

# EXPLORATORY DATA ANALYSIS FOR CHURN ANALYSIS

SATINDER KAUR

# AGENDA

Introduction

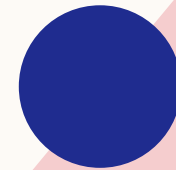
Understanding the data

Data Exploration

Numerical Analysis

Co-relation Analysis

Findings



# INTRODUCTION

Customer churn analysis is pivotal for predicting and preventing subscriber attrition in the telecom industry. By analyzing data trends and patterns, telecom companies can proactively implement targeted strategies to enhance customer retention and satisfaction, ensuring long-term business success.

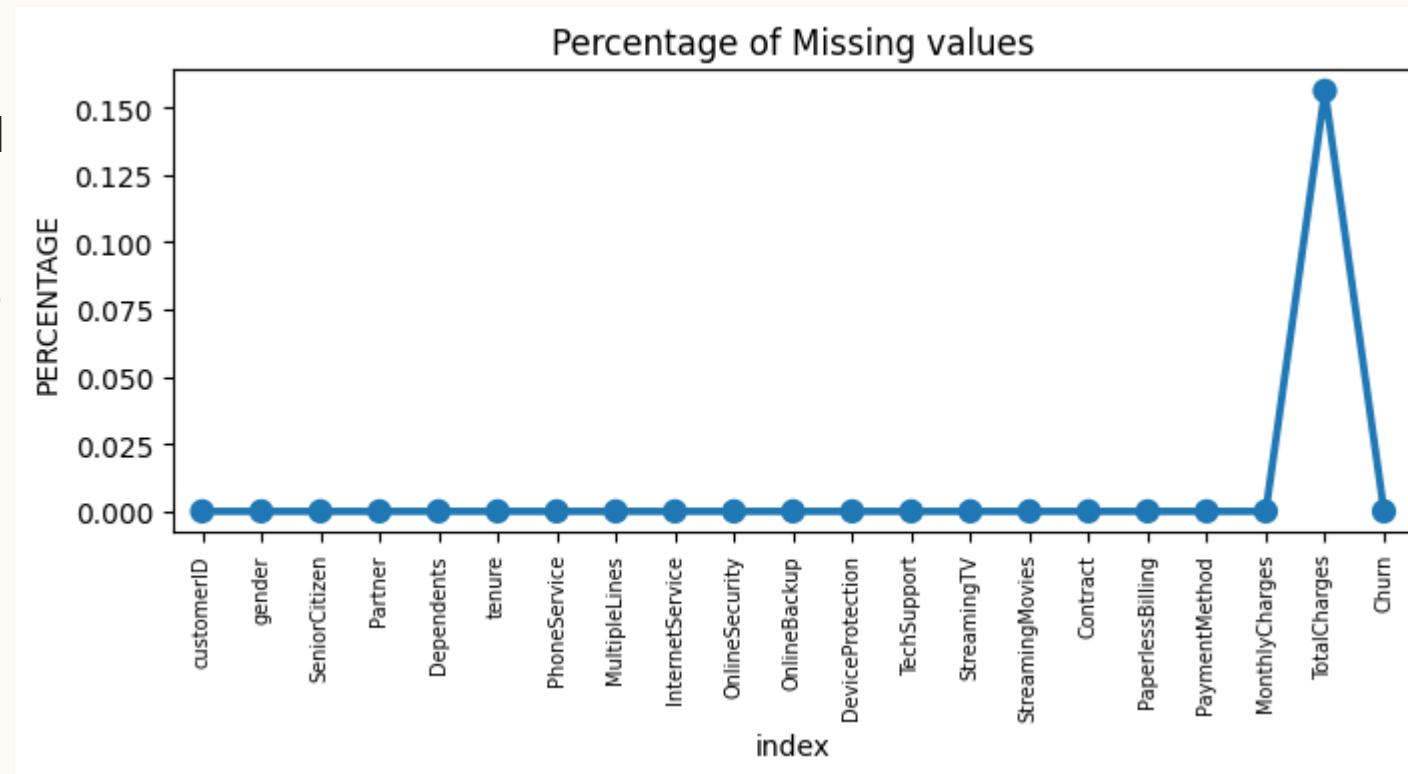
Analyzing churn data is crucial for understanding customer attrition in a business. By employing statistical methods, machine learning, and exploratory data analysis, companies can uncover patterns, identify key factors influencing churn, and develop effective strategies to retain customers, ultimately fostering business growth and customer satisfaction.



