Session 1
Python and VS Code Installation
& Example Walkthrough

Fall 2025 ECE 157/272A
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Python and VS Code Installation

- **Install Python**
  - **3.11 ≤ (version) < 3.13**
  - **https://www.python.org/**
- **Install VS Code**
  - **Install extensions for Python and Jupyter Notebook**
  - **https://code.visualstudio.com/**

Python Installation

How do I install python?

Here's how to **install Python** on your computer, depending on your operating system 👇

🚪 For Windows

1. Go to the official site: https://www.python.org/downloads/ ↗
2. Click **"Download Python 3.x.x"** (the latest version).
3. Run the downloaded installer.
4. **Important:** On the first screen, check ✅ **"Add Python to PATH"** before clicking *Install Now*.
5. Wait for installation to finish, then open **Command Prompt** and type:

```bash
python --version
```

Copy code

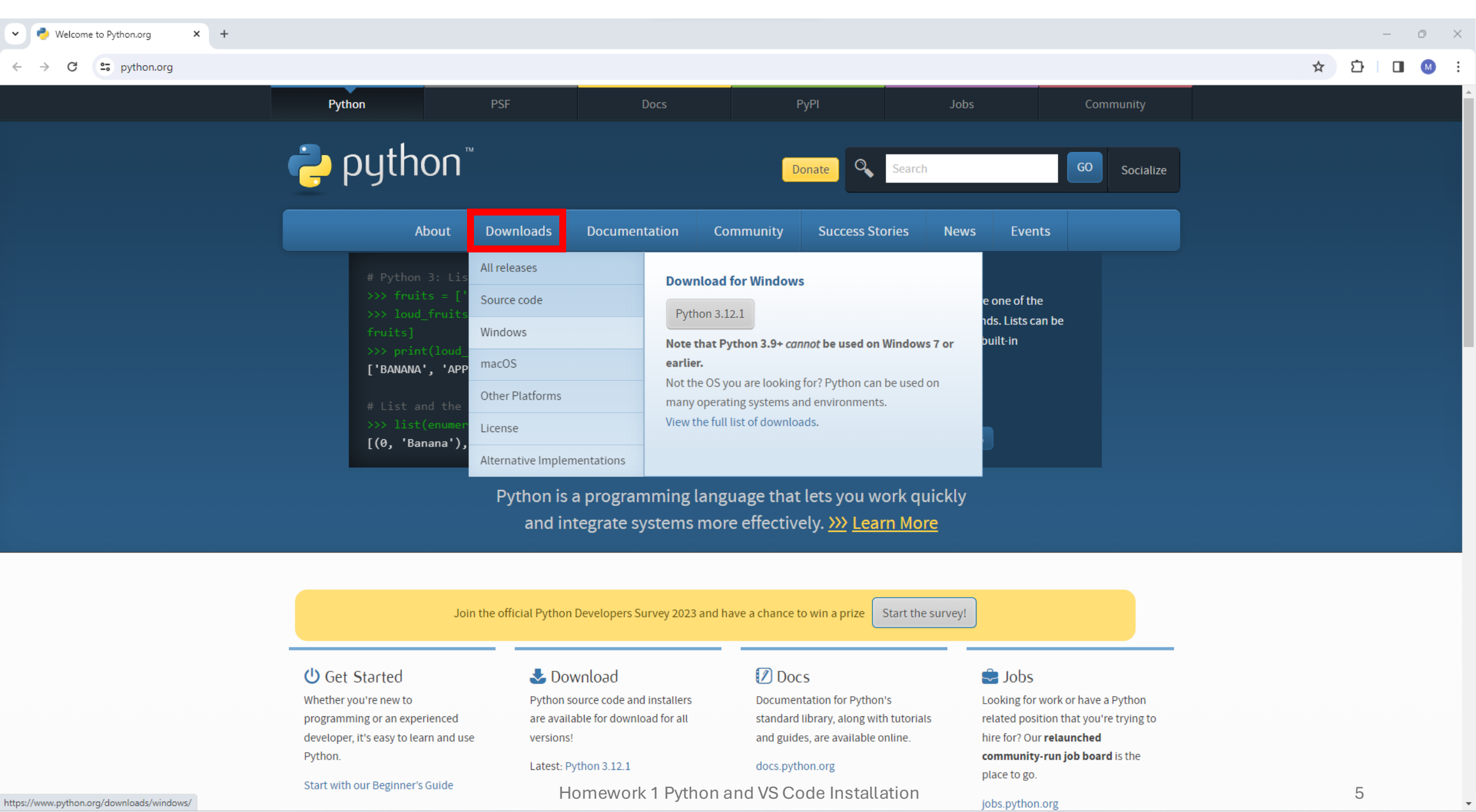
You should see something like `Python 3.12.3`.

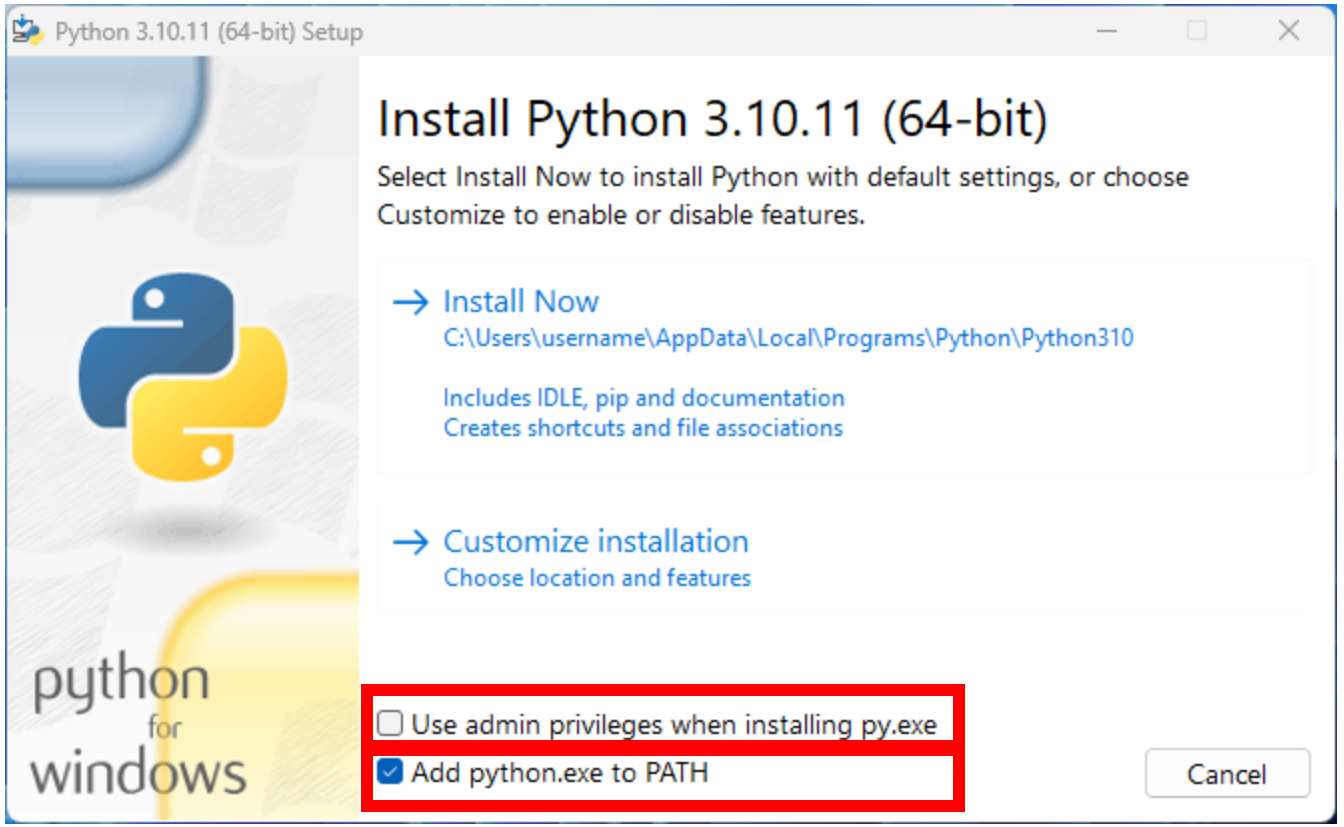
🍎 For macOS

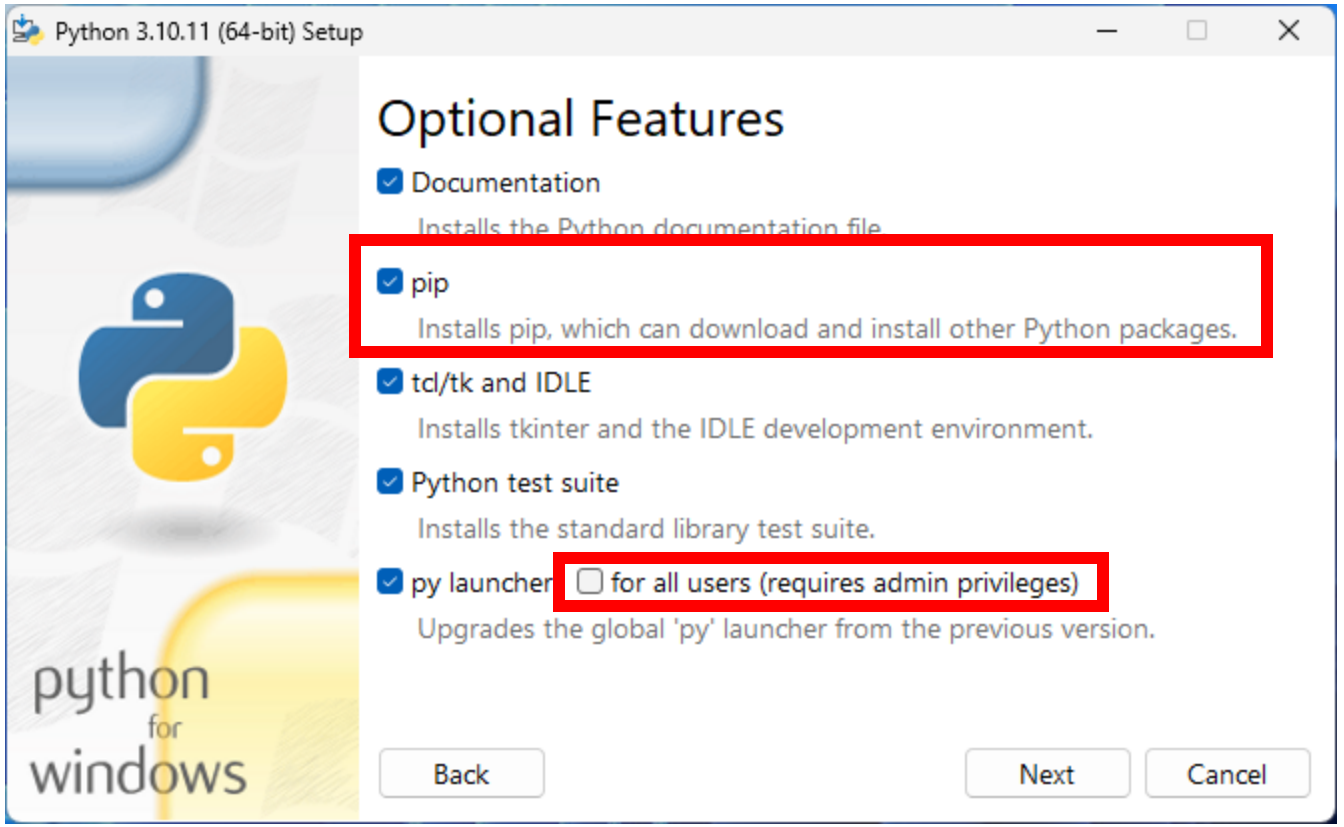
1. Visit https://www.python.org/downloads/ ↗.
2. Download the latest **macOS installer** (`.pkg` file).
3. Open the downloaded file and follow the installation steps.
4. After installation, open **Terminal** and check:

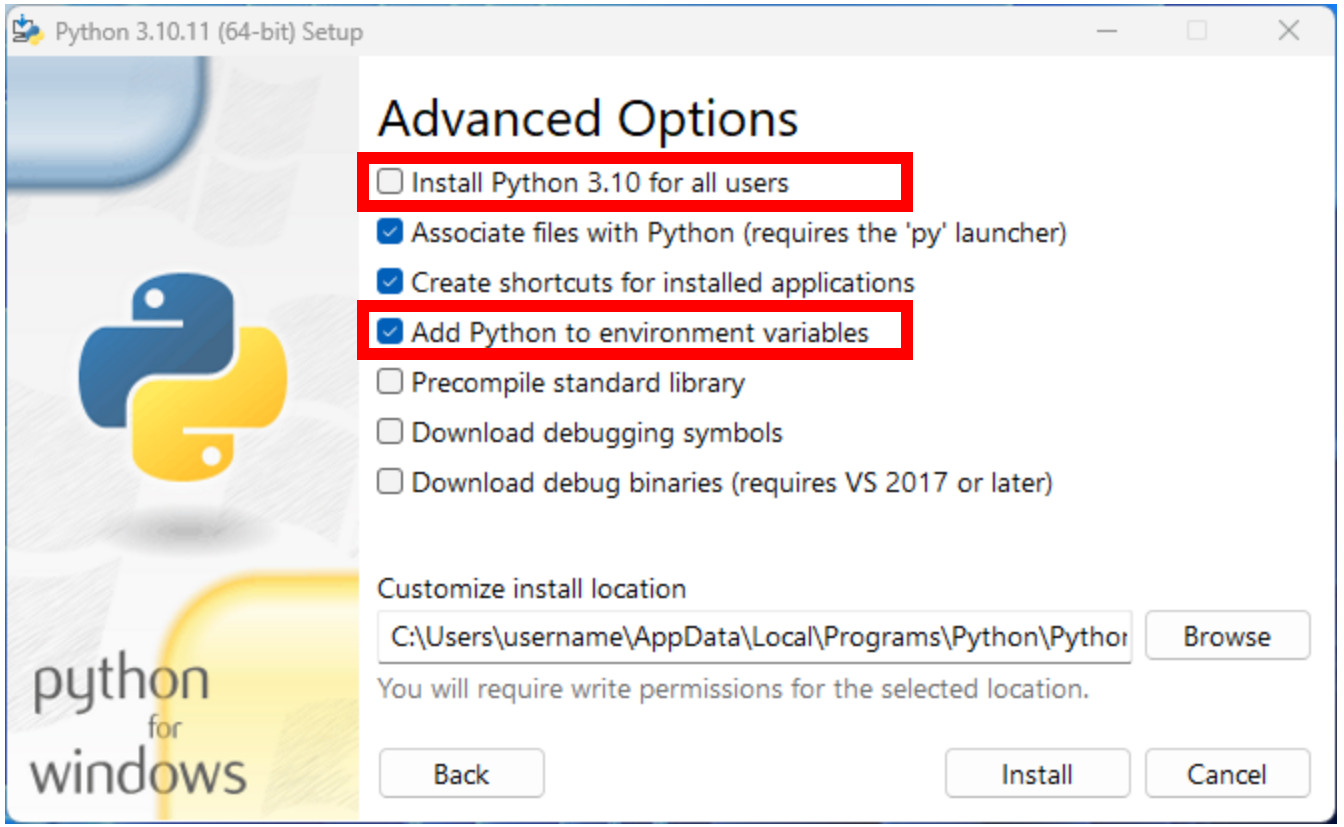
```bash
python3 --version
```

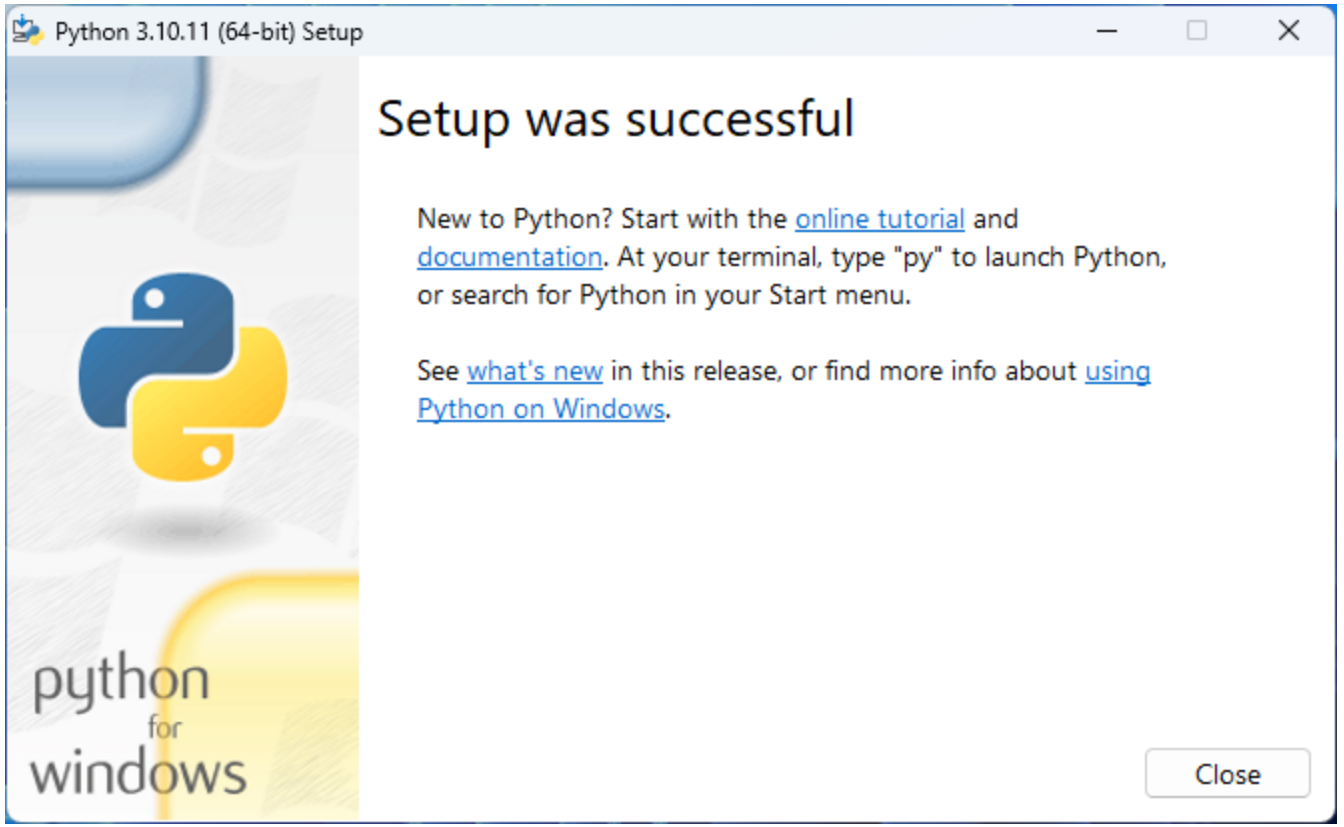
Copy code


Welcome to Python.org
python.org
Python
PSF
Docs
PyPI
Jobs
Community
python
Donate
Search
GO
Socialize
About
Downloads
Documentation
Community
Success Stories
News
Events
All releases
Source code
Windows
macOS
Other Platforms
License
Alternative Implementations
Download for Windows
Python 3.12.1
Note that Python 3.9+ cannot be used on Windows 7 or earlier.
Not the OS you are looking for? Python can be used on many operating systems and environments.
View the full list of downloads.
Python is a programming language that lets you work quickly and integrate systems more effectively. >>> Learn More
Join the official Python Developers Survey 2023 and have a chance to win a prize
Start the survey!
Get Started
Whether you're new to programming or an experienced developer, it's easy to learn and use Python.
Start with our Beginner's Guide
Download
Python source code and installers are available for download for all versions!
Latest: Python 3.12.1
Docs
Documentation for Python's standard library, along with tutorials and guides, are available online.
docs.python.org
Jobs
Looking for work or have a Python related position that you're trying to hire for? Our relaunched community-run job board is the place to go.
jobs.python.org
https://www.python.org/downloads/windows/


Python 3.10.11 (64-bit) Setup
Install Python 3.10.11 (64-bit)
Select Install Now to install Python with default settings, or choose
Customize to enable or disable features.
Install Now
C:\Users\username\AppData\Local\Programs\Python\Python310
Includes IDLE, pip and documentation
Creates shortcuts and file associations
Customize installation
Choose location and features
python
for
windows
Use admin privileges when installing py.exe
Add python.exe to PATH
Cancel


Python 3.10.11 (64-bit) Setup
Optional Features
Documentation
Installs the Python documentation file
pip
Installs pip, which can download and install other Python packages.
tcl/tk and IDLE
Installs tkinter and the IDLE development environment.
Python test suite
Installs the standard library test suite.
py launcher
for all users (requires admin privileges)
Upgrades the global 'py' launcher from the previous version.
python
for
windows
Back
Next
Cancel


Python 3.10.11 (64-bit) Setup
Advanced Options
Install Python 3.10 for all users
Associate files with Python (requires the 'py' launcher)
Create shortcuts for installed applications
Add Python to environment variables
Precompile standard library
Download debugging symbols
Download debug binaries (requires VS 2017 or later)
Customize install location
C:\Users\username\AppData\Local\Programs\Python\Pytho
Browse
You will require write permissions for the selected location.
python
for
windows
Back
Install
Cancel


Python 3.10.11 (64-bit) Setup
Setup was successful
New to Python? Start with the online tutorial and documentation. At your terminal, type "py" to launch Python, or search for Python in your Start menu.
See what's new in this release, or find more info about using Python on Windows.
python for windows
Close

How do I check the version of python?

