

CONNECTTEL CUSTOMER CHURN PREDICTION

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Company Overview

- ConnectTel is a leading global telecommunications company known for innovation and connectivity solutions.
- Their services include mobile networks, broadband, and enterprise services for both individual and corporate customers.
- Currently, they are revolutionizing the telecom industry, by ensuring seamless communication experiences worldwide.

Business Challenges and Project Objectives

Challenges

- ConnectTel Telecom Company faces a critical challenge with customer churn, threatening business sustainability and growth.
- Current retention strategies lack precision, resulting in the loss of valuable customers to competitors.

Objectives

- Develop a robust customer churn prediction system leveraging advanced analytics and machine learning.
- Predict and anticipate customer churn more effectively.
- Enhance customer loyalty

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Data Summary

Summary

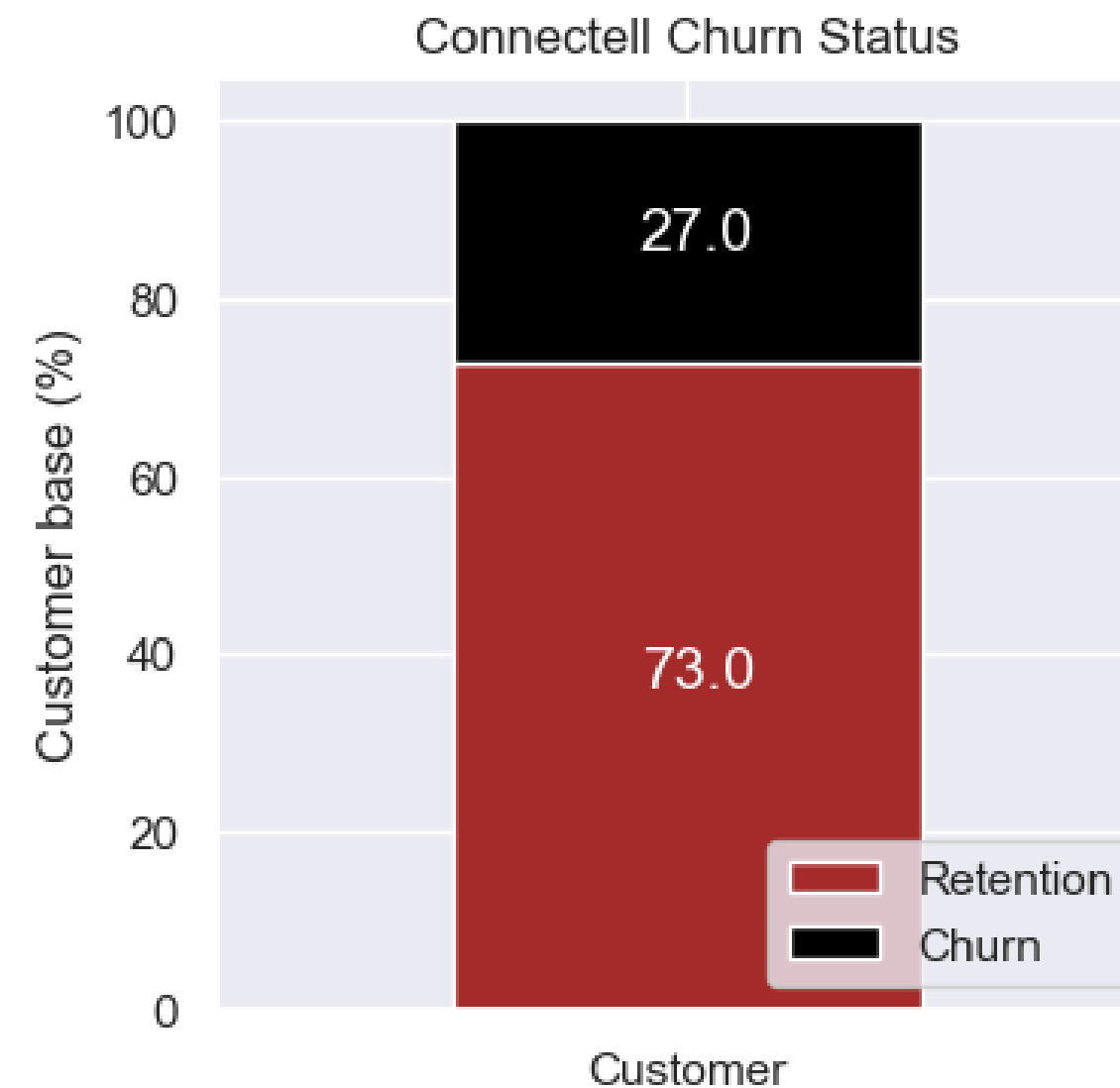
- The dataset consists of 21 columns and 7043 rows.
- It comprises majorly of categorical data and fewer numeric data
- 11 data points were missing in the the Total charges column
- 'Tenure' was convert it to years to eliminate large disparities in the data

