

Phase 3 Project



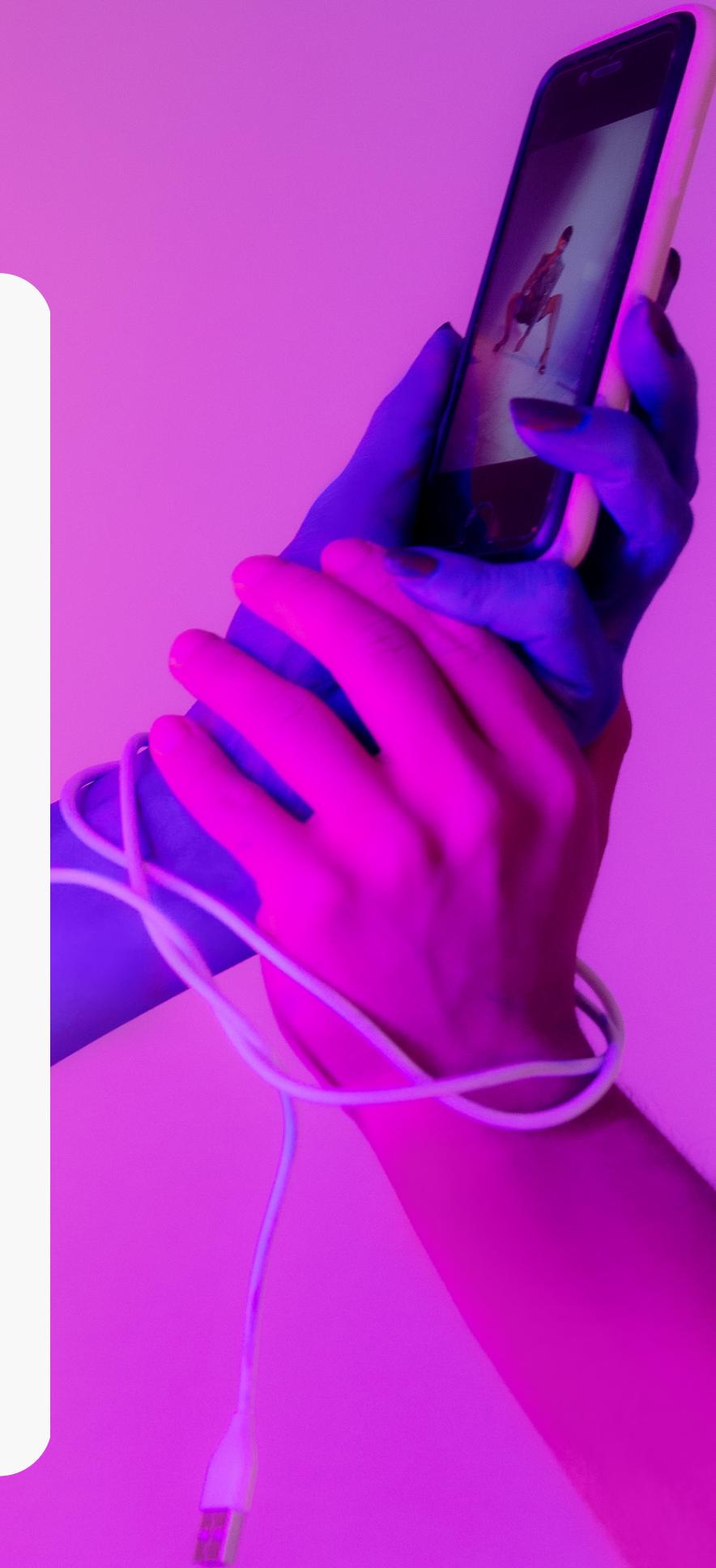
Predictive Analysis For Customer Churn



Presented By:
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Overview

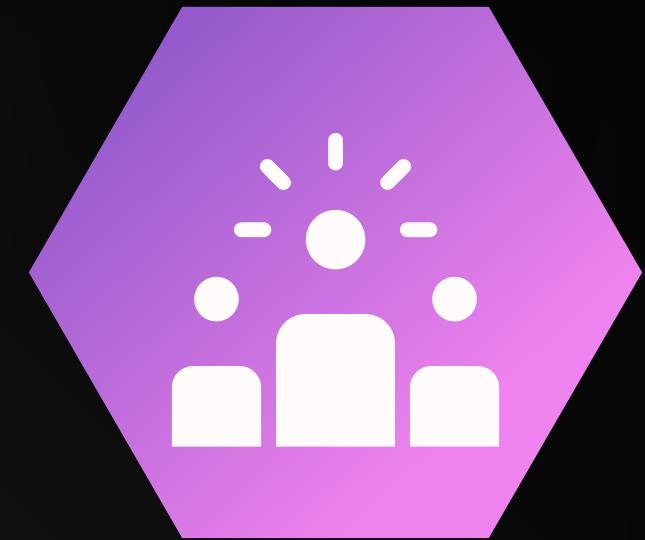
1. Introduction
2. Problem Statement
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Introduction.

