATIONAL PLAN LIKELY TO CHURN?

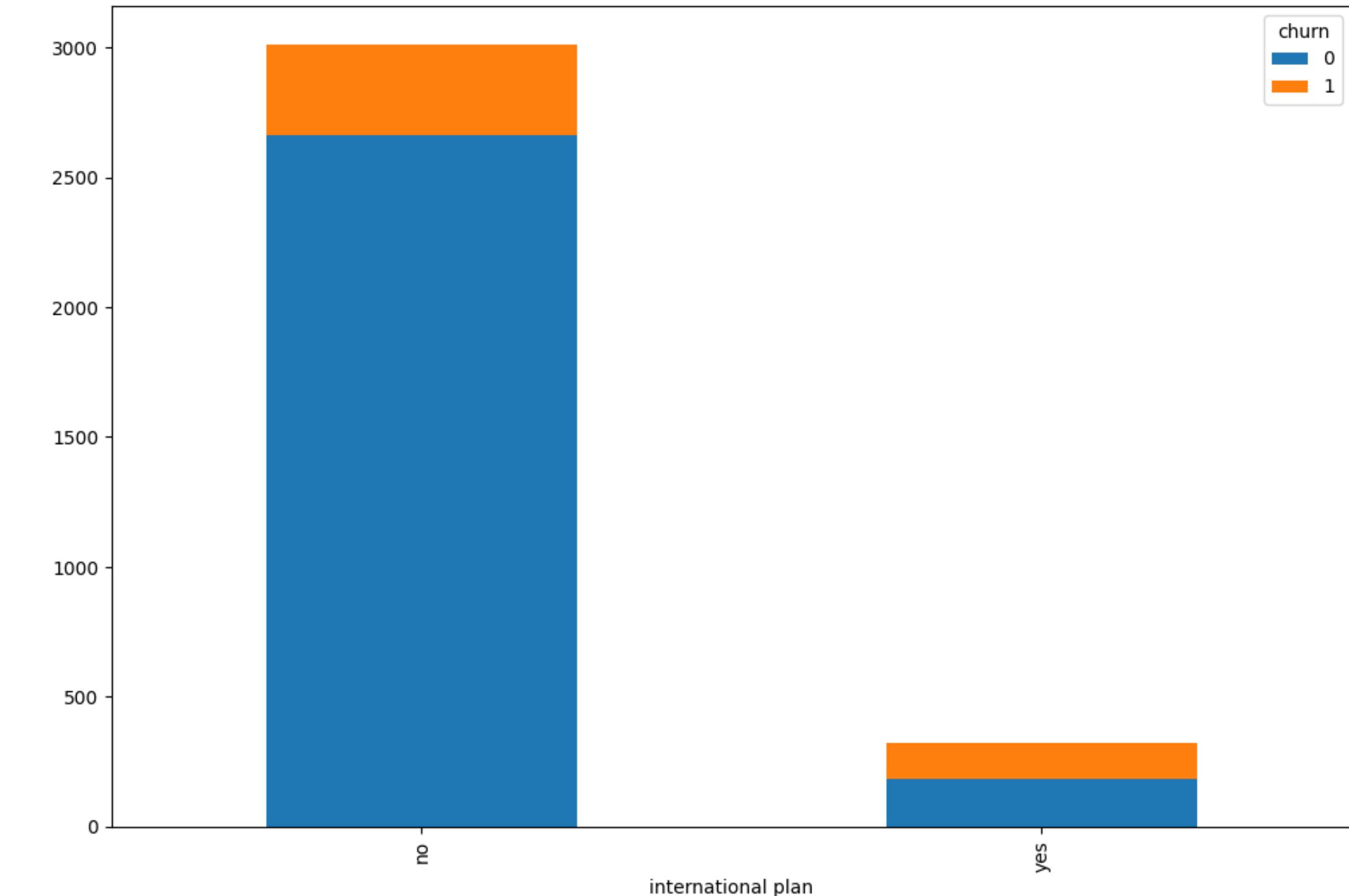
Customers subscribed  
to the international  
plan are significantly  
more likely to churn.



customers subscribed to the international plan : 9.69%  
subscribed customers who churned with international plan :  
42.41%

## ARE CUSTOMERS SUBSCRIBED TO A VOICE MAIL PLAN LIKELY TO CHURN?

customers subscribed to the voice mail plan are less likely to churn compared to the overall churn rate.



