

WELCOME TO

# CUSTOMER CHURN PREDICTION IN THE TELECOM INDUSTRY

BY: RUCHITA PATIL



[www.linkedin.com/in/patil-ruchita](https://www.linkedin.com/in/patil-ruchita)



<https://github.com/Ruchii151>

# Telecom Concept

Telecommunication (telecom) is the industry that provides services like mobile networks, internet, calls, and TV so people can communicate and stay connected anytime and anywhere. Companies like Jio, Airtel, Vodafone, and BSNL compete to provide these services.



# What is Customer Churn?

In such a competitive market, customers often switch from one company to another if they find better offers, faster internet, or lower prices. This switching is called customer churn.

For example, if someone is using Airtel internet but sees that Jio offers faster speed at a lower cost, they may cancel Airtel and move to Jio — this is customer churn.





# Problem Statement

The telecom industry faces high customer churn, where users switch providers due to better offers or services. Using customer data on demographics, services, contracts, and payments, the goal is to predict churn and help companies take early actions to retain customers.

# Division Of Features

## Categorical Features

- CustomerID
- Gender
- Partner
- Dependents
- PhoneService
- MultipleLines
- InternetService
- OnlineSecurity
- OnlineBackup
- DeviceProtection
- SeniorCitizen
- TechSupport
- StreamingTV
- StreamingMovies
- Contract
- PaperlessBilling
- PaymentMethod
- Churn