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Exploratory Data Analysis

Churn

- The company has a current churn status of 27%

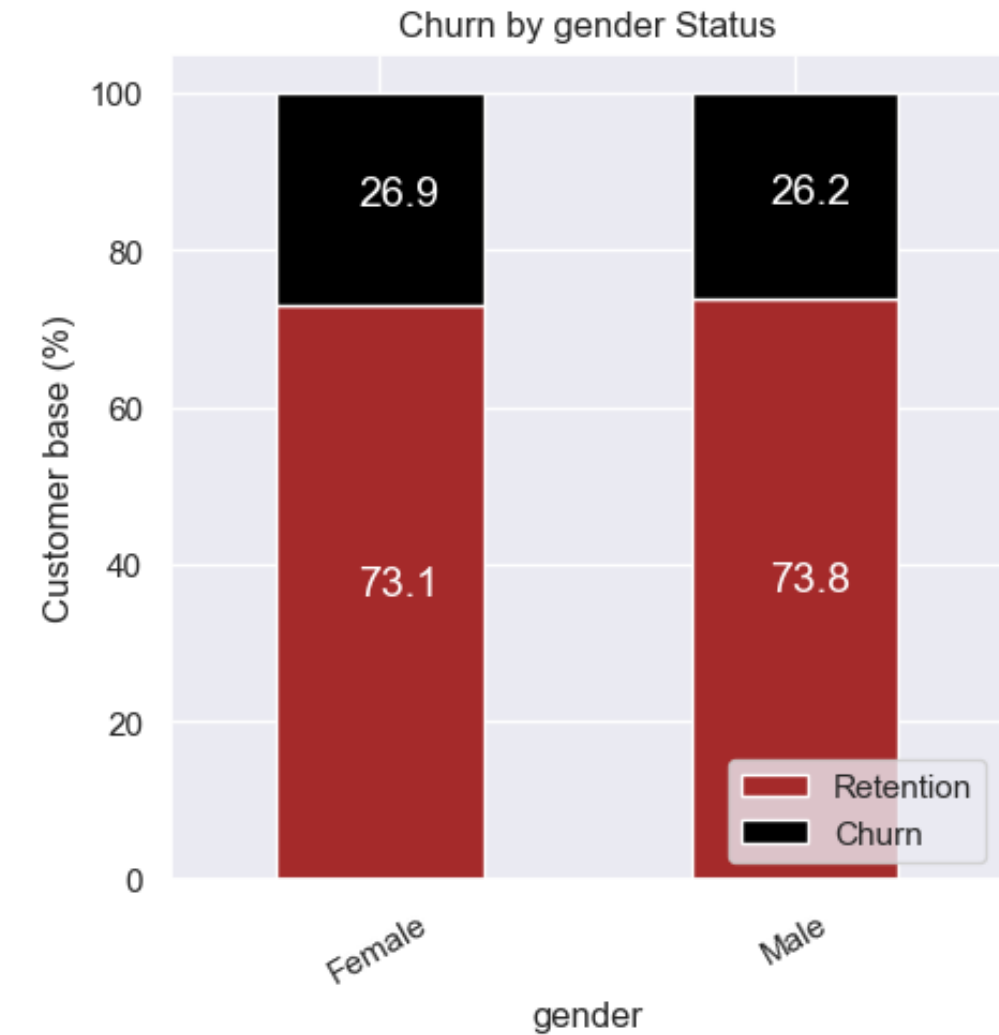


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Categorical Data Analysis

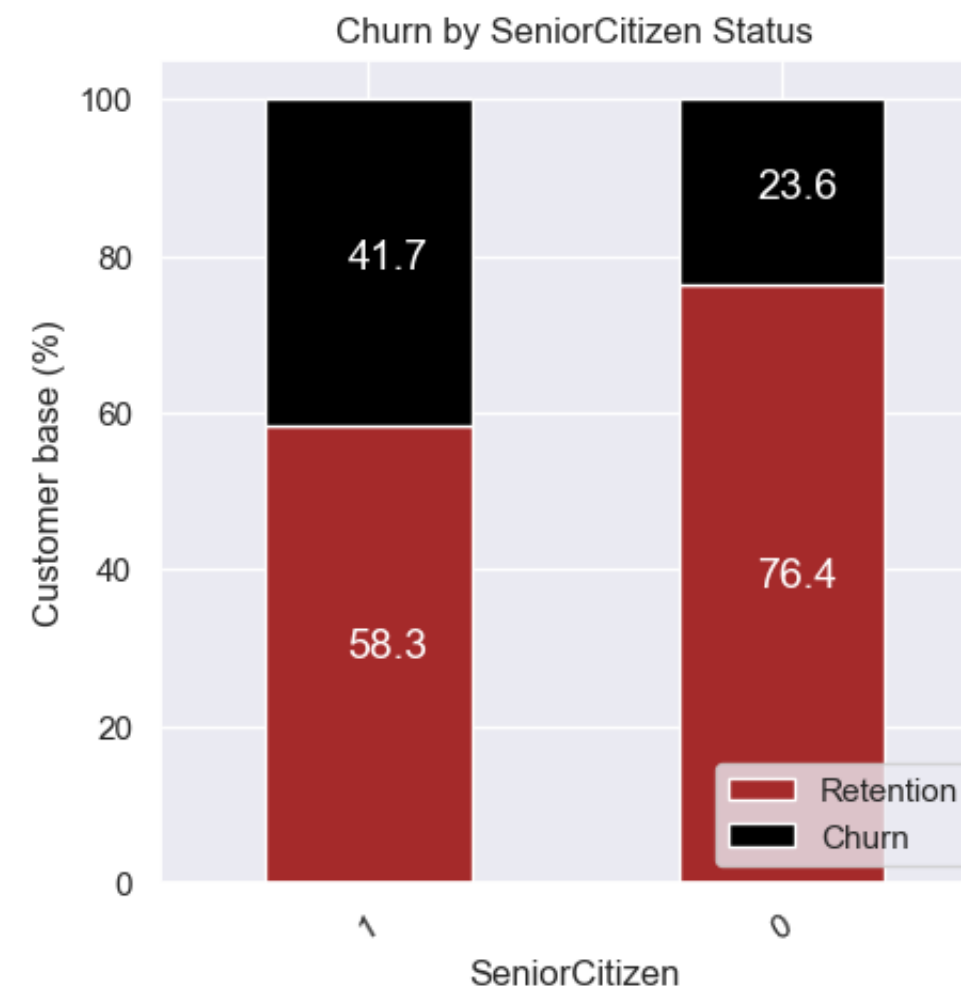
Gender

- The percentage of churn is slightly higher among female customers compared to male customers.



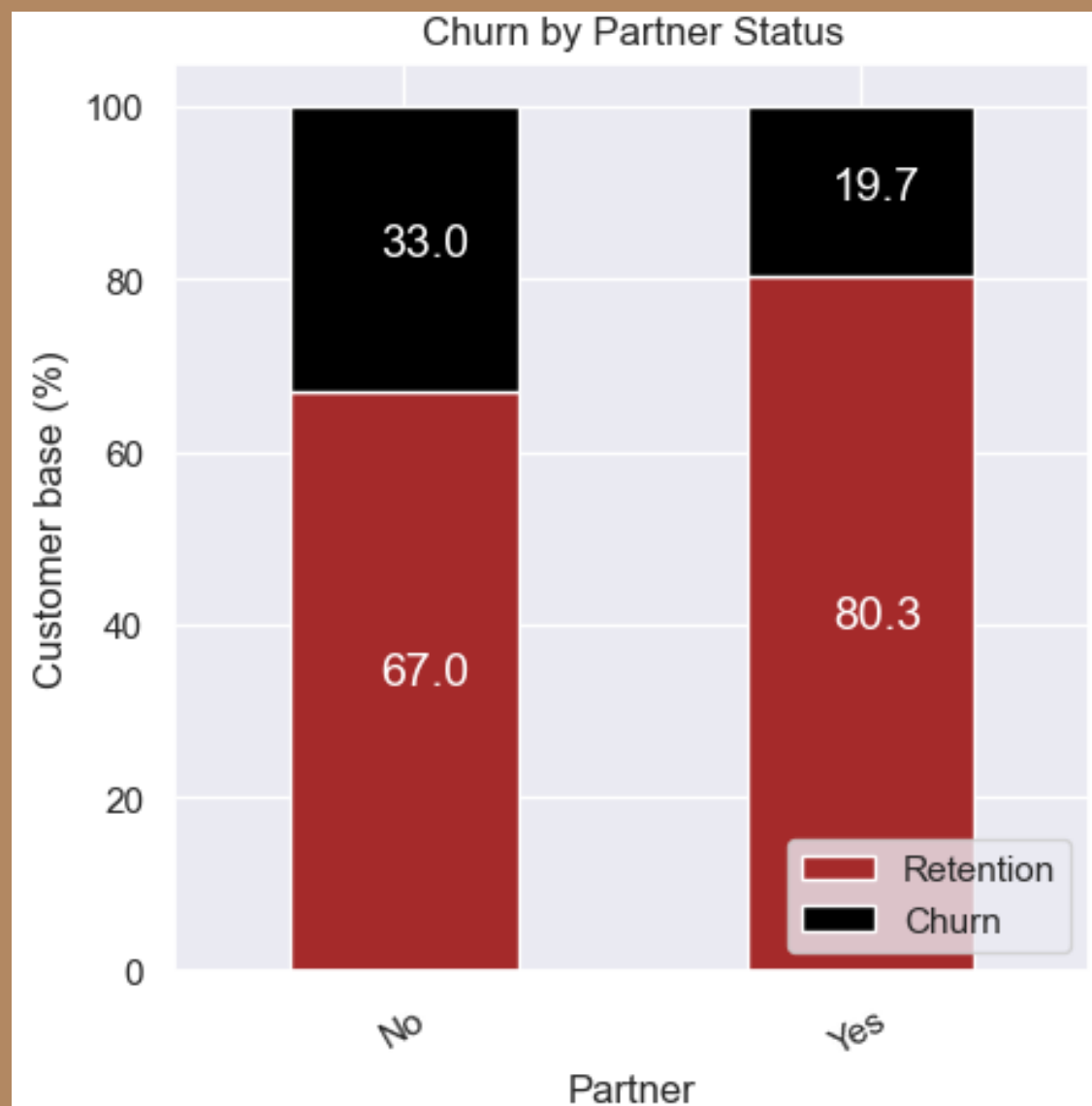
Senior Citizens

- Churn appears to be more prevalent among senior citizens than among younger customers.



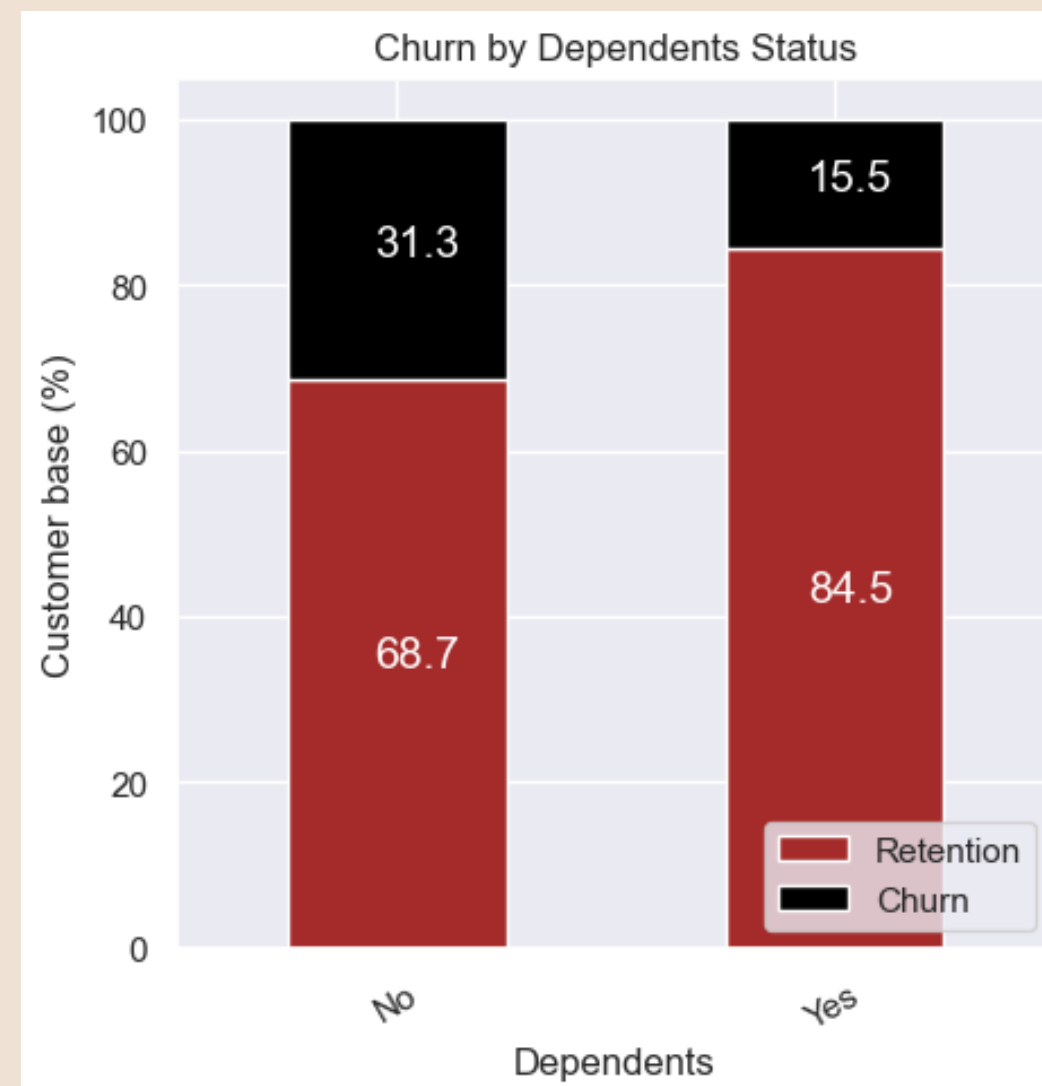
Partners

- Customers without partners churn almost twice as much as customers with partners.



