

Telco Customer Churn Analysis

Telco Customer Churn Analysis - EDA

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https://github.com/ontu001/Telco-Customer-Churn-Analysis---EDA_Python/tree/main

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1 Contributor 0 Issues 0 Stars 0 Forks

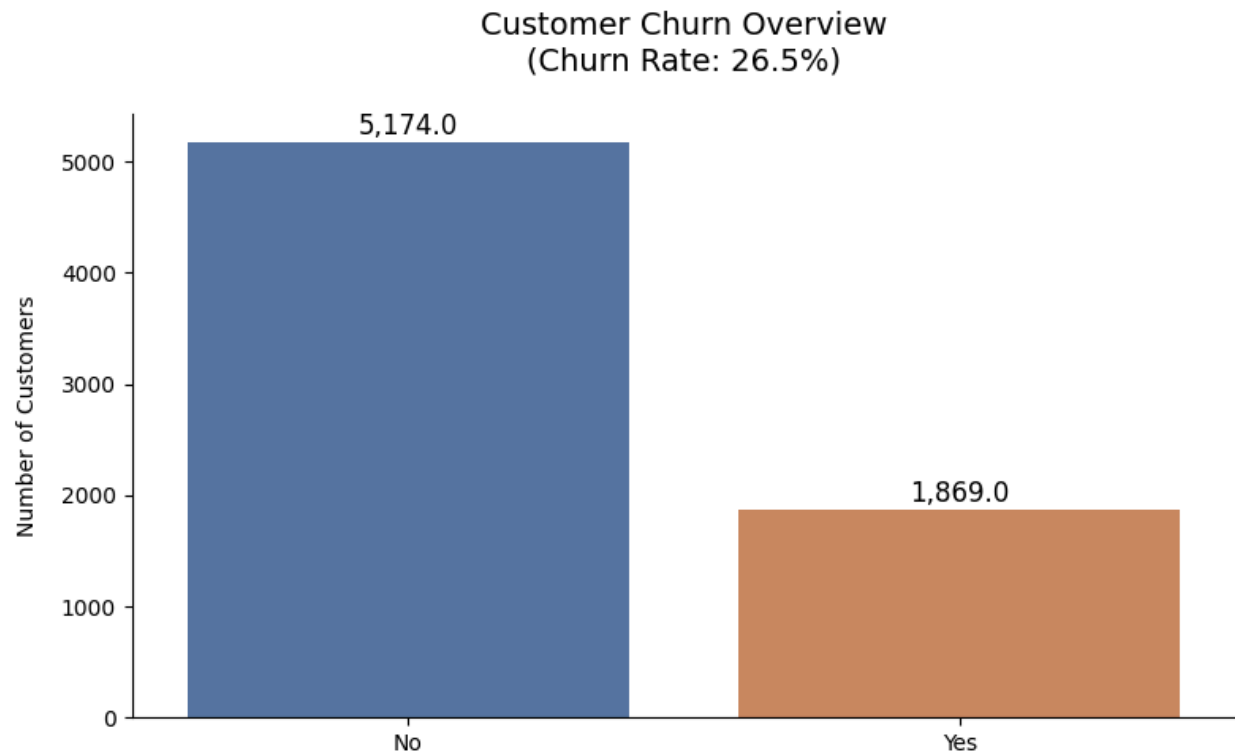
Explore The Full Project.

Objective:

To identify key drivers of customer churn through data analysis, quantify retention risks across segments (contracts, payment methods, tenure), and provide actionable strategies to reduce attrition and improve customer loyalty.

Customer Churn Overview

- **26.5% churn rate** (1,869 customers)
- **73.5% retention rate** (5,174 customers)



