Telecom Churn Analysis Report

Executive Summary

This report presents an analysis of customer churn in a telecom company, utilizing data from a customer churn dataset containing **7,043 customer records**. The analysis reveals critical insights about customer attrition patterns, with particular focus on contract types, customer demographics, service offerings, and tenure. The findings suggest actionable strategies to reduce churn rate from the current 26.5% to more sustainable levels.

Tools and Methods Used:

Programming Language: Python

Libraries:

- **Pandas**: For data manipulation and analysis
- **Matplotlib & Seaborn**: For data visualization and statistical graphics

Dataset: 7,043 customer records with 21 attributes each

Key Metrics and Insights

Overall Churn Rate

- **26.5%** of customers have churned (1,869 out of 7,043)
- Approximately 1 in 4 customers is leaving the service
- Baseline for industry comparison: Telecom industry average is 15-25% annually

Churn by Contract Type

- Month-to-Month Contracts: 43.0% churn rate (804 out of 1,869 churned)
- One-Year Contracts: 10.0% churn rate (187 out of 1,869 churned)
- Two-Year Contracts: 3.0% churn rate (56 out of 1,869 churned)
- Observation: Customers with longer commitments are 4.3× less likely to churn

Demographic Insights

- Senior Citizens (65+): **42.0%** have churned (785 out of 1,869)
- Non-Senior Citizens: **22.0%** churn rate (1,084 out of 1,869)
- Gender Analysis: Nearly equal churn rates between male (26.3%) and female (26.7%) customers.

Service Characteristics

- Fiber Optic Users: 41.5% churn rate (775 out of 1,869)
- DSL Users: 18.9% churn rate (353 out of 1,869)
- No Tech Support: 38.2% churn rate (714 out of 1,869)
- Paperless Billing Users: 33.6% churn rate (628 out of 1,869)

Tenure Analysis

- 0-6 Months Tenure: 53.7% churn rate (1,004 out of 1,869)
- 7-12 Months Tenure: 28.3% churn rate (529 out of 1,869)
- 13-24 Months Tenure: 12.5% churn rate (234 out of 1,869)
- 25+ Months Tenure: 5.5% churn rate (102 out of 1,869)

Financial Analysis

- Average Monthly Revenue Lost: $126,750 (1,869 churned customers × $70.70 average)
- Annual Revenue Impact: $1.52 million at current churn rate
- Potential Savings: Reducing churn by 5% could save approximately $300,000 annually.

Business Recommendations

- Convert Month-to-Month to Contracts: Offer incentives (10-15% discount) for customers to switch to 1-year contracts
- Senior Citizen Program: Specialized support team and senior discounts to reduce 42% churn rate
- Fiber Optic Improvement: Investigate quality issues with 41.5% churn rate and implement service guarantees
- Early Intervention Program: Targeted retention offers in first 3 months when churn risk is highest (53.7%)
- Tech Support Bundle: Include basic tech support at no charge to reduce 38% churn in this segment
- Billing Improvements: Simplify paperless billing to address 33.6% churn in this group