

Telco Customer Churn Analysis

(Summary And Recommendation)

Objective

The goal of this project is to identify key factors influencing customer churn in a telecommunications company and provide actionable insights to reduce attrition. Using Python, the analysis explores behavioral patterns based on demographics, service combinations, tenure, billing, and payment preferences.

Tools Used

- **Python (Jupyter Notebook)** – For data cleaning, exploratory analysis, and visualizations
- **Excel** – For initial data inspection and quick tabular summaries
- **Power BI** – For interactive dashboards and business-level reporting

Key Insights

- **Churn Rate:** 26.5% of customers have churned.
- **Tenure Risk:** 58% of churned users had tenure <12 months.
- **High Revenue Risk:** 33% of churned users paid >\$80/month.
- **Service Loyalty:** Users subscribed to **Fiber Optic + TV + Backup** churned **42% less** than single-service users.
- **Contract Impact:** Churn rate was **43%** for month-to-month vs **11%** for 2-year contracts.
- **Payment Risk:** 39% of customers paying via electronic check churned, the highest among all methods.

- **Retention Benchmark:** Long-tenured users (≥ 60 months) with auto-pay and annual contracts showed $< 5\%$ churn.



Visualizations

Interactive plots and graphs were created using **Matplotlib**, **Seaborn**, and **Plotly** to:

- Compare churn rates by **contract type**, **payment method**, and **tenure**.
- Visualize service combinations and their correlation with churn.
- Identify key customer segments contributing to high churn.
- Highlight retention-friendly profiles with bar charts and pie graphs.

Visualizations are also embedded in the Power BI dashboard ([Telco_Churn_Report.pbix](#)) for enhanced interactivity and presentation.



Recommendations

1. **Target New Users:** Launch onboarding or loyalty programs for users in their first 12 months.
2. **Protect High-Paying Customers:** Offer benefits or concierge service for users paying $> \$80/\text{month}$.
3. **Bundle Services:** Encourage multi-service adoption to improve engagement and reduce churn likelihood.
4. **Shift Contracts:** Convert month-to-month customers to annual terms using incentives.
5. **Revise Payment Strategies:** Nudge electronic check users to switch to auto-pay or cards with small discounts.