To **check which version of Python** is installed on your system, open your terminal or command prompt and type one of these commands 👇

🚪 On Windows

Open **Command Prompt (cmd)** or **PowerShell**, then run:

bash Copy code

```
python --version
```

or

bash Copy code

```
python -V
```

If that doesn't work, try:

bash Copy code

```
python3 --version
```

✅ Example output:

nginx Copy code

```
Python 3.12.3
```

🍎 On macOS or 🐧 Linux

Open **Terminal**, then type:

bash Copy code

```
python3 --version
```

or

bash Copy code

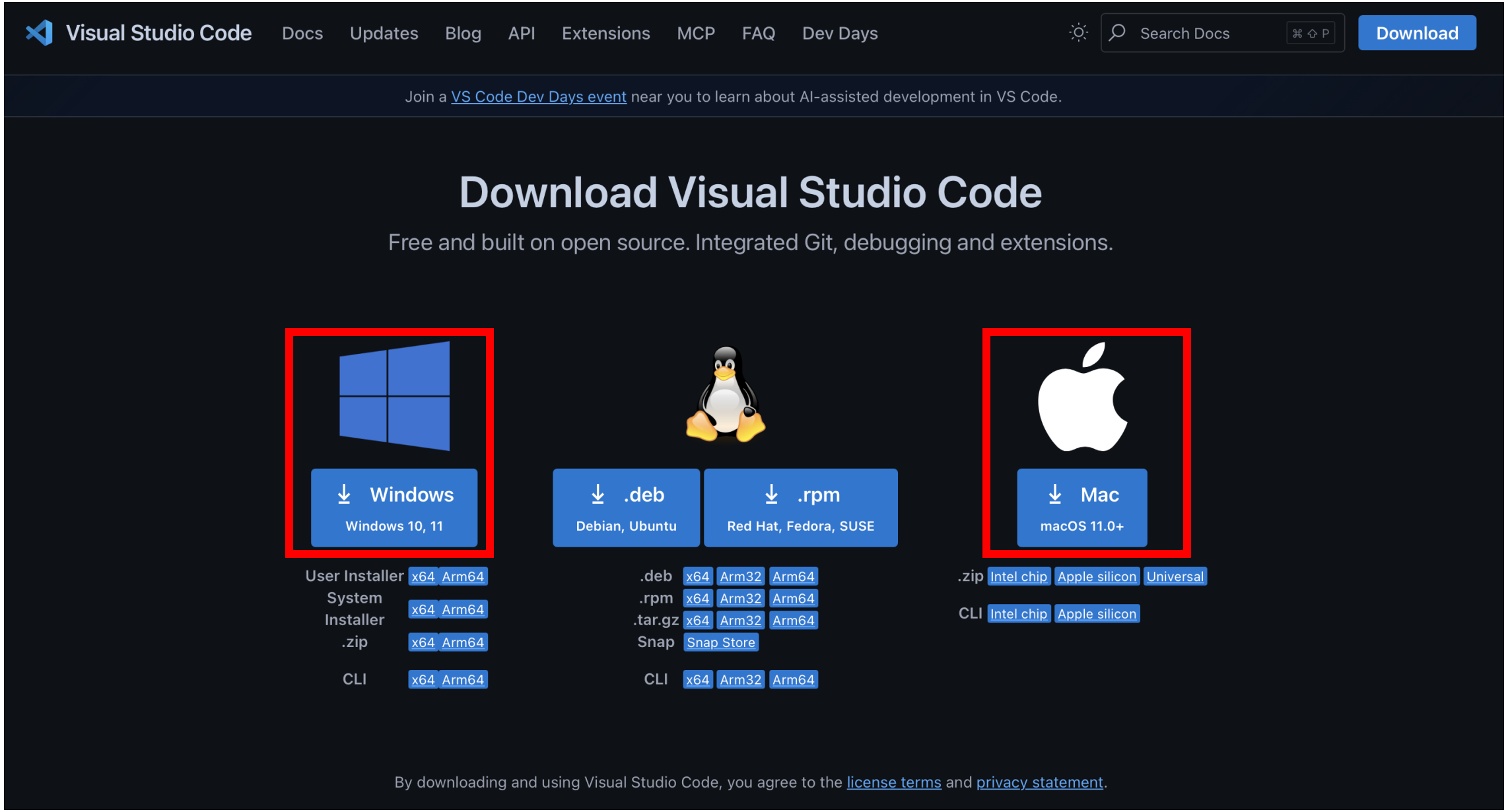
```
python3 -V
```

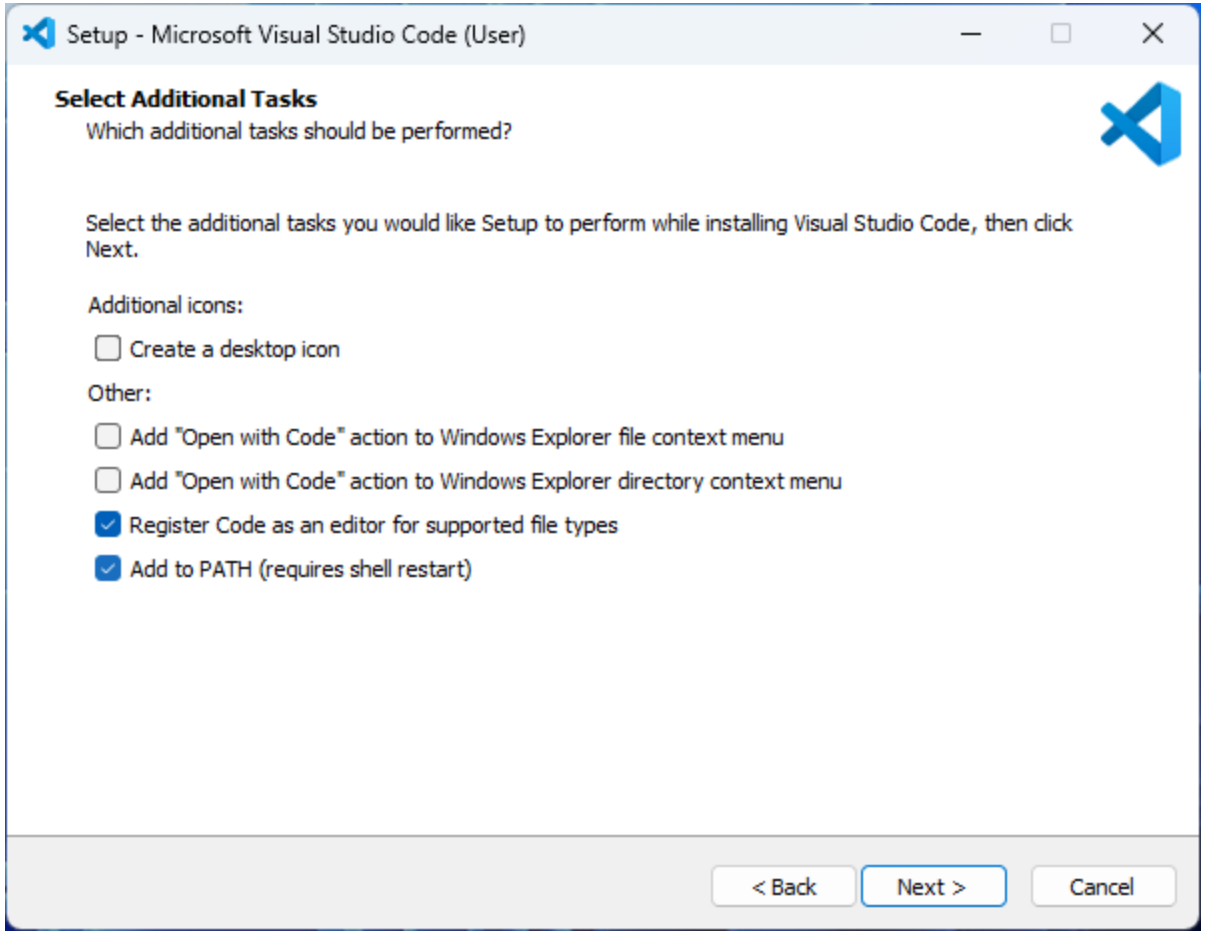
✅ Example output:

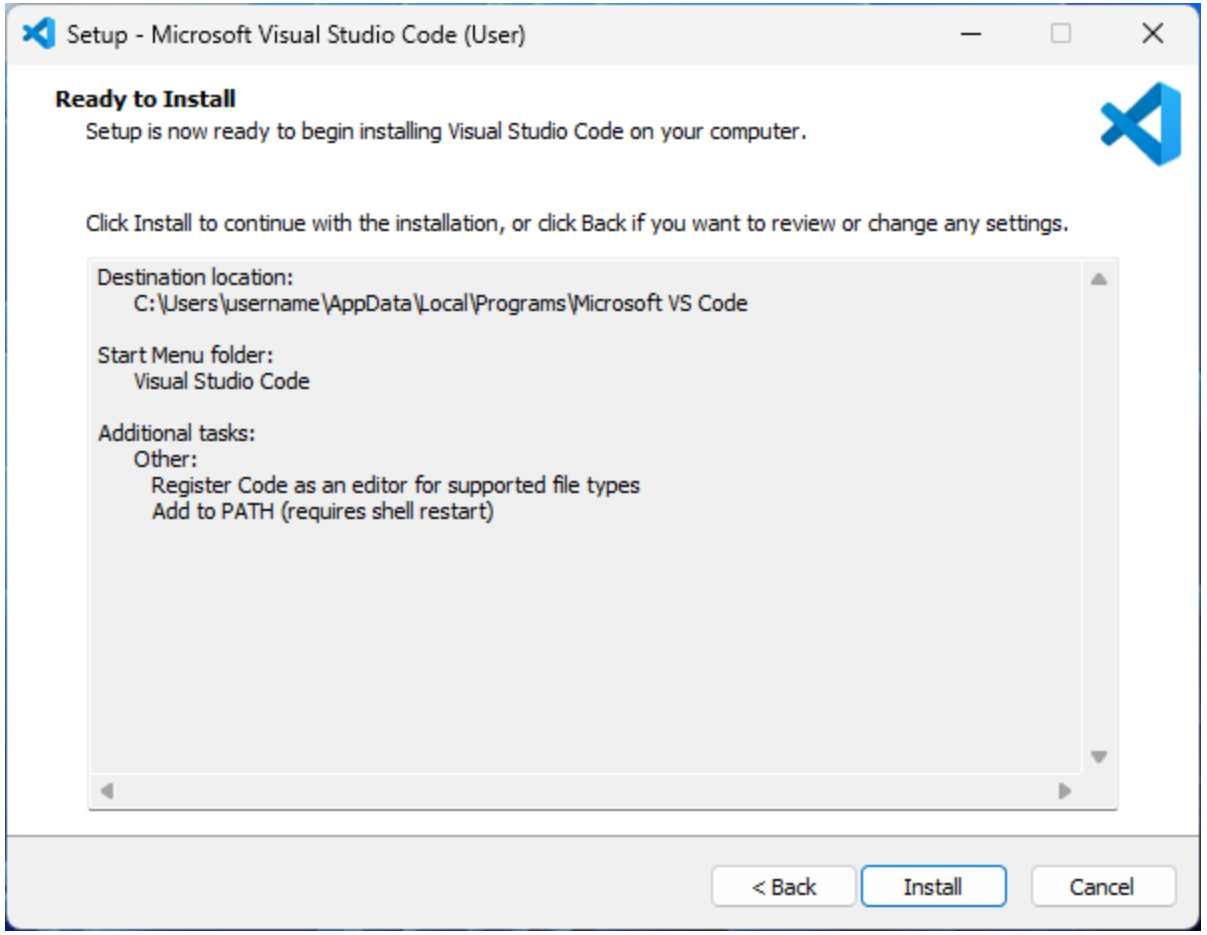
nginx Copy code

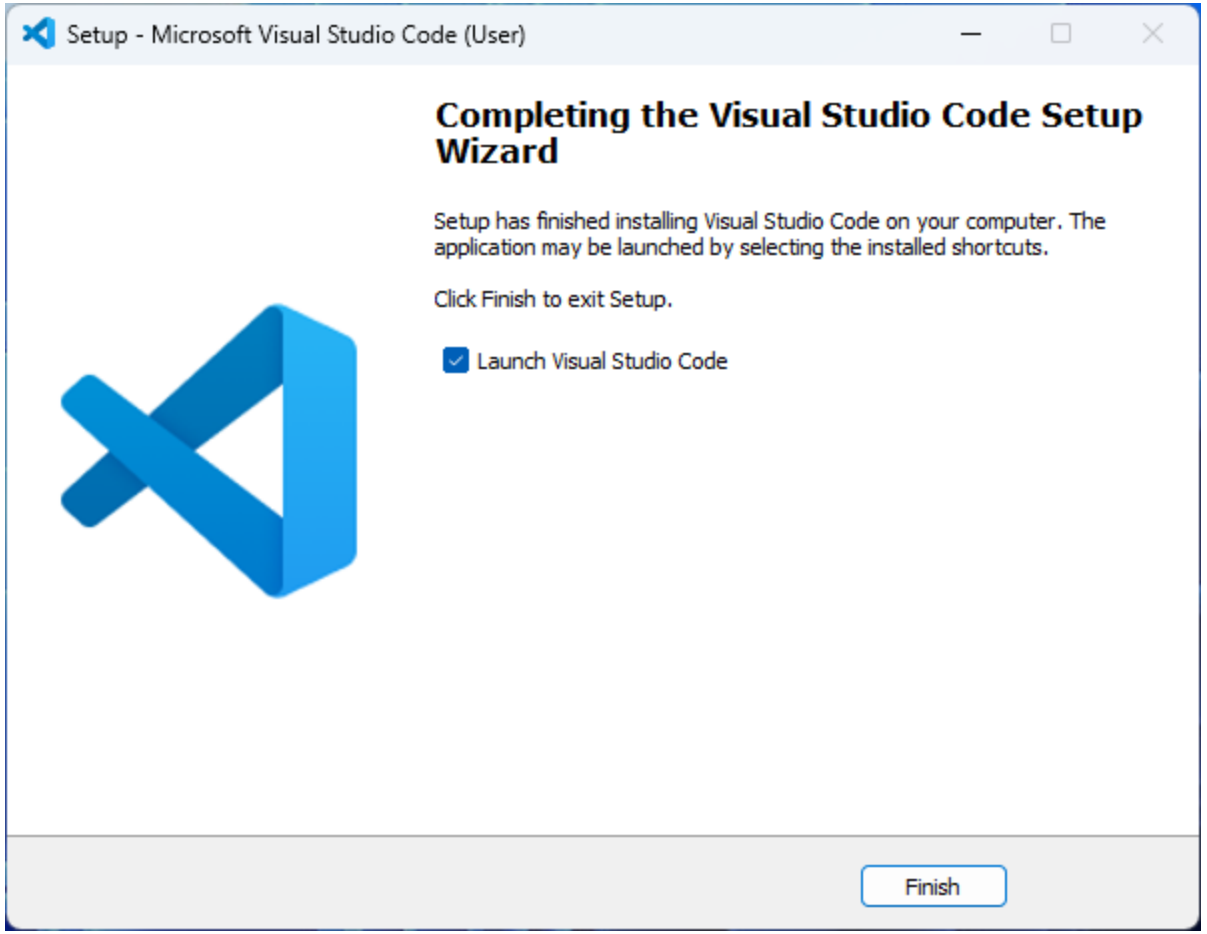
```
Python 3.11.8
```

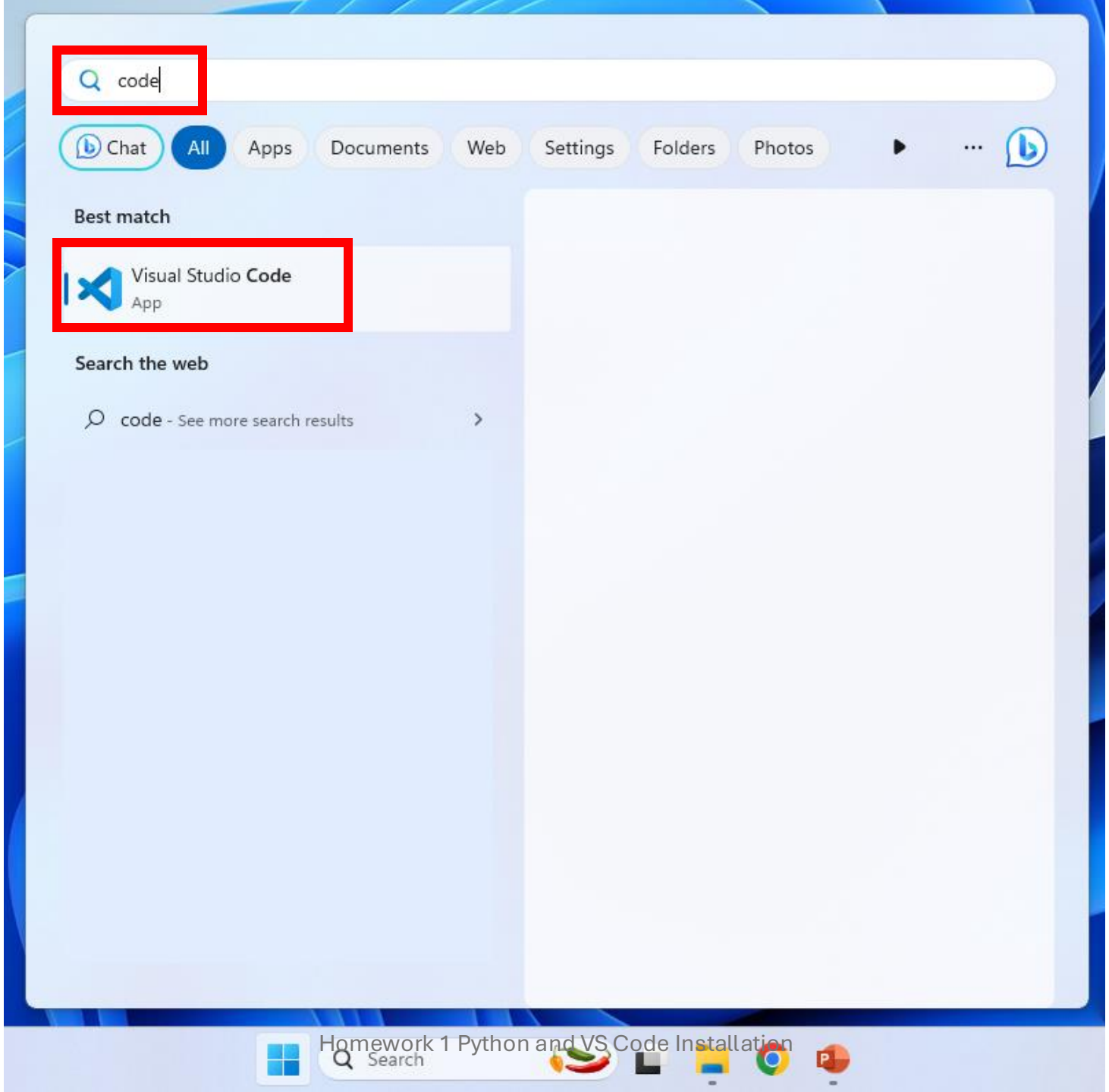
VS Code Installation

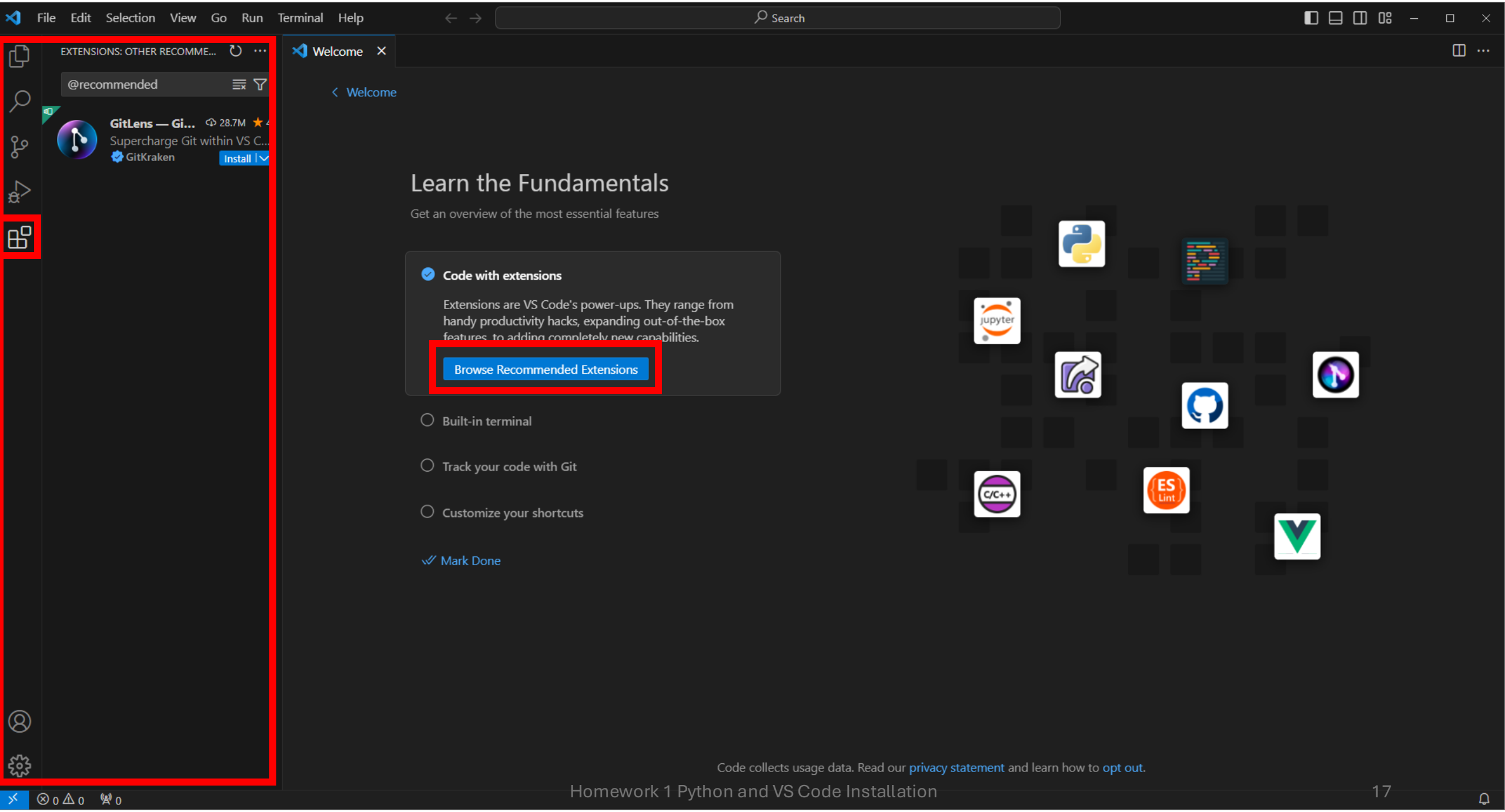

Visual Studio Code
Docs
Updates
Blog
API
Extensions
MCP
FAQ
Dev Days
Search Docs
⌘ ⇧ P
Download
Join a VS Code Dev Days event near you to learn about AI-assisted development in VS Code.
Download Visual Studio Code
Free and built on open source. Integrated Git, debugging and extensions.
Windows
Windows 10, 11
.deb
Debian, Ubuntu
.rpm
Red Hat, Fedora, SUSE
Mac
macOS 11.0+
User Installer x64 Arm64
System Installer x64 Arm64
.zip x64 Arm64
CLI x64 Arm64
.deb x64 Arm32 Arm64
.rpm x64 Arm32 Arm64
.tar.gz x64 Arm32 Arm64
Snap Snap Store
CLI x64 Arm32 Arm64
.zip Intel chip Apple silicon Universal
CLI Intel chip Apple silicon
By downloading and using Visual Studio Code, you agree to the license terms and privacy statement.

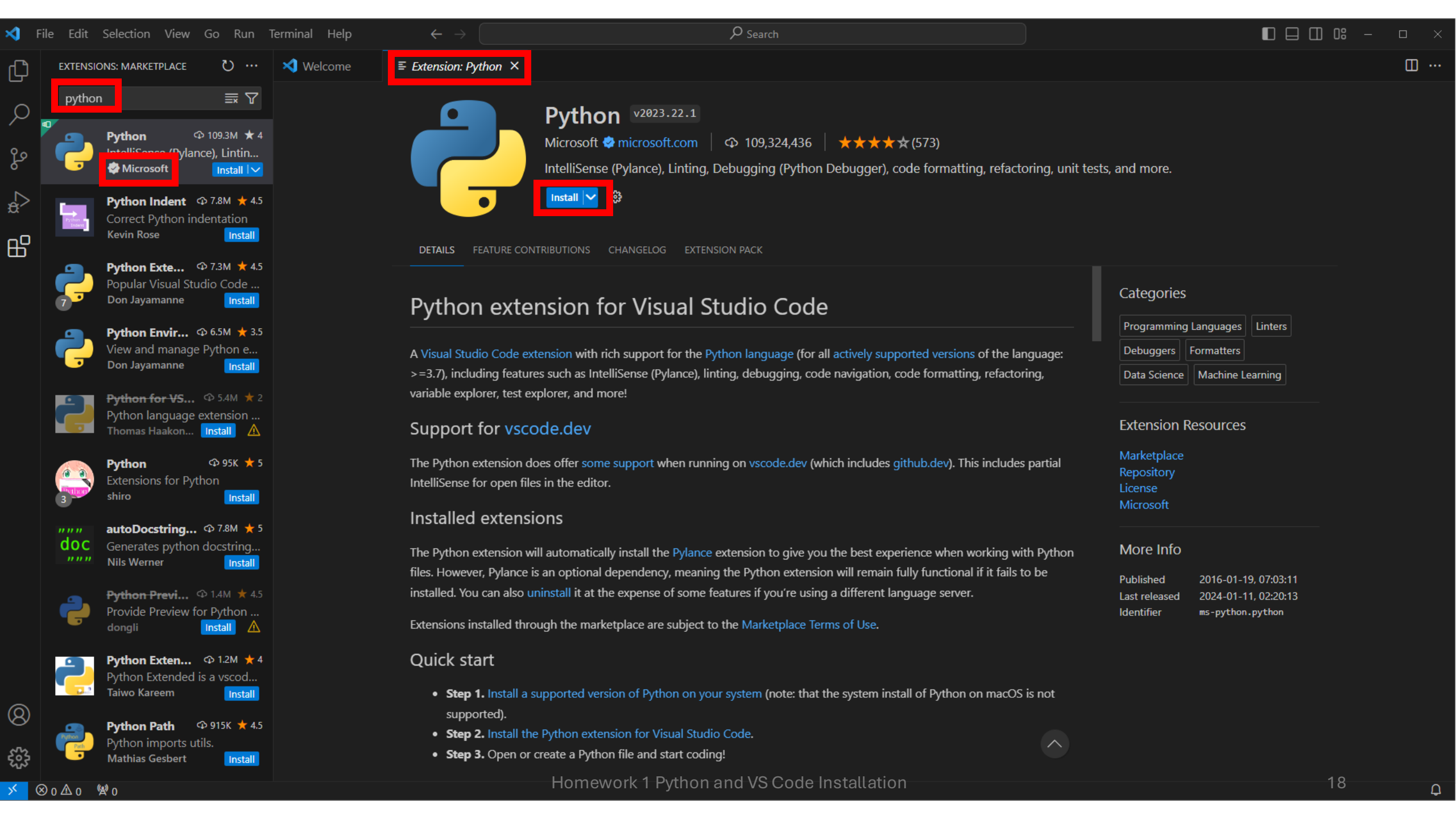

Setup - Microsoft Visual Studio Code (User)
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing Visual Studio Code, then click Next.
Additional icons:
Create a desktop icon
Other:
Add "Open with Code" action to Windows Explorer file context menu
Add "Open with Code" action to Windows Explorer directory context menu
Register Code as an editor for supported file types
Add to PATH (requires shell restart)
< Back
Next >
Cancel


Setup - Microsoft Visual Studio Code (User)
Ready to Install
Setup is now ready to begin installing Visual Studio Code on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Users\username\AppData\Local\Programs\Microsoft VS Code
Start Menu folder:
Visual Studio Code
Additional tasks:
Other:
Register Code as an editor for supported file types
Add to PATH (requires shell restart)
< Back
Install
Cancel


Setup - Microsoft Visual Studio Code (User)
Completing the Visual Studio Code Setup Wizard
Setup has finished installing Visual Studio Code on your computer. The application may be launched by selecting the installed shortcuts.
Click Finish to exit Setup.
Launch Visual Studio Code
Finish


code
Chat
All
Apps
Documents
Web
Settings
Folders
Photos
Best match
Visual Studio Code
App
Search the web
code - See more search results
Search


File Edit Selection View Go Run Terminal Help
Search
EXTENSIONS: OTHER RECOMME...
@recommended
GitLens — Gi... 28.7M
Supercharge Git within VS C...
GitKraken
Install
Welcome
Welcome
Learn the Fundamentals
Get an overview of the most essential features
Code with extensions
Extensions are VS Code's power-ups. They range from handy productivity hacks, expanding out-of-the-box features, to adding completely new capabilities.
Browse Recommended Extensions
