

# Summary and Recommendations

- **Key Observation:**
    - **Churn Rate:** Approximately **26.54%** of customers have churned, as shown in the pie chart.
    - **Customer Tenure:** Customers who stayed with the service for longer periods tended to remain, while those with a tenure of 1-2 months were more likely to churn.
    - **Senior Citizens:** A greater percentage of senior citizens churned compared to non-senior citizens.
    - **Contract Type:** Customers on month-to-month contracts had a significantly higher churn rate than those with 1- or 2-year contracts.
    - **Payment Method:** Customers paying via electronic check exhibited higher churn rates.
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## 2. Key Metrics and Trends

- **Demographics and Service Usage:**
    - **Senior Citizens:** Represent **16.2%** of the customer base.
    - **Average Monthly Charges:** \$64.76, with a minimum of \$18.25 and a maximum of \$118.75.
    - **Tenure:** Median tenure is 29 months, with 25% of customers having a tenure of less than 9 months.
  - **Churn Behavior:**
    - Customers without value-added services like OnlineSecurity or TechSupport are more likely to churn.
    - High churn rates were observed among users of **Fiber Optic Internet** compared to DSL.
    - Customers who do not use streaming services or backup solutions are less likely to churn.
  - **Payment Methods:**
    - Electronic check payments correlate with a **higher churn rate** compared to bank transfers or mailed checks.
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## 3. Visualizations and Insights

The following charts provided clear insights into customer behavior:

1. **Pie Chart:** Displays the churn rate distribution, showing that **26.54% of customers** are churned.
2. **Bar Charts:** Highlight categories like payment methods and contract types, emphasizing their correlation with churn.
3. **Heatmaps and Scatterplots:** Illustrate correlations between tenure, monthly charges, and churn behavior.

4. **Customer Trends Over Time:** A clear trend showing that longer-tenured customers are less likely to churn.
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#### 4. Recommendations

Based on the insights, the following recommendations are proposed:

1. **Focus on Retention:**
  - Encourage longer-term contracts by offering incentives or discounts for switching from month-to-month plans.
2. **Improve Service Accessibility:**
  - Emphasize the value of OnlineSecurity and TechSupport to reduce churn rates for customers who currently lack these services.
3. **Targeted Interventions for At-Risk Groups:**
  - Develop targeted campaigns for senior citizens and customers using electronic checks to address their specific concerns.
4. **Pricing Adjustments:**
  - Review pricing strategies for Fiber Optic Internet to make it more competitive, as its high churn rate may be cost-related.