CUSTOMER CHURN

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OVERVIEW

- This presentation is divided into :

1. Business understanding
2. Data understanding
3. Data Analysis
4. Data Modelling

BUSINESS UNDERSTANDING

In the telecommunications industry,customer churn is a major challenge. Retaining existing customers is more cost effective than acquiring new ones, making it essential to understand why customers leave. By analyzing customer behavior, usage patterns and interactions with service plans,we can identify the key factors driving churn. These insights will help the company develop proactive strategies to improve retention thus enhance customer satisfaction and reduce revenue loss.

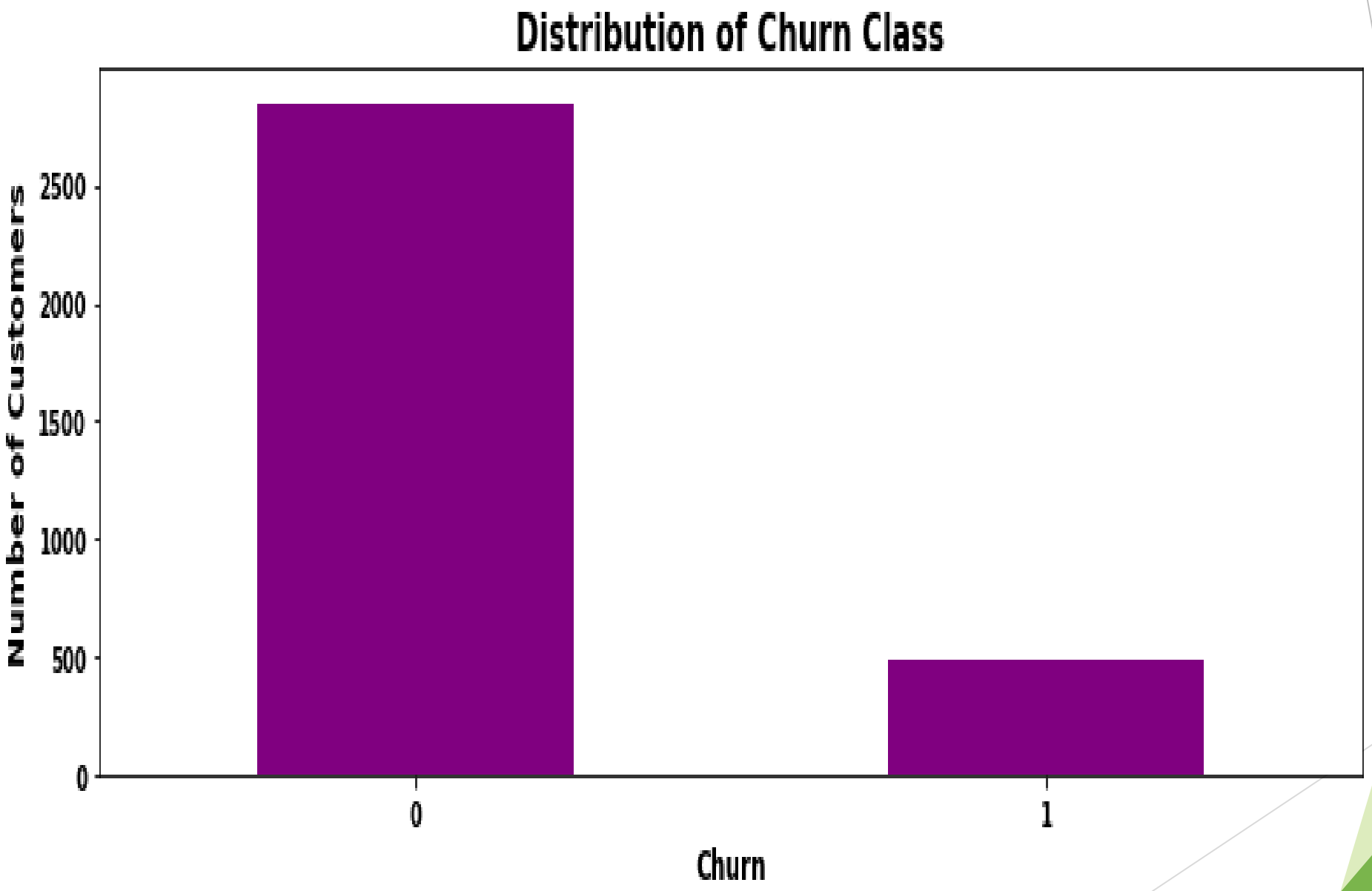
