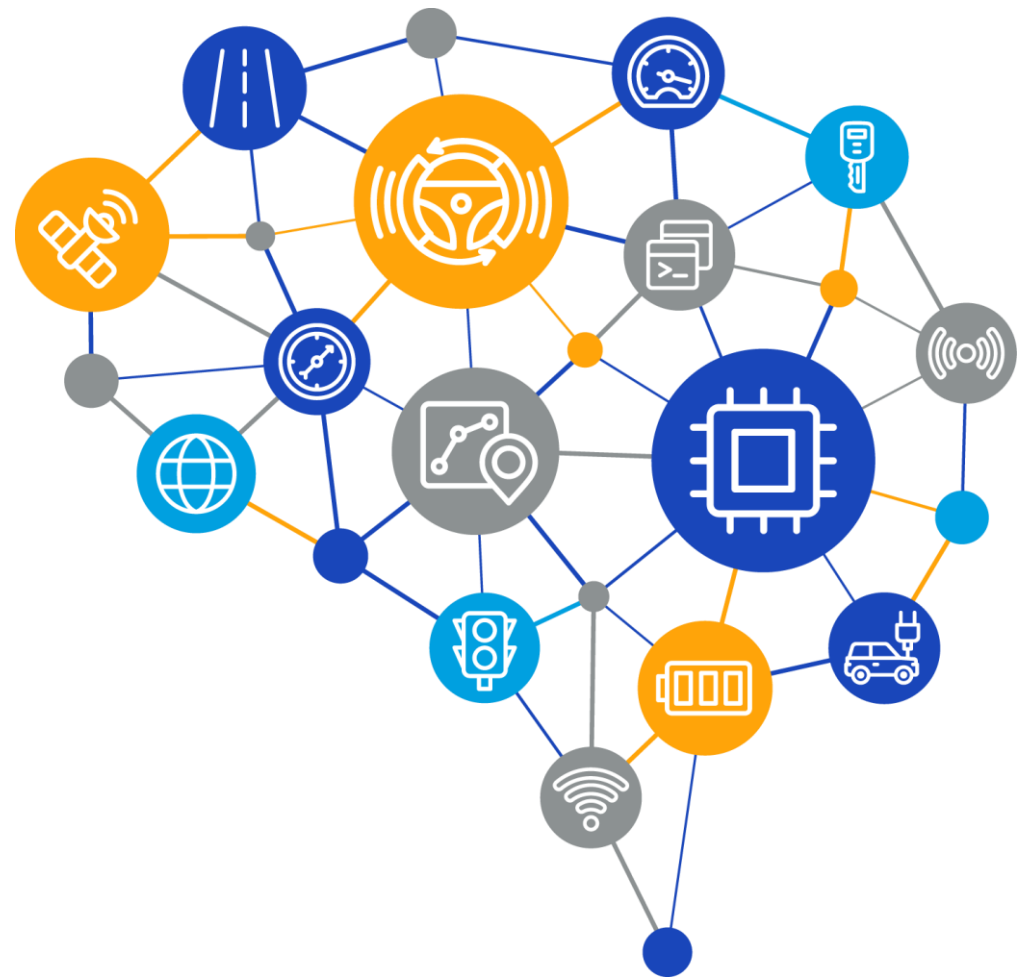


비주얼 스튜디오 코드 활용



강환수 교수

AI Experts
Who Lead
The Future

01

비주얼 스튜디오 코드 개요와 설치

- **Visual Studio Code**

- MS사가 개발하는 오픈 소스 에디터 소프트웨어, 간단히 vscode
 - Electron으로 만든 open source license로 만든 code editor
- 가볍지만 강력한 소스 코드 편집기
 - 데스크톱에서 실행
 - Windows, macOS 및 Linux에서 사용 가능
- JavaScript, TypeScript 및 Node.js를 기본적으로 지원
 - 다른 언어 (예 : C ++, C #, Java, Python, PHP, Go) 및 런타임(예 : .NET 및 Unity)에 대한 풍부한 확장 기능 에코 시스템
- VSCode Marketplace 활용
 - 아주 간단한 것부터 '또 하나의 프로그램'이라 느낄 정도로 복잡한 것까지 수 많은 extension 사용 가능

Visual Studio Code - Code Editor

code.visualstudio.com

Visual Studio Code Docs Updates Blog API Extensions FAQ Learn

Version 1.66 is now available! Read about the new features and fixes from March.

Code editing. Redefined.

Free. Built on open source. Runs everywhere.

Download for Windows
Stable Build

Other platforms and Insiders Edition

By using VS Code, you agree to its [license and privacy statement](#).

EXTENSIONS: MARKETPLACE

- @sortinstalls
- Python** 2019.6.24221 54.9M 4.5
Linting, Debugging (multi-threaded, ...
Microsoft **Install**
- GitLens — Git superpower** 9.8.5 23.1M 4.5
Supercharge the Git capabilities built into VS Code.
Eric Amodio **Install**
- C/C++** 0.24.0 73M 4.5
C/C++ IntelliSense, debugging, and more.
Microsoft **Install**
- ESLint** 1.9.0 21.9M 4.5
Integrates ESLint JavaScript into VS Code.
Dirk Baumer **Install**
- Debugger for Chrome** 1.11.6 30.6M 4.4
Debug your JavaScript code in the Chrome DevTools.
Microsoft **Install**
- Language Support for Java** 0.47.0 18.7M 4.5
Java Linting, IntelliSense, formatting, and more.
Red Hat **Install**
- vscode-icons** 8.8.0 17.2M 4.5
Icons for Visual Studio Code
VSCode Icons Team **Install**
- Vetur** 0.21.1 17M 4.5
Vue tooling for VS Code
Pine Wu **Install**
- C#** 1.21.0 15.6M 4.4
C# for Visual Studio Code (powered by OmniSharp)
Microsoft **Install**

src > JS serviceWorker.js

```
39 register > window.addEventListener('load') callback
40 checkValidServiceWorker(swUrl, config);
41 // Add some additional logging to localhost, pointing
42 // service worker/PWA documentation.
43 navigator.serviceWorker.ready.then(() => {
44   product
45   productSub
46   removeSiteSpecificTrackingException
47   removeWebWideTrackingException
48   requestMediaKeySystemAccess
49   sendBeacon
50   serviceWorker (property) Navigator.serviceWorker
51   storage
52   storeSiteSpecificTrackingException
53   storeWebWideTrackingException
54   userAgent
55   vendor
56
57 function registerValidSW(swUrl, config) {
58   navigator.serviceWorker
59     .register(swUrl)
60     .then(registration => {
```

TERMINAL

```
1: node
You can now view create-react-app in the browser.
Local:      http://localhost:3000/
On Your Network: http://10.211.55.3:3000/
Note that the development build is not optimized.
```

Ln 43, Col 19 Spaces: 2 UTF-8 LF JavaScript

IntelliSense **Run and Debug** **Built-in Git** **Extensions**

- 다운로드

- <https://code.visualstudio.com/download>

- VSCodeSetup-x64-1.87.2.exe

- 2024년 2월

- 매우 자주 업그레이드

- 버전 종류

- 유저 버전

- 현재 사용자만 설치 가능한 버전

- 시스템 버전

- 해당 컴퓨터에 모든 사람이 사용 가능

- 공용 버전으로 사용하는 걸 추천

- System Installer

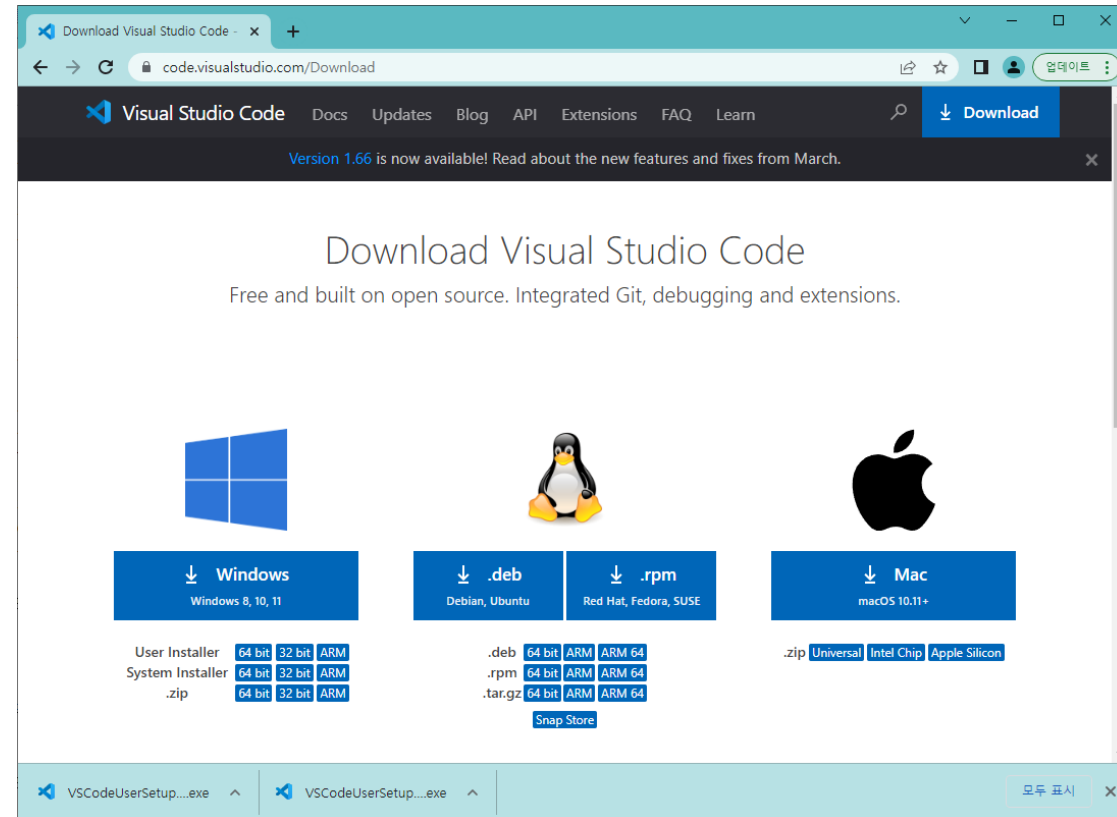
- 시스템 설치 기본 폴더

- C:\Program Files\Microsoft VS Code

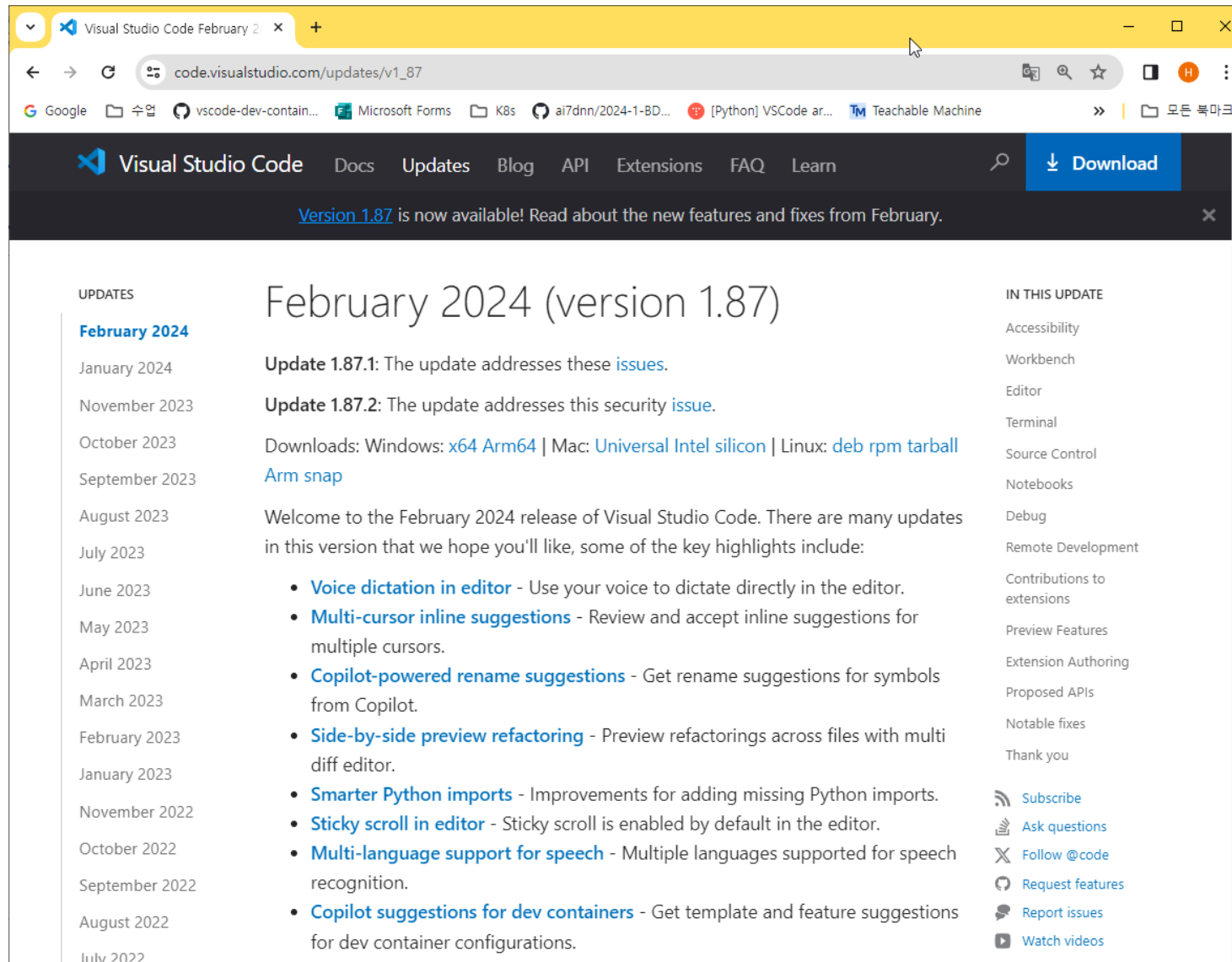
- User Installer

- 사용자 폴더에 설치

- 상관 없음











- <https://code.visualstudio.com/updates>



Top Extensions

Enable additional languages, themes, debuggers, commands, and more. VS Code's growing community shares their secret sauce to improve your workflow.

