# Customer Churn Analysis

Customer churn refers to the process when customers stop using a company's product or service. It is a key indicator of customer dissatisfaction or better alternatives in the market. High churn rates can negatively impact a company’s revenue and growth. Understanding why customers leave helps businesses improve retention strategies. Predicting churn using data analytics enables proactive customer engagement and loyalty building.

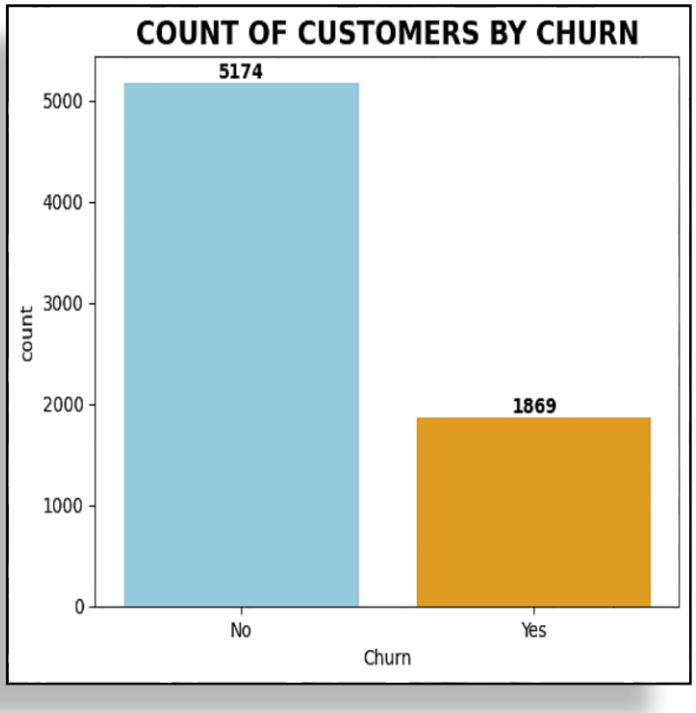
- **Objective:**

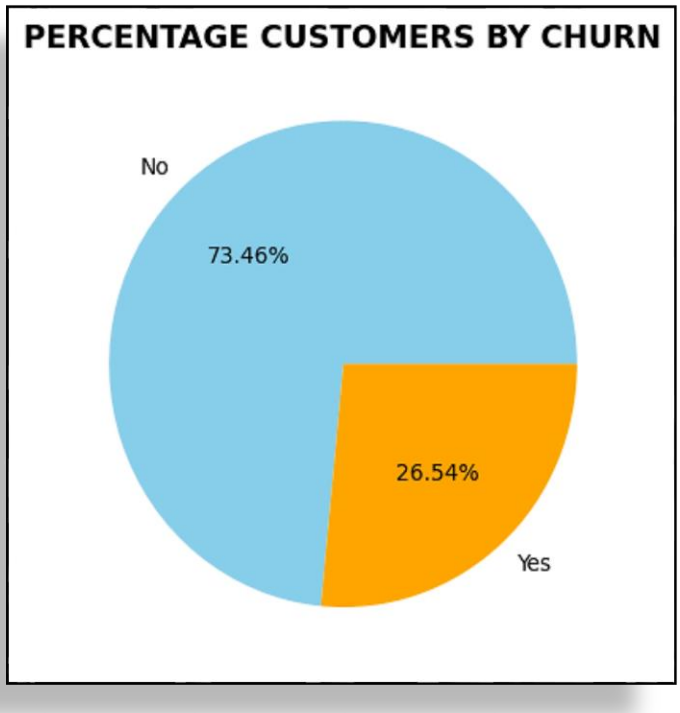
The primary objective of customer churn analysis is to reduce customer attrition and uncovering the underlying causes of customer departure, which can relate to product issues, service quality, pricing, or competitive factors. Using insights from churn analysis to improve products, services, and the overall customer experience.

