**Step-by-Step Guide to Installing Python**

Python can be installed on Windows, macOS, and Linux. Follow the steps below based on your operating system.

**1. Install Python on Windows**

**Step 1: Download Python**

1. Go to the official Python website: <https://www.python.org/downloads/>
2. Click on the **Download Python** button (it will suggest the latest version for your OS).
3. Once downloaded, locate the **.exe** file in your downloads folder.

**Step 2: Run the Installer**

1. Double-click the downloaded .exe file to start the installation.
2. **Important:** Check the box **"Add Python to PATH"** at the bottom.
3. Click **"Install Now"**.
4. Wait for the installation to complete, then click **"Close"**.

**Step 3: Verify Installation**

1. Open **Command Prompt** (Press Win + R, type cmd, and press Enter).
2. Type the following command and press Enter:
3. python --version

or

python -V

1. If Python is installed correctly, you will see the installed version number.

**Step 4: Install pip (if not included)**

Python comes with **pip**, but you can check if it is installed:

pip --version

If pip is missing, install it using:

python -m ensurepip --default-pip

**2. Install Python on macOS**

**Step 1: Check if Python is Pre-Installed**

MacOS comes with Python, but it may be an older version. Check using:

python3 --version

**Step 2: Install Python Using Homebrew (Recommended)**

1. Open **Terminal** (Press Cmd + Space, type Terminal, and press Enter).
2. Install Homebrew (if not already installed):
3. /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
4. Install Python using Homebrew:
5. brew install python
6. Verify the installation:
7. python3 --version

**Step 3: Install pip**

If pip is missing, install it using:

python3 -m ensurepip

**3. Install Python on Linux**

**Step 1: Check if Python is Installed**

Most Linux distributions have Python pre-installed. Check with:

python3 --version

**Step 2: Install Python**

**For Debian/Ubuntu-based Systems**

1. Update package list:
2. sudo apt update && sudo apt upgrade
3. Install Python:
4. sudo apt install python3 python3-pip

**For Red Hat-based Systems (CentOS, Fedora)**

1. Install Python:
2. sudo dnf install python3
3. Install pip:
4. sudo dnf install python3-pip

**Step 3: Verify Installation**

Check the installed version:

python3 --version

**4. Set Up a Virtual Environment (Optional)**

A virtual environment helps manage dependencies for different projects.

1. Install venv (if not already installed):
2. python3 -m pip install --user virtualenv
3. Create a virtual environment:
4. python3 -m venv myenv
5. Activate the virtual environment:
   * **Windows**:
   * myenv\Scripts\activate
   * **macOS/Linux**:
   * source myenv/bin/activate

**5. Install Additional Python Packages**

Use pip to install additional libraries:

pip install package\_name

Example:

pip install numpy pandas

**Conclusion**

You have successfully installed Python on your system! 🎉 Now you can start coding in Python by running:

python

or

python3