# **UNDERSTANDING THE DATA**

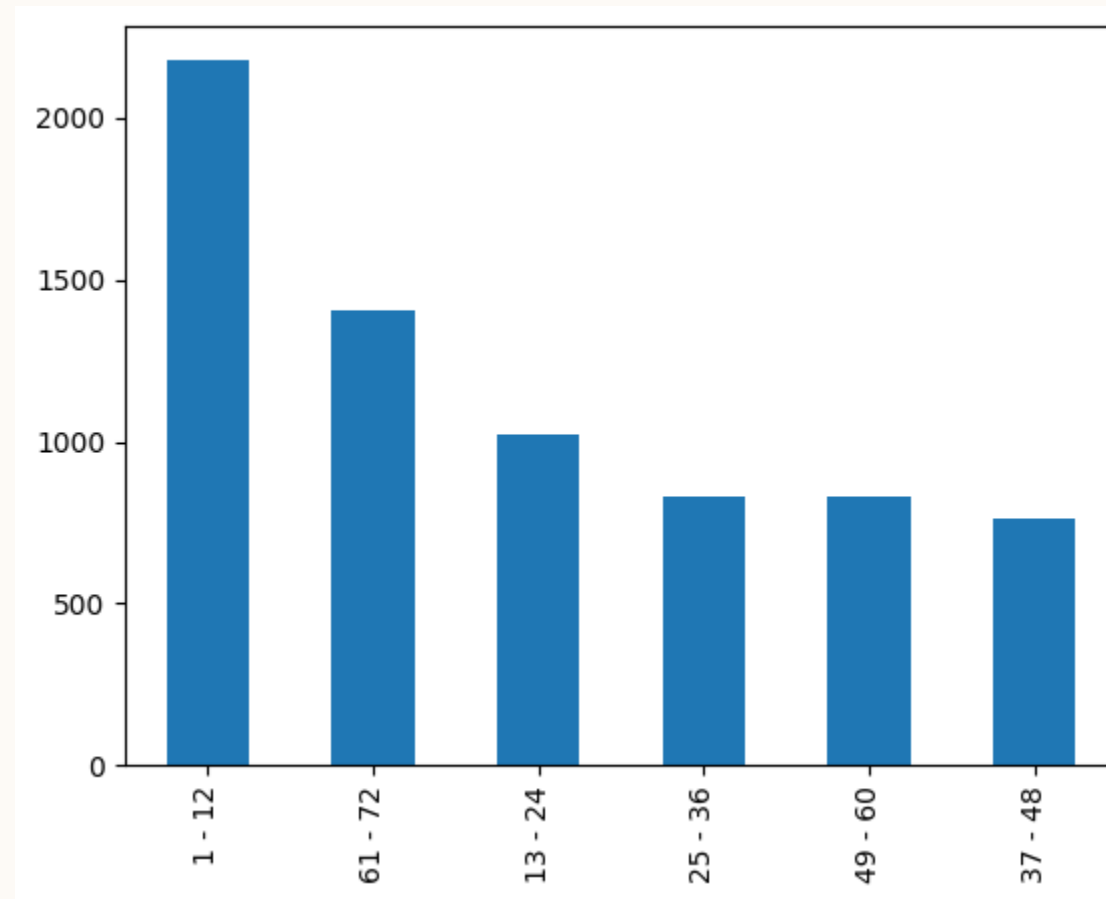
# MISSING VALUES

- Total Charges - Had to convert to numeric, and found 11 missing values, but the % of missing values is immensely low i.e. 0.15%, its a Data Analysts call to either remove these records or impute them.



# DATA CLEANING

- Dividing the tenure column into tenure groups is a common preprocessing step in data cleaning for churn analysis. This transformation simplifies the analysis by categorizing customers based on their tenure, making it easier to identify patterns and trends.
- Deleting the original tenure column, after creating the groups, helps reduce redundancy in the dataset and ensures a more streamlined and efficient analysis process. This process facilitates better insights into the relationship between tenure and churn, contributing to a more effective churn analysis.





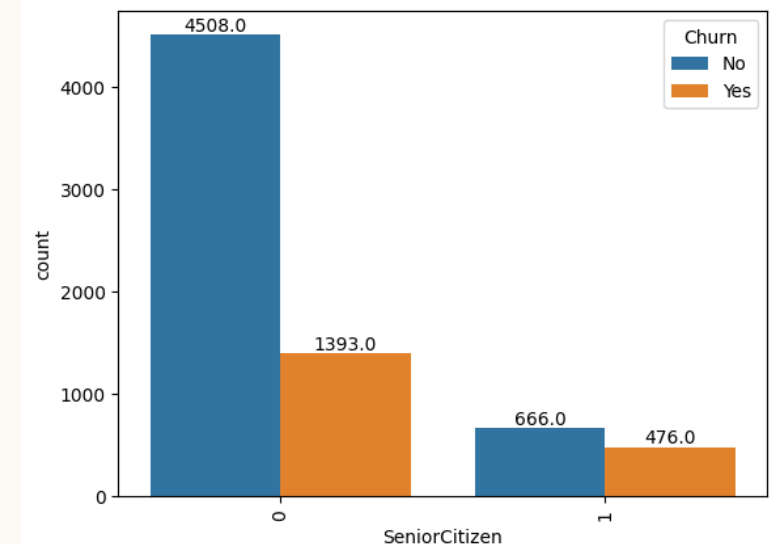
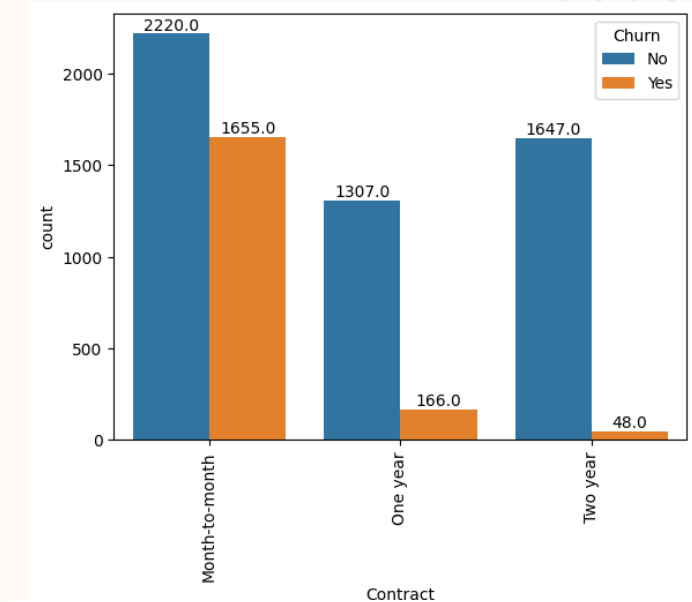
# **DATA EXPLORATION**

# CATEGORICAL ANALYSIS

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## Univariate Analysis for Categorical Data (Insights)

- Month to Month customers are more likely to churn.
- Senior Citizen are more likely to churn.