Customer churn, in the telecommunications industry faces a lot of challenges.

Use of data analytics and Machine learning helps Syrialtel understand the challenges they face and how best to address them.



Problem Statement.



Telecom companies like Syrialtel face high churn rates despite competitive services.

Utilizing data analytics and machine learning to understand churn drivers is essential.

Accurate identification of predictors is crucial for developing proactive retention strategies and fostering sustainable growth,

Objectives.

Main Objective

Develop a predictive classifier for SyrialTel Telecommunication to identify predictable patterns of customer churning.

Specific objectives.

- Determine key factors influencing customer churn in the Telecommunication company.
- Assess classifier performance using metrics including accuracy, precision, recall, F1 score, and confusion matrix to gauge effectiveness.
- Offer actionable recommendations to SyrialTel to mitigate losses attributed to customer churn.





Business Understanding

SyriaTel fights high churn rates. With the use of analytics, reducing losses, boosting loyalty and fostering growth through proactive management and strategic investments is possible.

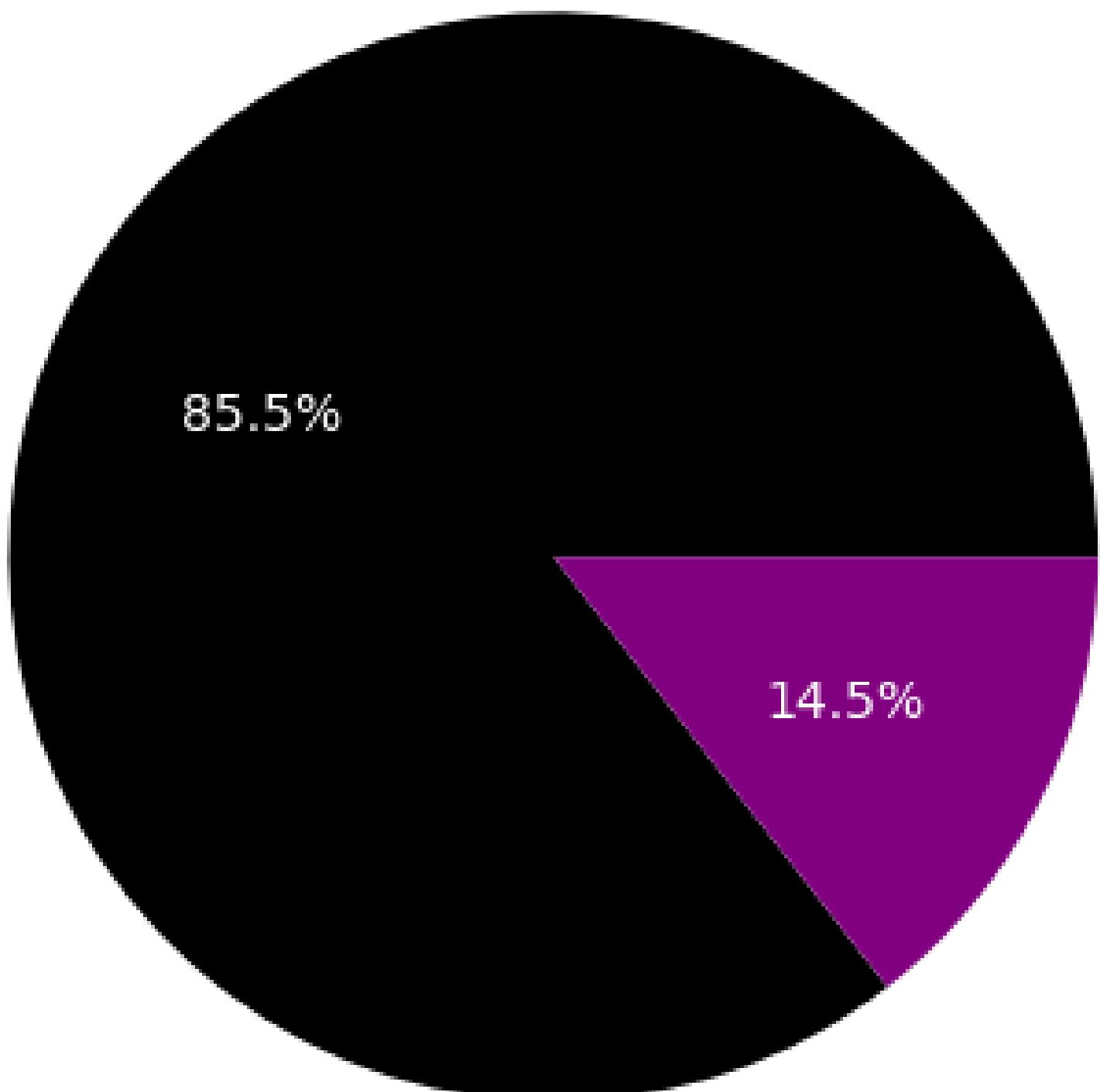
Data Understanding.

