Overview

Project Objective

- Predict customer behavior: To forecast which SyriaTel customers are likely to remain loyal and who may leave the service.

Impact

- Boosting revenue: Reducing customer churn leads to increased revenue and fosters a more robust and sustainable business environment.

Business Understanding

Stakeholders:

- Primary stakeholder: SyriaTel's management team

- Secondary stakeholders:

  Marketing department

  Customer service team.

Business Problem:

- Who will stay with SyriaTel, and who will leave?

- Identifying Patterns

- How can SyriaTel improve customer retention?

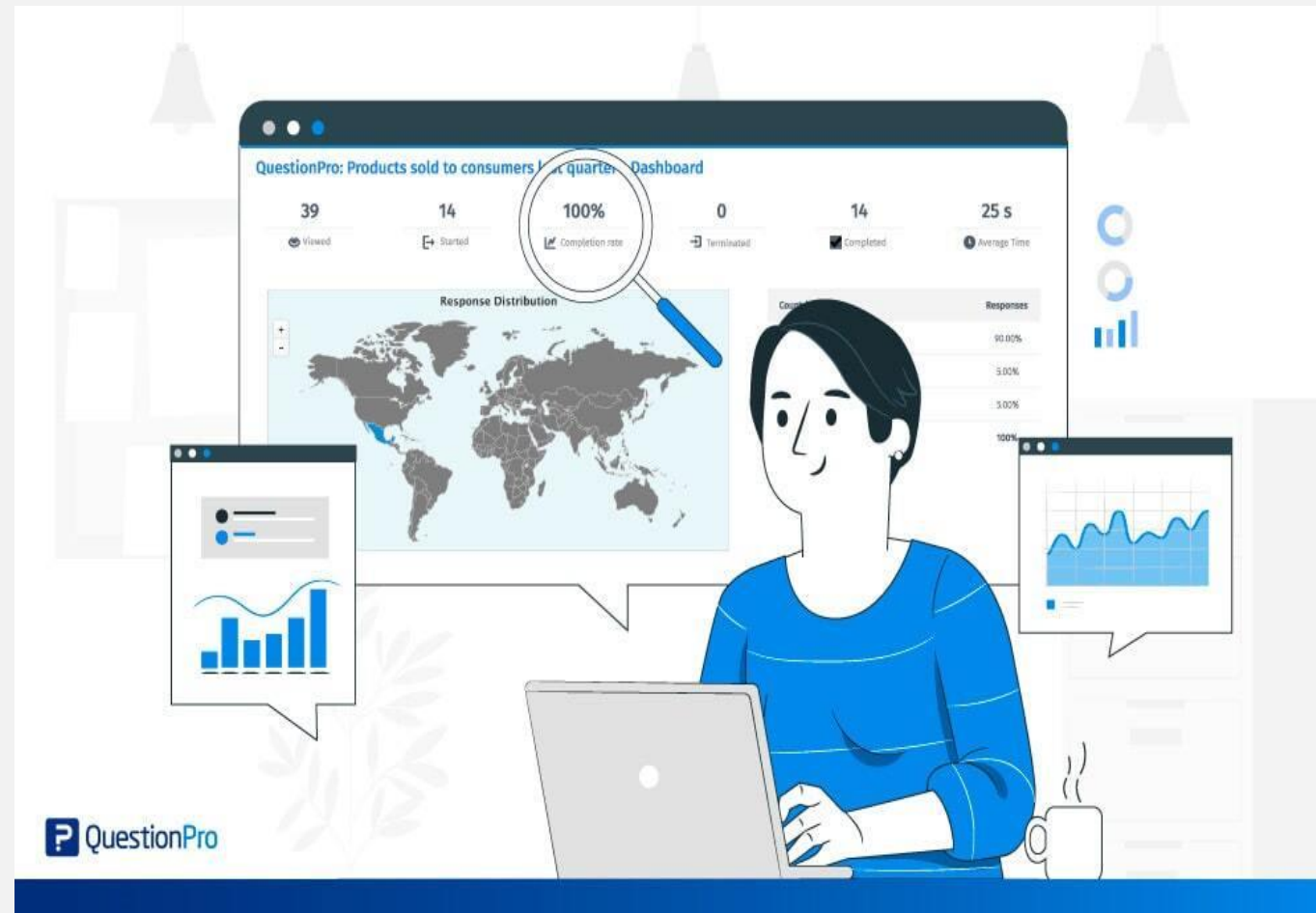# Data Understanding

- ## Data Source:

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

- ## Features : 20

- ## Target Feature: Churn (false or true)