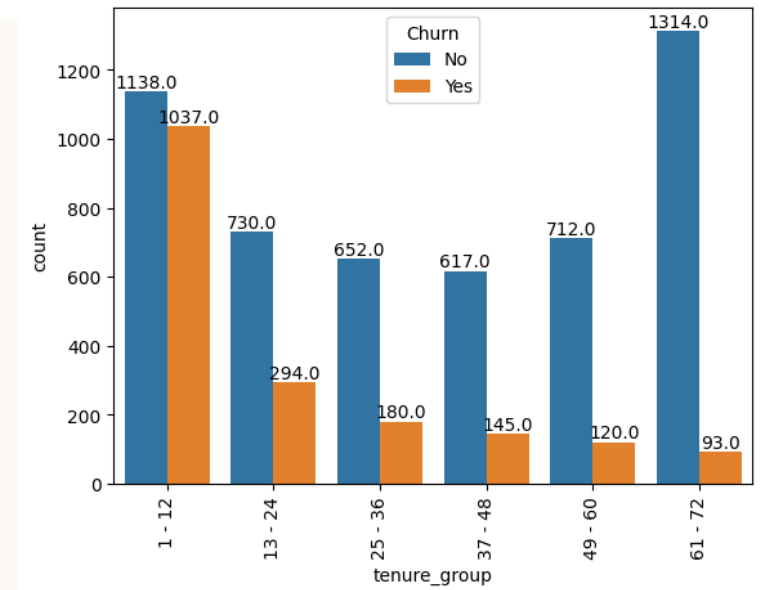
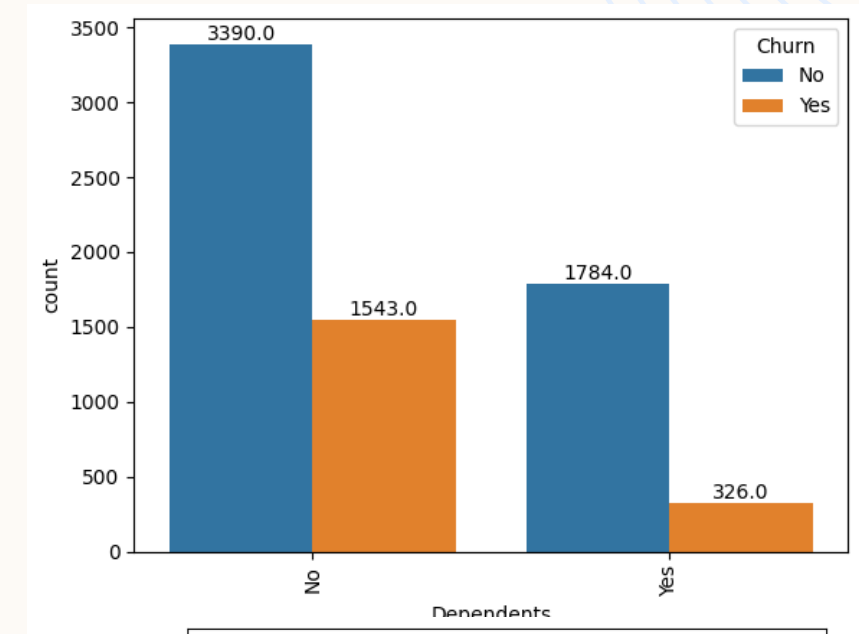


# CATEGORICAL ANALYSIS

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## Univariate Analysis for Categorical Data (Insights)

- Customers without dependents exhibit a lower churn rate.
- Customers with a tenure of 1-12 months are characterized by a high churn rate