The dataset from Kaggle contains 3333 rows and 21 columns. Features are primarily numerical, except for categorical/binary attributes like international plan, voice mail plan, and churn. The objective is binary classification, predicting customer churn (1 for true, 0 for false).

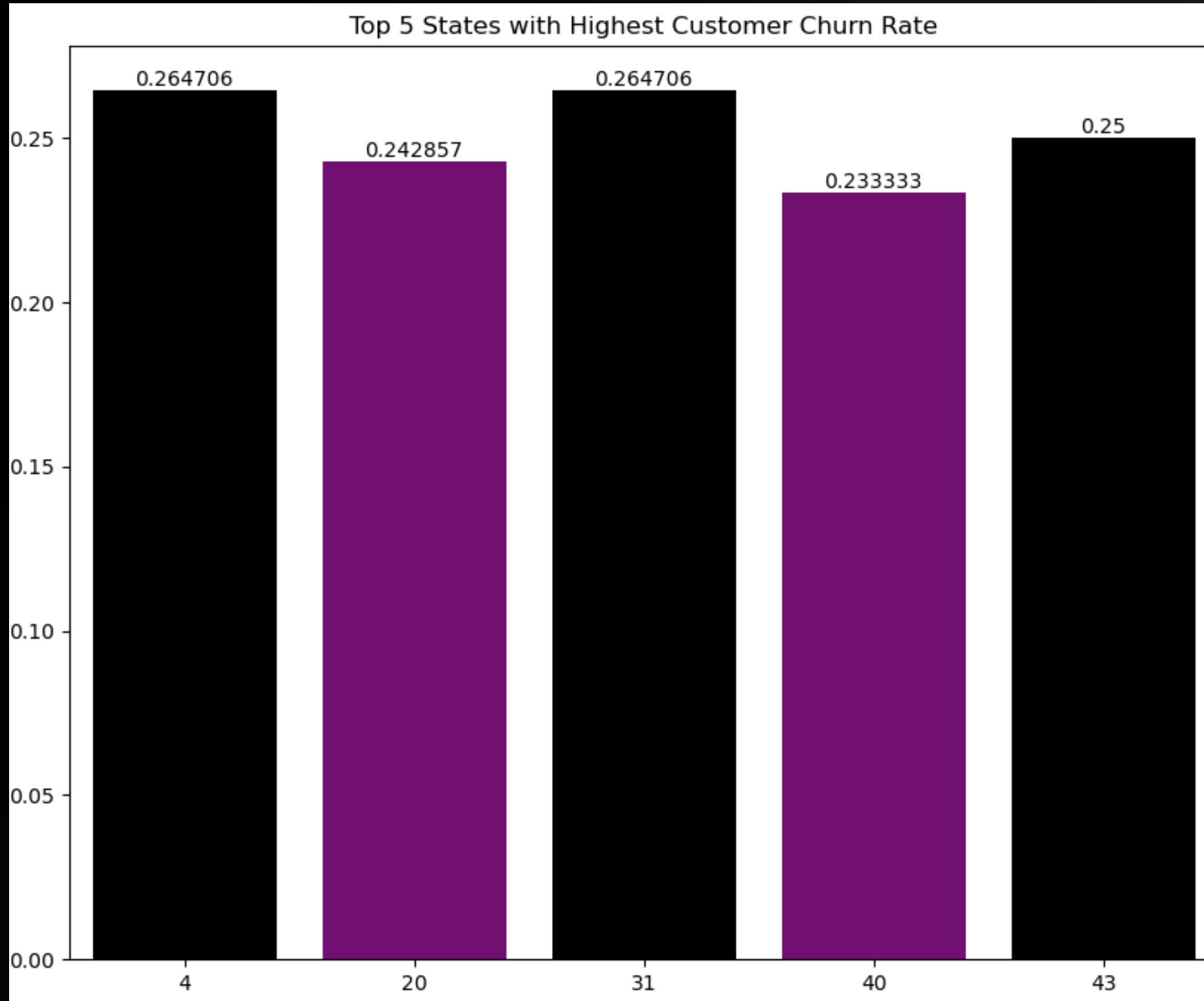
FINDINGS.

