

Telecom Churn Analysis

supervised by:
Dr DoaaMahmoud

Eng:Abdulrahman
Tarek



01 - Introduction

02- EDA

03 -BUSINESS QUESTIONS

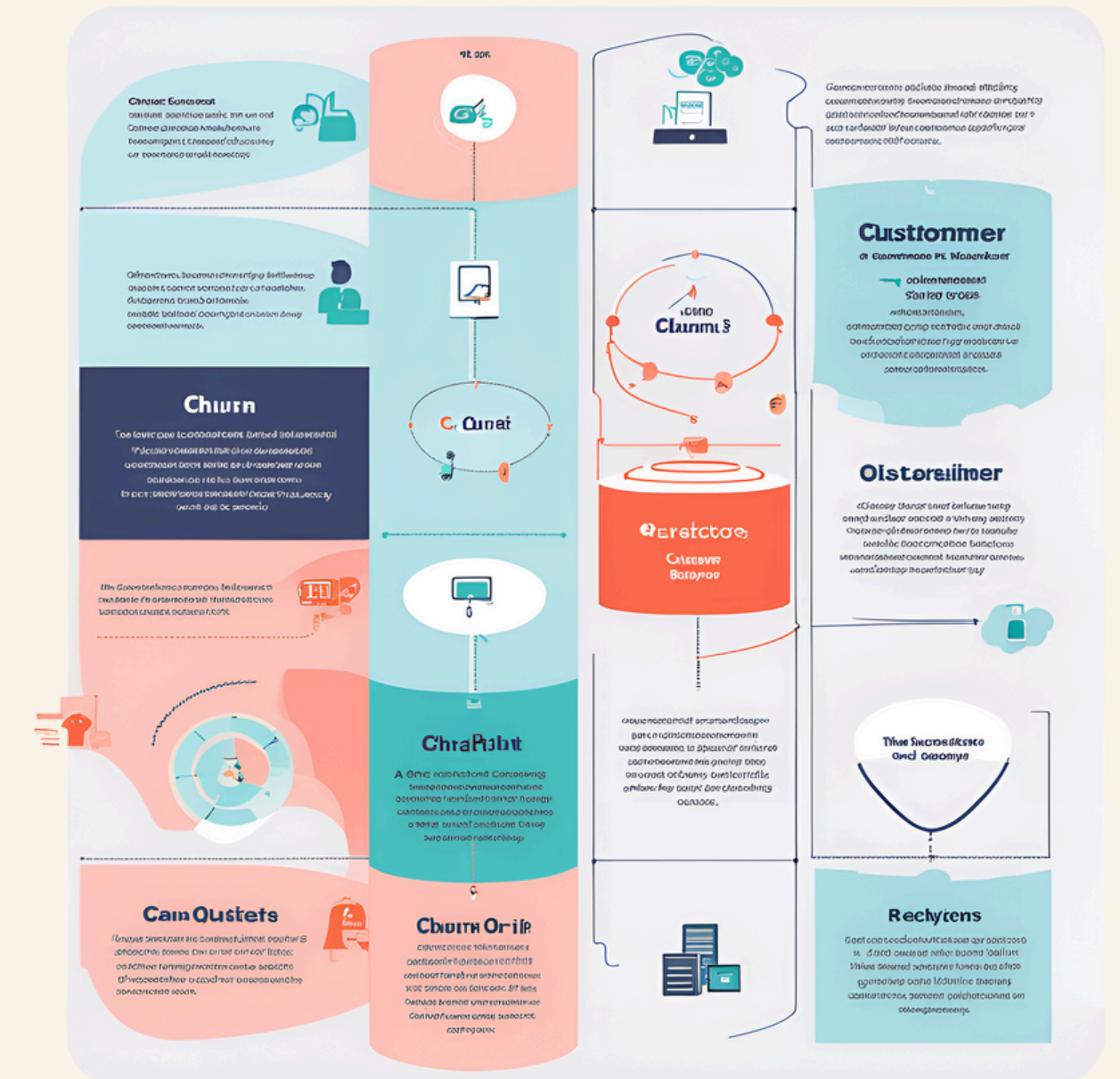
04 - BUSINESS solutions

05 - Conclusions



01 – Introduction

In today's highly competitive telecom market, understanding customer behavior and identifying factors leading to customer churn is crucial for maintaining a strong customer base. Churn rate, the percentage of customers who stop using a company's services during a given time period, is a key metric for telecom companies. By analyzing churn data, companies can develop strategies to retain customers and enhance overall customer satisfaction.



Data Overview:

- **CustomerID**
- **Gender**
- **SeniorCitizen**
- **Partner**
- **Dependents**
- **Tenure**
- **PhoneService**
- **MultipleLines**
- **InternetService**
- **OnlineSecurity**

- OnlineBackup** •
- DeviceProtection** •
- TechSupport** •
- StreamingTV** •
- StreamingMovies** •
- Contract** •
- PaperlessBilling** •
- PaymentMethod** •
- MonthlyCharges** •
- TotalCharges** •
- Churn** •