- **Customer churn analysis process**
  - ✓ Understanding the objectives of the project
  - ✓ Data collection
  - ✓ Data Exploration
  - ✓ Data preprocessing
  - ✓ Exploratory data analysis
  - ✓ Creating insights from data

# Exploratory Data Analysis:

- **Accurately quantify the number of customers who have churned and, separately, the number of customers who are unable to view their total count.**

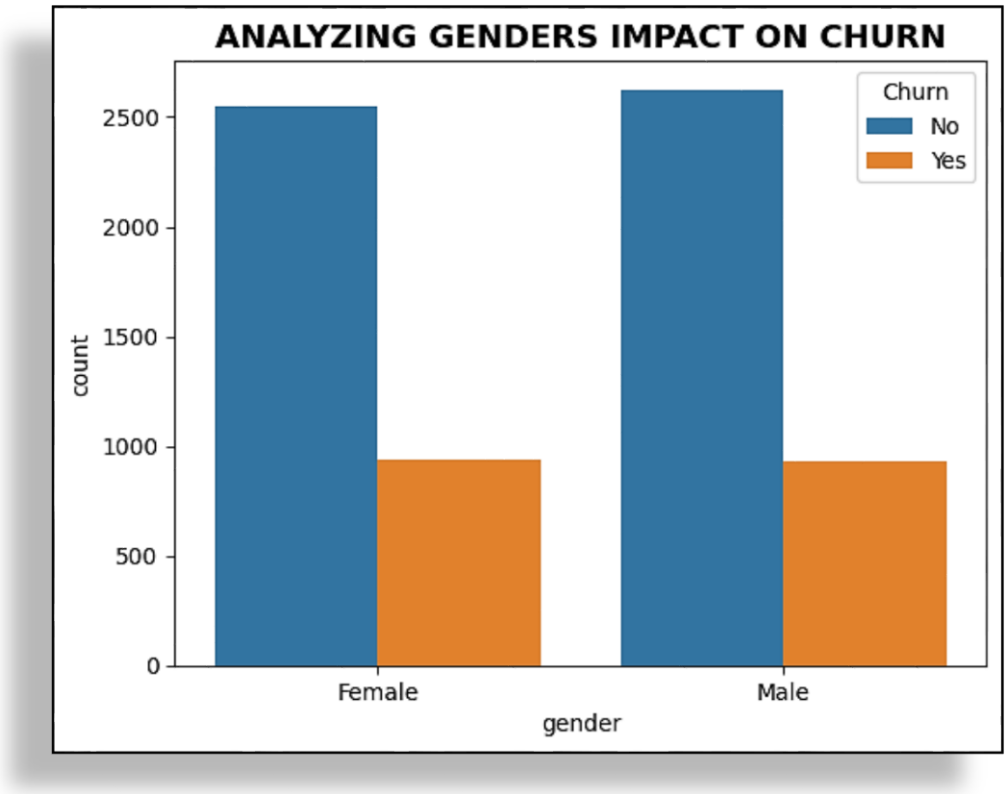



**Conclusion:**

The graph reveals a significant imbalance in customer churn, with 5174 customers not churning versus 1869 who did. This indicates a predominantly stable customer base, as more than twice as many customers are retained than are lost. While churn exists, most customers choose to stay.

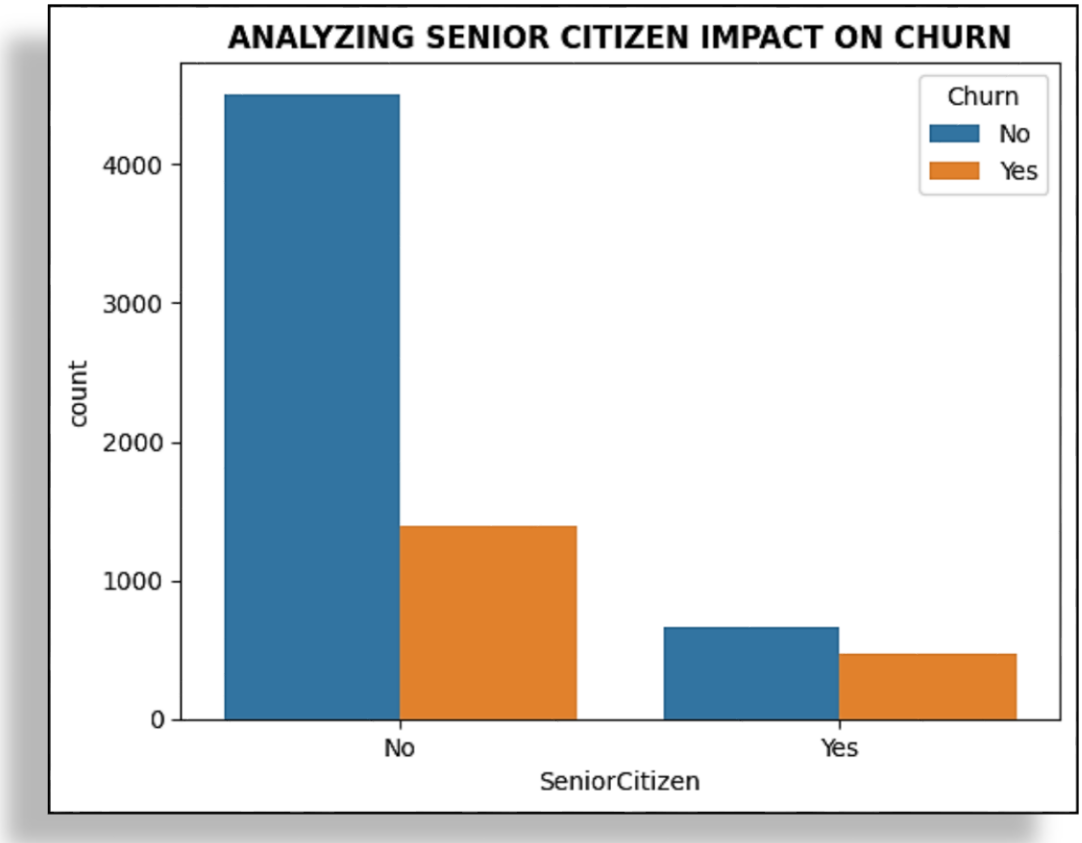
- **Visualize the relationship between customer gender and churn rate, to determine if there is a discernible impact of gender on customers likelihood to churn.**