Distribution of customers that churn.

85.5% of the customers are yet to churn while 14.5% have already churned.

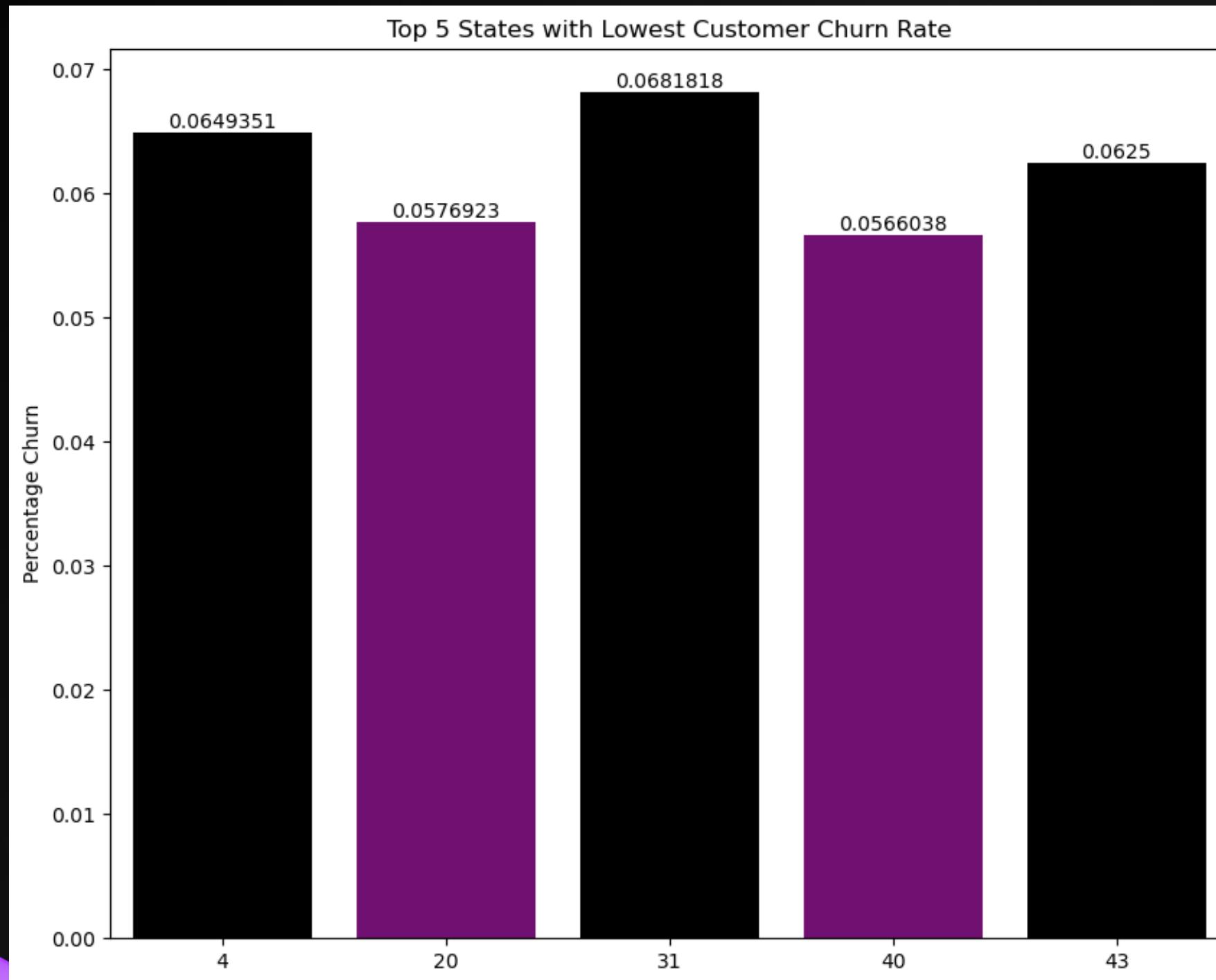