Percentage of customers subscribed to the voice mail plan :  
27.66%

Percentage of subscribed customers who churned with voice  
mail plan : 8.68%

# MODELING



# MODELS USED

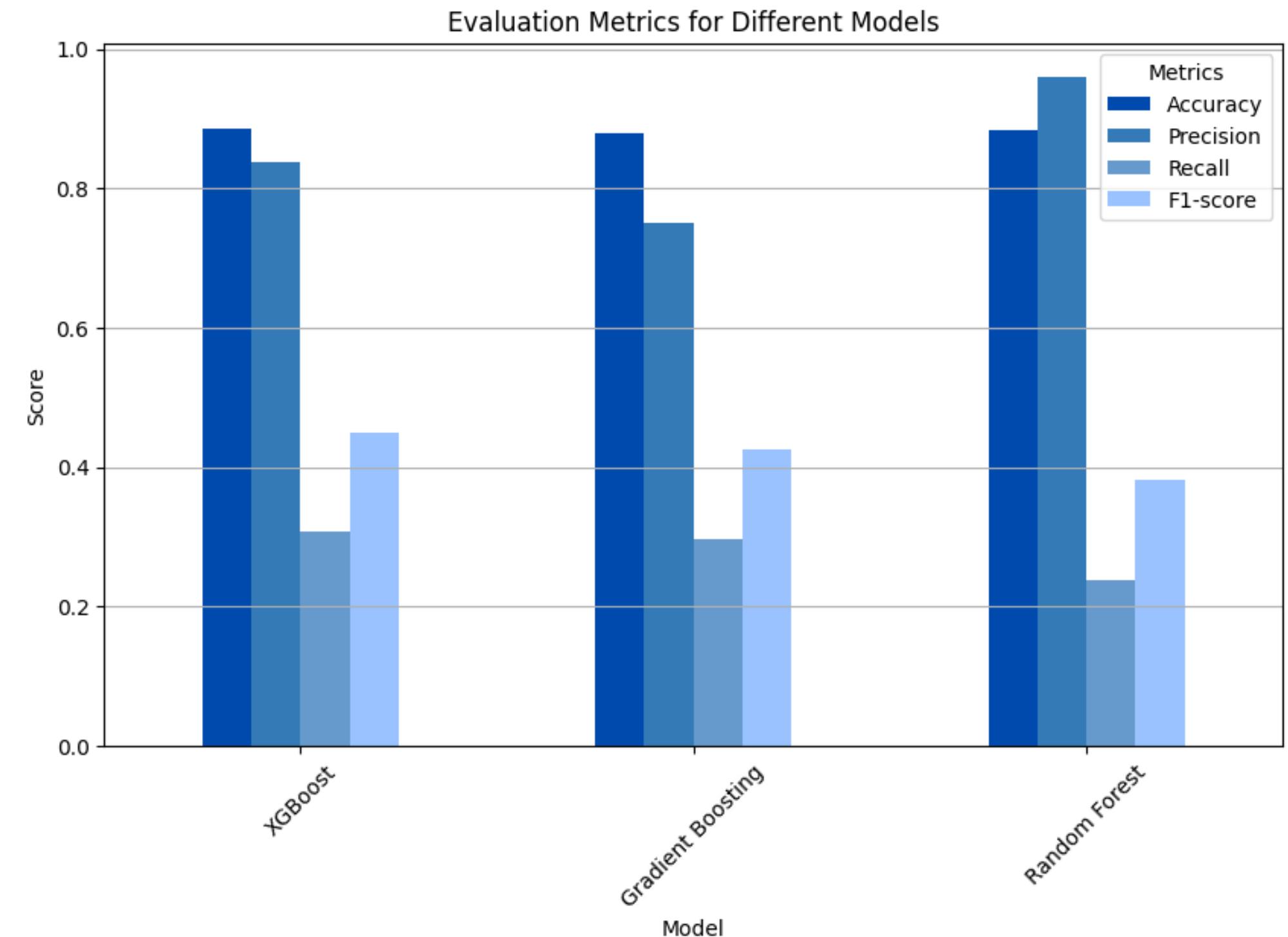
-- After a thorough evaluation of six models, including:

- Decision Tree
- Logistic Regression
- Random Forest
- KNN - K Nearest Neighbors
- Gradient boosting
- XG Boost.

-- Gradient boosting was the selected model.

