



**Software Engineering
for Leaders**

Hyperiondev

Academic Onboarding Session

Lecture - Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly.
- No question is daft or silly - **ask them!**
- There are Q&A sessions throughout and at the end of the session, should you wish to ask any follow-up questions.
- For all non-academic questions, please submit a query:
www.hyperiondev.com/support
- Report a safeguarding incident:
<http://hyperiondev.com/safeguardreporting>

Objectives



Objectives

1. Visual Studio Code

- What is **VSCode**?
- Installation

2. Package Managers

- Windows ↔ **Chocolatey**
- MacOS (and Linux) ↔ **Homebrew**

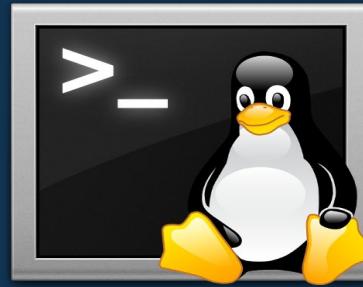
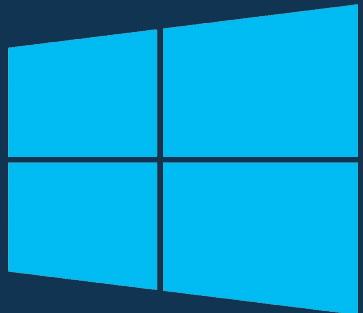
3. Python 3

- Installation
- Virtual Environments (**venv**)

4. PATH

5. PIP

Preface: Operating Systems

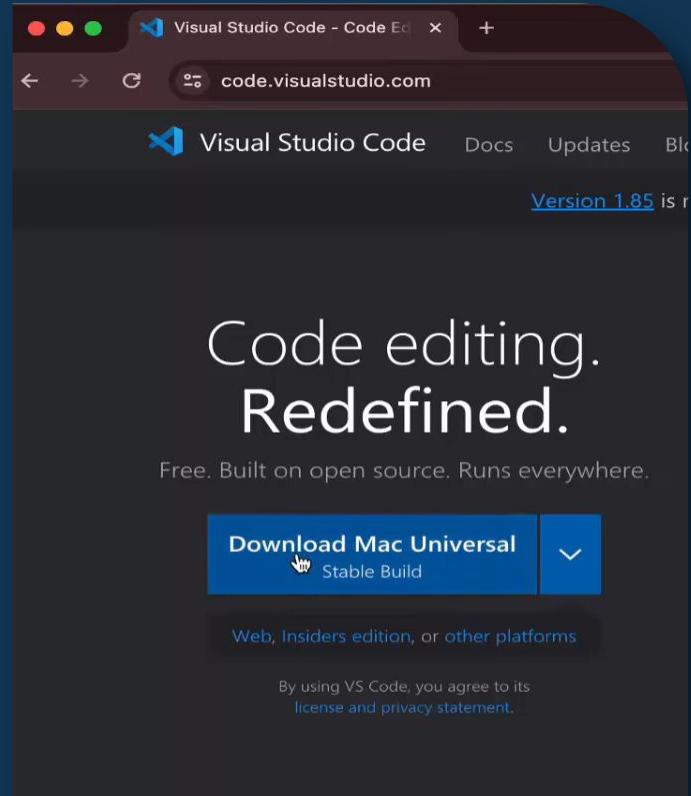


Visual Studio Code



Installing VSCode

- <https://code.visualstudio.com/>
- <https://code.visualstudio.com/docs>
 - Intro Videos
 - Setup
 - User Interface



VSCODE > Docs

code.visualstudio.com/docs 

 Visual Studio Code Docs Updates Blog API Extensions FAQ   Search

[Version 1.93](#) is now available! Read about the new features and fixes from August.

 [Overview](#)

Getting Started

[SETUP](#)
[GET STARTED](#)
[USER GUIDE](#)
[SOURCE CONTROL](#)
[TERMINAL](#)
[GITHUB COPILOT](#)
[LANGUAGES](#)
[NODE.JS / JAVASCRIPT](#)
[TYPESCRIPT](#)
[PYTHON](#)

Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages and runtimes (such as C++, C#, Java, Python, PHP, Go, .NET). Begin your journey with VS Code with these [introductory videos](#).

First Steps

To get the most out of Visual Studio Code, start by reviewing a few introductory topics:

[Intro Videos](#) - Begin your journey with VS Code through these introductory videos.

[Setup](#) - Install VS Code for your platform and configure the tool set for your development needs.

[User Interface](#) - Introduction to the basic UI, commands, and features of the VS Code editor.

VSCode > Windows

code.visualstudio.com/docs/setup/windows#_user-setup-versus-system-setup

User setup versus system setup

VS Code provides both Windows **user** and **system** level setups.

The [user setup](#) does not require Administrator privileges to run as the location will be under your user Local AppData (`LOCALAPPDATA`) folder. Since it requires no elevation, the user setup is able to provide a smoother background update experience. This is the preferred way to install VS Code on Windows.

Note: When running VS Code as Administrator in a user setup installation, updates will be disabled.

The [system setup](#) requires elevation to Administrator privileges to run and will place the installation under the system's Program Files. The in-product update flow will also require elevation, making it less streamlined than the user setup. On the other hand, installing VS Code using the system setup means that it will be available to all users in the system.

See the [Download Visual Studio Code](#) page for a complete list of available installation options.

Visual Studio Code Docs Updates Blog API Extensions FAQ

Search

Linux
macOS
Windows
Raspberry Pi
Network
Additional Components
Enterprise
Uninstall

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LANGUAGES

VSCode > MacOS

code.visualstudio.com/docs/setup/mac#_launching-from-the-command-line

Visual Studio Code Docs Updates Blog API Extensions FAQ

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Launching from the command line

You can also run VS Code from the terminal by typing 'code' after adding it to the path:

- Launch VS Code.
- Open the Command Palette (`Cmd+Shift+P`) and type 'shell command' to find the Shell Command: Install 'code' command in PATH command.