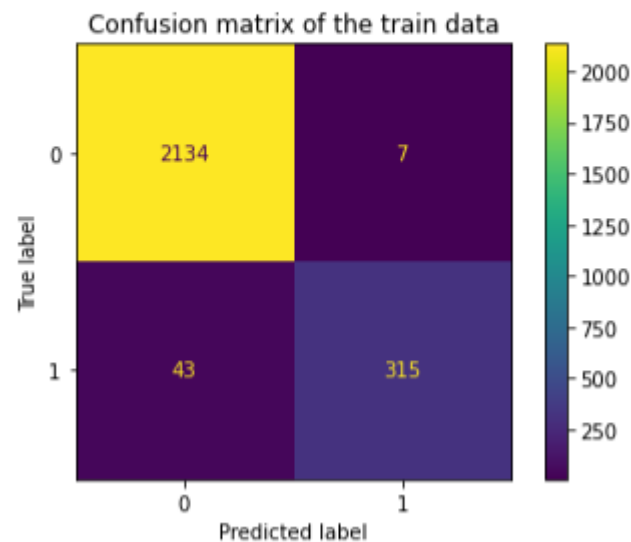- Customer entries: 3333

- Null Values: 0

Best Model: Gradient Boosting Classifier

- Important Features: customer_service_calls, total_day_minutes, international_plan.

Model Performance on Train Data

Final model for train data:
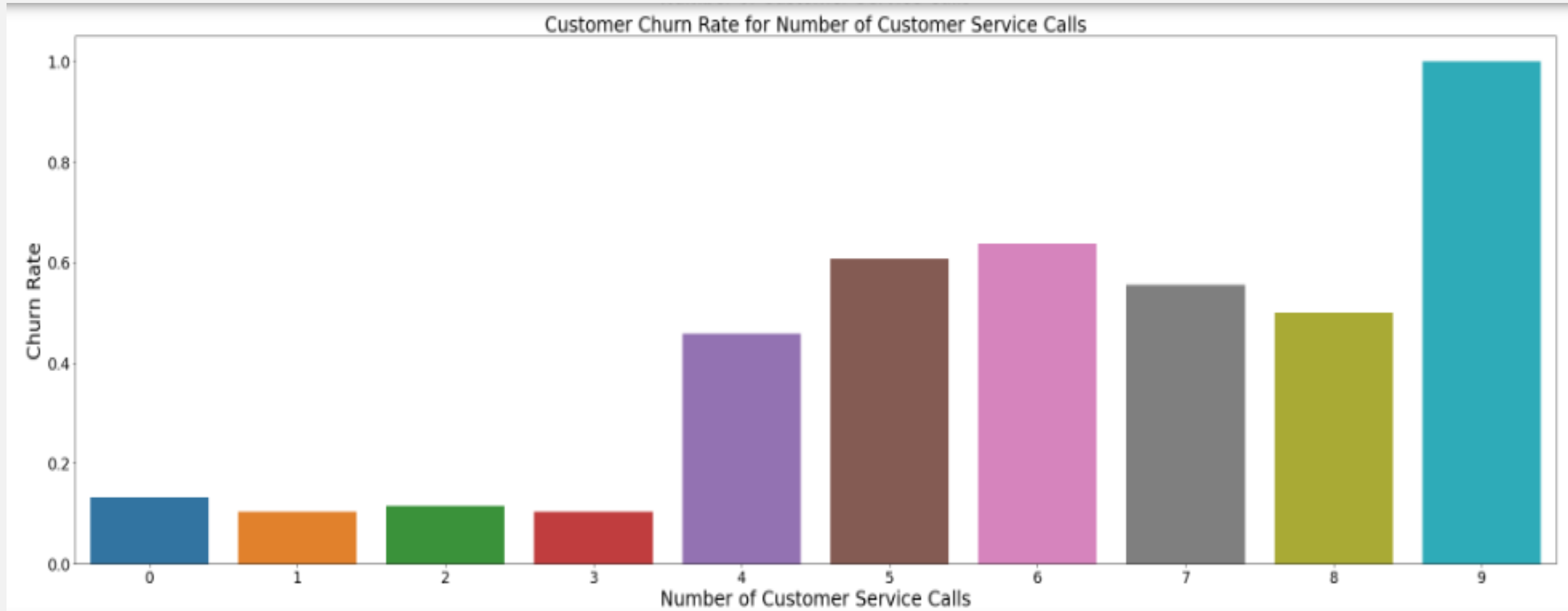accuracy_score: 0.98
recall_score: 0.88
f1_score: 0.926