 Python ms-python 62.3M IntelliSense (Pylance), Linting, Debugging (multi-...	 Jupyter ms-toolsai 43.0M Jupyter notebook support, interactive programming...	 Pylance ms-python 35.6M A performant, feature-rich language server for Python...	 C/C++ ms-vscode 34.4M C/C++ IntelliSense, debugging, and code...
 Jupyter Keymap ms-toolsai 25.6M Jupyter keymaps for notebooks	 Live Server ritwickdey 24.4M Launch a development local Server with live reload...	 Jupyter Notebook Re... ms-toolsai 23.8M Renderers for Jupyter Notebooks (with plotly,...	 Prettier - Code format... esbenp 23.5M Code formatter using prettier

설치과정 1/3

파이썬과 vs code Python language

Microsoft Visual Studio Code 설치

사용권 계약

계속하기 전에 다음의 중요 정보를 읽어보십시오.

다음 사용권 계약을 읽어보십시오.

이 라이선스는 Visual Studio Code의 소스 코드는 MIT 라이선스 계약에 따라 배포됩니다. (<https://github.com/microsoft/vscode>)
Visual Studio Code의 FAQ(<https://code.visualstudio.com/faq>)를 읽어보십시오.

MICROSOFT 소프트웨어

☒ 동의합니다(A)
☐ 동의하지 않습니다(D)

Microsoft Visual Studio Code 설치

설치 위치 선택

Visual Studio Code의 설치 위치를 선택하십시오.

다음 폴더에 Visual Studio Code를 설치할까요?

계속하려면 "다음"을, 다른 폴더를 선택하려면 "찾아보기..."를 클릭하십시오.

C:\Program Files\Microsoft VS Code

이 프로그램은 최소 292.3 MB의 디스크 공간을 필요로 합니다.

Microsoft Visual Studio Code 설치

시작 메뉴 폴더 선택

어디에 프로그램 바로가기 위치를 지정할까요?

다음 시작 메뉴 폴더에 프로그램 바로가기를 만듭니다.

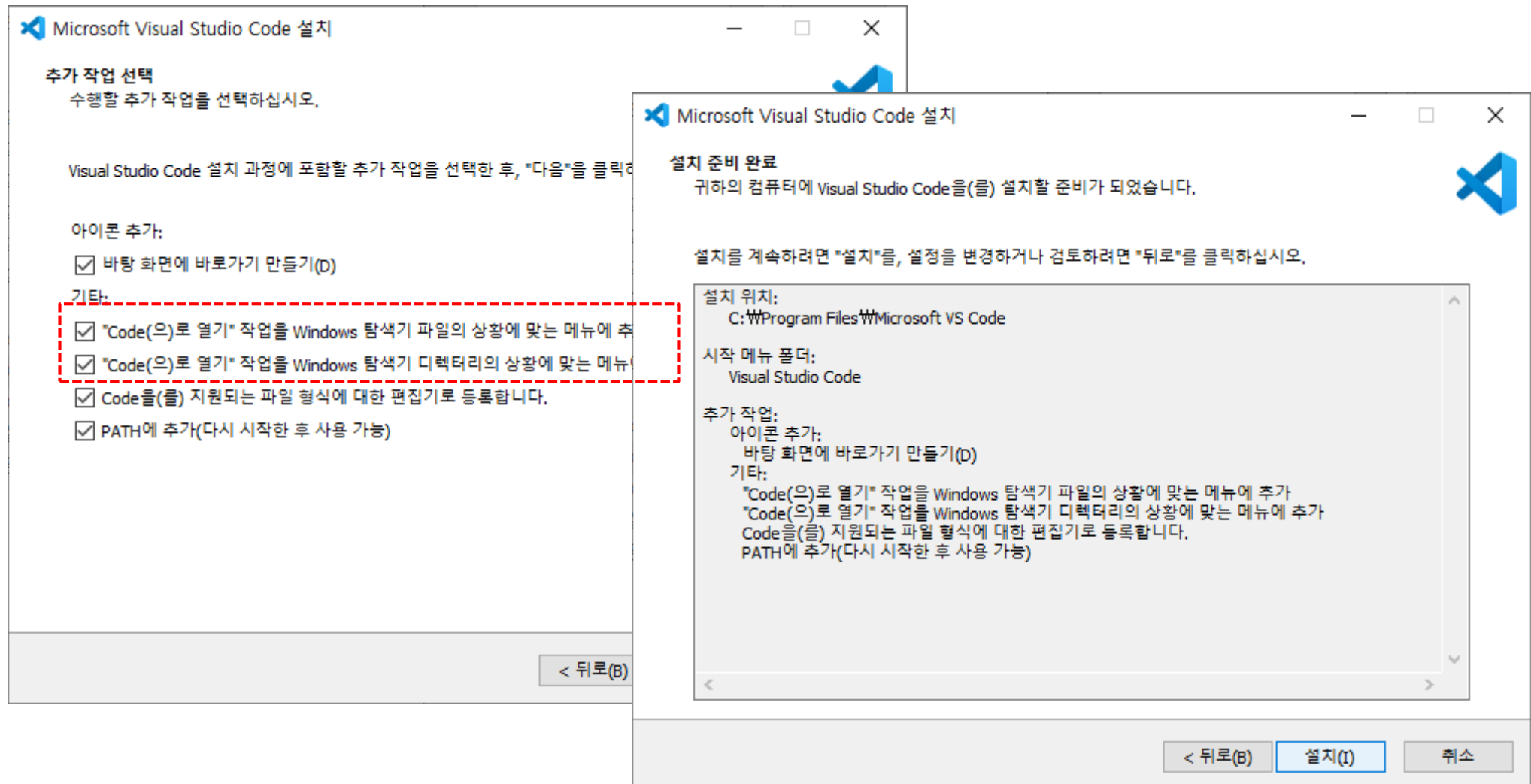
계속하려면 "다음"을 클릭하고, 다른 폴더를 선택하려면 "찾아보기..."를 클릭하십시오.

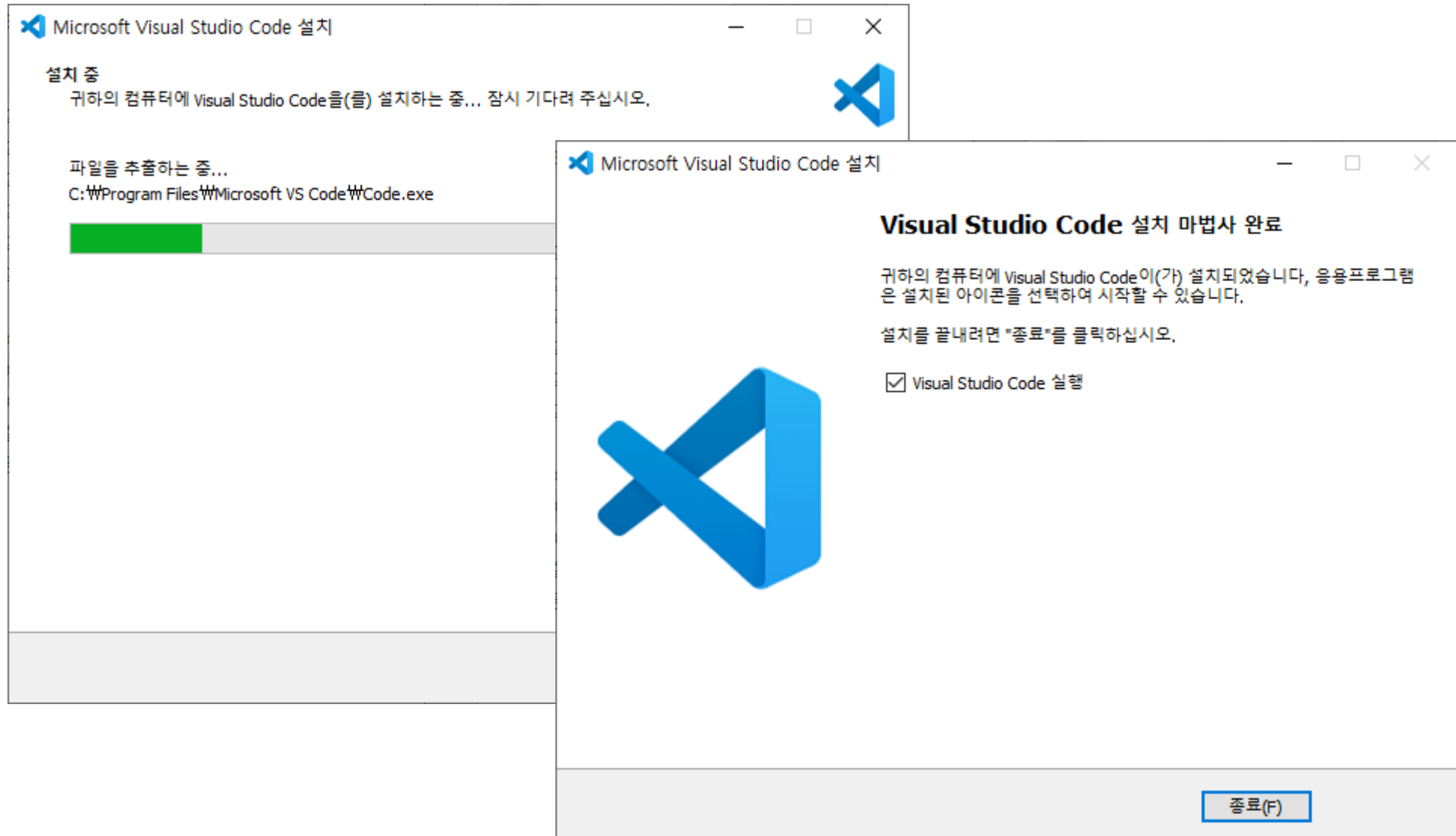
Visual Studio Code

☐ 시작 메뉴 폴더를 만들지 않음(D)

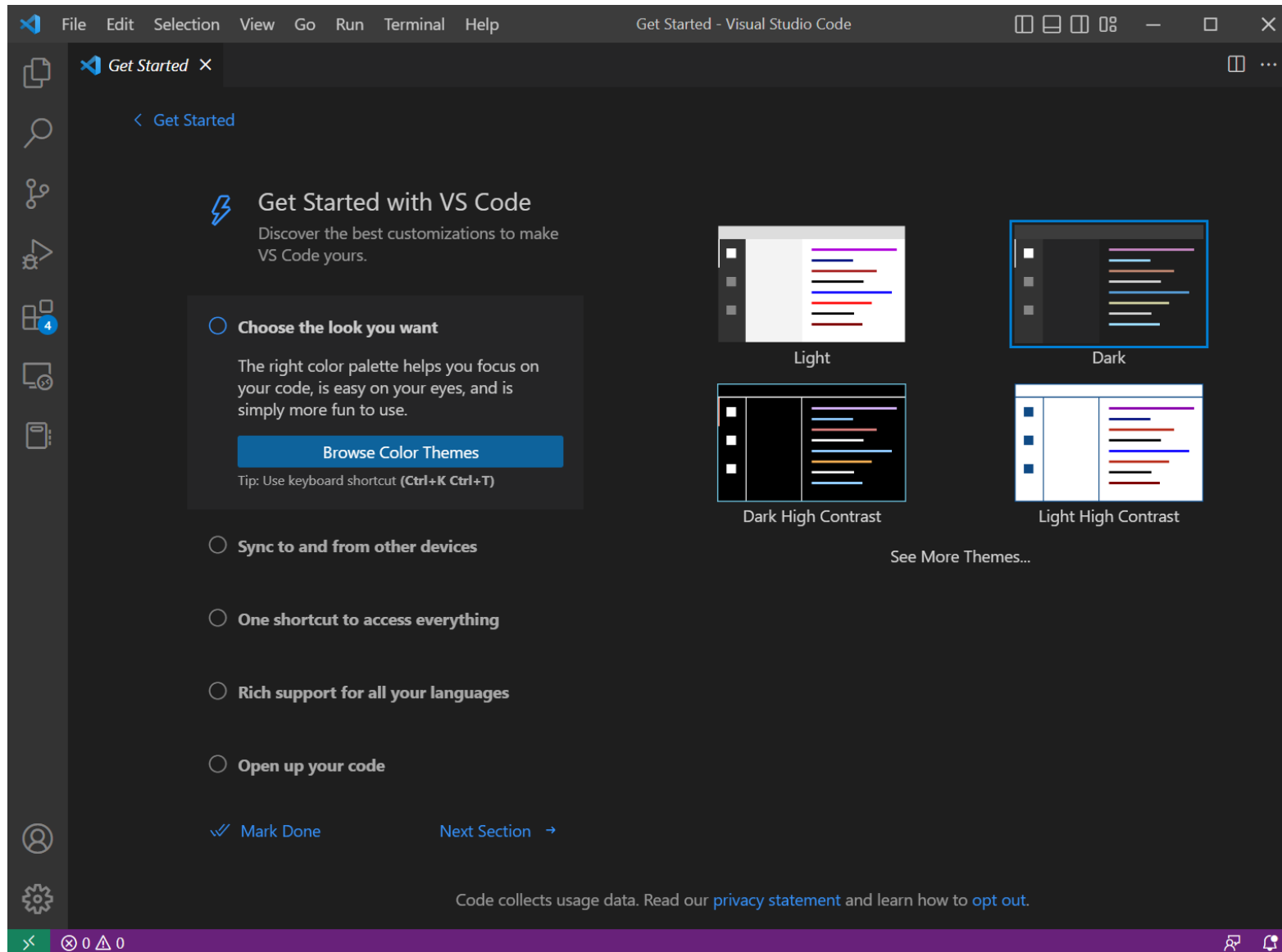
< 뒤로(B) 다음(N) > 취소

- 추가 작업 선택에서 기본으로 체크되지 않은 위 3개의 체크박스를 선택
 - 탐색기에서 파일 또는 디렉토리에서 바로 'vscode로 열기' 메뉴를 사용할 수 있어 편리