>shell command

Shell Command: Install 'code' command in PATH

Shell Command: Uninstall 'code' command from PATH

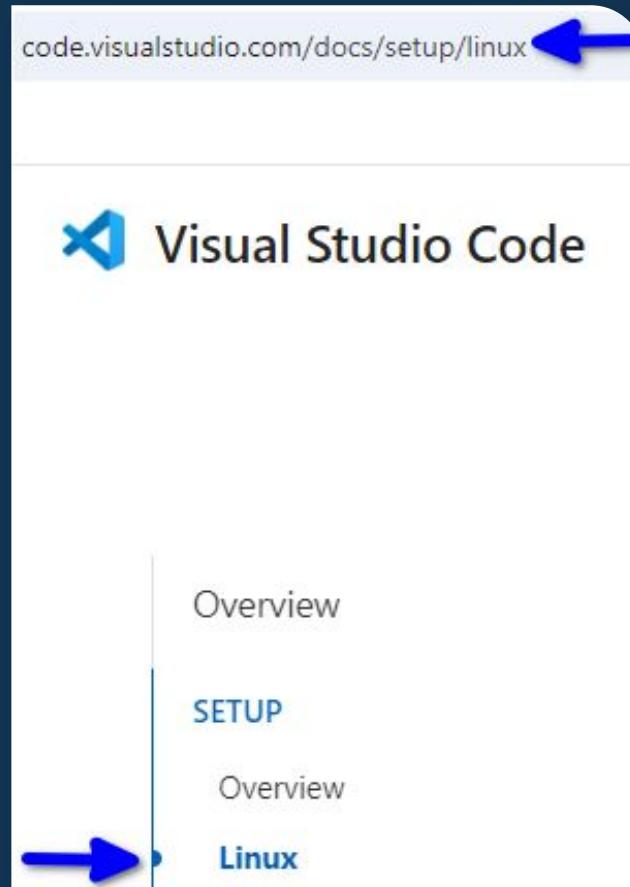
- Restart the terminal for the new `$PATH` value to take effect. You'll be able to type 'code .' in any folder to start editing files in that folder.

Note: If you still have the old `code` alias in your `.bash_profile` (or equivalent) from an early VS Code version, remove it and replace it by executing the Shell Command: Install 'code' command in PATH command.

VSCode ➤ Linux

- **Docs > Setup > Linux**

- Debian & Ubuntu
- RHEL, Fedora & CentOS
- openSUSE
- Arch



VSCode > Challenge



code.visualstudio.com/docs ←

Visual Studio Code

Docs Updates Blog API Extensions FAQ

⟳ ⚡ Search

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Getting Started

SETUP

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NODE.JS /
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Package Managers

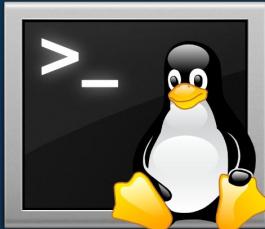


Package Managers

- **Windows** ↔ Chocolatey
- **MacOS** (and **Linux**) ↔ Homebrew



Package Managers



APT

DPKG



DNF

RPM

YUM

PMs > Useful Links

- **Chocolatey**
<https://chocolatey.org/install>
- **Homebrew**
<https://brew.sh/>
- **apt-get** → **apt**
<https://ubuntu.com/server/docs/package-management>
- **yum** → **dnf**
<https://docs.fedoraproject.org/en-US/quick-docs/dnf/>
- man <**some_command**> → man **tar**

chocolatey install - Search X | Chocolatey Software | Chocolat... X | Chocolatey Software | Install X

https://chocolatey.org/install#individual

Don't miss a byte of Chocolatey goodness! Explore our livestream events now!

Main Community Docs Blog Install ⚙️

About Product Connect Try It Now

Installing Chocolatey

✓ Step 1: Subscribe to the Chocolatey Newsletter (Optional)

Be the first to know about upcoming features, security releases, and news about Chocolatey.

Your e-mail address [Subscribe](#)

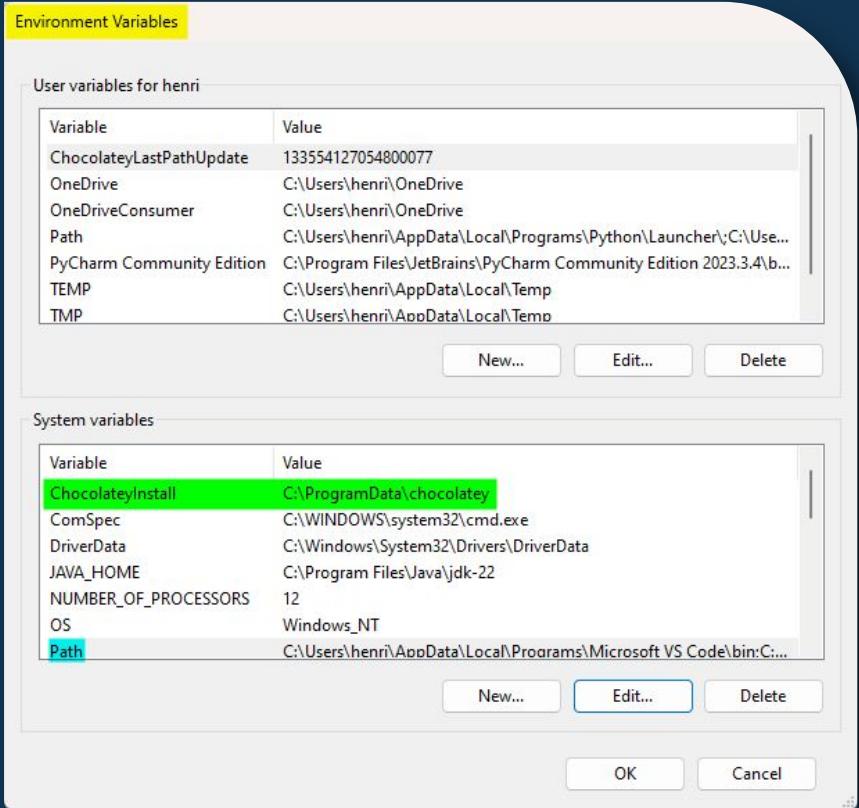
✓ Step 2: Choose Your Installation Method