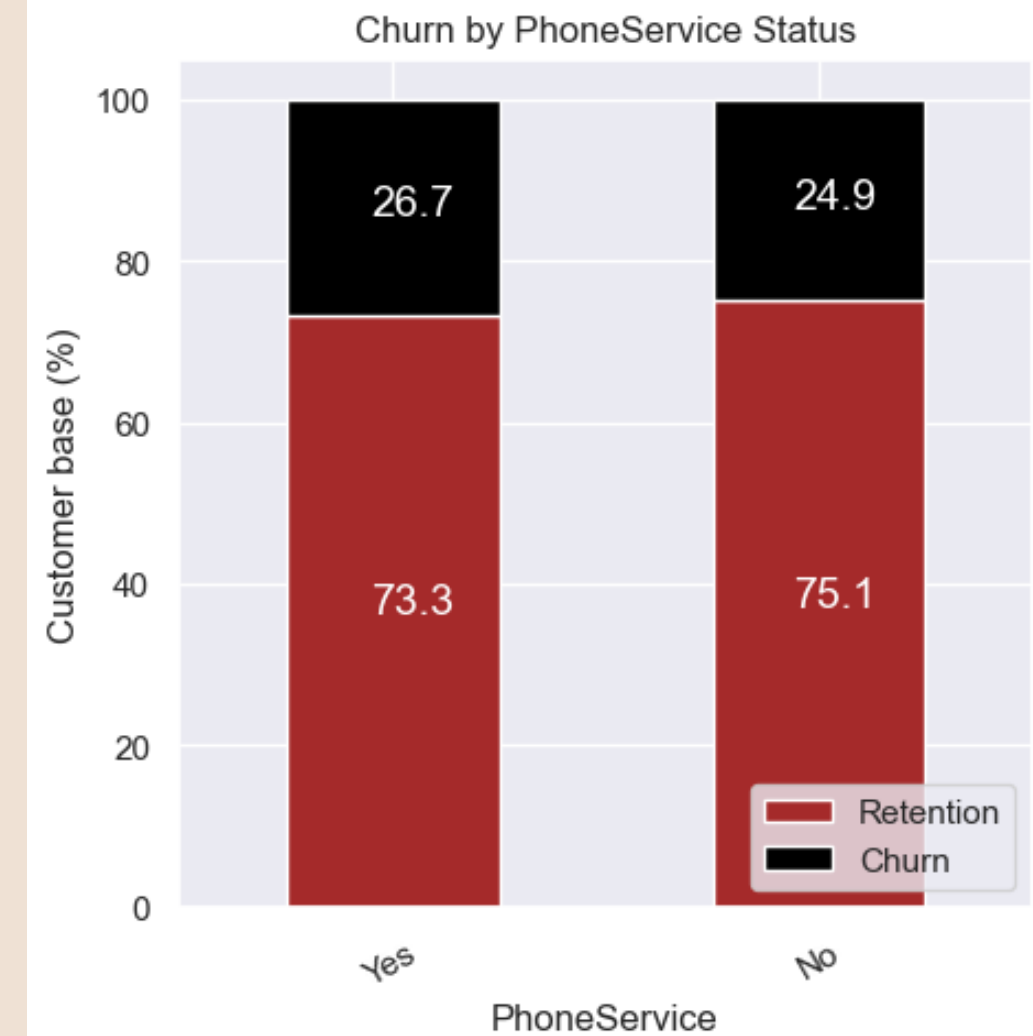
Dependants

- Customers with dependents churn twice as much as customers without dependents.



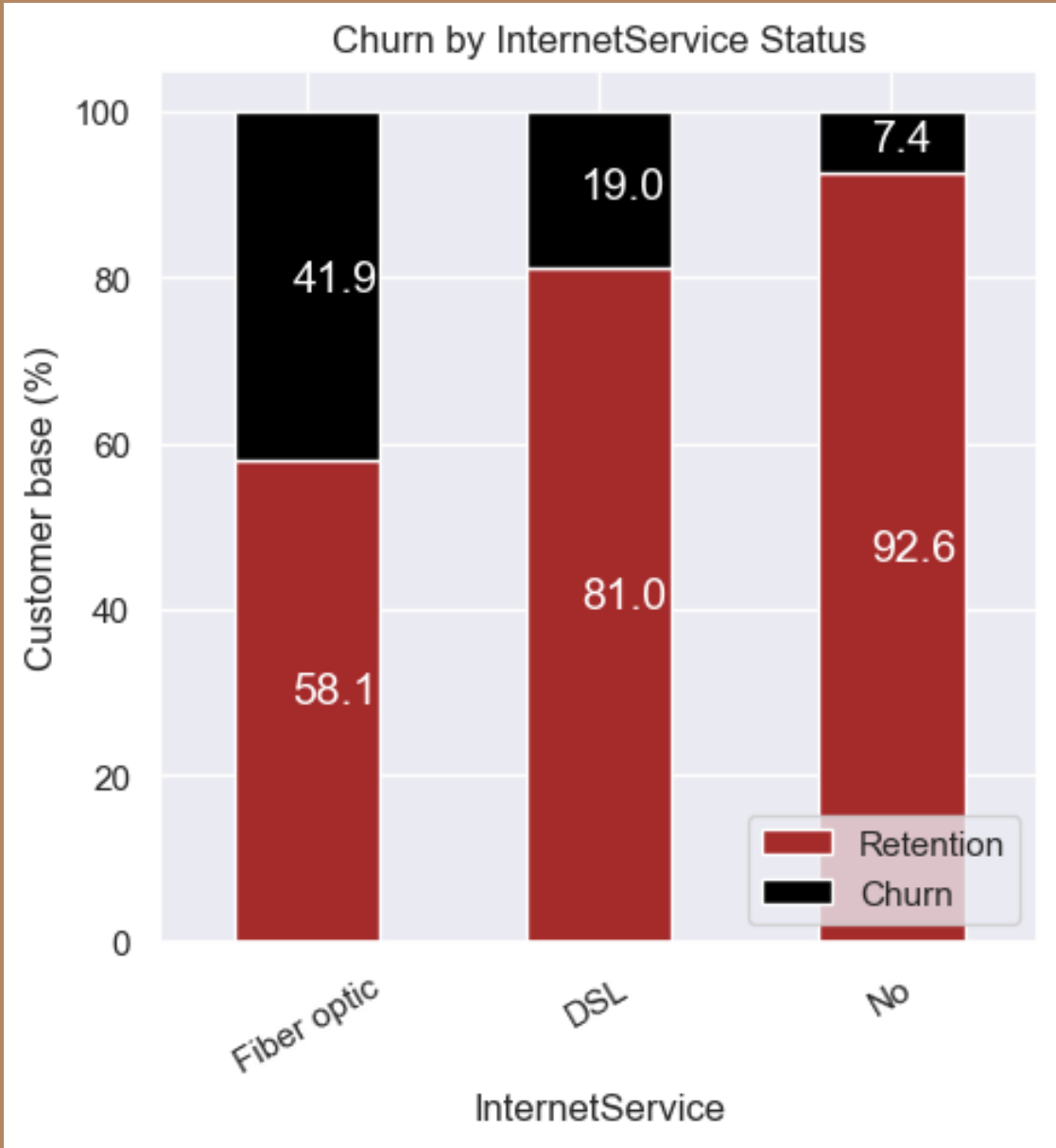
Phone Services

- Customers subscribed to phone service have a slightly higher churn rate than those who did not



