Telecom Customer Churn: A Comprehensive Data Analysis Report

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Technology & Tools Utilized :

Data Analysis: Python(Pandas / Numpy)
Visualization: Matplotlib & Seaborn
Tools: Jupyter Notebook , Google Sheets

Date: December 12, 2025

1. Executive Summary

This project analyzes a dataset of telecom customers to identify why customers are leaving (churning). The analysis reveals that over 26% of customers have churned, with the highest risk among new users and those on month-to-month contracts.

2. Problem Statement

The telecom company is losing customers. This report aims to identify:

- Who is leaving?

- Why are they leaving?

- What actions can save them?

2.1. Who is leaving?

Ans: The highest churn rates are found among new customers (0–12 months tenure), users on Month-to-Month contracts, Senior Citizens, and those paying via Electronic Check.

2.2. Why are they leaving?

Ans: The data suggests three main drivers:

a. **Lack of Commitment:** Month-to-month customers have no barrier to canceling.

b. **Payment Friction:** The high failure rate or inconvenience of "Electronic Checks" is driving users away.

c. **Onboarding Gaps:** New users and seniors are leaving quickly, suggesting they are not receiving enough support during their first year.

2.3. What actions can save them?

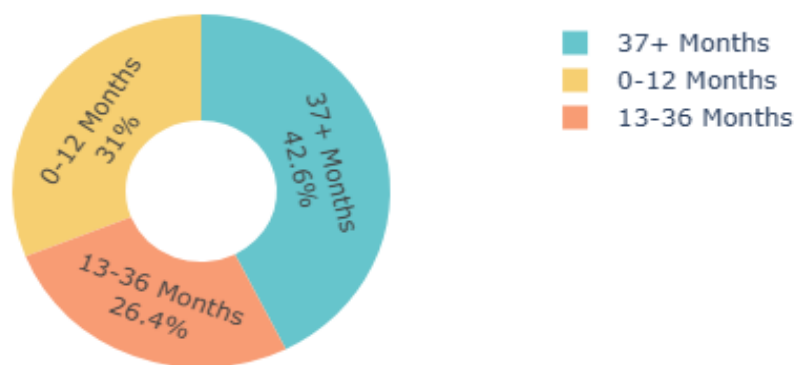**Ans:** To reduce churn, the company should:

a. **Incentivize Contracts:** Offer discounts to move month-to-month users to 1-year plans.

b. **Fix Payments:** Nudge users toward automatic Credit Card payments to avoid "Electronic Check" issues.

c. **Improve Support:** Launch a "Welcome Program" specifically for new sign-ups and Senior Citizens.