Know the Requirements:

- Supported Windows client and server Operating Systems (can run on older Operating Systems)
- PowerShell v2+ (minimum is v3 for install from this website due to TLS 1.2 requirement)
- .NET Framework 4.8 (the installation will attempt to install .NET 4.8 if you do not have it installed)



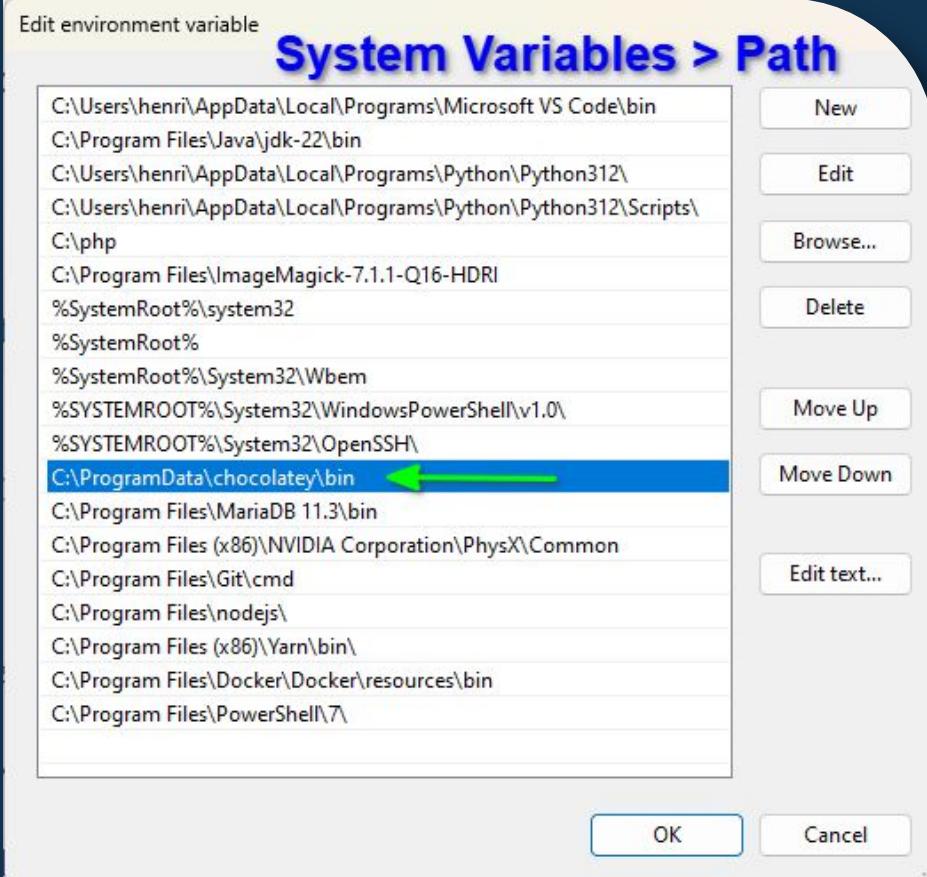
Windows > Chocolatey

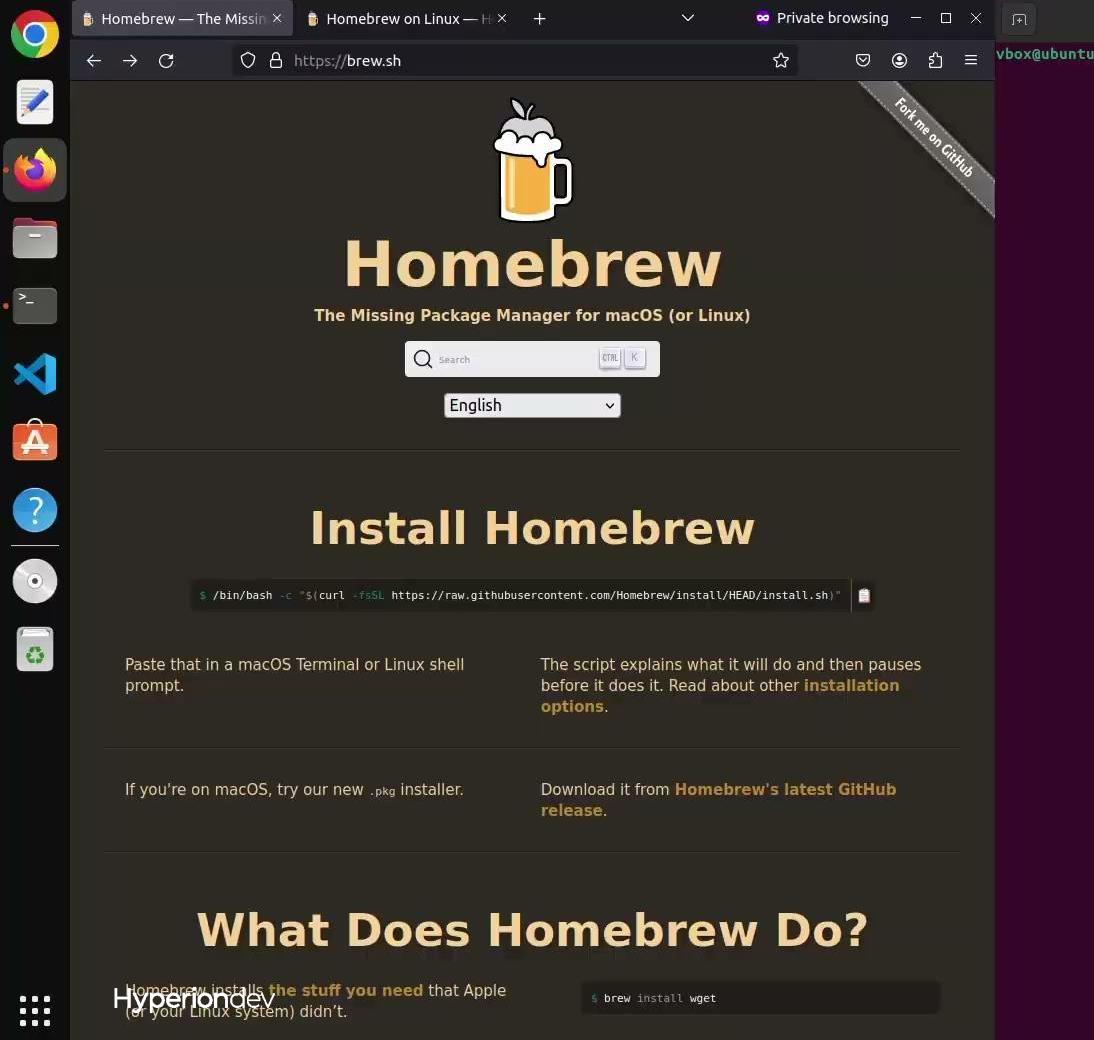


