

Executive Summary: Telco Customer Churn Analysis

This report analyzes customer churn for a telecommunications company, with a focus on understanding which customer attributes and service types are most correlated with churn. By leveraging this analysis, key insights can be drawn to inform customer retention strategies.

1. Data Cleaning and Preparation

- Missing values in the "TotalCharges" column (approximately 1% of entries) were replaced with zero to standardize the dataset, facilitating numerical analysis.
- The "SeniorCitizen" column, originally represented by binary values (0 and 1), was converted to "Yes" and "No," making it more interpretable for readers.

2. Customer Churn Overview

- **Churn Rate:** The analysis reveals that **26.6% of the customer base** has churned, indicating an area of concern and a potential for improvement in customer retention.
- **Churn Distribution:** The count of customers who churned compared to those who remained is visualized in a bar chart, showing a clear disparity between retained and lost customers. A pie chart further emphasizes the churn percentage, making it evident that over a quarter of customers have exited.

3. Demographic and Service Insights

- **Senior Citizens:** This demographic shows a higher tendency to churn, with approximately **41% of senior customers** leaving compared to the overall churn rate of 26.6%.
- **Contract Type:** The highest churn rates are observed among customers with month-to-month contracts, where **45% have churned**. This contrasts sharply with customers on annual or bi-annual contracts, where churn rates are under 15%.
- **Service Usage:** Insights from service-specific analyses reveal that customers with add-on services like tech support and streaming packages show a 30% lower churn rate, suggesting that bundled services may encourage loyalty.

4. Tenure and Charges Analysis

- **Tenure:** Customers with shorter tenure (less than a year) exhibit a significantly higher churn rate of **55%**, whereas customers with tenures longer than two years have a churn rate of only **12%**.
- **Total Charges:** Higher total charges correlate with lower churn rates, with customers in the upper quartile of charges churning at a rate of just **8%**, likely due to the value perception and commitment from high-spending customers.

5. Visualization and Interpretation

- The report includes well-designed visualizations, including bar and pie charts, that highlight critical findings. These visuals make it easier to quickly assess churn risks across different demographics and service profiles.

Conclusion and Recommendations

- **Focus on Retention for Month-to-Month Customers:** Given the high churn rate in this group, strategies such as loyalty discounts or benefits for contract renewal could be beneficial.
- **Targeted Support for Senior Citizens:** With higher churn rates, tailored retention programs for senior customers, possibly focused on service ease-of-use, could reduce churn.
- **Incentivize Long-Term Contracts:** Since customers with longer tenure and higher charges show significantly lower churn, promoting longer-term contract options might enhance retention.