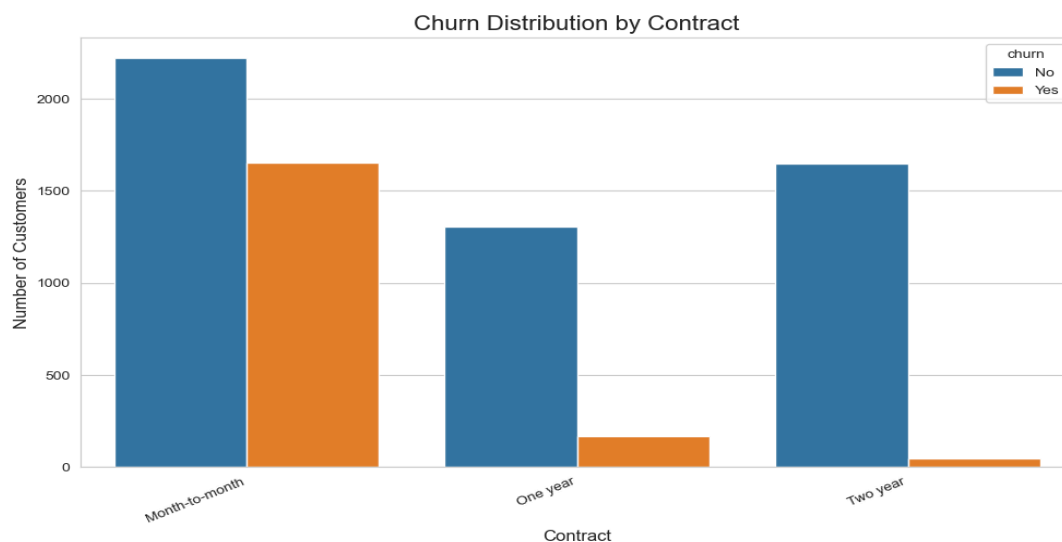# 3. <u>Findings & Charts</u>

3.1. <u>Key Data Findings</u>

Finding #1: High Churn Among New Customers The data shows that new customers are the most likely to leave. As seen in the chart below, the 0-12 month tenure group makes up 31% of the customer base and has the highest turnover.
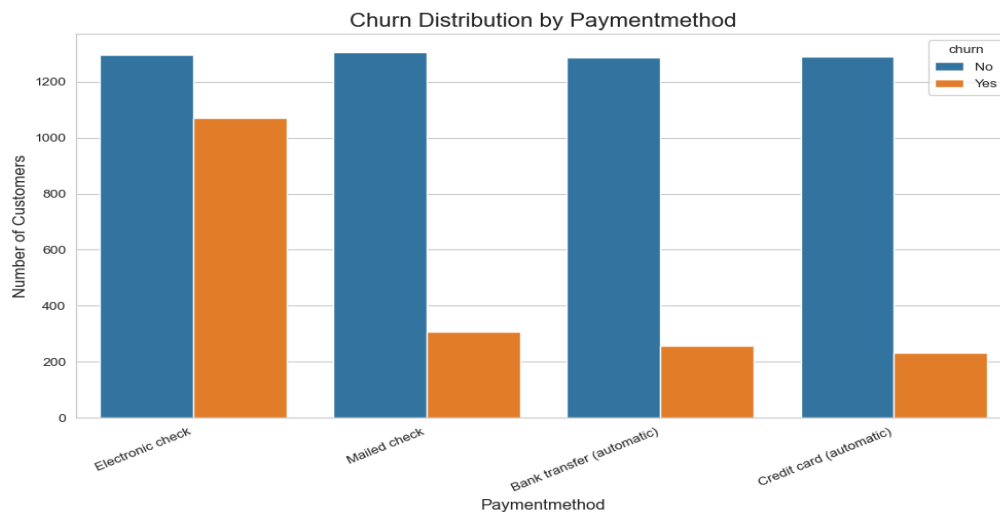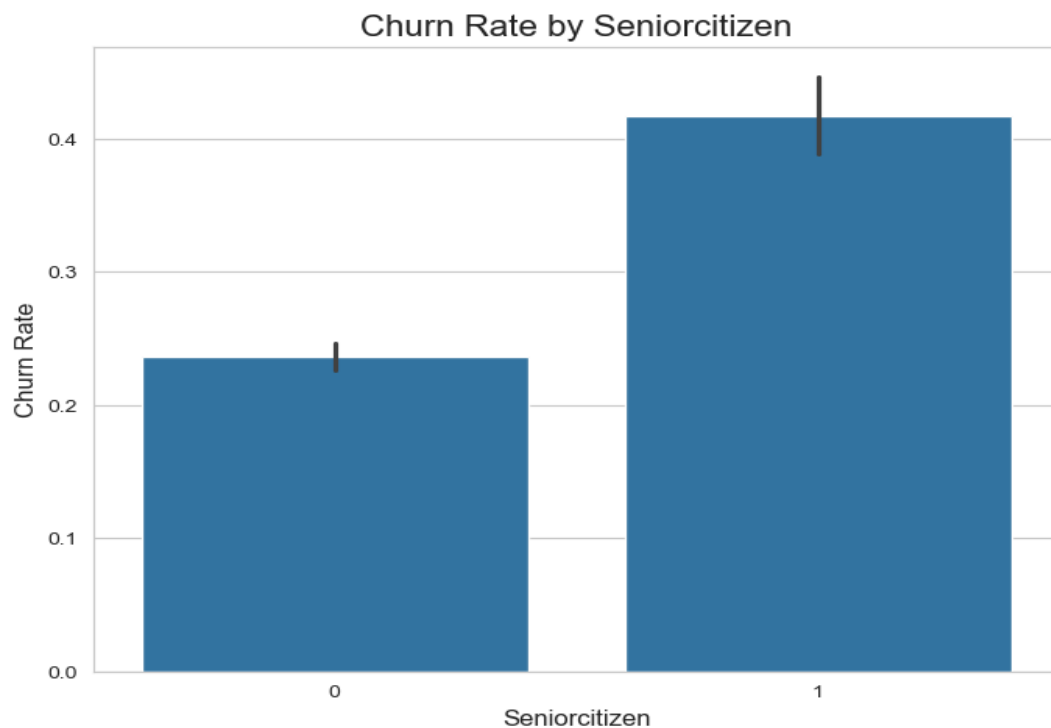

Customer Distribution by Tenure Group

- 37+ Months
- 0-12 Months
- 13-36 Months

Clue #1: The Monthly Contract Trap Contract type is the strongest predictor of churn. The bar chart below clearly shows that customers on Month-to-Month plans (the orange bar) are leaving at a much higher rate than those on 1-year or 2-year contracts.

Churn Distribution by Contract

Clue #2: The Electronic Check Issue Payment method affects retention. Customers paying via "Electronic Check" have a significantly higher churn rate compared to credit cards or bank transfers.

Clue #3: Senior Citizens are at Risk Demographics also play a role. The churn rate is visibly higher for Senior Citizens (represented by '1' in the chart below) compared to younger customers.

4. Recommendations
Based on this data, we recommend:

- **Push Yearly Plans:** Create special discounts to move month-to-month users to yearly contracts.

- **Fix Payment Issues:** Investigate why "Electronic Check" users are unhappy and encourage them to switch to automatic credit card payments.

- **New User Onboarding:** Create a "Welcome Program" for the first 12 months to stop early churn.