YouTube Video:

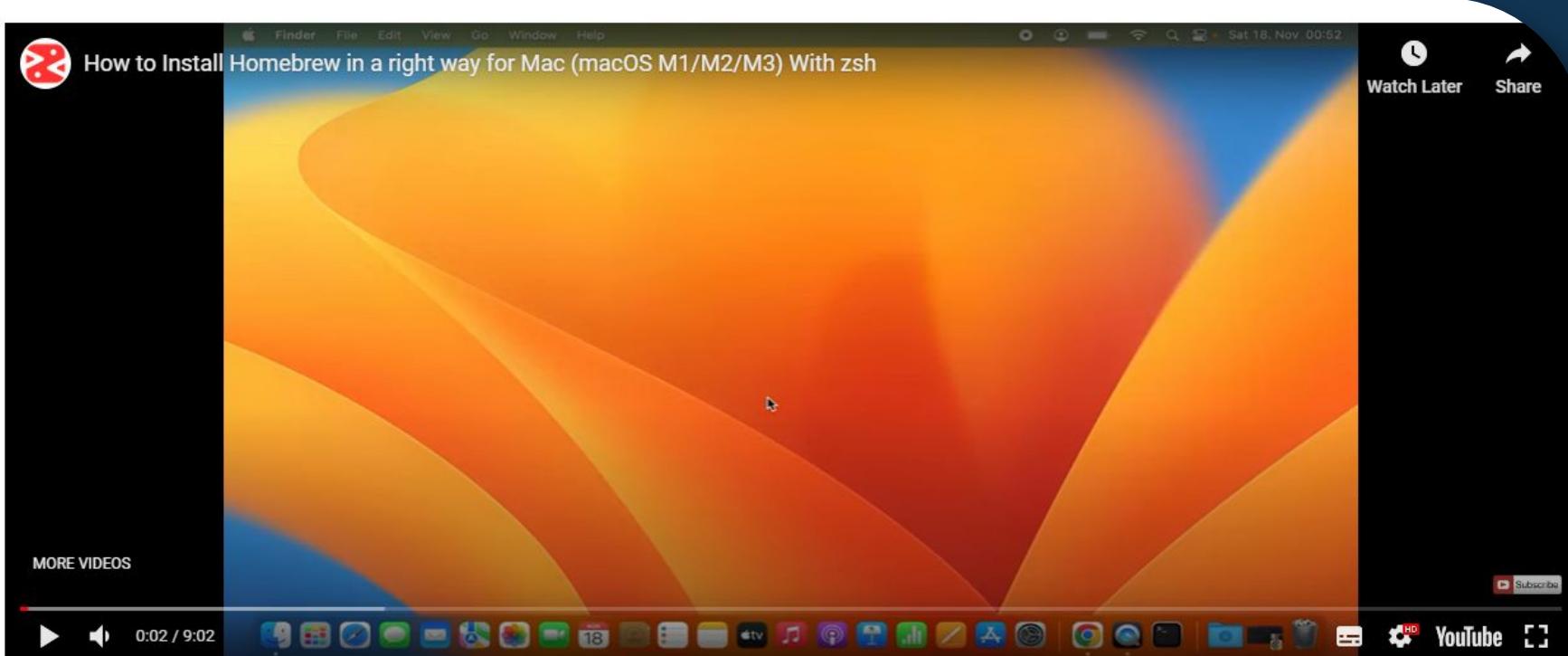
*How to Check Environment Variables in Windows 11
(Royal Technology)*

Windows > Chocolatey





MacOS > Brew Install



How to Install Homebrew in a right way for Mac (macOS M1/M2/M3) With zsh

 ProgrammingKnowledge2
426K subscribers

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820



Share

Download

Thanks

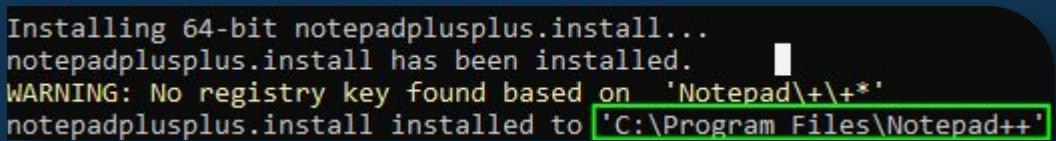
Clip

...