## Conclusion

The Graph reveals that both female and male customers predominantly do not churn, with "No" churn significantly outweighing "Yes" churn in both groups. While slight numerical differences exist, gender does not appear to be a primary differentiator for customer churn based on these counts.

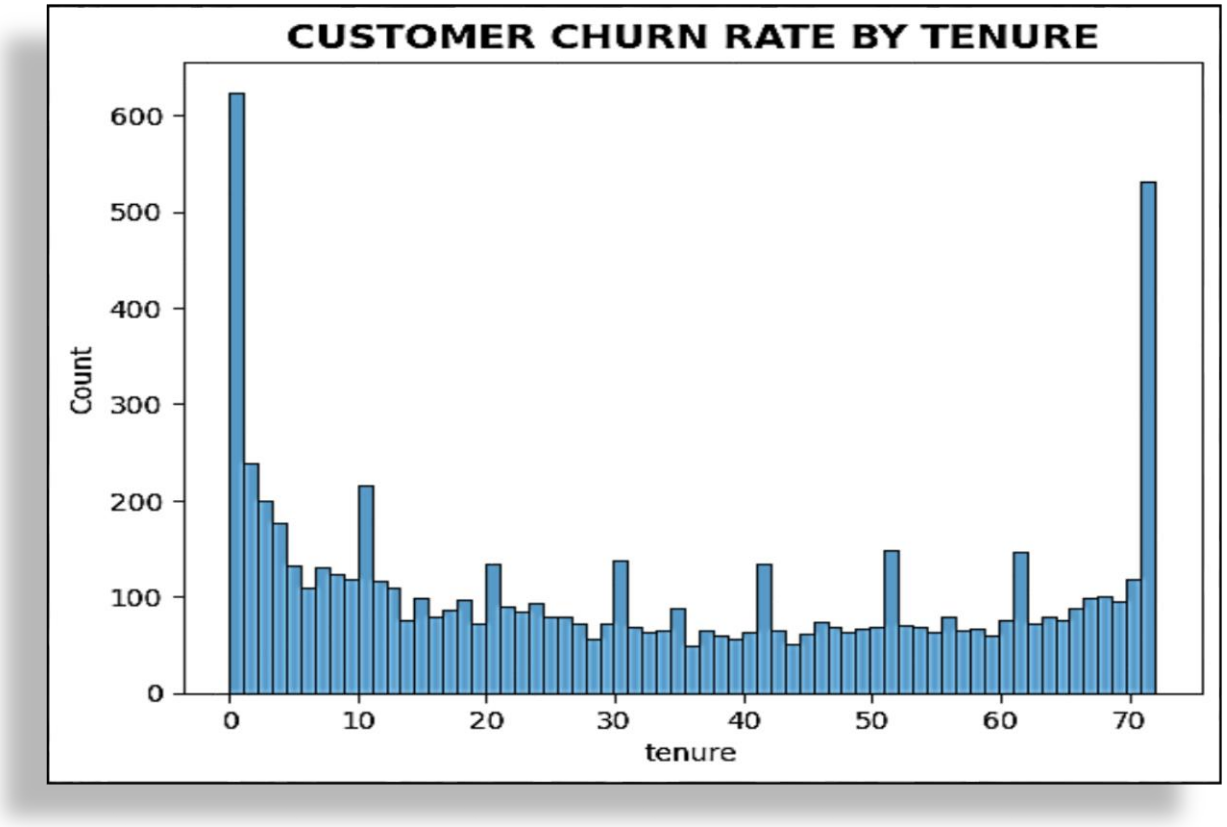
- **Visualize the relationship between senior citizen and churn rate, to determine if there is a discernible impact of senior citizen on customers likelihood to churn.**




**Conclusion**

Most non-senior citizens do not churn, significantly outnumbering those who do. While a smaller proportion of senior citizens exist in the dataset, a larger percentage of them, compared to non-senior citizens, appear to churn. This suggests senior citizen status might correlate with a higher propensity for churn.