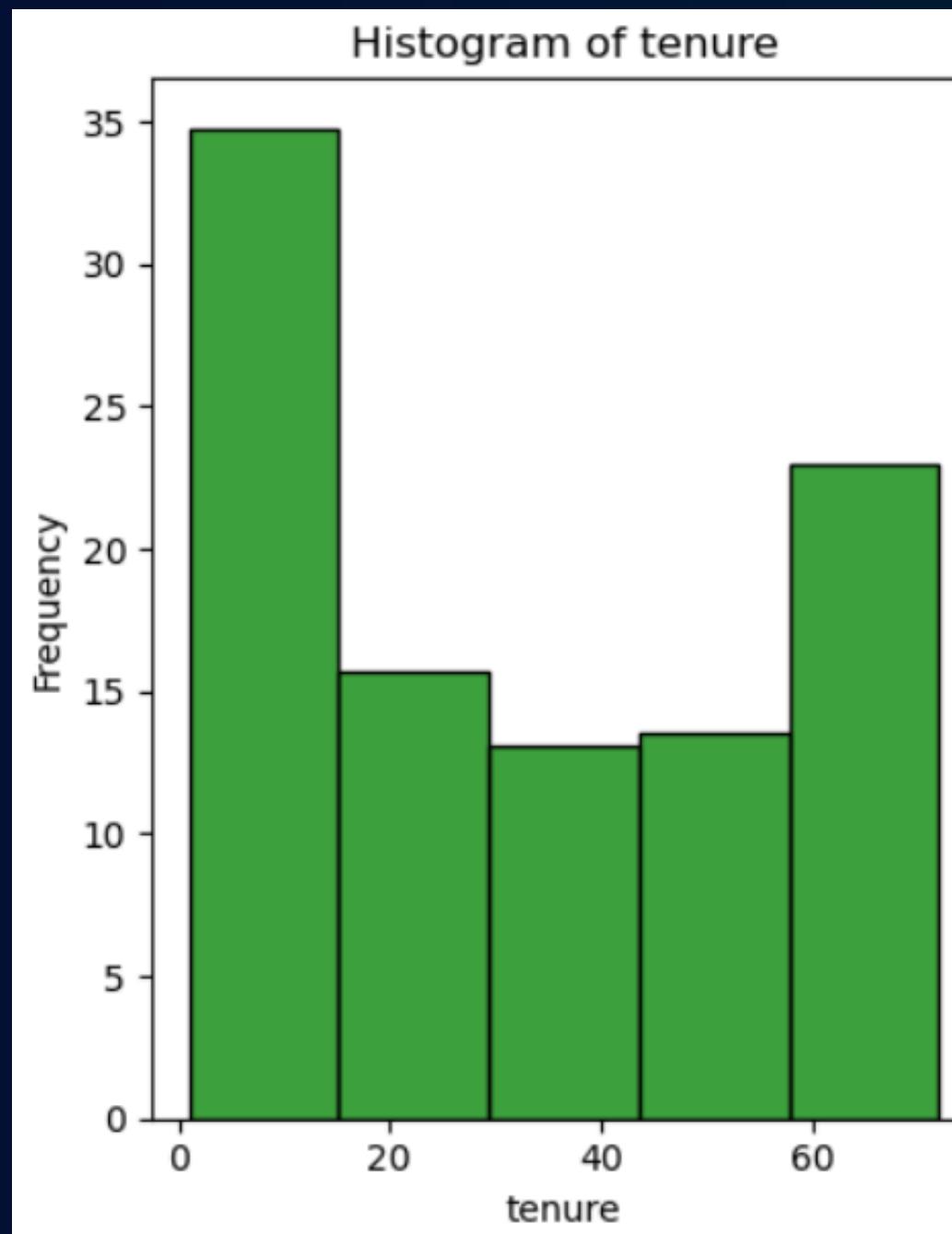
## Numerical Features

- TotalCharges
- Tenure
- MonthlyCharges

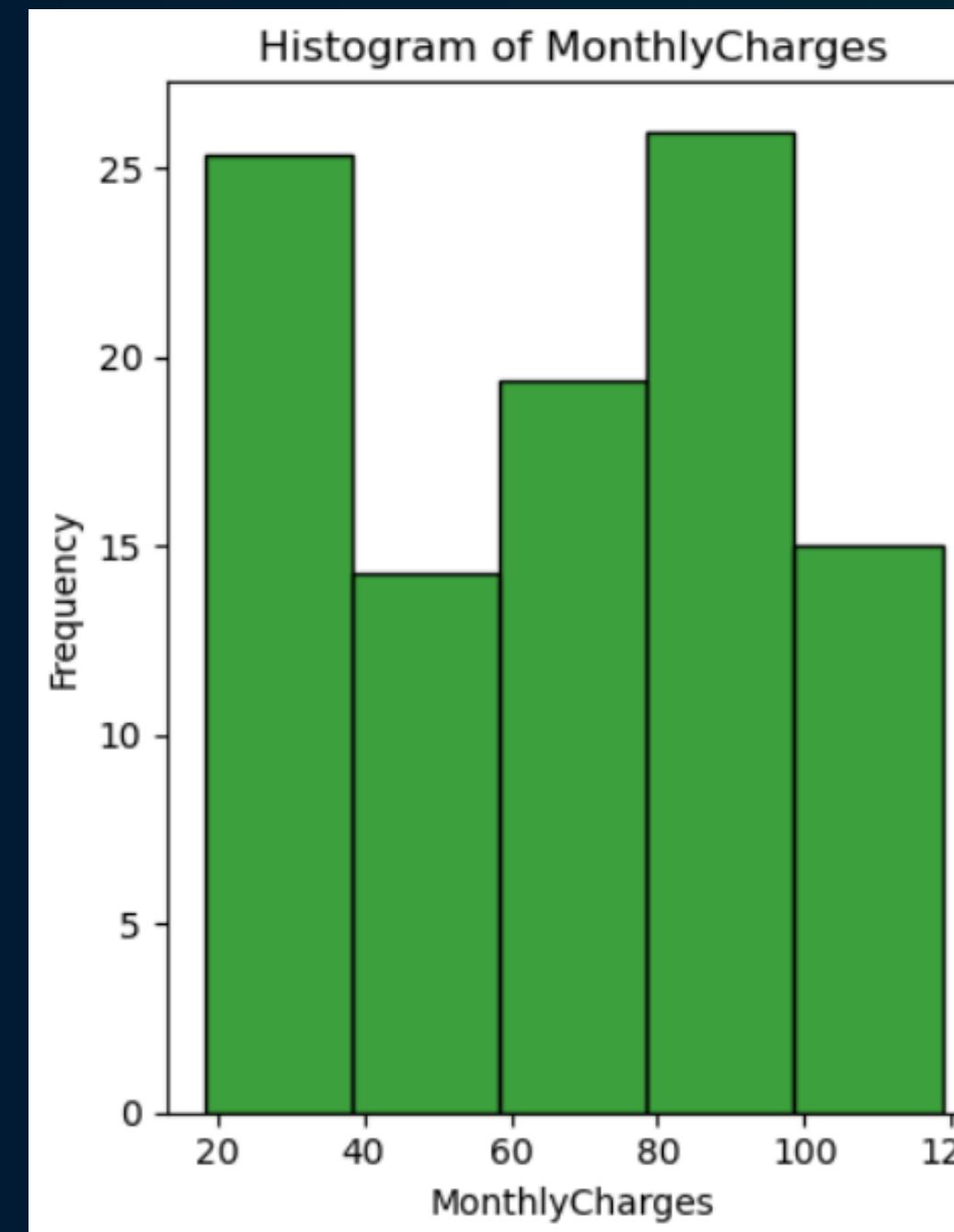
# Univariate Analysis

## Numerical Features :

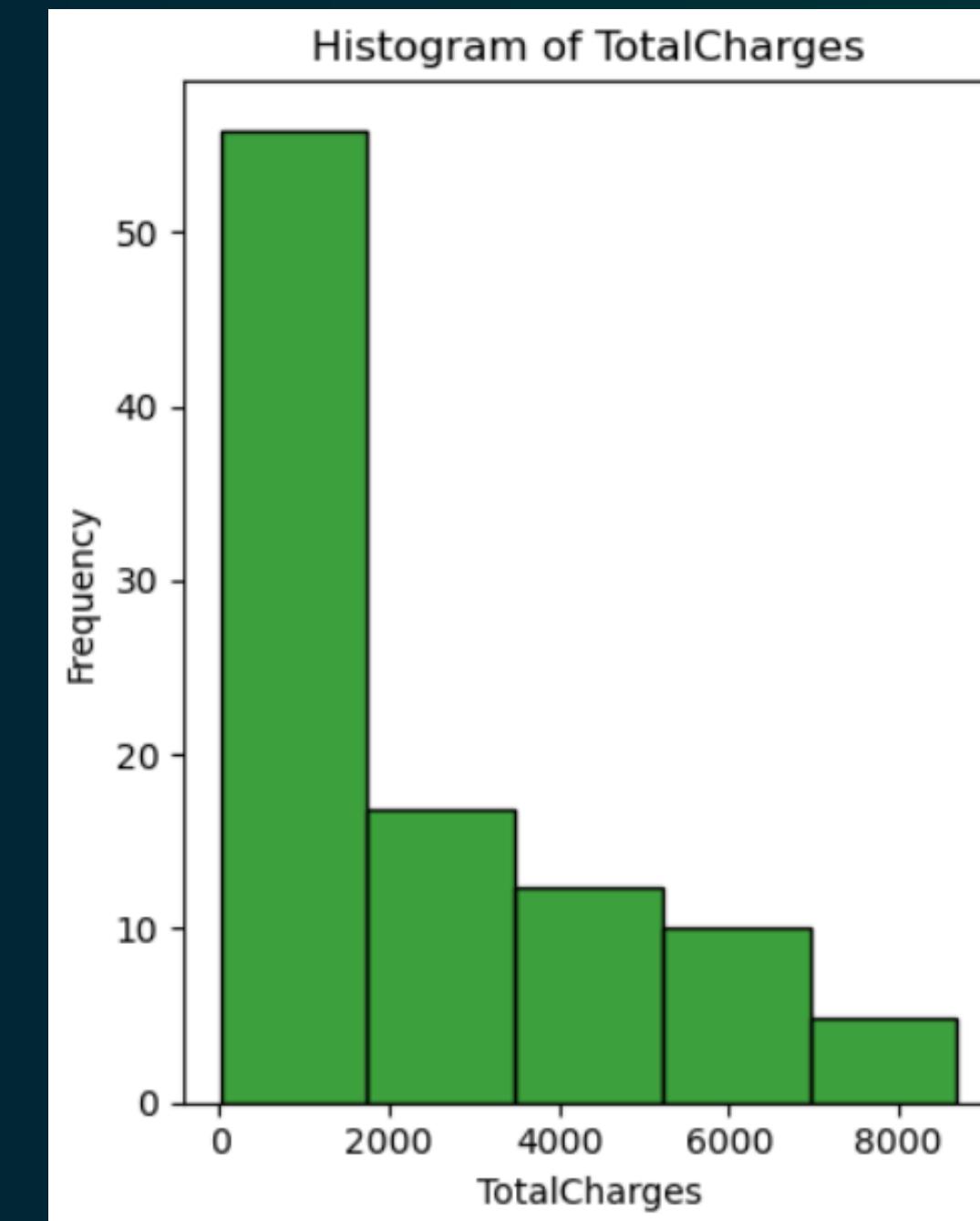
### Tenure



### Monthly Charges



### Total Charges



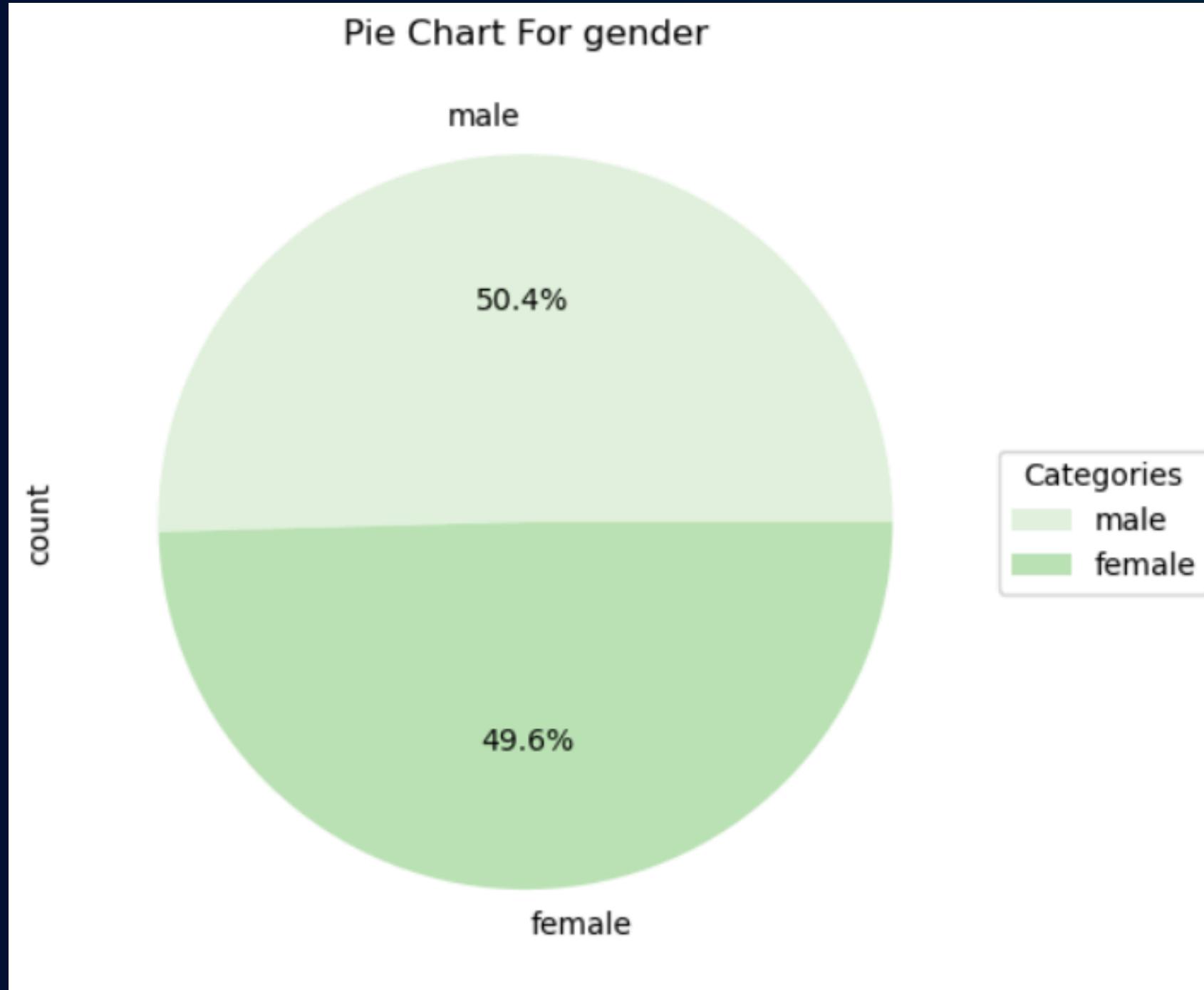
Most customers are either very new or have stayed for a long time, with fewer in the middle.

Customers are spread across different bill amounts, with more around the lower and higher ends.

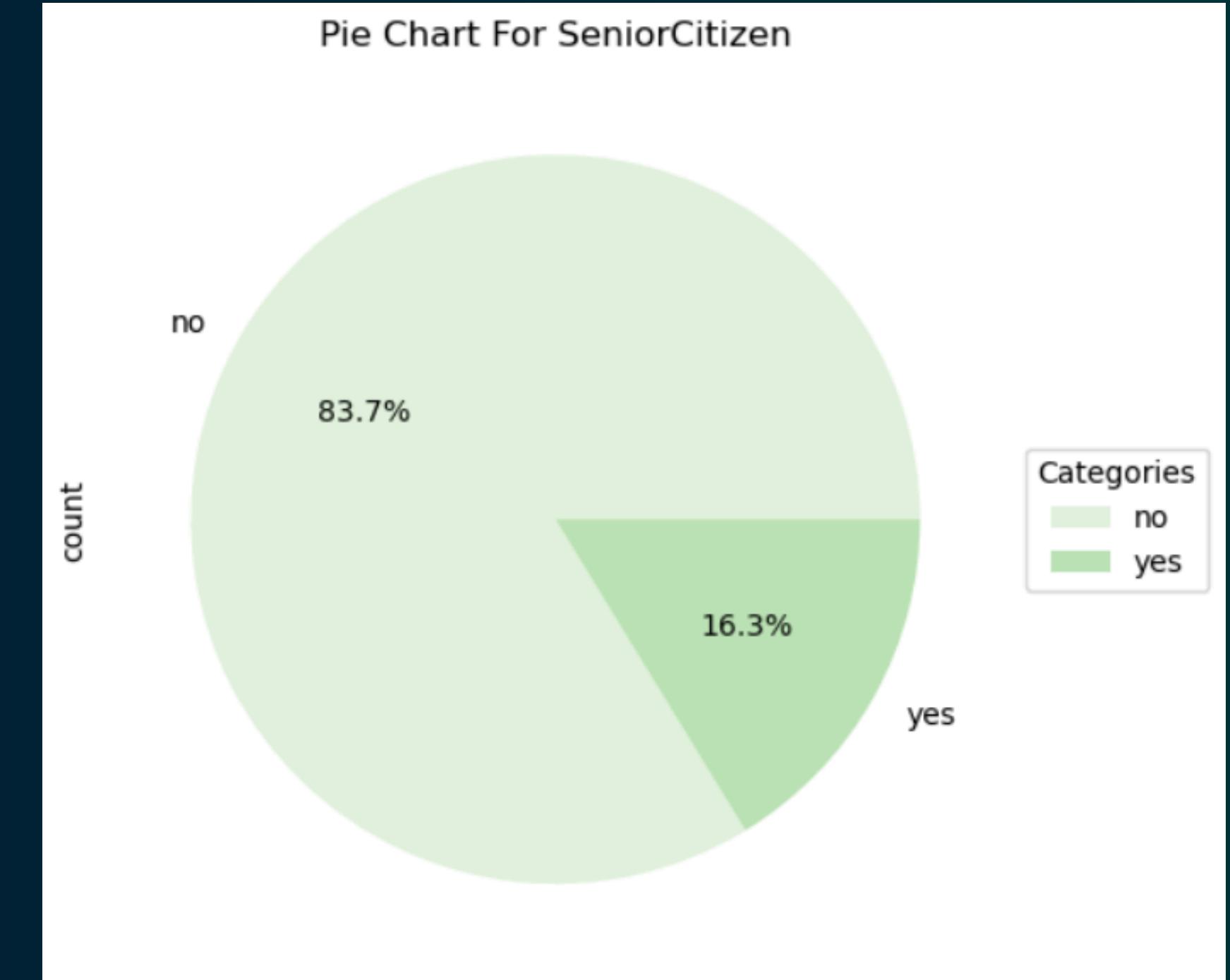
Many customers have very low total charges, showing a large group of new or short-term users.