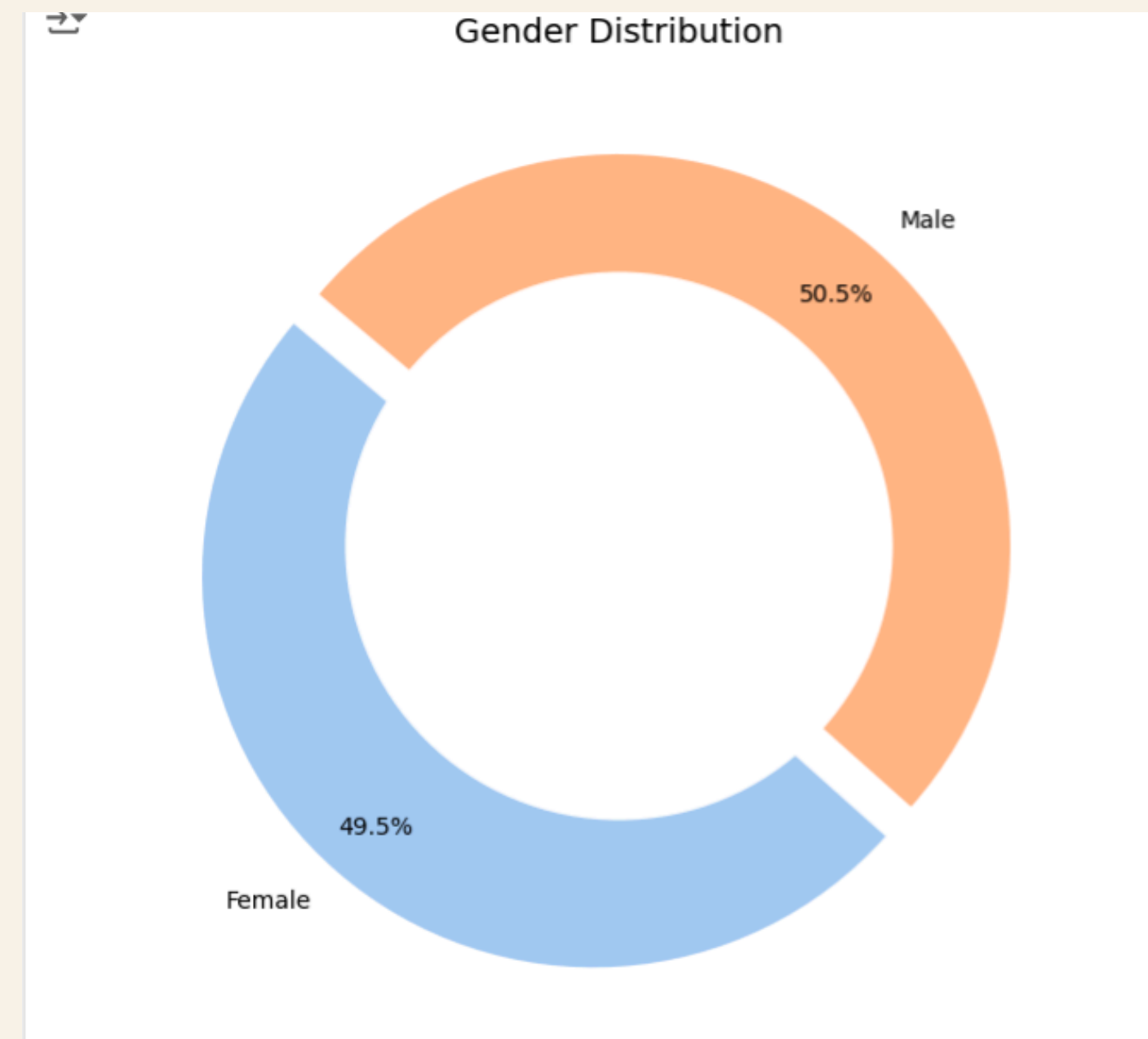
02 - EDA

The results show a fair balanced distribution:

Male: 50.5%

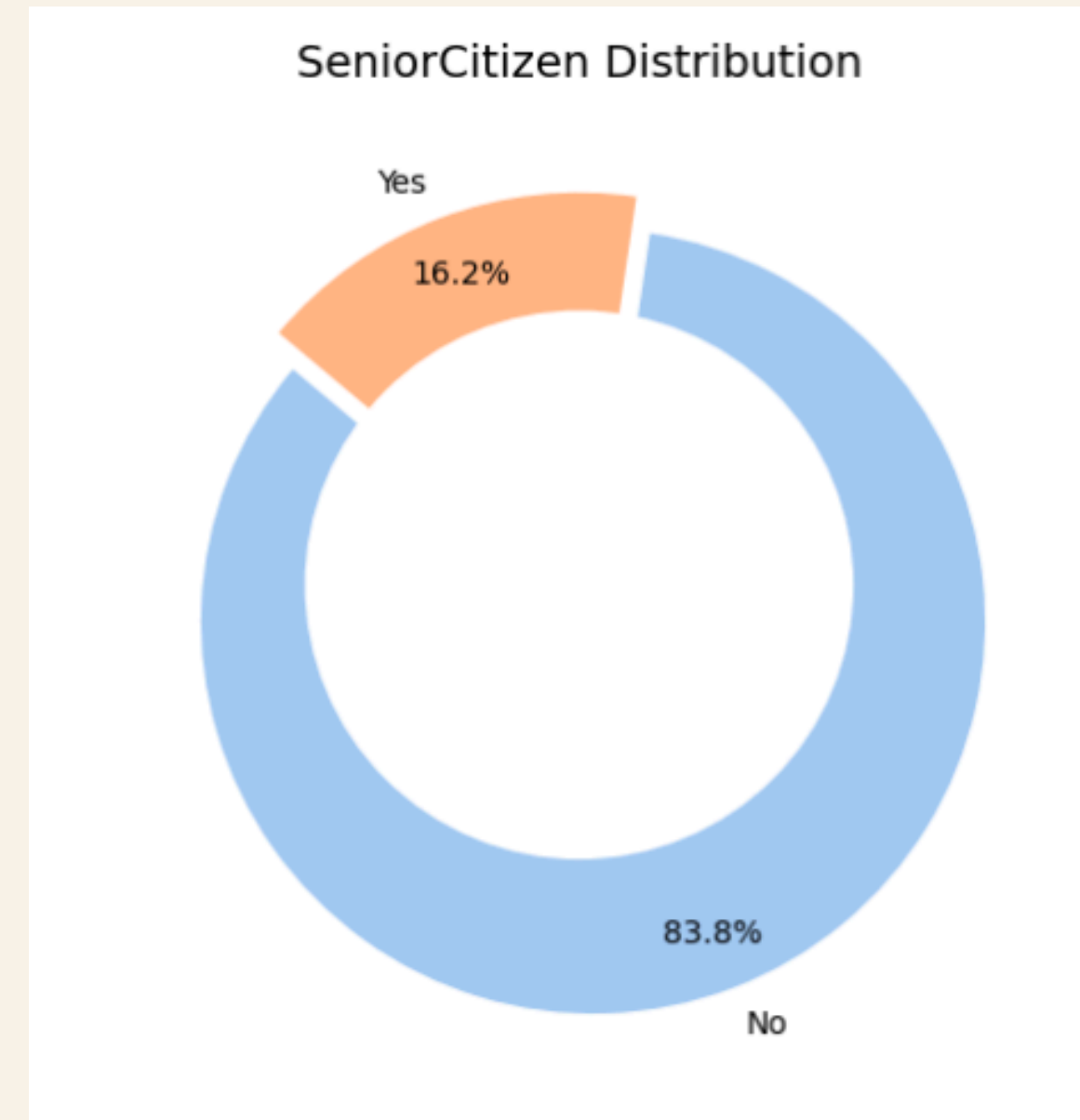
Female: 49.5%

This almost equal split indicates that our customer base is not significantly skewed towards one gender