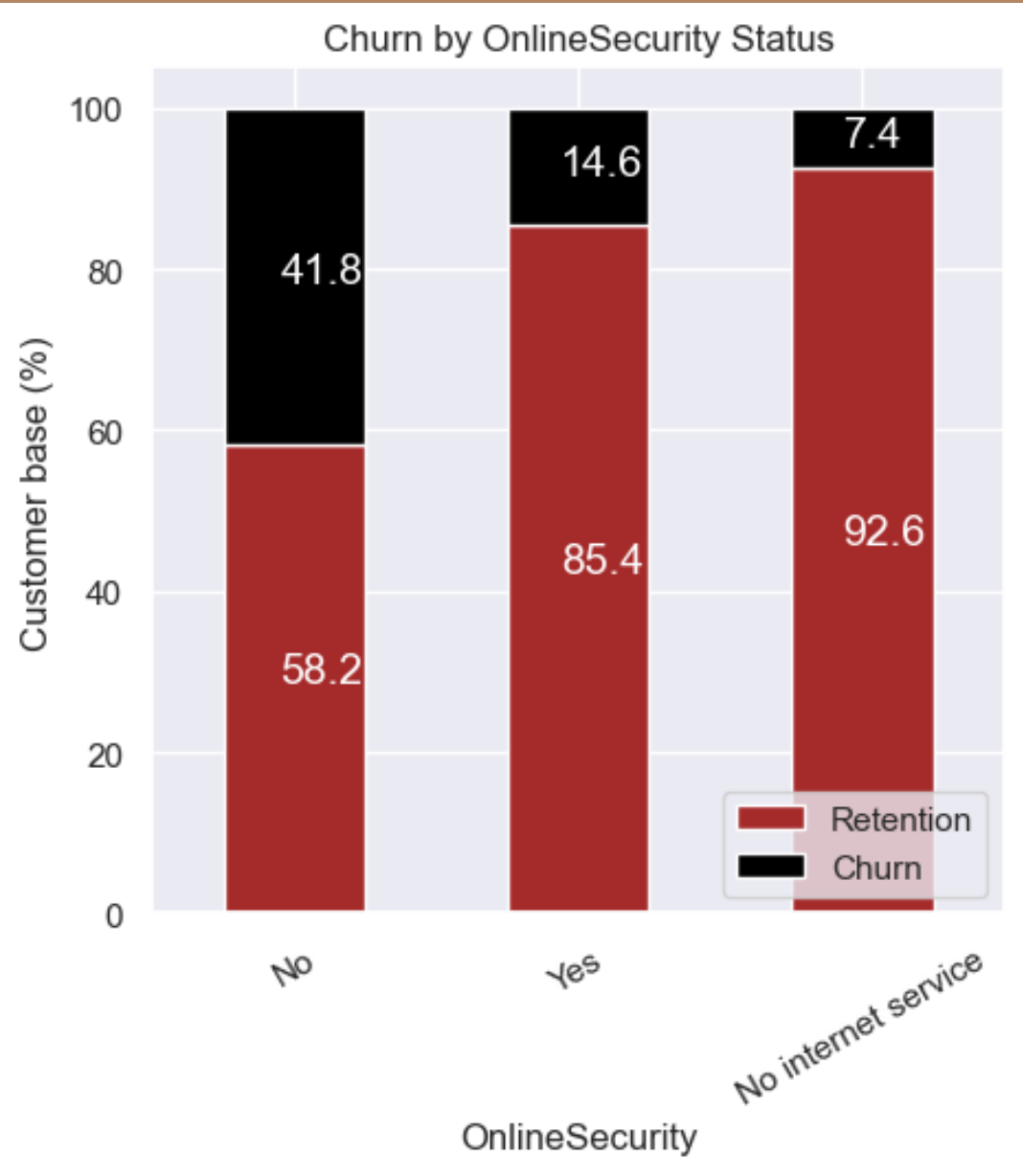
Internet Service

- 42% of fiber optic subscribers churned.



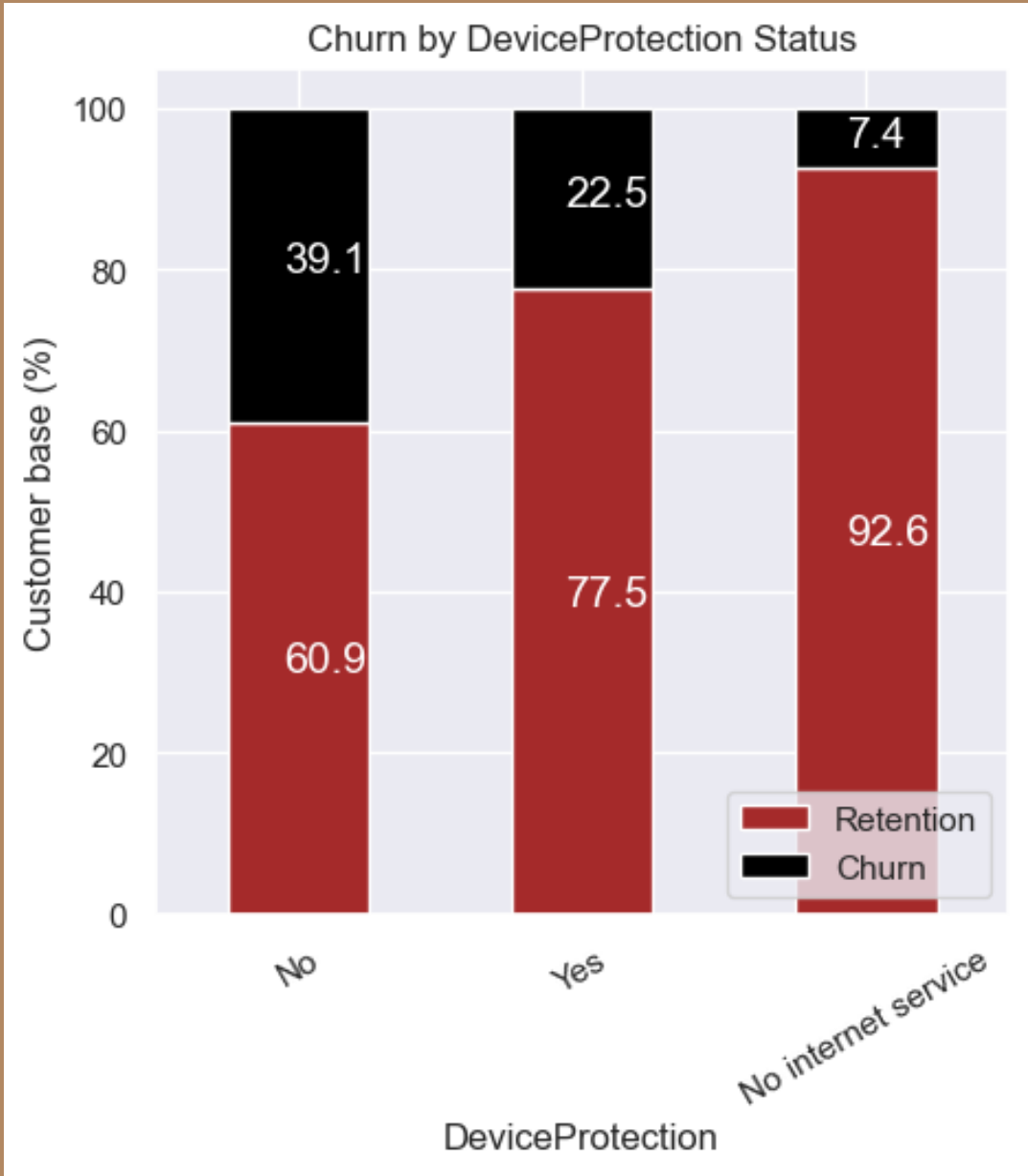
Online Security

Customers subscribed to this service have a lesser churn rate than those who did not.