# MODEL SELECTION

- Based on these metrics, Gradient Boosting performed the best among the three tuned models .
- Optimal ROC curve
- Higher accuracy .Accuracy: 0.8771
- Relatively high Recall: Recall: 0.2871
- Low False Positive Rate:



# EVALUATION

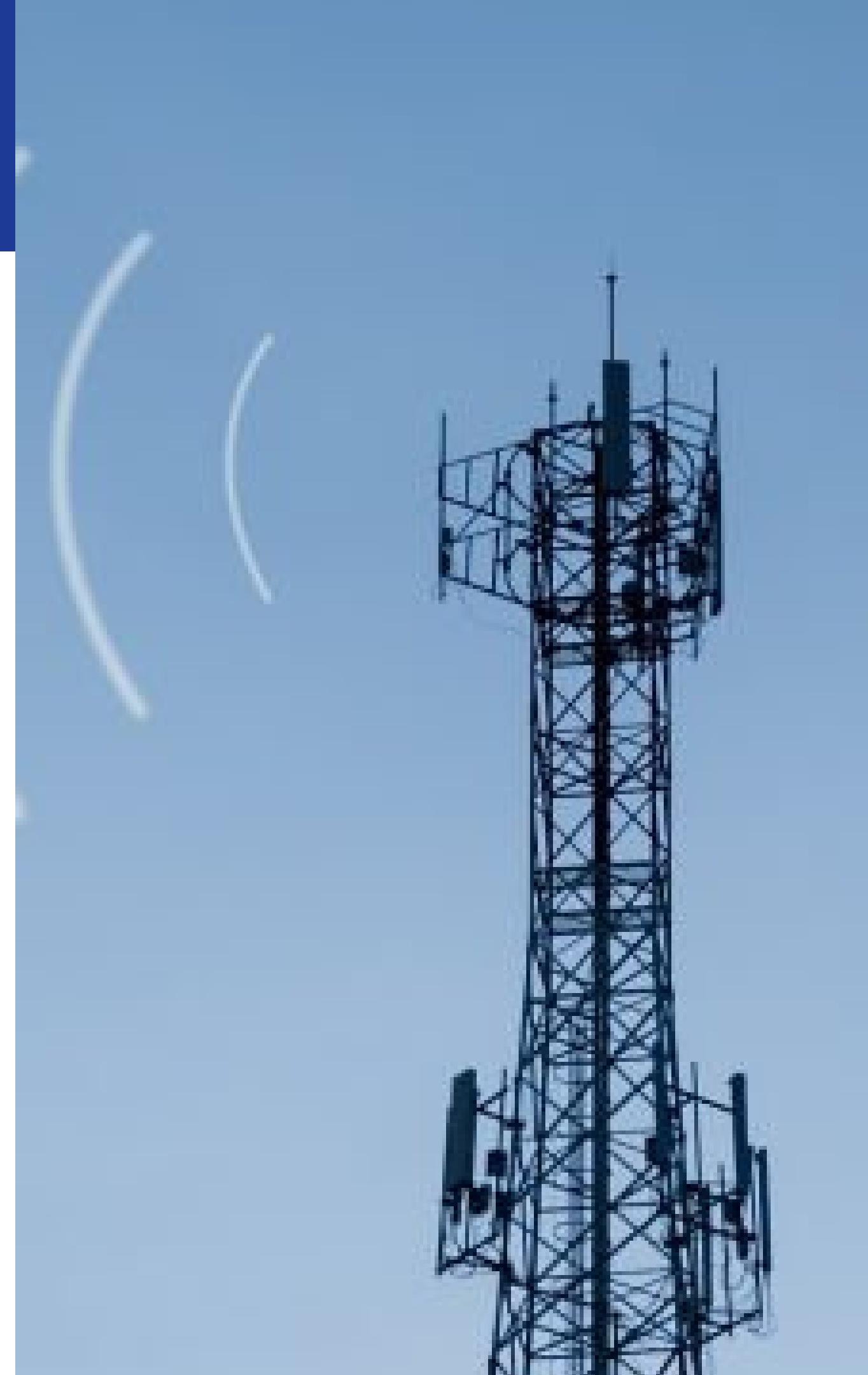
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- Customers who spend more time on calls during the day, night, and evening are more likely to churn.
- Effective management of customer service interactions is crucial for reducing churn.
- Offering attractive international plans could help retain customers.
- Providing competitive pricing or value-added services could help mitigate this risk.
- Promoting the benefits of voice mail plans could help improve customer retention.



# RECOMMENDATIONS

- Enhance Network Coverage.
- Proactive Churn Prediction.
- Regular Communication.  
..
- Customer Feedback and Surveys.
- Proactive Customer Support.
- Introduce Value-Added Services and Offers.



# Next Steps



## MONITOR AND UPDATE THE MODEL

ensure it remains accurate and effective.

## DEPLOY THE MODEL

production environment

## COLLECT MORE DATA

improve the model's performance and make it more robust.

# THANK YOU

ANY  
QUESTIONS?

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