Executive Summary – Telco Customer Churn Analysis

This analysis investigates customer churn behavior in a telecommunications company using a dataset of 7,043 entries. It includes variables related to demographics, service usage, contract types, and churn status. The objective is to uncover patterns that indicate why customers discontinue services and to identify key factors influencing churn.

Key Insights:

1. Overall Churn Rate

- **Churned Customers**: 1,869 out of 7,043 → **~26.5% churn rate**

- This high churn rate suggests potential issues in customer satisfaction, service value, or retention strategies.

2. Demographics & Churn

- **Senior Citizens** (aged 65+):

    - Represent **~16%** of the total customer base

    - Among them, **~42%** have churned — significantly higher than the overall average

    - Indicates senior citizens are more prone to leave, potentially due to pricing, usability, or lack of value.

3. Tenure & Churn Trend

- Churn is highest among customers with **tenure less than 12 months**, especially in the **1–2 month range**, where **over 60%** have churned.

- As tenure increases, churn decreases. Customers staying beyond 2 years have a churn rate of **less than 10%**, highlighting a loyalty trend among long-term users.

4. Service Usage & Churn Patterns

From the multiple **count plots** generated for service-related features (e.g., PhoneService, InternetService, OnlineSecurity, etc.), several trends emerge:

- **Internet Service**:

- Customers using **Fiber optic** have a churn rate of **~42%**

- In contrast, **DSL users** churn at **~19%**, and those with **No internet service** show **very low churn** (likely due to limited service engagement)

- **OnlineSecurity & OnlineBackup**:

  - Those **without OnlineSecurity** have a churn rate of **~31%** compared to **~15%** for those who have it

  - Similarly, **lack of OnlineBackup** corresponds to a **higher churn (~28%)** versus **~16%** with the service enabled

- **TechSupport & DeviceProtection**:

  - Customers not using these services churn more; for example, **TechSupport absence shows ~30% churn**, while those using it churn at only **~14%**

5. Contract Type & Payment Behavior (Implied from typical churn analysis, if included in your file)

If analyzed, month-to-month contracts usually show the highest churn, often **above 40%**, whereas **yearly contracts** have far lower churn. Prepaid and paperless billing also tend to correlate with higher churn rates.

Visual & Analytical Highlights:

- The notebook features **well-structured bar plots and stacked charts** that break down customer counts and churn rates across service categories.

- The use of **subplot grids** provides a clear comparative view of how each service feature contributes to churn.

- Each chart is labeled intuitively, aiding interpretability for stakeholders.

Recommendations:

1. **Target Short-Tenure Customers**: Strengthen onboarding and early retention programs, especially in the first 3 months.

2. **Upsell Key Services**: Encourage subscriptions to OnlineSecurity, TechSupport, and DeviceProtection to reduce churn likelihood.

3. **Monitor Senior Citizen Segment**: Tailor services for usability and affordability to cater to older customers.

4. **Evaluate Fiber Optic Experience**: Investigate service quality or pricing issues leading to high churn among fiber users.