Top 5 states with the highest churn rates



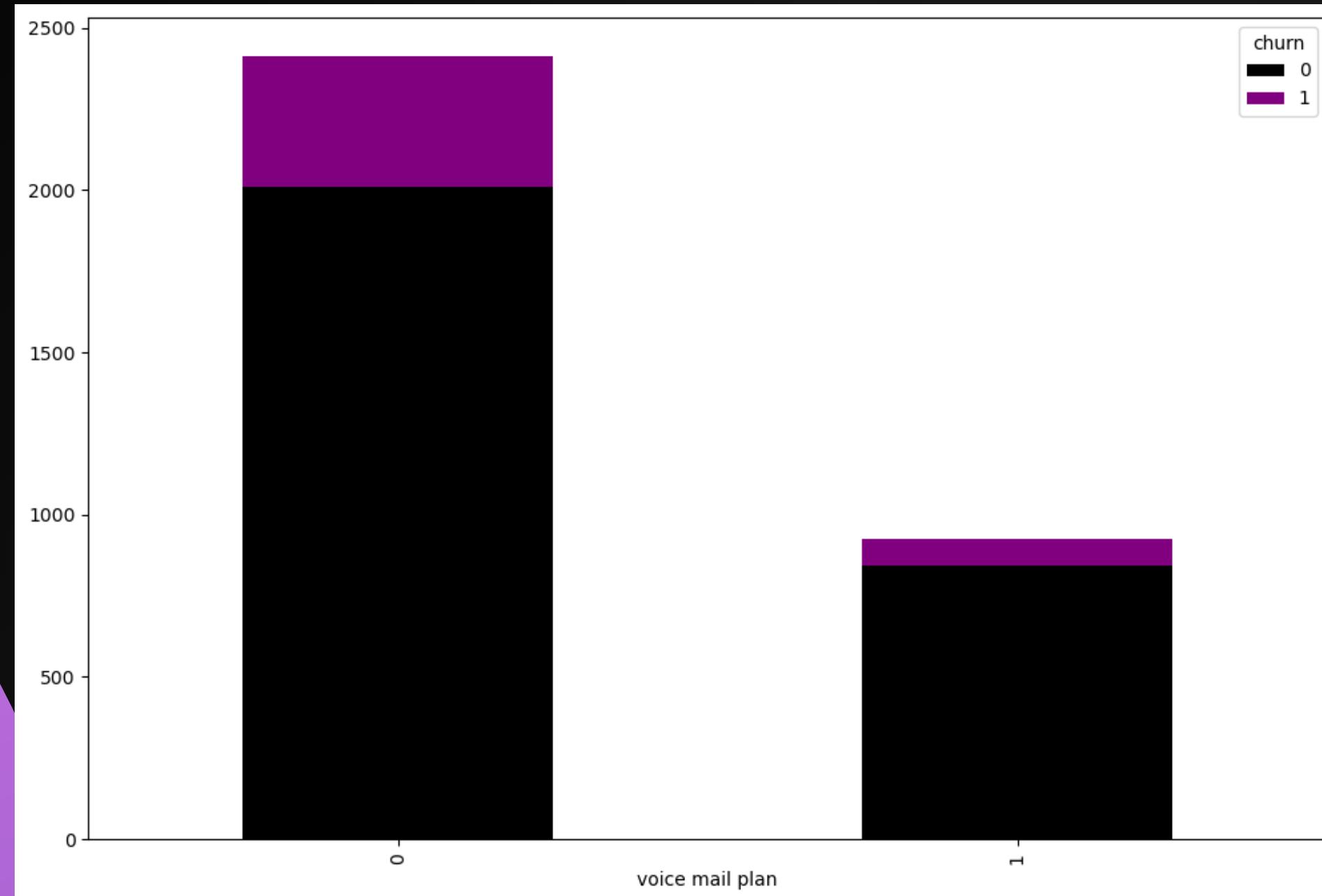
New Jersey-NJ
California-CA
Texas-TX
Maryland-MD
South Carolina-SC

