**Data Visualization Assignment - Jupyter Notebook**

**Overview**

This assignment focuses on **data cleaning and visualization** using **Pandas, Matplotlib, Seaborn, and Plotly**. It consists of two datasets:

1. **Indian Food Dataset (Indian\_food.csv)** - Cleaning and visualizing food preferences.
2. **Billionaires Dataset (Billionaires\_Stats.csv)** - Analyzing wealth distribution and demographics.

**Task 1: Indian Food Dataset**

**Data Cleaning Steps:**

✅ Replace -1 in the **state column** with the most frequent state.  
✅ Fill the corresponding **region column** based on the updated state.  
✅ Replace -1 in the **cook time column** with the mean cook time.

**Visualizations:**

📌 **Pie Chart**: Most preferred flavors by customers.  
📌 **Bar Chart**: Most requested course, with labels on top, sorted in descending order.  
📌 **Stacked/Grouped Bar Chart**: Comparison between vegetarian and non-vegetarian orders across regions.  
📌 **Box Plot**: Order cook time distribution & identification of outliers.

**Task 2: Billionaires Dataset**

**Data Analysis Steps:**

✅ Create a dataframe for billionaires aged **30 or above**.  
✅ **Scatter Plot**: Relationship between **age and net worth**.  
✅ **Histogram**: Distribution of billionaire ages.  
✅ **Heatmap**: Correlation between all numeric variables, with correlation values printed.  
✅ **Save Heatmap**: Store the generated heatmap in the **current working directory (pwd)**.

**Task 3: Chart Types & Sample Code**

**Familiar Chart Types:**

1. **Bar Chart** - Visualizing categories.
2. **Pie Chart** - Showing proportions.
3. **Line Chart** - Analyzing trends.
4. **Scatter Plot** - Examining relationships.
5. **Histogram** - Displaying distributions.

**Sample Code for Each Chart (Using Random Data)**

💡 Includes **Python code** for generating the above chart types using **Matplotlib** and **Seaborn** with **random data**.

**Technologies Used**

🔹 **Python** (Jupyter Notebook)  
🔹 **Pandas** (Data Cleaning & Manipulation)  
🔹 **Matplotlib** / **Seaborn** / **Plotly** (Data Visualization)

This assignment enhances **data analysis skills** and **visualization techniques** for better insights into datasets. 🚀📊