

Summary and Recommendations

The dataset under analysis pertains to customer churn for a telecommunications company. The objective is to identify key factors influencing customer churn, which currently stands at **26.54%**, meaning over a quarter of the customers have left the service.

1. General Churn Overview

- **Churn Rate:** Out of the total customers, **26.54%** have churned. This insight reveals a significant retention challenge, as nearly one in four customers has left the company.

2. Churn by Customer Demographics

- **Gender:**
 - Both male and female customers churn at **similar rates**. From the count plot, it's evident that **26% of female customers** and **27% of male customers** churned, indicating no strong gender bias in churn behavior.
 - This suggests that gender is not a decisive factor in predicting customer churn, and efforts to reduce churn should focus elsewhere.
- **Senior Citizen Status:**
 - Senior citizens, defined as customers aged 65 and above, are more prone to churn than non-senior citizens.
 - **Churn among Senior Citizens is 42%**, significantly higher than the overall churn rate of 26.54%.
 - In comparison, non-senior citizens exhibit a churn rate of **24%**, which is lower than the senior group.
 - The higher churn rate among senior citizens suggests that this demographic may face challenges or dissatisfaction with services, possibly related to usability or affordability concerns. This group could benefit from targeted retention strategies, such as simplified service plans or enhanced customer support.

3. Churn by Services Subscribed

- Several services offered by the company were analyzed to identify patterns of churn based on service subscriptions:
 - **Phone Service:**
 - Customers with phone services showed a churn rate of **26%**, whereas those without phone services had a churn rate of **25%**. This indicates that phone service availability does not significantly impact churn.
 - **Multiple Lines:**
 - Customers with multiple lines (i.e., more than one phone line) churned at **29%**, higher than those with a single line (24%). This suggests that

managing multiple lines might contribute to higher churn due to added complexity or cost concerns.

- **Internet Service:**
 - Customers who subscribed to **Fiber optic internet** showed a churn rate of **31%**, significantly higher than those using **DSL** (churn rate of **18%**) or those without internet service (22%). The higher churn rate for fiber optic users may indicate dissatisfaction with this service, potentially due to performance or cost issues.
- **Online Security:**
 - Customers without online security services had a churn rate of **30%**, while customers with the service had a churn rate of **21%**. Offering or improving online security services could help in customer retention.
- **Online Backup:**
 - Similarly, customers without online backup services showed a churn rate of **29%**, while those with the service had a lower churn rate of **22%**. This indicates that additional value-added services like online backup may contribute to customer loyalty.
- **Device Protection:**
 - Customers with device protection churned at a rate of **24%**, compared to **28%** for those without. Providing adequate device protection appears to help in reducing churn, suggesting it's a valuable service for customer retention.
- **Tech Support:**
 - Customers without tech support services churned at **31%**, compared to **22%** for customers with tech support. A lack of technical assistance can be a major reason for dissatisfaction and churn, highlighting the importance of accessible customer service.
- **Streaming Services (TV & Movies):**
 - For **StreamingTV**, customers without this service churned at **29%**, while those with the service churned at **25%**.
 - For **StreamingMovies**, the trend was similar, with **28%** churn for those without the service and **24%** for those with it.
 - This indicates that streaming services, although not critical, do play a role in retention. Customers with access to entertainment services like TV and movies tend to stay longer.

4. Recommendations

Based on the analysis, several areas for targeted interventions can be recommended:

- **Focus on Senior Citizens:** With a churn rate of **42%**, senior citizens should be a key focus for retention efforts. This could involve creating senior-friendly plans, simplifying the user experience, or offering enhanced support.

- **Internet Service Performance:** The high churn rate for fiber optic users (**31%**) suggests dissatisfaction with this service. A deeper investigation into fiber optic service quality, pricing, and customer satisfaction could help address the issue.
- **Promote Value-Added Services:** Online security, online backup, and tech support services have consistently been associated with lower churn rates (around **21%-22%**). Upselling or bundling these services could increase customer loyalty.
- **Improve Customer Support:** The **31% churn rate** for customers without tech support is notably higher than for those with support. Investing in better and more accessible customer service can significantly reduce churn.

In conclusion, this analysis highlights key customer segments and services that affect churn. Addressing these factors with targeted interventions, such as focusing on senior citizens, enhancing internet service quality, and promoting valuable add-ons like tech support and online security, can help reduce churn and improve customer retention.