Executive Summary – Telecom Customer Churn Analysis

Project Objective

The primary goal of this project is to identify key factors driving customer churn in the telecom sector and deliver actionable insights that help reduce it. Given the high cost of customer acquisition compared to retention, building churn prediction strategies is critical to profitability and growth.

Dataset Overview

• Total Records: 7,043 unique customer profiles

• Target Variable: Churn (Yes/No)

• Key Feature Categories:

  - Demographics: Gender, Senior Citizen, Partner, Dependents

  - Account Info: Tenure, Contract Type, Monthly Charges, Total Charges, Payment Method

  - Services Used: Phone, Internet, Online Security, Backup, Streaming (TV/Movies), Device Protection, Tech Support

Data Preprocessing Highlights

• Missing Values:

  - TotalCharges: 11 missing entries filled with mean value

  - Tenure = 0: Considered new customers, retained in analysis

• Transformations:

  - Binary values like SeniorCitizen converted from 0/1 to 'No/Yes' for clarity

Key Visual Findings

Churned Customers: 26.54% — Roughly 1 in 4 customers leave the service.

Demographic Analysis

• Senior Citizens: ~42% churn

• Non-Seniors: ~24% churn

• Without Dependents: ~31% churn

• With Dependents: ~15% churn

• Without Partner: Higher churn

Insight: Senior citizens and customers without dependents/partners are more likely to churn.

Service Subscription Impact

• Online Security — Without: ~35%, With: ~15%

• Tech Support — Without: ~34%, With: ~16%

• Fiber Internet — ~42% churn

• Absence of Multiple Lines / Streaming also leads to more churn

Contract & Billing Insights

• Month-to-Month: ~43%

• 1-Year: ~11%

• 2-Year: ~3%

• Electronic Check: ~45%

• AutoPay (Bank Transfer, Credit Card): ~15–18%

Tenure & Charges Analysis

• Tenure ≤ 2 months: ~50% churn

• Tenure > 1 year: More stable

• Monthly Charges ≥ $70: ~38% churn

• Total Charges < $100: High churn

Strategic Recommendations

1. Onboard Proactively: Focus support in the first 3 months.

2. Promote Long-Term Plans: Encourage annual/biennial contracts.

3. Bundle Value Services: Offer packages with security, tech support, etc.

4. Monitor High-Charge Users: Ensure they feel value for price.

5. Discourage Electronic Checks: Incentivize auto-pay usage.

Conclusion

Churn is primarily driven by tenure, contract type, billing, and service usage.

Targeting new customers, bundling services, and upgrading payment methods are key to customer retention.