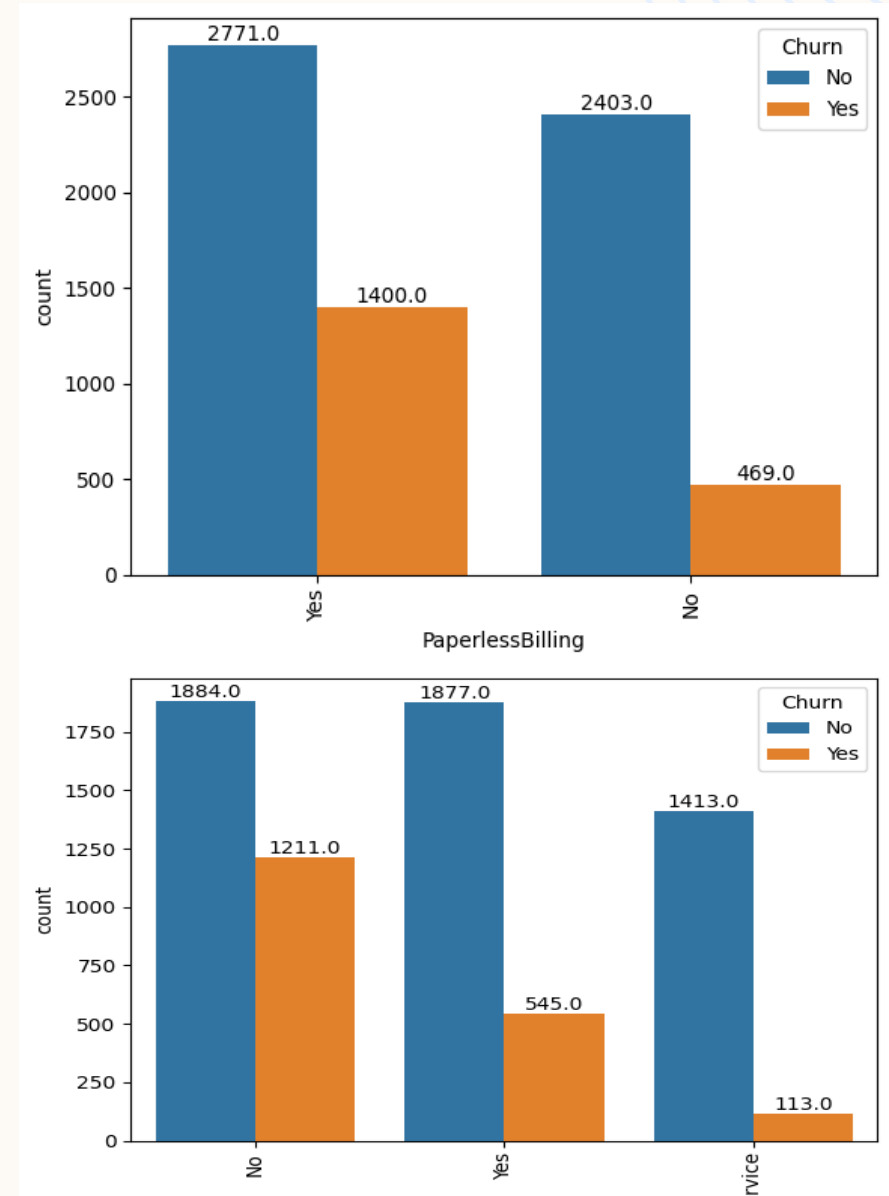


# CATEGORICAL ANALYSIS

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## Univariate Analysis for Categorical Data (Insights)

- Customers who opt for paperless billing tend to have a higher churn rate.
- Customers without device protection are more likely to experience high churn.

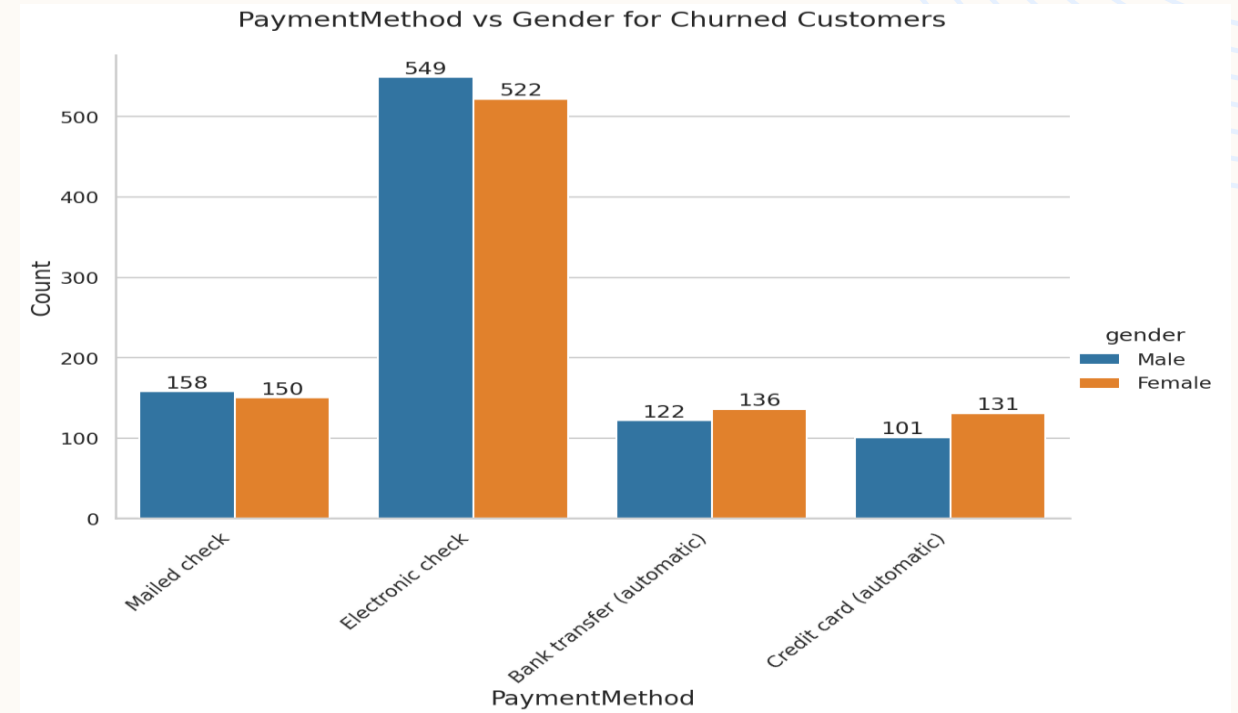
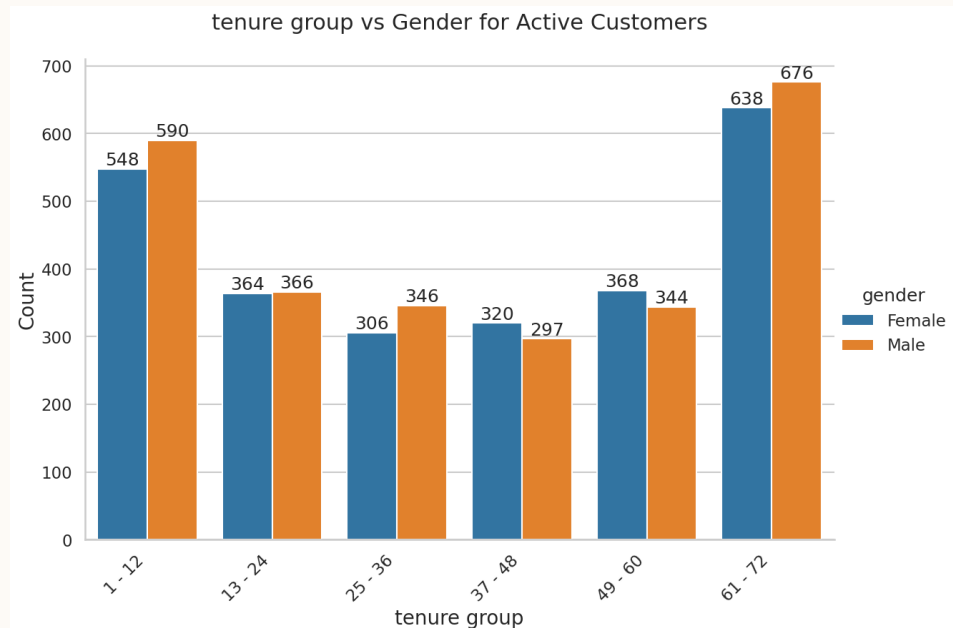