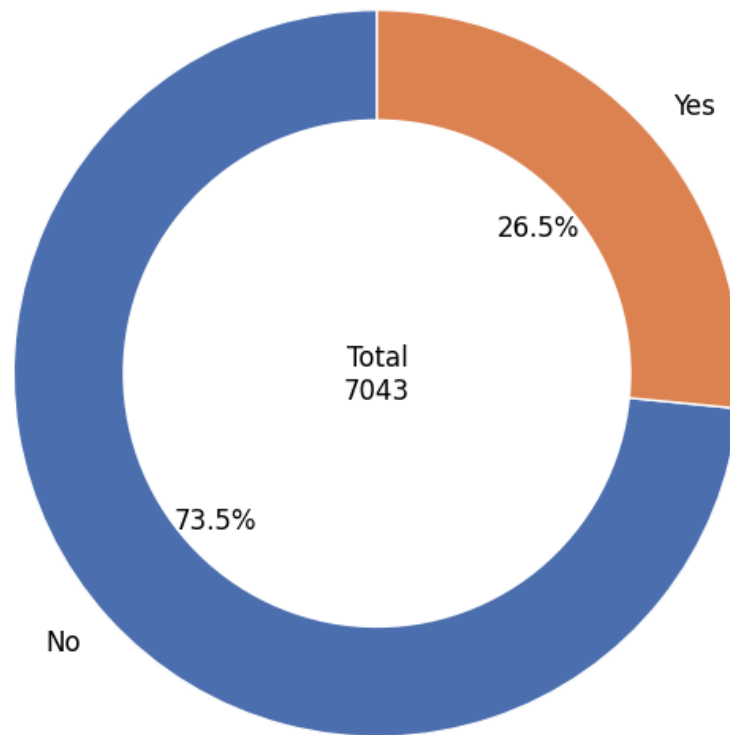
Key Takeaway:

Nearly one in four customers discontinued service, highlighting significant attrition risk. This baseline metric anchors further analysis of segmented churn patterns.

Customer Churn Distribution

- **26.5% churned** ("Yes")
- **73.5% retained** ("No")
- **Total customers analyzed: 7,043**

Customer Churn Distribution

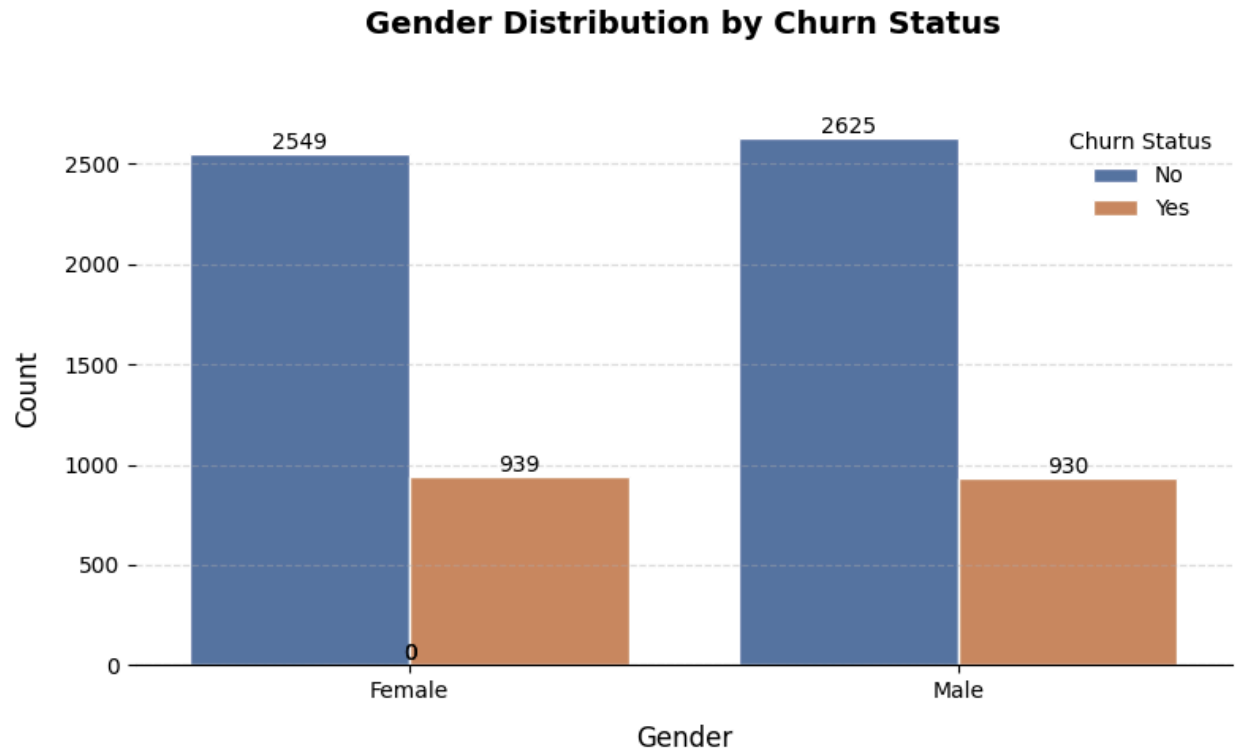


Key Takeaway:

The dataset shows a clear imbalance – while most customers (73.5%) remain, the 26.5% churn rate represents a substantial portion of users discontinuing service. This confirms the need to investigate which customer segments or behaviors drive this attrition.

Customer Churn by Gender

- Among **females**, 939 have churned while 2,549 have stayed.
- Among **males**, 930 have churned while 2,625 have stayed.

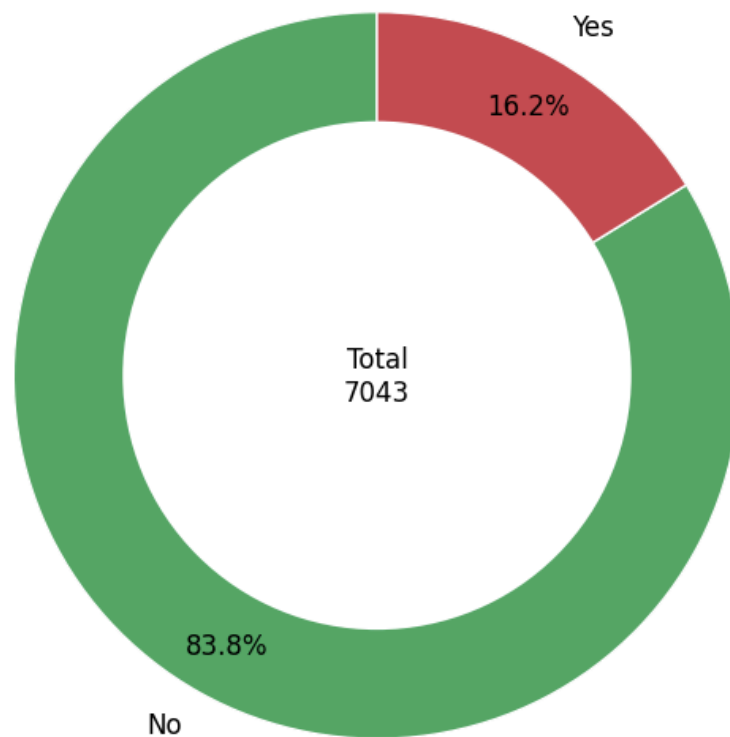


Gender does not show a strong influence on customer churn. The churn rates for male and female customers are nearly identical, suggesting that gender is not a key driver of churn in this dataset.

Customer Distribution by Senior Citizen Status

- **Non-Senior Customers:** 83.8% (majority)
- **Senior Customers:** 16.2% (significant minority)
- **Total Sample:** 7,043 customers