Built-in terminal
Track your code with Git
Customize your shortcuts
Mark Done
jupyter
C/C++
ES Lint
Code collects usage data. Read our privacy statement and learn how to opt out.


File Edit Selection View Go Run Terminal Help
Search
EXTENSIONS: MARKETPLACE
python
Python 109.3M ★ 4
Microsoft
Install
Python Indent 7.8M ★ 4.5
Correct Python indentation
Kevin Rose
Install
Python Exte... 7.3M ★ 4.5
Popular Visual Studio Code ...
Don Jayamanne
Install
Python Envir... 6.5M ★ 3.5
View and manage Python e...
Don Jayamanne
Install
Python for VS... 5.4M ★ 2
Python language extension ...
Thomas Haakon...
Install
Python 95K ★ 5
Extensions for Python
shiro
Install
autoDocstring... 7.8M ★ 5
Generates python docstring...
Nils Werner
Install
Python Previ... 1.4M ★ 4.5
Provide Preview for Python ...
dongli
Install
Python Exten... 1.2M ★ 4
Python Extended is a vscod...
Taiwo Kareem
Install
Python Path 915K ★ 4.5
Python imports utils.
Mathias Gesbert
Install
Welcome
Extension: Python
Python v2023.22.1
Microsoft microsoft.com 109,324,436 ★★★★☆(573)
IntelliSense (Pylance), Linting, Debugging (Python Debugger), code formatting, refactoring, unit tests, and more.
Install
DETAILS FEATURE CONTRIBUTIONS CHANGELOG EXTENSION PACK
Python extension for Visual Studio Code
A Visual Studio Code extension with rich support for the Python language (for all actively supported versions of the language: >=3.7), including features such as IntelliSense (Pylance), linting, debugging, code navigation, code formatting, refactoring, variable explorer, test explorer, and more!
Support for vscode.dev
The Python extension does offer some support when running on vscode.dev (which includes github.dev). This includes partial IntelliSense for open files in the editor.
Installed extensions
The Python extension will automatically install the Pylance extension to give you the best experience when working with Python files. However, Pylance is an optional dependency, meaning the Python extension will remain fully functional if it fails to be installed. You can also uninstall it at the expense of some features if you're using a different language server.
Extensions installed through the marketplace are subject to the Marketplace Terms of Use.
Quick start
Step 1. Install a supported version of Python on your system (note: that the system install of Python on macOS is not supported).
Step 2. Install the Python extension for Visual Studio Code.
Step 3. Open or create a Python file and start coding!
Categories
Programming Languages
Linters
Debuggers
Formatters
Data Science
Machine Learning
Extension Resources
Marketplace
Repository
License
Microsoft
More Info
Published 2016-01-19, 07:03:11
Last released 2024-01-11, 02:20:13
Identifier ms-python.python