# Categorical Features :

## Gender



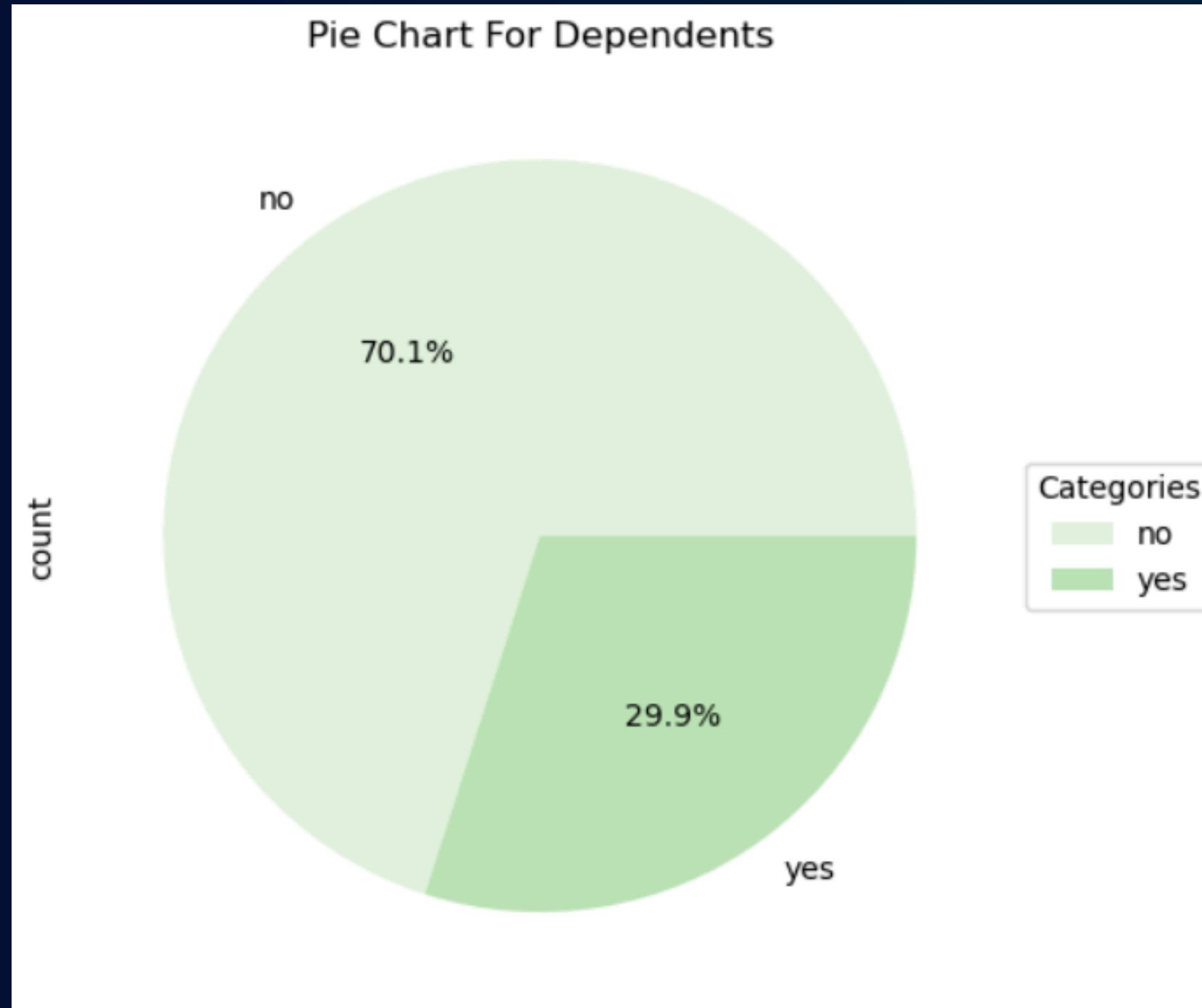
## Senior Citizen



Male and female customers are almost equal in number.

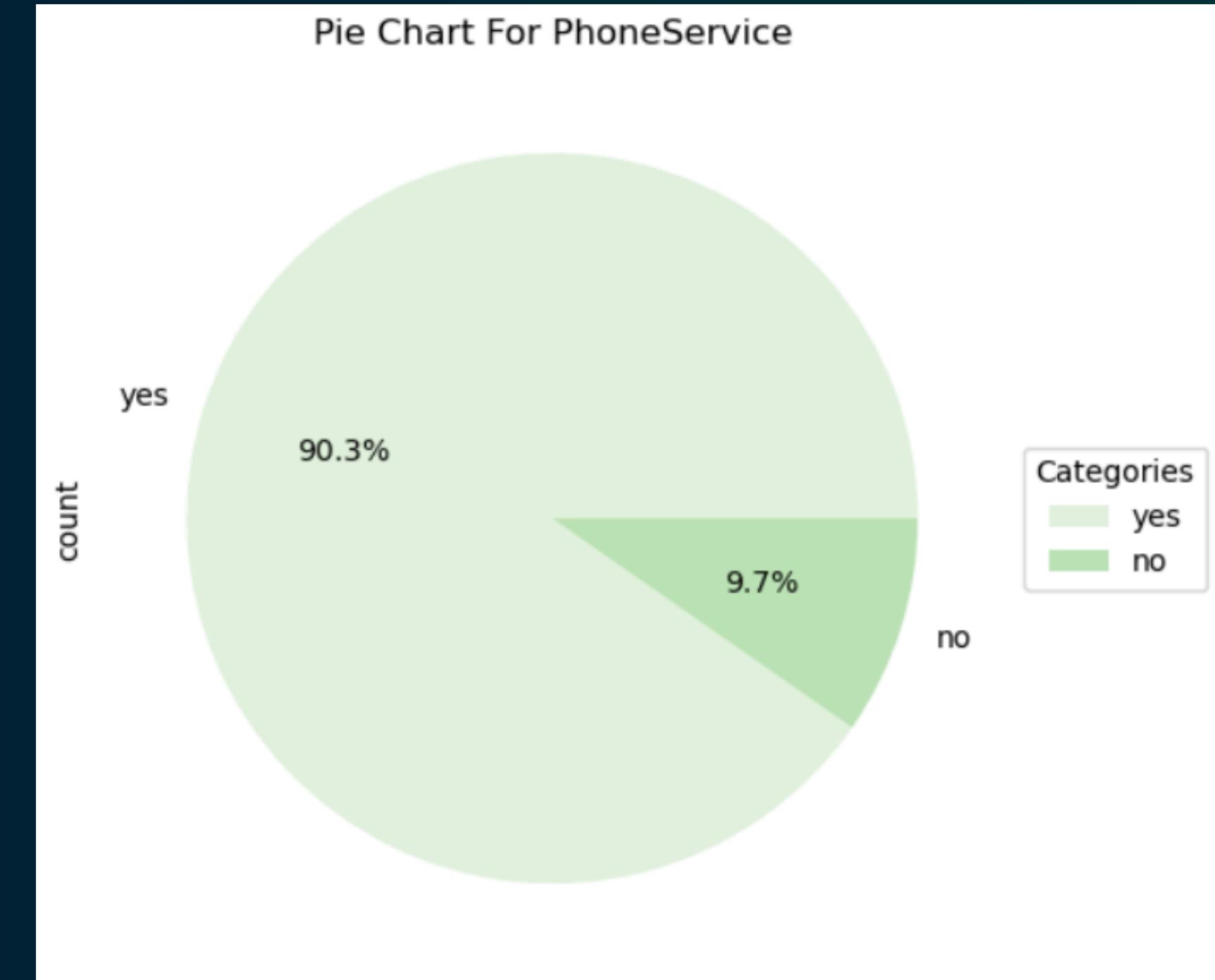
Most customers are not senior citizens.

## Dependents



Majority of customers don't have dependents

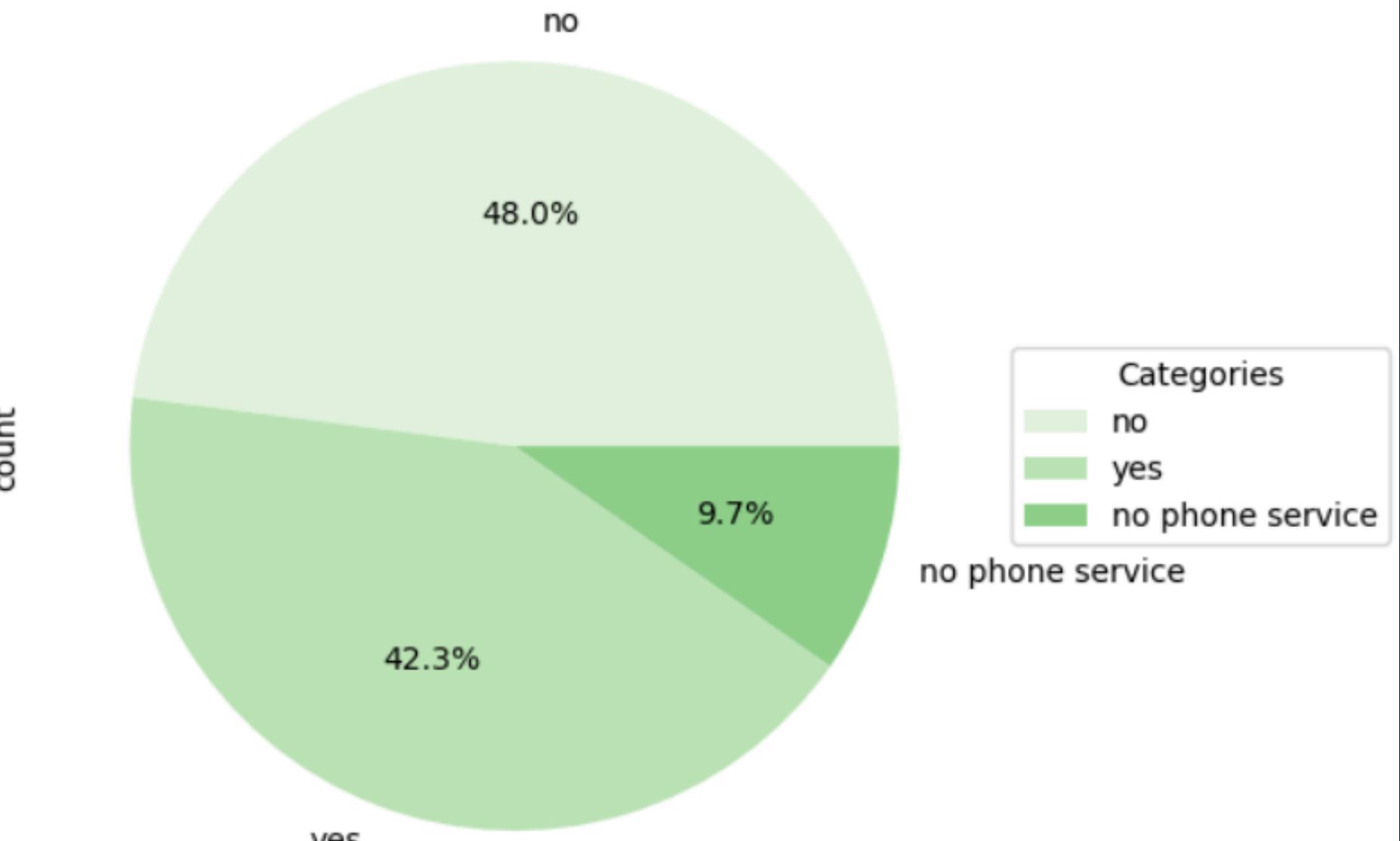
## Phone Service



Almost all customers use phone service.

