



경성대학교
KYUNGSUNG UNIVERSITY

WSL과 VSCode로 Python 개발 환경 구축하기



2024-08-01



Intel AI 융합 DX 마스터 클래스



소프트웨어학과 서보형

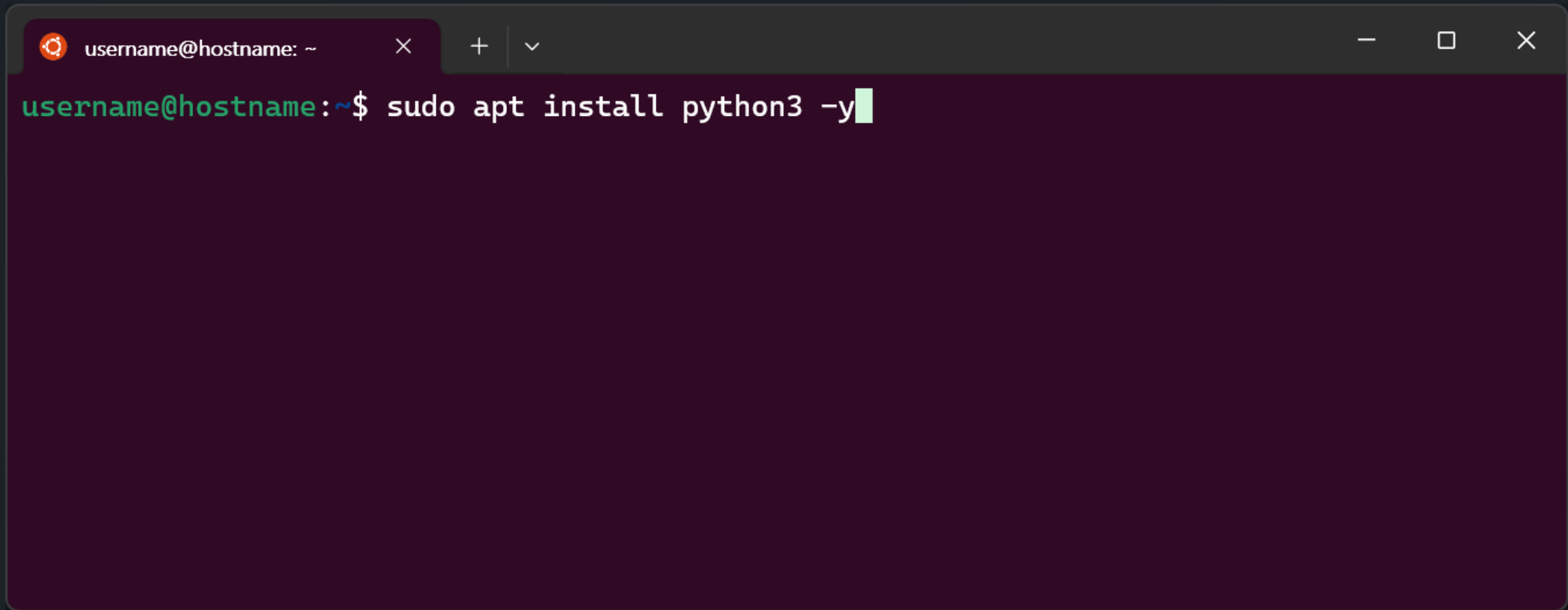
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- VSCode 실행
- Python 확장 설치
- Jupyter 확장 설치

Python 설치

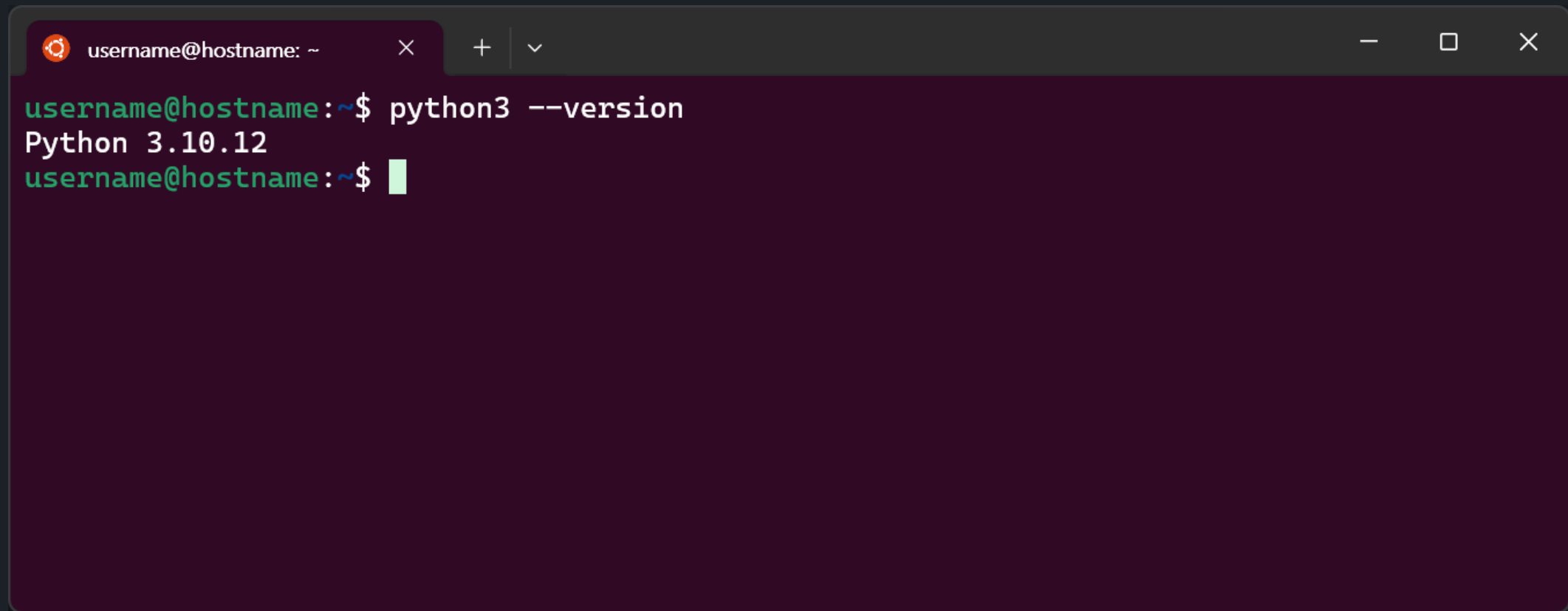
Python 설치하기



```
username@hostname: ~  
username@hostname:~$ sudo apt install python3 -y
```

A terminal window with a dark purple background. The title bar shows a single tab with the text 'username@hostname: ~' and standard window control buttons (close, maximize, and a dropdown arrow). The terminal content shows the prompt 'username@hostname:~\$' followed by the command 'sudo apt install python3 -y' with a green cursor at the end.

