

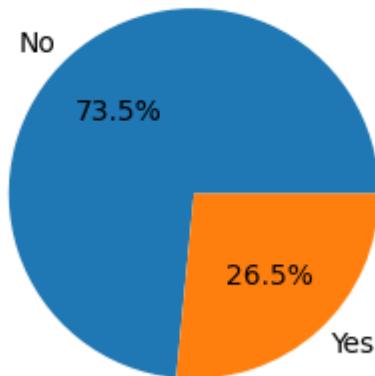
Executive Summary & Recommendation

This analysis explores demographic, service-level, and billing patterns to identify the primary drivers of churn. Several distribution and comparison charts were created to reveal which customer groups are most vulnerable and where retention efforts should be focused.

1. Customer Base Overview

- The dataset contains **7,043 customers**, with a churn rate of approximately **26.5%**.
- Data is mostly clean; *TotalCharges* had blank values (~0.2%) which were corrected and converted to numeric.
- The mix of customers across age, contract type, internet service, and payment method allows robust churn pattern identification.

Percentage of churned cusotmers

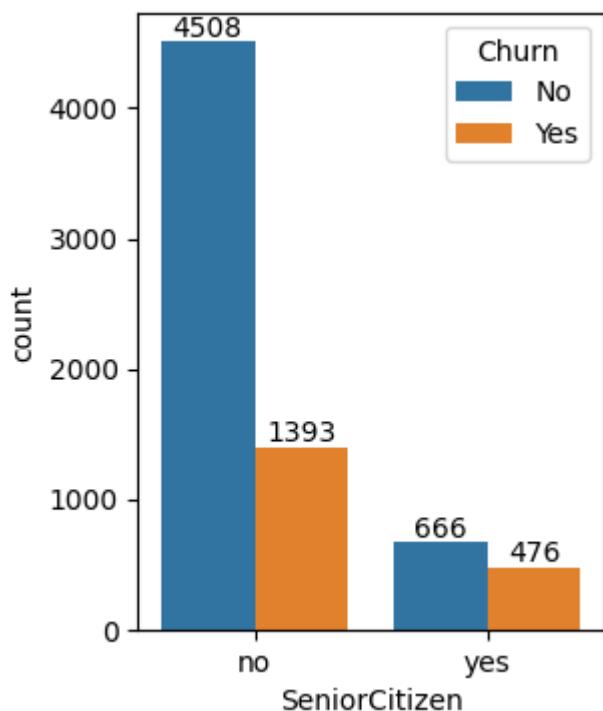


2. Key Churn Drivers

a. Senior Citizens

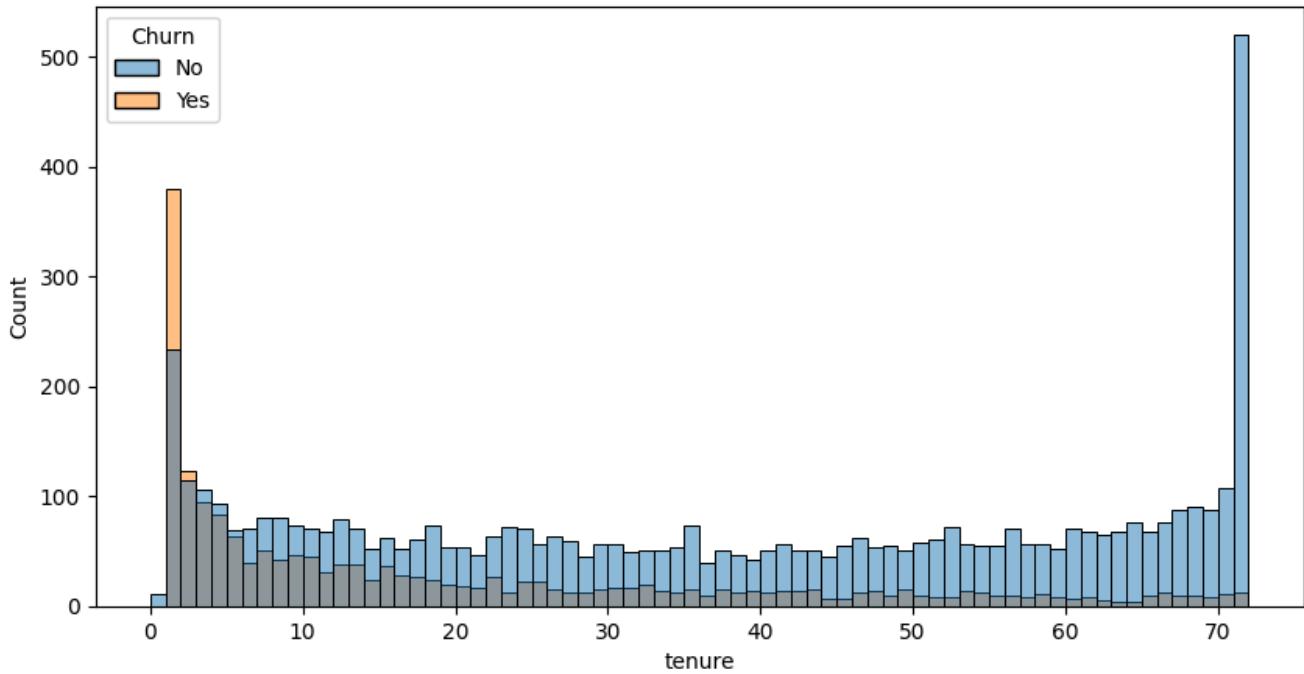
- Senior citizens represent **16% of the total customer base**, but account for **~42% of all churn cases**.
– Churn rate:
 - **Senior citizens:** ~42% churn

- **Non-seniors:** ~24% churn
- Senior citizens churn almost 2x more.