## Multiple Lines

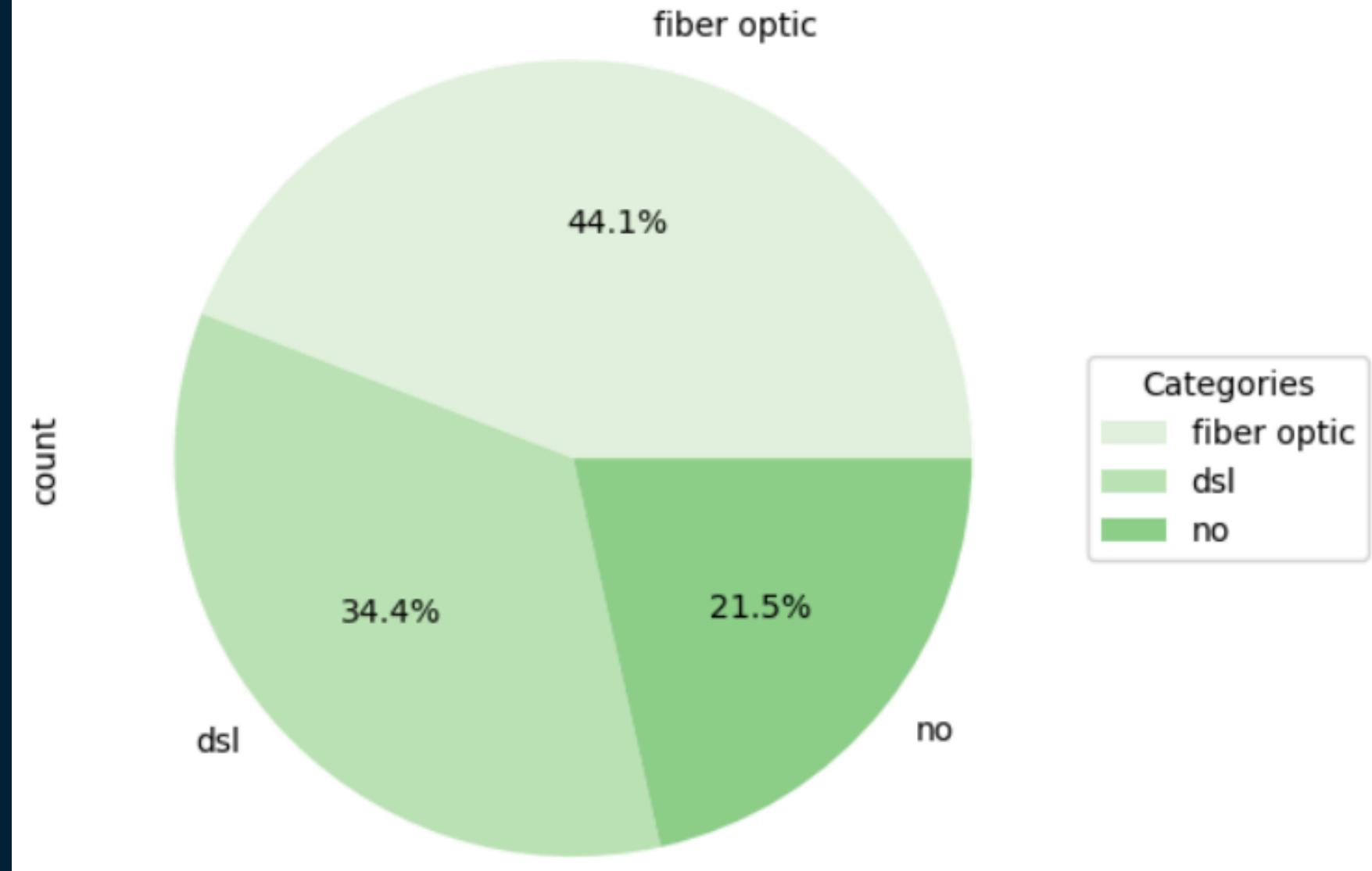
Pie Chart For MultipleLines



Customers are almost evenly split between single line and multiple lines.

## Internet Service

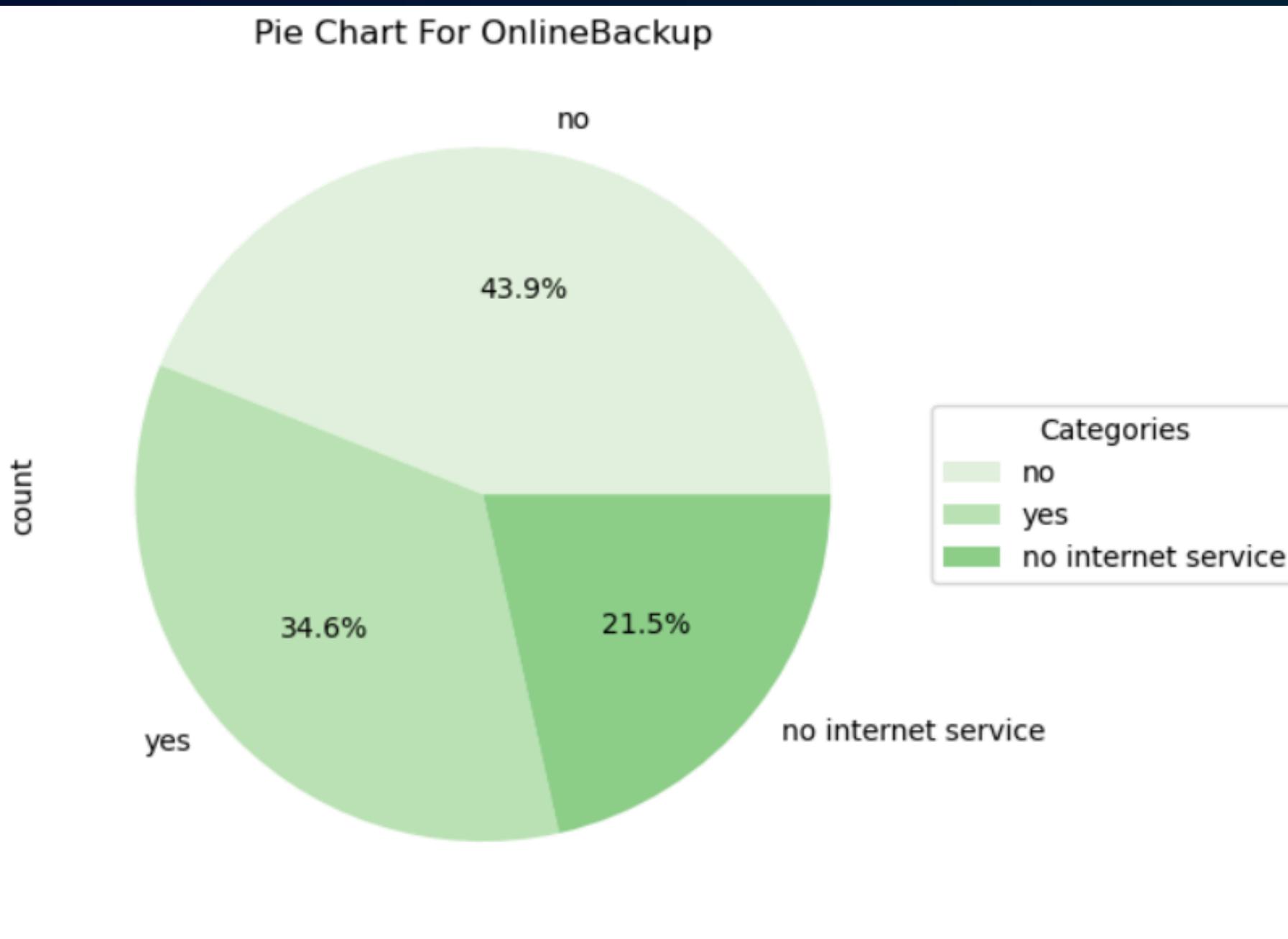
Pie Chart For InternetService



Fiber optic is the most common internet service, followed by DSL, while some don't use internet.