OBJECTIVES

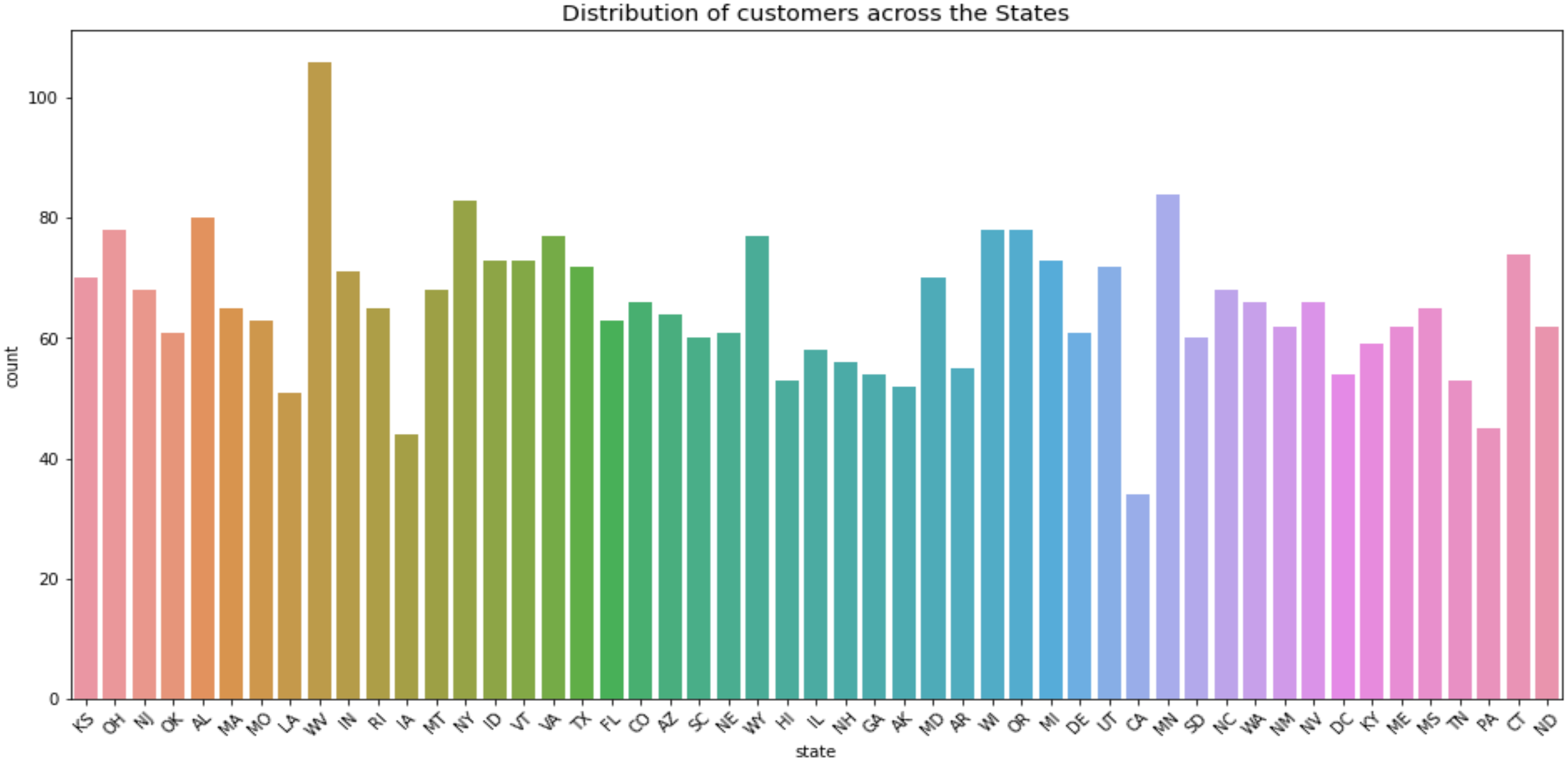
- 1.To develop an accurate and reliable customer churn prediction model with an accuracy of 85%
- 2.To identify key factors contributing to customer churn
- 3.To formulate targeted customer retention strategies
- 4.Utilize machine learning models to accurately predict potential churn and take proactive measures.
- 5.Streamline processes using data analytics to improve decision-making and resource allocation.

METHODS USED FOR ANALYSIS

- Data Collection
- Explanatory data analysis
- Data Visualisation
- Data Modelling
- Feature selection
- Hyperparameter tuning

DATA UNDERSTANDING


Distribution of Churn Class
Number of Customers
2500
2000
1500
1000
500
0
0
1
Churn