Confusion matrix of the train data

Model Performance on Test Data

Final model for test data:
accuracy_score: 0.944
recall_score: 0.736
f1_score: 0.797

Confusion matrix of the test data
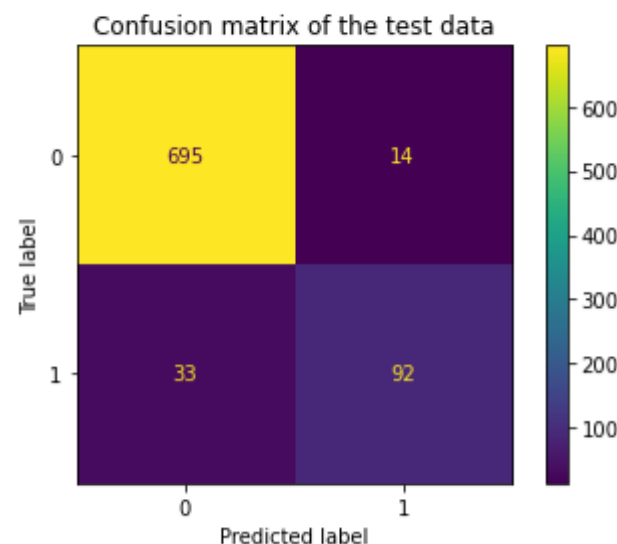
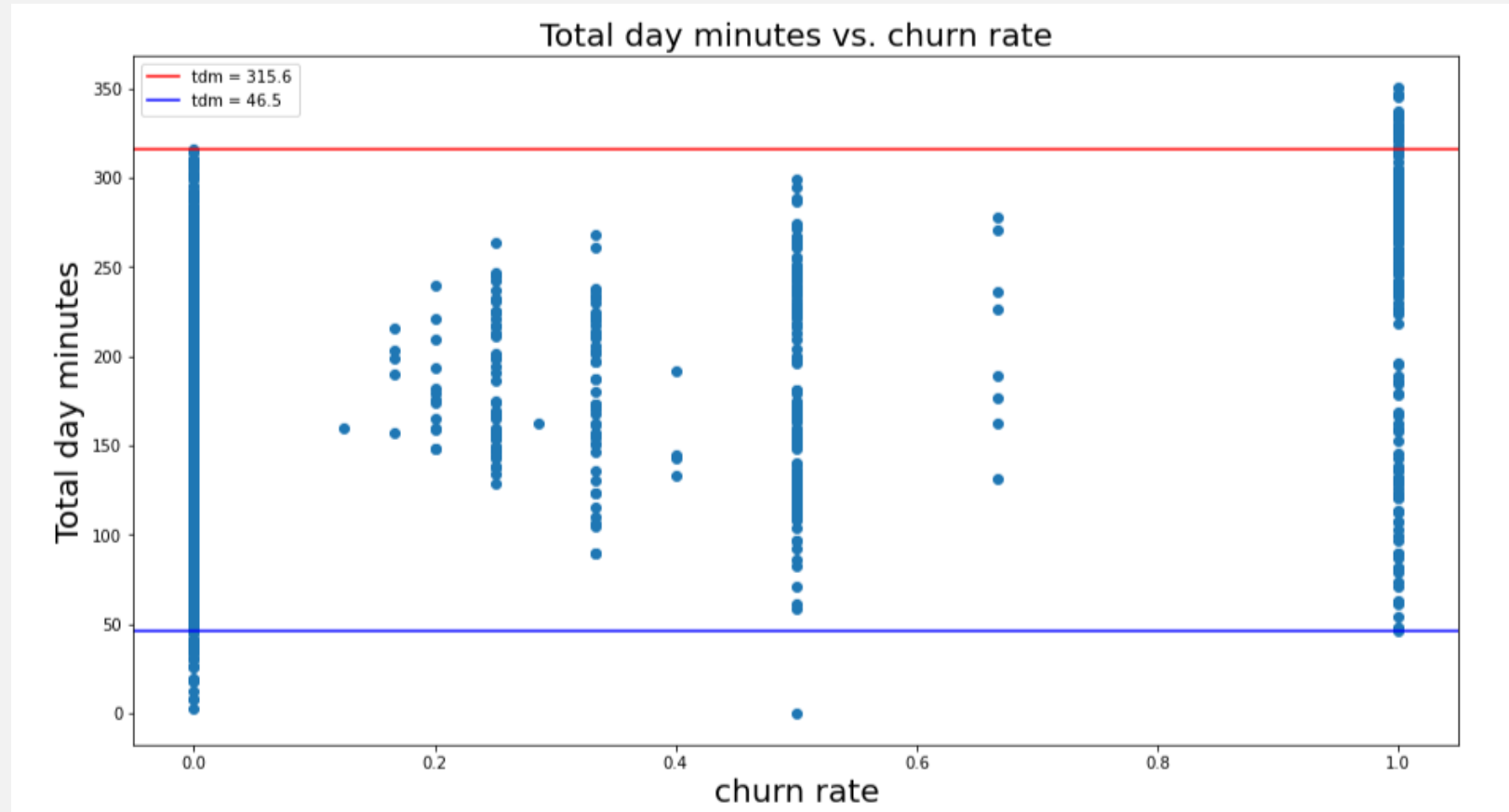# Customer Churn Rate Based on Number of Customer Service Calls

