

Summary & Recommendation

This project explores patterns and trends in customer churn using a telecom dataset. By employing a structured EDA approach with **Seaborn**, **Matplotlib**, and **Pandas**, the notebook uncovers key business insights that can guide retention strategies.

1. Overall Churn Rate:

- Approximately **26.4%** of customers have churned, as visualized via a pie chart. This signals a significant customer retention issue that demands strategic attention.

2. Demographic Insights:

- **Gender:** Churn is nearly equally distributed across genders, indicating **no strong correlation** between gender and churn.
- **Senior Citizens:**
 - A clear trend emerges: **Senior citizens are more likely to churn.**
 - A stacked bar chart shows that **around 42.3%** of senior citizens churned, compared to only **23.5%** of non-senior customers.
 - This indicates that older customers may need better engagement or tailored support.

3. Service-Based Insights:

- Customers **not subscribed to services** like **OnlineSecurity**, **TechSupport**, and **DeviceProtection** show **notably higher churn rates**.
 - For example, among customers who **do not have OnlineSecurity**, churn rate is significantly higher than those who do.
- In contrast, basic services like **PhoneService** or **MultipleLines** don't show a strong churn impact, but value-added services play a key role.

4. Data Preprocessing Steps:

- Missing or blank values in the **TotalCharges** column were handled appropriately.
- **SeniorCitizen** values (0/1) were converted to human-readable form ("No"/"Yes") to improve interpretability in charts.
- All visualizations were neatly labeled, with counts or percentages displayed directly on the plots.