# CATEGORICAL ANALYSIS

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## Bivariate Analysis for Categorical Data (Insights)

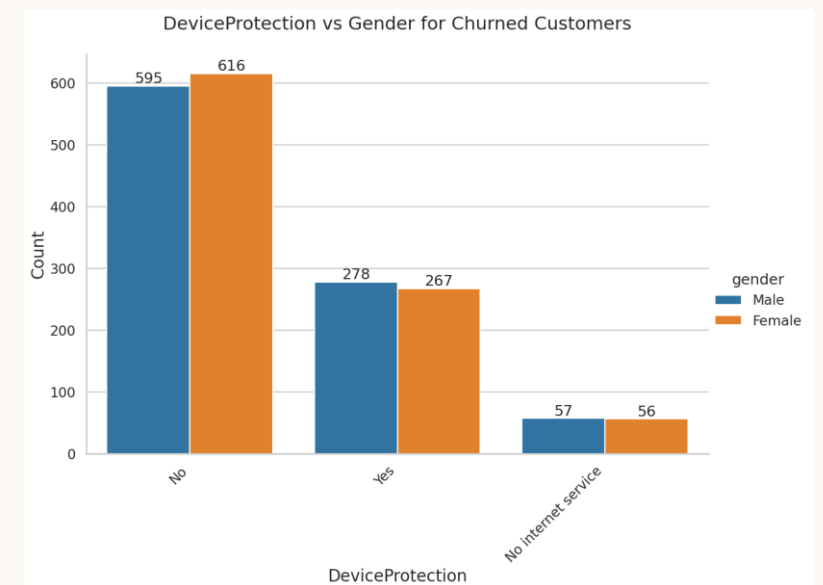
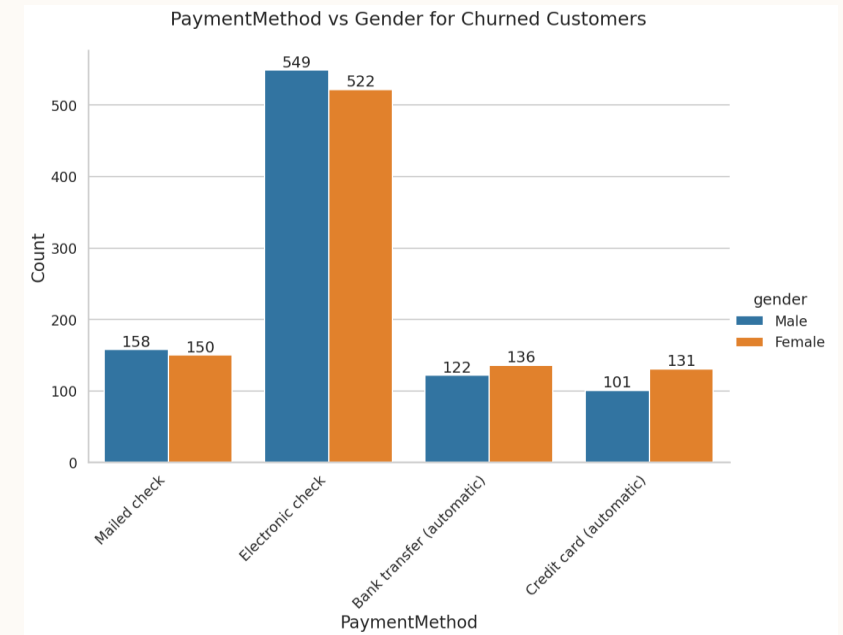
- Females without any partner are more likely to churn.
- A higher churn rate characterizes females with tenure in the 1-12 month range.



