

Telco Customer Churn Analysis – Project Summary

In this project, I conducted a detailed **exploratory data analysis (EDA)** on the Telco Customer Churn dataset to uncover key factors influencing customer retention. After performing data cleaning (handling blanks, correcting data types, and removing duplicates), I created several insightful visualizations to interpret churn patterns.

◆ Key Insights from Analysis & Charts:

- **Overall Churn Rate:** Around **26.5% of customers have churned**, as shown by the pie chart.
- **Demographics & Churn:** Senior citizens show a **higher churn percentage** compared to non-seniors. Gender, however, does not have a strong impact on churn.
- **Tenure Effect:** Customers with shorter tenure (1–2 months) are more likely to churn, whereas **long-term customers remain loyal**.
- **Contract Type:** The churn rate is significantly higher among customers with **month-to-month contracts**, while customers with 1–2 year contracts are more stable.
- **Service Features:** Lack of additional services such as **Online Security, Tech Support, and Device Protection** correlates with higher churn. Customers retaining multiple services are less likely to leave.
- **Payment Method:** Customers using **electronic checks** as a payment method show the **highest churn rate**, while those using credit cards, bank transfers, or mailed checks are more stable.

This project focuses on understanding customer churn patterns using the **Telco Customer Churn dataset**. After performing **data cleaning, feature formatting, and exploratory data analysis (EDA)**, I created a series of visualizations to identify the main drivers of churn and retention.

Key Findings from the Analysis

1. Overall Churn Rate

- Out of all customers, **26.5% have churned**, while **73.5% remained**.
 - This indicates that nearly **1 in 4 customers** left the service.
-

2. Demographics & Churn

- **Senior Citizens:** About **42% of senior citizens churned** compared to only **24% of non-seniors**, showing that senior customers are **almost twice as likely to leave**.
 - **Gender:** Male and female customers have **similar churn rates (~26%)**, indicating gender does not significantly influence churn.
-

3. Tenure (Customer Duration)

- Customers with **tenure less than 6 months** show the **highest churn (over 50%)**.
 - In contrast, customers with **tenure above 2 years** have a churn rate of **less than 15%**, proving that **long-term customers are more loyal**.
-

4. Contract Type

- **Month-to-Month Contracts:** **~43% churn rate**, the highest among all.
 - **One-Year Contracts:** Only **11% churned**.
 - **Two-Year Contracts:** Lowest churn rate of just **3%**, showing that **longer contracts strongly reduce churn**.
-

5. Service Features

- Customers **without Online Security** have a churn rate of **42%**, compared to only **15%** for those with it.
 - Similarly, lack of **Tech Support** leads to **40% churn**, while those with support churn at just **17%**.
 - Having **Device Protection, Online Backup, and Streaming Services** also correlates with lower churn rates.
 - Insight: **Additional value-added services significantly improve retention.**
-

6. Payment Method

- Customers paying via **Electronic Check** show the **highest churn rate (45%)**.
 - In comparison, customers using **Bank Transfer, Credit Card, or Mailed Check** have churn rates below **20%**.
 - Insight: **Payment convenience and trust in transaction methods impact customer loyalty.**
-

Overall Conclusion

The analysis highlights that churn is largely influenced by **short tenure, flexible contracts, absence of service add-ons, and electronic check payments**. By targeting these areas—such as promoting **longer contracts, bundling security/tech support services**, and **encouraging secure payment methods**—telecom companies can effectively **reduce churn and boost customer retention**.