Python 설치 확인



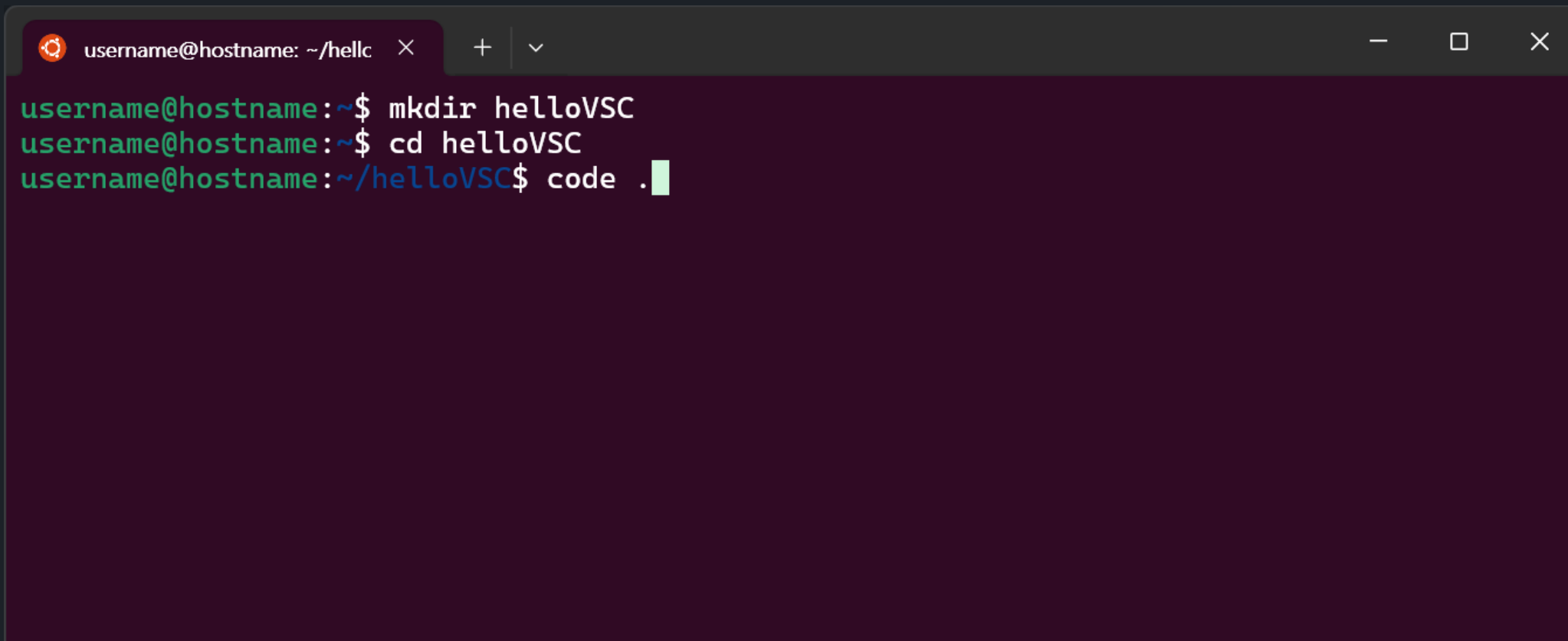
```
username@hostname: ~  
username@hostname:~$ python3 --version  
Python 3.10.12  
username@hostname:~$
```

A terminal window with a dark purple background. The title bar shows 'username@hostname: ~' and standard window controls. The terminal content shows the command 'python3 --version' being executed, resulting in the output 'Python 3.10.12'. The prompt 'username@hostname:~\$' is shown again on the next line with a cursor.

VSCode 실행

실습 폴더 생성 및 VSCode 실행

- Visual Studio Code(이하 VSCode)를 실행시킬 디렉터리로 이동한 다음 `code .` 을 입력



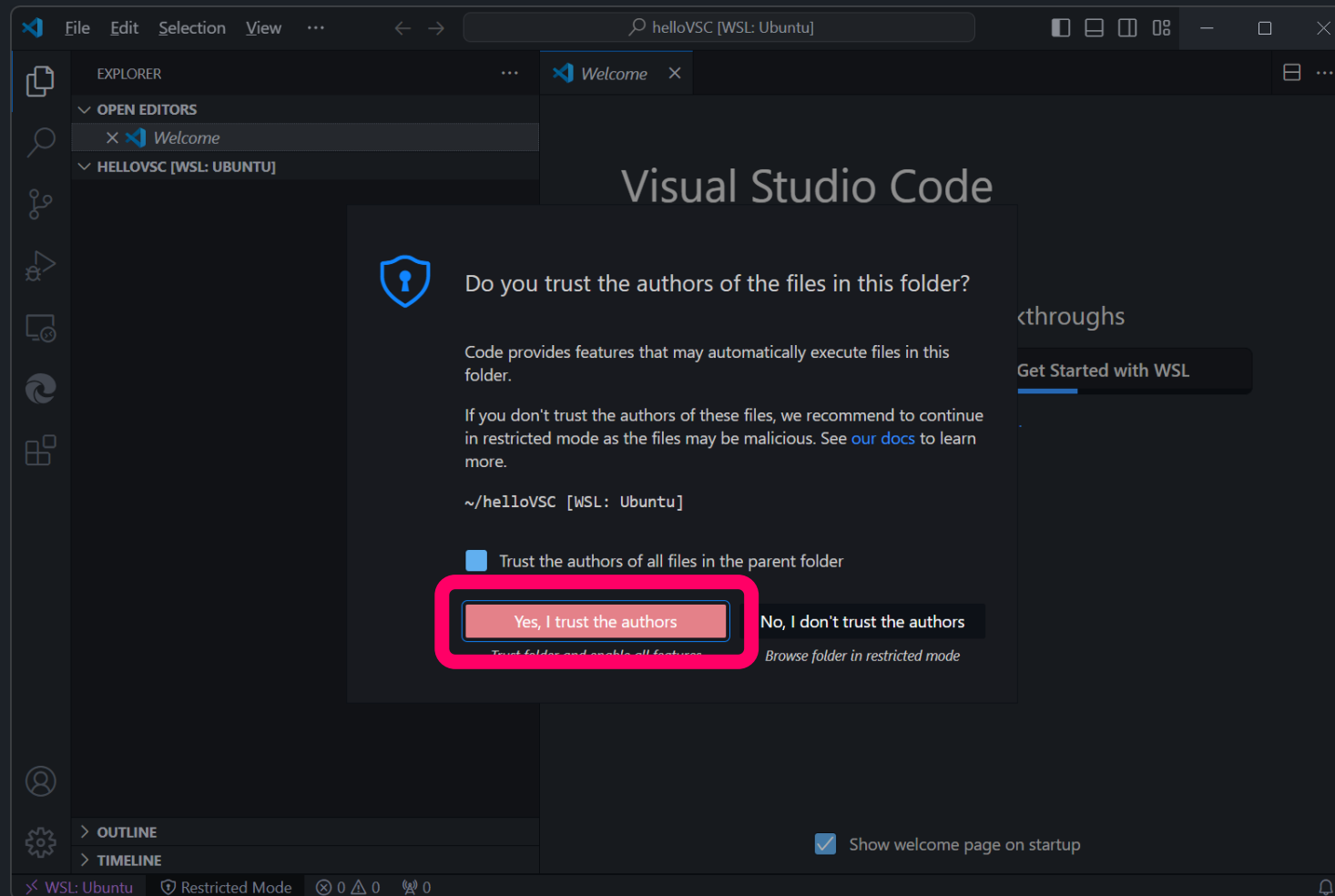
```
username@hostname: ~/hellc × + v
username@hostname:~$ mkdir helloVSC
username@hostname:~$ cd helloVSC
username@hostname:~/helloVSC$ code .
```