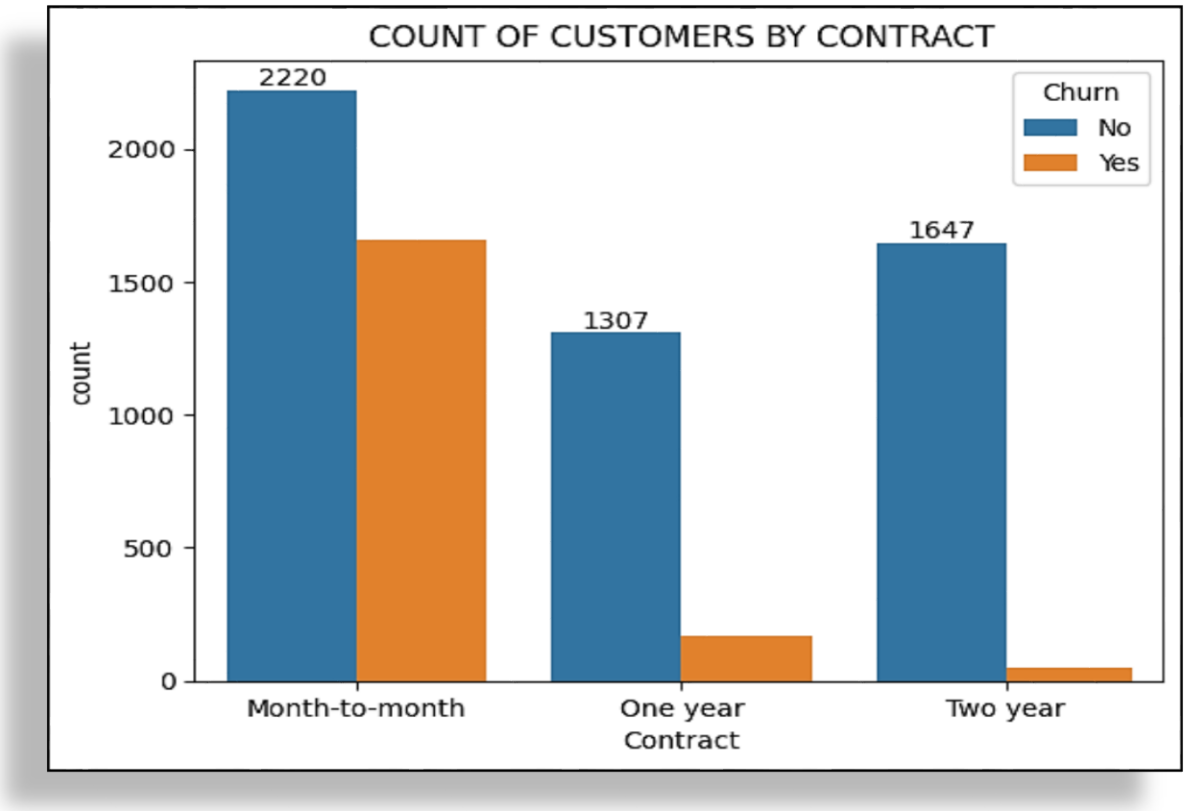
- **Visualize the distribution of customer tenure for both churned and non-churned customers.**




**Conclusion**

This graph reveals that initial customer acquisition is strong, and a significant portion of users become long-term loyalists. The lower counts in mid-tenure periods imply that customers either churn early or commit for extended periods.