# CATEGORICAL ANALYSIS

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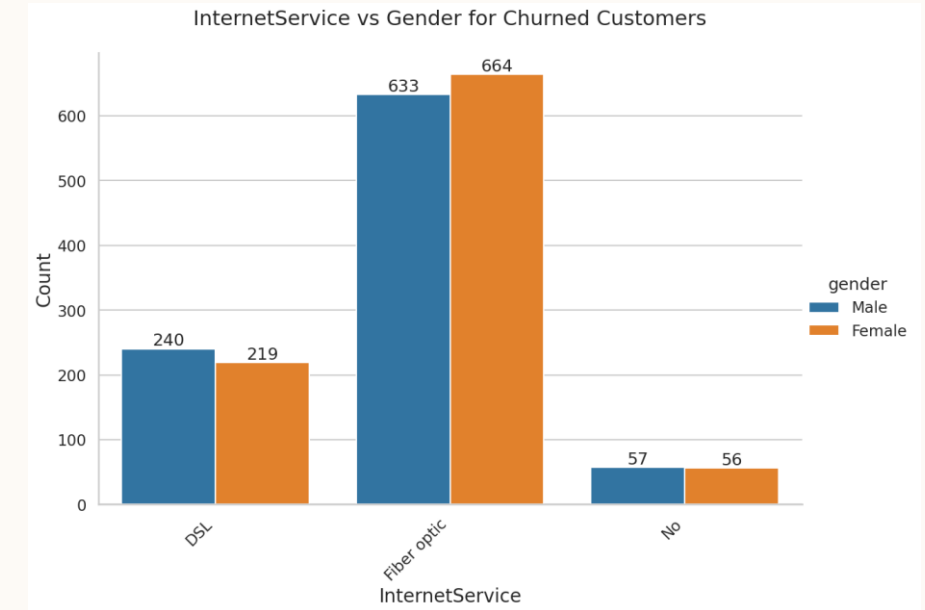
- Male customers who use electronic cheque services are more likely to exhibit a high churn rate.
- Females who do not utilize device protection are more likely to experience a higher churn rate.



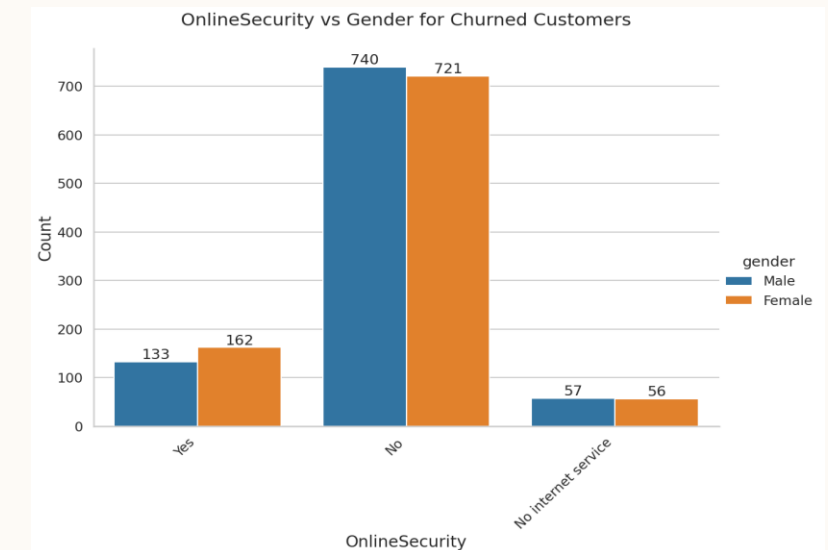
# CATEGORICAL ANALYSIS

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- Female users actively using optic internet services tend to have a higher churn rate.



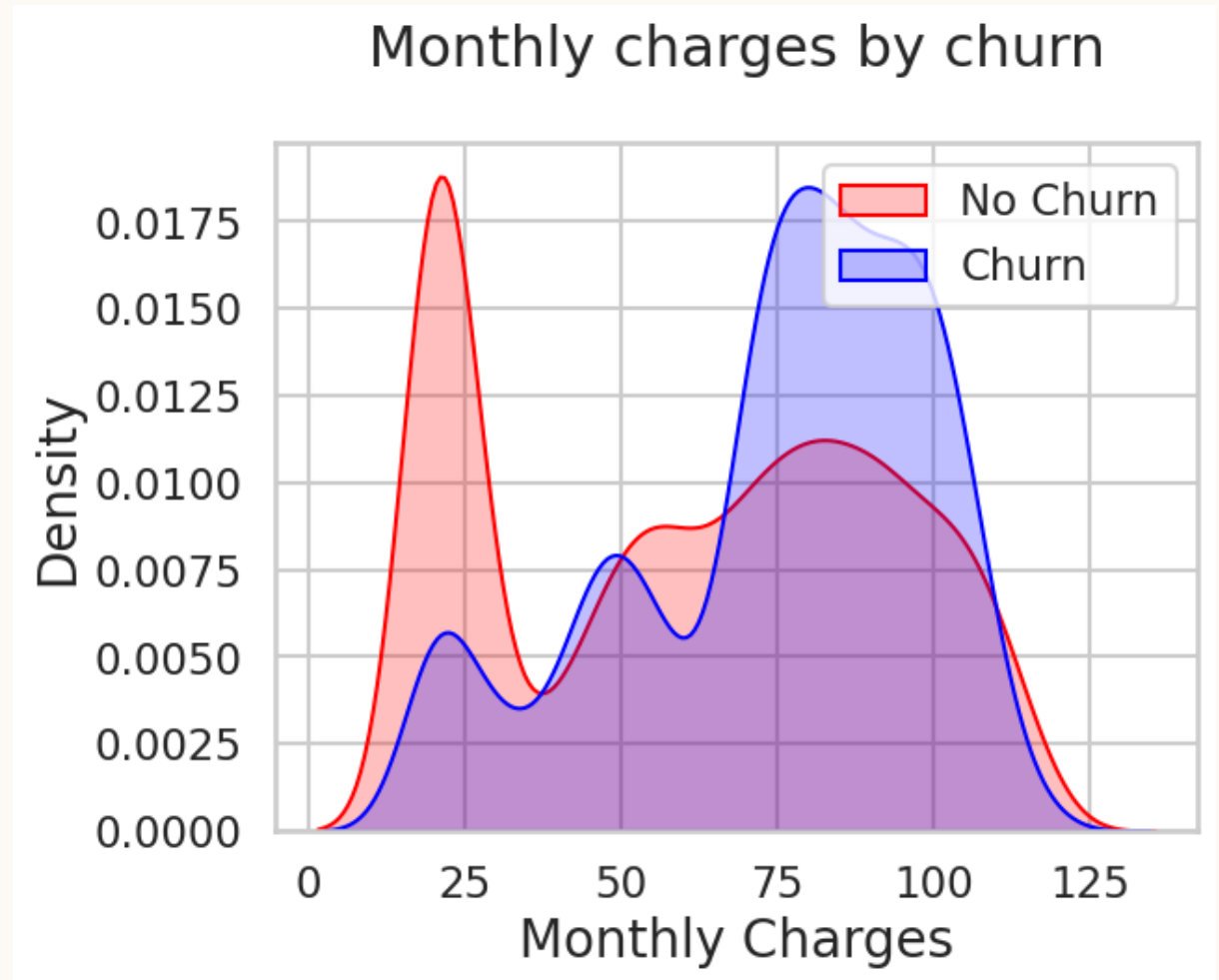
- Female customers who do not use online security features are more likely to be associated with a high churn rate.