## Online Backup

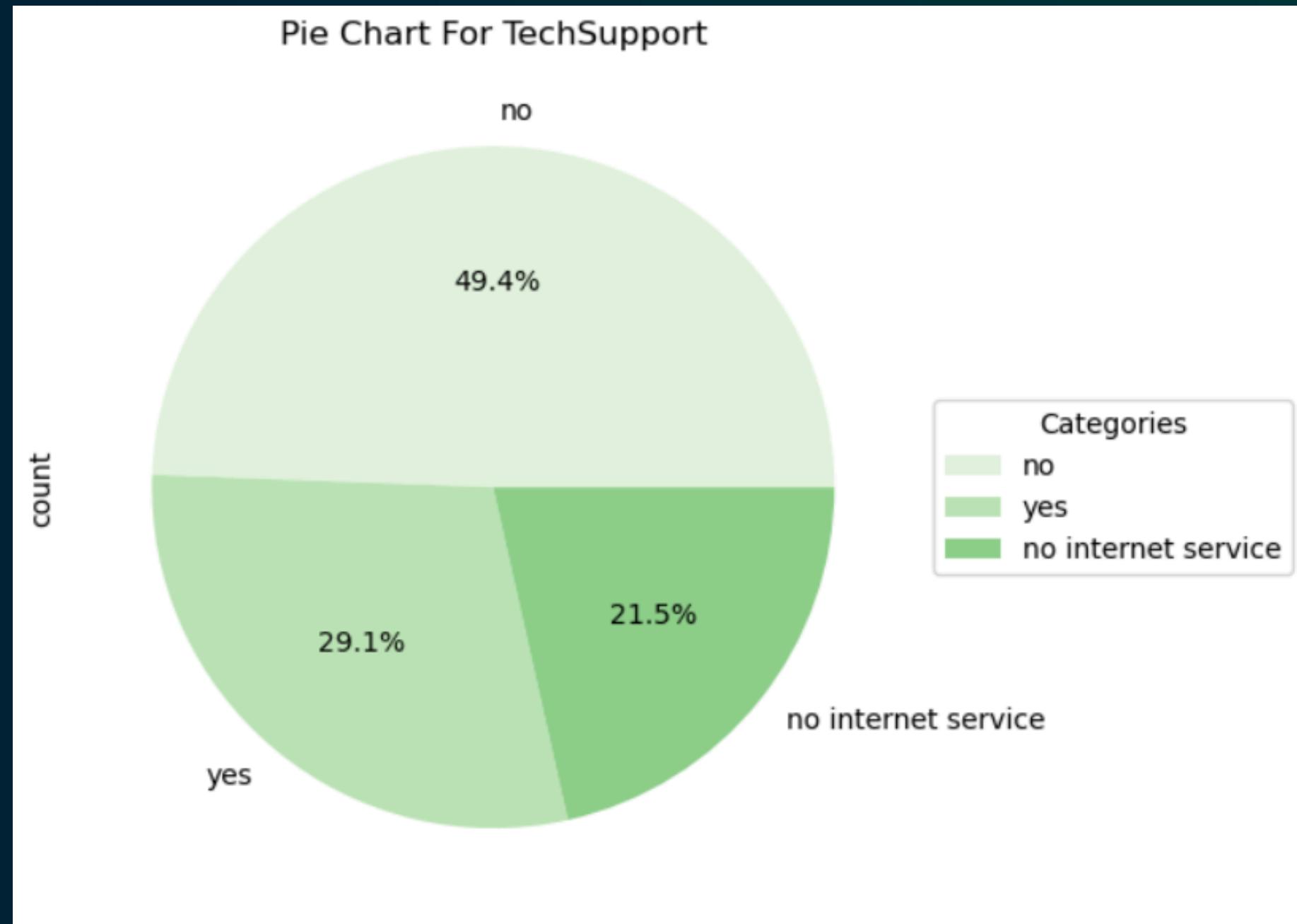
Pie Chart For OnlineBackup



More customers don't use online backup compared to those who do.

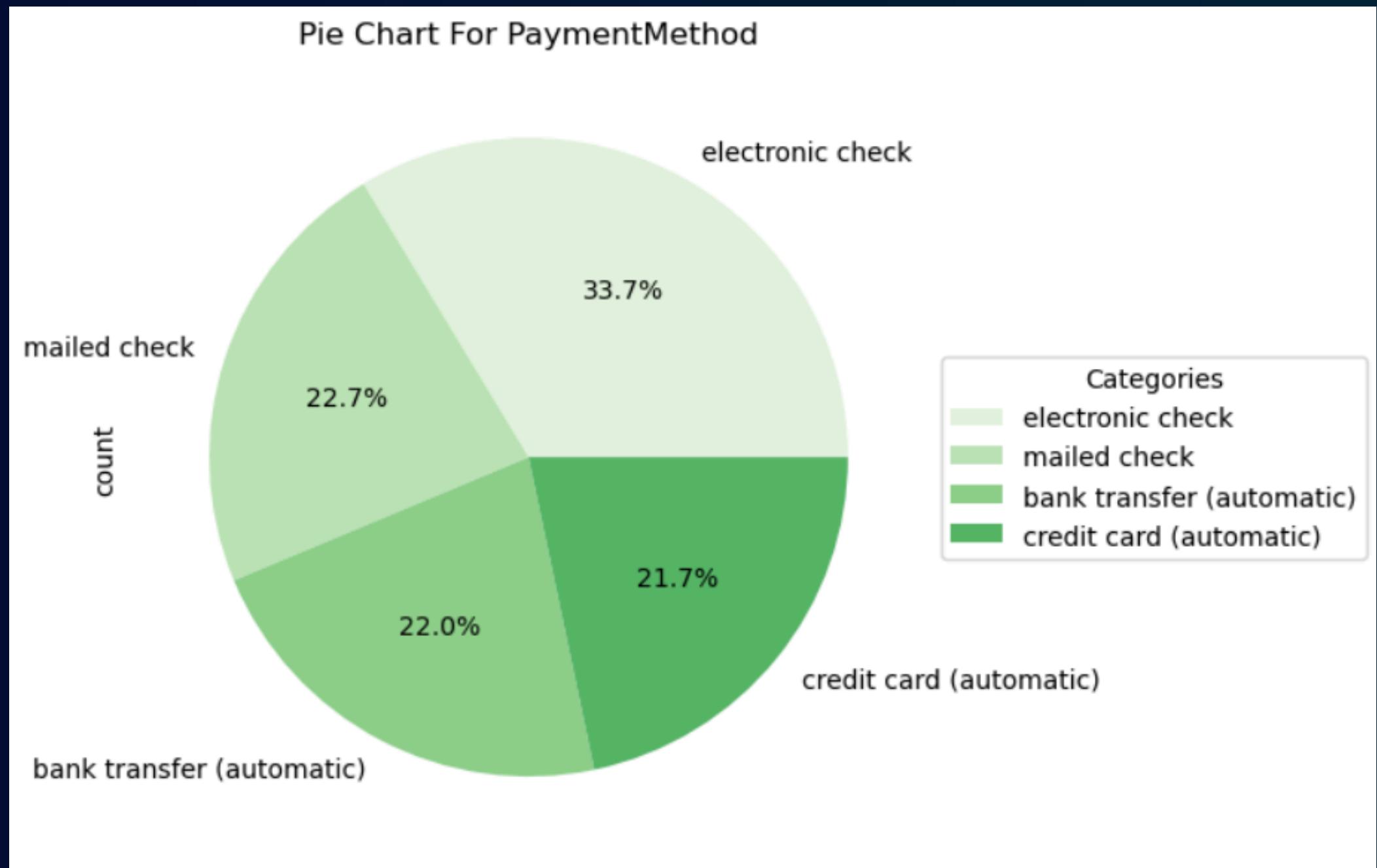
## Tech Support

Pie Chart For TechSupport



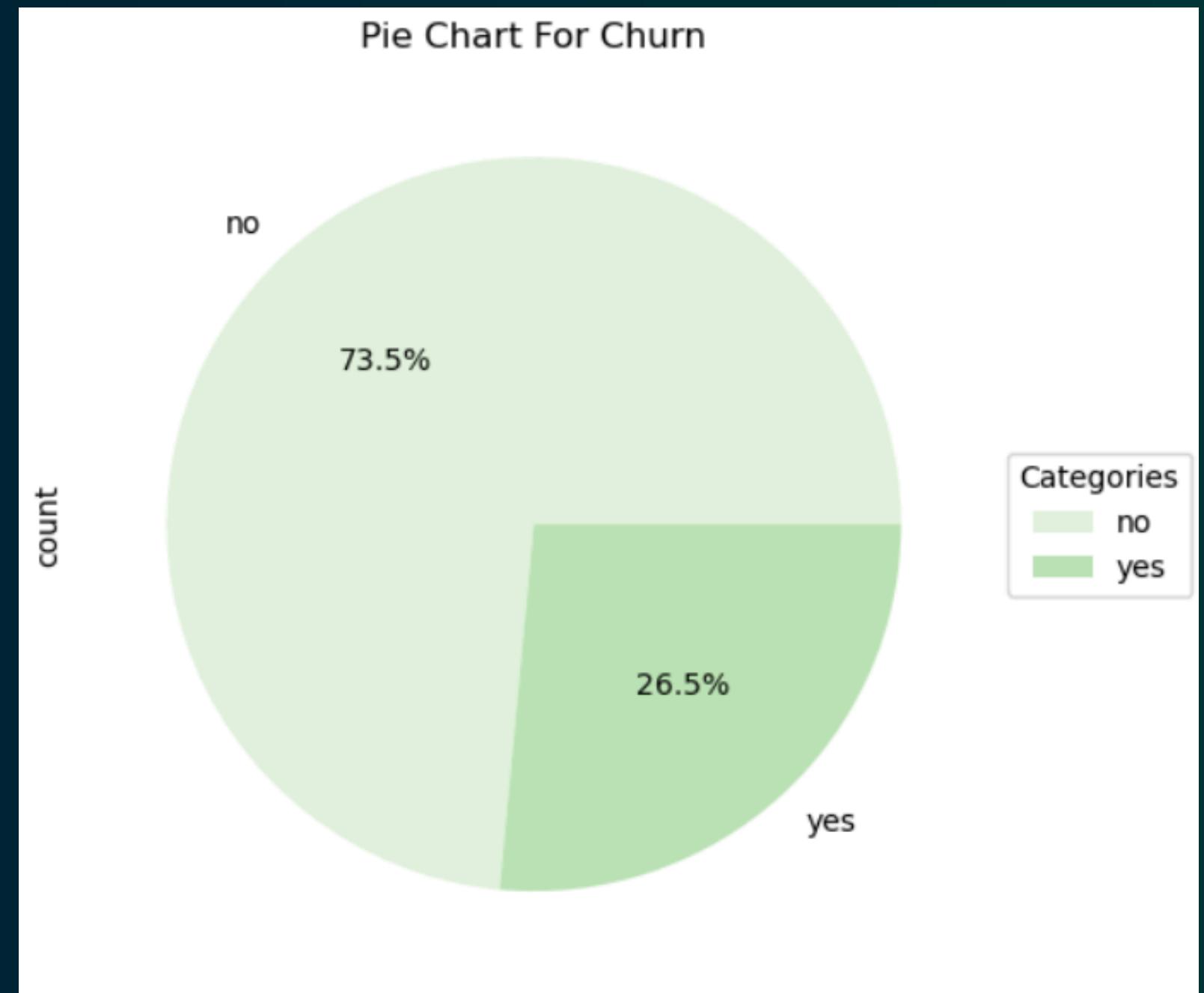
About half of the customers don't have tech support.

# Payment Method



Electronic check is the most common way customers pay.

