

Summary and Recommendations

- **Churn Distribution:**
 - **Churn Rate:** Approximately **26.5% of customers** in the dataset have churned.
 - **Retention Rate:** About **73.5% of customers** remain loyal.
- **Demographics:**
 - **Gender:** Churn rates are nearly identical across genders, with no significant variation.
 - **Senior Citizens:** Churn is higher among senior citizens (**42%**), compared to non-senior citizens (**23%**).
- **Tenure and Churn:**
 - Customers with shorter tenure (less than 12 months) exhibit a much higher churn rate (**55%**) compared to those with longer tenure (more than 12 months, **11%**).
 - This highlights that new customers are more likely to leave, suggesting a critical need for early-stage retention strategies.

Service Usage Patterns:

- **Internet Services:**
 - Customers using **fiber optic internet** have a significantly higher churn rate (**30%**) compared to DSL users (**15%**).
 - This could indicate dissatisfaction with fiber optic services, warranting further investigation.
- **Phone Services:**
 - Customers with no phone service have a lower churn rate (**8%**), potentially reflecting lower engagement with services overall.
- **Additional Services:**
 - Customers lacking value-added services like **OnlineSecurity** or **TechSupport** churn at higher rates (**45%**) compared to those who subscribe to these services (**15%**).

Contract and Payment Patterns:

- **Contract Types:**
 - Month-to-month contracts have the highest churn rate (**43%**), compared to one-year contracts (**11%**) and two-year contracts (**3%**).
 - Long-term contracts are associated with greater customer loyalty.

- **Payment Methods:**
 - Customers using **electronic check** for payments show the highest churn rate (**34%**), while those using **automatic bank transfers** or **credit cards** have significantly lower churn rates (**9%** and **10%**, respectively).

Key Findings:

1. **Customer Retention Challenges:**
 - New customers and those with short-term contracts are at higher risk of churn.
 - Value-added services like online security and tech support play a crucial role in retention.
2. **Actionable Insights:**
 - Focus retention efforts on customers with short tenure and month-to-month contracts.
 - Improve service quality for fiber optic users and offer targeted promotions for additional services.
 - Promote automatic payment options to reduce churn.

Data Visualization Highlights (Percentages):

- **Churn by Contract Type:**
 - Month-to-month: **43% churn**.
 - One-year: **11% churn**.
 - Two-year: **3% churn**.
- **Churn by Payment Method:**
 - Electronic Check: **34% churn**.
 - Automatic Payment Methods: **9-10% churn**.
- **Churn by Tenure:**
 - Less than 12 months: **55% churn**.
 - More than 12 months: **11% churn**.