**Python Assignment: Categorical Data Visualization on tips Dataset**

**Objective**

* Load and explore the tips dataset.
* Perform **categorical data visualization** using **Seaborn** and **Matplotlib**.
* Extract insights from categorical variables.

**Dataset**

* Columns:
  + sex – Gender of the customer
  + smoker – Smoker or non-smoker
  + day – Day of the week
  + time – Lunch or Dinner
  + size – Size of the party
  + total\_bill – Total bill amount
  + tip – Tip amount

**Assignment Questions**

**1. Data Loading & Exploration**

1. Load the dataset into a Pandas DataFrame.
2. Display the first 10 rows.
3. Display the last 10 rows.
4. Check the shape of the dataset.
5. Display the data types of all columns.
6. Check for missing values.
7. Generate summary statistics for numerical columns.
8. Find unique values for all categorical columns.
9. Count the frequency of each category in categorical columns.
10. Display the first 5 rows of only categorical columns.
11. Display the first 5 rows of only numerical columns.
12. Find the correlation between numerical columns.

**2. Categorical Visualizations**

1. Plot a **countplot** for sex using Seaborn.
2. Plot a **countplot** for smoker using Seaborn.
3. Plot a **countplot** for day using Seaborn.
4. Plot a **bar chart** showing average tip for each day using Matplotlib.
5. Plot a **bar chart** showing average tip for sex using Matplotlib.
6. Plot a **stacked bar chart** for day vs smoker to show the number of smokers and non-smokers per day using Matplotlib.
7. Plot a **violin plot** for tip grouped by sex using Seaborn.

**3. Insights**

Answer the following questions based on your analysis and visualizations:

1. Which gender tips more on average?
2. Which day has the highest number of customers?
3. Are there more smokers or non-smokers visiting the restaurant?
4. Are there any patterns between day and smoker status?
5. Are there any outliers in tip for different genders?
6. How does the party size vary across days?