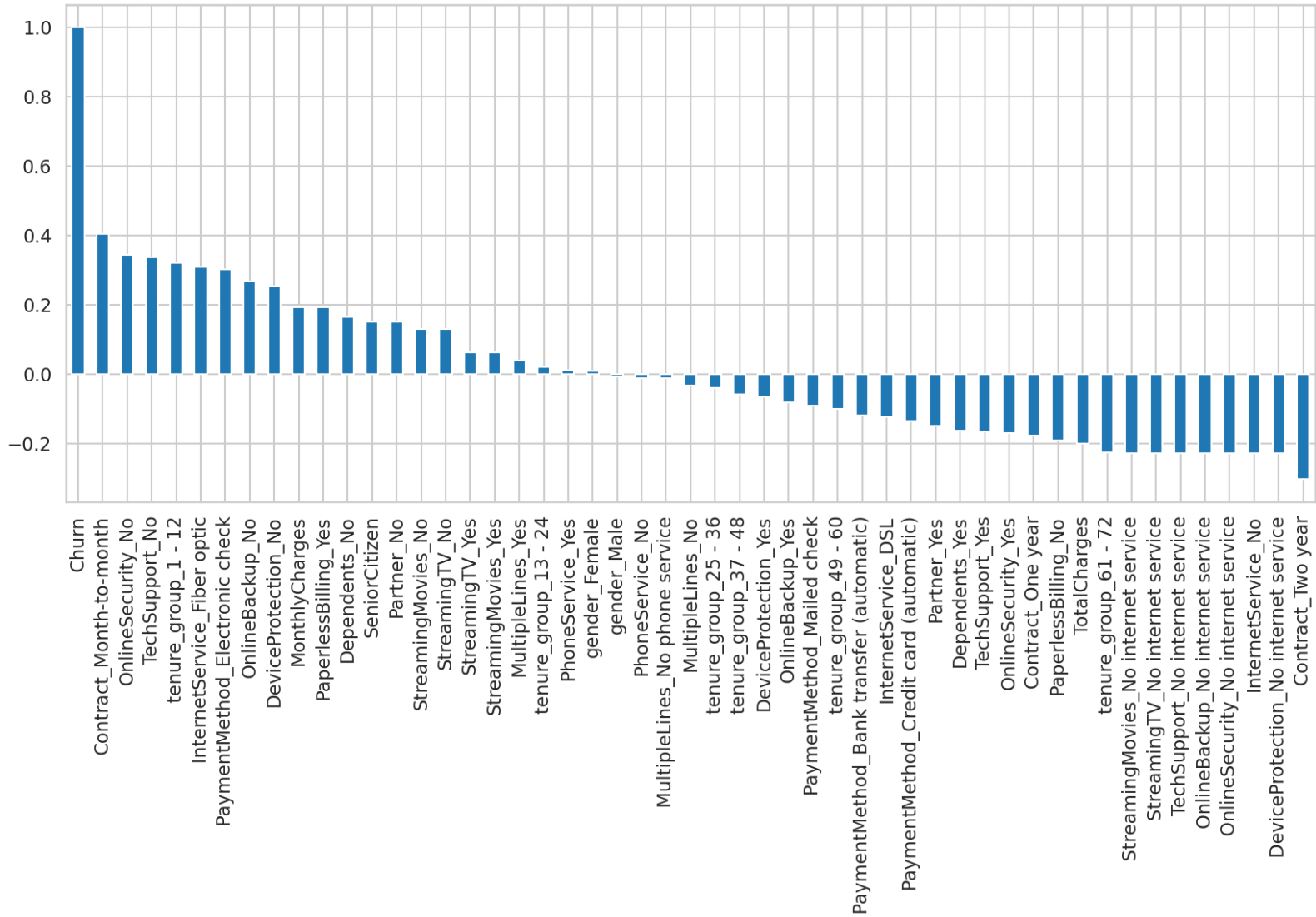


# **NUMERICAL ANALYSIS**

- Churn is high when Monthly charges are high.