실습 폴더 생성 및 VSCode 실행

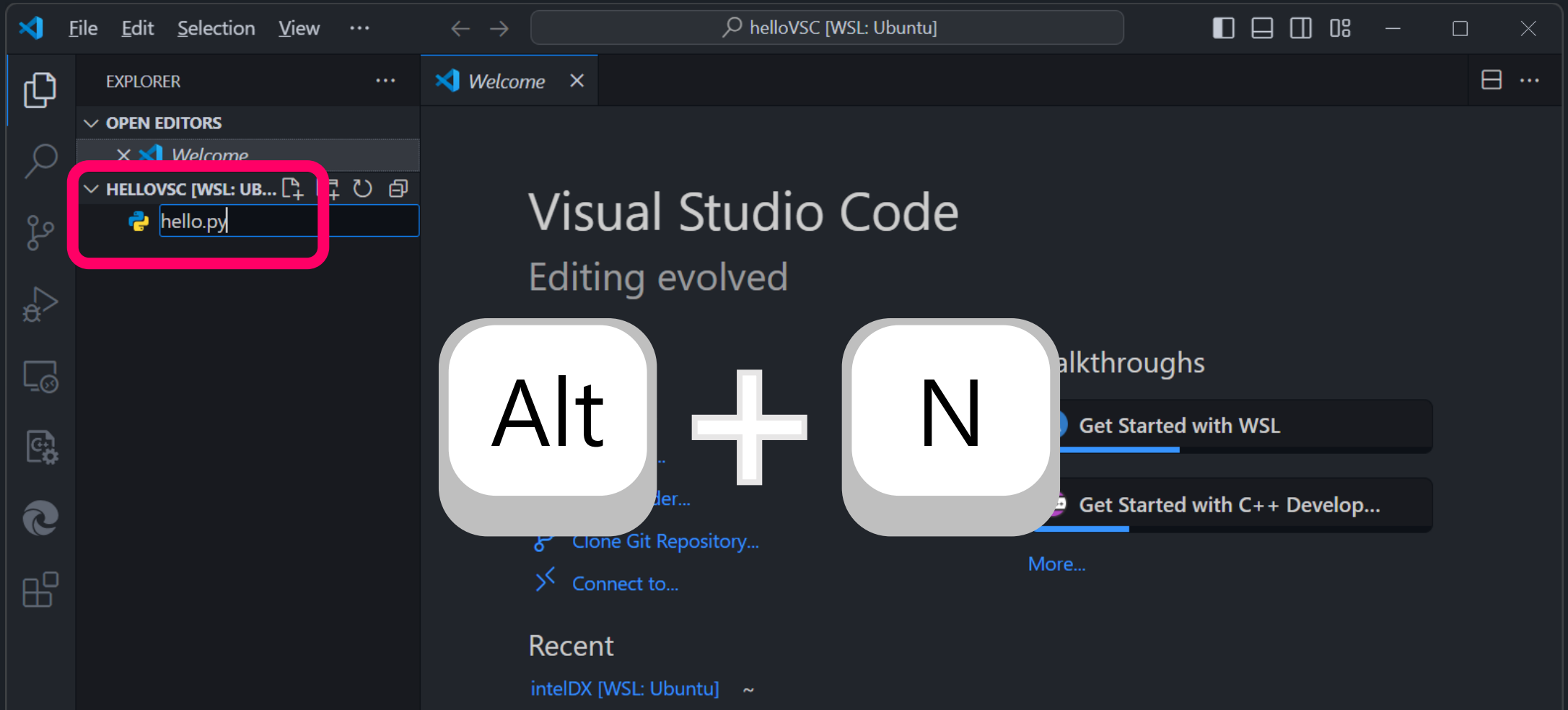
- 최초 실행 시 초기 설정 진행 후 VSCode가 실행 됨

```
username@hostname: ~/hellc × + v
username@hostname:~$ mkdir helloVSC
username@hostname:~$ cd helloVSC
username@hostname:~/helloVSC$ code .
Updating VS Code Server to version f1e16e1e6214d7c44d078b1f0607b2388f29d729
Removing previous installation...
Installing VS Code Server for Linux legacy-x64 (f1e16e1e6214d7c44d078b1f0607b2388f29d729)
Downloading: 100%
Unpacking: 100%
Unpacked 1707 files and folders to /home/username/.vscode-server/bin/f1e16e1e6214d7c44d078b1f0607b2388f29d729.
```