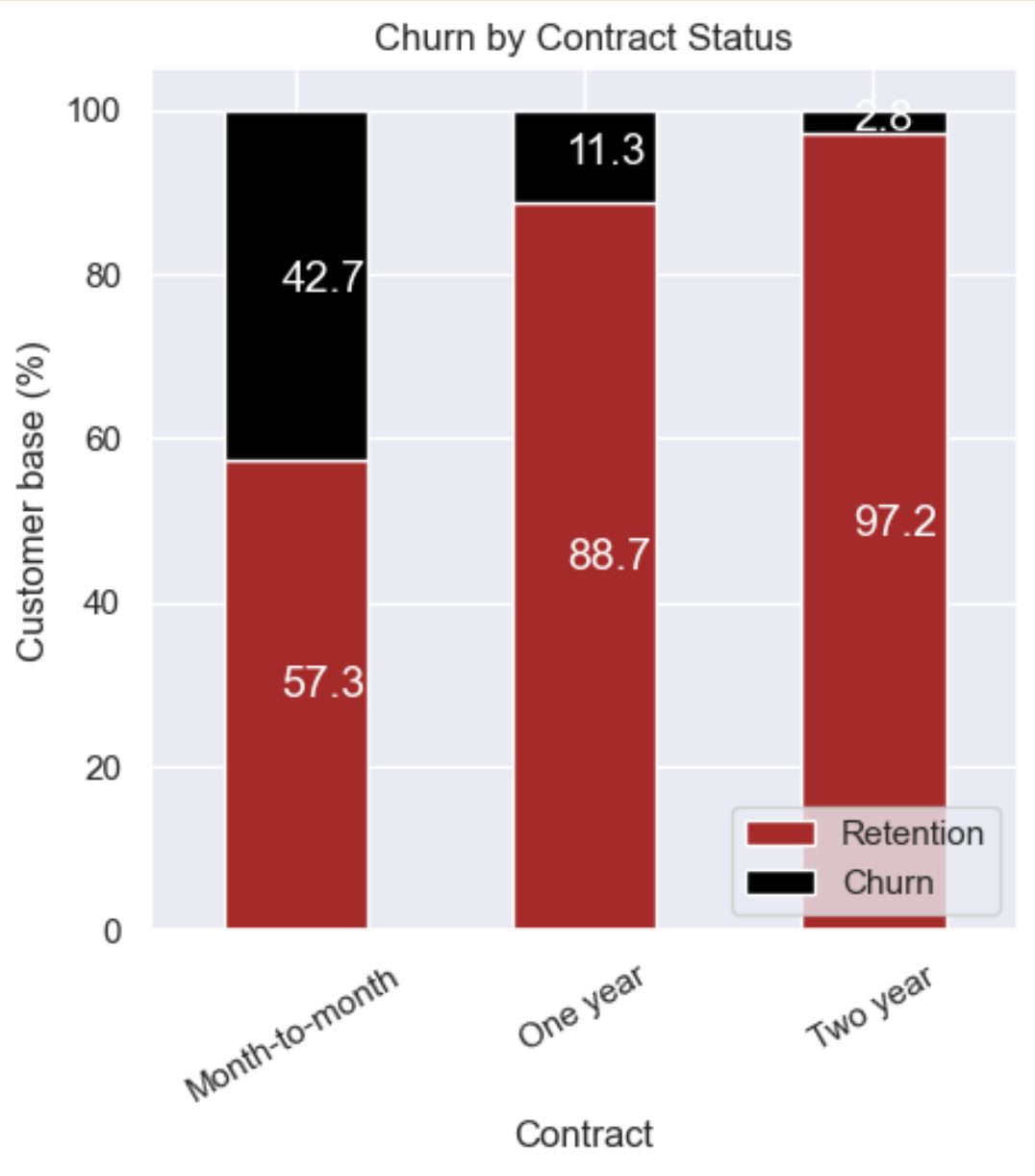
Device Protection

- Customers subscribed to this service have a 22.5% churn rate,



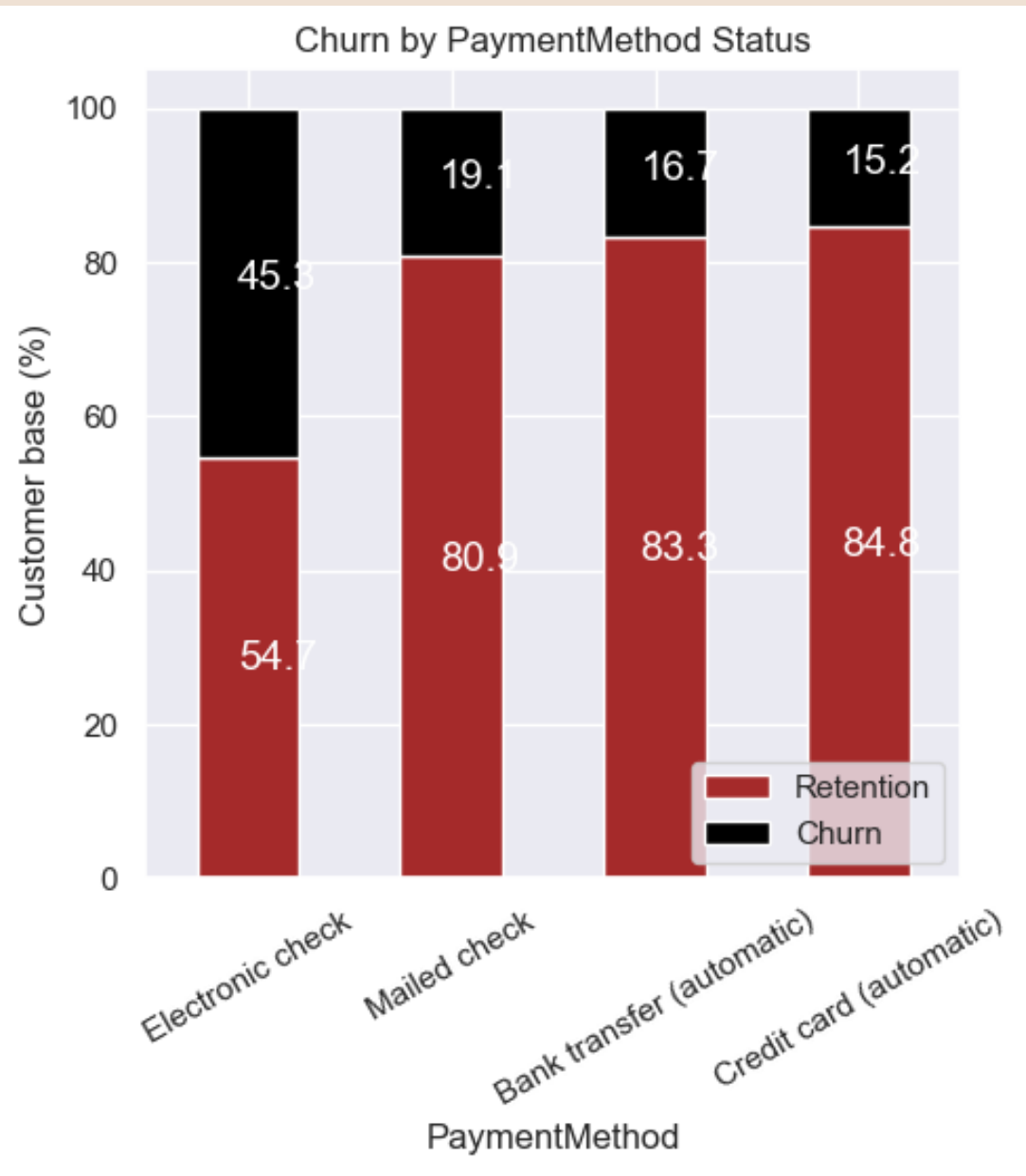
Contract

- The highest churning is observed among month-to-month contract customers (42%).



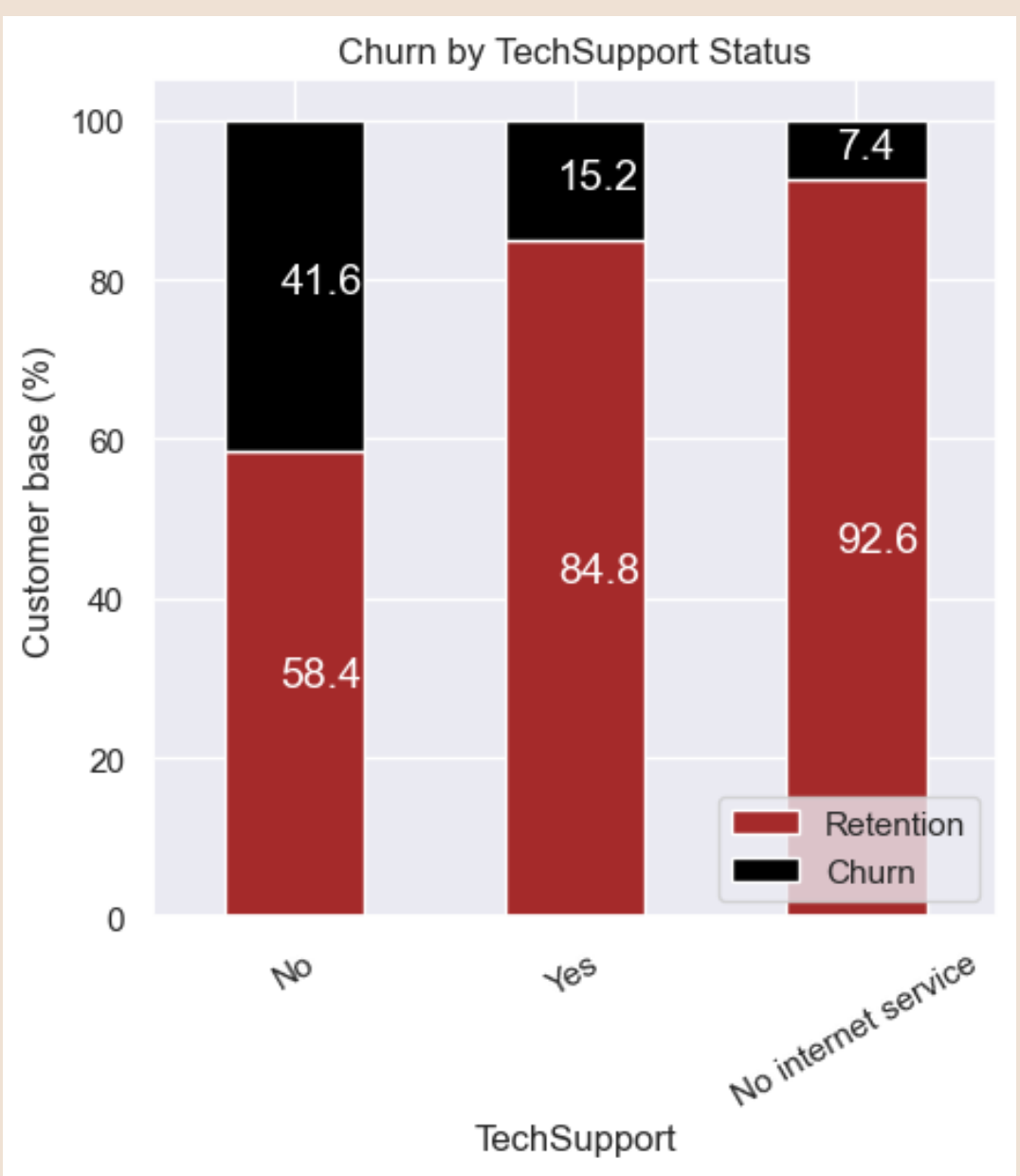
Payment Method

- 45% of customers who pay by electronic check churned.



