

SUMMARY AND RECOMMENDATIONS

Customer Churn Analysis - Detailed Summary

1. Data Preparation & Cleaning:

- The dataset was inspected for missing values, duplicates, and inconsistencies.
- The **TotalCharges** column had missing values, which were replaced with **0**, and its data type was converted to **float**.
- The **SeniorCitizen** column was initially represented as **0** (No) and **1** (Yes); it was transformed into categorical values (**Yes/No**) for better readability.
- No duplicate customer IDs were found, ensuring data integrity.

2. Churn Distribution Overview:

- A **countplot** and **pie chart** show that **26.5%** of customers have churned, while **73.5%** remain active.
- This indicates a relatively high churn rate, suggesting a need for customer retention strategies.

3. Feature-Based Analysis & Insights:

A. Contract Type & Churn Rate

- Customers on **month-to-month contracts** have the highest churn rate (**42% churned**), while those on **one-year (11%)** and **two-year (3%)** contracts have significantly lower churn.
- This suggests that **long-term contracts** help in retaining customers, possibly due to reduced flexibility in cancellation and perceived commitment benefits.

B. Internet & Phone Services Impact on Churn

- **Internet Service:** Customers with **Fiber Optic** internet have a churn rate of around **41%**, whereas **DSL users** have a much lower churn rate (**20%**). Customers with **no internet service churn the least (7%)**.
- **Phone Service:** Customers **without phone service** have a **higher churn rate (~26%)** compared to those who have it (**20%**), suggesting phone service may play a minor role in retention.

C. Add-On Services & Their Impact on Churn

Customers **without** additional services like **OnlineSecurity**, **TechSupport**, and **Streaming services** exhibit **significantly higher churn rates**:

- **Online Security:** 40% of customers without Online Security have churned, compared to only 15% of those who subscribed.
- **Tech Support:** A similar trend—39% churn rate for non-subscribers vs. 17% for subscribers.
- **Streaming TV & Movies:** These services show a smaller impact on churn but still contribute.

D. Tenure & Churn Rate

- Customers with a **tenure of less than 6 months** have a **churn rate exceeding 60%**.
- Those with a **tenure of more than 2 years** have a churn rate below **10%**, reinforcing the idea that **early-stage retention strategies** are crucial.

4. Key Business Insights & Recommendations:

1. Encourage Long-Term Contracts:

- Provide incentives (discounts, loyalty rewards) to move customers from **month-to-month to annual contracts**, as long-term contracts have significantly lower churn.

2. Increase Adoption of Online Security & Tech Support Services:

- Since churn is **50% lower** among users of these services, bundling them with internet plans or offering free trials may increase retention.

3. Targeted Early-Stage Retention Strategies:

- Customers with a **tenure < 6 months** are at the highest risk; offering **welcome discounts, personalized onboarding, or proactive customer support** could improve retention.

4. Focus on Fiber Optic Internet Customers:

- With **41% churn**, improving service reliability or providing loyalty perks could mitigate this high churn rate.

Conclusion:

The analysis highlights that **contract type, tenure, and additional services are major churn determinants**. Implementing **long-term contracts, upselling critical services, and providing early-stage customer engagement** could significantly reduce churn.