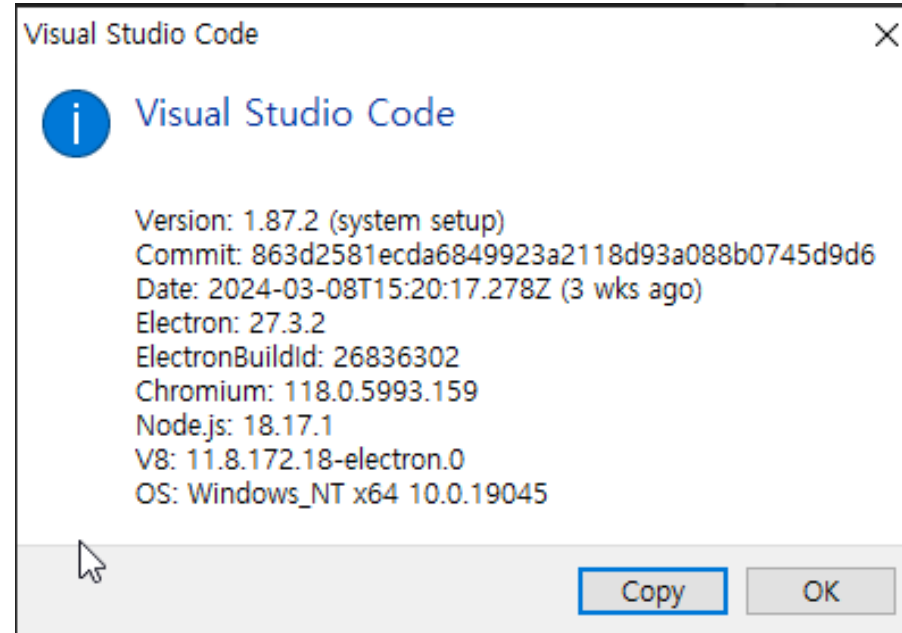




• Get Started



- 메뉴 Help | About

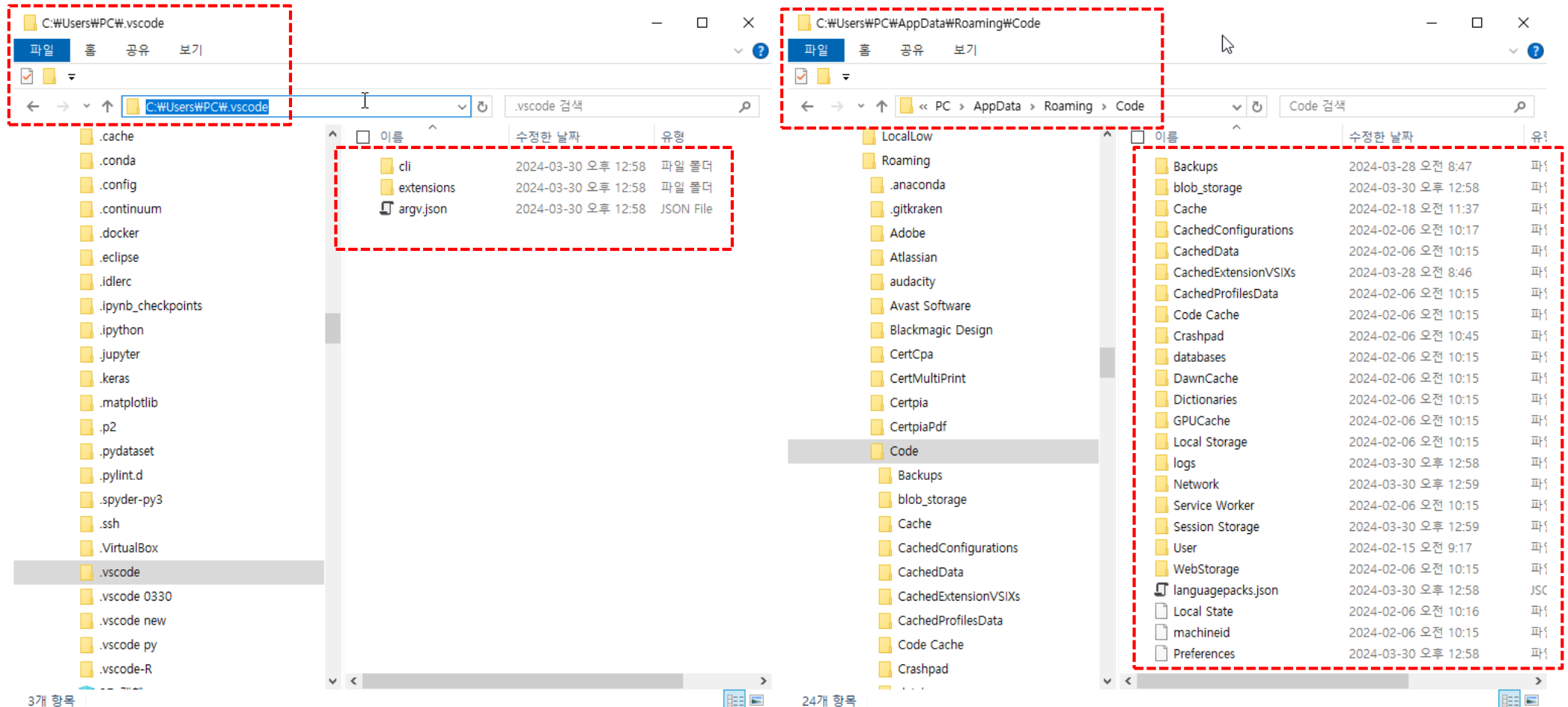


AI Experts
Who Lead
The Future

02

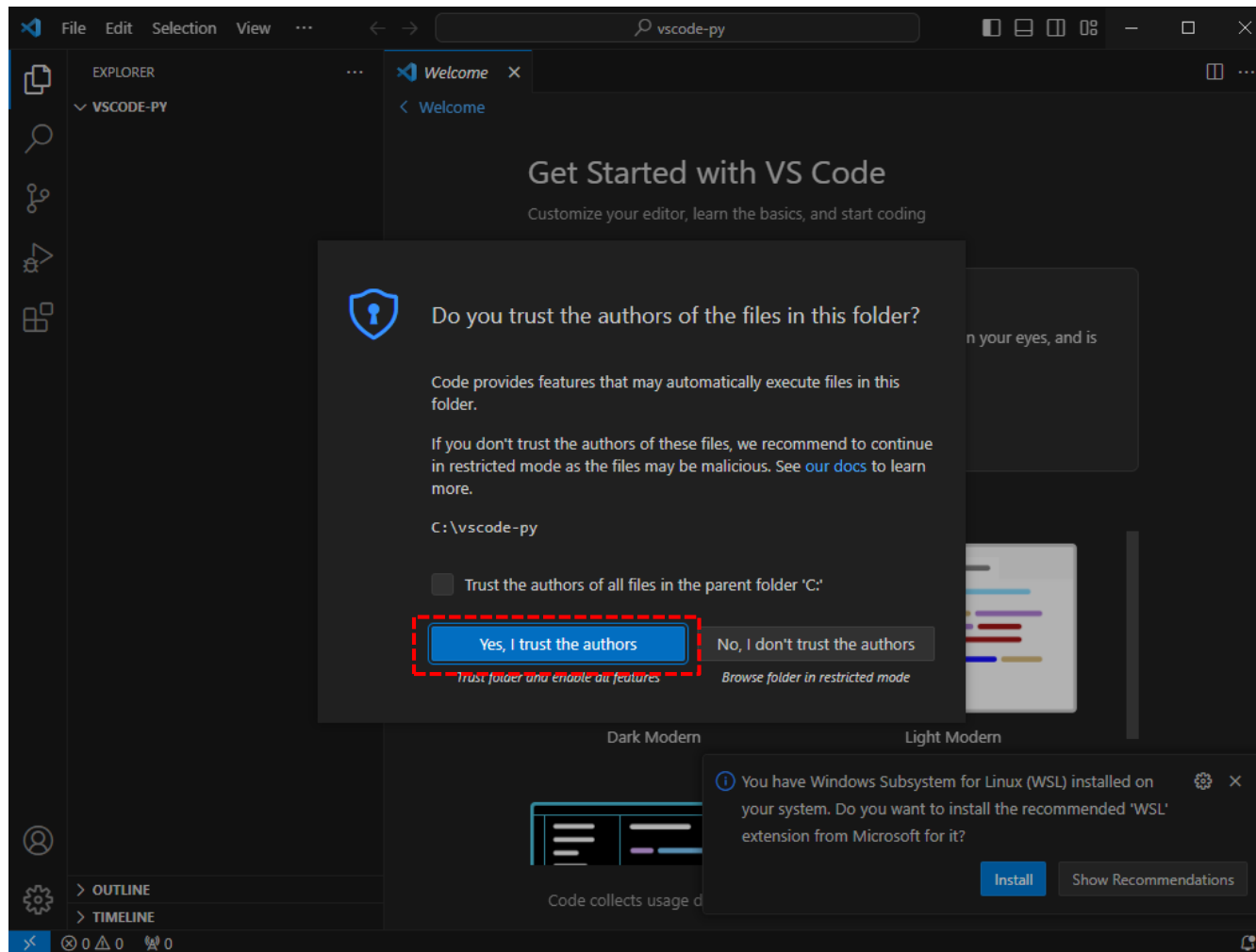
파이썬 확장 설치와 파이썬 파일 실행

- C:\Users\W[사용자계정]\W하부
 - C:\Users\WPC\W.vscodex
 - 확장 설치
 - C:\Users\WPC\AppData\Roaming\WCode
 - 환경 설정

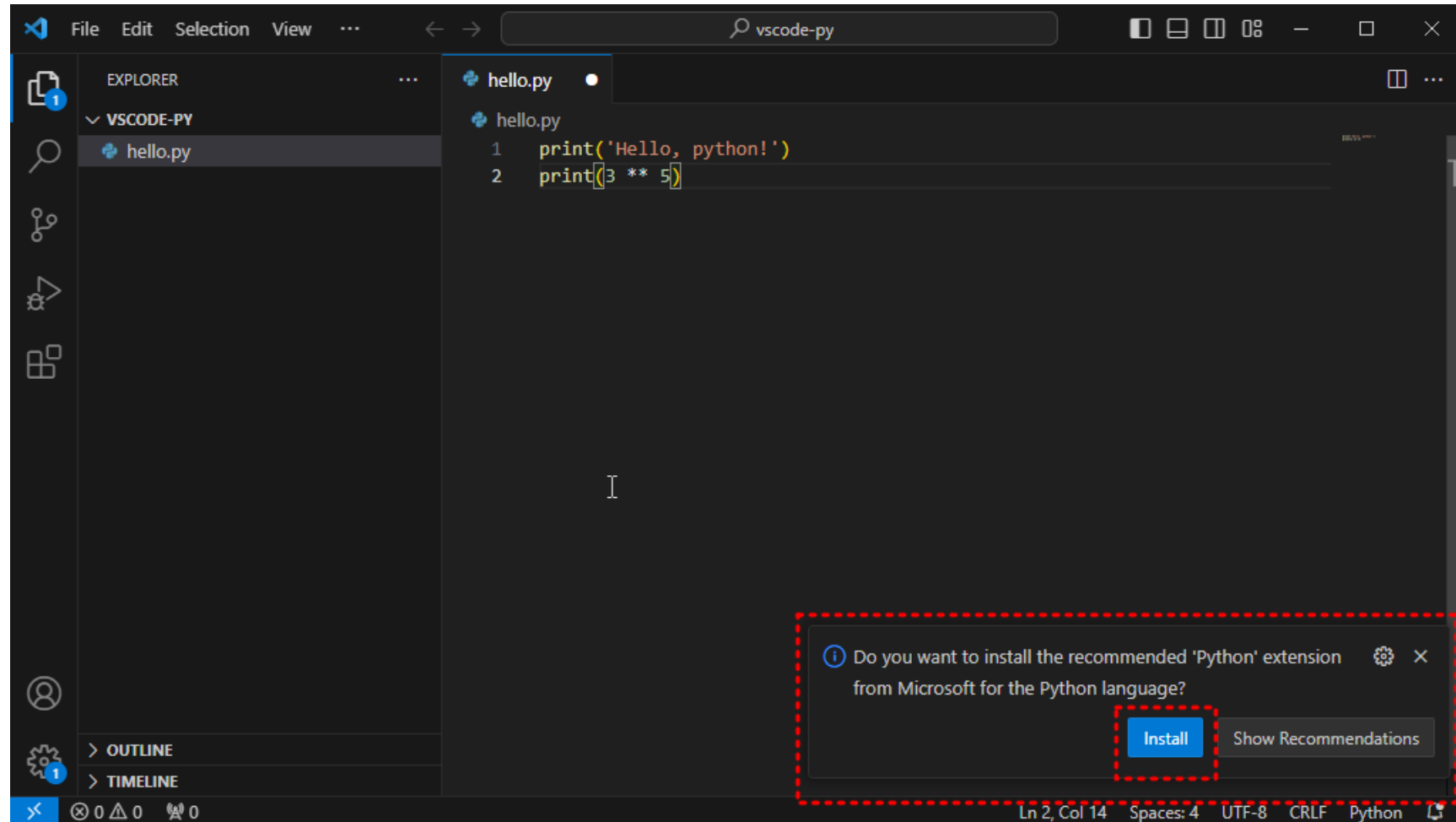


- 설정 폴더 이름 수정으로 제거
 - C:\Users\PC\vscode
 - 다음으로 수정
 - .vscode 0404
 - C:\Users\PC\AppData\Roaming\Code
 - 다음으로 수정
 - Code 0404
- Vs code 종료 후 다시 시작