Tech Support

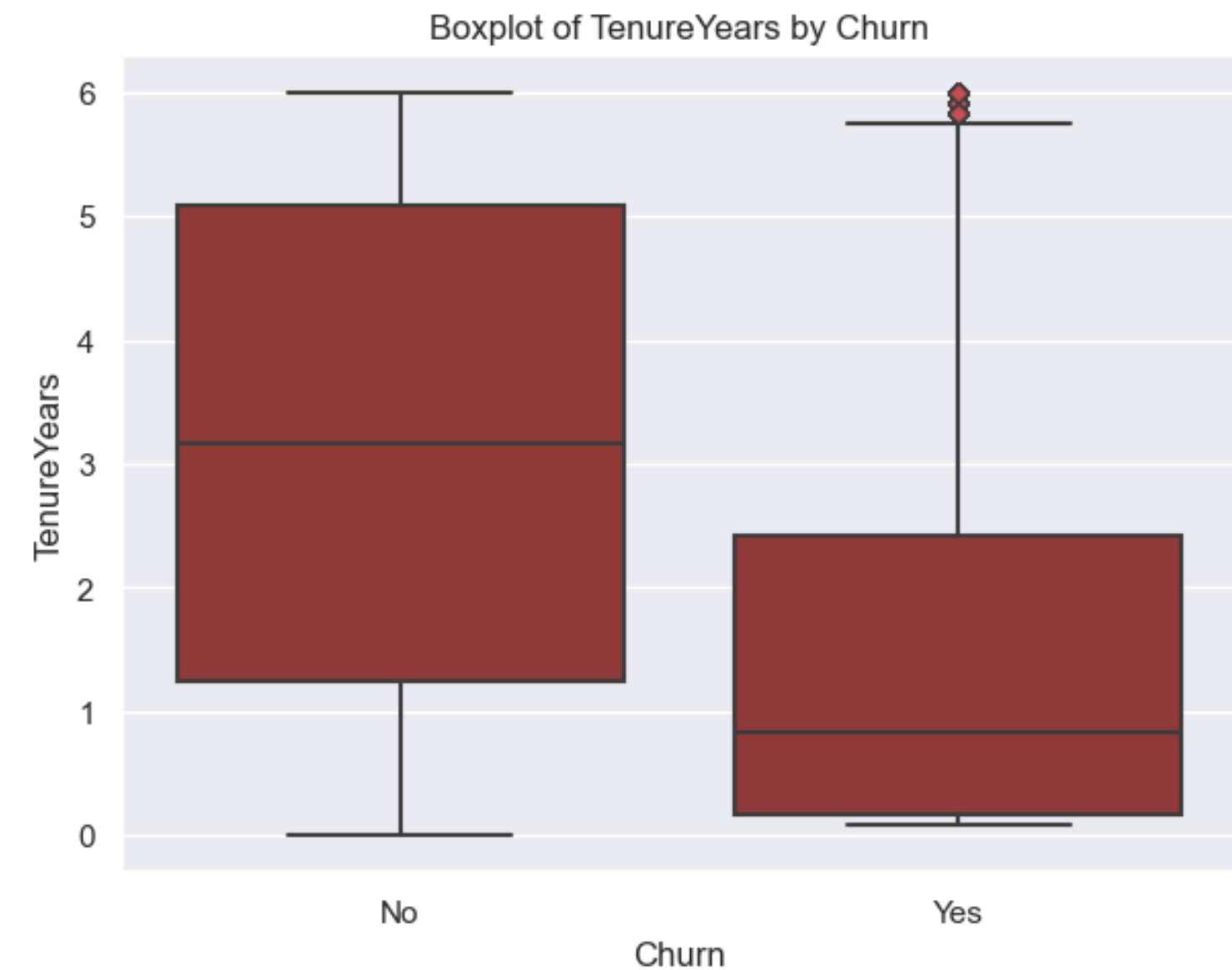
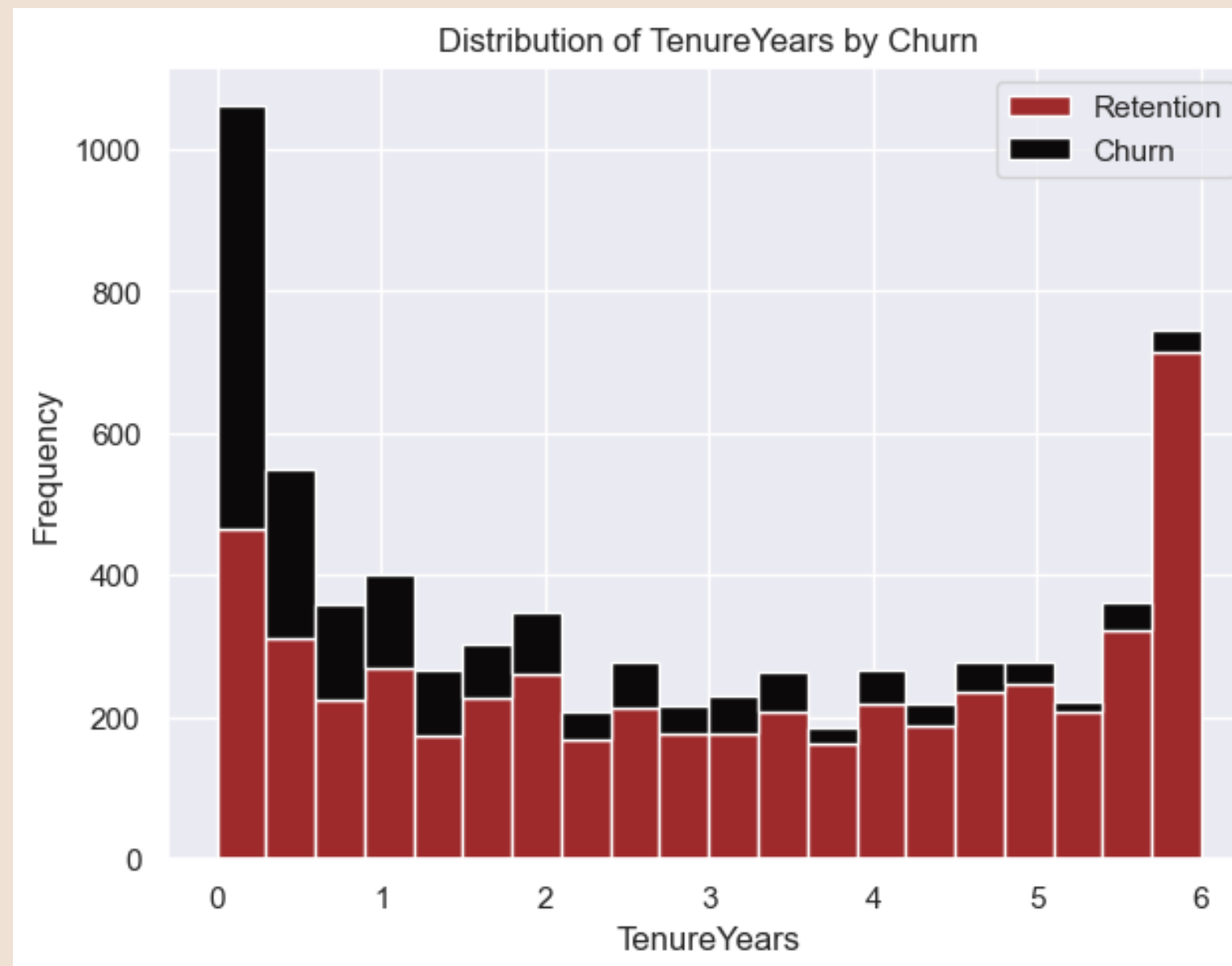
- Customers subscribed to this service have a less churn rate of 15%.



Numerical Data Analysis

Tenure

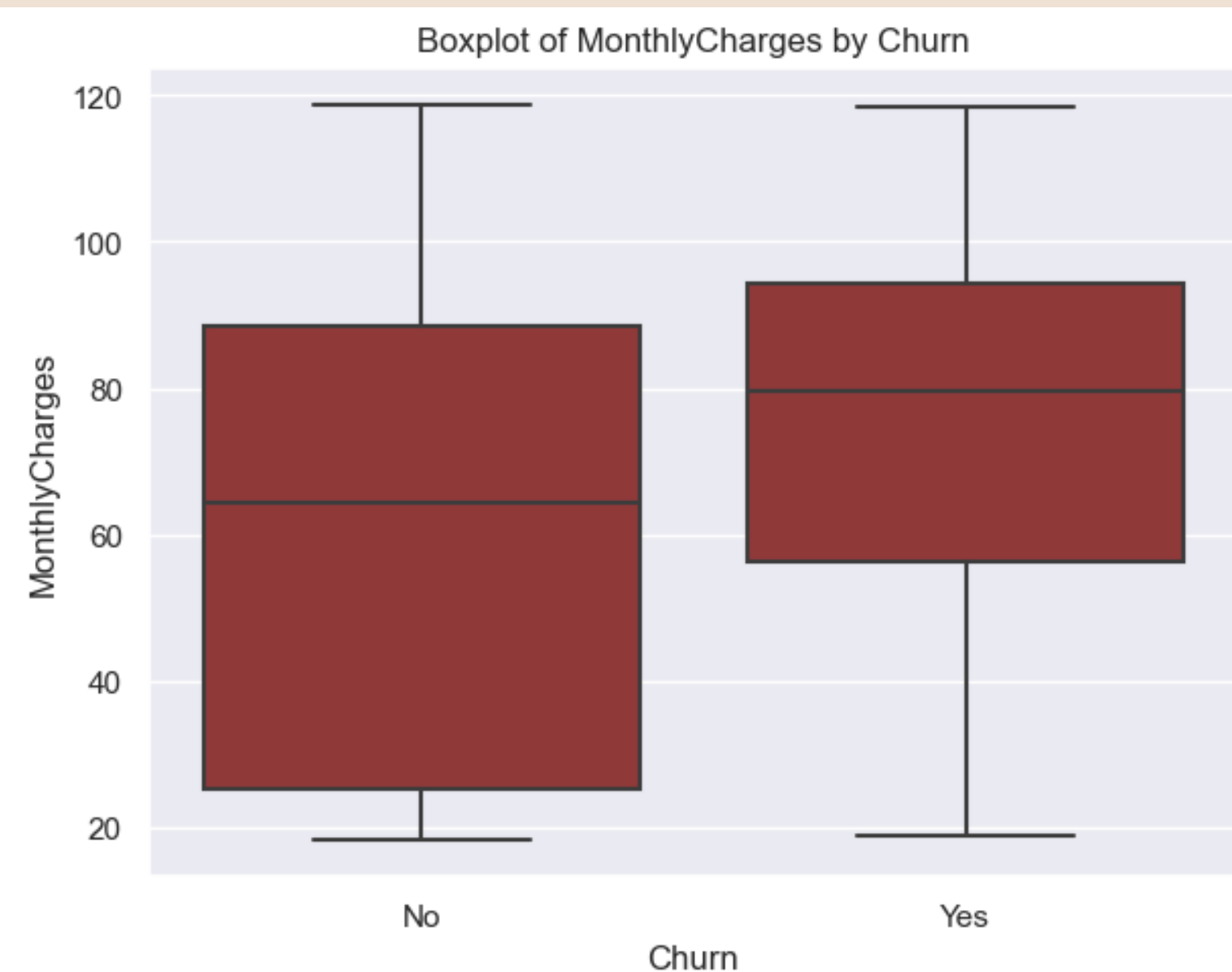
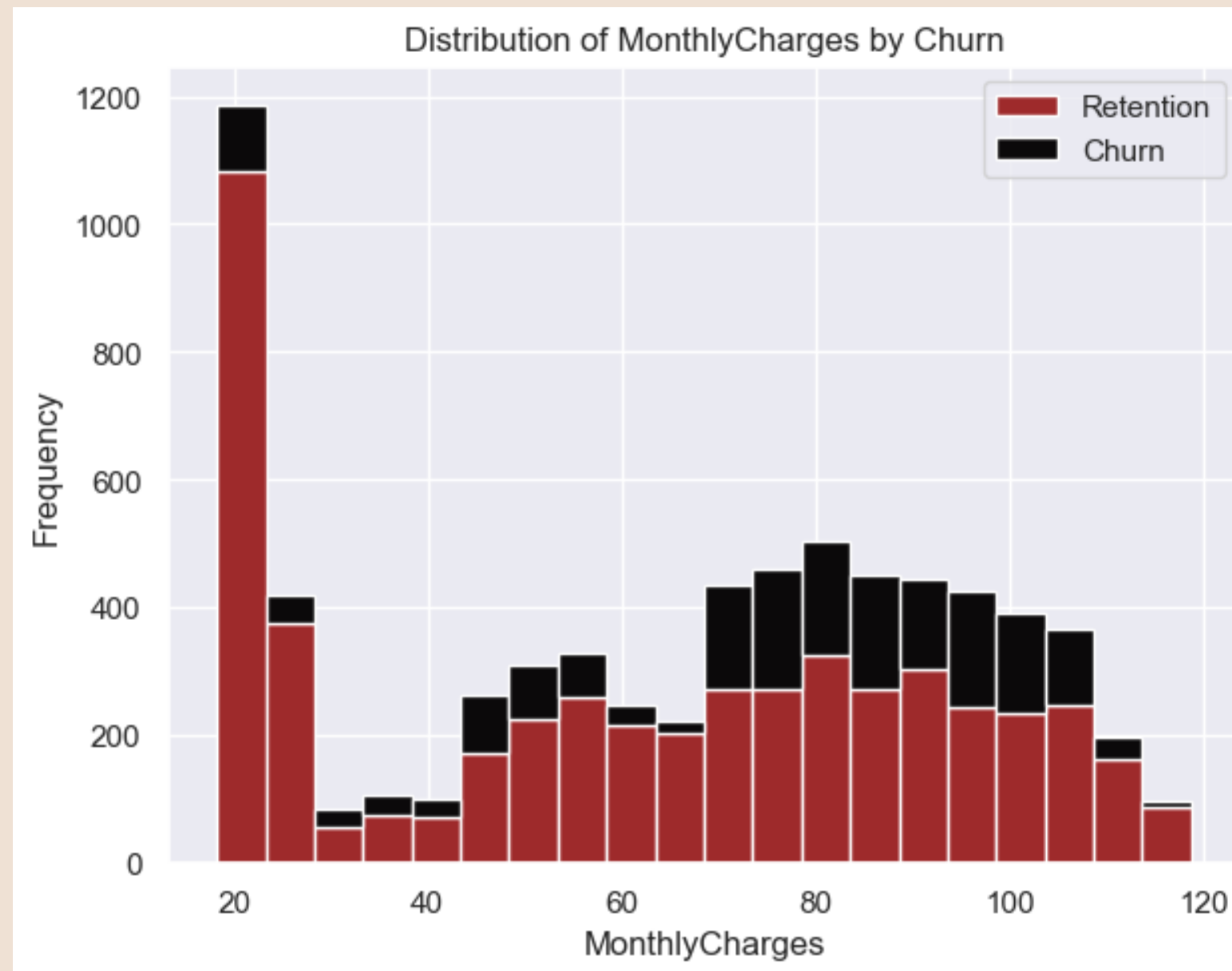
- Churning is highest in the customer group with about 2.5 years tenure period



