

Customer Churn Analysis Summary

This project aims to understand and visualize the churn behavior of telecom customers using a real-world dataset. The analysis provides key insights into which customer segments are more likely to churn, helping businesses retain customers and minimize revenue loss.

Key Steps in the Project:

1. Data Cleaning & Preparation:

- Handled missing values and replaced blank `TotalCharges` with zero (assuming zero tenure).
- Converted `TotalCharges` from string to float for analysis.
- Removed duplicate records and standardized categorical variables (e.g., `SeniorCitizen` converted to "Yes"/"No").

2. Exploratory Data Analysis (EDA):

- Used visualizations like **bar plots** and **pie charts** to explore churn distribution.
- Found that **26.54%** of customers have churned.

3. Customer Segmentation & Insights:

- **Gender:** Similar churn distribution among males and females — gender has **no strong effect** on churn.
- **Senior Citizens:**
 - Higher churn rate observed among senior citizens.
 - Visualized via stacked bar plots showing relative churn percentages.
- (Additional segment-based insights may be present in the latter part of the notebook.)

4. Visualization Tools Used:

- **Matplotlib, Seaborn** for count plots, pie charts, and percentage bar charts.
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Insights & Business Implications:

- The **overall churn rate (26.5%)** is significant and merits focused retention strategies.
- **Senior citizens** show a notably higher churn rate and may require tailored support services or loyalty programs.
- Gender alone is not a determining factor in churn, so targeted campaigns should consider more complex behavioral data.