# Churn

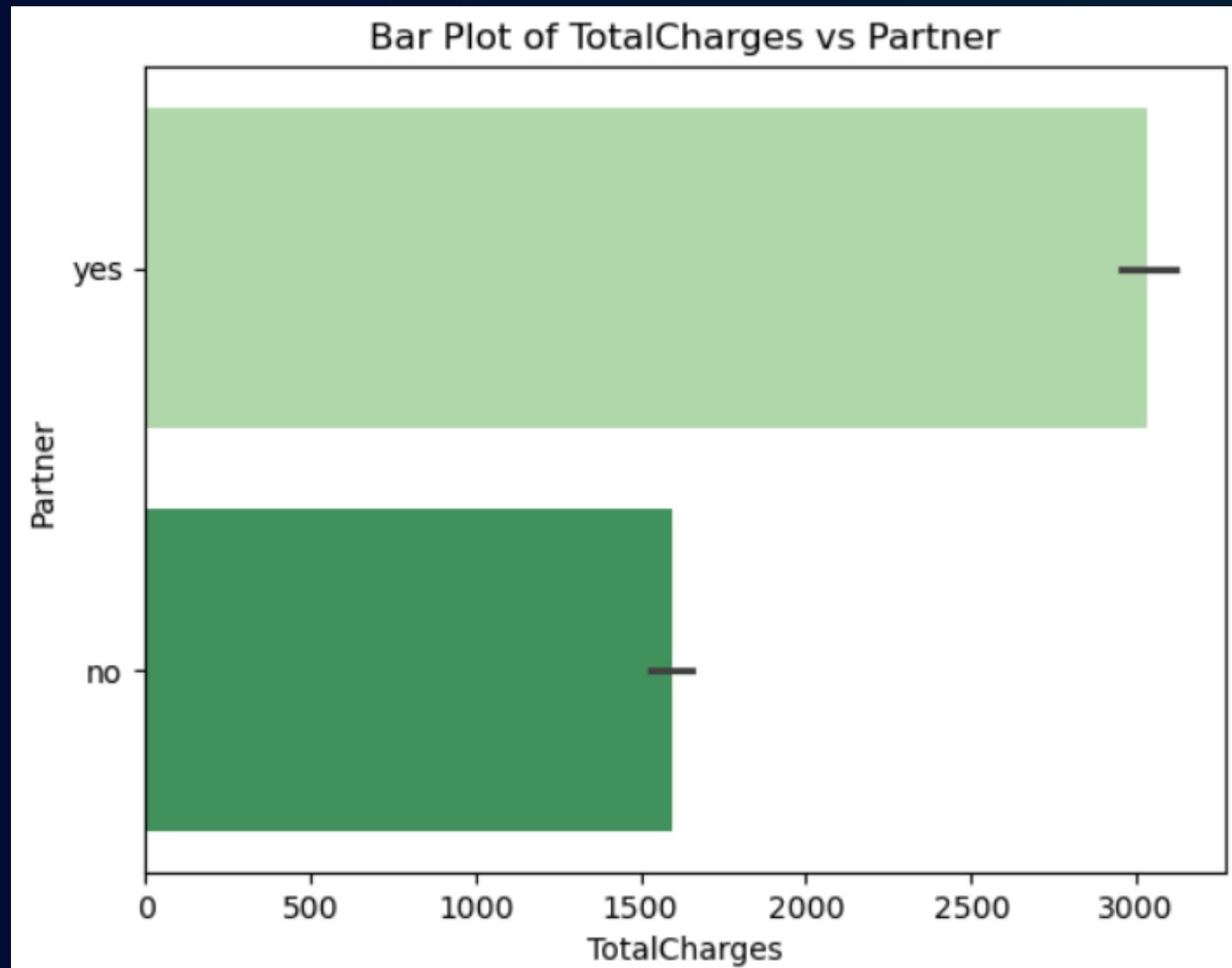


About one-fourth of customers left the company, while most stayed.

# Bivariate Analysis

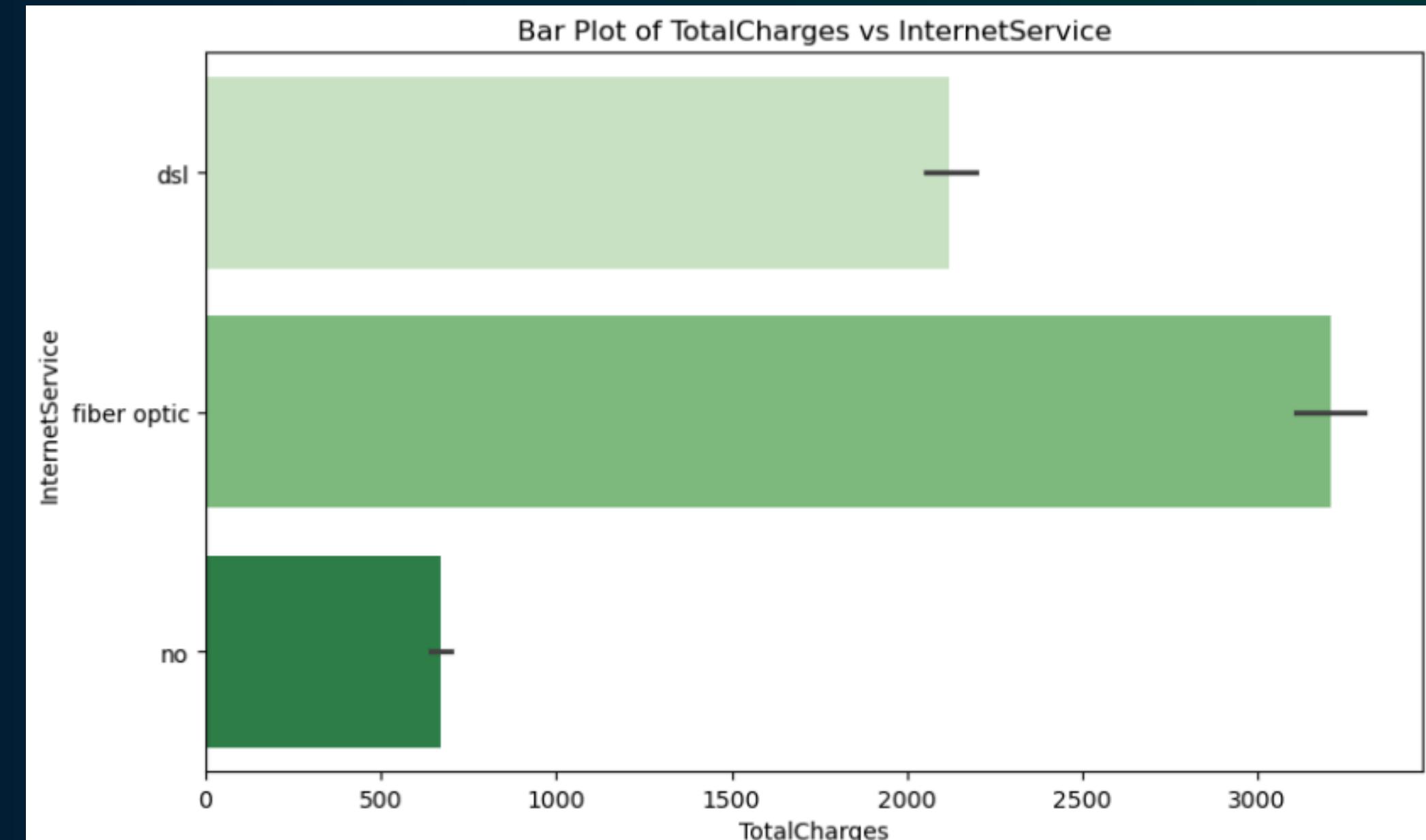
## Numerical vs Categorical Features :

### Total Charges vs Partner



Customers with a partner tend to have higher total charges compared to those without a partner.

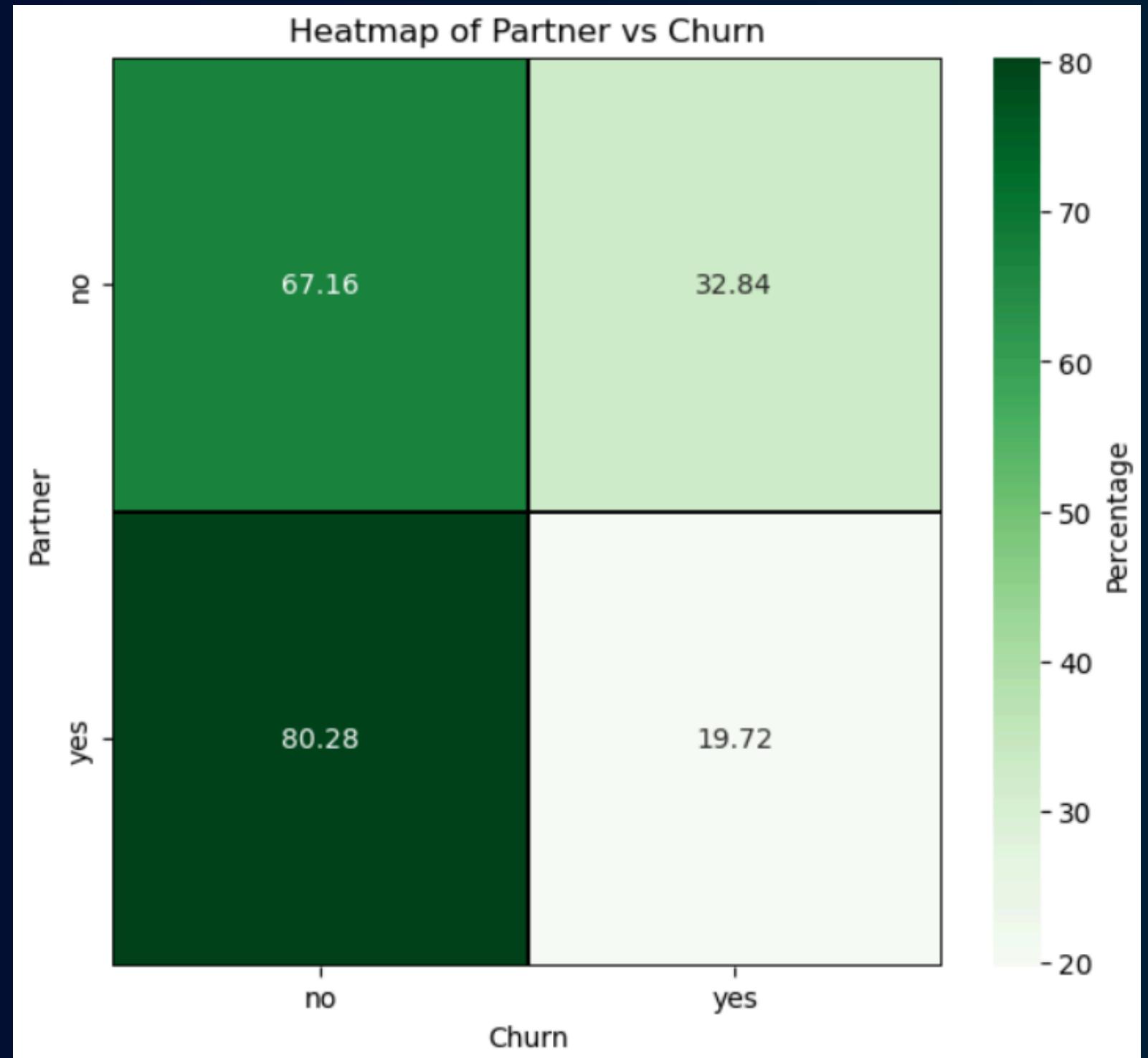
### Total Charges vs Internet Service



Customers with fiber optic service have the highest total charges, followed by DSL, while those without internet service have the lowest charges.