Numerical Data Analysis

Monthly Charges

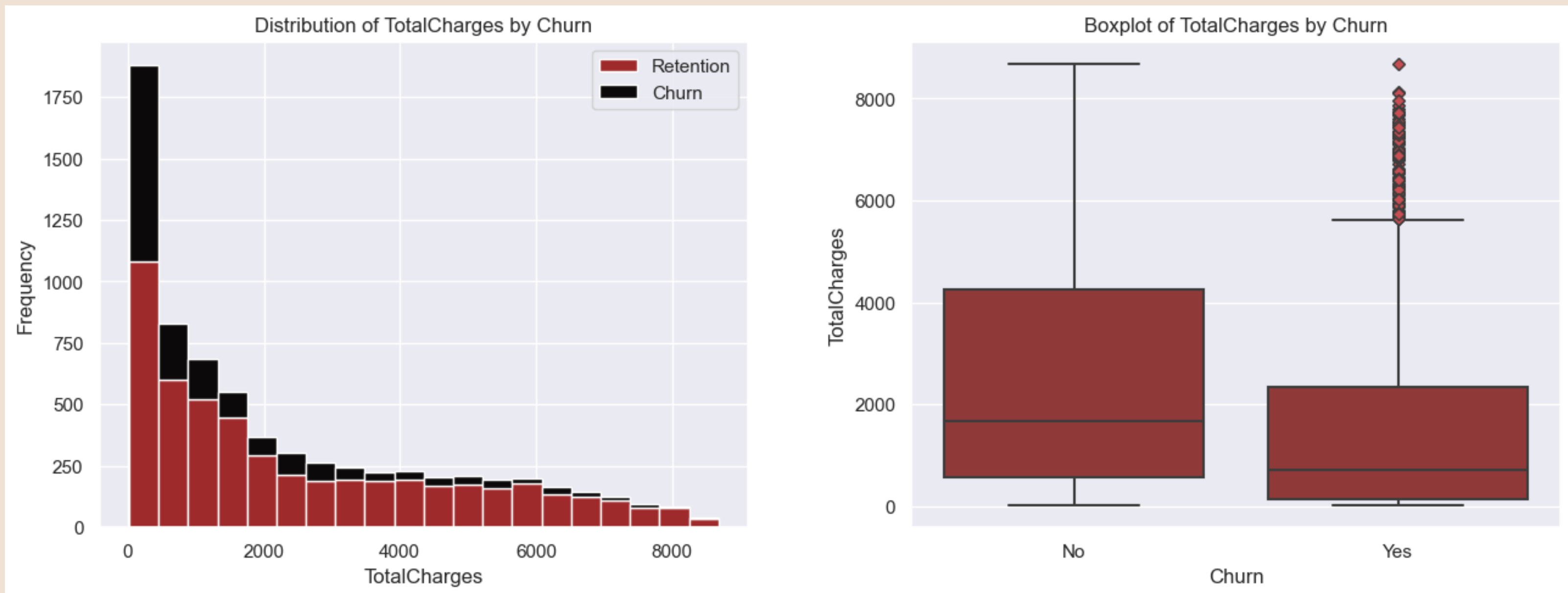
- Most churned customers paid a monthly charge between 70 and 110.



Numerical Data Analysis

Total Charges

- Customers paying total charge fees of 2000 and below have the highest churn rate.



