Summary of the Jupyter Notebook: Customer Churn Analysis (TCA.ipynb) :

This notebook performs a **Customer Churn Analysis** using a dataset named Customer Churn.csv. The analysis investigates the reasons behind customer churn and visualizes trends in churn behaviour. Here's a detailed summary:

📊 Key Findings from Visualizations (Markdown Insights):

- **26.54% of customers** have churned.
- Senior citizens are **more likely to churn**.
- Both new users (1–2 months) and long-term users are seen to churn.
- Customers with **month-to-month contracts** churn more than those with 1–2 year contracts.
- Use of **electronic checks** as payment method correlates with higher churn.

□ Data Cleaning & Preparation:

- Loaded data using pandas.
- Replaced blank TotalCharges with 0 and converted the column to float.
- Checked for duplicates and missing values.
- Converted SeniorCitizen values from 0/1 to yes/no.

📈 Data Visualization & Analysis:

1. **Overall Churn Distribution**:
    - Count plot and pie chart display the proportion of churned vs retained customers.
2. **Demographics and Churn**:
    - **Gender**: Visual comparison of churn across male and female customers.
    - **Senior Citizen**: Higher churn among senior citizens is evident.
3. **Tenure vs Churn**:
    - Histogram shows churn is prominent at both ends — short and long tenure.
4. **Contract Type**:
    - Customers with **monthly contracts** are most prone to churn.
5. **Service Usage**:

- Count plots (in subplots) analyse churn across these features:
    - PhoneService
    - MultipleLines
    - InternetService
    - OnlineSecurity
    - OnlineBackup
    - DeviceProtection
    - TechSupport
    - StreamingTV
    - StreamingMovies

Techniques & Libraries Used:

- **Libraries**: pandas, numpy, matplotlib, seaborn
- **Plot Types**: Count plots, histograms, pie charts, grouped bar plots
- **Subplotting**: Used matplotlib and seaborn to create a grid of count plots