

Summary

Data Preparation

1. Data Loading and Cleaning:

- The dataset was imported, and its structure (shape, columns, and data types) was explored.
 - **TotalCharges Column:**
 - Blank values in "TotalCharges" (likely due to new customers with no recorded charges) were replaced with 0 and converted to a numeric data type for further analysis.
 - **Duplicate Records:**
 - No duplicates were found in the "customerID" column, ensuring the data's integrity.
 - **SeniorCitizen Conversion:**
 - Converted 1/0 values in "SeniorCitizen" into "yes" and "no" for easier interpretation.
-

Churn Analysis

1. Overall Churn Rate:

- The dataset shows that **26.54% of customers have churned**, as visualized in a pie chart.
- This indicates that nearly 1 in 4 customers is leaving, which is a significant proportion and needs attention.

2. Gender-wise Churn:

- Churn rates are consistent across genders, indicating no gender-specific behavior influencing churn.

3. Senior Citizen Analysis:

- Senior citizens show a higher likelihood of churn compared to non-senior citizens.
 - A **stacked bar plot** showed the distribution of churn among senior citizens, with percentages provided for clearer understanding.
-

Tenure and Churn

- A histogram of tenure revealed the following trends:
 - Customers with **short tenures (1-2 months)** are more likely to churn.

- Customers with **long tenures (multiple years)** tend to stay loyal.
 - This highlights that early customer retention efforts (e.g., improved onboarding, incentives for early renewals) could reduce churn rates significantly.
-

Contract Type Analysis

- Customers with **month-to-month contracts** are much more likely to churn compared to those with **1-year** or **2-year contracts**.
 - Insights:
 - Month-to-month contracts lack long-term commitment, increasing the risk of customers leaving.
 - Offering discounts or incentives for longer-term contracts could help reduce churn.
-

Service Usage Analysis

The following observations were made for service usage and churn rates:

1. **PhoneService:**
 - Most customers use this service, but those with additional lines (MultipleLines) are more likely to churn.
 2. **InternetService:**
 - Customers with **fiber optic internet** have a significantly higher churn rate than those using DSL or no internet.
 - This could indicate dissatisfaction with fiber optic service quality or pricing.
 3. **Additional Services:**
 - Customers without **OnlineSecurity, OnlineBackup, DeviceProtection, or TechSupport** services are more likely to churn.
 - Insights:
 - These services may contribute to customer satisfaction and retention.
 - Promoting bundled packages or highlighting the value of these services might reduce churn.
 4. **Streaming Services:**
 - Customers with **StreamingTV and StreamingMovies** show slightly higher churn rates, suggesting these may not be key differentiators for retention.
-

Payment Method Analysis

- Payment methods have a noticeable impact on churn rates:

- **Electronic Check** users churn significantly more than customers using credit cards, bank transfers, or mailed checks.
 - This may indicate that electronic check users face issues like transaction friction, hidden fees, or poor customer experience.
 - **Suggested Actions:**
 - Improve the experience for electronic check users or encourage them to switch to other payment methods via discounts or promotions.
-

Key Takeaways and Recommendations

1. Target High-Churn Groups:

- Focus retention strategies on senior citizens, customers with month-to-month contracts, and electronic check users.
- Proactively engage with new customers during their first few months to prevent churn.

2. Promote Long-Term Contracts:

- Offer discounts or perks for customers who switch from month-to-month to longer-term contracts.

3. Improve Fiber Optic Service:

- Investigate and address customer dissatisfaction with fiber optic internet to reduce churn in this segment.

4. Encourage Service Add-ons:

- Customers lacking services like OnlineSecurity or TechSupport are more likely to churn. Promote these services with bundled packages or special offers.

5. Enhance Payment Experience:

- Address issues with electronic check payments and incentivize customers to switch to more stable payment methods like credit cards or bank transfers.
-