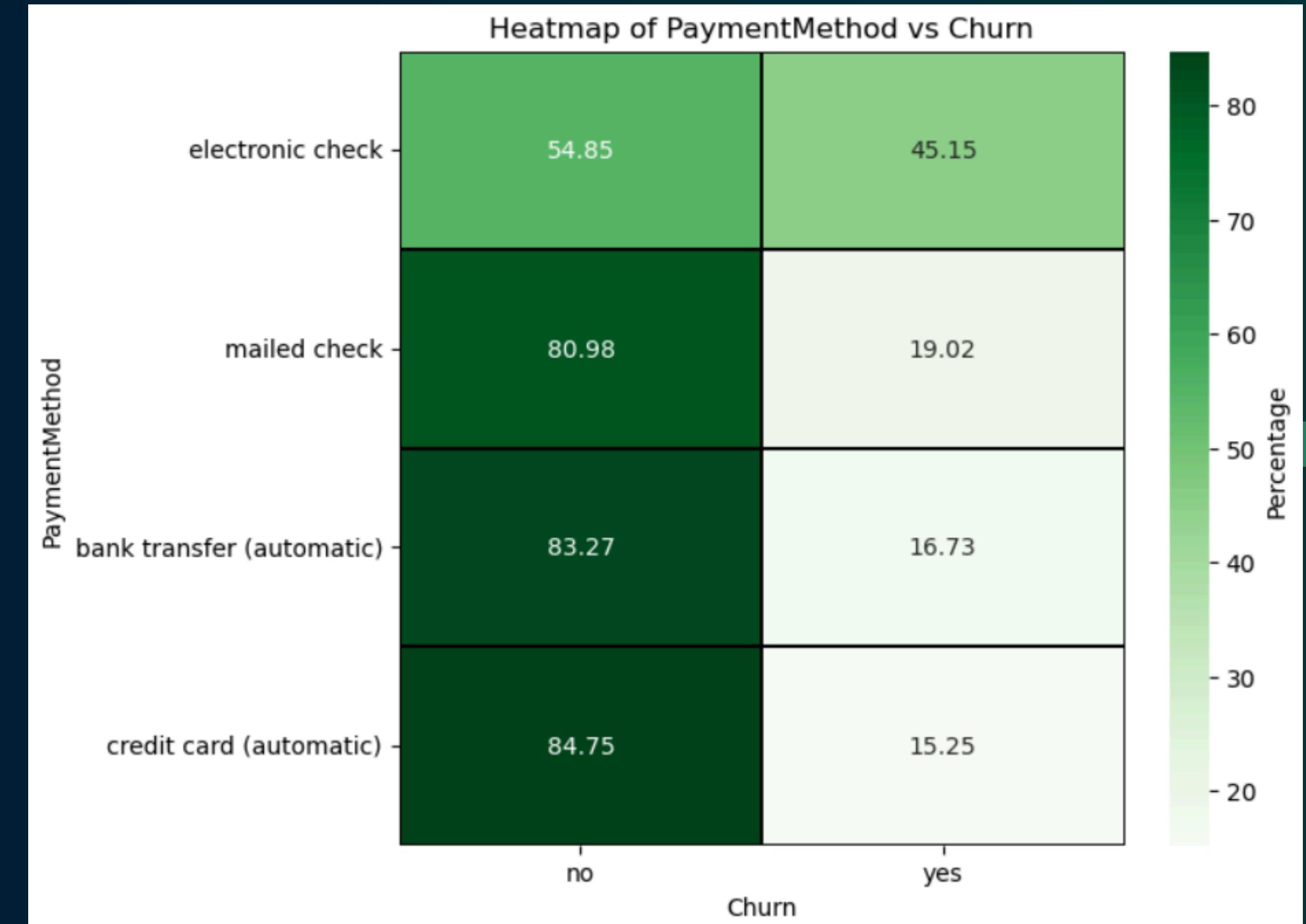
# Categorical vs Categorical Features:

## Partner vs Churn



Customers with a partner are less likely to churn compared to those without a partner.

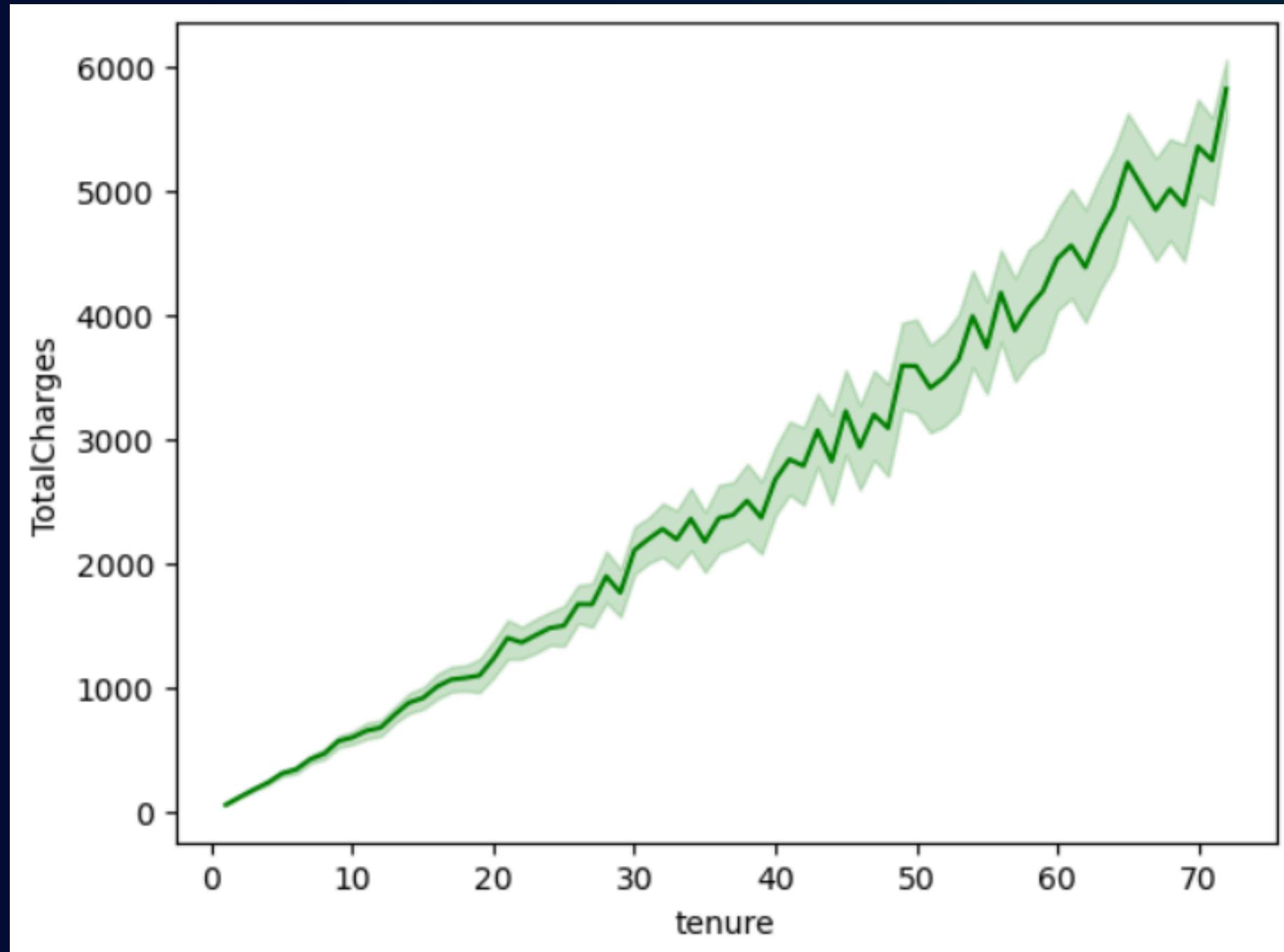
## PaymentMethod vs Churn



Customers using electronic checks have the highest churn rate, while those using automatic payment methods have the lowest churn rate.