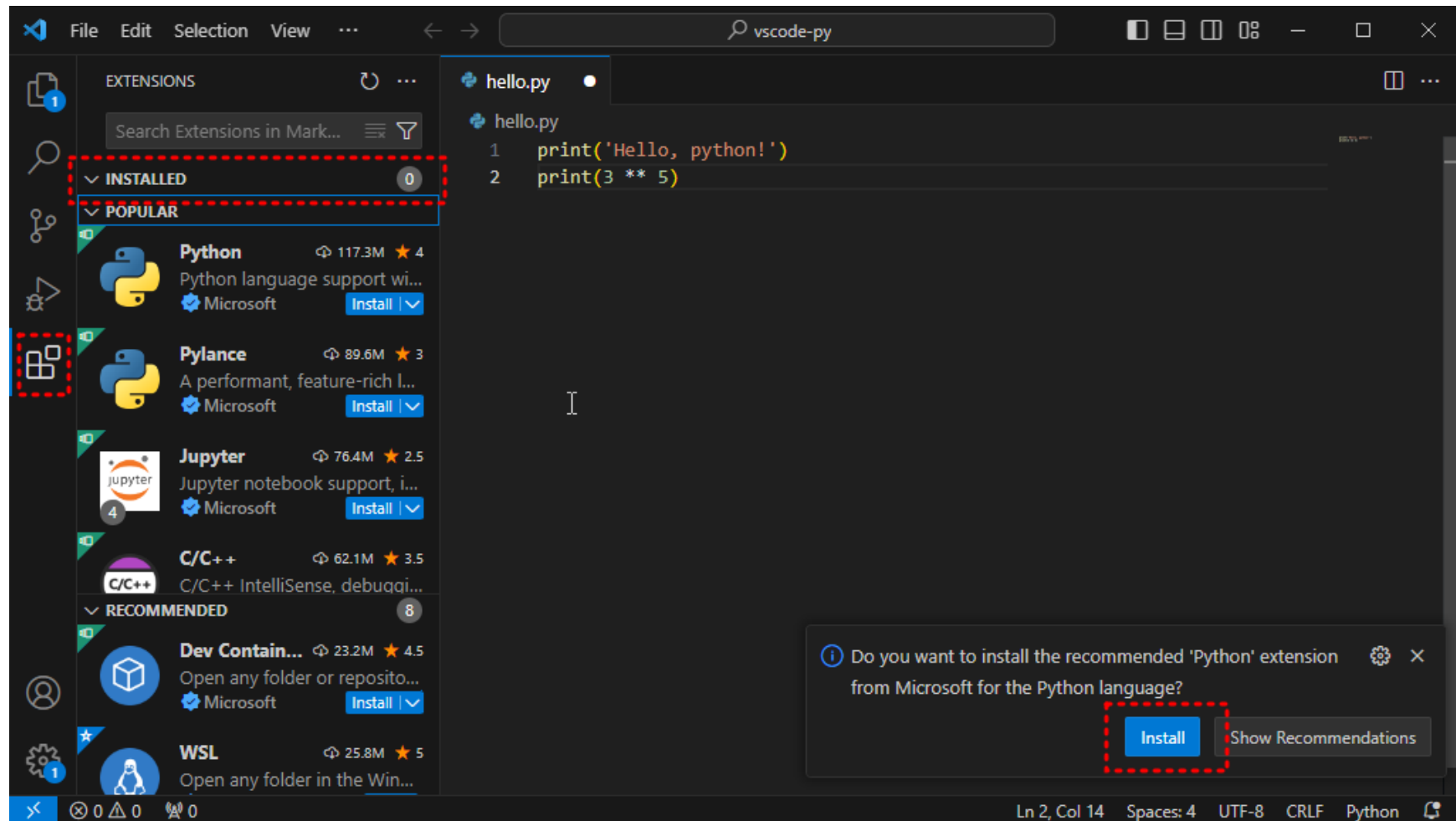
- 작업 폴더를 하나 생성 후 vscode 실행
 - C:\vscode-py



