Workshop Setup Guide:

🚀 Workshop Setup Guide

Welcome to the **Python Data Workshop**!

To ensure smooth participation, please follow the steps below to set up your system before the session.

1️⃣ Install Python

- Download and install the latest version of Python (**3.10+ recommended**) from:

  👉 https://www.python.org/downloads/

- During installation (Windows): ✅ Check **"Add Python to PATH"** option.
- Verify installation:

  ```
  python --version
  ```

  or

  ```
  python3 --version
  ```

  Expected output: `Python 3.x.x`

2️⃣ Install Jupyter Notebook

Jupyter Notebook is our primary tool for coding, visualizations, and practice.

Option 1: Install via pip (Recommended)

```
pip install notebook
```

- Verify installation:

  ```
  jupyter notebook
  ```

  This should open Jupyter in your web browser.

3️⃣ Essential Python Libraries

We will use these libraries for analysis & visualization. Install them in advance:

```
pip install numpy pandas matplotlib seaborn scikit-learn
```

Optional (but useful):

```
pip install openpyxl plotly
```

📌 **Module Overview**

- **numpy** → Numerical computing
- **pandas** → Data analysis, DataFrames
- **matplotlib** → Data visualization (basic plots)
- **seaborn** → Advanced visualizations (built on matplotlib)
- **scikit-learn** → Machine learning basics (if included in workshop)
- **openpyxl** → Work with Excel files
- **plotly** → Interactive graphs

4️⃣ How to Launch & Use Jupyter Notebook

- Open terminal/command prompt
- Navigate to your working folder

```
cd path/to/workshop
```

- Launch Jupyter

```
jupyter notebook
```

- A browser tab will open → Create a new notebook → Start coding!

5️⃣ Recommended IDEs (Optional but useful)

- **VS Code**: https://code.visualstudio.com/
  - Install Python Extension for VS Code
  - Jupyter extension for running notebooks inside VS Code
- **PyCharm (Community Edition)**: https://www.jetbrains.com/pycharm/

6️⃣ Dataset for Workshop

We'll provide datasets in CSV/Excel format. Place them in your **working folder** before the session.

Example to load a dataset:

```
import pandas as pd

df = pd.read_csv("data.csv")
print(df.head())
```

7️⃣ Troubleshooting

- **pip not recognized?** → Reinstall Python & check “Add to PATH”.
- **Jupyter not opening?** → Run:

```
pip install jupyterlab
jupyter lab
```

- **Library import errors?** → Reinstall specific library:

```
pip install --upgrade package_name
```

✅ Once you’ve completed all the above steps, your system is ready for the workshop!