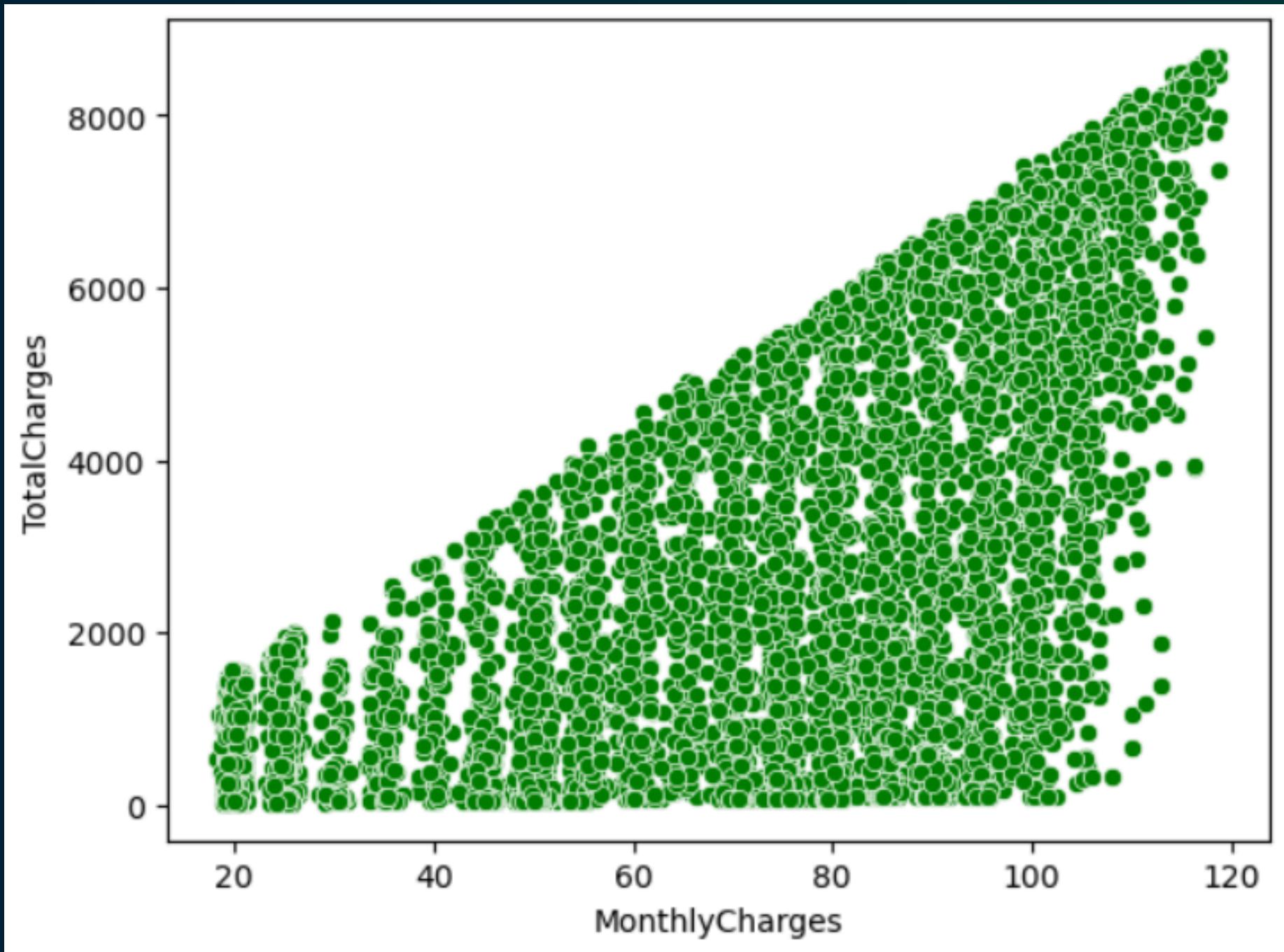
## Numerical vs Numerical Features :

**Total Charges vs Tenure**



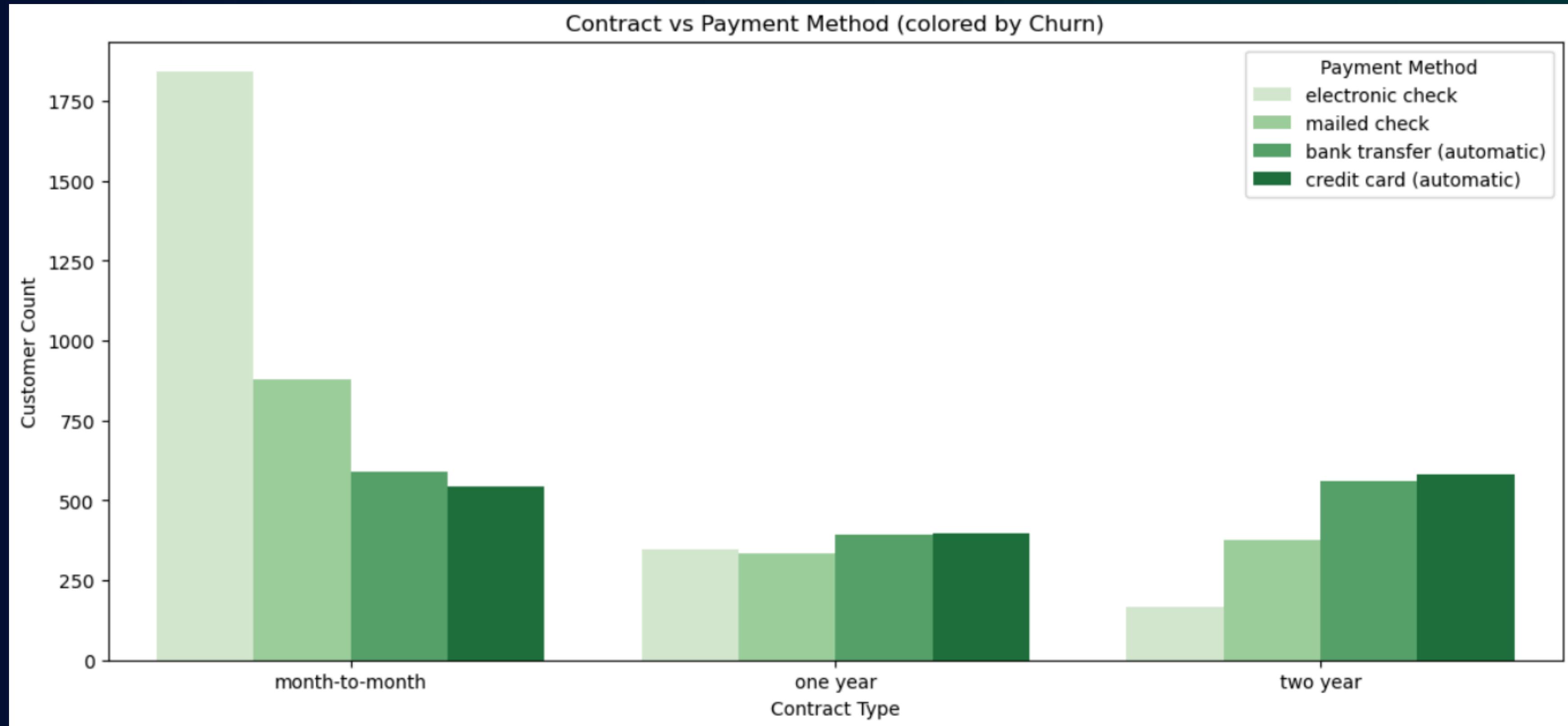
Total charges increase steadily with tenure, showing a strong positive linear relationship.

**Total Charges vs Monthly Charges**



Higher monthly charges lead to higher total charges, but with more spread, indicating variability across customers.

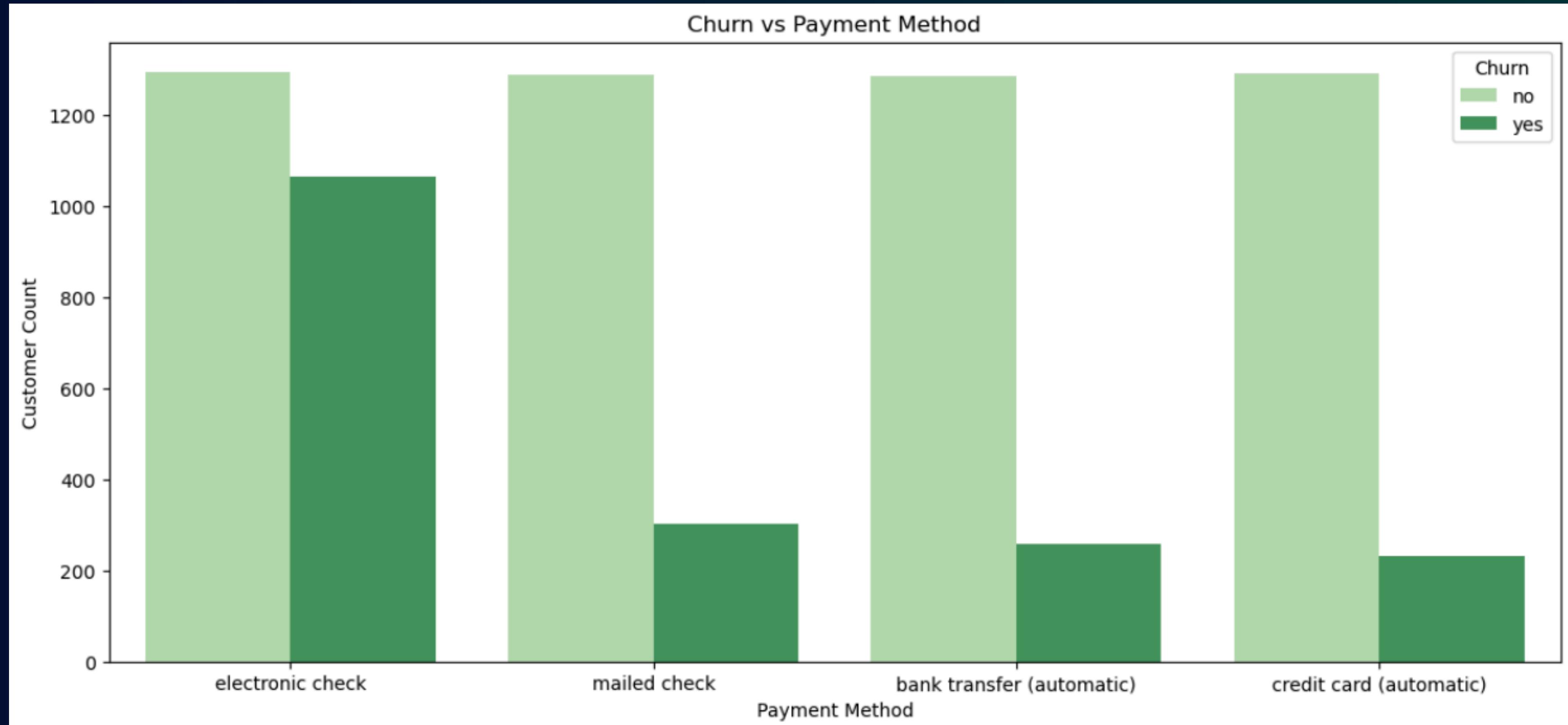
# Multivariate Analysis :



Month-to-month + electronic check = highest churn risk.

Longer contracts (1 year, 2 year) + automatic payments = more stability, less churn.

# Churn vs Payment Method



“Electronic check = risky customers, automatic payments = safe customers.”

# Conclusion :

- This study shows that customers leave the company mostly when they are new, pay every month without a long contract, and their bills are high.
- They also leave if they don't get extra help like tech support or security.
- Customers stay longer when they have been with the company for many months, choose yearly plans, get extra services, and feel supported.
- So, to keep people happy, the company should give new customers better care, offer good deals for long-term plans, and make sure support services are strong.





# Thank You All For Attention

See You Next Time