

Data Cleaning & Preprocessing

- Missing or blank values in the **TotalCharges** column were replaced with 0, especially for new customers with zero tenure.
 - The **SeniorCitizen** column, originally coded as 0 or 1, was transformed into more interpretable labels: "Yes" or "No".
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Churn Overview

- **26.5%** of customers have churned.
 - This figure is derived from a pie chart visualization of the **Churn** column.
 - Using a count plot:
 - **1,869 customers** churned.
 - **5,174 customers** stayed.
 - Total customers: **7,043**.
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Customer Profile & Churn Behavior

- **Senior citizens** are more likely to churn than non-seniors.
 - **Tenure Analysis:**
 - Customers with a **short tenure (1–2 months)** are more likely to churn.
 - Customers with **longer tenure** are more likely to stay.
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Contract Type

- Customers with **Month-to-Month contracts** churn at a significantly higher rate compared to those with **One-Year** or **Two-Year contracts**.
 - Month-to-Month: **~43% churn rate**
 - One Year: **~11% churn rate**
 - Two Year: **~3% churn rate**
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Additional Services & Churn

- Customers **without** add-on services like:
 - **OnlineSecurity**
 - **TechSupport**
 - **OnlineBackup**

- ...are **more likely to churn**.
 - **StreamingService** users churn less, possibly indicating stronger engagement.
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Internet Service Type

- Churn rates by internet type:
 - **Fiber optic** users have the **highest churn rate**.
 - **DSL** users churn **less**.
 - **No internet** service has the **lowest churn**.
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Phone Service

- Customers **with phone service** are **less likely to churn**.
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Overall Trend

- The **more services** a customer uses, the **less likely** they are to churn.
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Payment Method & Churn

- **Electronic Check** users have the **highest churn rate (~45%)**.
- **Automatic payment methods** (bank transfer, credit card) have the **lowest churn (~15–20%)**.
- **Mailed Check** churns are between the two (~22–25%).