- 3개 확장 설치



- 다음 대화 상자가 안 보이면 직접 extensions에서 설치 가능
- 0 에서 3 으로 설치 현황

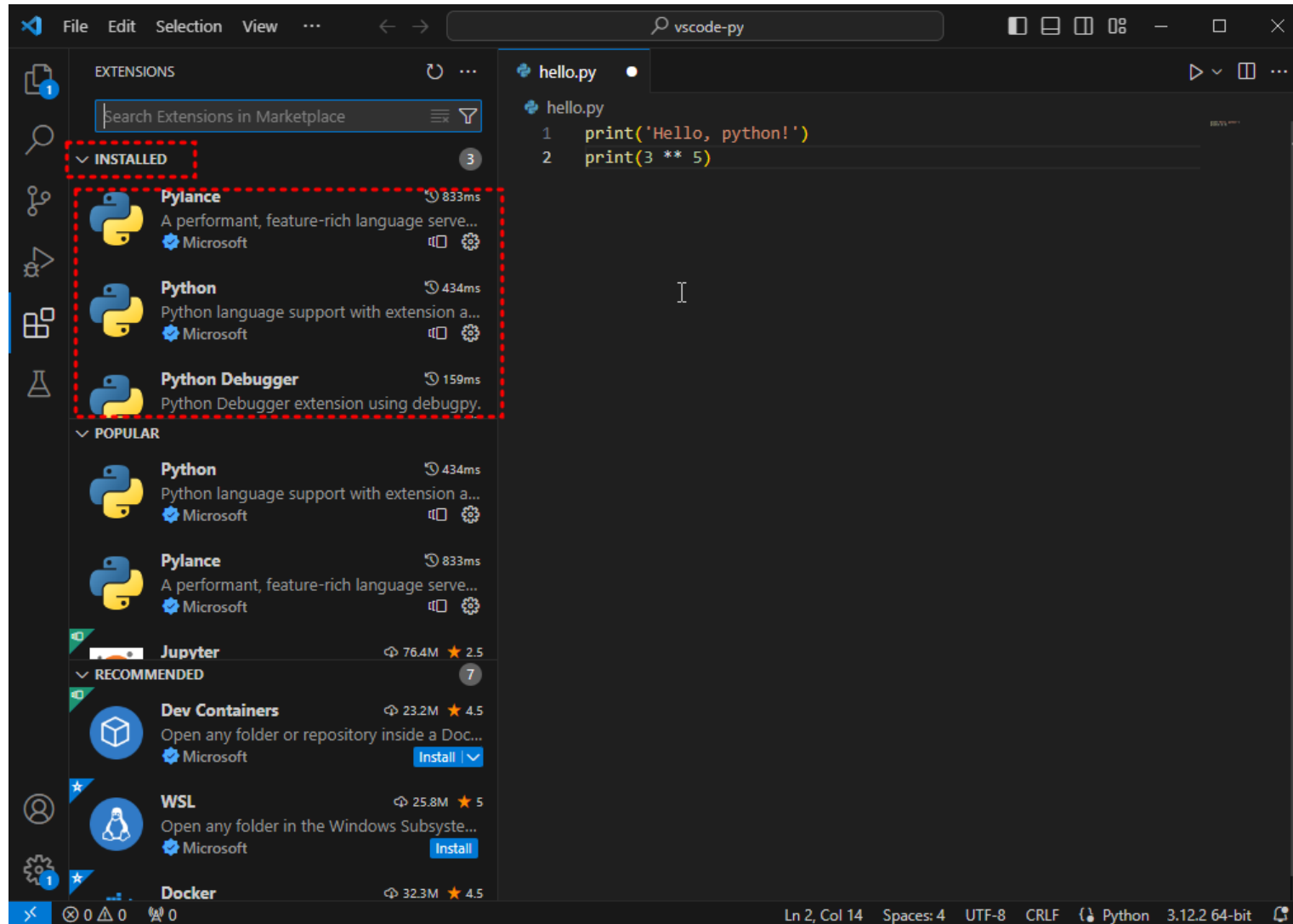


처음 설치된 확장: python 기본

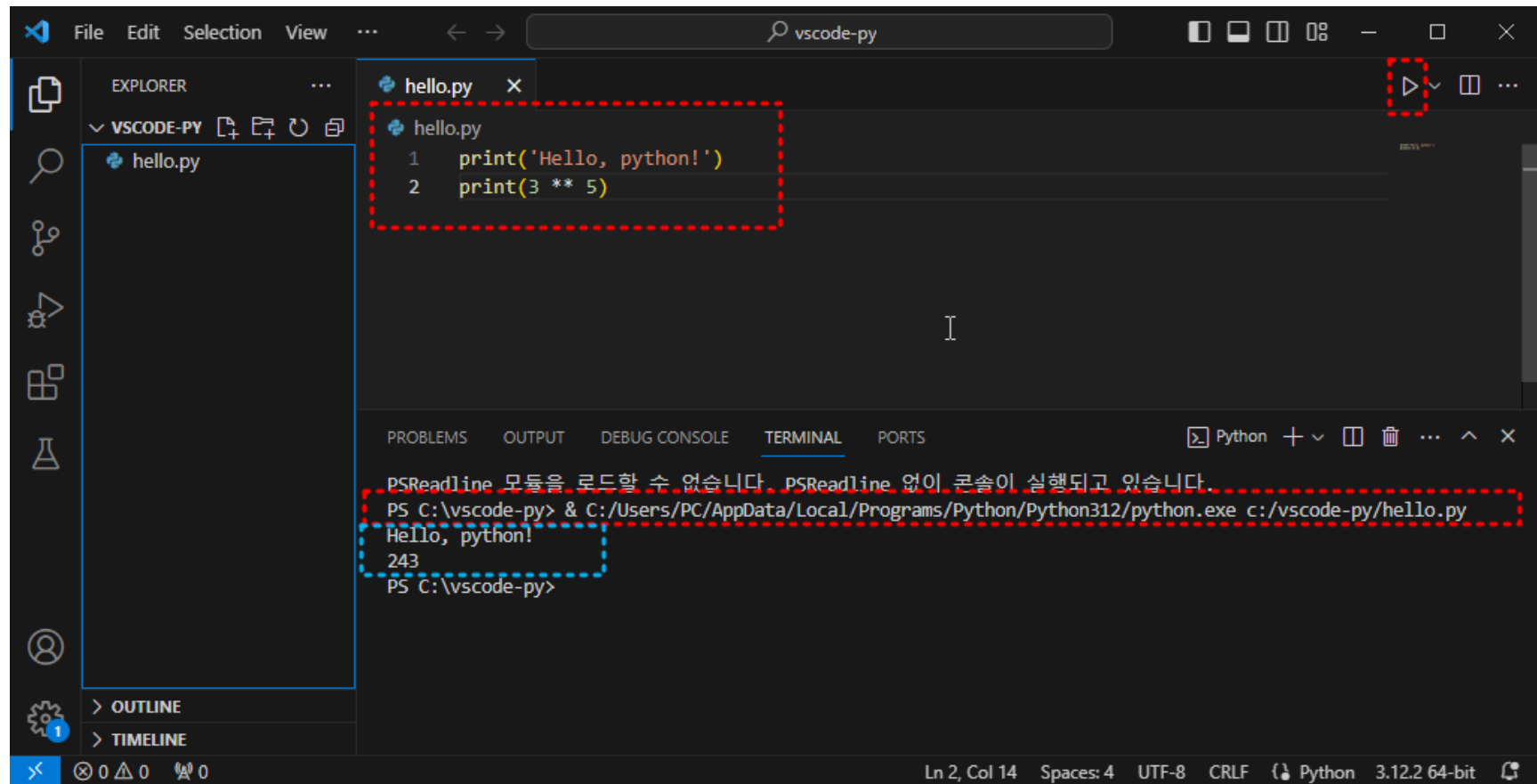
파이썬과 vs code Python language

- 다음 3개의 확장 설치

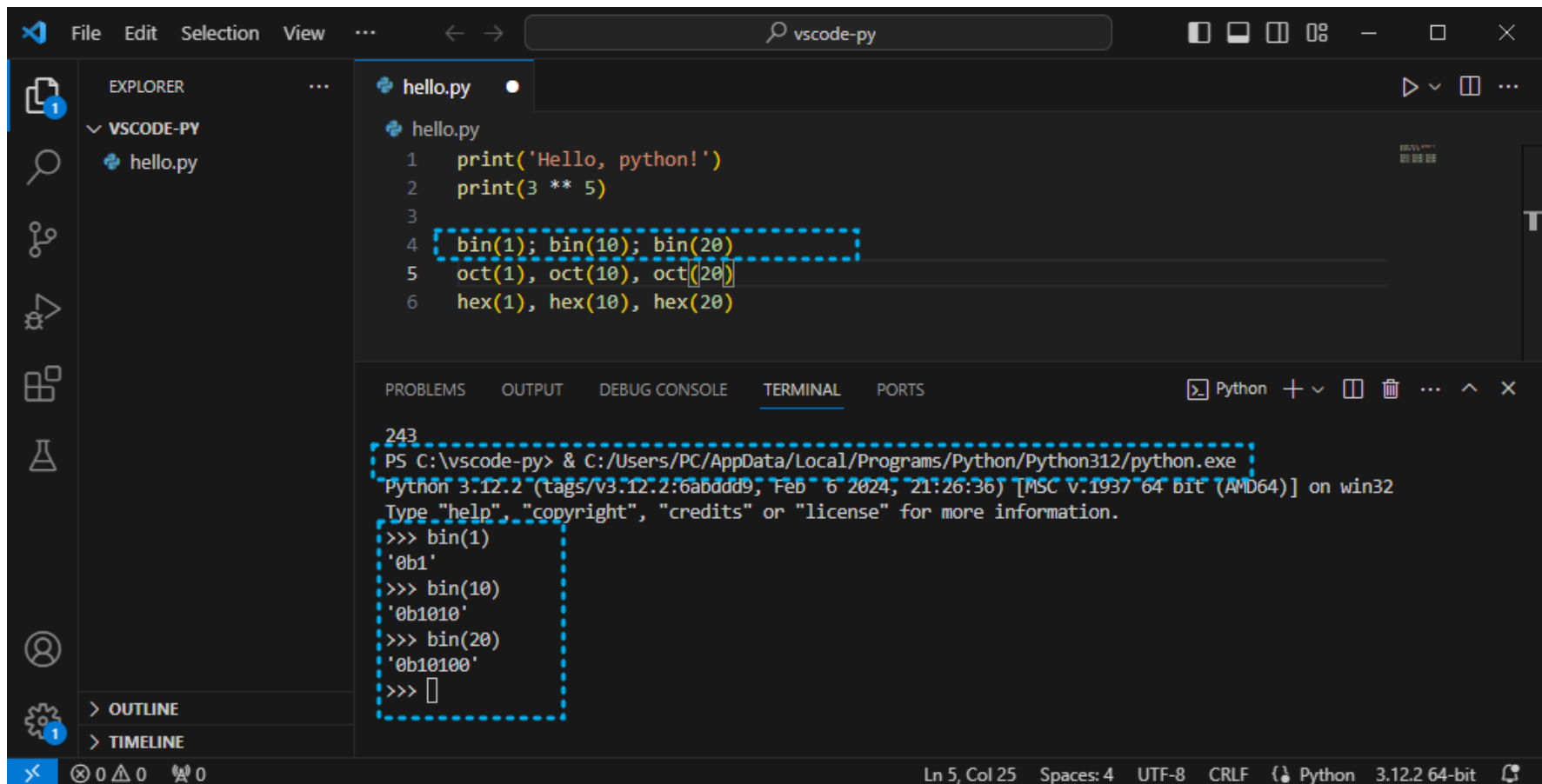
- 3개가 모두 설치되면 좋으나 python만 설치되어도 실행에는 문제 없음



- 실행 버튼 > 으로
 - 하부 터미널에서 실행됨



- Shift + Enter
 - 현재 줄 실행 후 다음 줄로 이동
 - 실행은 터미널에서 셸(shell)로 실행됨
 - 이전에 사용하던 터미널이 있다면 제거하는 것이 편리



```
File Edit Selection View ... < > vscode-py
```

EXPLORER

- VSCODE-PY
 - hello.py

```
hello.py
1 print('Hello, python!')
2 print(3 ** 5)
3
4 bin(1); bin(10); bin(20)
5 oct(1), oct(10), oct(20)
6 hex(1), hex(10), hex(20)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
Python + - [ ] [X] ... ^ X
```

```
243
PS C:\vscode-py> & C:/Users/PC/AppData/Local/Programs/Python/Python312/python.exe
Python 3.12.2 (tags/v3.12.2:6ab0dd9, Feb 6 2024, 21:26:36) [MSC v.1937 64-bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> bin(1)
'0b1'
>>> bin(10)
'0b1010'
>>> bin(20)
'0b10100'
>>> 
```

Ln 5, Col 25 Spaces: 4 UTF-8 CRLF Python 3.12.2 64-bit

- Shift + Enter
 - 여러 줄 선택 후 실행
 - 실행은 터미널에서 쉘(shell)로 실행됨

The screenshot shows the VS Code interface with a file named 'hello.py' open. The code in the editor is:

```
1 print('Hello, python!')
2 print(3 ** 5)
3
4 bin(1); bin(10); bin(20)
5 oct(1), oct(10), oct(20)
6 hex(1), hex(10), hex(20)
```

Lines 4, 5, and 6 are selected with a blue dashed border. Below the editor, the TERMINAL panel is active, showing the output of the executed commands:

```
Python 3.12.2 (tags/v3.12.2:6abddd9, Feb 6 2024, 21:26:36) [MSC v.1937 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> bin(1)
'0b1'
>>> bin(10)
'0b1010'
>>> bin(20)
'0b10100'
>>> oct(1), oct(10), oct(20)
('0o1', '0o12', '0o24')
>>> hex(1), hex(10), hex(20)
('0x1', '0xa', '0x14')
>>>
```

The terminal output for the selected lines is highlighted with a red dashed border.

