Summary and Recommendations

This analysis provides key insights into customer churn patterns using demographics, service usage, and payment preferences. A combination of countplots, stacked bar charts (in %), and subplots has been used to visually represent customer behaviors and identify churn-prone segments.

Demographic Insights:

- **Senior Citizens account for a smaller portion of the customer base (16%)**, yet they exhibit a **significantly higher churn rate (~42%)**, compared to **non-senior citizens (~26%)**.

- **Gender** does not have a significant impact on churn, as the churn rate is nearly identical for both males and females.

Service Subscription Patterns:

- **Phone Service**:

  - Majority of customers have phone service, but those without it show slightly lower churn.

- **Internet Service**:

  - Customers using **Fiber Optic internet** show the **highest churn (~41%)**, followed by DSL and those with no internet service.

Service Add-ons and Their Influence:

- Customers **without** the following services are more likely to churn:

  - **Online Security**: ~45% churn without it vs ~20% with it.

  - **Tech Support**: ~43% churn without it vs ~18% with it.

  - **Device Protection** and **Online Backup** follow a similar pattern.

- These features act as **retention factors**, making bundled service offerings a strategic tool to reduce churn.

Contract and Payment Behavior:

- **Contract Type**:

  - **Month-to-month** contracts have the **highest churn rate (~44%)**, whereas:

    - **One-year contracts**: ~11% churn

    - **Two-year contracts**: ~3% churn

- This confirms that **long-term contracts reduce customer turnover**.

- **Payment Method**:

  - Customers paying via **Electronic Check** show a **churn rate of ~46%**, significantly higher than other methods like:

    - **Credit Card**: ~16%

    - **Mailed Check**: ~19%

    - **Bank Transfer**: ~14%

Streaming & Entertainment:

- Customers using **StreamingTV or StreamingMovies** show **slightly higher churn (~37%)**, possibly indicating:

  - They are more tech-savvy or cost-conscious.

  - These features alone do not guarantee retention unless bundled with other services.

Visual Highlights:

- The project includes:

    - **Stacked bar charts** displaying churn rates in percentages across service categories.

    - **Subplots** comparing churn impact for multiple columns like InternetService, TechSupport, DeviceProtection, etc.

    - Use of **color-coded visuals (blue/orange)** for clarity and impact.

Recommendations:

- Promote **long-term contracts** through incentives to lower churn.

- **Bundle essential services** like TechSupport and OnlineSecurity.

- Consider targeting **Electronic Check users** for conversion to auto-pay or digital billing.

- Focus retention efforts on **senior citizens** and **fiber optic users** with tailored offers.