40K views 9 months ago #MacOS #Homebrew #TechEnthusiast

PMs > Challenge



- <https://docs.chocolatey.org/en-us/?some-page?> (**Windows**)
Install **Notepad++**


```
Installing 64-bit notepadplusplus.install...
notepadplusplus.install has been installed.
WARNING: No registry key found based on 'Notepad\+\+*'
notepadplusplus.install installed to 'C:\Program Files\Notepad++'
```
- <https://brew.sh/> (**MacOS**)
Install **Firefox**
- <https://brew.sh/> (**Linux**)
Install **htop**

Let's Breathe



Python 3



Python 3 > Official Website



The screenshot shows the Python.org website's download page. At the top, there's a navigation bar with tabs for "Python", "PSF", and "Docs". Below the navigation bar is the Python logo and the URL "python.org/downloads/". A blue header bar contains links for "About", "Downloads", "Documentation", and "Community". The main content area features a large yellow button with the text "Download Python 3.12.6". Below this button, text encourages users to look for Python versions for different operating systems, listing "Windows", "Linux/UNIX", "macOS", and "Other". At the bottom, there's information about testing development versions of Python 3.13 via "Prereleases" and "Docker images".

python.org/downloads/

About Downloads Documentation Community

Download the latest version for Windows

Download Python 3.12.6

Looking for Python with a different OS? Python for [Windows](#), [Linux/UNIX](#), [macOS](#), [Other](#)

Want to help test development versions of Python 3.13? [Prereleases](#), [Docker images](#)

Python 3 (Chocolatey)

community.chocolatey.org

Chocolatey Community

The Largest Repository of Windows Packages

[Install Chocolatey](#)

[Find Packages >](#)

Python 3 (Chocolatey)

community.chocolatey.org/packages

Python3

x ctrl k

id:searchValue
search by id

tag:searchValue
search by tag

author:searchValue
search by author

Click to view search help and examples.

Press Enter to do a full search or select a suggestion below.

Suggestions

python3	29366172 downloads
python312	5195988 downloads
python311	3291404 downloads

Python 3 (Chocolatey)

community.chocolatey.org/packages/python312

Deployment Method: Individual Install, Upgrade, & Uninstall

Install

Upgrade

Uninstall

To install Python 3.12, run the following command from the command line or from PowerShell:

```
> choco install python312
```

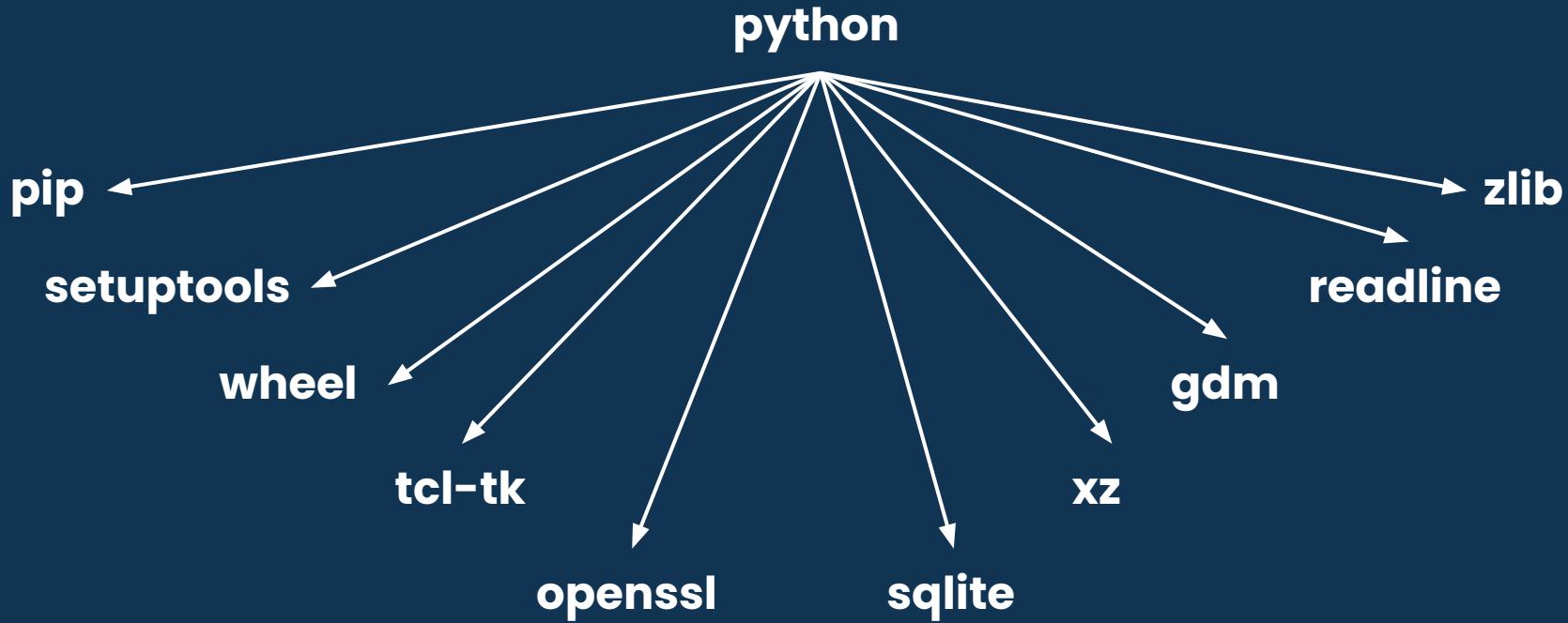
Python 3 (Chocolatey) ➤ Summary

- Open **Powershell** as **Administrator**
- choco install python312
- python --version OR python3 --version
- which python3

Python 3 (brew)

- Open the **Terminal**
- brew install python
- `python --version` OR `python3 --version`
- `which python3`

Why do we need PMs?