AI Experts
Who Lead
The Future

03

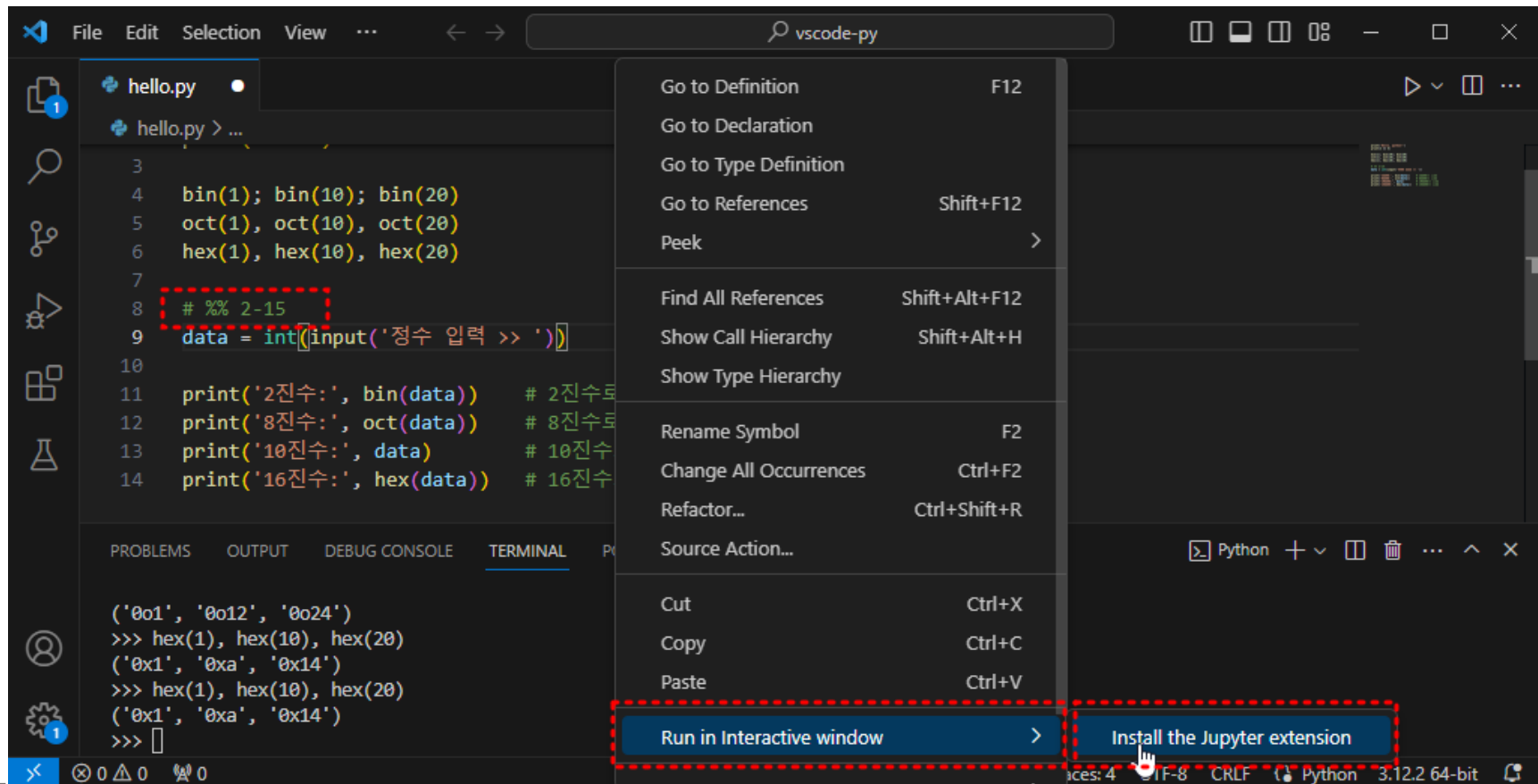
대화형(interactive) 원도 실행

- 셀 구분 표시

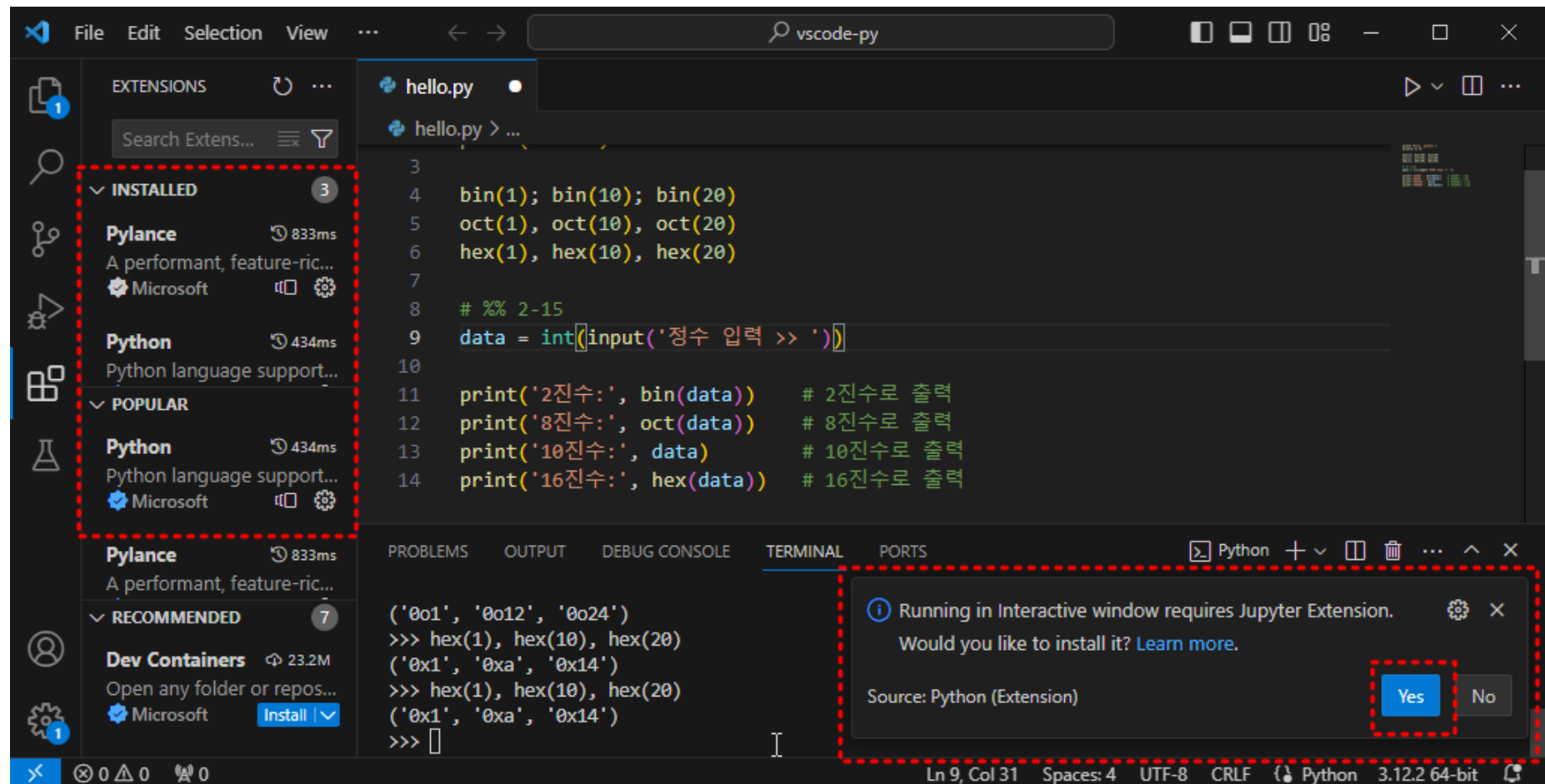
- # %%
- #%%
- 주피터 확장 설치

- 소스화면 우측 버튼 팝업 메뉴

- Run in interactive window > install Jupyter extension



- 3 개에서 8 개로 증가

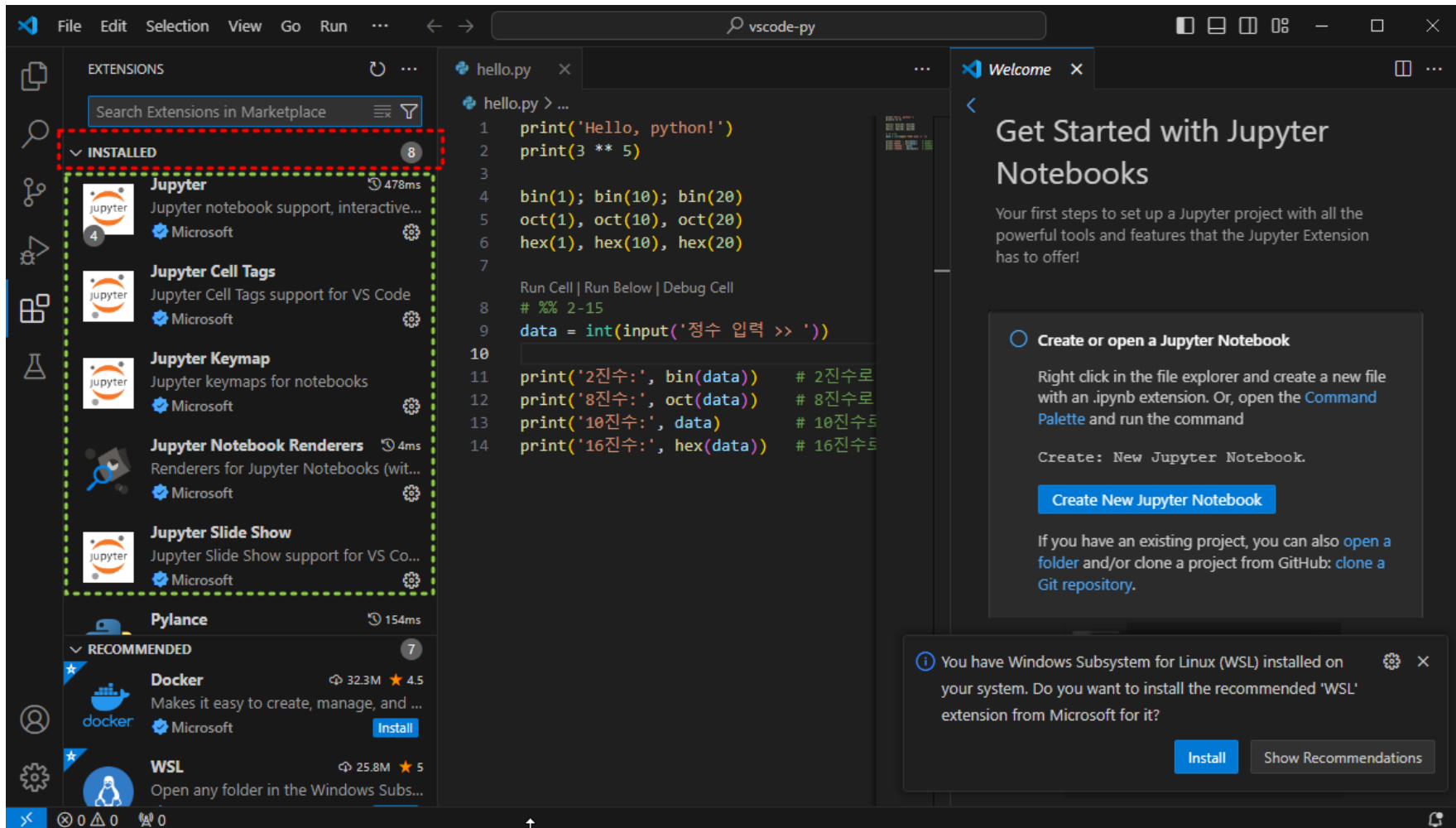


- vs code 버그
 - 모두 제거 후 다시 설치

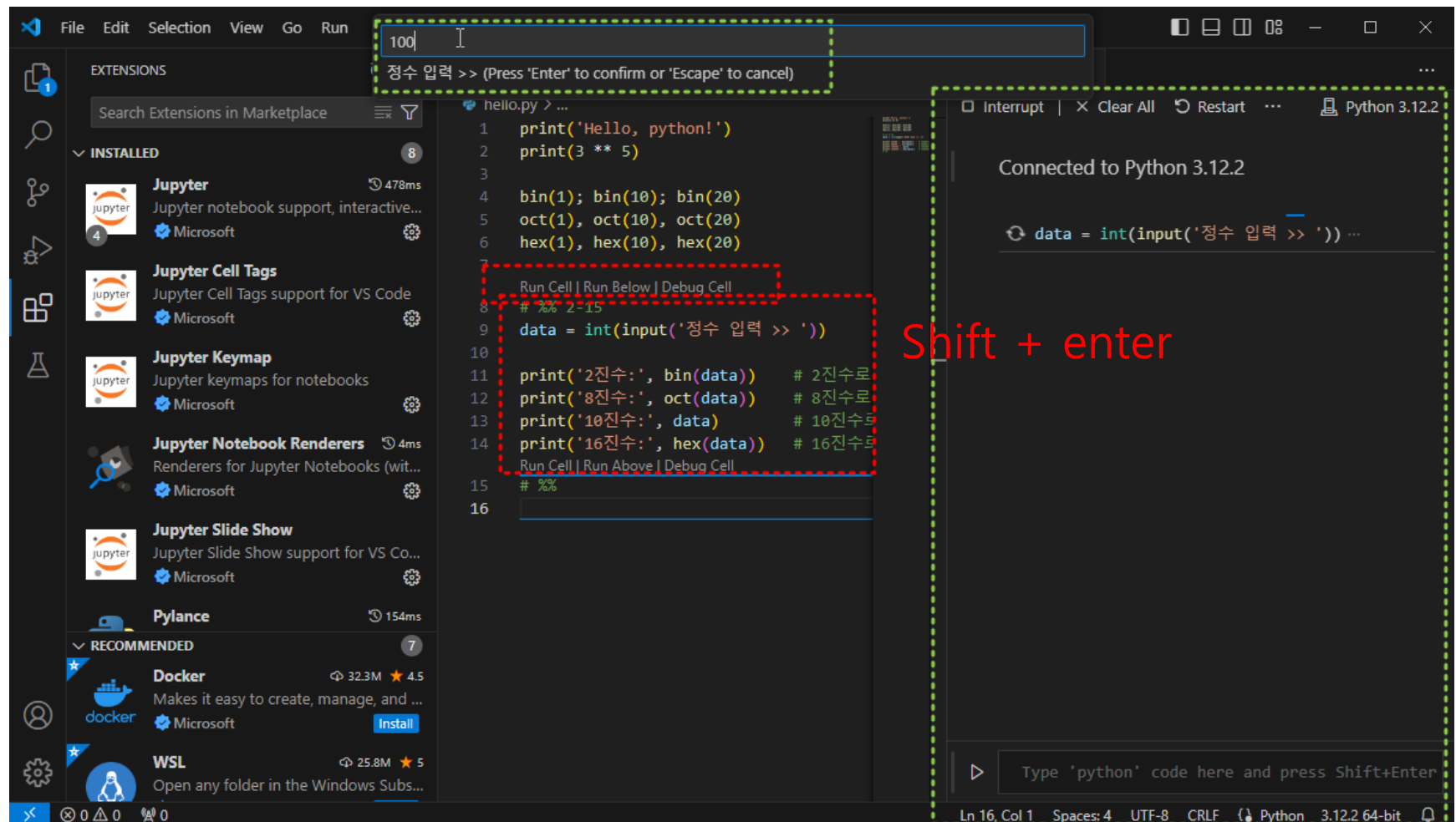
총 8개 확장 설치

파이썬과 vs code Python language

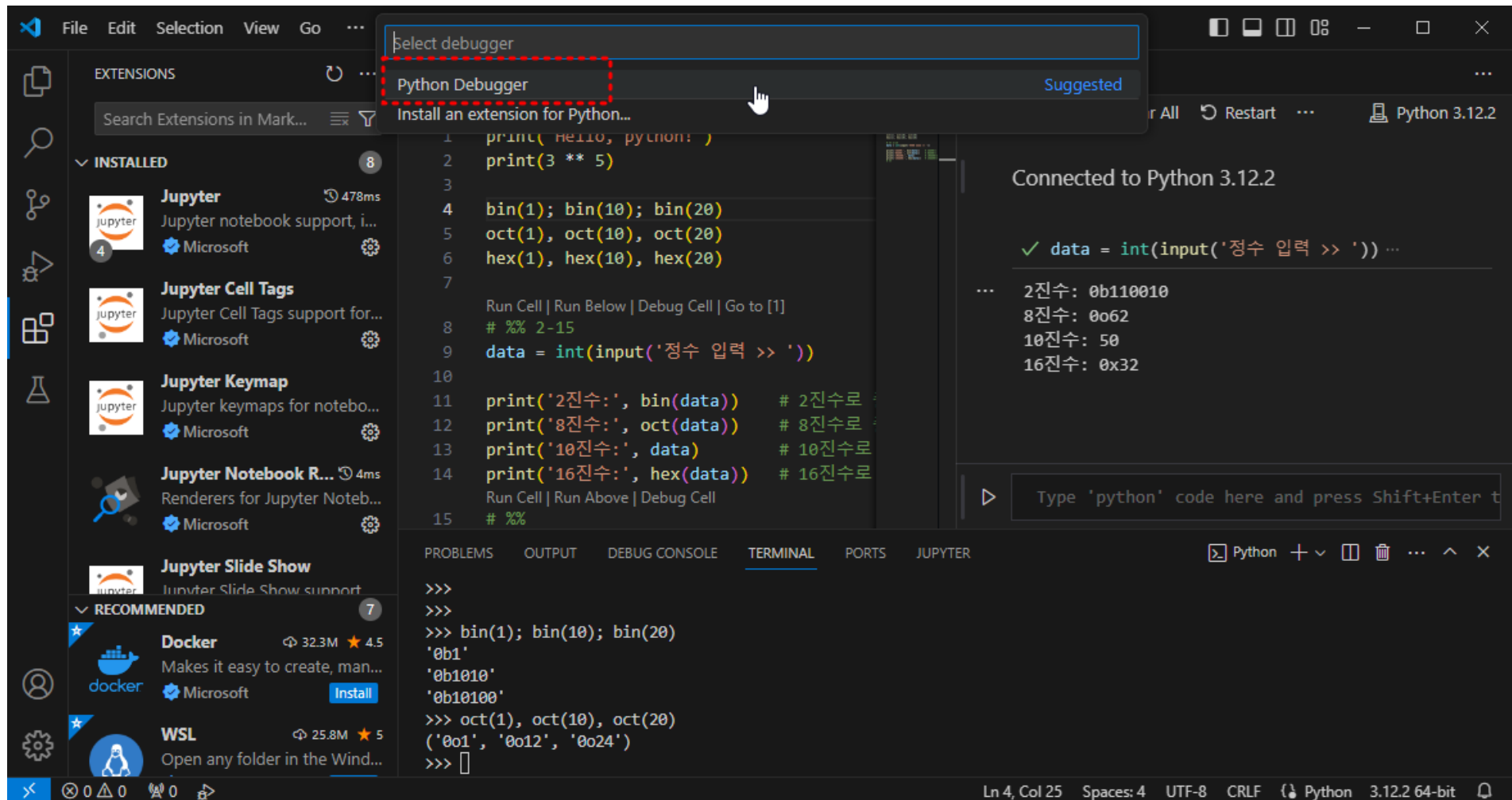
- Jupyter 확장 설치
 - Jupyter 등 5개 설치 + 이전 python 설치 3개



- 단축 키
 - Shift + Enter
- input()
 - 상단



- 메뉴 Run | Run without Debugging
 - ctrl + F5



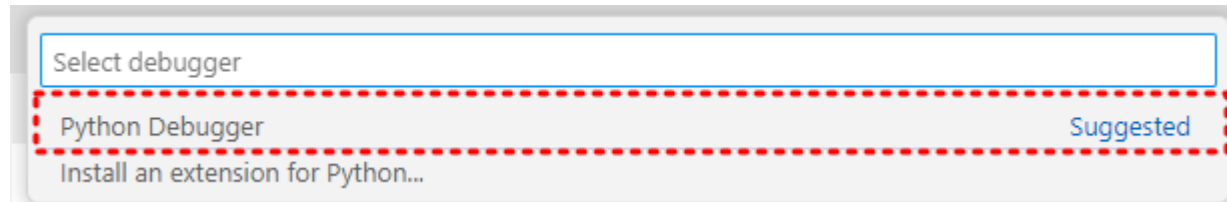
- 터미널에서 입력 자료 입력 후 Enter로 실행

```
File Edit Selection View Go ...  
vscode-py  
EXTENSIONS  
Search Extensions in Mark...  
INSTALLED  
Jupyter  
Jupyter notebook support, i...  
Jupyter Cell Tags  
Jupyter Cell Tags support for...  
Jupyter Keymap  
Jupyter keymaps for notebo...  
Jupyter Notebook R...  
Renderers for Jupyter Noteb...  
Jupyter Slide Show  
Jupyter Slide Show support  
RECOMMENDED  
Docker  
Makes it easy to create, man...  
WSL  
Open any folder in the Wind...  
hello.py  
hello.py > ...  
1 print('Hello, python!')  
2 print(3 ** 5)  
3  
4 bin(1); bin(10); bin(20)  
5 oct(1), oct(10), oct(20)  
6 hex(1), hex(10), hex(20)  
7  
8 Run Cell | Run Below | Debug Cell | Go to [1]  
9 # %% 2-15  
10 data = int(input('정수 입력 >> '))  
11  
12 print('2진수:', bin(data)) # 2진수로 출력  
13 print('8진수:', oct(data)) # 8진수로 출력  
14 print('10진수:', data) # 10진수로 출력  
15 print('16진수:', hex(data)) # 16진수로 출력  
16  
17 Run Cell | Run Above | Debug Cell  
Interactive-1  
Interrupt ... Python 3.12.2  
Connected to Python 3.12.2  
✓ data = int(input('정수 입 ...  
...  
2진수: 0b1100100  
8진수: 0o62  
10진수: 50  
16진수: 0x32  
Type 'python' code here and pres  
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS JUPYTER  
her' '64040' '--' 'c:\vscode-py\hello.py'  
Hello, python!  
243  
정수 입력 >> 100  
2진수: 0b1100100  
8진수: 0o144  
10진수: 100  
16진수: 0x64  
PS C:\vscode-py>
```

