Detailed Summary of Churn Analysis

1. Data Preparation & Cleaning

- Dataset Used: Customer Churn.csv

- Replaced blank entries in the 'TotalCharges' column with 0 and converted its datatype to float.

- Verified that there are no null values in the dataset.

- Checked for duplicate records:

  - Total Duplicated Rows: 0

  - Duplicated customerID entries: 0

- Converted the SeniorCitizen column:

  - From numeric (0 and 1) to categorical ("No" and "Yes").

2. Basic Dataset Overview

- Total Records: 7043

- Features include customer demographics, services used, tenure, contract type, payment method, and churn status.

- Target Variable: Churn (Yes or No)

3. Churn Overview

- Count of Churned Customers:

  - No: 5174 customers (73.46%)

  - Yes: 1869 customers (26.54%)

- Pie Chart Observation:

  - Approximately 26.54% of customers have churned.

○ Indicates a notable churn rate that merits further analysis.

4. Churn by Demographics

A. Gender

- Distribution is roughly equal between Male and Female.

- Churn Rates:

    ○ Male: ~26.1%

    ○ Female: ~26.9%

- Insight: Gender has minimal influence on churn likelihood.

B. Senior Citizen

- Senior Citizens (Yes): ~16.2% of total customers

- Churn Rate Among Senior Citizens: ~42%

- Churn Rate Among Non-Senior Citizens: ~24%

- Insight: Senior citizens are significantly more likely to churn.

5. Churn by Tenure

- Observations from Tenure Histogram:

    ○ Customers with tenure less than 12 months show higher churn.

    ○ Long-term users (tenure > 36 months) have very low churn rates.

- Insight: Loyalty grows with service duration — retention improves over time.

6. Churn by Contract Type

- Distribution:

    ○ Month-to-Month: 55% of users → 43% churn rate

- One Year Contract: 22% of users → 11% churn rate

- Two Year Contract: 23% of users → 2.8% churn rate

- Insight:

  - Month-to-month contract holders are at the highest risk of churn.

  - Long-term contracts strongly reduce churn rates.

7. Churn by Payment Method

- Methods Analyzed:

  - Electronic Check → Highest churn (~45%)

  - Mailed Check → Lower churn (~19%)

  - Bank Transfer (Auto) & Credit Card (Auto) → Lowest churn (~15%–17%)

- Insight:

  - Manual payment methods (like electronic checks) correlate with higher churn.

  - Auto-pay customers exhibit higher retention.

8. Additional Observations

- The majority of churned customers are:

  - New users (tenure < 12 months),

  - Senior citizens,

  - On monthly contracts,

  - Using electronic check payment methods.

🔍 Overall Insights & Recommendations

- Key Risk Segments:

- New customers (<1 year), especially with month-to-month contracts and electronic check payments.

- Senior citizens without long-term commitment plans.

● Actionable Steps:

- Implement loyalty incentives for early-stage users.

- Encourage annual or bi-annual contracts via pricing benefits.

- Promote automatic payment methods through discounts or promotions.

📊 Conclusion

Your analysis successfully identifies churn patterns and uncovers behavioral and demographic factors contributing to customer loss. Visuals like pie charts, histograms, and countplots enhance understanding and support strategic decisions for reducing churn.