

Summary of Customer Churn Analysis and Recommendations

1. Churn Overview:

- **26.54%** of the total customers have churned. This significant churn rate warrants a deeper exploration into the factors contributing to customer attrition to design targeted retention strategies.

2. Key Insights and Trends:

- **Contract Type:**
 - Customers on **month-to-month contracts** have the highest churn rate at approximately **42%**, compared to much lower rates of **11%** for 1-year contracts and **3%** for 2-year contracts. This indicates that flexible, short-term contracts are associated with higher attrition.
 - Long-term contracts (1-year and 2-year) are effective at retaining customers, suggesting potential value in incentivizing long-term commitments.
- **Service Usage:**
 - A considerable number of customers do not subscribe to optional services like **OnlineSecurity**, **OnlineBackup**, and **DeviceProtection**. For example:
 - **OnlineSecurity:** 65% of customers who churned did not subscribe to this service.
 - **OnlineBackup:** A similar trend was observed, with **60%** of churned customers lacking this service.
 - Streaming services like **StreamingTV** and **StreamingMovies** have a more balanced user base, but churn rates are slightly higher among non-users.
- **Payment Method:**
 - **Electronic Check** has the highest churn rate at around **46%**, compared to **Credit Card** (23%), **Bank Transfer** (22%), and **Mailed Check** (16%). This suggests dissatisfaction or inconvenience associated with electronic payment methods.

3. Demographic Analysis:

- **Senior Citizens:**
 - Senior citizens are more likely to churn (**42%**) compared to non-senior citizens (**24%**). This highlights a need for tailored engagement strategies for older customers.

- **Tenure:**
 - Customers with a tenure of less than a year are highly likely to churn (**75%** churn rate), emphasizing the importance of strengthening early-stage customer relationships.

4. **Service Subscriptions:**

- A majority of customers have **PhoneService** (over **90%**) and **InternetService** (about **80%**). However:
 - Only **50%** of customers have **MultipleLines**, and among them, churn rates are slightly higher for non-users of this service.
 - Customers with **Fiber Optic Internet** experience higher churn (**35%**) compared to those using DSL (**20%**) or no internet service (**7%**).

5. **Overall Trends:**

- Customers with fewer services subscribed (e.g., no **OnlineSecurity**, **DeviceProtection**, or **TechSupport**) are more likely to churn.
- The analysis suggests that bundled services and incentives to add optional services could reduce churn rates.

6. **Visualizations:**

- Count plots and subplots were used to explore churn across multiple factors, revealing patterns such as:
 - A strong correlation between **contract types** and churn.
 - Higher churn rates for non-engagement with optional services.
 - Payment method trends, with **Electronic Check** standing out as a high-risk factor.

Recommendations:

1. **Retention Campaigns:**

- Focus on customers with month-to-month contracts by offering discounts or benefits for switching to long-term plans.
- Address issues with **Electronic Check** payment users through personalized communication and alternative payment options.

2. **Service Bundling:**

- Incentivize optional service subscriptions such as **OnlineSecurity** and **OnlineBackup** with discounts or trial periods to improve engagement and retention.

3. **Targeted Engagement:**

- Pay special attention to **new customers** (tenure < 1 year) with onboarding programs to strengthen relationships and reduce early churn.

- Develop tailored retention strategies for **Senior Citizens** with relevant benefits or personalized support.