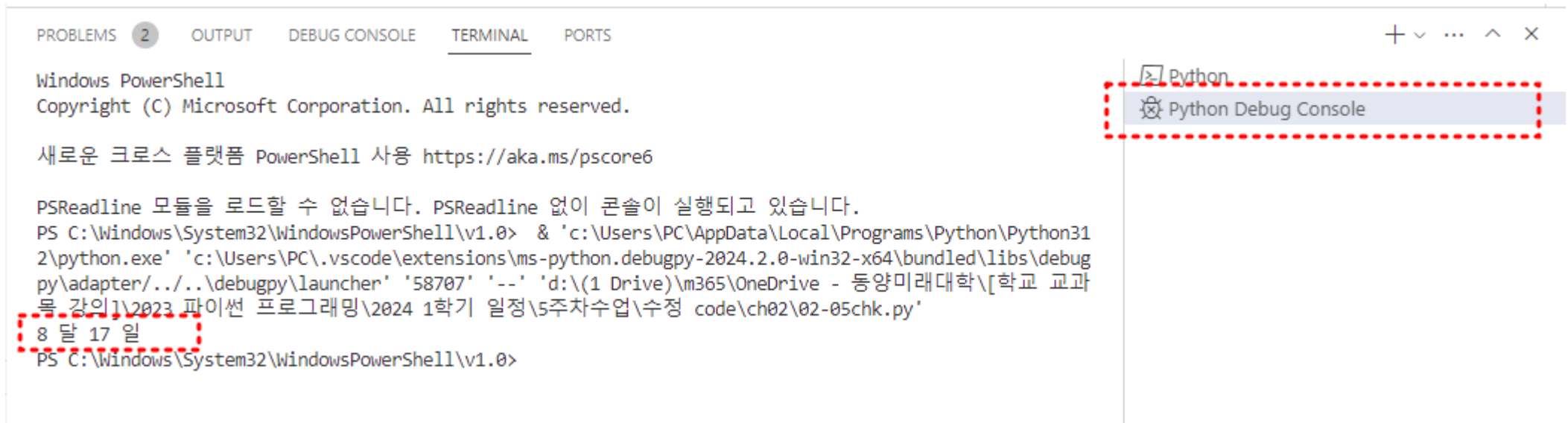
메뉴 Run without debugging

파이썬과 vs code Python language

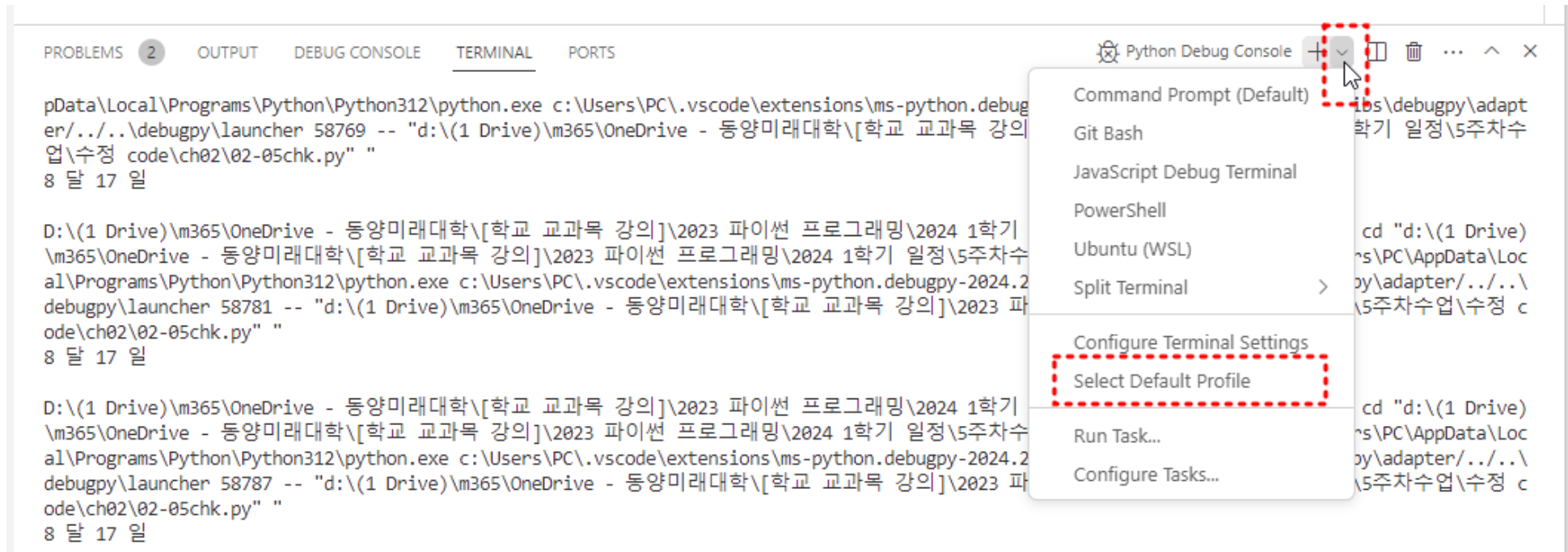
- 단축키: **ctrl + F5**



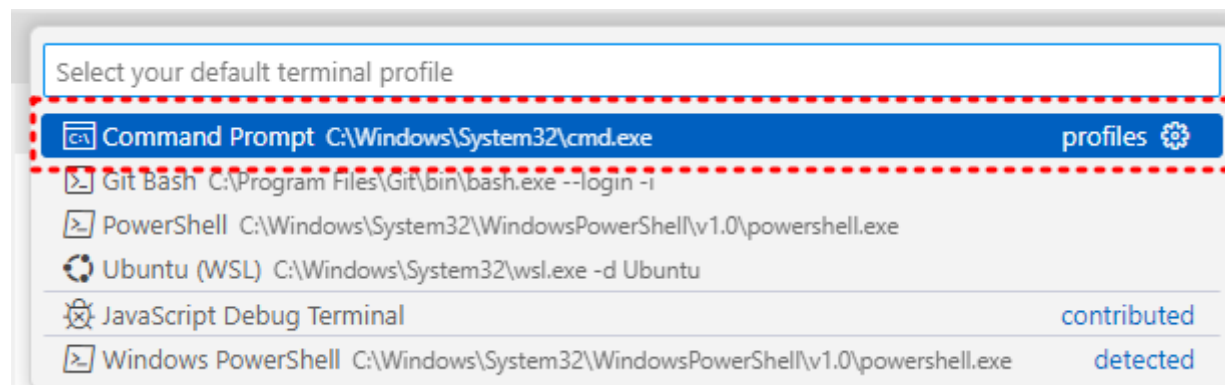
- Python Debug Console에서 실행**
 - 없다면 새로이 실행



• 메뉴 Select Default Profile



• 다음 중 선택

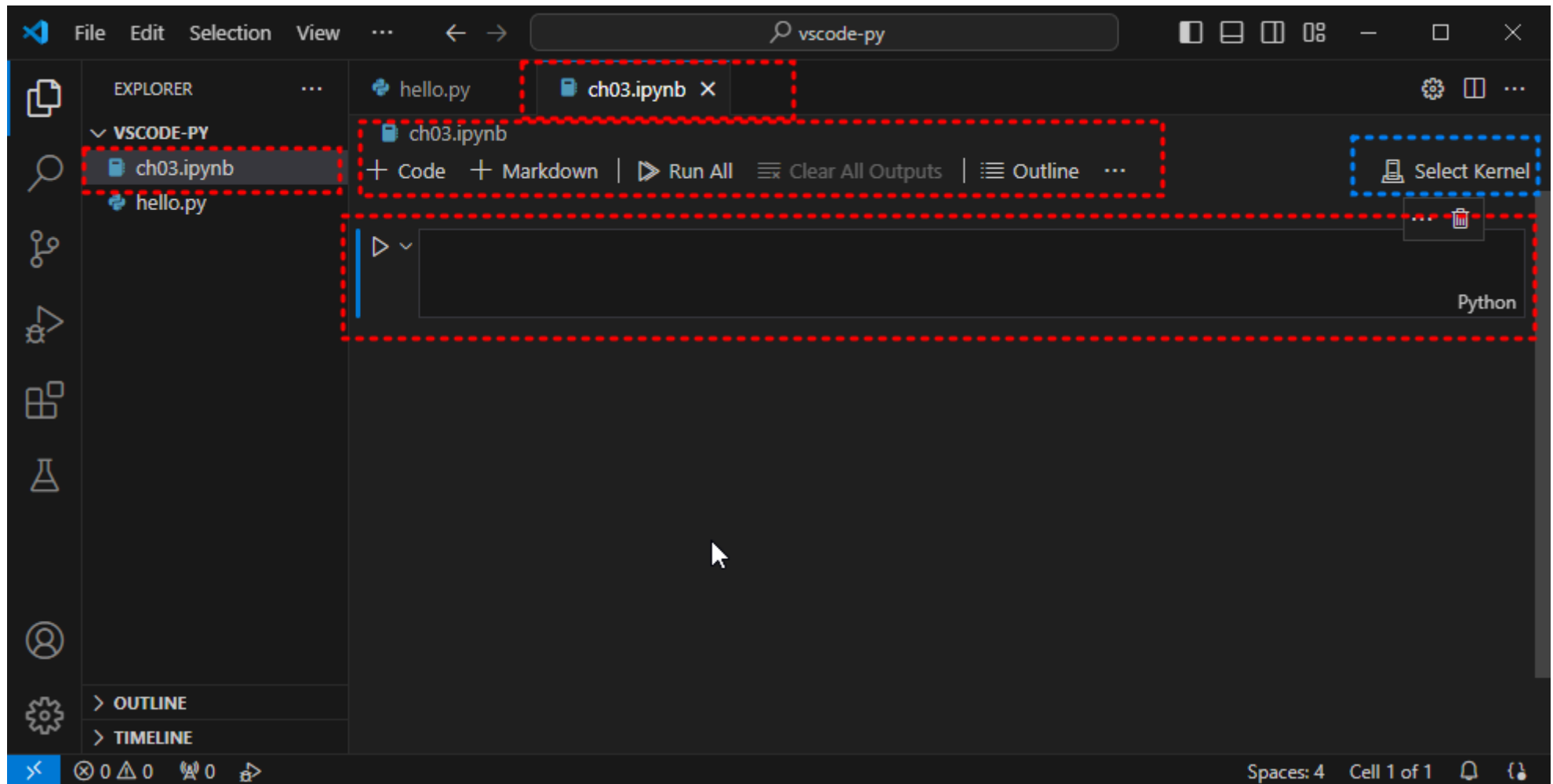


AI Experts
Who Lead
The Future

04

주피터노트북 실행

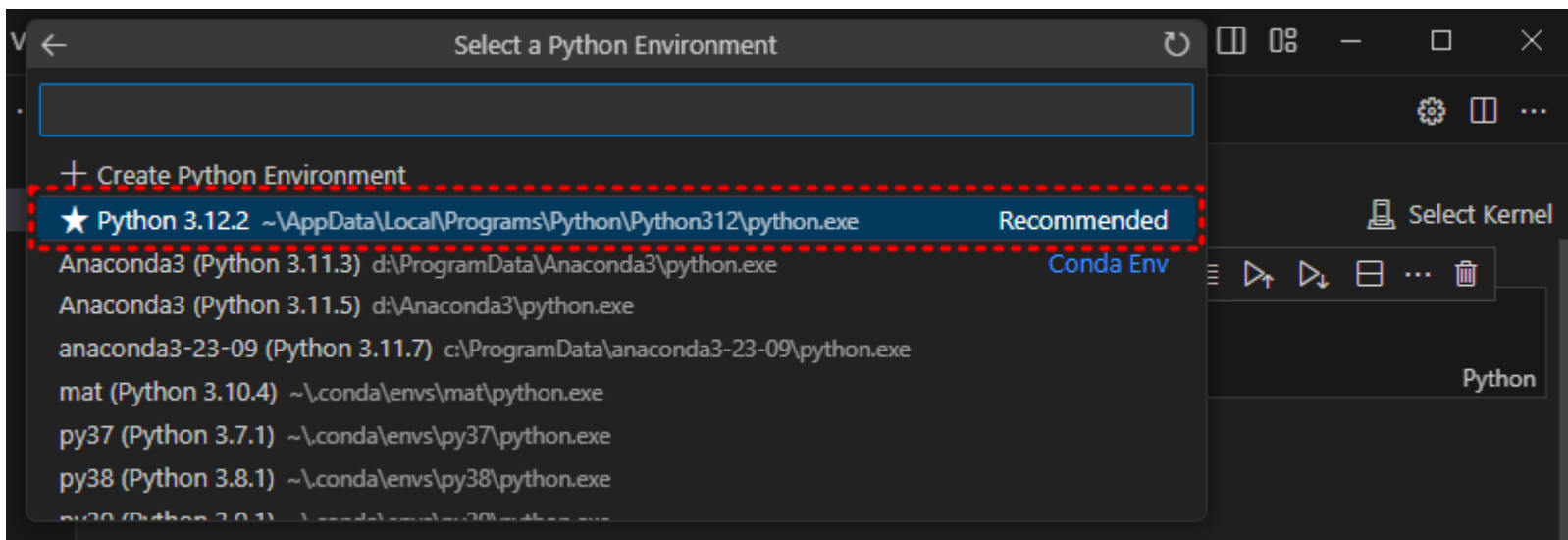
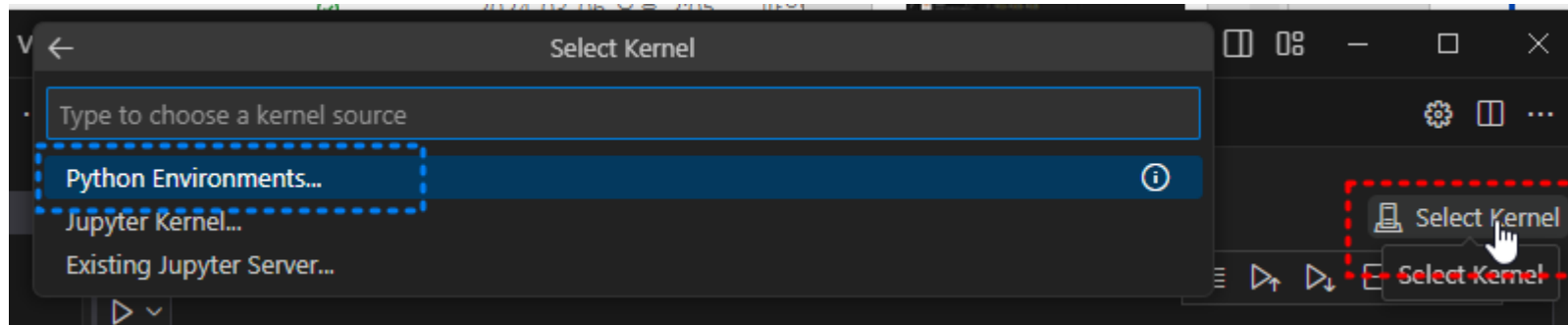
- 확장자 `ipynb`
 - `ch03.ipynb`



