1. Setting up Python on Windows

Step 1: Download Python Installer

- Go to the official Python website.
- Download the latest version of Python for Windows (recommended the stable version).

Step 2: Run the Installer

- Run the downloaded Python installer.
- **Important**: Check the box labeled **"Add Python to PATH"** (this allows Python to be run from the command line).
- Click on **Customize Installation** to choose the features or just select **Install Now**.

Step 3: Verify Installation

- Open **Command Prompt**.
- Type `python --version` or `python` and hit Enter. This should display the Python version.

Step 4: Install pip (Package Installer)

- Python 3.4 and above includes `pip` by default.

To check if `pip` is installed, run:

```
pip --version
```

If not installed, you can install it using:

```
python -m ensurepip --upgrade
```

Step 5: Set Environment Variables (if needed)

- If you missed adding Python to the PATH during installation:
  - Go to **Control Panel > System > Advanced System Settings**.
  - Click on **Environment Variables**.
  - Find **Path** in system variables and click **Edit**.
  - Add the path where Python is installed (e.g., `C:\Python39\`).

Step 6: Install IDE or Text Editor

- Download and install an IDE or text editor (like **VS Code**, **PyCharm**, or **Sublime Text**).

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2. Setting up Python on Linux

Step 1: Update Package Index

Open a terminal and run the following to update the package list:

```
sudo apt update
```

Step 2: Install Python

For Ubuntu/Debian-based distributions:

```
sudo apt install python3
```

For Red Hat/CentOS-based distributions:

```
sudo yum install python3
```

Step 3: Verify Installation

Check the installed Python version:

```
python3 --version
```

Step 4: Install pip (Package Installer)

Install `pip` by running:

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

Verify `pip` installation:

```
pip3 --version
```

Step 5: Set up Virtual Environment (Optional)

Install virtual environment:

```
sudo apt install python3-venv
```

Create a virtual environment:

```
python3 -m venv myenv
```

Activate it:

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

Step 6: Install IDE or Text Editor

- Use an IDE or text editor like **VS Code**, **PyCharm**, **Sublime**, or **Vim**.

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3. Setting up Python on macOS

Step 1: Check if Python is Pre-installed

Open **Terminal** and check for Python:

```
python3 --version
```

- macOS comes with Python 2.x pre-installed. To install Python 3.x, follow the next steps.

Step 2: Install Homebrew (Package Manager)

If you don't have Homebrew, install it by running:

```
/bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

Step 3: Install Python Using Homebrew

Run the following command to install Python:

```
brew install python
```

Step 4: Verify Installation

Check Python version:

```
python3 --version
```

Check `pip`:

```
pip3 --version
```

Step 5: Set up Virtual Environment (Optional)

Create and activate a virtual environment:

```
python3 -m venv myenv
source myenv/bin/activate
```

Step 6: Install IDE or Text Editor

- Download and install an IDE or text editor like **VS Code**, **PyCharm**, or **Sublime Text**.