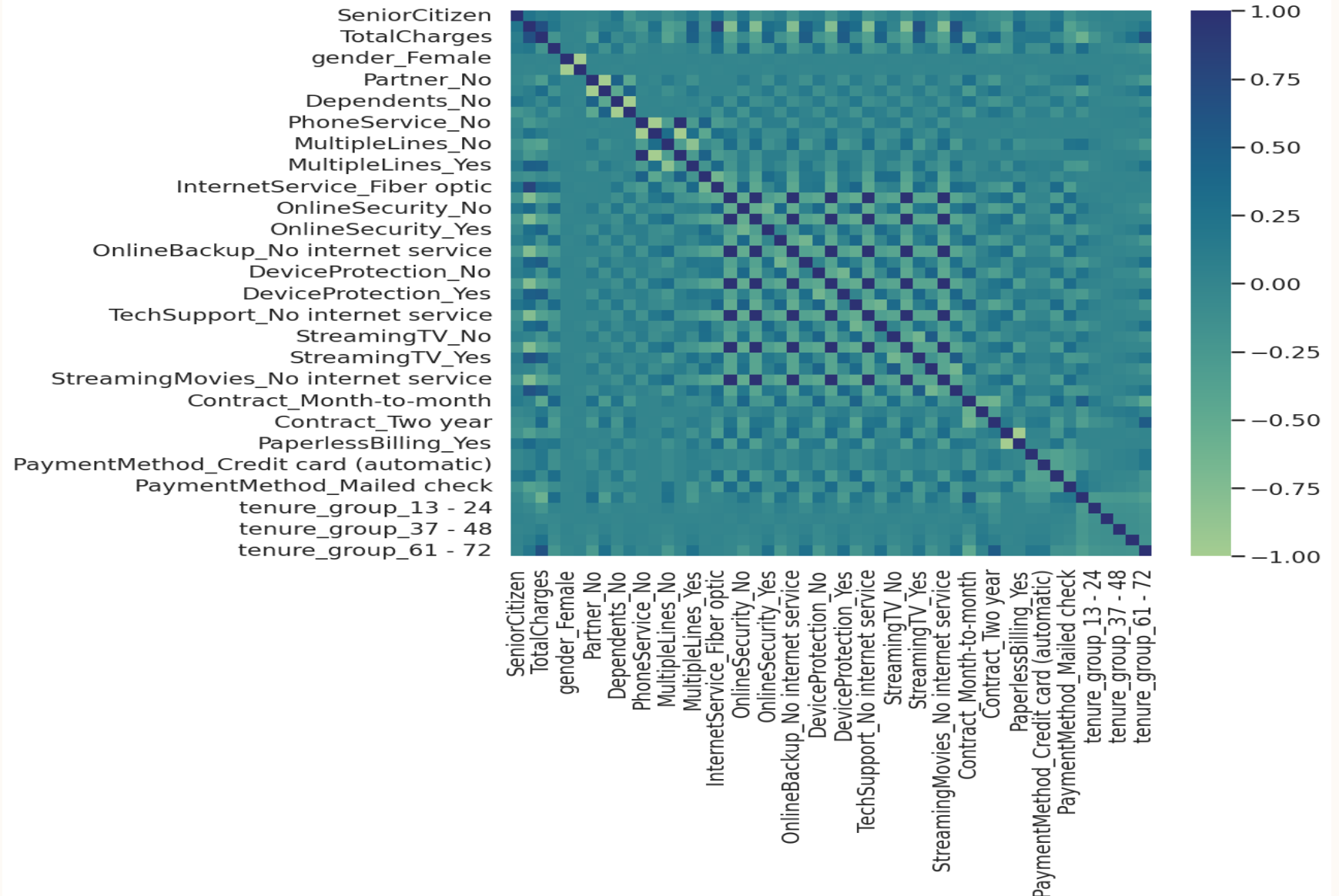


- High Churn seen in case of Month to Month customers, No online security, No Tech Support, 1-12 tenure group
- Low Churn is seen in the case of long-term contracts, subscriptions without internet, customers engaged for 5+ years





# CORRELATION



# FINDINGS

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- 1.Month-to-Month Contracts:** Customers on month-to-month contracts are more likely to churn, indicating a potential need for strategies to encourage longer-term commitments.
- 2.Senior Citizens:** Senior citizens are more prone to churn, suggesting the importance of tailoring services and communications to this demographic for improved retention.
- 3.Dependents:** Customers with dependents show a lower churn rate, emphasizing the positive impact of family-related services or packages.
- 4.Streaming Habits:** Non-engagement in streaming services correlates with higher churn, highlighting the significance of content offerings in customer retention efforts.
- 5.Tech Support and Device Protection:** Lack of tech support and device protection contributes to higher churn, signaling the importance of comprehensive customer support services.
- 6.Tenure:** Customers in the initial 1-12 months exhibit high churn, emphasizing the need for early intervention and targeted retention efforts during this critical period.
- 7.Billing Preferences:** Opting for paperless billing is associated with higher churn, indicating a potential need for evaluating and improving the paperless billing experience.
- 8.Phone Services:** Active users of phone services demonstrate a higher churn rate, suggesting the need for improvements or incentives to retain this customer segment.
- 9.Internet Services:** Female users of optic internet with or without online security show a higher churn rate, indicating potential areas for service enhancement or targeted promotions.
- 10.Gender and Device Protection:** Females without device protection exhibit higher churn, suggesting the importance of promoting protective services among female customers.
- 11.Partner Status:** Females without partners are more likely to churn, indicating potential areas for targeted retention strategies for this demographic.
- 12.Payment Method:** Males using credit cards and electronic cheque services demonstrate higher churn, suggesting a need to explore payment-related incentives or communication strategies.

**THANK YOU**