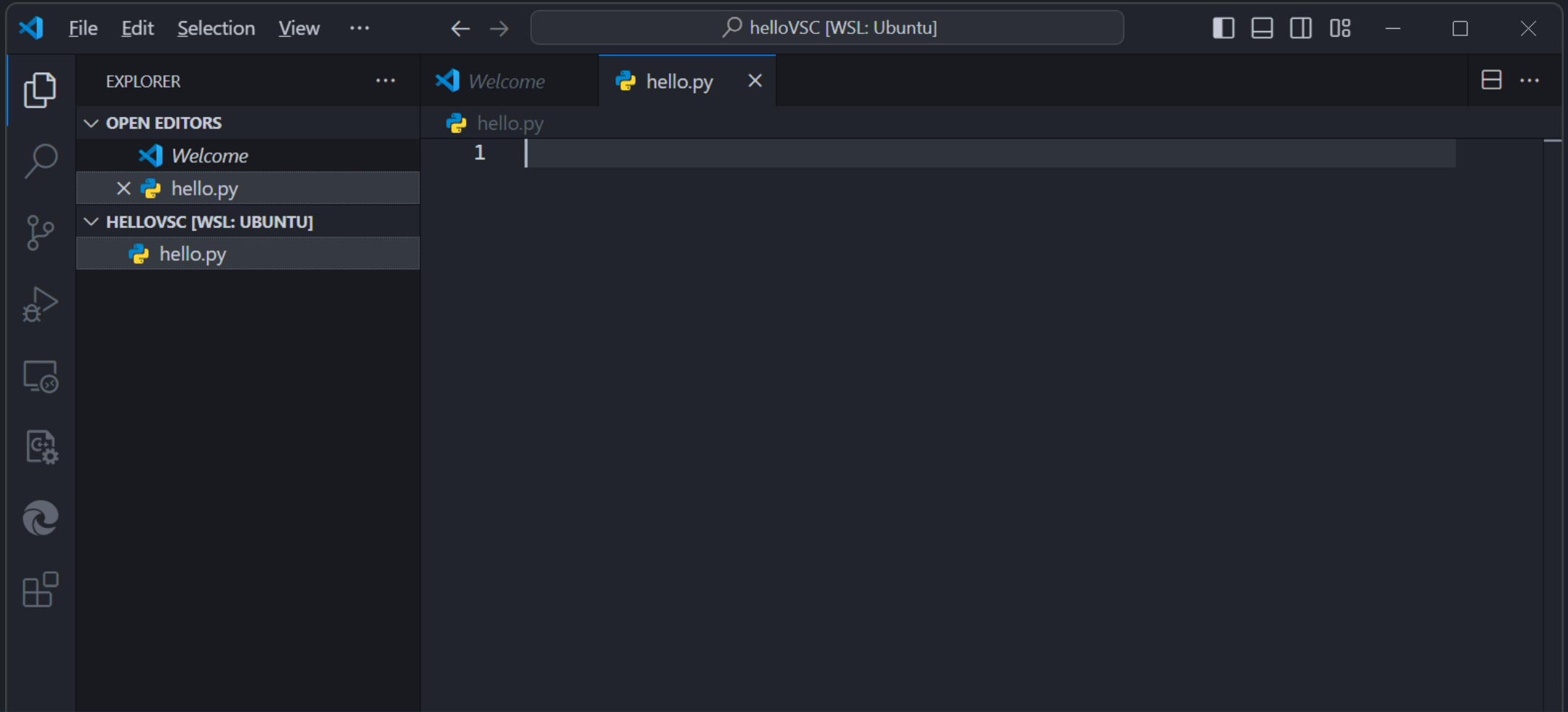

실습 폴더 생성 및 VSCode 실행



파일 생성하기

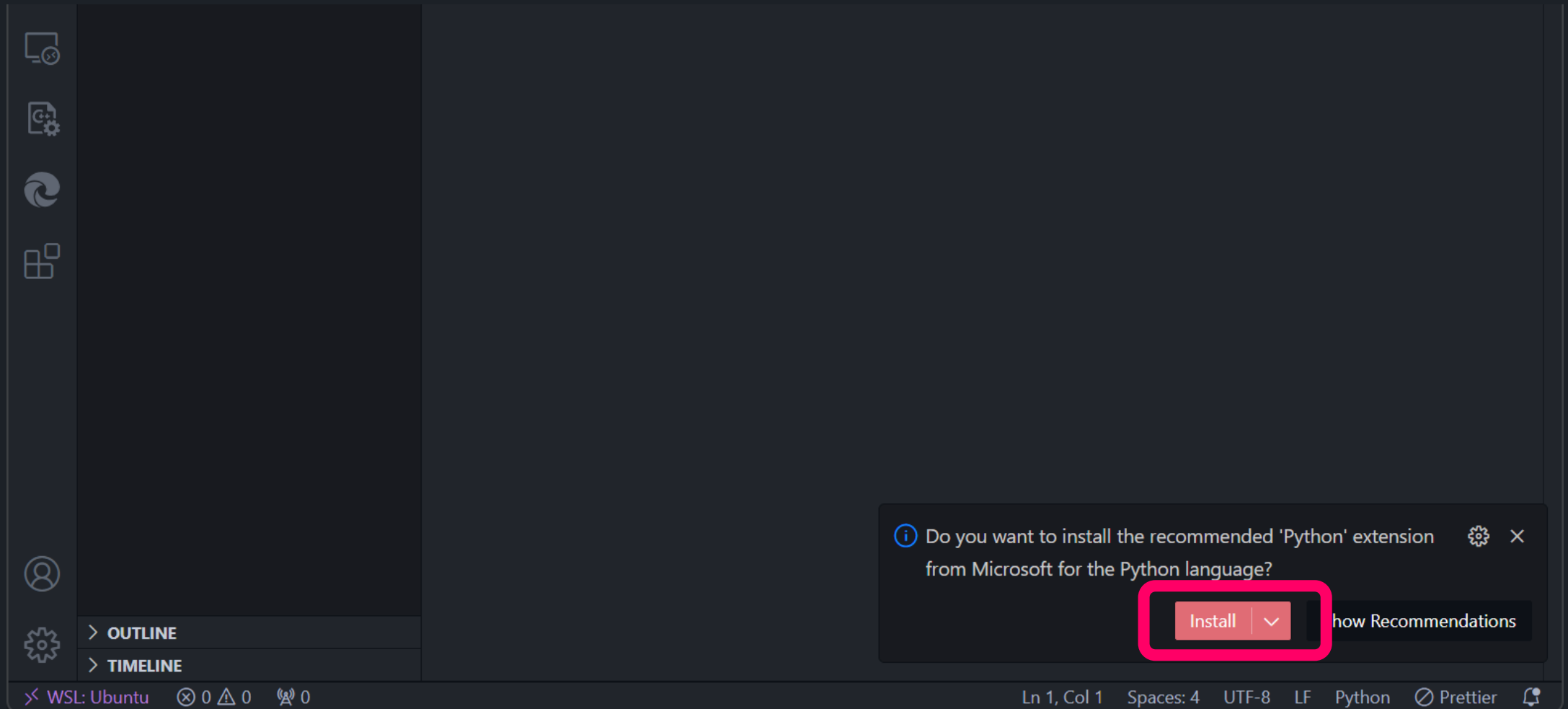


파일 생성하기



Python 확장 설치

Python 확장 설치하기 (추천 팝업으로 설치)



Python 확장 설치하기 (직접 설치)



The screenshot illustrates the steps to install the Python extension in Visual Studio Code. The interface is in dark theme, and the 'EXTENSIONS: MARKETPLACE' view is active. The search bar contains 'python'. The 'Python' extension by Microsoft is selected, and its details are shown on the right. The extension is currently installed on 'WSL: Ubuntu'.

Numbered callouts indicate the following steps:

1. Click the Extensions icon in the left sidebar.
2. Search for 'python' in the search bar.
3. Select the 'Python' extension by Microsoft.
4. Click the 'Install in WSL: Ubuntu' button.

The Python extension details show it is version v2024.10.0, published by Microsoft, and has 131,028,342 downloads. It is currently installed on 'WSL: Ubuntu'.

The extension pack list on the left includes:

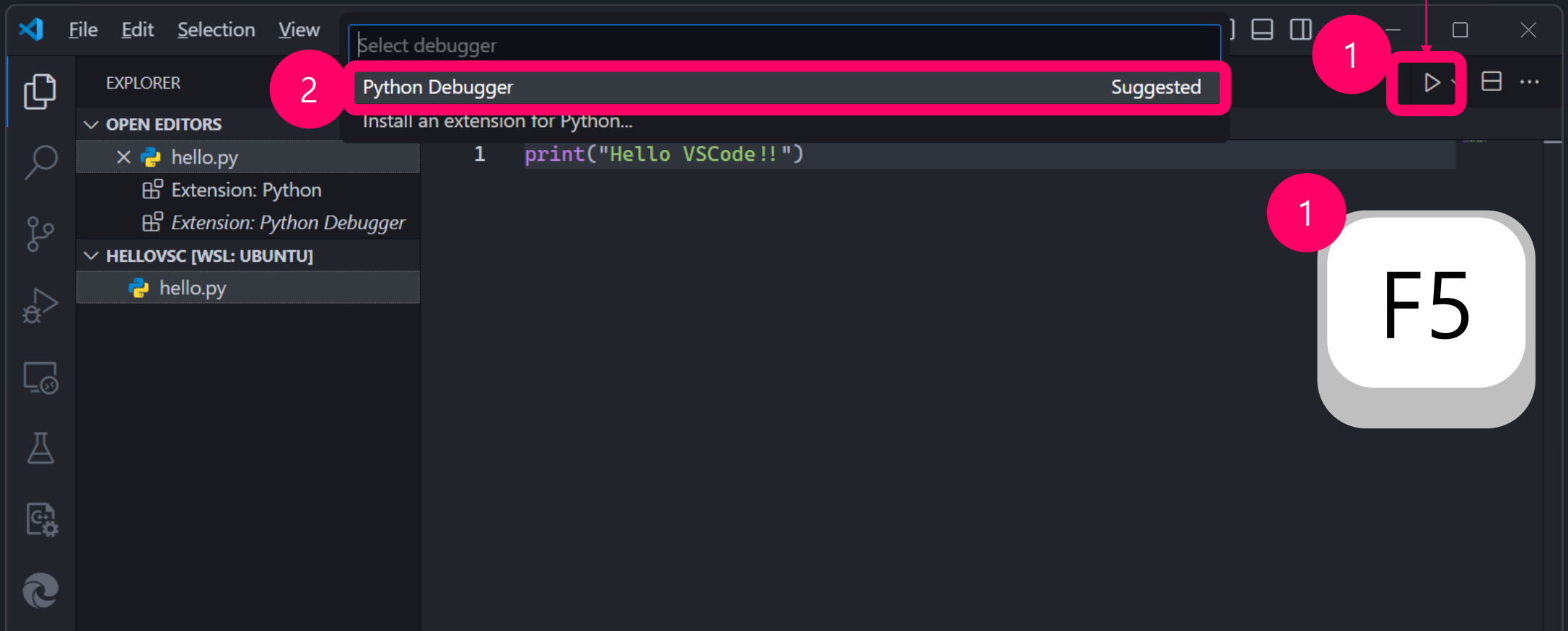
- Python (213ms)
- Python Debugger (62ms)
- Python Indent (10.2M, 4.5 stars)
- Python Extension Pack (8.9M, 4.5 stars)
- Python for VSCode (5.5M, 2 stars)
- Pvthon Environment M... (8.5M, 3.5 stars)

The Python extension details page includes tabs for DETAILS, FEATURES, CHANGELOG, and EXTENSION PACK. The description states: 'A Visual Studio Code extension with rich support for the Python language (for all actively supported Python versions), providing access points for extensions to seamlessly integrate and offer support for IntelliSense'.

