

Project Overview: Telco Customer Churn Analysis

Objective

The primary goal of this project is to analyze customer churn data from a telecom company to identify **key factors** influencing customer attrition and provide **actionable insights** to improve customer retention.

Data Preparation and Cleaning

- **Dataset:** The dataset contains customer information such as demographics, subscription details, and churn status.
 - **Missing Values:**
 - Missing **TotalCharges** values (corresponding to customers with **tenure = 0**) were replaced with **0**.
 - **Data Transformation:**
 - The **SeniorCitizen** column was converted from binary (0/1) to categorical (**Yes/No**) for readability.
 - Categorical features were prepared for visual analysis using plotting libraries.
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Exploratory Data Analysis (EDA)

Churn Rate

- **Overall Churn:** **26.54%** of customers have churned.

Demographic Insights

- **Senior Citizens:**
 - Churned: **~42%**
 - Non-senior churn: **~24%**

- ➤ Older customers are more likely to churn.
- **Gender:** Churn distribution is similar across genders (almost balanced), indicating gender is **not a major churn factor**.

Tenure

- Customers with **1–2 months tenure** show the **highest churn rate (~60%)**, indicating dissatisfaction during onboarding.
- Customers with **long tenure (12+ months)** tend to remain, with churn rates dropping below **10%**.

Contract Type

- **Month-to-month:** ~43% churn
- **One year:** ~11%
- **Two years:** ~3%
- ➤ Long-term contracts result in **significantly higher customer retention**.

Payment Method

- **Electronic Check** users have the **highest churn (~34%)**.
- Other methods (e.g., credit card, bank transfer, mailed check) show **lower churn rates** (15–20%).

Internet and Security Services

- **Fiber optic users** churn more than DSL or no-internet customers.
- Lack of **Online Security** and **Online Backup** services is associated with higher churn.
- ➤ Bundled services could improve retention.

Visualizations and Charts Used

- **Pie Chart:** For overall churn rate
 - **Countplots:** Comparing churn across demographic and service-related categories
 - **Bar Charts:** For churn by contract, payment, internet services, and tenure
 - **Comparative Plots:** Highlighting churn rates based on multiple variables (e.g., internet service + security service)
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Key Takeaways

- **Short-tenure customers** need better onboarding and engagement to reduce early churn.
 - Offering **discounts or incentives** for longer contracts could reduce churn significantly.
 - Customers using **electronic checks** may benefit from being nudged toward more secure or convenient payment methods.
 - **Senior citizens** are more likely to churn—this segment may need specialized support or loyalty benefits.
 - Promoting **value-added services** like online security or backups may enhance retention.
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Business Recommendations

1. **Incentivize long-term contracts** to reduce churn.
2. **Revamp onboarding experience** for new users (first 2 months critical).
3. **Promote bundled internet and security services.**
4. **Target high-risk groups** (senior citizens, fiber optic users, electronic check payers) with personalized offers.
5. **Monitor churn monthly** to identify trends early.