

Telco Customer Churn Analysis

This analysis provides a comprehensive overview of customer churn patterns using Python-based data processing and visual analytics. The objective was to uncover behavioral trends and churn drivers among telecom users to assist in retention strategy planning.

✅ Key Highlights of the Analysis

1. Data Preparation & Cleaning

- Handled invalid values in TotalCharges and ensured proper data types.
- Converted SeniorCitizen field into categorical format for better clarity.

2. Churn Overview

- **Overall Churn Rate:** Approximately **26.54%** of customers have churned, as visualized using pie and count plots.

3. Demographic Insights

- **Gender:** Churn distribution is almost equal between males and females, showing no significant bias.
- **Senior Citizens:** They have a notably **higher churn percentage** compared to non-senior citizens, as shown in stacked bar visualizations.

4. Customer Tenure

- Customers with a **tenure of 1–2 months** showed a **higher churn rate**, indicating early-stage dissatisfaction.
- Long-tenure customers were more stable and less likely to churn.

5. Contract Type Influence

- **Month-to-month** contract users churned the most.
- **One-year and two-year** contract customers had higher retention rates.

6. Service Usage Behavior

- Visual analysis across services like **Online Security, StreamingTV, Tech Support**, etc., revealed:

- Users without additional services like online security or tech support tend to churn more.
- MultipleLines and certain streaming services also showed associations with churn.

7. Payment Method Impact

- Customers using **Electronic check** had the **highest churn rate** among all payment methods.
- Those using **automatic payment methods** like credit cards or bank transfers had better retention.

Tools & Techniques Used

- **Libraries:** Pandas, NumPy, Matplotlib, Seaborn.
- **Techniques:** Data Cleaning, Grouping, Count Plotting, Pie Charts, Histograms, Stacked Bar Charts.

Conclusion

This analysis provides actionable insights into customer behaviors, especially regarding tenure, contract type, seniority, and payment method. These findings can support targeted retention strategies and customer experience improvements.