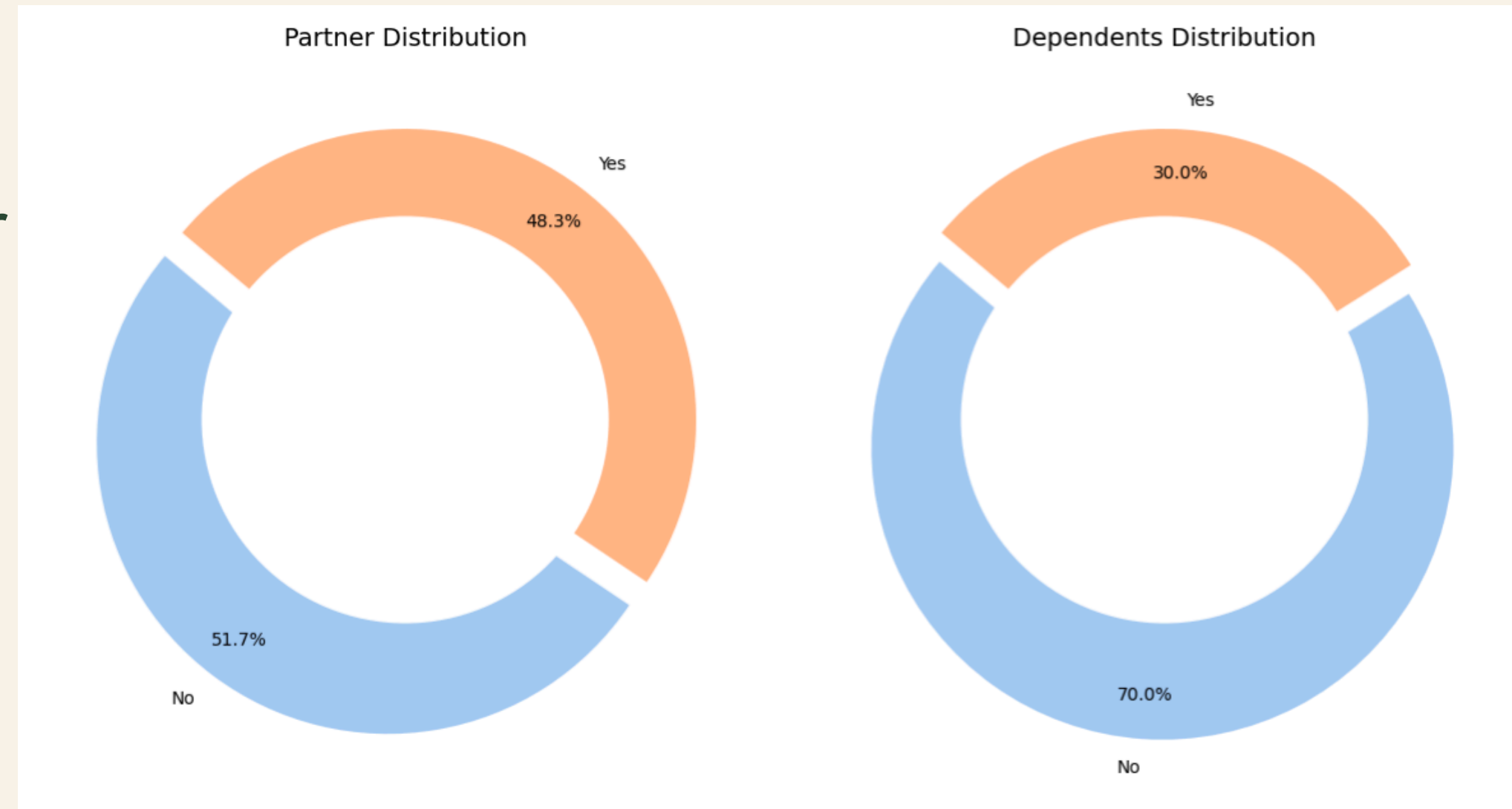
Senior Citizens

Among our customers, 16.2% are classified as senior citizens (aged 65 or older), while the majority, 83.8%, are not senior citizens.



Partner and dependent

- Dependents: "30% of customers have dependents, while 70% do not. This helps tailor services for those with dependents."
- Partner: "48.3% of customers have a partner, compared to 51.7% without. This guides our customer engagement strategies."