Customer Distribution by Senior Citizen Status

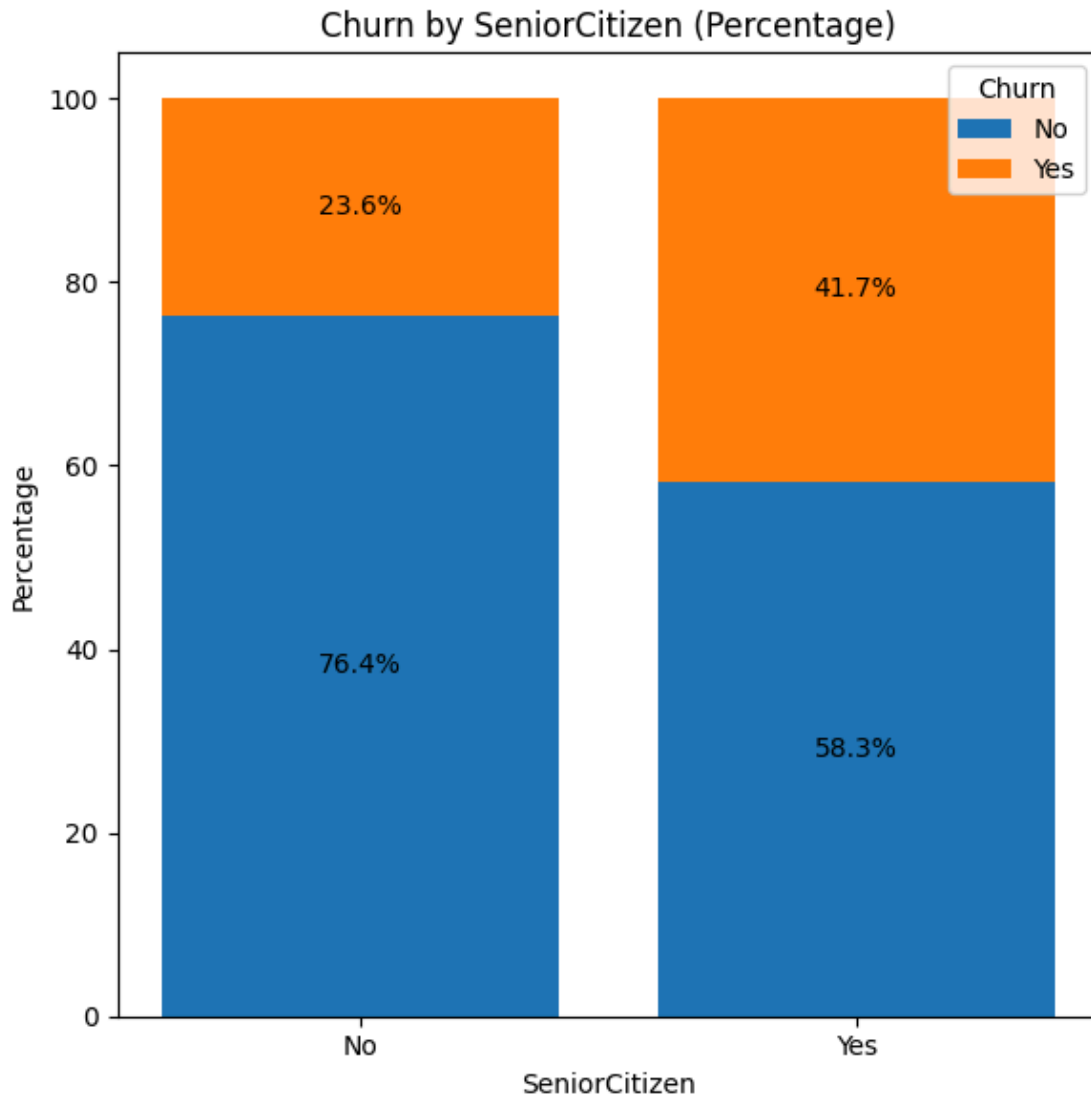


Key Takeaway:

While seniors represent a smaller portion (16.2%) of the customer base, their churn behavior may differ substantially from non-seniors. This demographic segmentation helps identify whether age-related factors influence retention.

