✅ Task 6: Data Visualization – Python Charts for Insights

Tools:

- Primary: Google Colab
- Libraries: matplotlib, pandas
- Alternatives: Power BI Desktop / Tableau Public

Dataset:

- "World Happiness Report"
- "COVID-19 Dataset"
- "Retail Sales Dataset"

Hints / Mini Guide:

1. Load cleaned dataset into pandas and verify column names and datatypes, because visualization accuracy depends on correct structure.
2. Create a basic bar chart of top 10 categories/products based on total sales or revenue and label axes clearly.
3. Create a line chart for time-series trends like sales over months, ensuring dates are sorted and grouped properly.
4. Create a histogram for numeric distributions like profit/ratings, so outliers and skewness are visible.
5. Create a scatter plot to show correlation between two variables such as revenue vs profit, or GDP vs happiness score.
6. Add titles, legends, gridlines, and appropriate figure sizes to improve readability like professional reporting visuals.
7. Highlight key insight points such as peaks in time series or highest bars to show storytelling through charts.
8. Write 3 insights under graphs inside notebook, focusing on interpretation not just plotting.
9. Export notebook as PDF/HTML or take snapshots of graphs for submission.

Deliverables:

- Task6_Visualization.ipynb
- charts_output.pdf or charts_output.html
- 3 insights

Final Outcome:

✅ Intern learns how to visualize and interpret data trends and patterns using Python charts.

Interview Questions Related To Above Task:

- What chart would you use for trend analysis?
- What chart helps identify correlation?
- How do you detect outliers visually?
- Why labeling and formatting charts is important?
- Explain the difference between histogram and bar chart.

📌 **Task Submission Guidelines**

- ⏰ **Time Window:**

Youcan complete the task anytime between 10:00 AM to 10:00 PM on the given day. Submission link closes at 10:00 PM

- 🔍 **Self-Research Allowed:**

Youare free to explore, Google, or refer to tutorials to understand concepts and complete the task effectively.

- 🛠️ **Debug Yourself:**

Tryto resolve all errors by yourself. This helps you learn problem-solving and ensures you don't face the same issues in future tasks.

- 💸 **No Paid Tools:**

Ifthe task involves any paid software/tools, do not purchase anything. Just learn the process or find free alternatives.

- 📁 **GitHub Submission:**

Create a new GitHub repository for each task.
Add everything you used for the task — code, datasets, screenshots (if any), and a short README.md explaining what you did.

📤 **Submit Here:**

After completing the task, paste your GitHub repo link and submit it using the link below:

- 👉 [Submission Link]