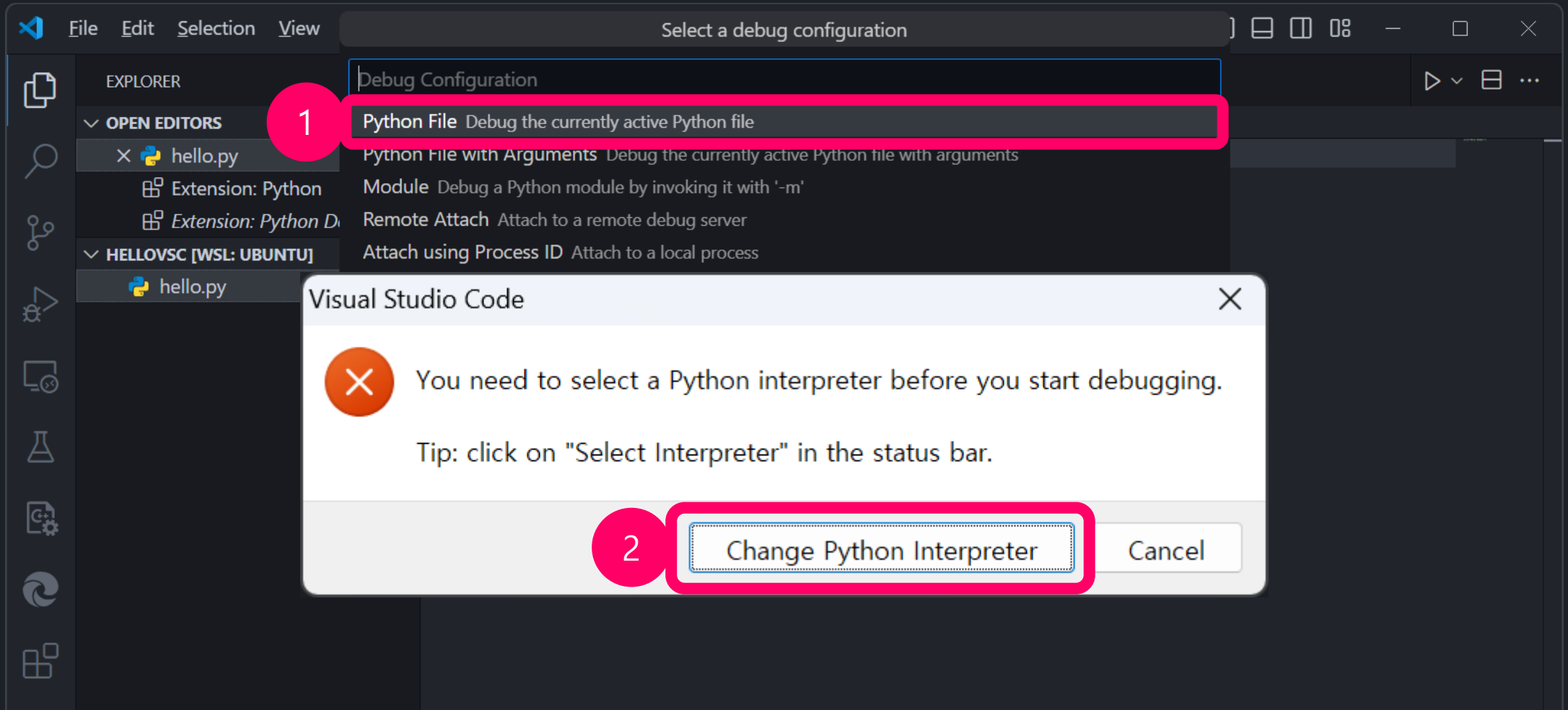
Categories listed on the right include Programming Languages, Debuggers, Other, Data Science, and Machine Learning.

Python 코드 실행해보기

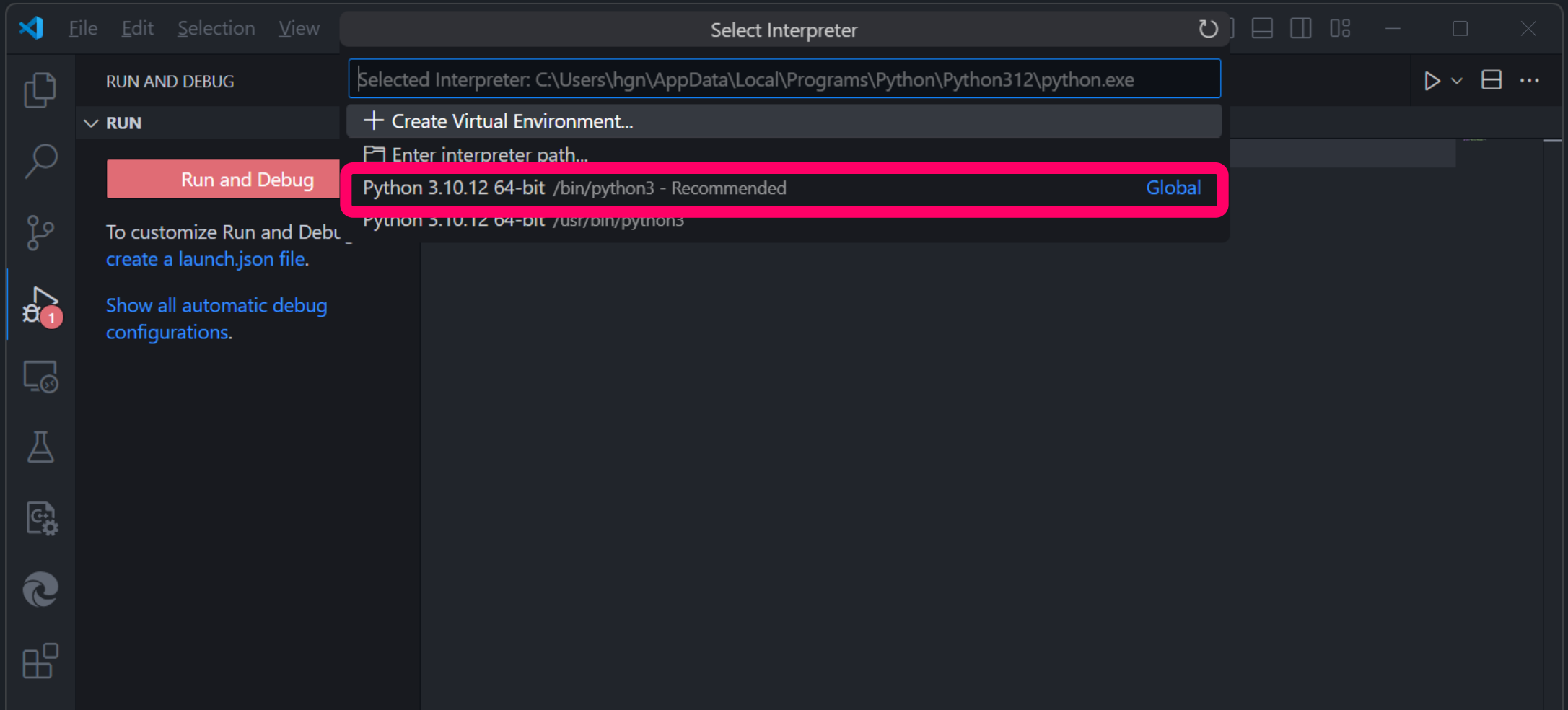
F5 키 또는 Run 버튼(▶) 누르기



Python 코드 실행해보기



Python 코드 실행해보기



Python 코드 실행해보기

RUN

Run and Debug

To customize Run and Debug create a launch.json file.

