ANALYZING TELCO CUSTOMER CHURN:
SUMMARY OF PROJECT FINDINGS AND INSIGHTS.
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INTRODUCTION

Customer churn is a critical challenge for businesses, especially in a highly competitive telecommunications industry. In this summary, we explore the Telco Customer Churn dataset and made use of data analysis environment (python with pandas) to gain insights and identify factors that contribute to customer churn.

UNDERSTANDING THE DATASET

The Telco customer churn dataset contains information about about demographics, services subscribed, contract details and churn status. Our objective is to Clean and preprocess the raw dataset to make it suitable for analysis, Explore the dataset to understand the distribution of key variables, Identify factors that may be associated with customer churn and Create informative visualizations to communicate findings effectively.

DATA CLEANING AND PREPROCESSING

After loading the necessary libraries and displayed the dataset, data cleaning and preprocessing were carried out and the following were found:

1. There were 7043 rows and 21 columns counted
2. The total charges column is object instead of float and it was changed to numeric datatype
3. There were 11 missing values in the Total charges columns, and these were dropped.
4. There were no duplicates
5. The dataset includes both numerical and categorical variables. The categorical variables were hot encoded into 0s n 1s before analysis.

DATA EXPLORATION

6. The descriptive analysis shows the mean monthly charges ia about 64.79 units and 75% of observations are monthly charged around 89.86. The maximum tenure is 72 months with a mean of about 32 months. And 50% of customers were charged 70.35 per month.

7. From the correlation matrix as shown on the heatmap. We can see that there is a strong positive correlation of 0.83 between total charges and tenure which makes sense as customers who have been with the company for a longer time will have paid more in total charges. On the other hand, there is a negative correlation of 0.25 between monthly charges and tenure which suggests that as the tenure of a customer increases, the monthly charges tend to decrease.
8. The graph shows the distribution of customers who churned and those who do not. About 73% remain active (didn't churned) and about 26% of the customers churned.
9. The chart shown on contract vs churn shows that the longer the contract duration, the lower the churn rate. This might probably be due to the fact that customers pay more when they sign monthly contracts.
10. The chart shown on payment method indicates that customers with automated forms of payment such as Bank transfer and Credit card have the lowest churn as compared to electronic check and mailed check.

DATA VISUALIZATION

11. The bar plots shows more customers paid through electronic check compared to other payment methods. Most of the customers have opted for phone service, 3/4th of the customers have opted for internet service via fiber optic and DSL Connections and customers who have availed Online Backup, device protection and tech support are a minority, Also, there were more customers on month-month contract compared to other contract types and more paperless billing customers than those that opted for paper. The histogram charts on the other hand shows that the company gets a lot of new customers signing up for services. Most of which stay up to about 74 months before churning.
12. The first box plot shows most customers churned before reaching their 40th month. The second box plot shows that customers with month-to-month contracts have a wider distribution of monthly charges compared to customers with one-year or two-year contracts. it also shows there is no outlier in the numerical variables.
13. From the scatter plot customers churned when their monthly bills were rising between 70 to about 105 dollars. However lots more customers stayed when their total charges were rather going high. Also, scatter plots shows there is generally a tight positive correlation between tenure and monthly charges and between monthly charges and total charges.

14. From the pie chart, we can see that about 73% of the customers did not churn. Meaning we have more customers that were retained in the company. Only about 26% churned.