File Edit Selection View Go Run Terminal Help

Search

EXTENSIONS: MARKETPLACE

jupyter

Jupyter 74M ★ 2.5
Jupyter notebook support, i...
Microsoft Install

Jupyter Key... 55.7M ★ 4
Jupyter keymaps for notebo...
Microsoft Install

Jupyter Cell T... 35.8M ★ 5
Jupyter Cell Tags support fo...
Microsoft Install

Jupyter Not... 54.5M ★ 2.5
Renderers for Jupyter Noteb...
Microsoft Install

Jupyter Slide ... 35.8M ★ 5
Jupyter Slide Show support ...
Microsoft Install

~~**Jupyter (dep...**~~ 801K ★ 3.5
Data Science with Jupyter o...
Don Jayamanne

VS Code Jup... 523K ★ 3.5
An easy to use extension for...
jithurjacob Install

Jupyter Power... 226K ★ 5
Experimental features for Ju...
Microsoft Install

jupyter-noteb... 112K ★ 1
Runs jupyter notebooks in v...
Sam Helms Install

Jupyter Theme 32K ★ 5
A colour theme based arou...
SamCoding Install

Welcome | *Extension: Jupyter*

Jupyter v2023.11.1100101639

Microsoft microsoft.com | 74,039,193 | ★★★☆☆ (302)

Jupyter notebook support, interactive programming and computing that supports Intellisense, debugging and more.

Install

DETAILS FEATURE CONTRIBUTIONS CHANGELOG

Extension Pack (4)

Jupyter Keymap
Jupyter keymaps for notebooks
Microsoft Install

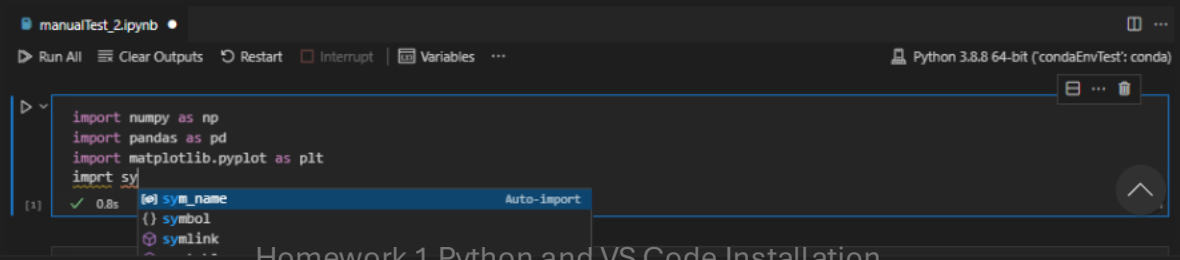
Jupyter Notebook Renderers
Renderers for Jupyter Notebooks (with plotly...
Microsoft Install

Jupyter Cell Tags
Jupyter Cell Tags support for VS Code
Microsoft Install

Jupyter Slide Show
Jupyter Slide Show support for VS Code
Microsoft Install

Jupyter Extension for Visual Studio Code

A Visual Studio Code extension that provides basic notebook support for language kernels that are supported in Jupyter Notebooks today, and allows any Python environment to be used as a Jupyter kernel. This is ***NOT a Jupyter kernel***--you must have Python environment in which you've installed the Jupyter package, though many language kernels will work with no modification. To enable advanced features, modifications may be needed in the VS Code language extensions.



