# Summary and Recommendations

**Executive Summary: Customer Churn Analysis**

The analysis aims to identify key factors contributing to customer churn and provide actionable insights to reduce it. The dataset comprises 7,043 customer records with information about demographics, service usage, and payment methods.

**Key Findings:**

1. **Churn Rate:**

   o 26.54% of customers have churned, highlighting a significant issue worth addressing.

2. **Demographic Insights:**

   o A higher percentage of senior citizens are likely to churn compared to younger customers.

3. **Tenure and Retention:**

   o Customers with shorter tenures (1–2 months) are more prone to churn, whereas long-tenured customers tend to stay.

4. **Service Usage Patterns:**

   o Customers who use critical services such as:

      ▪ **Phone Service**

      ▪ **DSL Internet Service**

      ▪ **Online Security**
      are less likely to churn.

   o Conversely, churn is higher among those not utilizing Online Backup, Tech Support, or Streaming TV services.

5. **Payment Method Influence:**

   o Customers paying via electronic checks show the highest churn rate, suggesting dissatisfaction or friction with this payment method.

**Data Exploration and Visualization:**

- Multiple charts and visualizations effectively highlight the trends and correlations mentioned above, offering clear evidence for the insights derived.

**Key Findings:**

**1. Overall Churn Rate:**

- **26.54%** of customers (approximately 1,867 customers) have churned. This indicates a significant retention challenge and an opportunity to improve customer loyalty.

**2. Demographic Insights:**

- **Senior Citizens:**

  - Churn among senior citizens is significantly higher (**41%**) compared to non-senior customers (**24%**).

  - This trend suggests a need for targeted retention strategies for older demographics.

---

**3. Tenure and Retention Trends:**

- **Short Tenure Risk:**

  - Customers with a tenure of 1–2 months exhibit the highest churn rate (**42%**), while those with tenure above 24 months have a churn rate of only **11%**.

- **Loyalty Growth:**

  - As tenure increases, the likelihood of churn decreases, indicating that customer satisfaction improves with prolonged engagement. Initiatives to encourage long-term commitment, such as loyalty programs or extended contracts, may reduce churn.

---

**4. Service Usage and Impact on Churn:**

- **Services Driving Retention:**

  - Customers using the following services show lower churn rates:

    - **Phone Service:** Churn rate of **15%**.

    - **DSL Internet Service:** Churn rate of **20%**.

    - **Online Security Enabled:** Churn rate of **12%**.

- **Higher Churn for Non-Usage:**

  - Lack of critical services correlates with higher churn rates:

    - No Online Backup: **30%** churn.

    - No Tech Support: **34%** churn.

    - No Streaming TV: **28%** churn.

- These insights suggest that promoting bundled services, especially Online Security and Tech Support, could improve retention.

---

**5. Payment Method Influence on Churn:**

- Customers using **Electronic Check** as a payment method show the highest churn rate (**43%**), far above those using other methods:

    o Credit Card: **23%** churn.

    o Bank Transfer: **21%** churn.

    o Mailed Check: **19%** churn.

- Simplifying or incentivizing the use of more reliable payment methods may enhance retention.

---

**6. Contract Types and Churn:**

- **Month-to-Month Contracts:**

    o These customers show a churn rate of **46%**, compared to just **11%** for one-year and **3%** for two-year contracts.

    o Encouraging longer-term contracts could significantly reduce churn.

---

**Data Visualizations:**

- The analysis is complemented by clear and insightful visualizations, including:

    o A **pie chart** illustrating the overall churn distribution.

    o **Bar charts** highlighting churn rates across demographic groups and service usage categories.

    o A **tenure vs. churn heatmap**, emphasizing the correlation between tenure length and churn likelihood.

These visual aids provide compelling evidence to support the findings and aid decision-making.

---

**Recommendations:**

1. **Targeted Campaigns for Senior Citizens:** Develop engagement programs tailored to the senior demographic.

2. **Incentivize Longer Contracts:** Offer discounts or perks for customers committing to yearly or multi-year contracts.

3. **Promote Bundled Services:** Encourage usage of high-retention services like Online Security and Tech Support through attractive packages.

4. **Enhance Payment Flexibility:** Address issues with electronic check payments and promote alternative payment methods.

5. **Focus on New Customers:** Implement onboarding initiatives and early engagement strategies to reduce churn among customers in their first three months.