

# Customer Churn Analysis Summary

**Churn Rate:** Around 26.54% of customers have churned, while 73.46% remain active. This indicates a moderately high churn rate that may require strategic intervention.

**Gender Impact:** Churn is almost equally distributed across male and female customers, showing that gender does not significantly influence churn.

**Senior Citizens:** You applied a conversion to label senior citizens (1 → yes, 0 → no), preparing the dataset for categorical analysis.

## Data Cleaning:

Missing or empty values in Monthly Charges and Total Charges were replaced with 0 and converted to float.

Checked and confirmed there were no missing or duplicate rows in the dataset.

**Visualization Tools Used:** Plots like countplots and pie charts were generated using Seaborn and Matplotlib for analyzing churn distribution.

## Overall Churn Rate

**Churned Customers:** 26.54%

**Active Customers:** 73.46%

Indicates a moderately high churn rate requiring proactive retention strategies.

## Demographic Factors

**Gender:** No significant difference between male and female churn rates.

**Senior Citizens:** Labelled for clarity; further analysis can reveal more.

## Visual Insights from Key Service Features

Feature	Insight
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Contract Type	Customers on monthly contracts are far more likely to churn than those on 1- or 2-year contracts.
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Internet Service	Customers using Fiber Optic internet show higher churn compared to those on DSL or with no internet.
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**Online Security** Customers without Online Security are more prone to churn, suggesting security service is a retention factor.

**Tech Support** Lack of Tech Support correlates with higher churn, highlighting the importance of post-sales service.

**Device Protection** Customers not using device protection have higher churn rates.

**Streaming Services** Those using StreamingTV and StreamingMovies show slightly higher churn, possibly indicating entertainment features alone don't retain customers.

**Phone Service & Multiple Lines** No major differences observed, but multiple lines users show slightly more churn in some cases.

## **Key Takeaways**

- **Focus on long-term contracts to reduce churn.**
- **Encourage adoption of security, tech support, and device protection services.**
- **Re-evaluate packages for Fiber Optic users to enhance satisfaction.**
- **Add more personalization or support for users of entertainment services to improve retention.**