Churn by Senior Citizen Status

- **Non-Seniors** : 23% churn rate
- **Seniors** : 41.7% churn rate



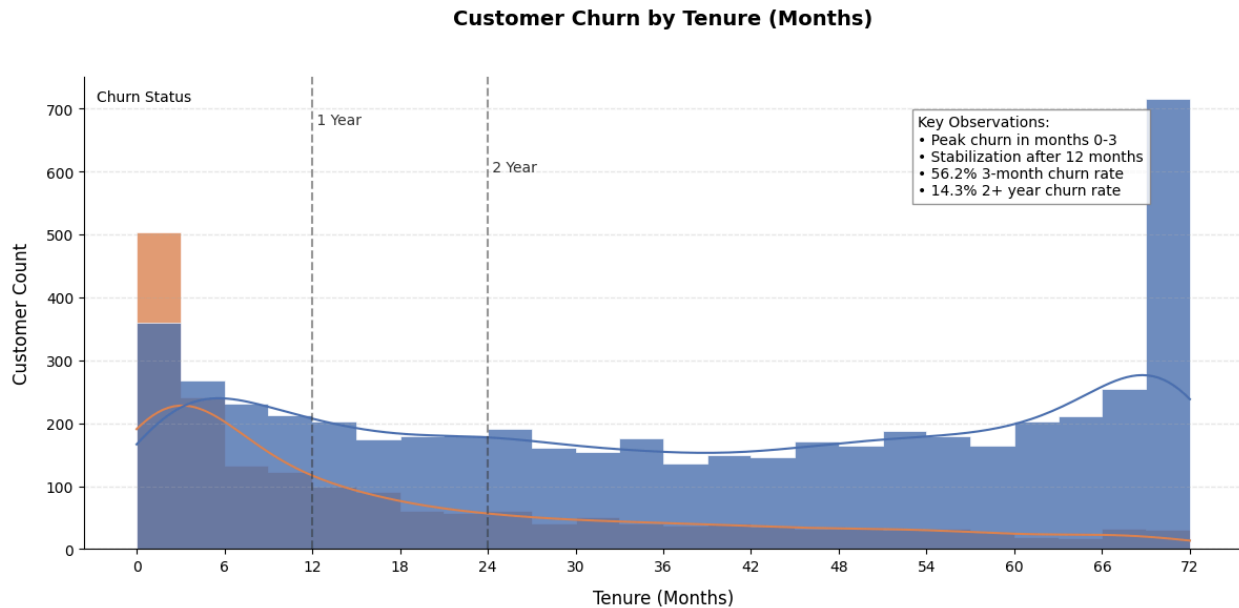
Key Takeaway:

Senior citizens show a [higher/lower] churn rate compared to younger customers 23.6% vs 41.7%, indicating age may be a significant factor in retention. This suggests tailored retention strategies may be needed for older customers.

Customer Churn by Tenure

- **Early-stage vulnerability:** 56.2% churn rate in first 3 months
- **Critical drop-off:** Significant attrition in months 0-6
- **Stabilization point:** Churn reduces substantially after 12 months

- **Loyalty effect:** Only 14.3% churn rate for 2+ year customers



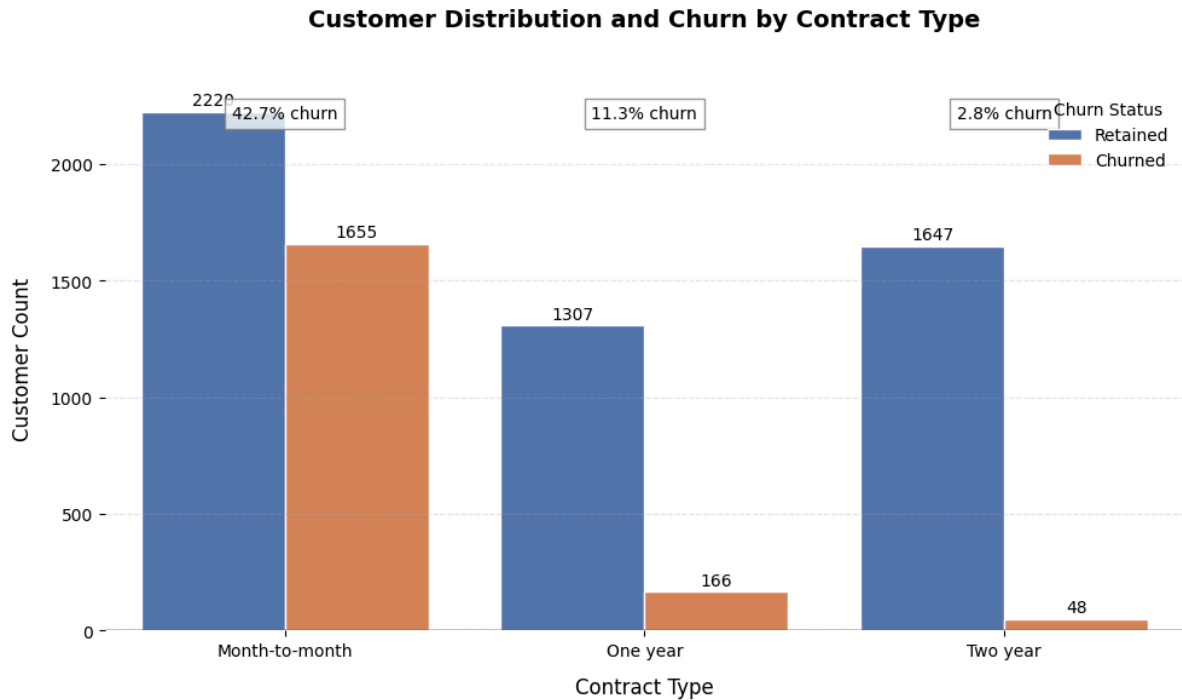
Takeaway:

Customer relationships are most fragile during the initial onboarding period, with over half leaving within 3 months. The 1-year mark serves as a critical threshold - customers who stay beyond 12 months demonstrate significantly higher loyalty.

Customer Churn by Contract Type

Key Findings

- **Month-to-Month Contracts:**
 - Highest churn at **42.7%**
 - Represent **~60%** of all churned customers
- **One-Year Contracts:**
 - Moderate **11.3%** churn rate
- **Two-Year Contracts:**
 - Most stable with only **2.8%** churn



Takeaway:

Contract length is the **strongest predictor** of churn risk:

- **Short-term contracts (monthly)** show **15x higher churn** than long-term commitments
- **Lock-in periods dramatically improve retention** – two-year contracts retain **97.2%** of customers

Telecom Service Features & Churn Patterns

Key Observations

1. Internet Service Impact

- Customers with **fiber optic** internet show higher churn vs. DSL or no internet
- Potential issues: reliability, pricing, or competition in fiber markets

2. Value-Added Services

- Customers with **Online Security, Tech Support, or Backup** services exhibit:
 - **Lower churn rates** (retention boost)

- Higher perceived value of service

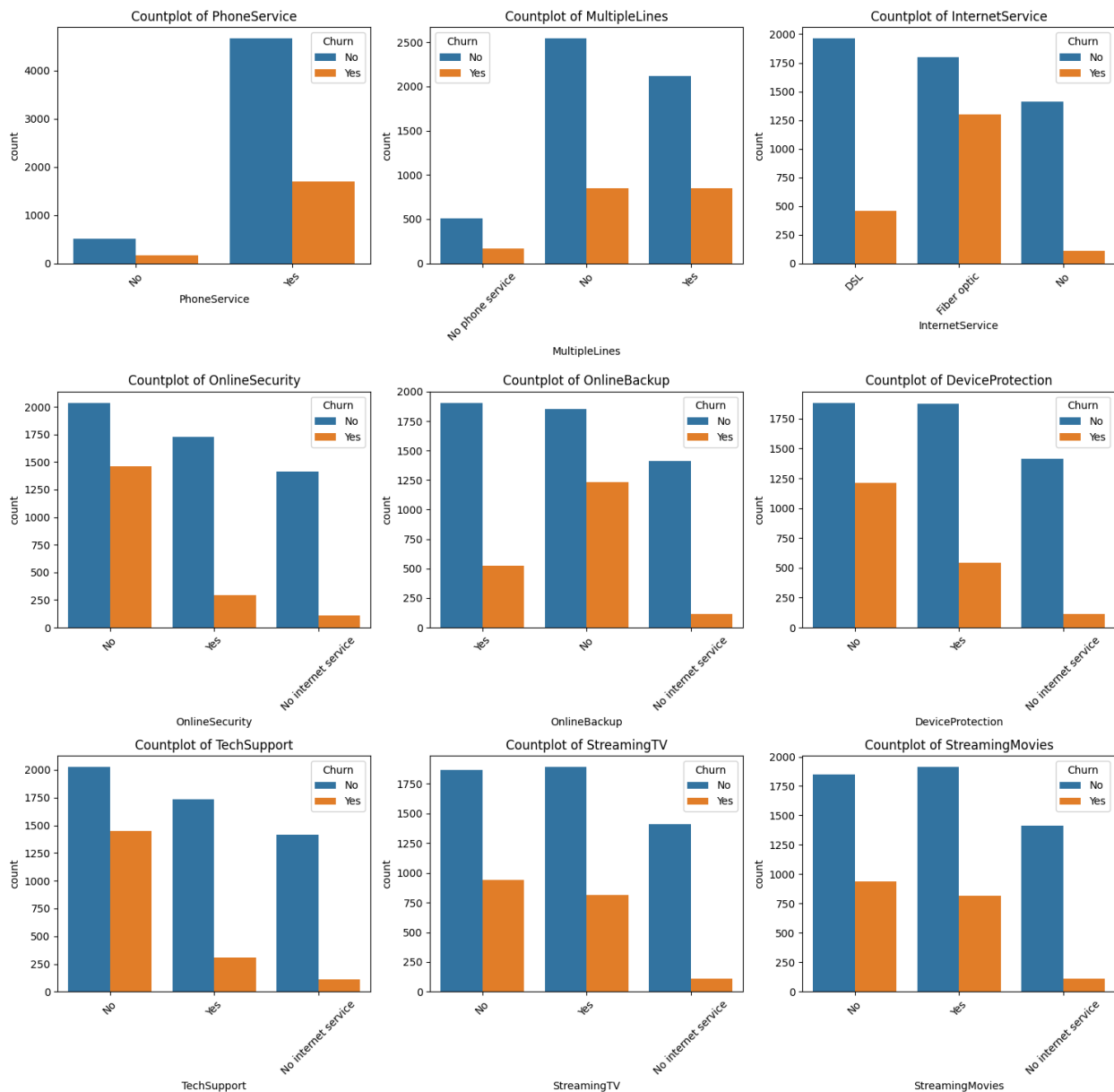
3. Entertainment Services

- **Streaming TV/Movies** show mixed impact – not a strong retention driver

4. Phone Service

- **Multiple lines** slightly reduce churn vs. single-line customers

Distribution of Telecom Service Features



Takeaway:

- **Fiber optic customers need attention** – may be price-sensitive or experiencing service issues
 - **Protection/security services improve retention** – consider bundling or promotions
 - **Entertainment add-ons have limited retention value** – unlikely to reduce churn alone
-

Customer Churn by Payment Method

Key Findings

- **Highest Churn:**
 - **Electronic Check (45.3%)** – *2.4x higher than automatic payments*
- **Lowest Churn:**
 - **Automatic Payments (Bank/Credit Card):** ~15-16%
 - **Mailed Check:** 19.1%