Select kernel

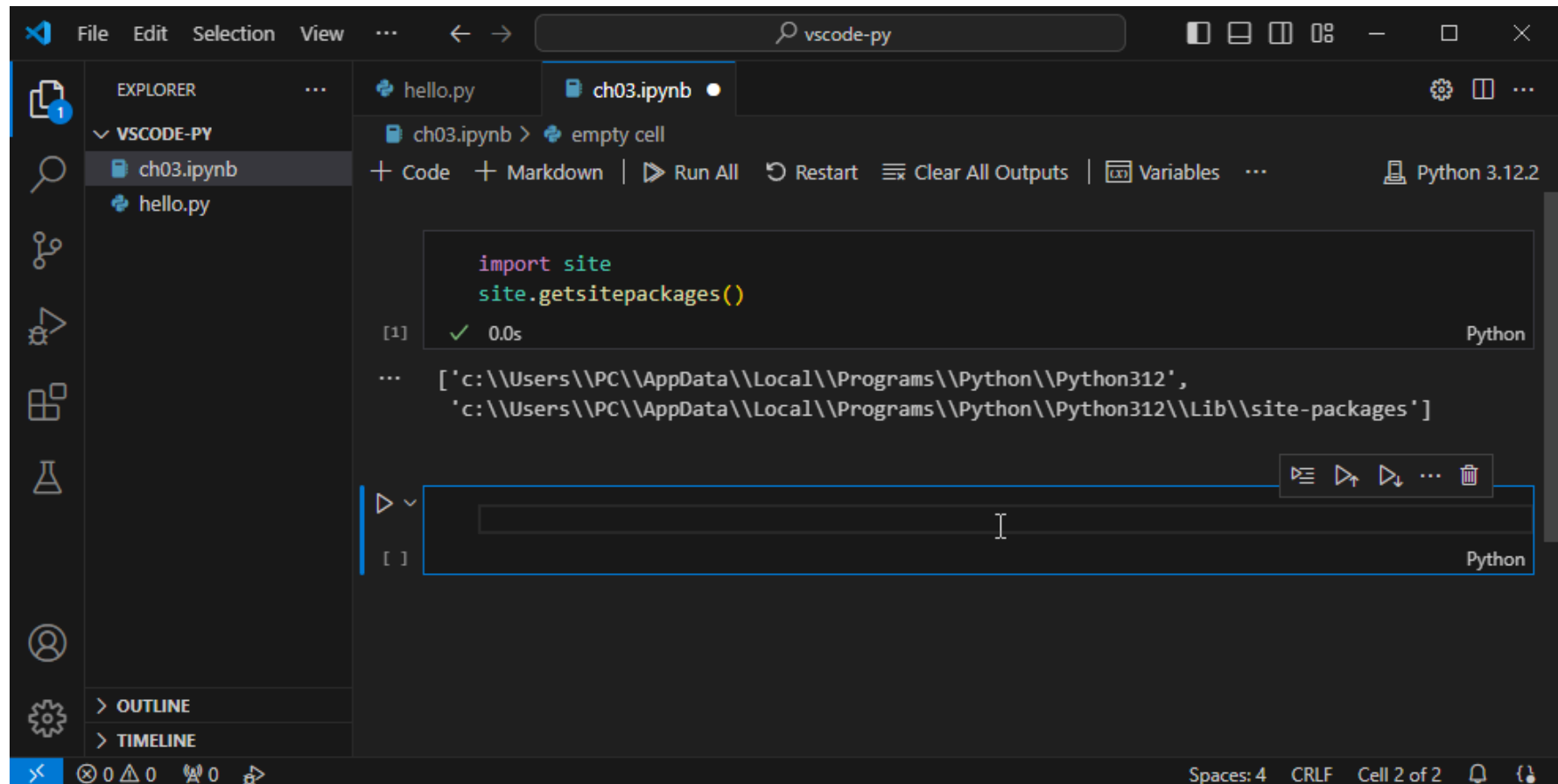
파이썬과 vs code Python language

- Python Environments...



- Shift + enter `import site`
`site.getsitepackages()`

현재 사용하는 파이썬의 설치 폴더와 라이브러리 설치 폴더 확인



The screenshot shows the VS Code interface with a Python environment. The Explorer sidebar on the left shows a file named 'ch03.ipynb'. The main editor area displays the Jupyter Notebook interface. The top bar shows 'ch03.ipynb > empty cell' and 'Python 3.12.2'. The notebook has two cells. The first cell contains the code `import site` and `site.getsitepackages()`, which has been executed successfully, returning a list of site-packages paths. The second cell contains a Python script `# 03-01strindex.py` that defines a string `str = 'Hello python!'` and prints its length, first and last characters, middle characters, and last character. This cell has also been executed successfully, and the output is displayed below it. Red dashed boxes highlight the code in the second cell and its corresponding output.

```
import site
site.getsitepackages()
```

[1] ✓ 0.0s Python

... ['c:\\Users\\PC\\AppData\\Local\\Programs\\Python\\Python312',
'c:\\Users\\PC\\AppData\\Local\\Programs\\Python\\Python312\\Lib\\site-packages']

```
# 03-01strindex.py

str = 'Hello python!'
n = len(str)
print('문자열', str, '길이', n)
print('첫 문자', str[0], str[-n] )
print('가운데 문자', str[n//2], str[-n//2] )
print('마지막 문자', str[n-1], str[-1])
```

[2] ✓ 0.0s Python

... 문자열 Hello python! 길이 13
첫 문자 H H
가운데 문자 p p
마지막 문자 ! !



Keyboard shortcuts for Windows

General

Ctrl+Shift+P, F1	Show Command Palette
Ctrl+P	Quick Open, Go to File...
Ctrl+Shift+N	New window/instance
Ctrl+Shift+W	Close window/instance
Ctrl+,	User Settings
Ctrl+K Ctrl+S	Keyboard Shortcuts

Basic editing

Ctrl+X	Cut line (empty selection)
Ctrl+C	Copy line (empty selection)
Alt+ ↑ / ↓	Move line up/down
Shift+Alt + ↑ / ↓	Copy line up/down
Ctrl+Shift+K	Delete line
Ctrl+Enter	Insert line below
Ctrl+Shift+Enter	Insert line above
Ctrl+Shift+\	Jump to matching bracket
Ctrl+] / [Indent/outdent line
Home / End	Go to beginning/end of line
Ctrl+Home	Go to beginning of file
Ctrl+End	Go to end of file
Ctrl+↑ / ↓	Scroll line up/down
Alt+PgUp / PgDn	Scroll page up/down
Ctrl+Shift+[Fold (collapse) region
Ctrl+Shift+]	Unfold (uncollapse) region
Ctrl+K Ctrl+[Fold (collapse) all subregions
Ctrl+K Ctrl+]	Unfold (uncollapse) all subregions
Ctrl+K Ctrl+O	Fold (collapse) all regions
Ctrl+K Ctrl+J	Unfold (uncollapse) all regions
Ctrl+K Ctrl+C	Add line comment
Ctrl+K Ctrl+U	Remove line comment
Ctrl+/	Toggle line comment
Shift+Alt+A	Toggle block comment
Alt+Z	Toggle word wrap

Navigation

Ctrl+T	Show all Symbols
Ctrl+G	Go to Line...
Ctrl+P	Go to File...
Ctrl+Shift+O	Go to Symbol...
Ctrl+Shift+M	Show Problems panel
F8	Go to next error or warning
Shift+F8	Go to previous error or warning
Ctrl+Shift+Tab	Navigate editor group history
Alt+ ← / →	Go back / forward

Ctrl+M Toggle Tab moves focus

Search and replace

Ctrl+F	Find
Ctrl+H	Replace
F3 / Shift+F3	Find next/previous
Alt+Enter	Select all occurrences of Find match
Ctrl+D	Add selection to next Find match
Ctrl+K Ctrl+D	Move last selection to next Find match
Alt+C / R / W	Toggle case-sensitive / regex / whole word

Multi-cursor and selection

Alt+Click	Insert cursor
Ctrl+Alt+ ↑ / ↓	Insert cursor above / below
Ctrl+U	Undo last cursor operation
Shift+Alt+I	Insert cursor at end of each line selected
Ctrl+L	Select current line
Ctrl+Shift+L	Select all occurrences of current selection
Ctrl+F2	Select all occurrences of current word
Shift+Alt+→	Expand selection
Shift+Alt+←	Shrink selection
Shift+Alt+ + (drag mouse)	Column (box) selection
Ctrl+Shift+Alt + (arrow key)	Column (box) selection
Ctrl+Shift+Alt +PgUp/PgDn	Column (box) selection page up/down

Rich languages editing

Ctrl+Space, Ctrl+I	Trigger suggestion
Ctrl+Shift+Space	Trigger parameter hints
Shift+Alt+F	Format document
Ctrl+K Ctrl+F	Format selection
F12	Go to Definition
Alt+F12	Peek Definition
Ctrl+K F12	Open Definition to the side
Ctrl+.	Quick Fix
Shift+F12	Show References
F2	Rename Symbol
Ctrl+K Ctrl+X	Trim trailing whitespace
Ctrl+K M	Change file language

Editor management

Ctrl+F4, Ctrl+W	Close editor
Ctrl+K F	Close folder
Ctrl+\	Split editor
Ctrl+ 1 / 2 / 3	Focus into 1 st , 2 nd or 3 rd editor group
Ctrl+K Ctrl+ ←/→	Focus into previous/next editor group
Ctrl+Shift+PgUp / PgDn	Move editor left/right
Ctrl+K ← / →	Move active editor group

File management

Ctrl+N	New File
Ctrl+O	Open File...
Ctrl+S	Save
Ctrl+Shift+S	Save As...
Ctrl+K S	Save All
Ctrl+F4	Close
Ctrl+K Ctrl+W	Close All
Ctrl+Shift+T	Reopen closed editor
Ctrl+K Enter	Keep preview mode editor open
Ctrl+Tab	Open next
Ctrl+Shift+Tab	Open previous
Ctrl+K P	Copy path of active file
Ctrl+K R	Reveal active file in Explorer
Ctrl+K O	Show active file in new window/instance

Display

F11	Toggle full screen
Shift+Alt+0	Toggle editor layout (horizontal/vertical)
Ctrl+ = / -	Zoom in/out
Ctrl+B	Toggle Sidebar visibility
Ctrl+Shift+E	Show Explorer / Toggle focus
Ctrl+Shift+F	Show Search
Ctrl+Shift+G	Show Source Control
Ctrl+Shift+D	Show Debug
Ctrl+Shift+X	Show Extensions
Ctrl+Shift+H	Replace in files
Ctrl+Shift+J	Toggle Search details
Ctrl+Shift+U	Show Output panel
Ctrl+Shift+V	Open Markdown preview
Ctrl+K V	Open Markdown preview to the side
Ctrl+K Z	Zen Mode (Esc Esc to exit)

Debug

F9	Toggle breakpoint
F5	Start/Continue
Shift+F5	Stop
F11 / Shift+F11	Step into/out
F10	Step over
Ctrl+K Ctrl+I	Show hover

Integrated terminal

Ctrl+`	Show integrated terminal
Ctrl+Shift+`	Create new terminal
Ctrl+C	Copy selection
Ctrl+V	Paste into active terminal
Ctrl+↑ / ↓	Scroll up/down
Shift+PgUp / PgDn	Scroll page up/down
Ctrl+Home / End	Scroll to top/bottom

Other operating systems' keyboard shortcuts and additional unassigned shortcuts available at aka.ms/vscodekeybindings