Model Selection

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Logistic Regression

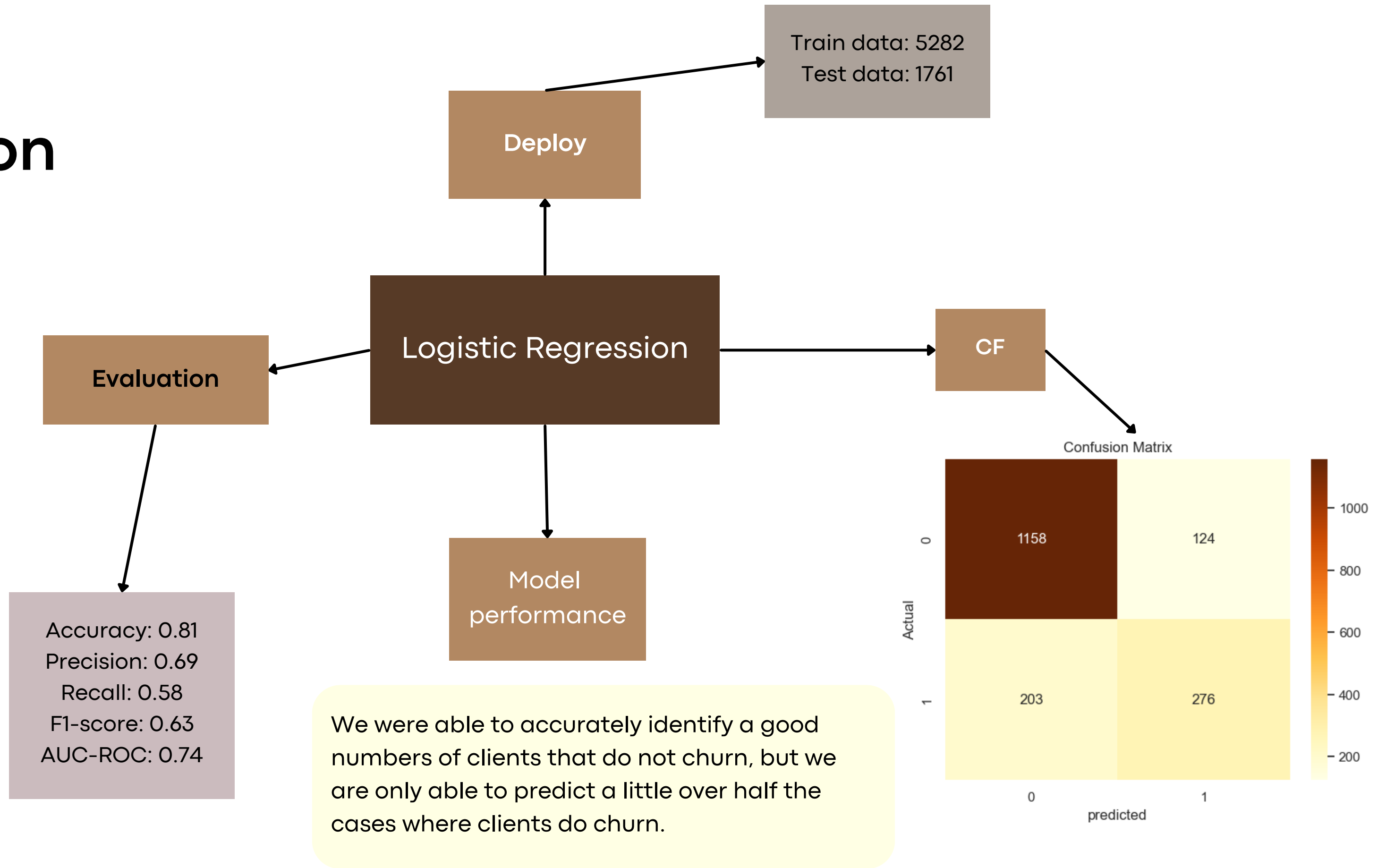
02

Random Forest

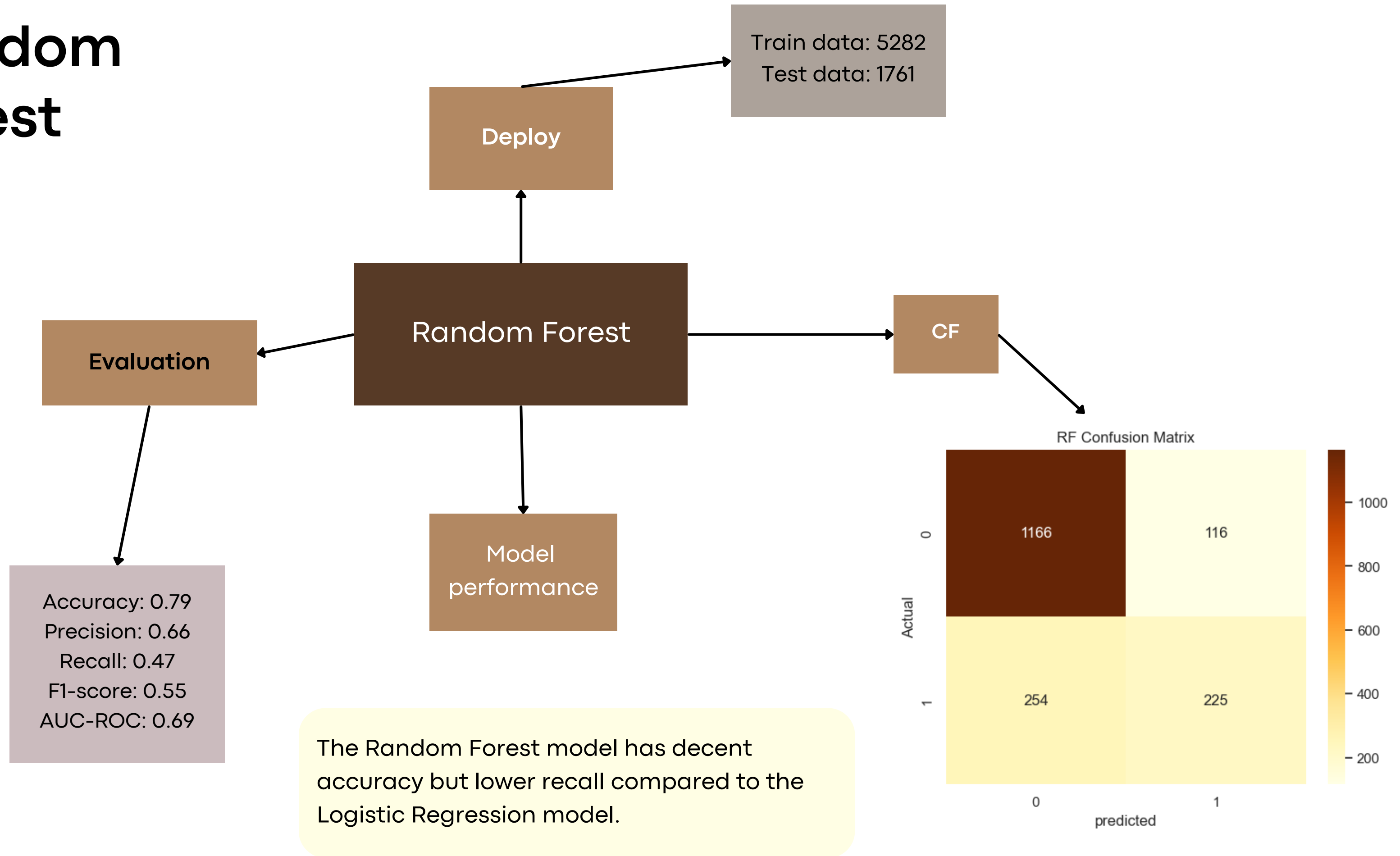
03

Support Vector Machine

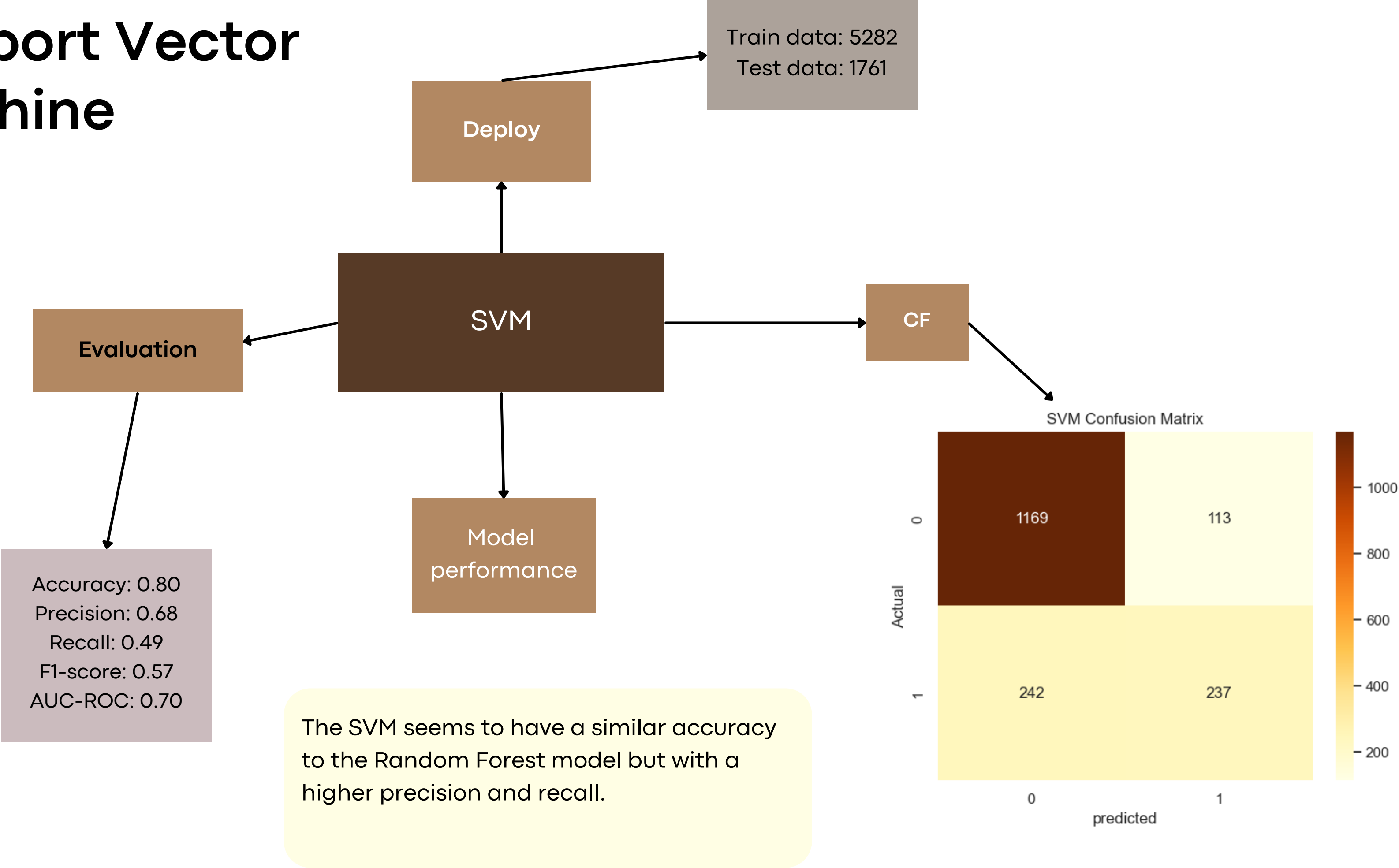
Logistic Regression



Random Forest



Support Vector Machine



Conclusion

Summary

- The Logistic Regression model exhibits the best overall performance across various metrics, including accuracy, precision, recall, F1-score, and AUC-ROC.
- Further efforts can be directed towards fine-tuning the Logistic Regression model to enhance its overall effectiveness.
- Based on features analysis we see the importance of numerical features as major drivers of the target.
- This suggests that additional numerical features may contribute to the model's predictive power.
- Further hyperparameter tuning is recommended to find balance between Precision and Recall

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Thank you!

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