Top 5 states with the lowest churn rates



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

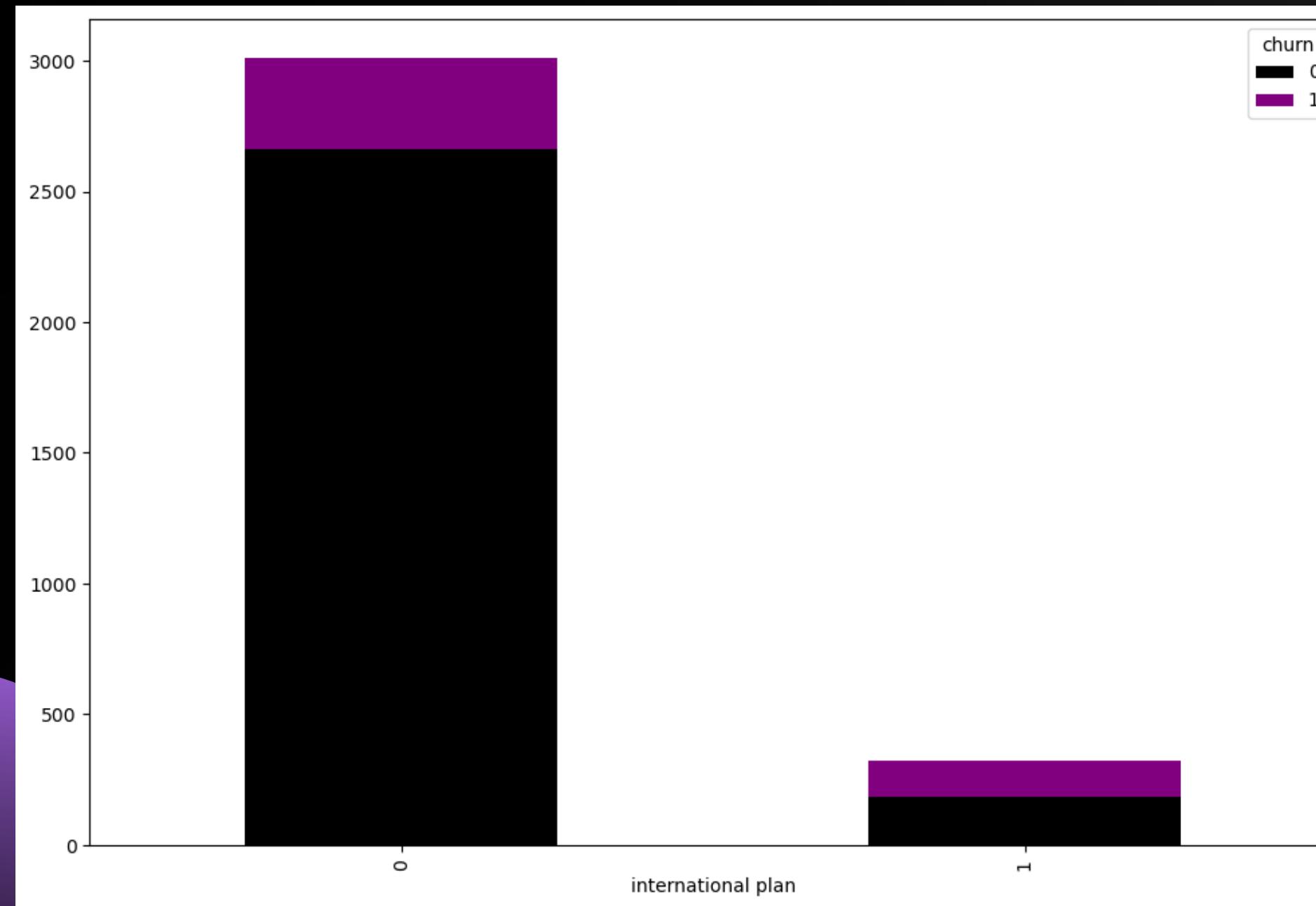
Are customers subscribed to voice mail likely to churn?



Customers subscribed to the voice mail plan : 27.66% Percentage of subscribed customers who churned with voice mail plan : 8.68%

Customers subscribed to the voice mail plan are less likely to churn compared to those who don't subscribe to the ones who don't have a voicemail plan.

Are customers subscribed to an international plan likely to churn??