Categories

Extension Packs | Data Science | Machine Learning | Visualization | Notebooks

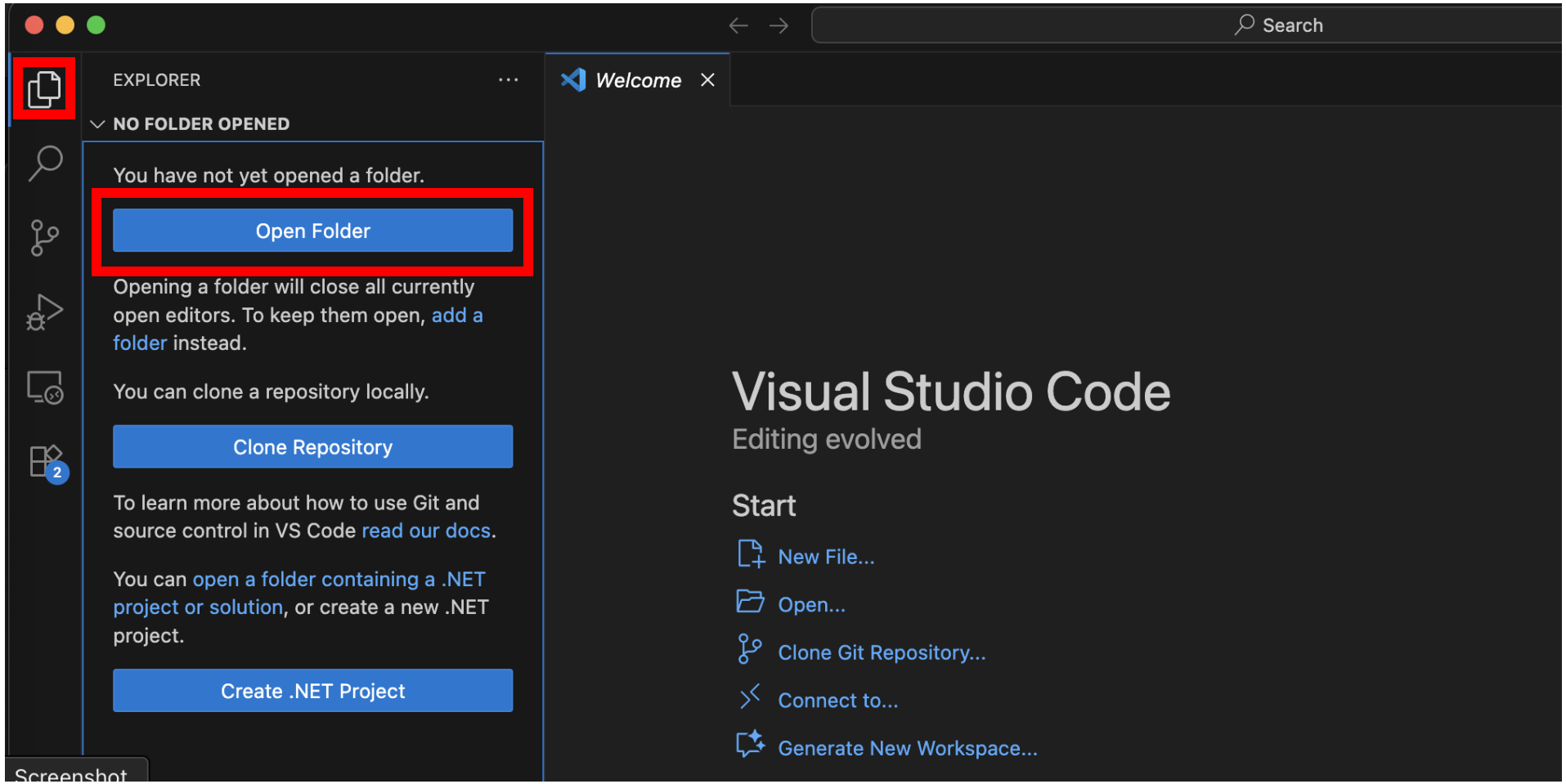
Extension Resources

Marketplace
Repository
License
Microsoft

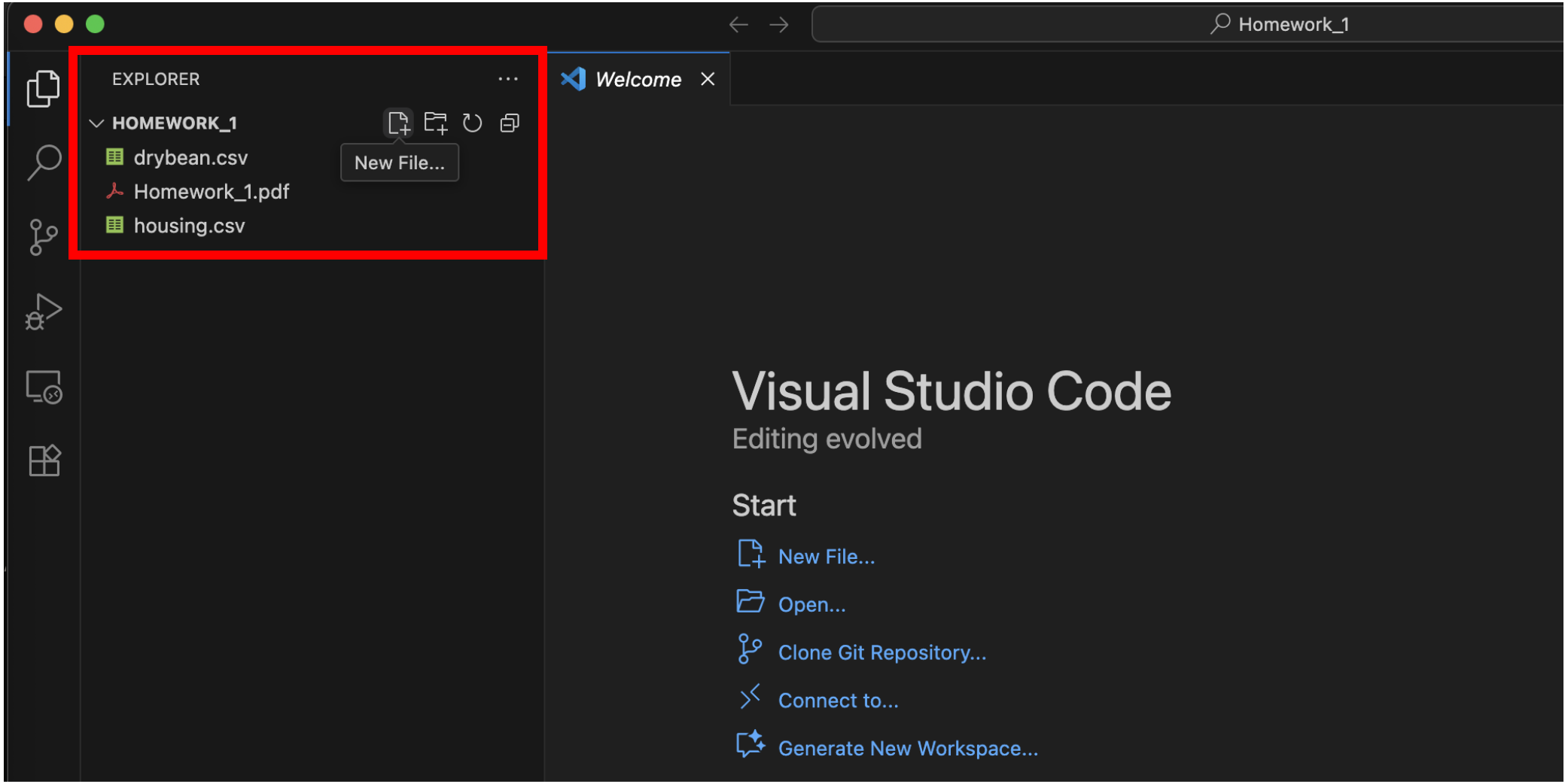
More Info

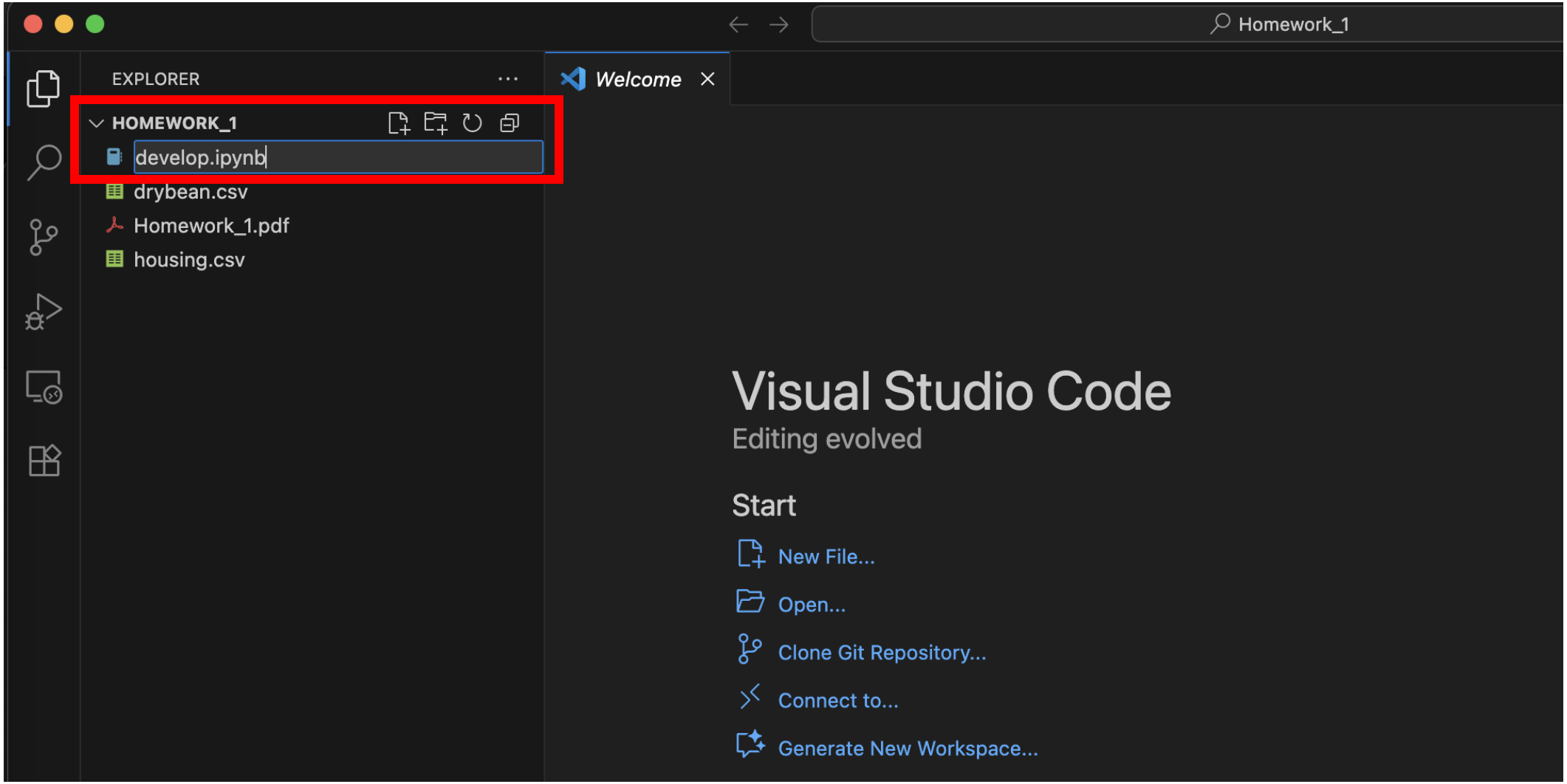
Published	2020-11-11, 11:14:18
Last released	2024-01-15, 01:26:54
Identifier	ms-toolsai.jupyter

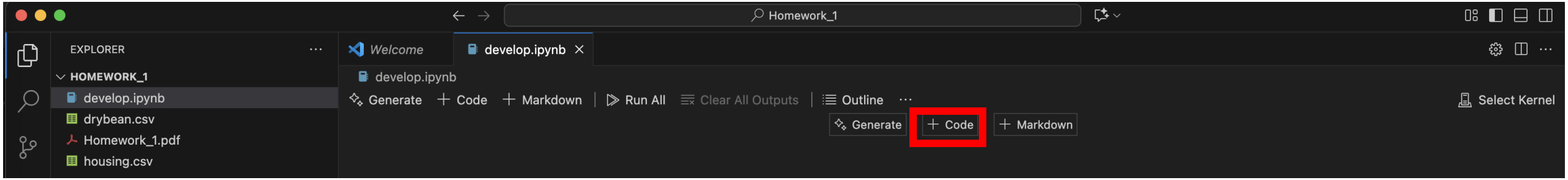
Example Walkthrough

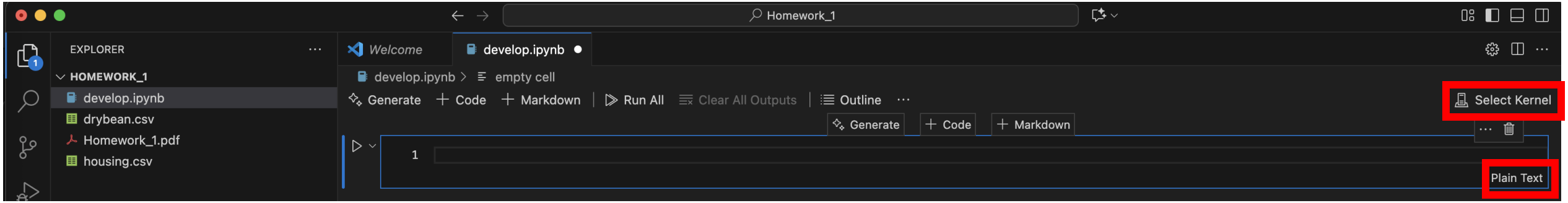


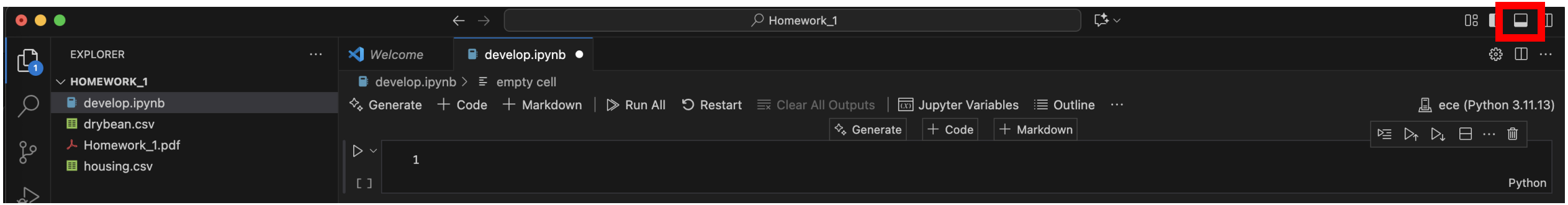
- **Open homework 1 folder**


Homework_1
EXPLORER
HOMEWORK_1
drybean.csv
Homework_1.pdf
housing.csv
New File...
Welcome
Visual Studio Code
Editing evolved
Start
New File...
Open...
Clone Git Repository...
Connect to...
Generate New Workspace...


Homework_1
EXPLORER
Welcome
HOMEWORK_1
develop.ipynb
drybean.csv
Homework_1.pdf
housing.csv
Visual Studio Code
Editing evolved
Start
New File...
Open...
Clone Git Repository...
Connect to...
Generate New Workspace...







- **Select Kernel -> Select downloaded python**
- **Plain Text -> Python**
- **Click the button (open terminal)**

How do I install openai, numpy, pandas, scikit-learn?

To install **OpenAI**, **NumPy**, **Pandas**, and **Scikit-learn**, you'll use **pip**, Python's package manager.

Here's a complete step-by-step guide 👇

🧩 Step 1: Make sure Python and pip are installed

Open your terminal or command prompt and check:

bash Copy code

```
python --version
pip --version
```

If both return a version number, you're good to go ✅
If not, install Python first (see how to install Python ↗).

🧰 Step 2: Install the packages

Run this single command:

bash Copy code

```
pip install openai numpy pandas scikit-learn
```

💡 Step 3: Verify the installations

You can check that everything installed correctly by running Python and importing each library:

bash Copy code

```
python
```

Then inside the Python shell:

python Copy code

```
import openai
import numpy
import pandas
import sklearn

print("All packages installed successfully!")
```

If you don't see any errors — perfect 🎉

🧠 Optional (Recommended):

To keep your projects organized, you can create a **virtual environment**:

bash Copy code

```
python -m venv venv
source venv/bin/activate      # macOS/Linux
venv\Scripts\activate         # Windows
pip install openai numpy pandas scikit-learn
```

EXPLORER

HOMEWORK_1

- develop.ipynb
- drybean.csv
- Homework_1.pdf
- housing.csv

Welcome | develop.ipynb ●

develop.ipynb > generated_code = call_llm(prompt)

Generate | + Code | + Markdown | Run All | Restart | Clear All Outputs | Jupyter Variables | Outline | ...