Python 3 > Challenge



MacOS & Linux

- brew search python
- brew list
- brew info python@3.12

Windows

- choco search python3
- choco upgrade python312
- choco uninstall python312

Avoid Apple & Windows Distros of Python

- Old Versions
- System Dependency Risks
- Lack of Control

The PATH

- **PATH** ↔ Box of Maps
- **Map** ↔ Points to the Location of a Program

Where to find programs you want to run



PATH > Windows Example

- C:\Program Files\Python312\Scripts\
- C:\Program Files\Python312\
- C:\Program Files\nodejs\
- C:\Program Files\Git\cmd\

PATH ➤ MacOS & Linux Example

- /home/linuxbrew/.linuxbrew/opt/**python@3.12**/bin
- /home/linuxbrew/.linuxbrew/opt/**node@18**/bin
- /home/linuxbrew/.linuxbrew/opt/**git**/bin

PATH ➤ Why we need it?

- C:\Program Files\Python312\python.exe **my_script.py**
- /home/linuxbrew/.linuxbrew/bin/python3 **my_script.py**



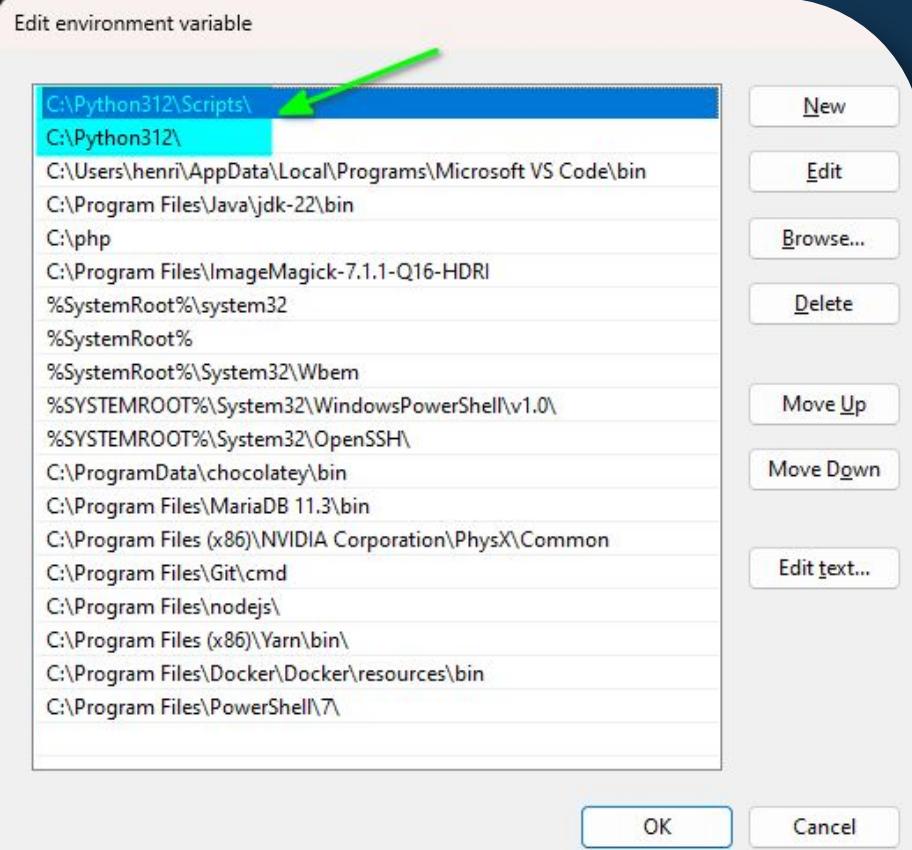
- python3 **my_script.py**



Is the Python "map" in our "box"?



Is the Python "map" in our "box"?



```
vbox@ubuntu22:~$ brew --prefix python
/home/linuxbrew/.linuxbrew/opt/python@3.12 😎
vbox@ubuntu22:~$ which python3
/home/linuxbrew/.linuxbrew/bin/python3 😎
vbox@ubuntu22:~$ which python
vbox@ubuntu22:~$ python3 --version
Python 3.12.5 😎
vbox@ubuntu22:~$ python --version
Command 'python' not found, did you mean:
  command 'python3' from deb python3
  command 'python' from deb python-is-python3
vbox@ubuntu22:~$
```

"Exploration starts with uncertainty"

- **How to Add Python to PATH**
(Real Python | Ian Currie)
- **Understanding the PATH variable**
(Medium | Janel Brandon, 27 March 2020)
- **What is PATH variable in Linux and how it works**
(howtouselinux | David Cao, 24 March 2023)

PIP: The Package Installer for Python



PIP Documentation

realpython.com/courses/what-is-pip/



Real Python

A Beginner's Guide to pip

Hyperiondev



Austin Cepalia 10 Lessons 34m

basics tools

...

PIP packages

```
import numpy as np      →    pip3 install numpy
```

```
import pandas as pd     →    pip3 install pandas
```

```
import requests          →    pip3 install requests
```

Python Virtual Environment (venv)



- **Tool** ↔ **Python Package**
- **Shed** ↔ **Python Project**
- **PIP** ↔ **Fetches Package(s)**
- **Organise** each set of *tools* in a different *shed*
- **Isolate** our Python Projects
- Mixing them up → Messy 😳