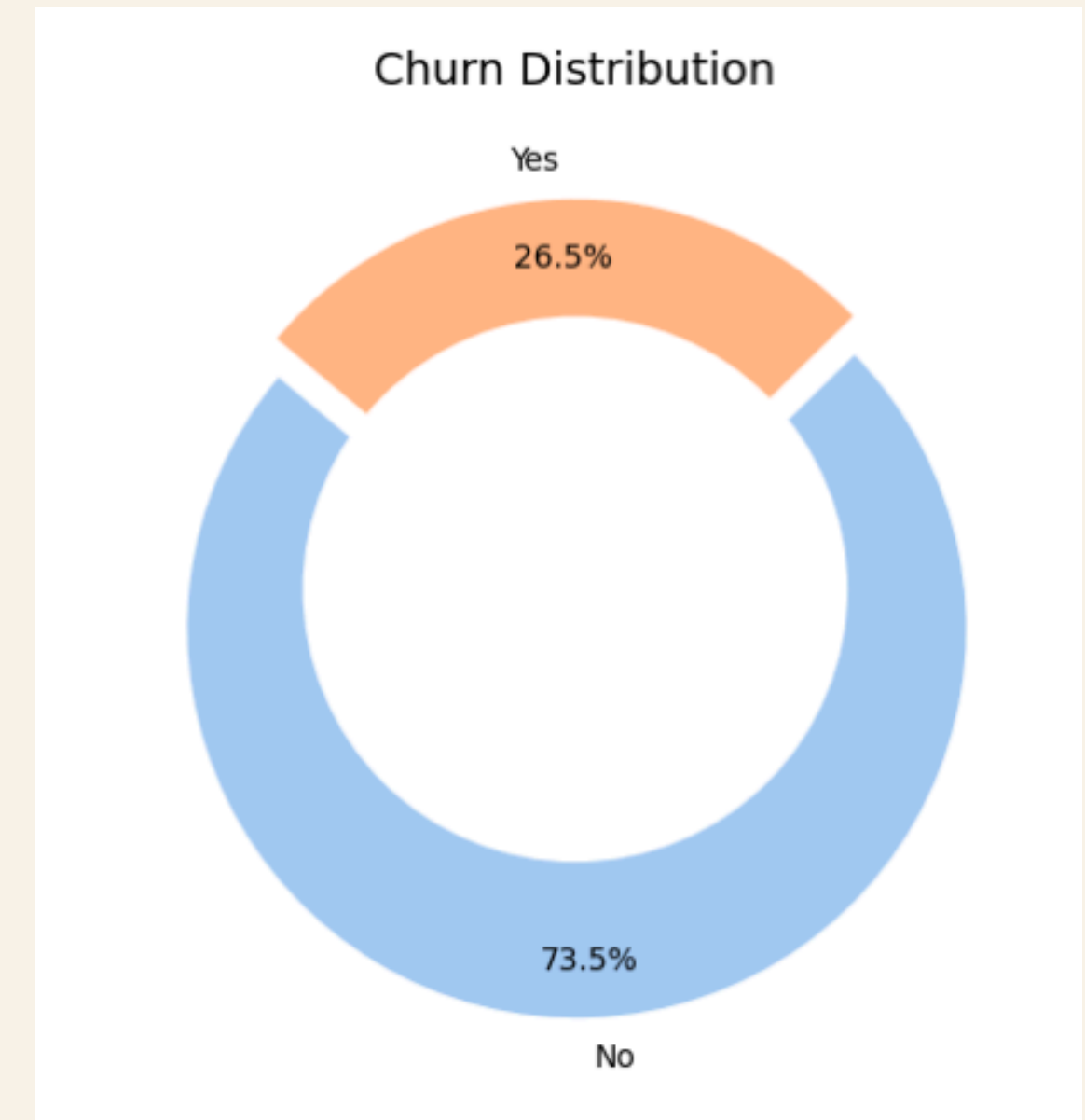
Churn Rate

To understand the overall churn rate in our dataset we analyzed the proportion of customers who have churned (left the company) versus those who have stayed. The results are as follows

No (Did not churn): 73.5%

Yes (Churned): 26.5%

This means that approximately one-quarter of our .customers have left the company



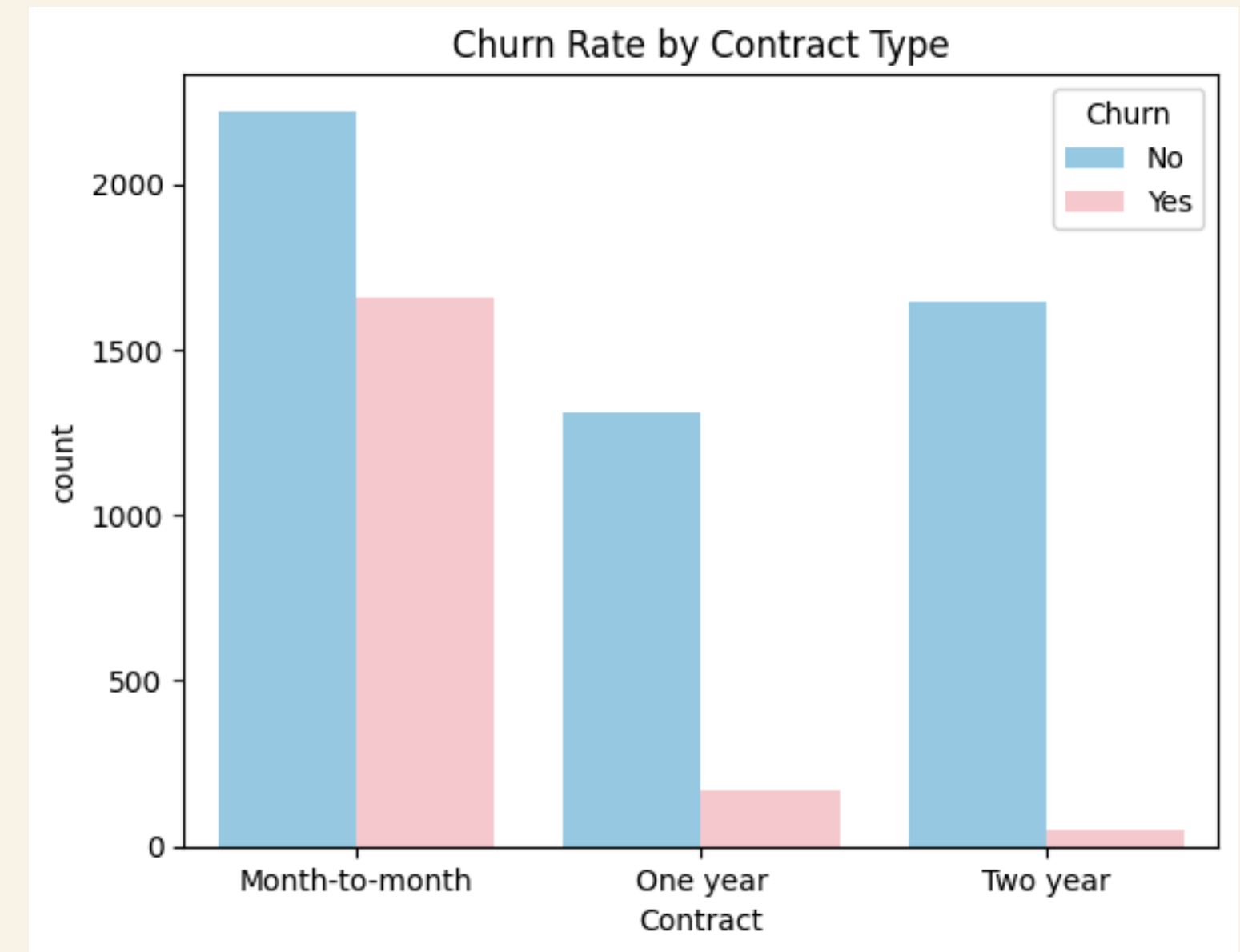
Churn by Contract Type:

To understand how contract types affect customer churn, we analyzed the churn rates for different contract types: Month-to-Month, One Year, and Two Year. The results indicate the following trends:

Month-to-Month: Highest churn rate

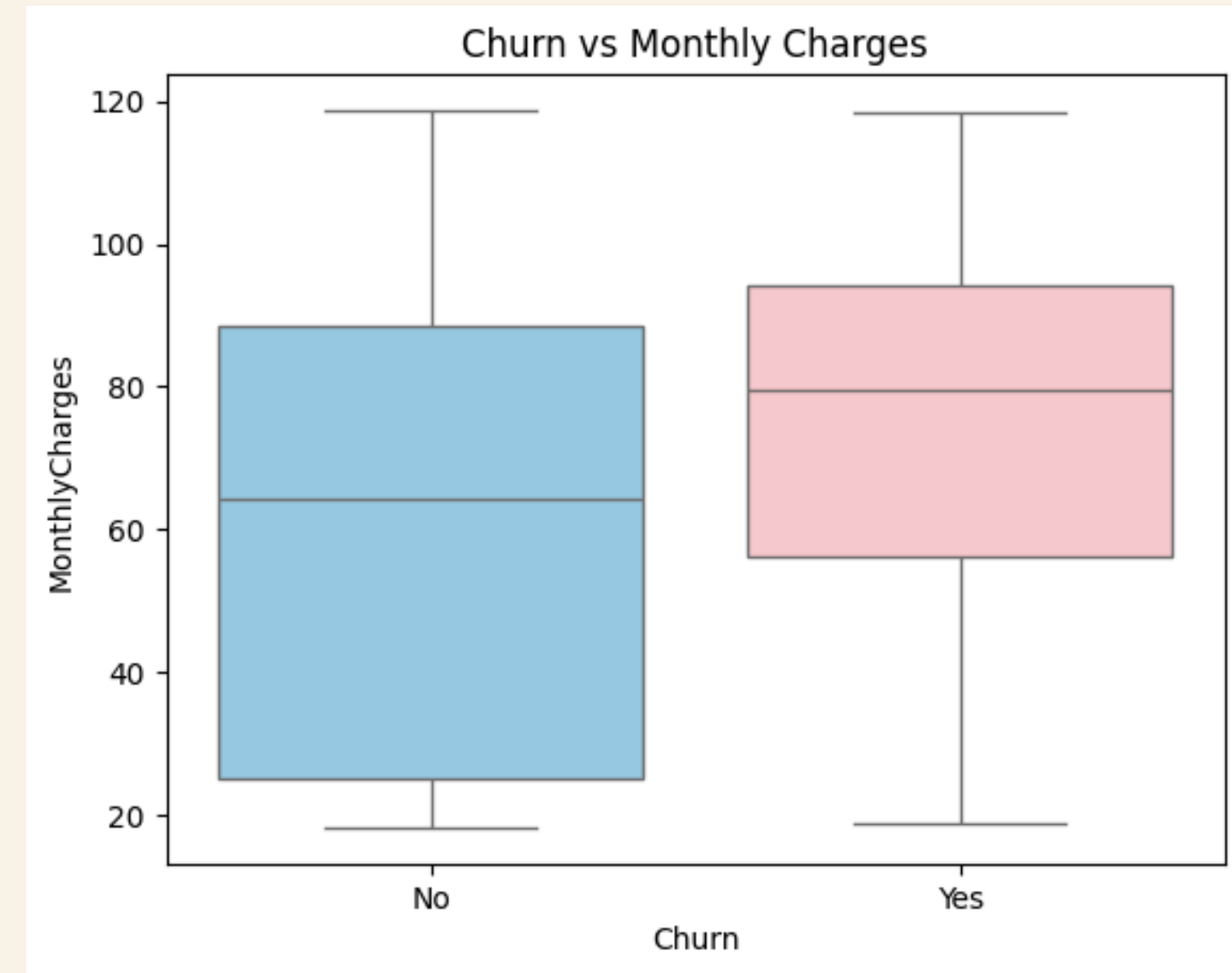
One Year: Moderate churn rate

Two Year: Lowest churn rate



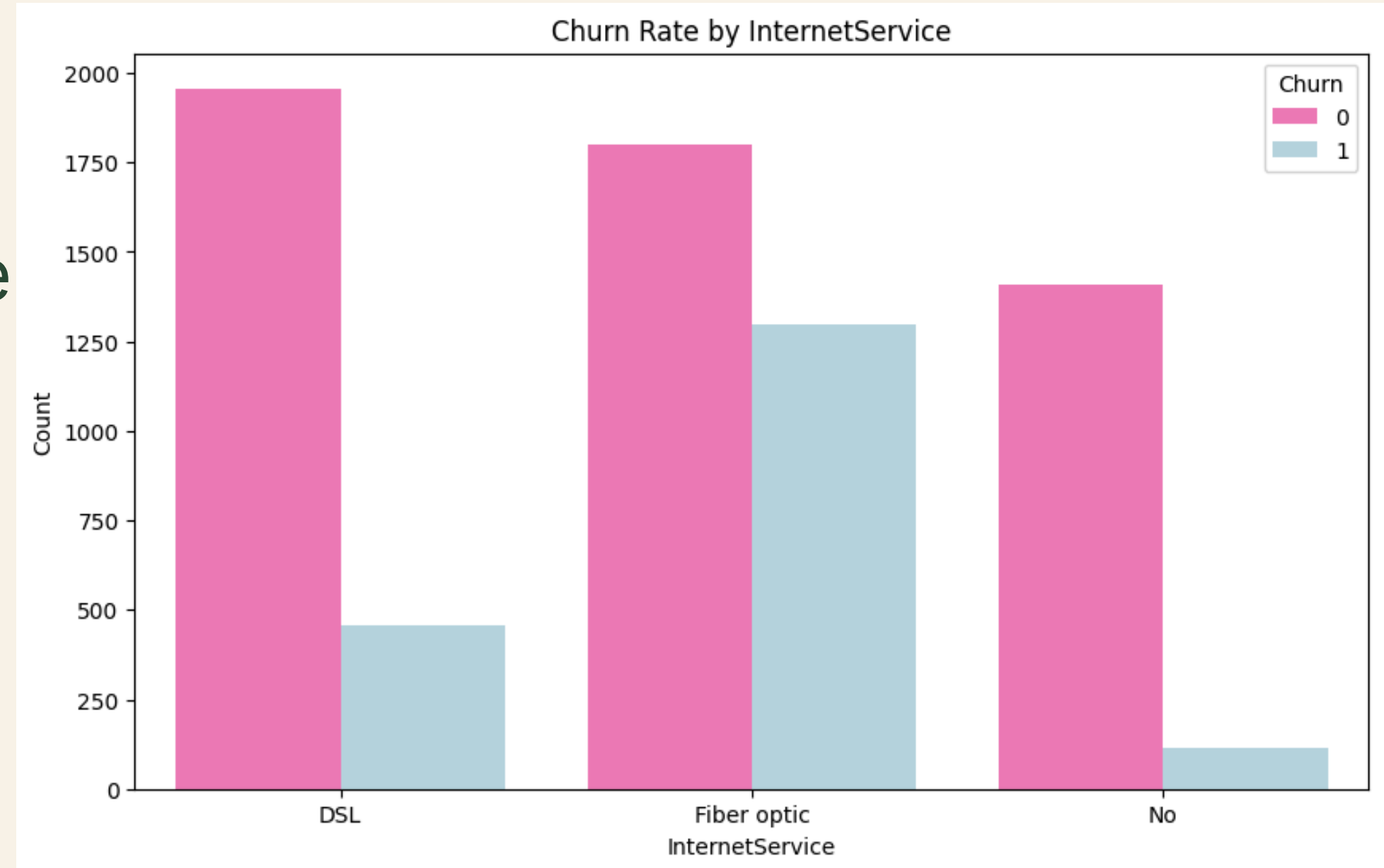
Churn and Monthly Charges:

The box plot above shows that customers who churn (Yes) tend to have higher monthly charges than those who do not churn (No). This suggests that higher monthly charges may be a contributing factor to customer churn.



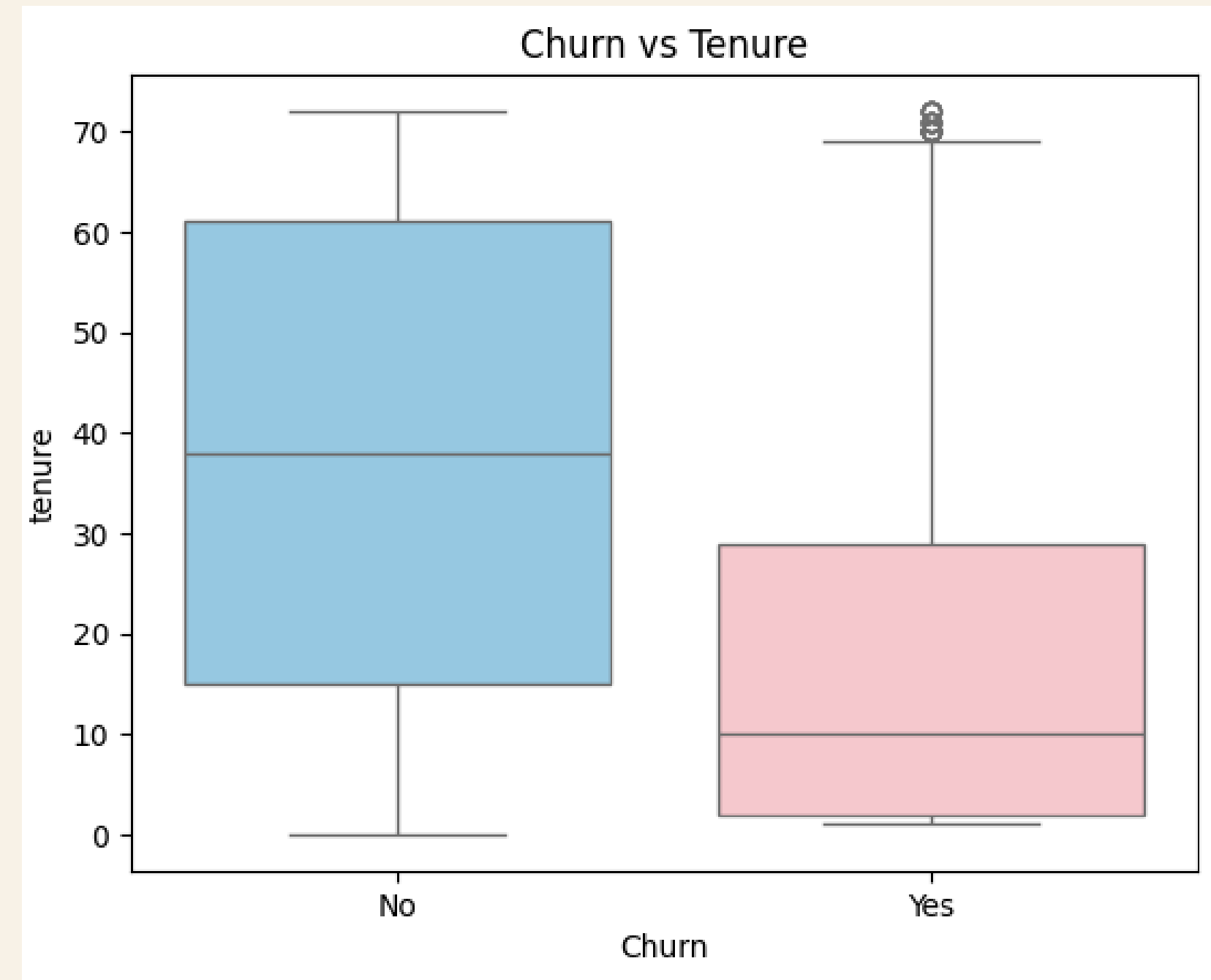
Churn vs Internet Service:

As we can see from the below plot, the fiber optic internet service is the higher churn rate