Distribution of customers across the States
count
state
0
20
40
60
80
100
KS
OH
NJ
OK
AL
MA
MO
LA
WV
IN
RI
IA
MT
NY
ID
VT
VA
TX
FL
CO
AZ
SC
NE
WY
HI
IL
NH
GA
AK
MD
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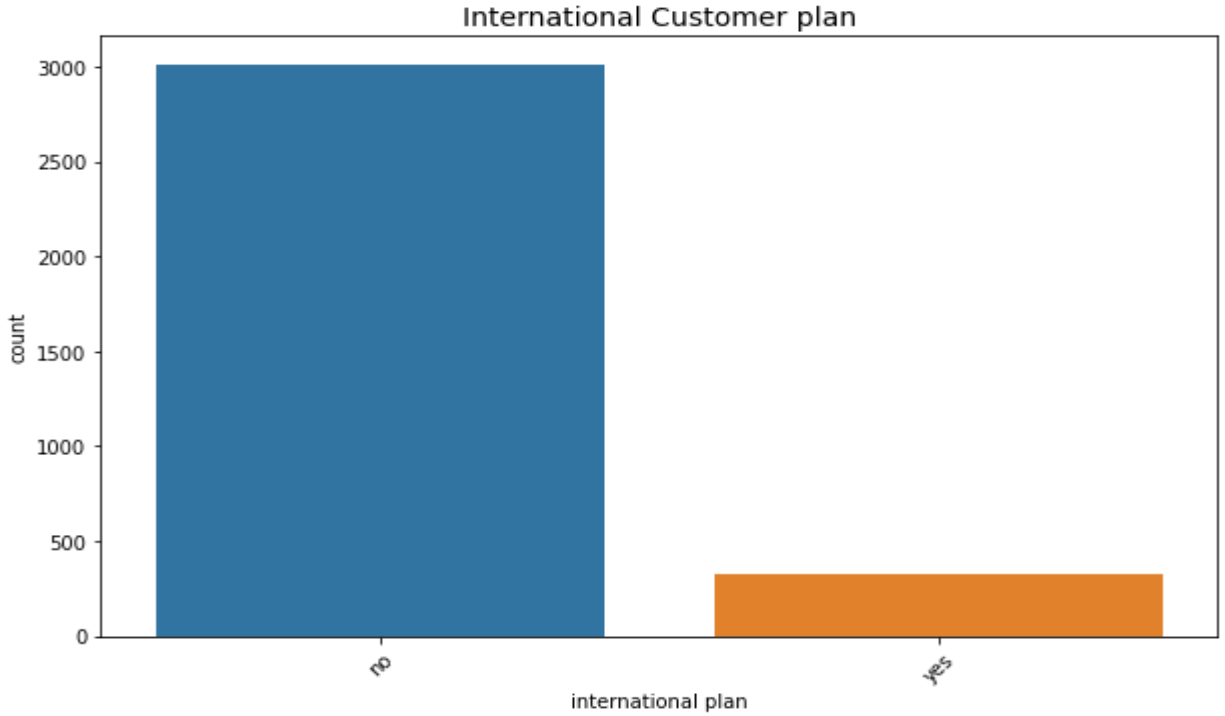
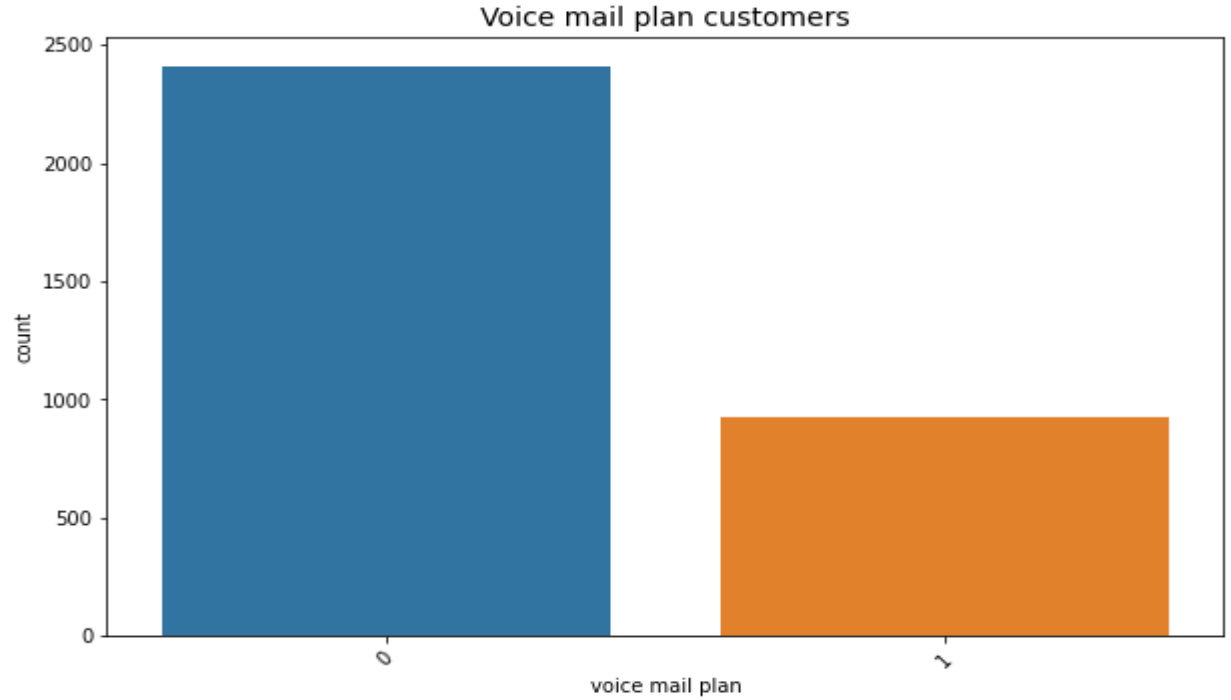
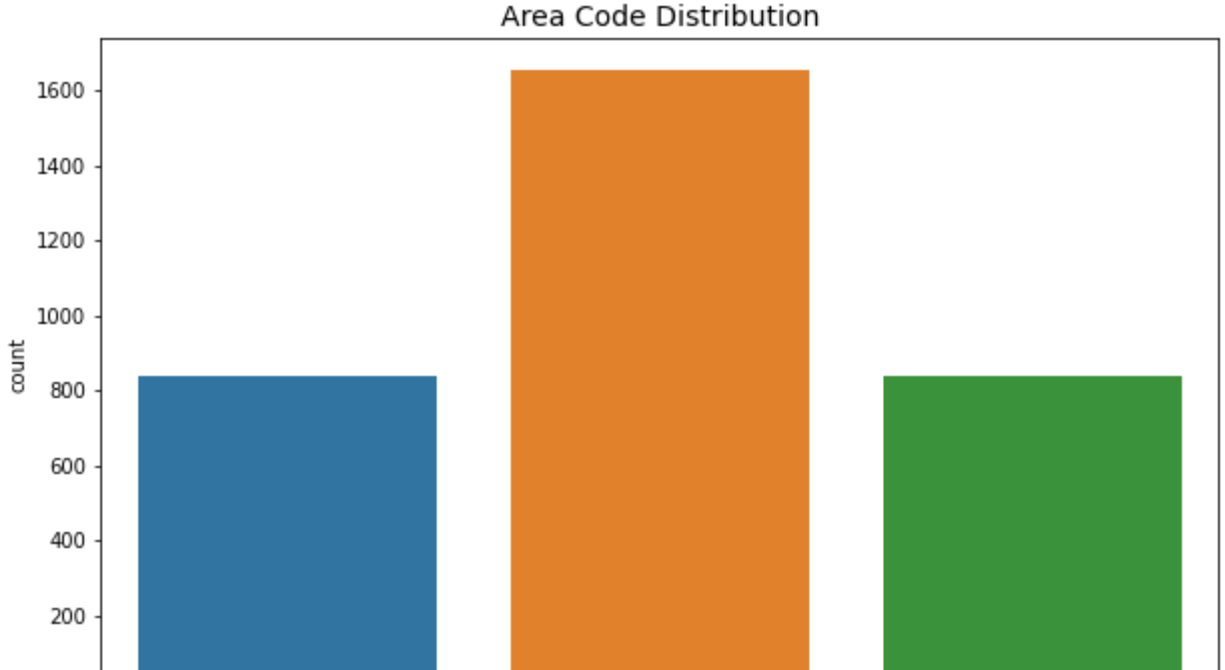