Show all automatic debug configurations.

```
hello.py
1 print("Hello VSCode!!")
```

TERMINAL

PROBLEMS

OUTPUT

DEBUG CONSOLE

PORTS

1

Python Debug Console

Python Debug Console

username@hostname:~/helloVSC\$ cd /home/username/helloVSC ; /usr/bin/env /bin/python3 /home/username/.vscode-server/extensions/ms-python.debugpy-2024.8.0-linux-x64/bundled/libs/debugpy/adapter/../../debugpy/launcher 42945 -- /home/username/helloVSC/hello.py

Hello VSCode!!

username@hostname:~/helloVSC\$

Jupyter 확장 설치

Jupyter 확장 설치하기

The screenshot shows the Visual Studio Code interface with the Extensions Marketplace open. The search bar contains 'jupyter'. The 'Jupyter' extension by Microsoft is selected, showing its details. The 'Install in WSL: Ubuntu' button is highlighted. The 'Extension Pack (4)' section lists related extensions: Jupyter Keymap, Jupyter Notebook Renderers, Jupyter Cell Tags, and Jupyter Slide Show. The 'Categories' section on the right lists: Extension Packs, Data Science, Machine Learning, Notebooks, and Visualization.

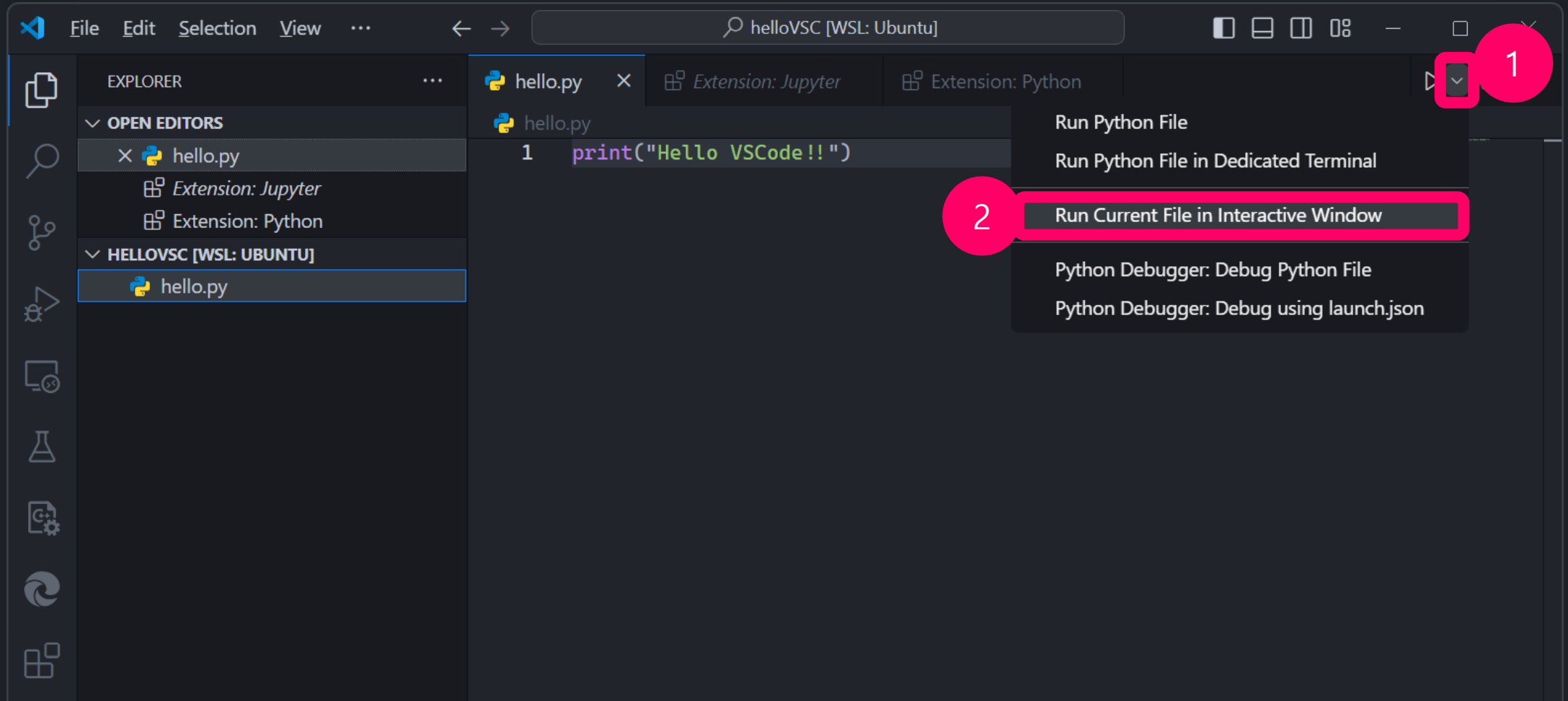
1. Click the Extensions icon in the left sidebar.