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

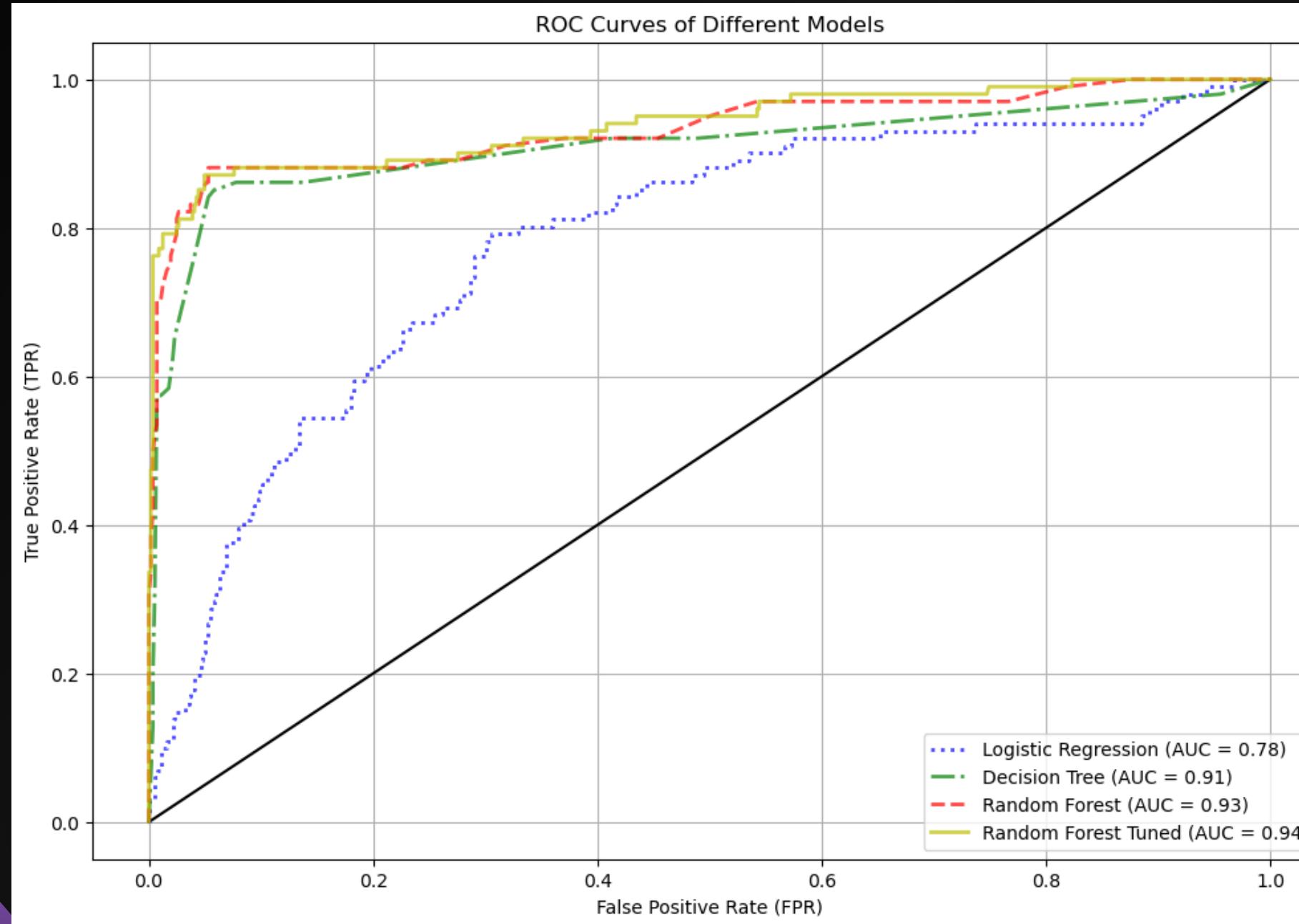
Customers who are subscribed to the international plan are more likely to churn.

MODELING.

