

Telco Customer Churn EDA

Summary and Recommendations

This analysis explores the factors contributing to customer churn within the Telco dataset, offering actionable insights to guide retention strategies and enhance service offerings.

1. Dataset Overview

- **Dataset size:** 7,043 customer records.
 - **Attributes analysed:** Demographics (gender, senior citizen), services (e.g., internet type, online security), payment details, and churn status.
 - **Data preparation:**
 - Transformed SeniorCitizen from numeric (0/1) to categorical (Yes/No).
 - Converted Total Charges to numerical format and replaced missing values with zeros.
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2. Churn Analysis

- **Churn Rate:**
 - 26.54% of customers (1,869 out of 7,043) churned.
 - 73.46% of customers (5,174) remained loyal.
 - **Key Contributors:**
 - **Tenure:** Customers with a tenure of 1-2 months accounted for the highest churn rates, highlighting early dissatisfaction.
 - **Contract Type:**
 - Month-to-month contracts had the highest churn at **42.9%**.
 - One-year and two-year contract holders churned at **11.0%** and **3.4%**, respectively.
 - **Payment Method:**
 - Electronic check users churned at a significantly higher rate (**33.3%**) compared to other payment methods like bank transfers (**16.9%**) and credit cards (**15.4%**).
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3. Demographic Insights

- **Gender:**
 - Females: 26.9% churned (939 out of 3,488), while 73.1% stayed.
 - Males: 26.2% churned (930 out of 3,555), with 73.8% remaining loyal.
 - **Senior Citizen Status:**
 - Senior citizens (16.2% of the dataset, 1,142 customers):
 - Churn rate: **41.7%**.
 - Represented a disproportionately higher risk compared to non-senior citizens (**24.6%** churn).
 - Non-senior citizens had a churn rate of 24.6%.
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4. Service Usage Insights

- **Internet Services:**
 - Customers with Fiber optic internet showed higher churn (**30.2%**) compared to DSL (**19.0%**).
 - Customers with no internet services churned less frequently (**7.4%**).
 - **Online Features:**
 - Non-users of online security services had a churn rate of **42.2%** compared to **14.9%** among users.
 - Similar trends were observed for online backup (**40.5%** for non-users, **15.5%** for users) and tech support (**41.3%** vs. **15.0%**).
 - **Streaming Services:**
 - Churn rates were higher for customers without streaming TV (**27.4%**) and movies (**27.2%**) compared to those using these services.
 - **Phone Services:**
 - Customers with phone services churned at **25.7%**, while those without churned at **24.3%**.
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5. Payment and Billing Trends

- **Paperless Billing:**
 - Customers with paperless billing churned at **33.8%**, significantly higher than those without (**16.3%**).
- **Monthly Charges:**
 - Customers with higher monthly charges had a churn rate of **30.6%**, while those in the lower charge brackets churned at **20.3%**.
- **Total Charges:**
 - Customers with lower total charges (typically new customers) churned at higher rates.

6. Customer Segments

- **Highest Monthly Charges:**
 - A female customer with bank transfer (automatic) as the payment method had the highest monthly charge of \$118.75 and did not churn.
- **Highest Total Charges:**
 - Another female customer using electronic checks had the highest total charge of \$9,999.99 and did not churn.

7. Visual Insights

- Visualizations included stacked bar charts, pie charts, and histograms highlighting:
 - The distribution of churn across demographics and service usage.
 - The impact of contract types and payment methods on churn rates.
 - Service-specific insights, emphasizing the importance of online security, backup, and tech support in reducing churn.

Key Recommendations

1. **Enhance Retention Strategies:**
 - Target **early-tenure customers** with personalized offers to reduce churn during the first few months.
 - Incentivize **long-term contracts** with discounts or loyalty rewards to decrease reliance on month-to-month plans.
2. **Service Adoption Campaigns:**
 - Encourage adoption of online security, backup, and tech support through bundled plans or promotional pricing.
3. **Focus on Senior Citizens:**
 - Develop tailored solutions and personalized support for senior citizens to reduce churn from this high-risk demographic.
4. **Optimize Payment Methods:**
 - Promote reliable payment options like bank transfers and credit cards to reduce churn associated with electronic checks.
5. **Loyalty for High-Charge Customers:**
 - Offer loyalty benefits to customers with high monthly or total charges, ensuring continued satisfaction and retention.