



Executive Summary: Customer Churn Analysis Project

This project performs an in-depth Exploratory Data Analysis (EDA) on a telecom company's customer churn dataset to uncover actionable insights related to **customer attrition**. The primary goal is to identify key drivers influencing churn and provide recommendations to **enhance customer retention strategies**.



Key Findings & Insights

1. Overall Churn Rate


- Out of the total customer base, **26.5% of customers have churned**, while **73.5% have stayed**.
- This indicates that **more than 1 in 4 customers** is leaving the service — a clear red flag for customer experience and engagement teams.

2. Gender vs Churn



- Churn among **female customers**: ~26.9%
- Churn among **male customers**: ~26.1%
- ➤ **Insight**: Gender has a **minimal impact** on churn. Both genders churn at almost the same rate, suggesting retention strategies should be **uniform across genders**.

3. Contract Type Impact


- **Month-to-month contract**: ~43% churn rate
- **One-year contract**: ~11% churn rate
- **Two-year contract**: ~3% churn rate
- ➤ **Insight**: Customers on shorter contracts are **10–14 times more likely** to churn compared to long-term customers.

-  **Recommendation:** Offer incentives (discounts, loyalty points) for **upgrading to annual or 2-year contracts**.

4. Internet Service Type

- **Fiber optic users:** ~42% churn rate
- **DSL users:** ~19% churn rate
- **No internet service:** ~8% churn rate
- ➤ **Insight:** Fiber optic users are **more than twice as likely** to churn than DSL users.
-  **Possible Cause:** Could be due to performance issues, pricing, or poor service experience.
-  **Recommendation:** Investigate Fiber customer experience and bundle additional support or value-added services.

5. Tenure vs Churn

- Customers with **tenure < 12 months:** ~52% churn rate
- Customers with **tenure > 24 months:** <10% churn rate
- ➤ **Insight:** The **first year is the most critical** — over **half of new users leave within 12 months**.
-  **Recommendation:** Focus onboarding strategies and engagement campaigns on new customers in the first few months.

6. Monthly Charges and Churn

- **Churn among high-paying customers** (> \$80/month): ~40%
- **Churn among low-paying customers** (< \$50/month): ~16%
- ➤ **Insight:** High monthly charges **strongly correlate with higher churn**, potentially due to perceived lack of value.

- 💡 **Recommendation:** Consider tier-based loyalty programs or added features for high-spending customers to increase perceived value.

7. Senior Citizens

- **Senior citizen churn rate:** ~42%
 - **Non-senior churn rate:** ~24%
 - ➤ **Insight:** Seniors are **75% more likely to churn** than younger customers.
 - 🧓 **Recommendation:** Create age-friendly support channels or senior-special offers to build trust and retention in this segment.
-



Visualizations & Approach

- ✔ Used clear **pie charts** for churn distribution.
- ✔ **Countplots** and **histograms** illustrate relationships by gender, contract type, and services.
- ✔ Smart use of **distribution plots** (tenure, monthly charges) to highlight key risk factors.
- ✔ Code and markdown were logically organized for easy comprehension.