Generate | + Code | + Markdown

```python
import openai

openai.api_key = "YOUR_API_KEY"
```

[ ]

```python
def call_llm(prompt: str) -> str:
    response = openai.chat.completions.create(
        model="gpt-4o-mini",
        messages=[
            {"role": "system", "content": "You are a Python coding assistant."},
            {"role": "user", "content": prompt},
        ]
    )
    return response.choices[0].message.content
```

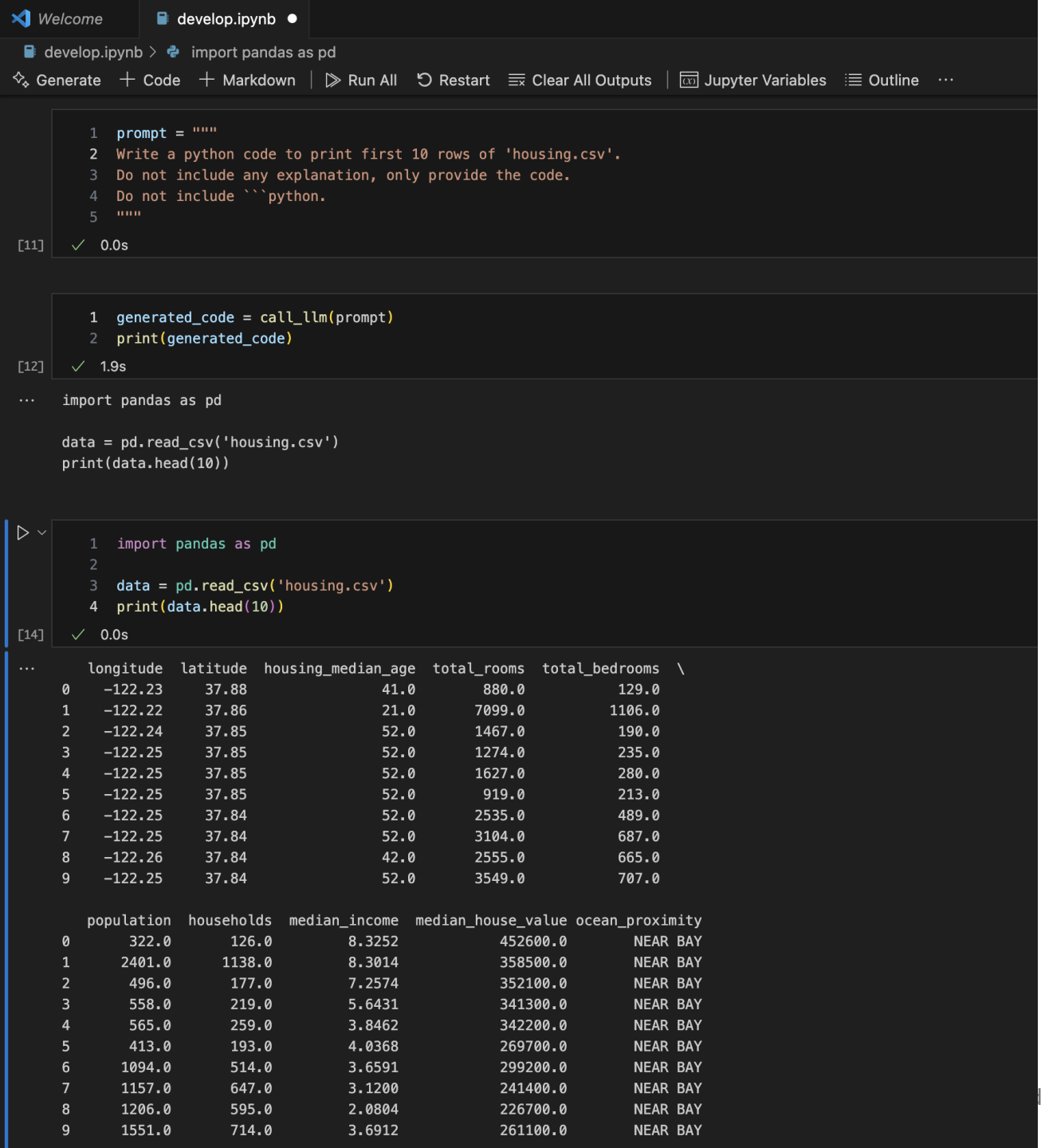
[ ]

```python
prompt = """
YOUR PROMPT HERE
"""
```

[ ]

```python
generated_code = call_llm(prompt)
print(generated_code)
```

[ ]



- 1. Fill in ‘prompt’
- 2. Get ‘generated_code’
- 3. Copy the output
- 4. Run the output
- 5. See if the result looks like what you wanted !

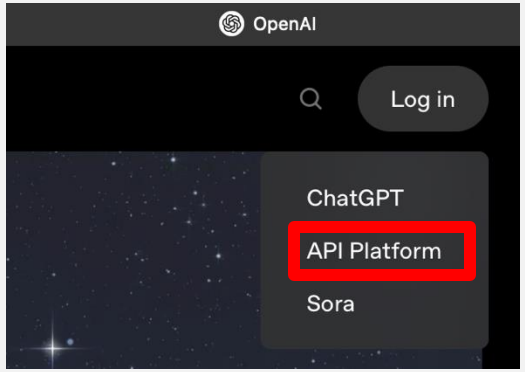
- If not, modify your prompt, and try it again

Get Your OpenAI API Key

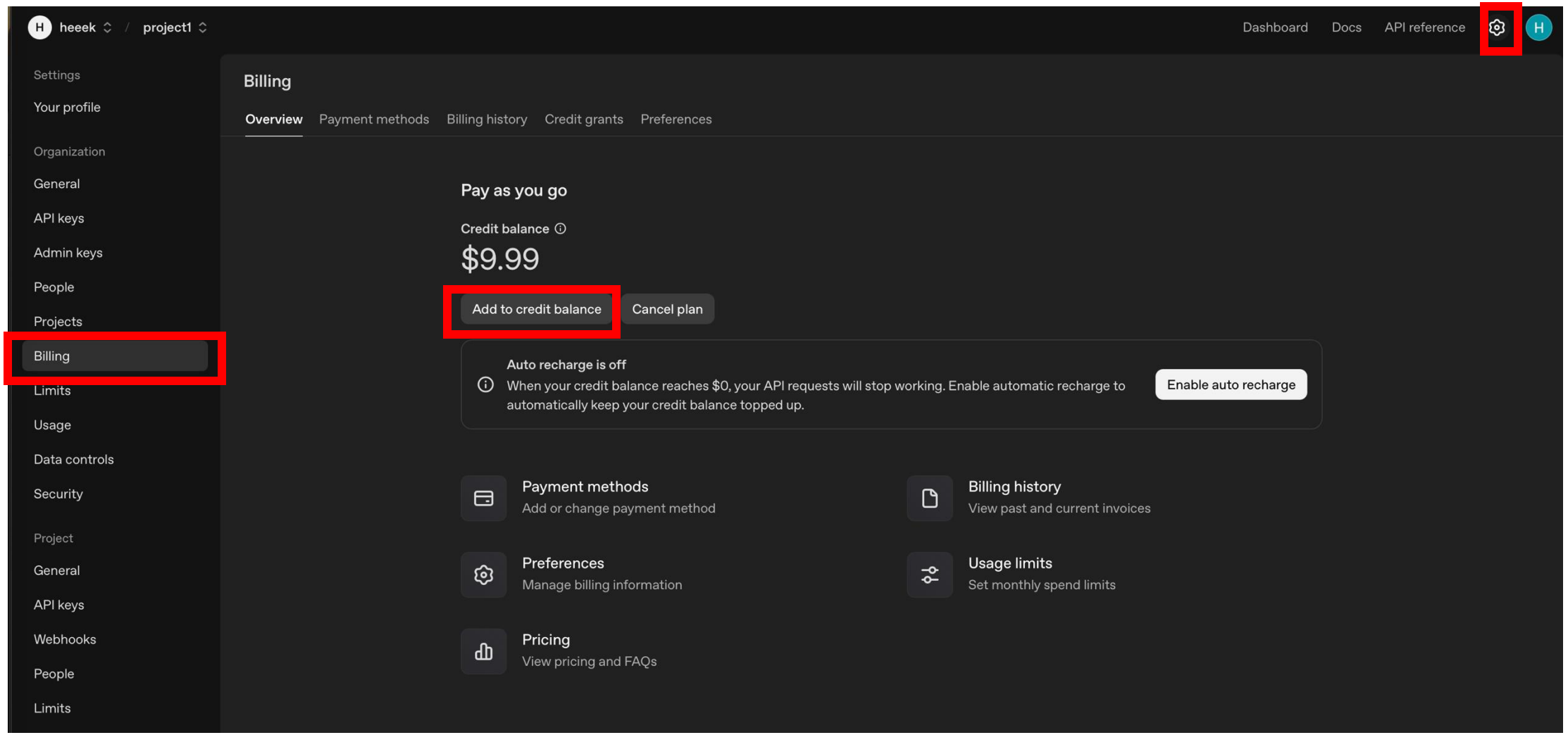
Get Your OpenAI API Key

- **If you want to use ChatGPT (free version)**
  - Use it with ‘temporary chat’ so that ChatGPT doesn’t refer to your other chats.

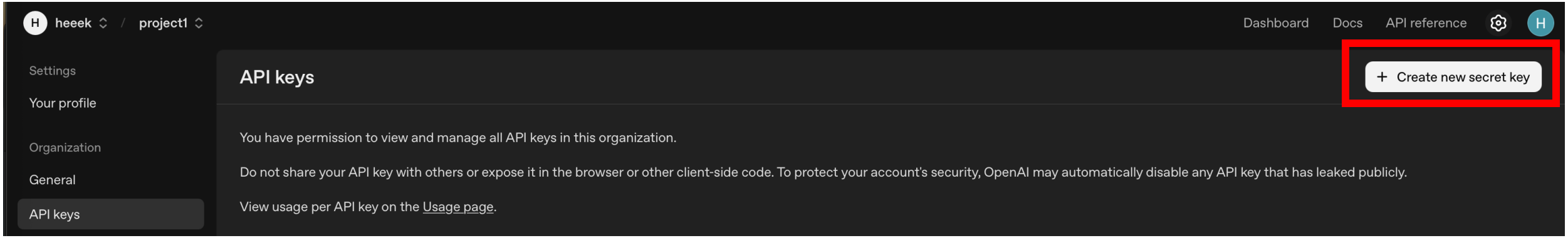
- **We highly recommend you to use API (not free)**
  - Go to https://openai.com



- **Other LLMs**
  - Try other LLMs with a same prompt, to explore the style of other LLMs.
  - But for grading, we will use ‘gpt-4o-mini’.



- **We will use ‘gpt-4o-mini’ for grading, throughout the quarter.**
- **$5 is more than enough for the whole quarter.**



- **Create new API Key**
  - **Make sure you save (copy-and-paste) somewhere !**
  - **You cannot copy again after you exit the screen.**
  - **(If you lose it, just delete the key and create the new one)**

End of Python and VS Code Installation