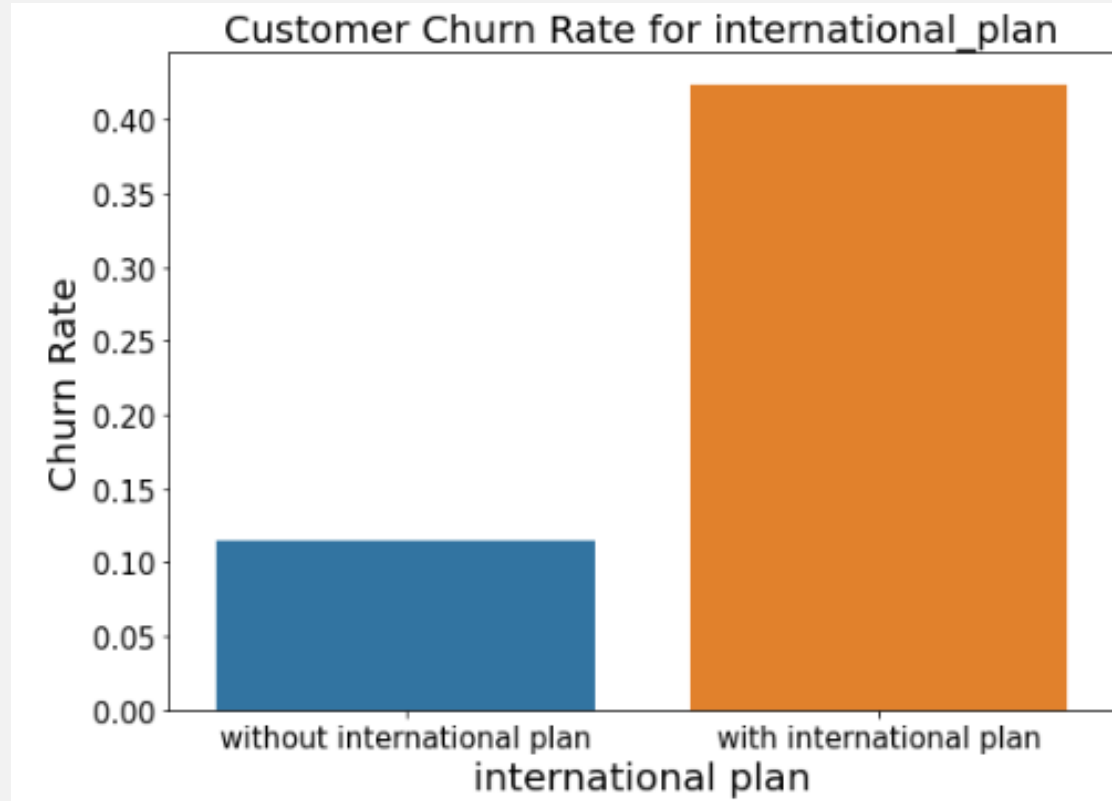Customer Churn Rate for Number of Customer Service Calls

- Customers with more customer service calls have a higher churn rate.
- The churn rate for customers with 4 or more customer service calls is significantly higher than the churn rate for customers with fewer customer service calls.