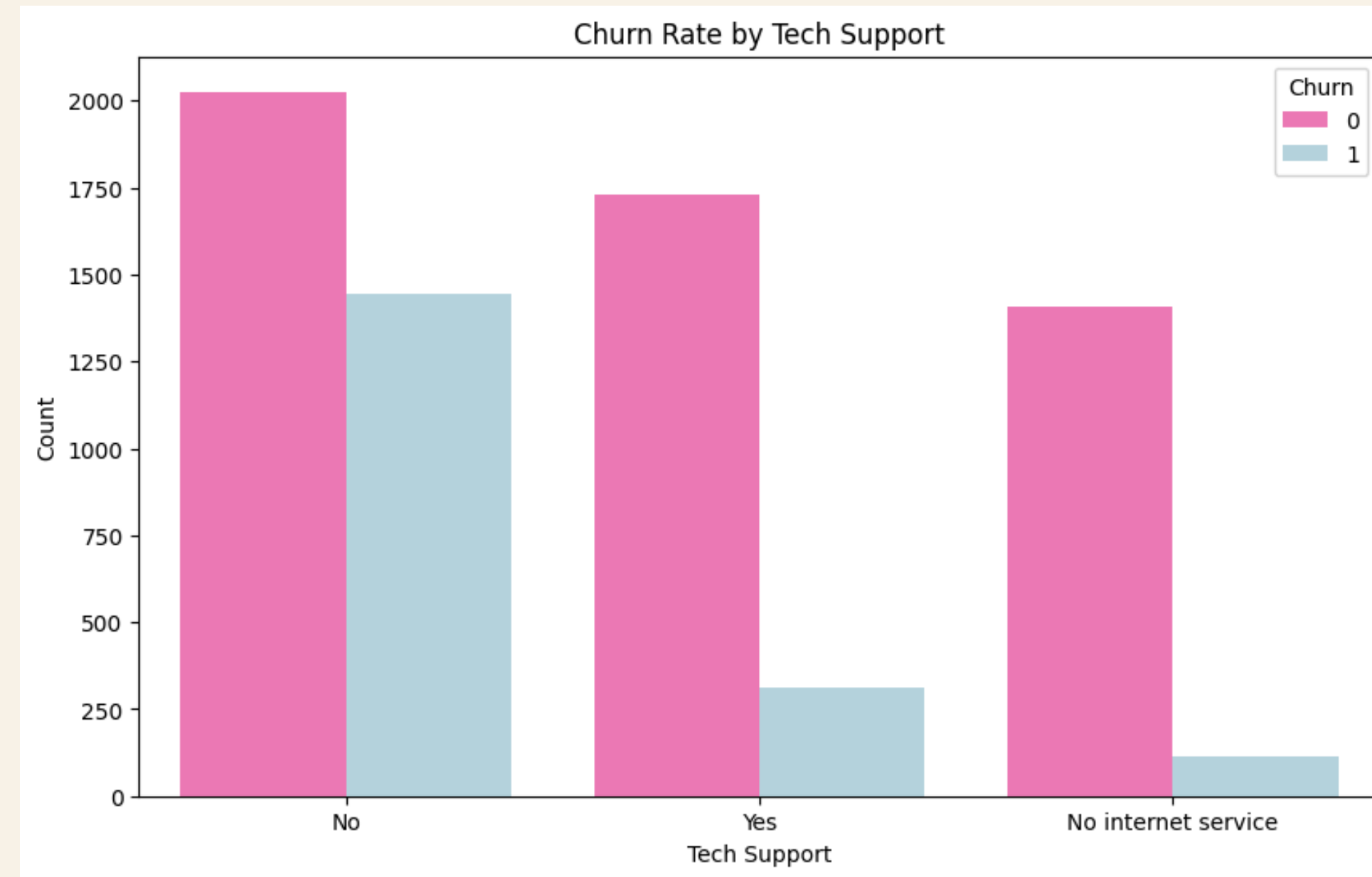
Churn vs Tenure:

As we can see from the below plot, the customers who do not churn, they tend to stay for a longer tenure with the telecom company.



Churn and Tech Support:

It seems that there is higher churn with no tech support.



03 -BUSINESS QUESTIONS

- Who is the most important customer in the company ?
- What factors are most strongly associated with customer churn?
- How long do our customers typically stay with us?

04 - BUSINESS solutions

important customer

⇒ Top 5 Customers with Highest Monthly Charges:

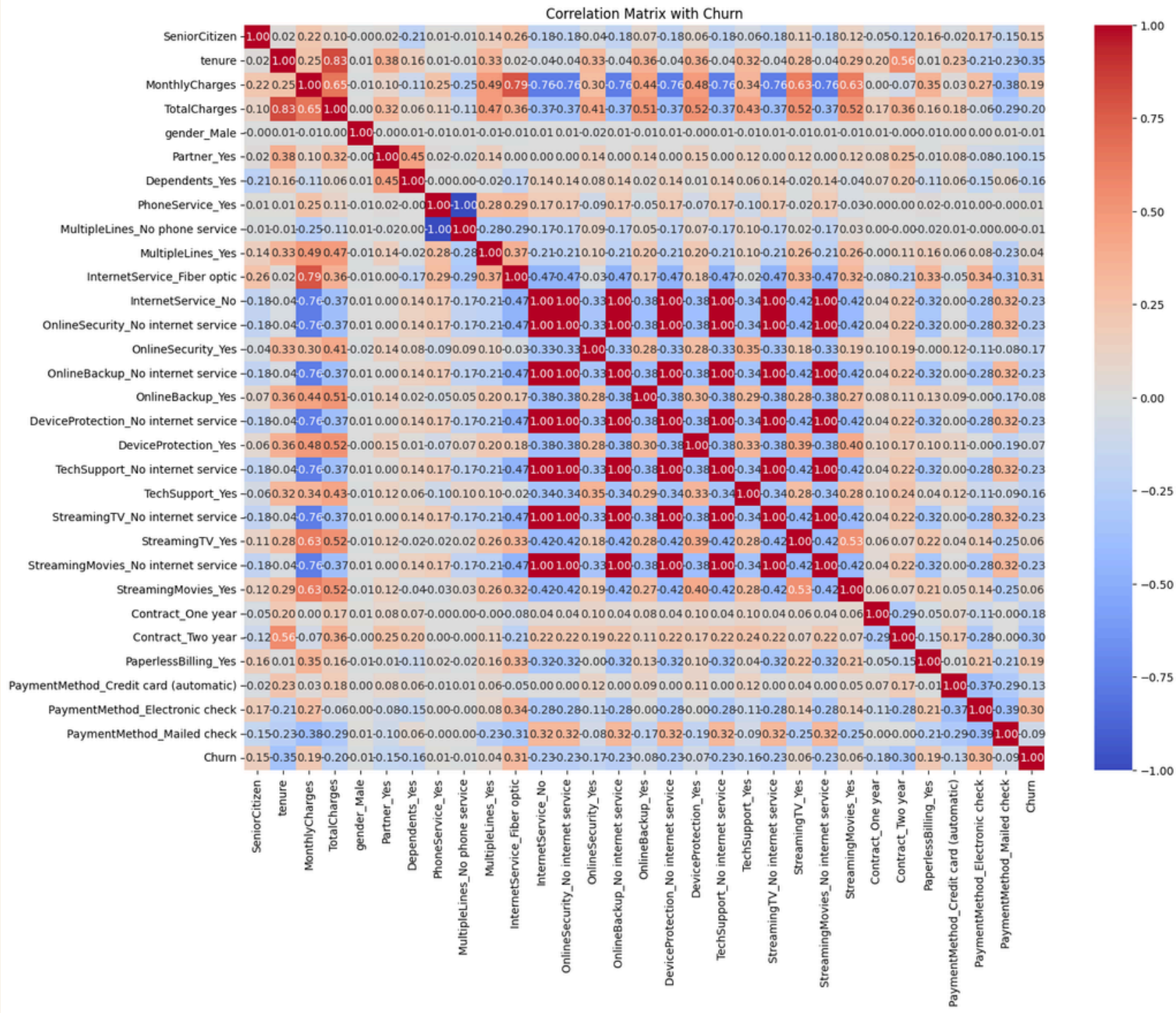
	customerID	MonthlyCharges
4586	7569-NMZYQ	118.75
2115	8984-HPEMB	118.65
3894	5989-AXPUC	118.60
4804	5734-EJKXG	118.60
5127	8199-ZLLSA	118.35

