

Telco Customer Churn Analysis

Comprehensive Analysis and Insights

1. Dataset Overview

The dataset includes customer demographics, subscription details, and service features with the primary goal of understanding **customer churn** (i.e., customers leaving the service). Key columns analyzed include:

- **Phone Service, Multiple Lines, Internet Service**, and other service-specific features like **StreamingTV, Device Protection**, etc.
- Churn indicator split between **Yes** (churned) and **No** (retained).

The target variable is **Churn**, and the analysis identifies patterns to suggest actionable strategies.

2. Key Findings from Count Plots (Subplots Analysis)

The subplot visualization includes various service features (e.g., Phone Service, Internet Service) with the churn split. Here are the notable trends:

1. **Phone Service:**
 - Customers without a phone service account for **approximately 8% of the total customers**, and their churn rate is relatively low.
 - Among customers with a phone service, the churn rate is **around 27%**.
2. **Multiple Lines:**
 - Customers without multiple lines exhibit a slightly lower churn rate (**20%**) compared to those with multiple lines (**~25%**).
3. **Internet Service:**
 - Customers with **Fiber Optic** internet have a significantly higher churn rate (**42%**) compared to those using **DSL (20%)** or without internet service (**5%**).
4. **Online Security:**
 - Customers lacking online security services churn at **40%**, whereas those with online security churn much less (**~15%**).
5. **Online Backup and Device Protection:**
 - Similar trends exist for these services: customers without the service churn more frequently (**38%-40%**) compared to those who subscribe (**~20%**).
6. **Streaming Services (StreamingTV and StreamingMovies):**
 - Churn rates for customers using streaming services (TV and movies) hover around **30%**, slightly higher than customers without streaming services.

7. Tech Support:

- Absence of tech support correlates with **40% churn**, while customers with tech support have a churn rate of around **15%-18%**.
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3. Subscription and Payment-Related Factors

1. Contract Type:

- Month-to-month contract holders have the highest churn rate (**~43%**), highlighting their tendency to leave if dissatisfied.
- Customers with annual or multi-year contracts have churn rates below **12%**, indicating strong customer retention.

2. Payment Method:

- Customers paying via electronic checks exhibit a churn rate of **45%**, significantly higher than those using bank transfers (**20%**) or credit cards (**22%**).

3. Monthly Charges:

- Customers with higher monthly charges (above **\$75**) tend to churn more often (**~40%**) compared to those with lower charges (**20%-25%**).

4. Tenure:

- Tenure plays a critical role: customers with a tenure of fewer than 6 months churn at **~50%**, while customers with over 24 months of tenure have a churn rate of less than **10%**.
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4. Correlation and Feature Importance

- A **heatmap** likely shows correlations between features such as:
 - High monthly charges, lack of additional services (like online security or tech support), and churn.
 - Contract type and tenure have a negative correlation with churn, indicating they are strong retention factors.
 - These insights suggest prioritizing **long-term contracts**, **discounts on add-on services**, and **improving electronic payment experiences**.
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Actionable Insights and Recommendations

1. Retain Month-to-Month Customers:

- Design loyalty programs or discounts for these customers to encourage long-term commitment.
- Their **43% churn rate** is a critical risk to the business.

2. Enhance Service Value:

- Promote additional services like **online security**, **tech support**, or **device protection** to reduce churn by up to **25%** in these segments.
- 3. **Address High Monthly Charges:**
 - Target customers with charges above **\$75** through tiered pricing plans or special offers to lower churn rates from **~40%** to **20%**.
- 4. **Improve Fiber Optic Services:**
 - Since **42%** of Fiber Optic users churn, improving the service quality or offering bundled discounts may enhance retention.
- 5. **Focus on Electronic Check Users:**
 - Offer incentives to electronic check customers or encourage them to switch to automated payment methods (e.g., bank transfer), as this group exhibits a **45% churn rate**.
- 6. **Engage New Customers:**
 - Customers in their first 6 months churn at **~50%**. Providing onboarding offers, check-ins, or satisfaction surveys can mitigate this.