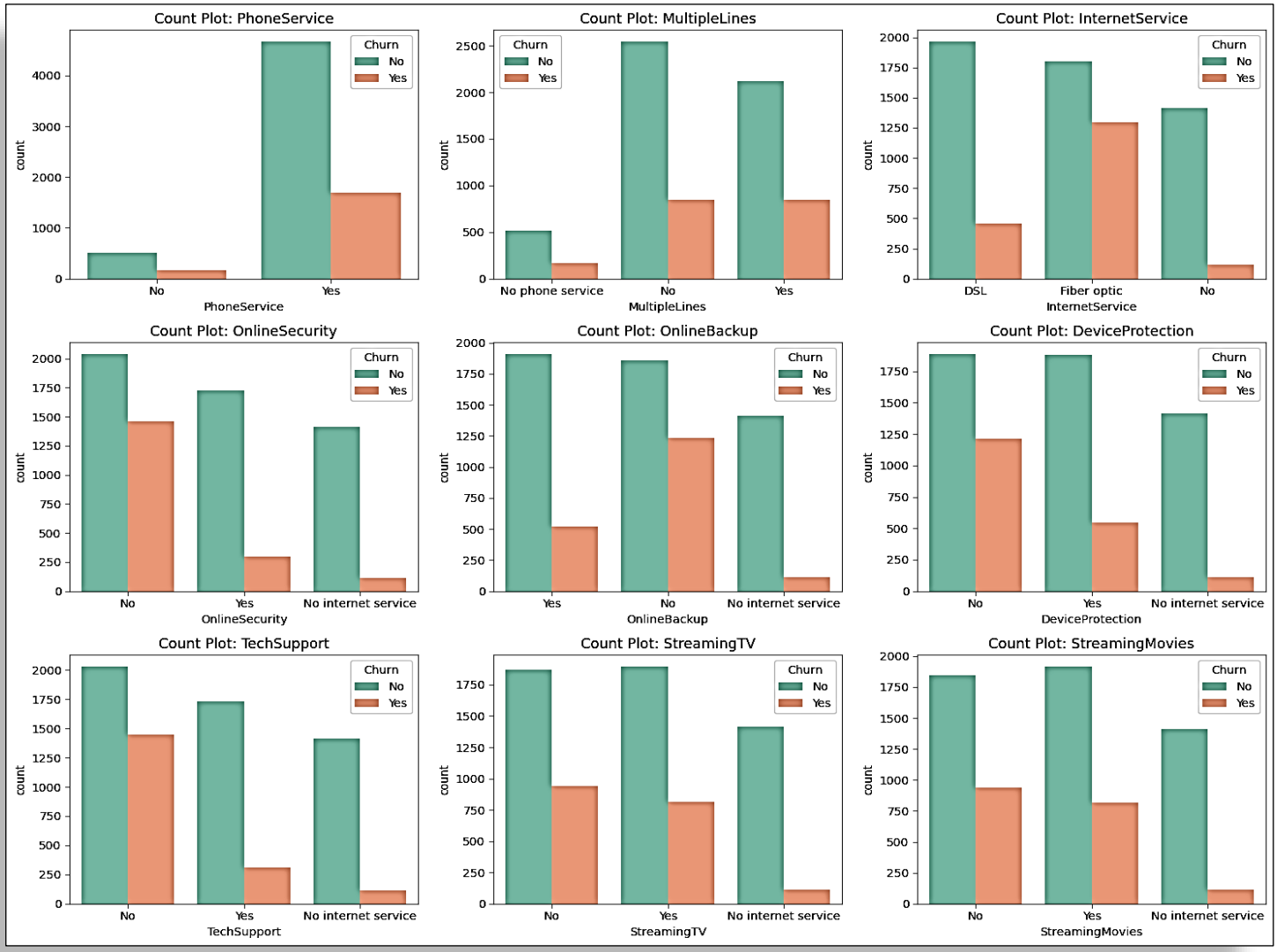
- **Visualize the total number of customers for each contract type and their churn behaviour.**




**Conclusion**

The graph clearly indicates that month-to-month contracts exhibit a significantly higher number of churned customers compared to one-year and two-year contracts. While month-to-month also has the largest customer base, the proportion of churn is notably greater. In contrast, longer-term contracts (one-year and two-year) show dramatically lower churn counts, despite having substantial non-churning customer bases.

- **To identify which specific services or lack thereof (e.g., "No internet service") are most strongly correlated with customer churn. This analysis helps pinpoint areas where service improvements or targeted retention efforts might significantly reduce churn.**




## Conclusion

Across multiple services, customers who *do not* subscribe to certain features (like Phone Service, Online Security, Tech Support, etc., or have "No internet service") or those with "Fiber optic" internet service tend to exhibit higher churn rates. Conversely, customers with multiple lines, DSL internet, or who utilize online security, backup, device protection, tech support, streaming TV, or streaming movies, generally show a lower propensity to churn. This suggests that the type and breadth of services consumed significantly influence churn likelihood.