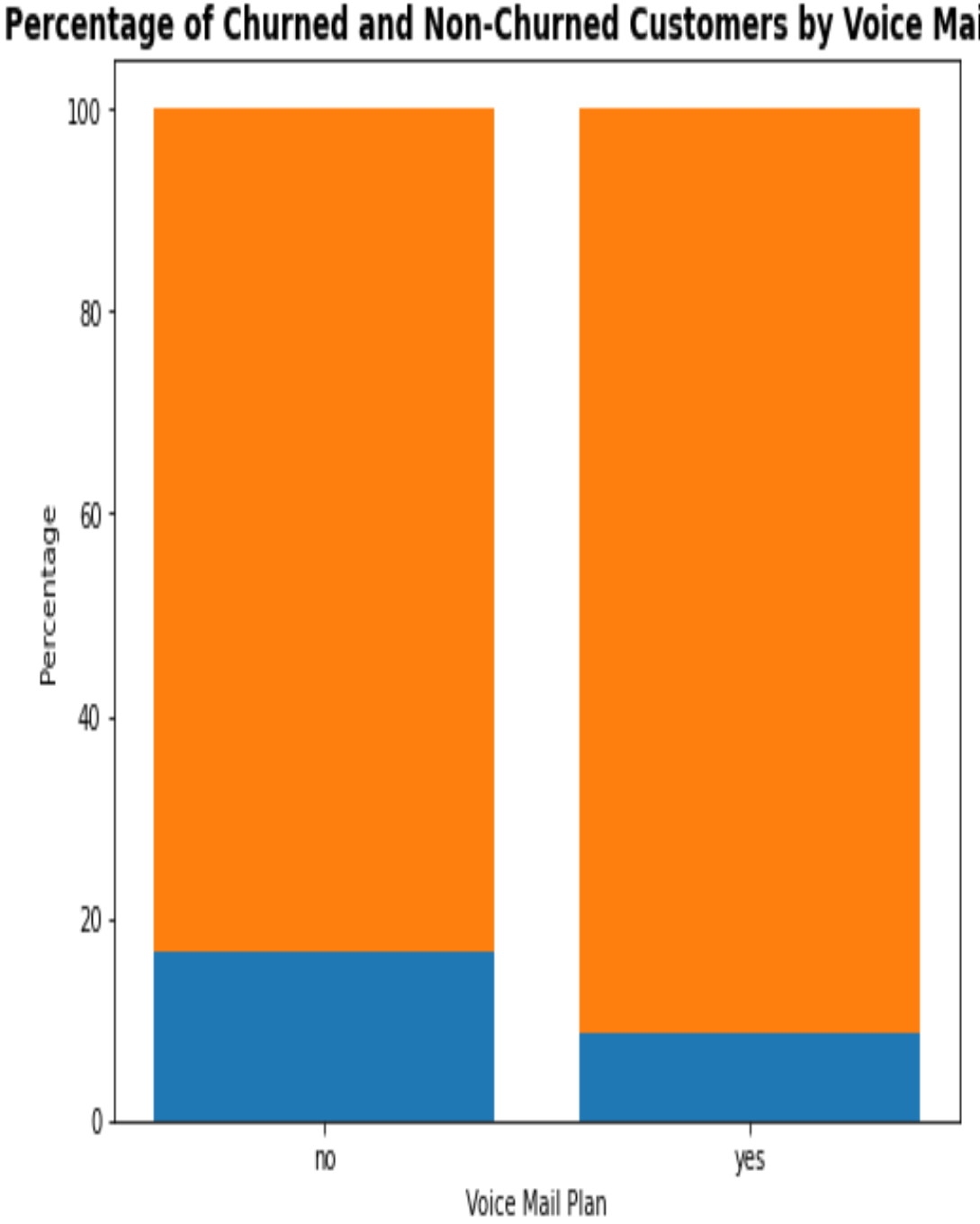
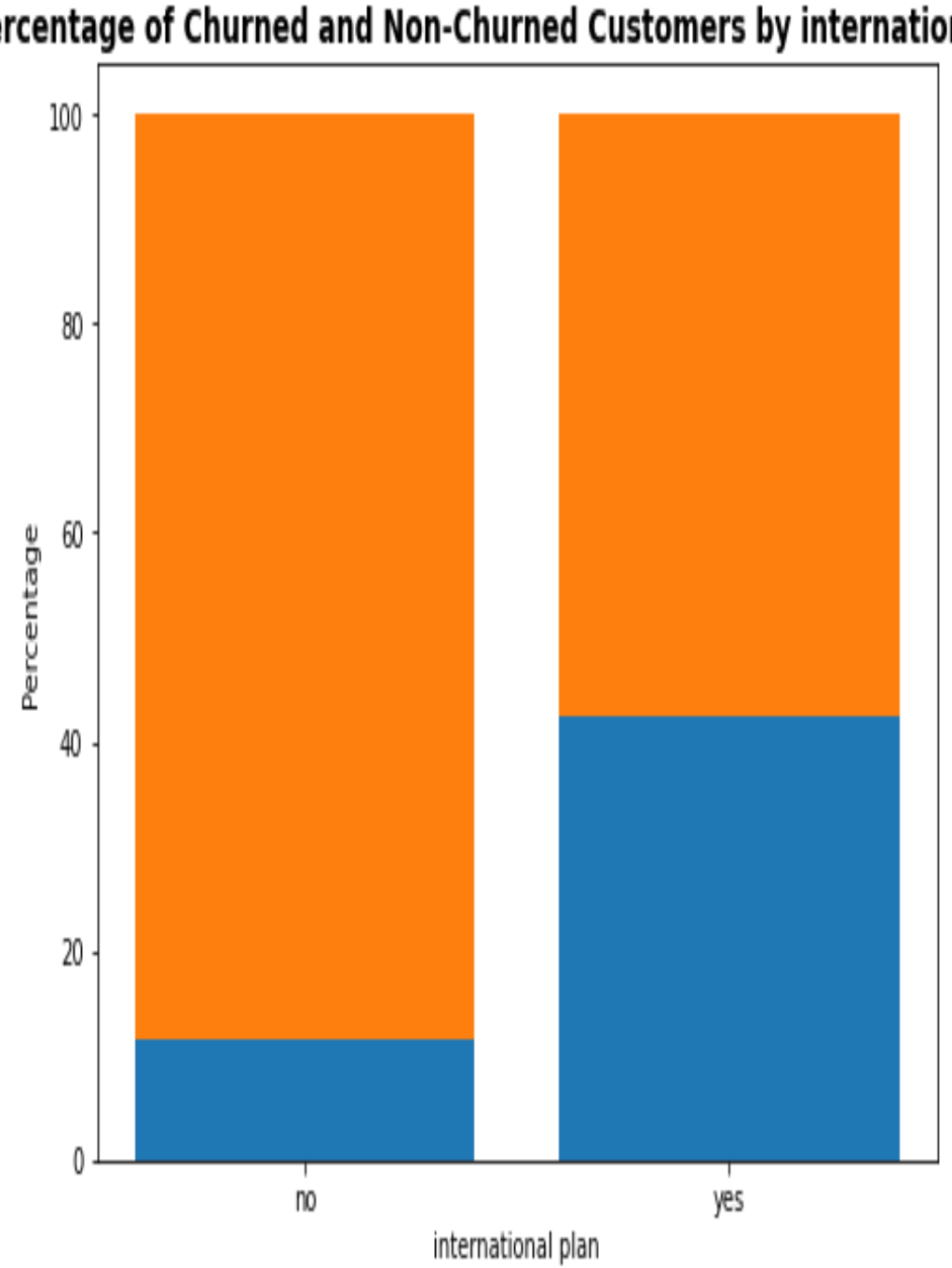
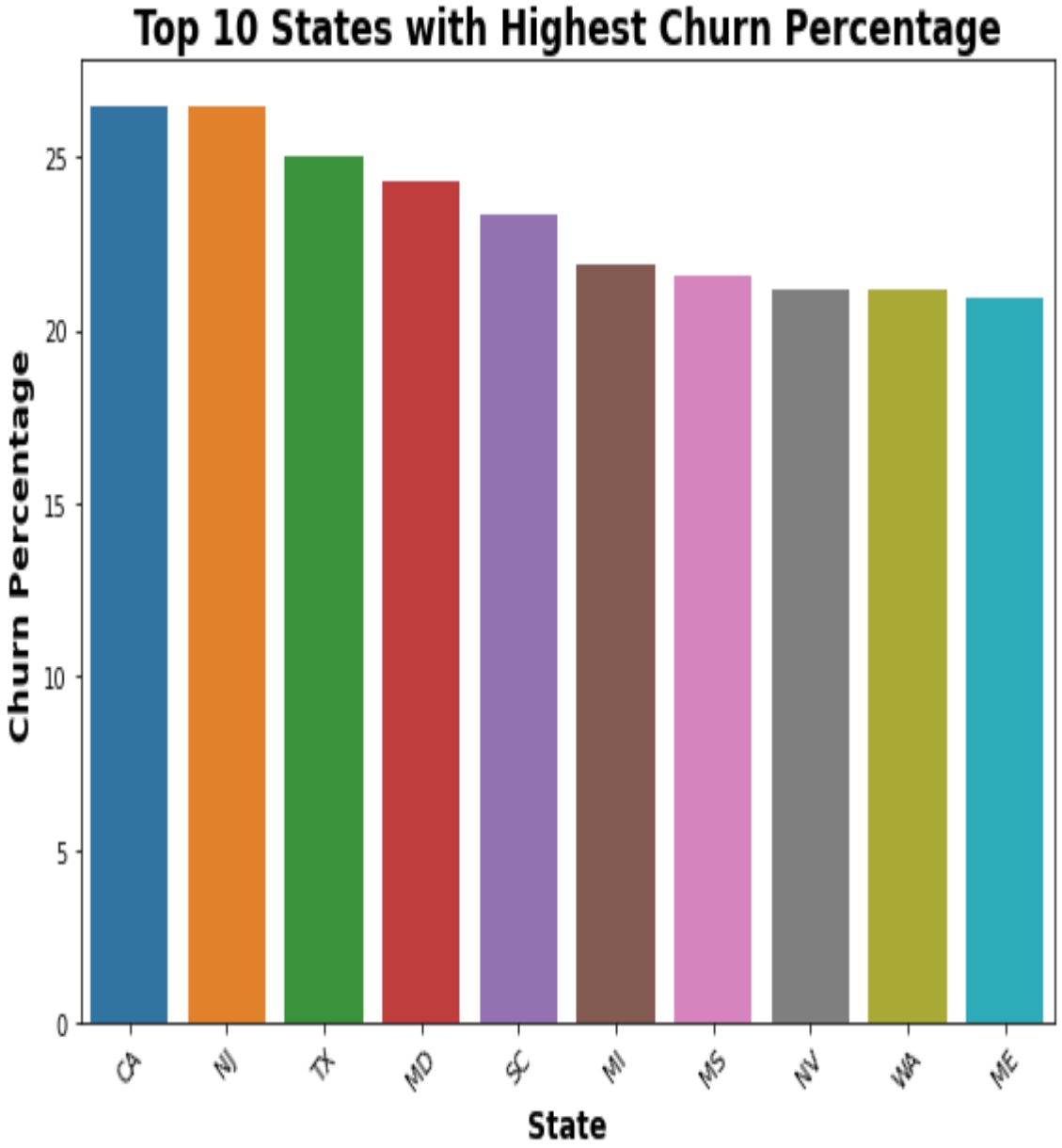

