

# Telco Customer Churn Analysis – Summary

## ◆ Dataset & Preprocessing

- Dataset: **Customer Churn.csv**
  - Data cleaning steps:
    - Replaced blank entries in **TotalCharges** with 0 and converted the column to float.
    - Converted **SeniorCitizen (0/1)** into categorical values (**Yes/No**).
    - Checked for duplicates and null values → none significant after cleaning.
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## Overall Churn

- **Churn Rate: ~ 26.54% of customers have churned.**
  - This is a significant proportion, indicating retention issues.
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## Demographic Factors

1. **Gender**
    - Churn rates are **almost equal for male and female** customers.
    - Gender is **not a strong driver** of churn.
  2. **Senior Citizens**
    - Senior citizens churn at a **much higher rate** than non-senior customers.
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## Tenure

- Customers with **short tenure (1–2 months)** churn the most.
  - Customers with **long tenure** are far more likely to stay loyal.
  - Indicates **early-stage retention problem**.
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## Contract Type

- **Month-to-Month contracts** → very high churn.
  - **1-Year and 2-Year contracts** → much lower churn.
  - Suggests that **longer contracts encourage retention**.
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## Services

### 1. Phone Service

- Most customers have it; churn is present but not strongly determined by it.

### 2. Multiple Lines

- Churn is slightly higher among those with multiple lines.

### 3. Internet Service

- **Fiber optic users** churn the most (highest-risk group).
- **DSL users** churn moderately.
- **No internet service** → lowest churn.

### 4. Online Security, Online Backup, Device Protection, Tech Support

- In all four cases, customers who **do not have these add-ons** churn more.
- Subscribing to these services appears to **protect against churn**.

### 5. Streaming Services (TV & Movies)

- Balanced between churners and non-churners.
- **No strong impact** on churn.

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## Payment Method

- Customers with **automatic payment methods** churn less.
- Manual payment users are **more prone to churn**.

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## Key Insights

### 1. High churn risk groups:

- Senior citizens
- New customers (low tenure)
- Month-to-month contract holders
- Fiber optic internet users
- Customers lacking value-added services (security, backup, tech support)

### 2. Retention strategies:

- Encourage longer contracts (e.g., discounts for 1–2 year plans).
- Target early-stage customers with onboarding/loyalty incentives.
- Provide bundled services (security, backup, tech support) to increase stickiness.
- Promote automatic payment methods.

**3. Neutral factors:**

- Gender and streaming services do not strongly affect churn.