Models used are

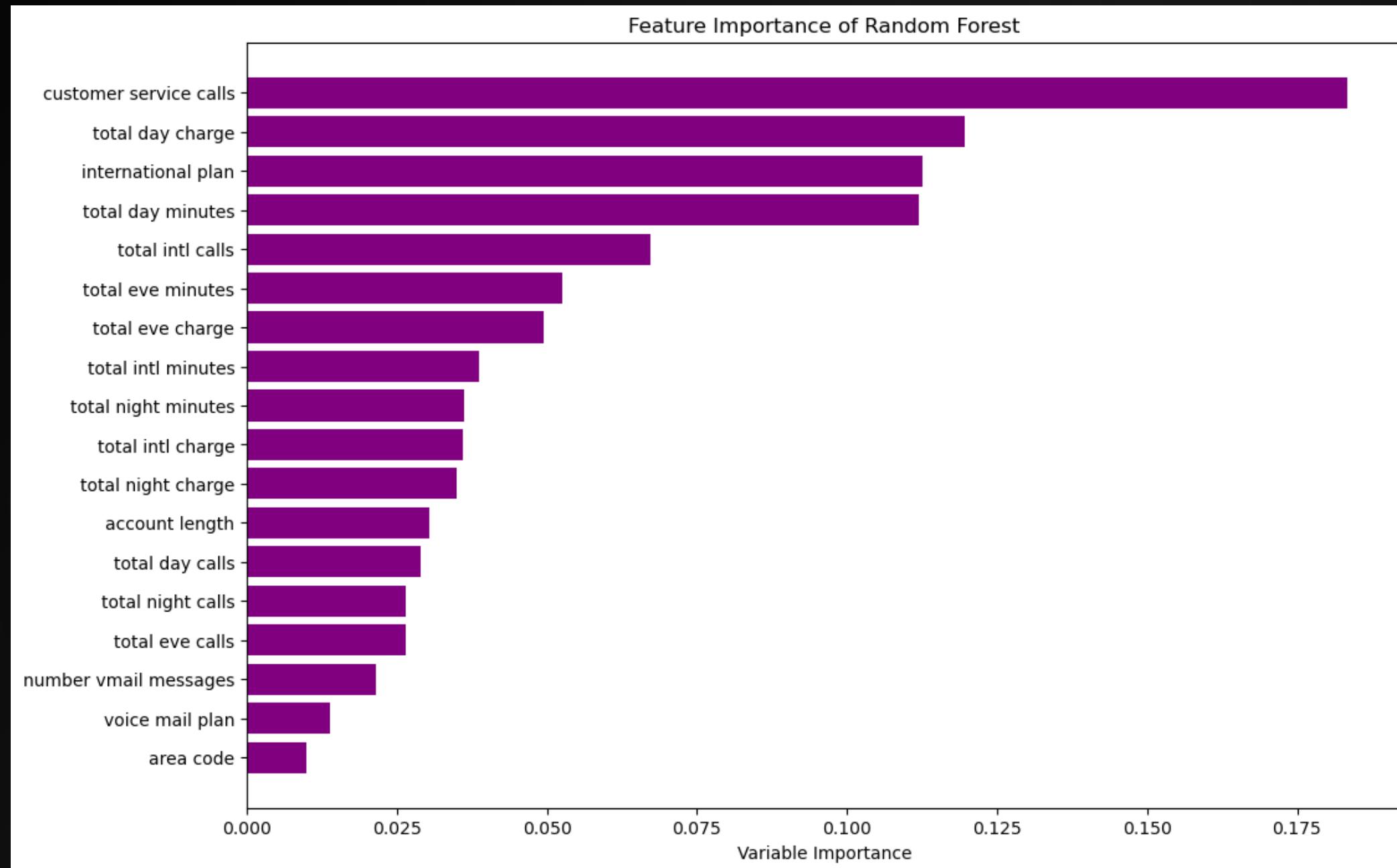
- Gradient boosting
- Random forest tree
- Logistic regression
- Decision trees.
- Adaboost model

ROC CURVE.



Based on our ROC curve we can conclude that both the Random forest and tuned random forest models are our best model since they have an AUC of 0.93 and they are hugging the top left side of our graph, they also have a high recall of around 0.82 when predicting a customer will churn as compared to the other models

FEATURE IMPORTANCE



CONCLUSION

1. **Total day, night, and evening minutes:** More call time correlates with higher churn likelihood.
2. **Customer service calls:** Increased calls suggest dissatisfaction, leading to churn.
3. **International plan:** Absence increases churn risk; attractive plans can retain customers.
4. **Total day charge:** High charges correlate with dissatisfaction and churn.
5. **Voice mail plan:** Having one reduces churn; promoting its benefits aids retention.

RECOMENDATIONS

1. **Feature Engineering:** Create new features like average daily/monthly charge or call duration to gain deeper insights into customer behavior.
2. **Data Collection:** Conduct customer satisfaction surveys to gather feedback on network coverage, customer service, and collect personal data like age, gender, and marital status for tailored plans.
3. **Competitive Pricing:** Offer competitive pricing and packages to ensure customers feel they're getting value for money.
4. **Loyalty Programs:** Implement incentives and rewards for long-term customers to encourage retention

THANK YOU

for watching this presentation

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