



# Customer Churn Data Analysis



## Summary

This exploratory data analysis (EDA) focuses on understanding Customer Churn behavior in a telecom dataset comprising 7,043 customers. Using descriptive statistics and well-structured visualizations, the analysis identifies key demographic service-related, contract based and payment related factors influencing customer churn.



## **Overall Churn Overview**

- The overall Churn rate in the data set is 26.54%, meaning approximately one in every four customers has discontinued the service.
- This level of Churn indicates a significant retention challenge and justifies deeper segmentation analysis to identify high-risk customer groups.



## **Demographic Insights**

### **Senior Citizens**

- Senior Citizens exhibits a higher churn percentage compared to non-senior customers.
- Although Senior citizens represent a smaller portion of the total customers base their proportionate churn rate is noticeably higher, indicating a vulnerable segment that may require customized plans or improved support.



## **Tenure-Based Churn Behavior**

- Customers with a tenure of 1-2 months show the highest churn percentage indicating early dissatisfaction or unmet expectations.
- As tenure increases, the churn percentage drops significantly. Showing that.
  - Long-term customers are more loyal.
  - Customers stickiness increases with time and service familiarity.

Insights:- The first few months are critical for customers retention, and targeted onboarding strategies could substantially reduce churn.



## Contract Type Analysis

- Month-to-month contracts accounts for the highest churn percentage among all contract types.
- Customers on:
  - One year contracts
  - Two year contracts

Show a much lower churn percentage, demonstrating the effectiveness of long-term commitments in reducing attrition.



## **Service using patterns**

### Value-Added Services

Customers who do not subscribe to the following services show a higher churn percentage:

- Online Security
- Online Backup
- Tech Support
- Device Protection

Conversely:

- Customers using these services are less likely to churn, indicating higher engagement and perceived value.



## **Phone & Internet Services**

- Phone service users form a majority of the customers base, but churn varies depending on associated plans.
- Among internet service types:
  - ➔ Fiber optic users show a higher churn percentage compared to DSL user.
  - ➔ This may indicate pricing sensitivity or unmet service expectations.



## **Payment Method Analysis**

- Electronic check users have the highest churn percentage among all payment methods.
- Customers using :
  - Credit cards (automatic)
  - Bank transfer (automatic)

Show lower churn percentages, highlighting the role of payment convenience and automation in customer retention.

Manual payment methods correlate strongly with higher churn, suggesting friction in the payment experience.



## **Visualization & Analytical Strengths**

- Countplots, comparative bar charts, and churn-segmented visualization were used effectively to :
  - Compare churned vs retained customers.
  - Display proportional churn behavior across categories.
- Percentage-based interpretations enhanced clarity, making insights more actionable for business stakeholders.



## **Business Implications**

Based on percentage-driven insights:

- Reducing churn among month-to-month customers can have the largest immediate impact.
- Promoting long-term contracts and bundled services can significantly improve retention.
- Encouraging automatic payment methods can reduce churn risk.
- Special attention should be given to early-tenure customers and senior citizens.



## **Conclusion**

The analysis clearly demonstrates that customer churn is not random but strongly associated with :

- Contract duration
- Service adoption
- Tenure length
- Payment method

With an overall churn rate of 26.54% targeted retention strategies informed by these sights can substantially improve customer lifetime value and reduce revenue loss. The charts and percentage-based interpretations provide a strong foundation for both strategic decision-making and stakeholder communication.