Total Day Minutes VS Churn Rate
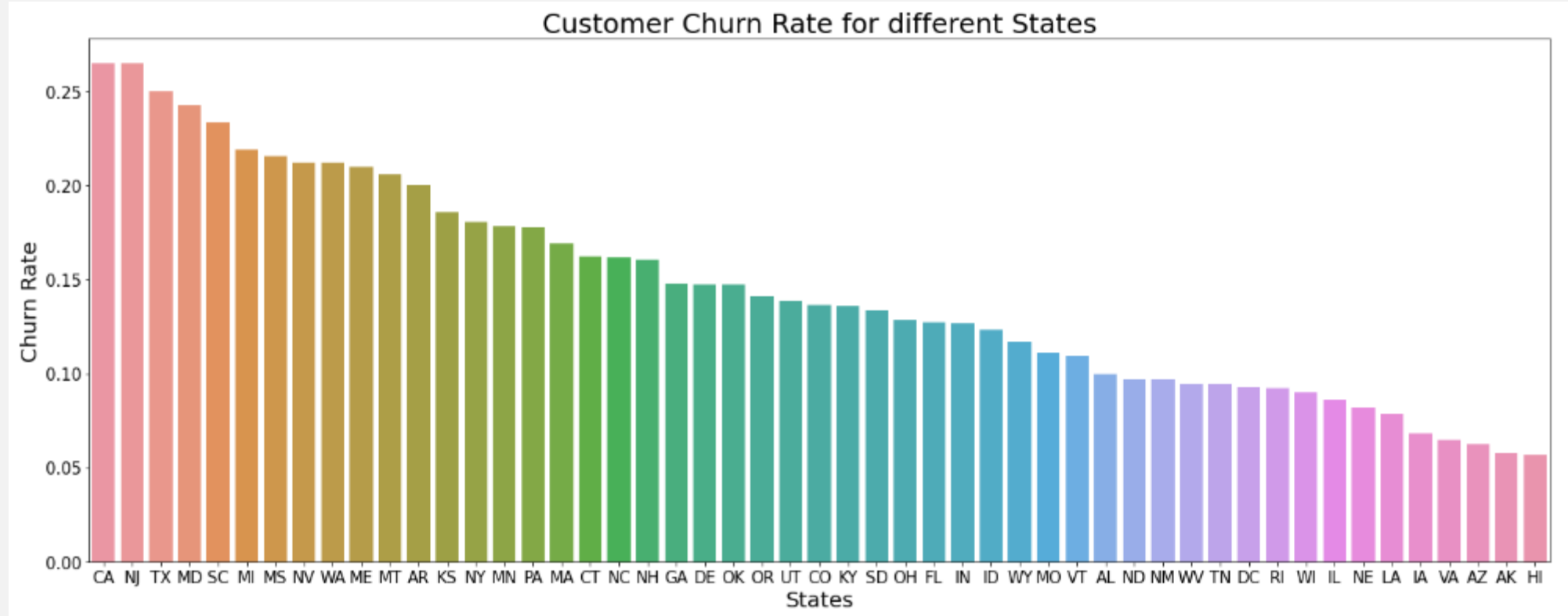

Total day minutes vs. churn rate

- The churn rate for customers with "Total day minutes" greater than 315.6 is 100%.
- The churn rate for customers with "Total day minutes" less than 46.5 is mostly 0.

Customer Churn Rate for International Plan

Customer Churn Rate for international_plan

- Customers with international plans have a higher churn rate

Churn Rate for Different States

Customer Churn Rate for different States

- CA and NJ have the highest churn rates exceeding 25%
- AK and HI have the lowest churn rates, both below 6%

Evaluation

- **Customer Service Calls**: Customers with a high number of service calls(4 and above), have a significantly higher churn rate. This suggests that excessive customer service interactions hints at customer dissatisfaction and subsequently churn.

- **International Plan:** Customers with an international plan are more likely to churn. This finding highlights the importance of assessing the value and satisfaction of international plans for customers.

- **Total Day Minutes:** The churn rate is highest for customers with total day minutes greater than 315.6 and lowest for those with less than 46.5 minutes. The company should focus on retaining customers with day minutes between these thresholds.

- **Geographical Insights**: Certain states, such as AZ, AK, and HI, have lower churn rates. These states may exhibit unique customer behaviors or market conditions that the company can learn from to improve overall customer retention strategies.

Recommendations

Geographical Insights Utilization

Marketing Campaign Personalization

Customized Retention Strategies

Improve Support Offered to Customers when they Call

Customer Feedback and Satisfaction Analysis

International Plan Assessment

Next Steps

- **Customer Feedback Loops:** Set up mechanisms for gathering customer feedback continuously.

- **Employee Training and Development:** Invest in the training and development of customer service representatives so that they can resolve customer issues efficiently.

- **Regional Expansion:** If strategies from lower-churn states (e.g., AZ, AK, HI) prove effective, consider expanding similar approaches to other regions.

- **Customer Segmentation:** Further refine customer segmentation based on the machine learning model's insights.

- **Customer Engagement Initiatives:** Implement customer engagement initiatives to foster a sense of loyalty and connection.

- **Market Research and Competitor Analysis:** Stay informed about industry trends and keep a close eye on competitor strategies

Thank You!