International Customer plan
count
3000
2500
2000
1500
1000
500
0
no
yes
international plan

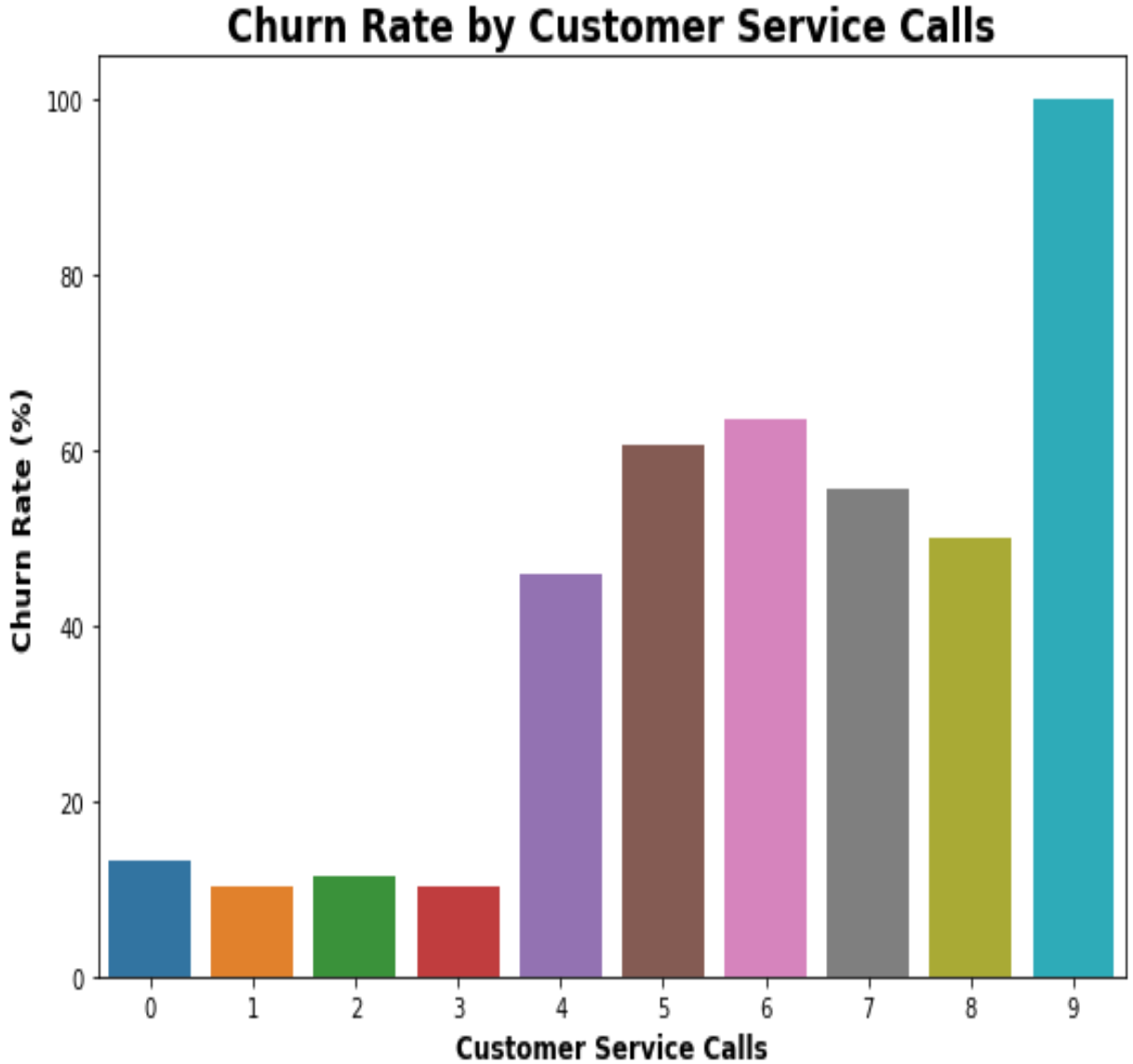

Voice mail plan customers
count
2500
2000
1500
1000
500
0
0
1
voice mail plan


Area Code Distribution
count
1600
1400
1200
1000
800
600
400
200

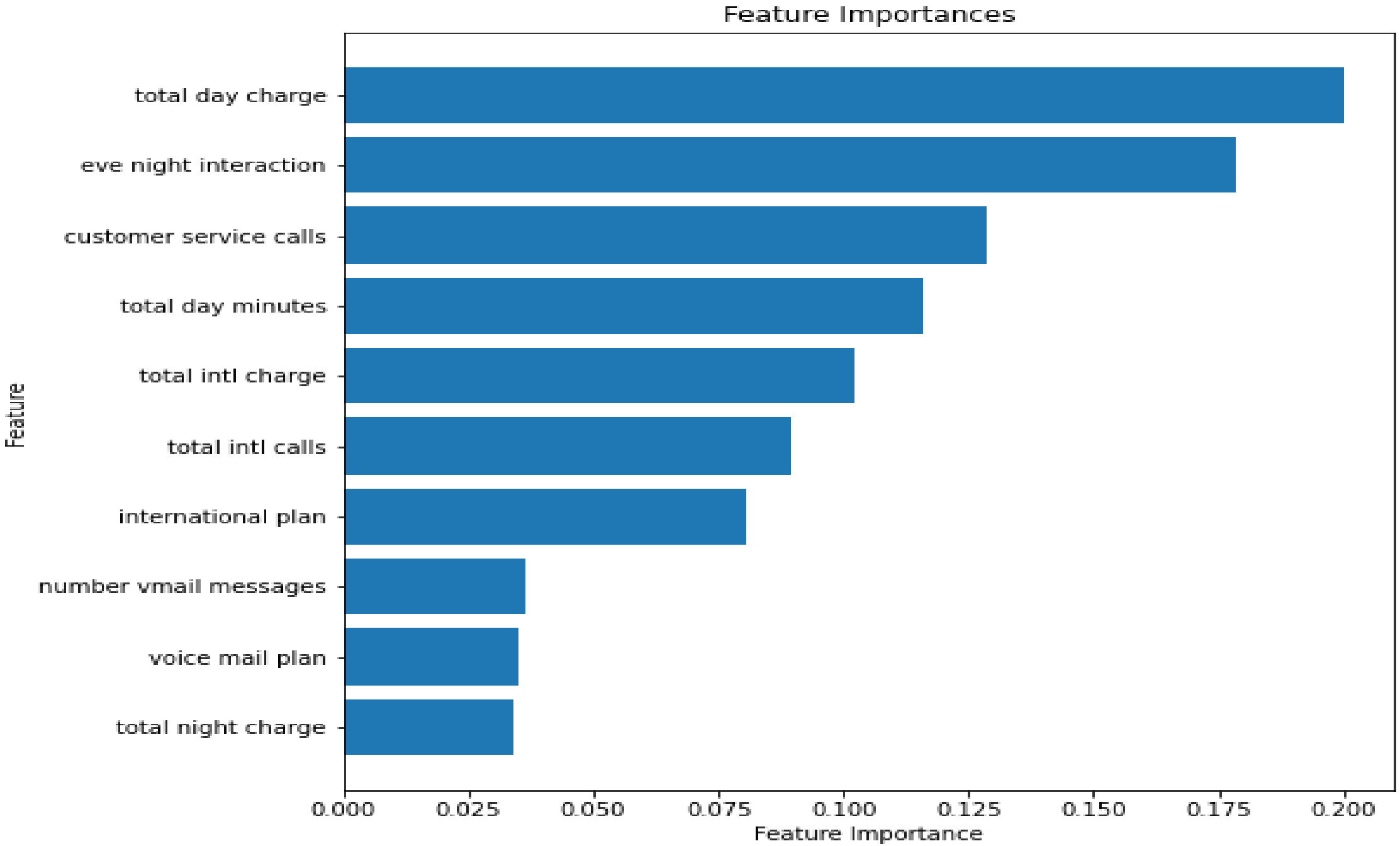

Percentage of Churned and Non-Churned Customers by Voice Mail Plan
100
80
60
40
20
0
Percentage
no
yes
Voice Mail Plan