⇒ Top 5 Customers with Highest Total Charges:

	customerID	TotalCharges
4610	2889-FPWRM	8684.80
4586	7569-NMZYQ	8672.45
6768	9739-JLPQJ	8670.10
5347	9788-HNGUT	8594.40
2187	8879-XUAHX	8564.75

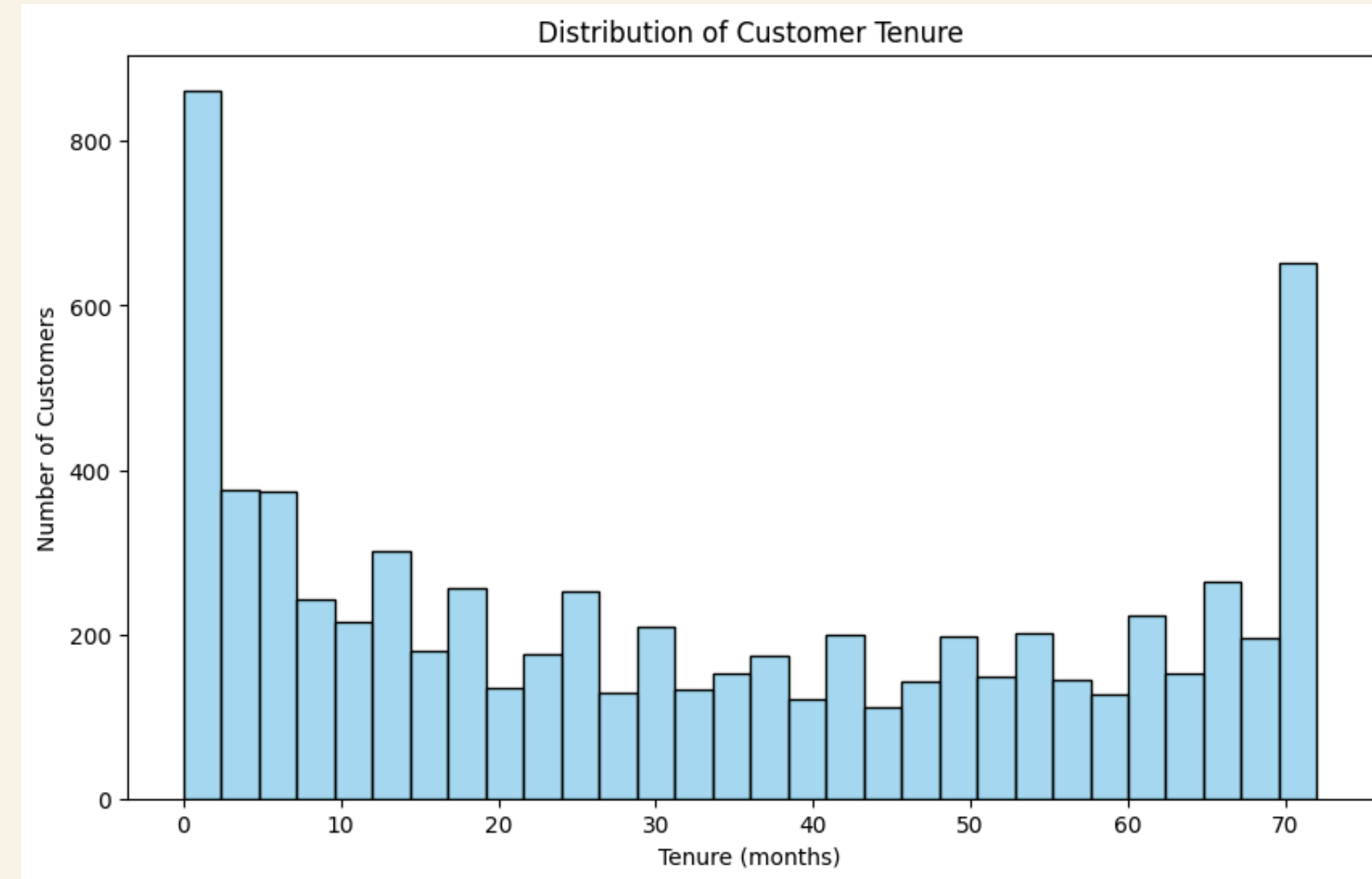
What factors are most strongly associated with customer churn?

- Month-to-Month Contract:0.480
- Tenure: 0.352
- Fiber Optic Internet: 0.308
- Electronic Check Payment:0.302
- No Tech Support: 0.385



How long do our customers typically stay with us

Mean Tenure: 32.37 months
Median Tenure: 29.0 months



05 - Conclusions

Churn Rate: About 26.5% of our customers leave us, highlighting a need for retention strategies.

Demographics: Senior citizens and customers without partners or dependents tend to churn more

Service Factors: Customers on month-to-month contracts and those with higher monthly charges are more likely to churn

Recommendations: Tailor retention efforts based on customer demographics, offer better contract options, and improve service quality and Tech Support to reduce churn and foster long-term customer loyalty

Thanks

Abdulrahman
Tarek