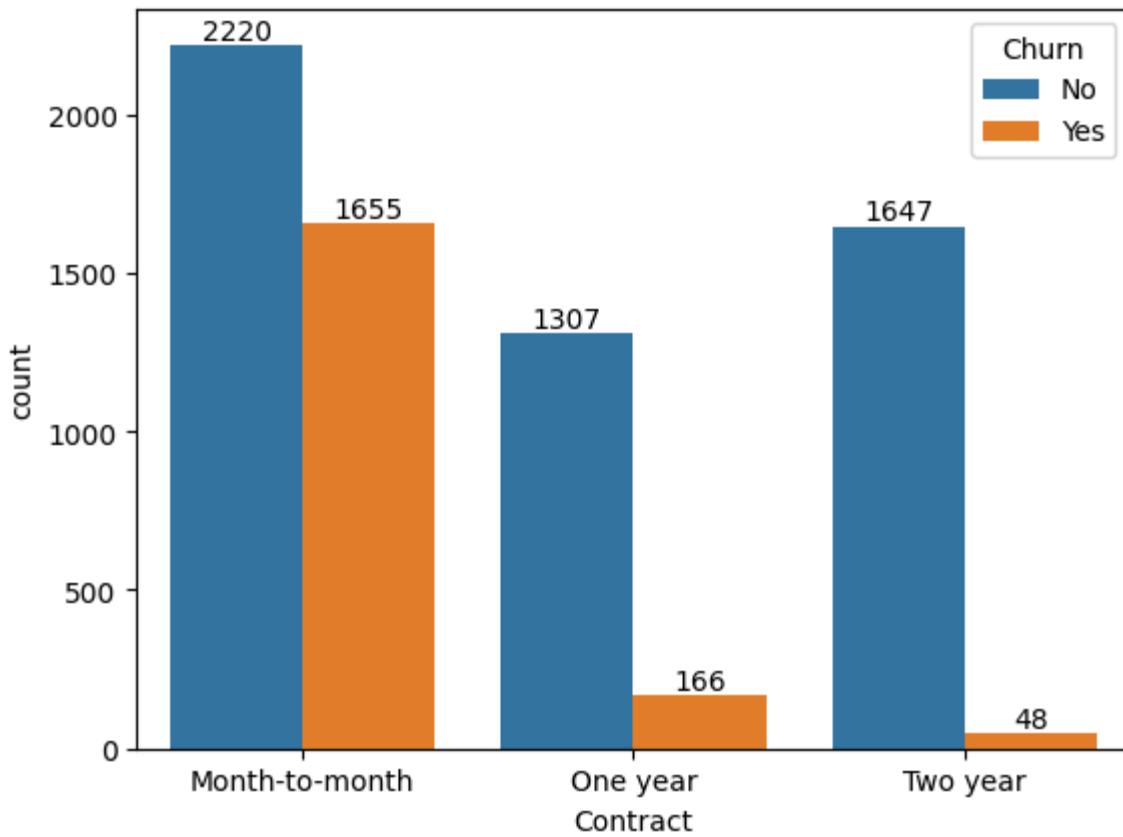
b. Tenure (Customer Lifetime)

- Customers in their **first 6 months** have the highest churn at ~55%.
 - Churn gradually declines as tenure increases:
 - **0–12 months:** ~45–55% churn
 - **12–24 months:** ~25–30% churn
 - **24+ months:** ~10–15% churn
- **New customers are most likely to leave**, suggesting onboarding, experience, or expectation issues.



c. Contract Type

- **Month-to-month customers (55% of all customers)** account for **~89% of total churn**.
 - Churn by contract type:
 - **Month-to-month:** ~43% churn
 - **One-year:** ~11% churn
 - **Two-year:** ~3% churn
 - Longer contracts drastically reduce churn.