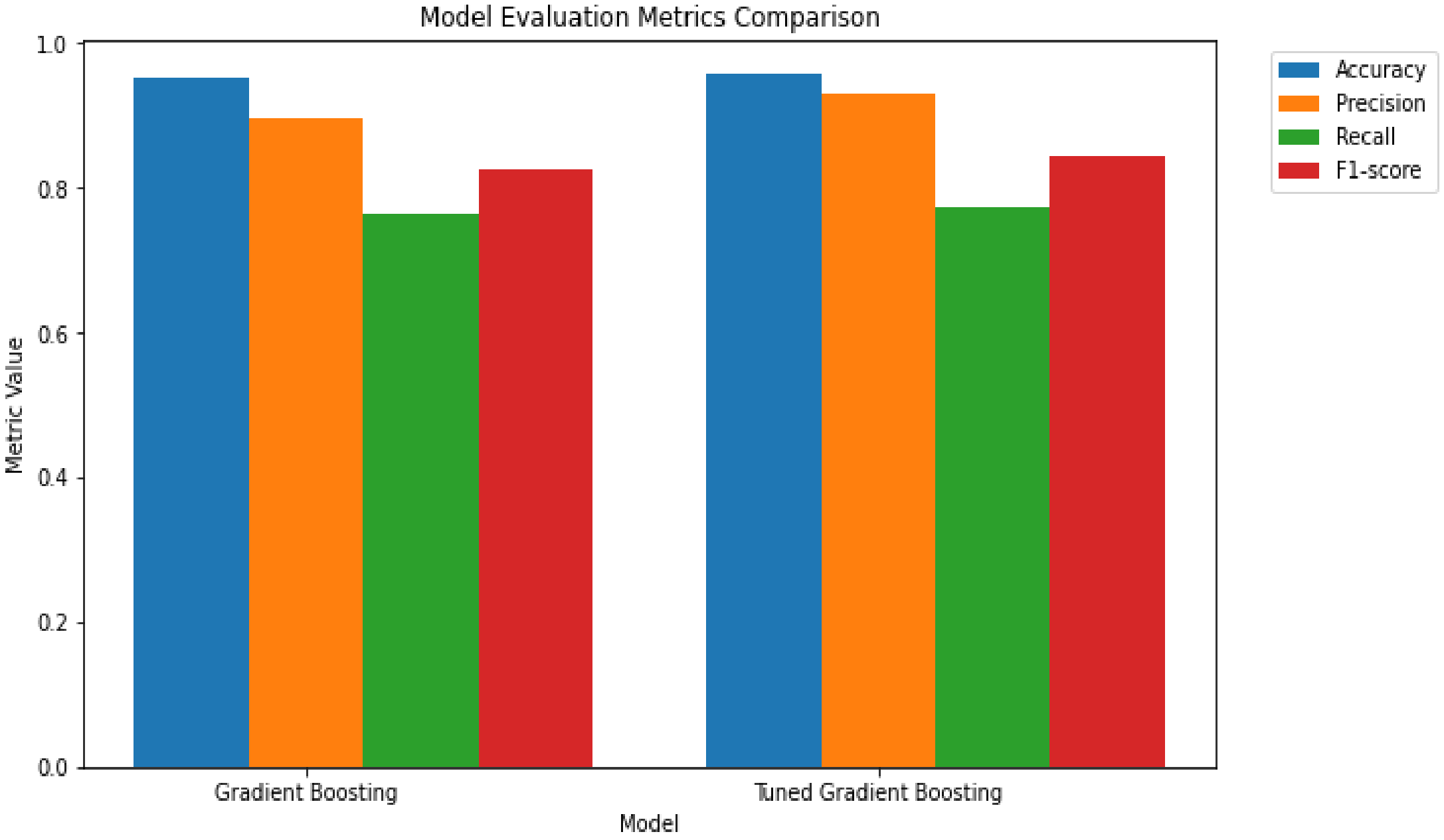

Percentage of Churned and Non-Churned Customers by international plan
100
80
60
40
20
0
Percentage
no
yes
international plan


Top 10 States with Highest Churn Percentage
Churn Percentage
0
5
10
15
20
25
CA
NJ
TX
MD
SC
MI
MS
NV
WA
ME
State


Churn Rate by Customer Service Calls
Churn Rate (%)
0
20
40
60
80
100
0
1
2
3
4
5
6
7
8
9
Customer Service Calls

DATA ANALYSIS


Feature Importances
total day charge
eve night interaction
customer service calls
total day minutes
total intl charge
total intl calls
international plan
number vmail messages
voice mail plan
total night charge
Feature
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
Feature Importance


Model Evaluation Metrics Comparison
1.0
0.8
0.6
0.4
0.2
0.0
Metric Value
Accuracy
Precision
Recall
F1-score
Gradient Boosting
Tuned Gradient Boosting
Model

CONCLUSION

- To effectively reduce churn, boost growth, and enhance customer satisfaction, the telecom company should focus on leveraging data-driven insights and advanced machine learning models. A seamless data flow, combined with an expanded B2B approach and a proactive collection of customer feedback, will help shape tailored retention strategies. Regularly monitoring churn rates, crafting targeted marketing campaigns, and improving network performance are crucial steps to keep customers engaged and boost profitability. Additionally, fine-tuning pricing, offering personalized plans, and assessing international calling options can help attract and retain customers while staying competitive in the market. By implementing these strategies, the company can not only tackle churn head-on but also create a better customer experience and achieve substantial revenue retention and cost savings.