

Summary and Recommendation

1. Overview of Customer Churn

- **Churn Rate:** From the analysis, it was observed that **26.54%** of the customers have churned. This highlights that over a quarter of the customer base is leaving the service, signaling a need for targeted retention strategies.
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2. Key Insights from Demographic Analysis

- **Senior Citizen Category:**
 - A disproportionately higher percentage of senior citizens have churned compared to younger customers.
 - Suggestion: Implement programs specifically tailored to the needs and challenges of senior citizens to improve retention rates.
 - **Customer Tenure:**
 - **Customers with shorter tenures (1–2 months)** showed significantly higher churn rates compared to long-tenure customers.
 - In contrast, customers who have been with the service for several years are far less likely to churn.
 - Suggestion: Develop retention incentives for new customers in their first few months, such as discounts or personalized engagement.
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3. Behavioral Trends and Contract Types

- **Contract Type Impact:**
 - **Month-to-month contract customers** are the most likely to churn. A significant portion of churned customers are on these contracts, compared to those with **1-year or 2-year contracts**, where churn is much lower.
 - Suggestion: Encourage customers to opt for longer-term contracts by offering incentives such as reduced rates or additional benefits.
 - **Service Usage:**
 - Customers who use services like **PhoneService**, **DSL Internet**, and **OnlineSecurity** show a lower likelihood of churn.
 - On the other hand, churn rates are noticeably higher among customers who do not use or lack access to **Online Backup**, **TechSupport**, or **Streaming TV** services.
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4. Feature-Specific Observations

- **Service-Specific Churn Rates:**
 - For customers who lack **Online Backup** or **TechSupport**, churn rates exceed **40%**.
 - Similarly, customers who do not have access to **Streaming TV** show a churn rate of approximately **35%**, highlighting the importance of entertainment-related services.
 - **Internet Service Type:**
 - Customers with **Fiber Optic Internet** exhibit higher churn rates compared to those using **DSL Internet**, possibly due to differences in pricing or service satisfaction.
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5. Visualizations and Data Representation

- **Count Plots:**
 - Visual representations clearly show the breakdown of churn across various service categories, providing actionable insights into customer behavior.
 - Charts emphasize that customers with more comprehensive service packages are less likely to churn.
 - **Pie Chart:**
 - Demonstrates the overall churn rate of **26.54%**, helping visualize the scale of the problem.
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6. Recommendations and Next Steps

1. **Focus on Retention for Vulnerable Segments:**
 - Target senior citizens and new customers with personalized loyalty programs.
 - Offer welcome discounts or bonuses to improve the first-year retention rate.
2. **Promote Long-Term Contracts:**
 - Provide incentives such as discounted rates or additional features to shift customers from month-to-month contracts to annual or biennial contracts.
3. **Enhance Service Offerings:**
 - Improve the availability and accessibility of Online Backup, TechSupport, and Streaming TV.
 - Address potential issues with Fiber Optic Internet, such as cost or service quality, to reduce churn rates in this segment.
4. **Continuous Monitoring:**
 - Utilize predictive analytics to identify customers at high risk of churning and proactively address their concerns.