Python Setup and Virtual Environment Guide

Step 1: Download and Install Python

1. **Go to Python's official website**: https://www.python.org/downloads/
2. **Download the latest Python version** for your OS (Windows, macOS, Linux).
3. **Run the installer** and ensure you check:
    - **"Add Python to PATH"** (Windows only)
    - **Install Now**
4. Wait for the installation to complete.

Step 2: Verify Installation

Open **Command Prompt (Windows) / Terminal (Mac/Linux)** and type:

```
Unset
python --version
```

or (on some systems)

```
Unset
python3 --version
```

✔ If installed correctly, it should display the Python version (e.g., `Python 3.10.4`).

Step 3: Install PIP (Python Package Manager)

PIP is used to install external libraries.

✅ **Check if PIP is installed:**

```
Unset
pip --version
```

✅ **If not installed, install PIP manually:**

- **Windows:**

```
Unset
python -m ensurepip --default-pip
```

- **Mac/Linux:**

```
Unset
sudo apt install python3-pip
```

Step 4: Set Up a Virtual Environment (venv)

A **virtual environment** allows you to create an isolated Python setup for each project.

Create a Virtual Environment

1. Navigate to your project folder:

```
Unset
cd path/to/your/project
```

2. Create a virtual environment:

```
Unset
python -m venv myenv
```

    - `myenv` is the name of the virtual environment (you can change it).

Activate the Virtual Environment

- **Windows (Command Prompt):**

```
Unset
myenv\Scripts\activate
```

- **Windows (PowerShell):**

```
Unset
myenv\Scripts\Activate.ps1
```

- **Mac/Linux:**

```
Unset
source myenv/bin/activate
```

✅ You will see `(myenv)` appear in your terminal, indicating the environment is active.

Install Packages in the Virtual Environment

Once activated, install packages using PIP:

```
Unset
pip install numpy pandas matplotlib
```

🔹 Check installed packages:

```
Unset
pip list
```

Deactivate the Virtual Environment

When done, deactivate the environment:

```
Unset
deactivate
```

Step 5: Install a Code Editor (Optional)

Recommended editors:

- **VS Code** → Download
- **PyCharm** → Download
- **Jupyter Notebook** (for Data Science & AI):

```
Unset
pip install notebook
jupyter notebook
```

Step 6: Run Your First Python Script

1. Open your code editor.
2. Create a new file: **`hello.py`**
3. Add the following code:

```
Python
print("Hello, Python!")
```

4. Run it in the terminal:

```
Unset
python hello.py
```

5. Output:

Unset

```
Hello, Python!
```
