Summary: Customer Churn Analysis

This analysis provides insights into customer attrition patterns using a telco dataset. It combines statistical summaries and data visualizations to uncover key drivers of churn, helping guide strategic retention efforts.

1. Overall Churn Landscape

- Out of all customers, **26.54%** have **churned**, while **73.46%** have remained.

- This churn rate, visualized via a pie chart, highlights that **over a quarter** of the customer base is being lost — a significant figure warranting action.

2. Churn by Demographics

Gender:

- Churn among **male** and **female** customers is almost evenly split.

- **Males**: ~26.2% churned

- **Females**: ~26.9% churned
  Interpretation: Gender does **not play a major role** in churn; other factors are likely more influential.

Senior Citizen:

- **Yes (Senior Citizens)**: ~42% churned

- **No**: ~24% churned
  Interpretation: Senior citizens are nearly **twice as likely** to churn as younger customers, indicating age-linked churn behavior.

3. Churn by Tenure

- Histogram analysis shows that **customers with 1–3 months tenure** have the **highest churn**.

- Customers with tenure **above 20 months** show significantly **lower churn**.
  Insight: **Early months are critical**. Improving onboarding and first-month experience could help reduce churn.

4. Churn by Contract Type

Contract Type	Churn Rate
Month-to-month	**43.9%**
One year	**11.5%**
Two year	**2.7%**

Interpretation: Month-to-month subscribers are **16 times more likely** to churn than two-year subscribers. Long-term contracts are a strong churn deterrent.

5. Churn by Service Features

You generated insightful subplots on service subscriptions (with `hue='Churn'`). Key takeaways:

PhoneService

- Customers **with phone service**: ~26% churn

- Customers **without phone service**: ~24% churn
  Minimal difference — phone service isn't a churn driver.

MultipleLines

- **No phone service**: low churn

- **Having multiple lines** shows **slightly higher churn** than those with a single line.

InternetService

Type	Churn Rate

DSL   ~19%

Fiber optic   ~41%

No   ~7%

Customers using **Fiber optic internet** have the **highest churn rate** — possibly due to price or performance dissatisfaction.

Security & Support Services:

- For each of the following: **OnlineSecurity**, **OnlineBackup**, **TechSupport**, **DeviceProtection**:

    - Customers **without the service** consistently show **higher churn rates** (~30–40%)

    - Those **with these services** churn less (~15–25%)

Conclusion: Value-added services act as **retention tools** — bundling these could enhance customer stickiness.

Streaming Services:

- Moderate churn patterns seen.

- Churn is **higher for customers without streaming services**, but not as drastic as with security tools.