d. Internet Service

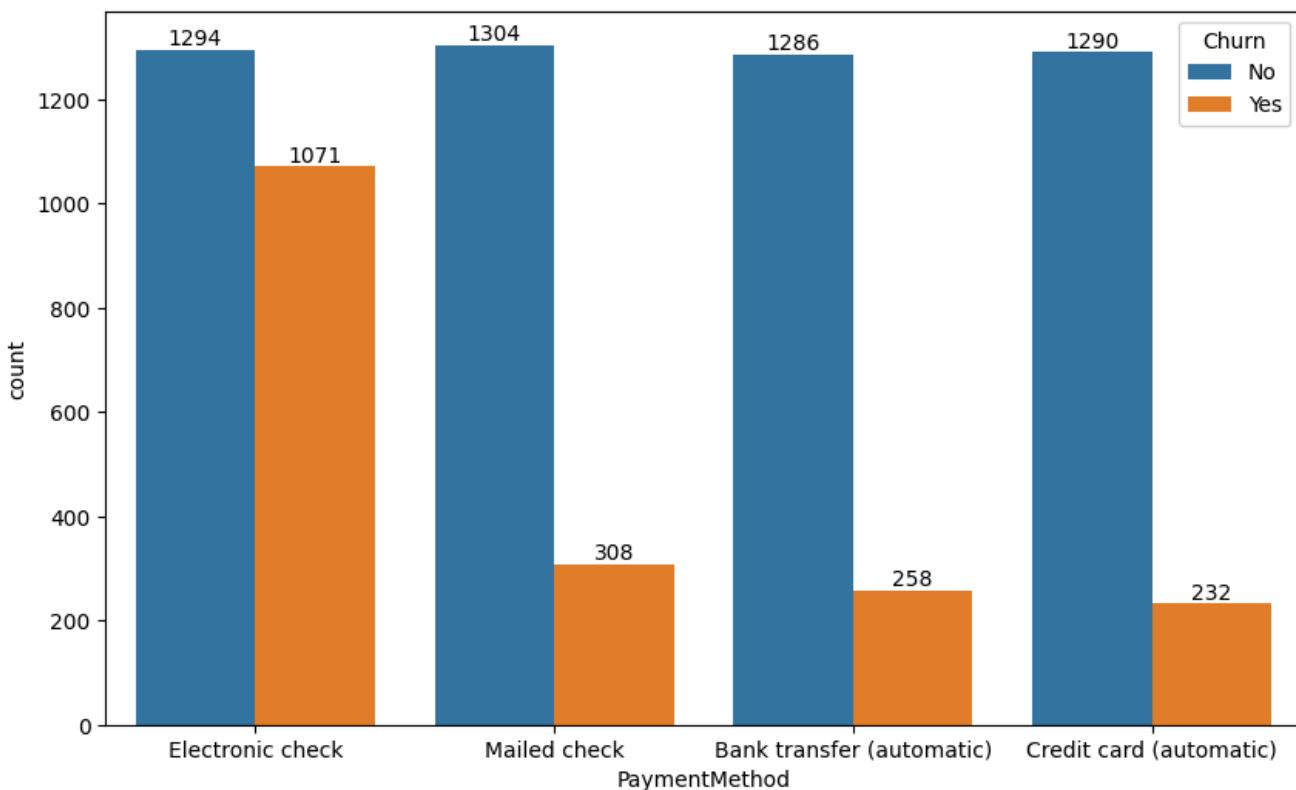
- **Fiber optic users** show the highest churn due to higher cost & service complaints.
- Churn by internet type:
 - **Fiber optic:** ~41%
 - **DSL:** ~19%
 - **No internet:** ~7%
- Fiber users churn at 2x the rate of DSL customers.

e. Add-on Services (Security & Support)

- Customers without value-added services churn more:
 - **No Online Security:** ~42% churn

- **Online Security enabled:** ~15% churn
 - **No Tech Support:** ~41% churn
 - **Tech Support enabled:** ~14% churn
- Add-on services **reduce churn by ~65%**.
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3. Billing & Payment Insights



a. Monthly Charges

- Higher monthly charges correlate with higher churn:
 - **Churned customers' average monthly charges:** \$74
 - **Non-churned customers' average monthly charges:** \$61
- Higher pricing drives attrition.
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b. Payment Method

- **Electronic check users (33% of customers)** represent nearly **50% of all churn cases**.
 - Churn by payment method:
 - **Electronic check:** ~45% churn
 - **Credit card / Bank transfer:** ~15–18%
 - **Mailed check:** ~19%
 - Electronic check users churn **3x more** than others.
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4. Customer Behavior Patterns

- Customers who use **many monthly add-on services** but are on **month-to-month contracts** show churn >40%.
 - **Younger & newer customers** with high monthly bills show disproportionate churn.
 - Families (Partner/Dependents) tend to be **more stable** with churn <20%.
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5. Major Insights & Opportunities

High-Risk Segments

Segment	Churn Rate
Senior citizens	~42%
Month-to-month contracts	~43%
0–6 months tenure	~55%
Fiber optic internet	~41%
Electronic check payment	~45%

These groups require targeted retention programs.

✓ Retention Opportunities

- Promote **annual or two-year plans** (reduces churn by up to 90%).
- Offer **introductory retention offers** for customers in their first 6 months.
- Build **fiber-optic specific retention campaigns** (price, service reliability).
- Provide **discounted security/support bundles**—these lower churn by ~60%.
- Encourage payment method shift **away from electronic checks**.