venv > Documentation

realpython.com

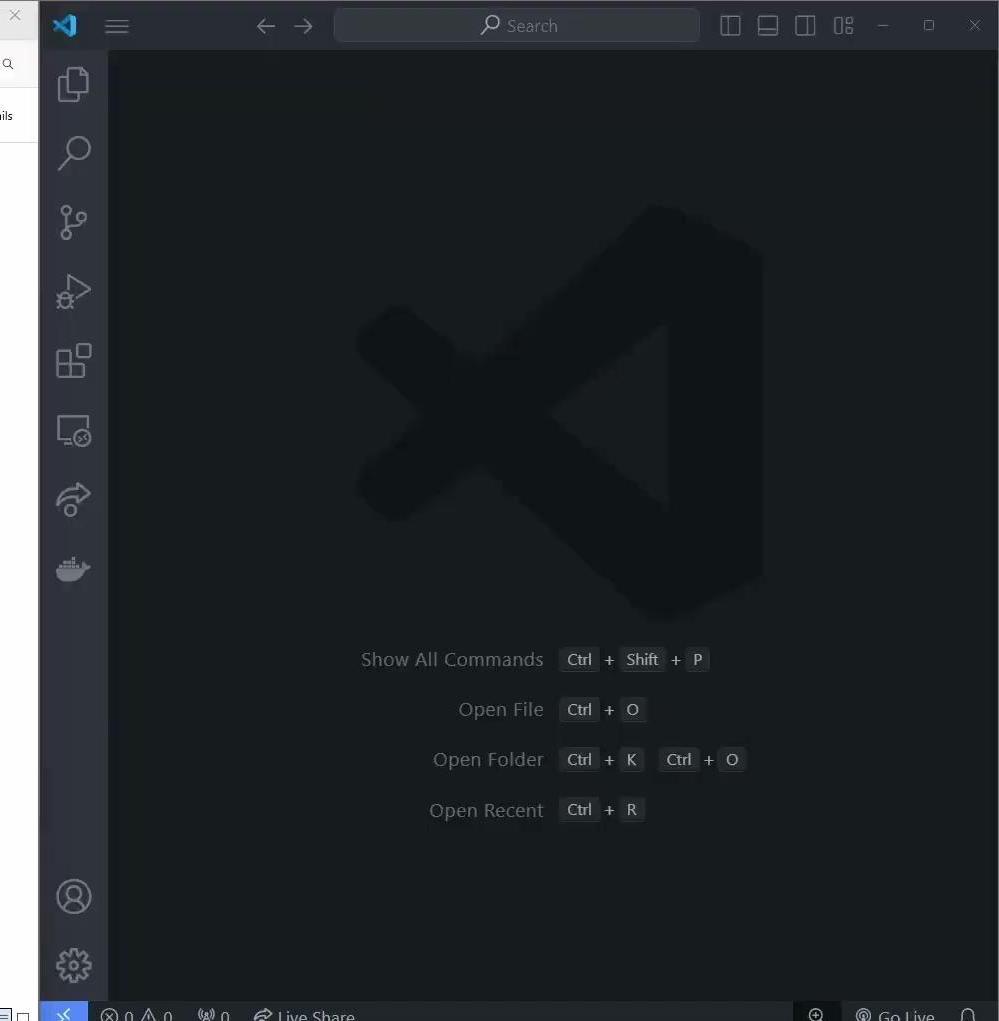
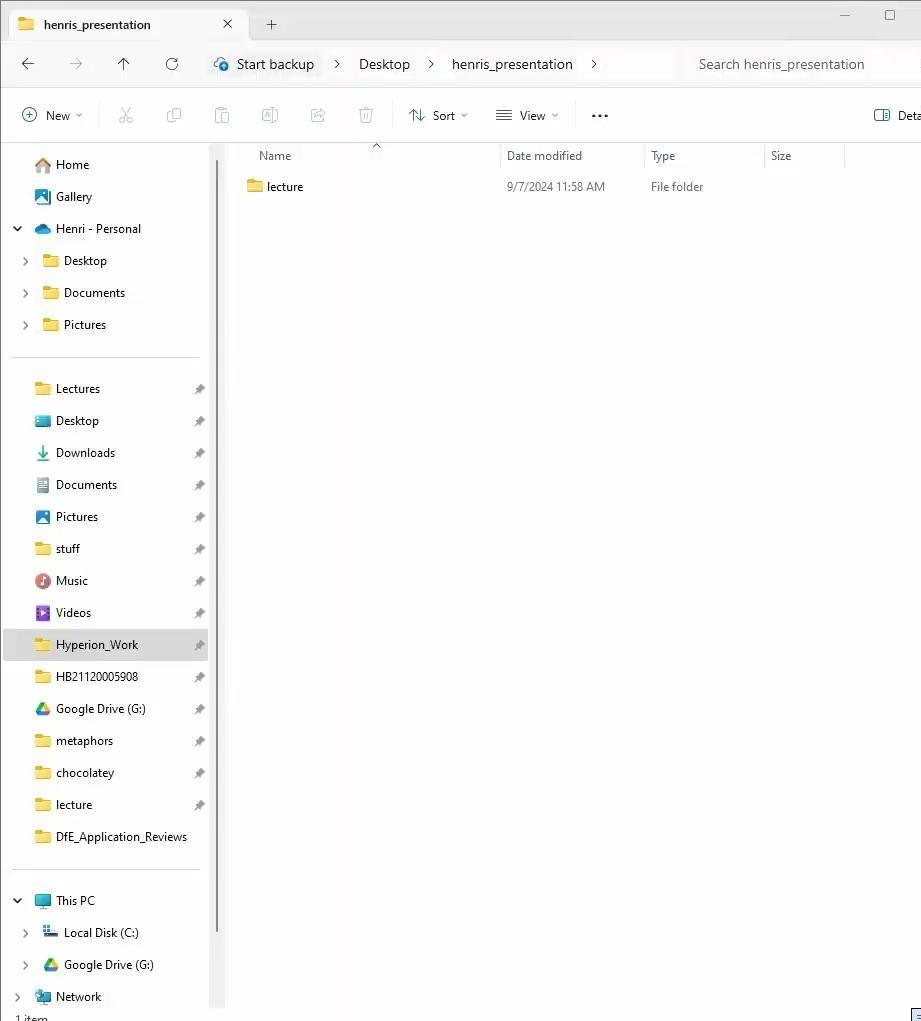
 Real Python Start Here Learn Python More Search