2. Search for 'jupyter' in the Extensions Marketplace.

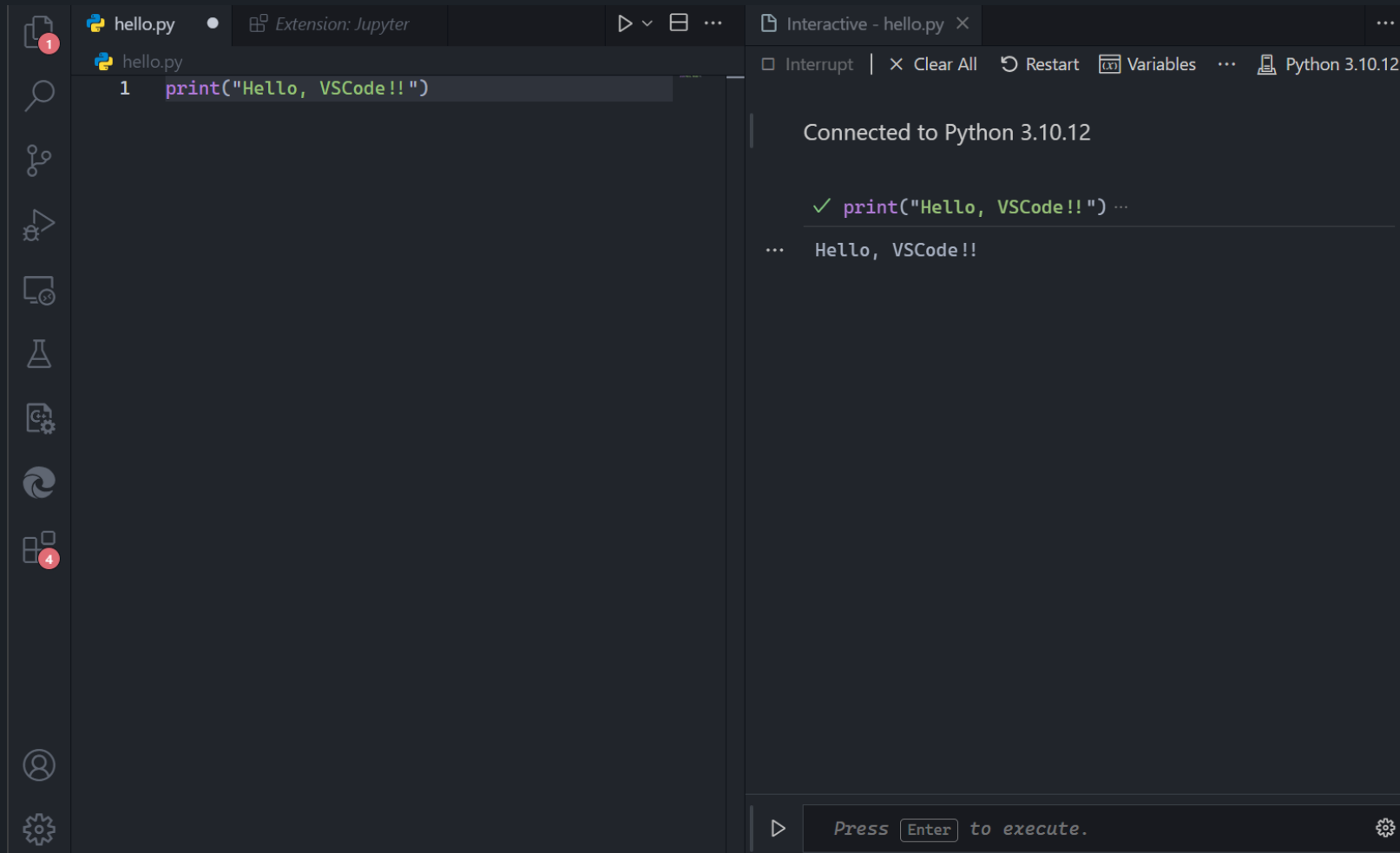
3. Select the 'Jupyter' extension by Microsoft.

4. Click the 'Install in WSL: Ubuntu' button.

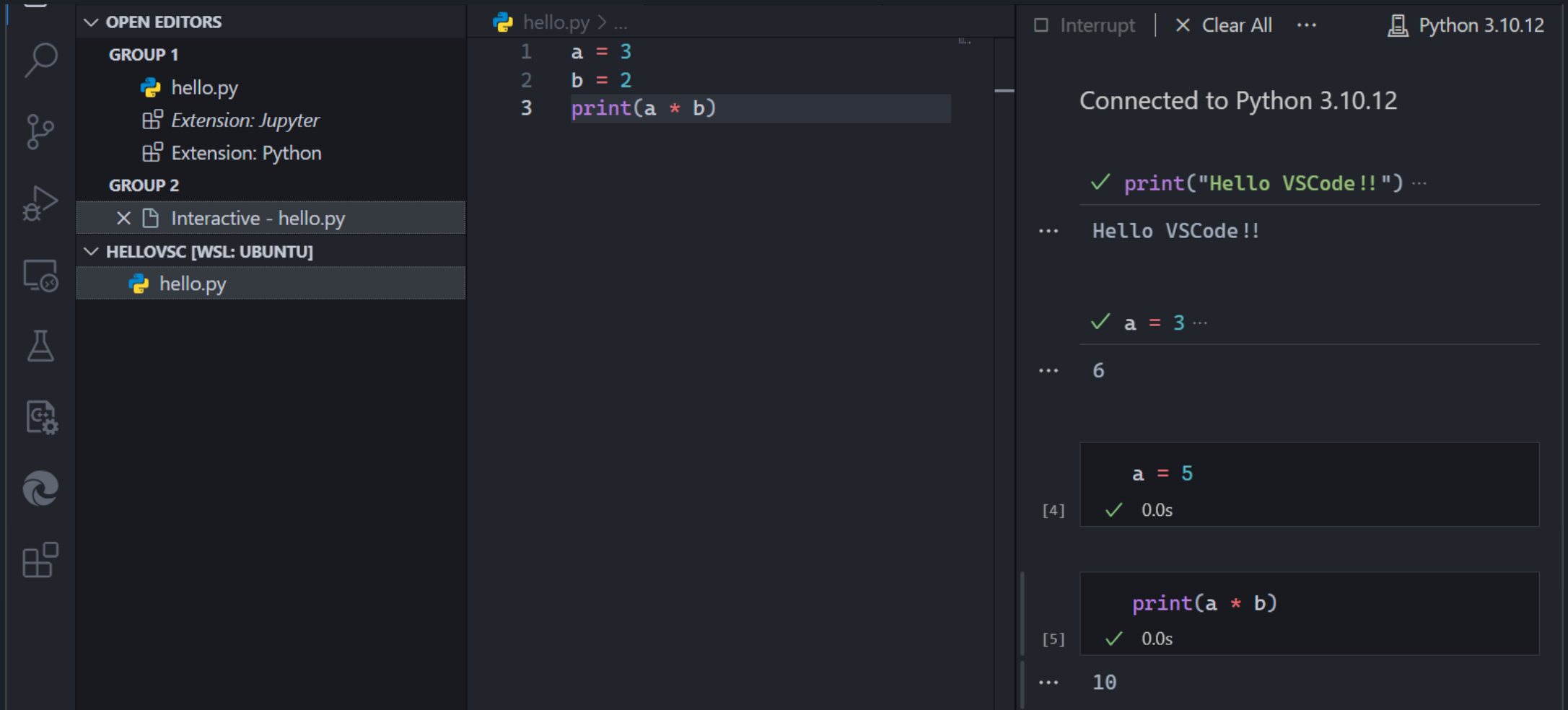
Interactive Window로 실행해보기



Interactive Window로 실행해보기



Interactive Window로 실행해보기 - 예시 1



The screenshot displays the VS Code interface with the Interactive Window on the right. The left sidebar shows the Explorer view with the file 'hello.py' open. The main editor area shows the code for 'hello.py'.

Code in hello.py:

```
1 a = 3
2 b = 2
3 print(a * b)
```

Interactive Window Output:

Connected to Python 3.10.12

✓ `print("Hello VSCode!!")` ...
... Hello VSCode!!