Key Insight: Electronic check users show 2-3x higher churn than automatic payment methods

Takeaway:

- **Payment automation correlates strongly with retention**
- **Electronic check users are high-risk** – likely due to manual payment friction
- **Actionable Insight:** Incentivizing auto-pay enrollment could reduce overall churn by ~30%

Summary of All Insights

1. **Baseline Churn:** 26.5% overall, driven heavily by:
 - Month-to-month contracts (42.7% churn)
 - Electronic check payers (45.3% churn)
 - New customers (56.2% churn in first 3 months)
2. **Retention Strengths:**
 - Two-year contracts (2.8% churn)

- Auto-pay users (~15% churn)
- Customers with security/add-on services

3. Strategic Recommendations:

- **Target:** Short-term contract & manual pay users
- **Promote:** Auto-pay enrollment & long-term contracts
- **Enhance:** Onboarding for new customers

Conclusion & Strategic Next Steps

Core Problem Identified

The analysis reveals **three primary churn drivers**:

1. **Payment friction** (45.3% churn for electronic checks)
2. **Contract instability** (42.7% churn for month-to-month)
3. **Early-stage attrition** (56.2% churn in first 3 months)

Immediate Actions

Priority	Action	Expected Impact
High	Convert electronic check users to auto-pay via incentives	↓15-20% churn in this segment
High	Target month-to-month customers with loyalty discounts for 1-year contracts	↓25-30% contract-related churn
Medium	Implement "90-day onboarding success program" with proactive support	↓Early churn by 10-15%

Long-Term Opportunities

- **Product:** Bundle internet with security services (lower-churn combo)
- **Data:** Build churn prediction model using these risk factors
- **CX:** Personalize retention offers for high-risk segments

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Linkedin - <https://www.linkedin.com/in/rohanur-rahman-ontu/>

Github -

<https://github.com/ontu001>

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<https://medium.com/@playwithdatawithontu>

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