

Summary:

The **Customer Churn Analysis** notebook provides a detailed exploration of the factors contributing to customer churn. Here's a more comprehensive summary of the key insights:

1. Data Preprocessing:

- **Total Charges Column:** The 'Total Charges' column was incorrectly stored as an object type. It was converted to a float after handling missing values, where blanks were replaced with 0 for customers with zero tenure, indicating no recorded total charges.
- **Senior Citizen Column:** The numerical values for Senior Citizen (0/1) were transformed into categorical values ('yes' for 1 and 'no' for 0), making the data easier to interpret.

2. Churn Rate:

- A **pie chart** revealed that **26.54% of the customers** had churned, marking a significant portion of the customer base. This set the stage for further analysis to explore the causes of churn.

3. Churn Insights Based on Customer Demographics:

- **Senior Citizens:** There was a notable difference in churn rates based on age. **A higher percentage of senior citizens** were found to churn compared to non-senior customers. This suggests that older customers may face issues that need specific attention, potentially related to product usability or service offerings.

4. Churn Trends Based on Customer Tenure:

- **Tenure Duration:** Customers who had used the service for a shorter period (especially those in their first **1-2 months of service**) exhibited a much higher likelihood of churning. On the other hand, **long-term customers** who had used the services for an extended period were more likely to stay. This points to a possible issue with the initial customer experience, indicating that the early months of service might be a critical period where intervention could reduce churn.

5. Churn Trends Based on Services:

- Though not explicitly mentioned in the extracted cells, churn analysis in typical scenarios often includes looking into the types of services subscribed to (e.g., internet service,

phone service, streaming). Any trends observed in relation to specific service packages or features could guide product or marketing adjustments.

Conclusion:

The analysis highlights specific customer groups (senior citizens, new customers) that are more prone to churn. These findings can be used to develop strategies such as targeted marketing, improving the early customer experience, or offering senior-friendly products. Optimizing customer retention efforts for these segments can reduce the overall churn rate and improve business performance.