Real Python

Python Virtual Environments: A Primer

by Martin Breuss  109 Comments



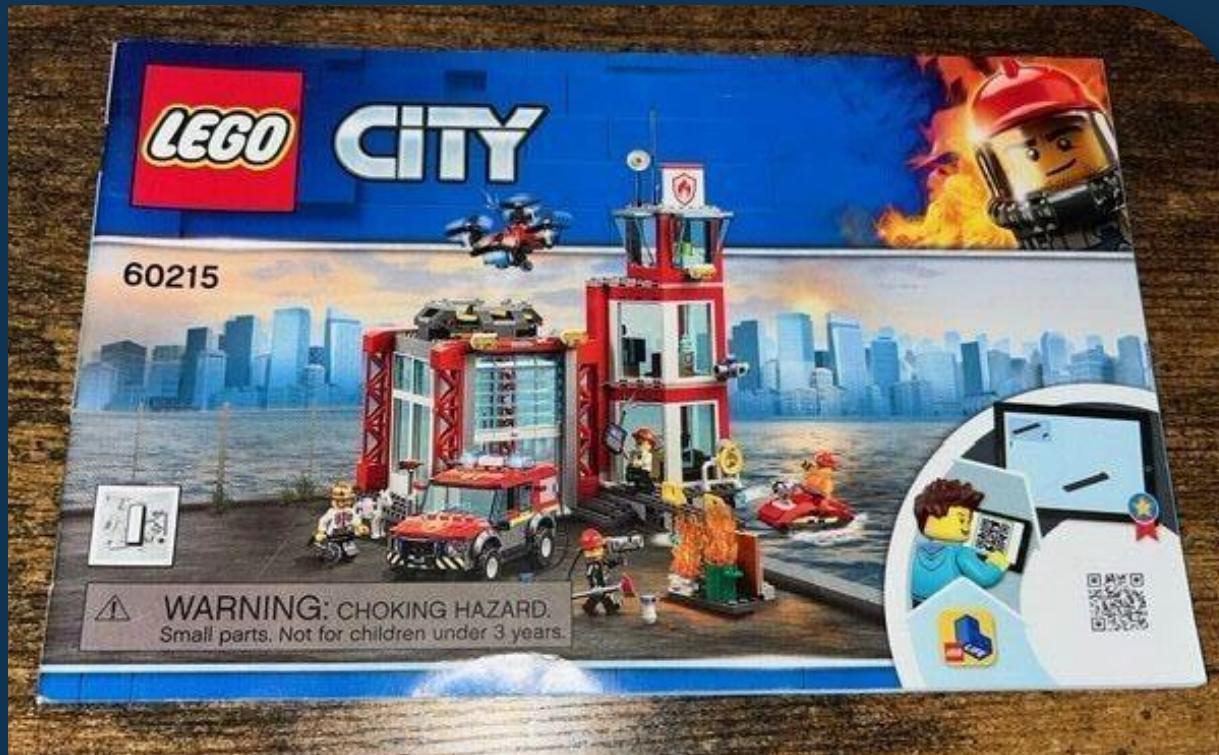
venv > Summary

- `python -m venv .env`
- Activate the Virtual Environment
 - **Command Prompt**
`.env\Scripts\activate`
 - **Powershell**
`.\env\Scripts\activate`
- `pip3 install pyfiglet`
- `deactivate`
- Activate the Virtual Environment
 - **Terminal**
`source .env/bin/activate`

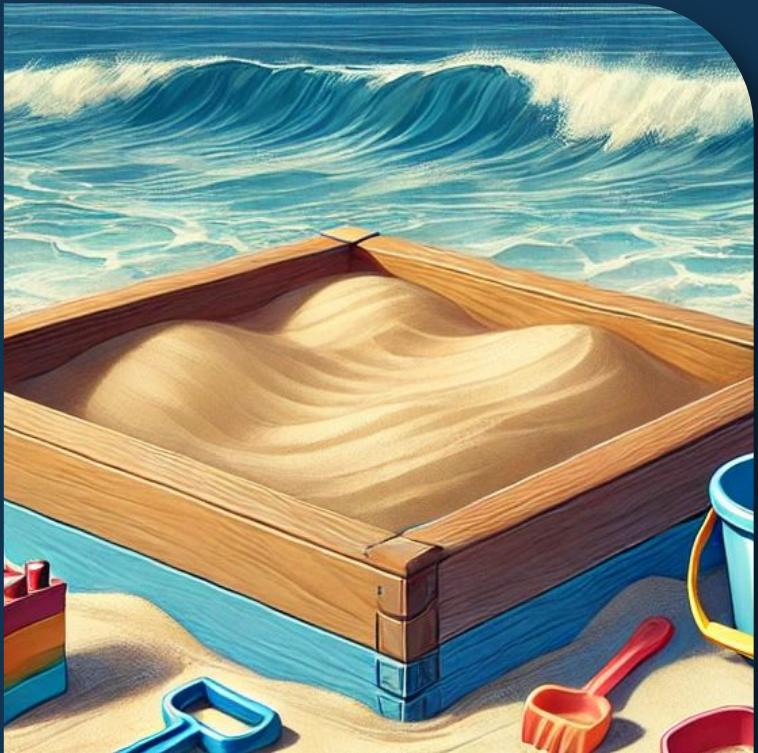
Summary

- **Visual Studio Code**
- **Package Managers:**
 - Windows ↔ **Chocolatey**
 - MacOS (Linux) ↔ **Homebrew**
 - Python3 ↔ **PIP3**
- **Python3**
 - Virtual Environments (venv)
- **PATH** variable
 - Is Python in our PATH

Food for Thought



Conclusion



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Q&A Section

**Please use this time to ask any
questions relating to the topic
explained, should you have any**



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Thank you for joining us

**Take regular breaks.
Stay hydrated.
Avoid prolonged screen time.**

Remember to have fun (^-^)