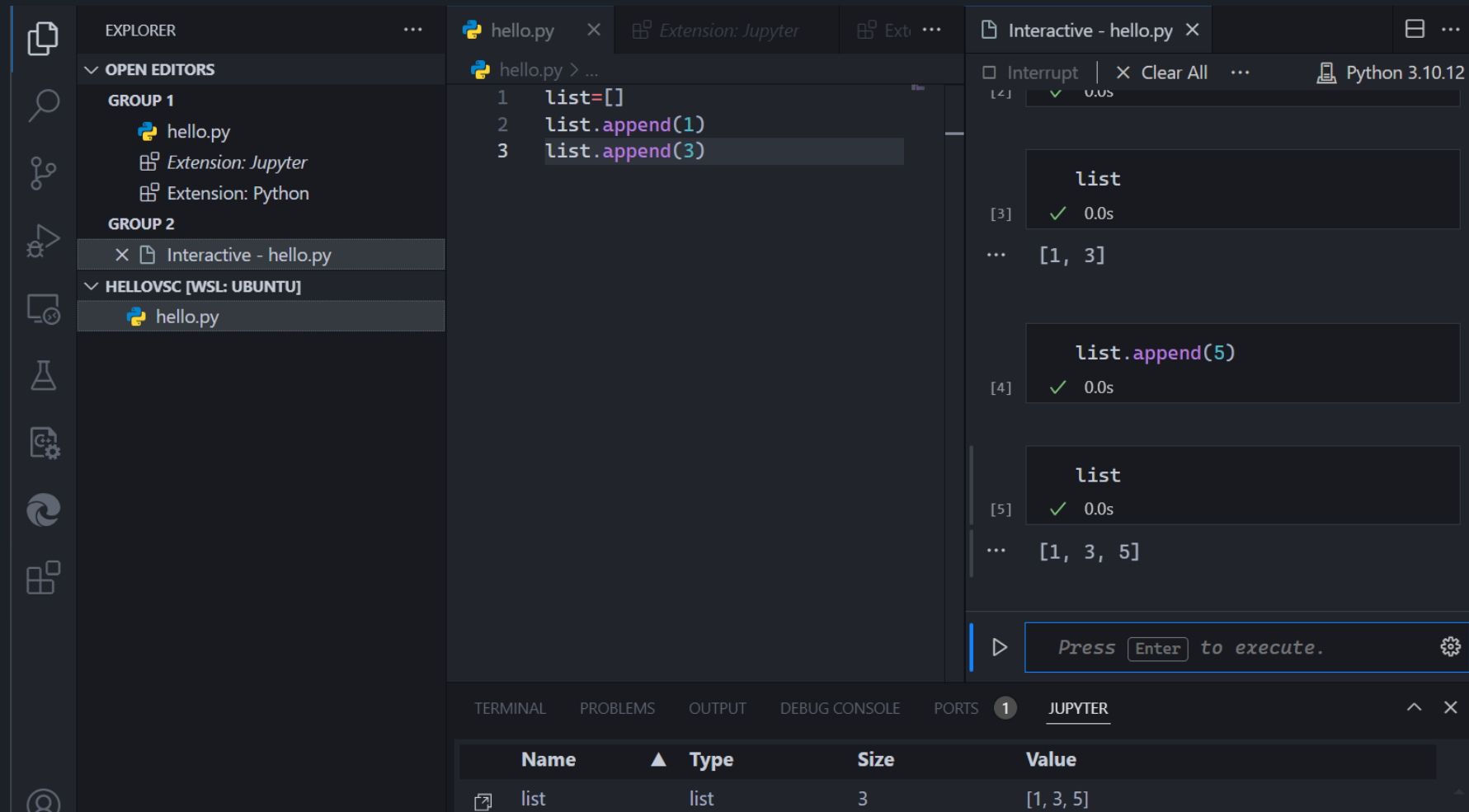
✓ `a = 3` ...
... 6

[4] ✓ 0.0s
`a = 5`

[5] ✓ 0.0s
`print(a * b)`

... 10

Interactive Window로 실행해보기 - 예시 2



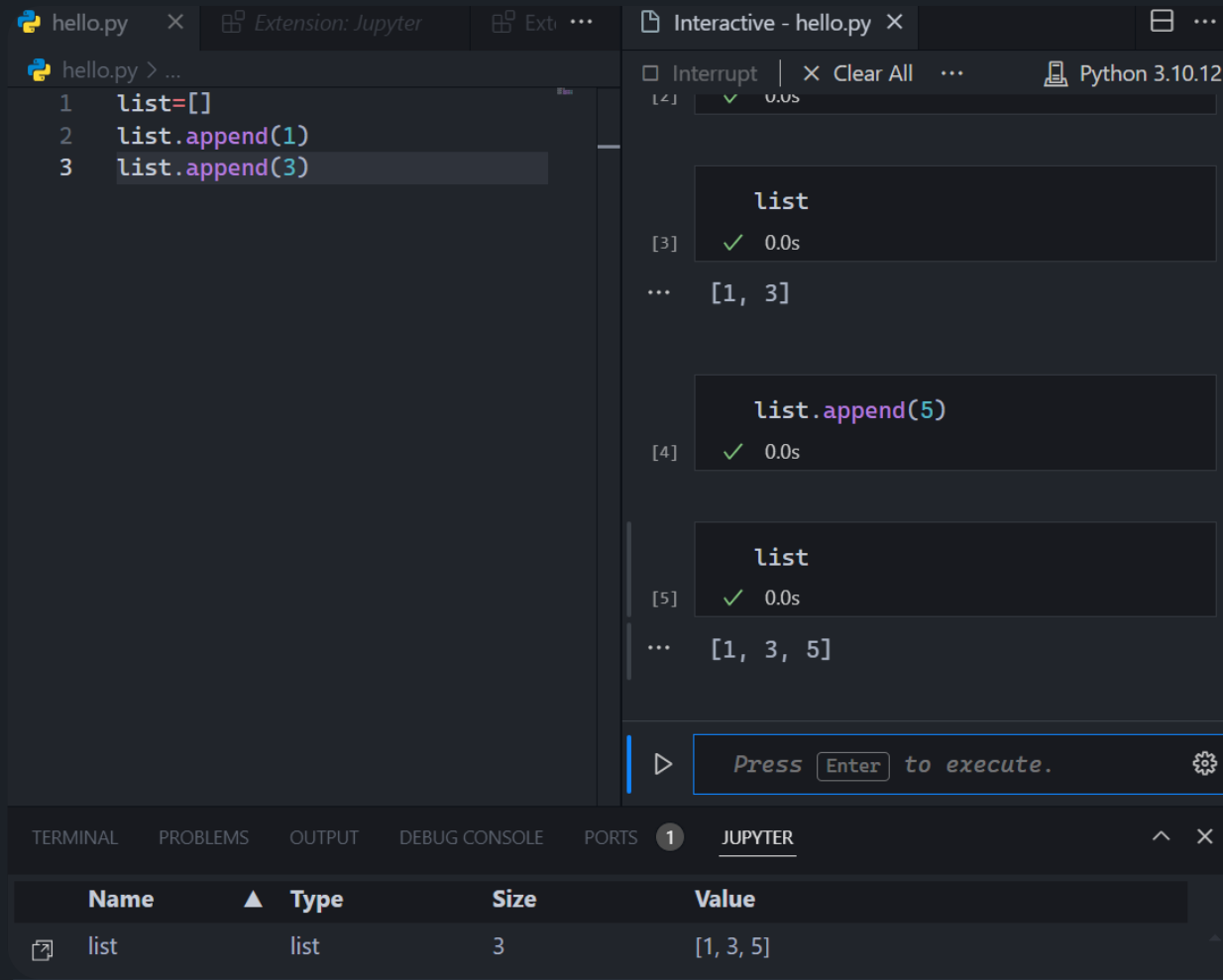
The screenshot displays the Visual Studio Code interface with the Interactive Window open. The Explorer sidebar on the left shows the file structure, including 'hello.py' and 'Interactive - hello.py'. The main editor area shows the code in 'hello.py':

```
1 list=[]
2 list.append(1)
3 list.append(3)
```

The Interactive Window on the right shows the execution of the code. It displays the variable 'list' and its value '[1, 3]' after the first two lines. After the third line, it shows 'list' with value '[1, 3, 5]'. The bottom status bar indicates the current state of the Interactive Window.

| Name | Type | Size | Value |
|------|------|------|-----------|
| list | list | 3 | [1, 3, 5] |

Interactive Window로 실행해보기 - 예시 2



The screenshot shows the VS Code editor with a file named `hello.py` containing the following code:

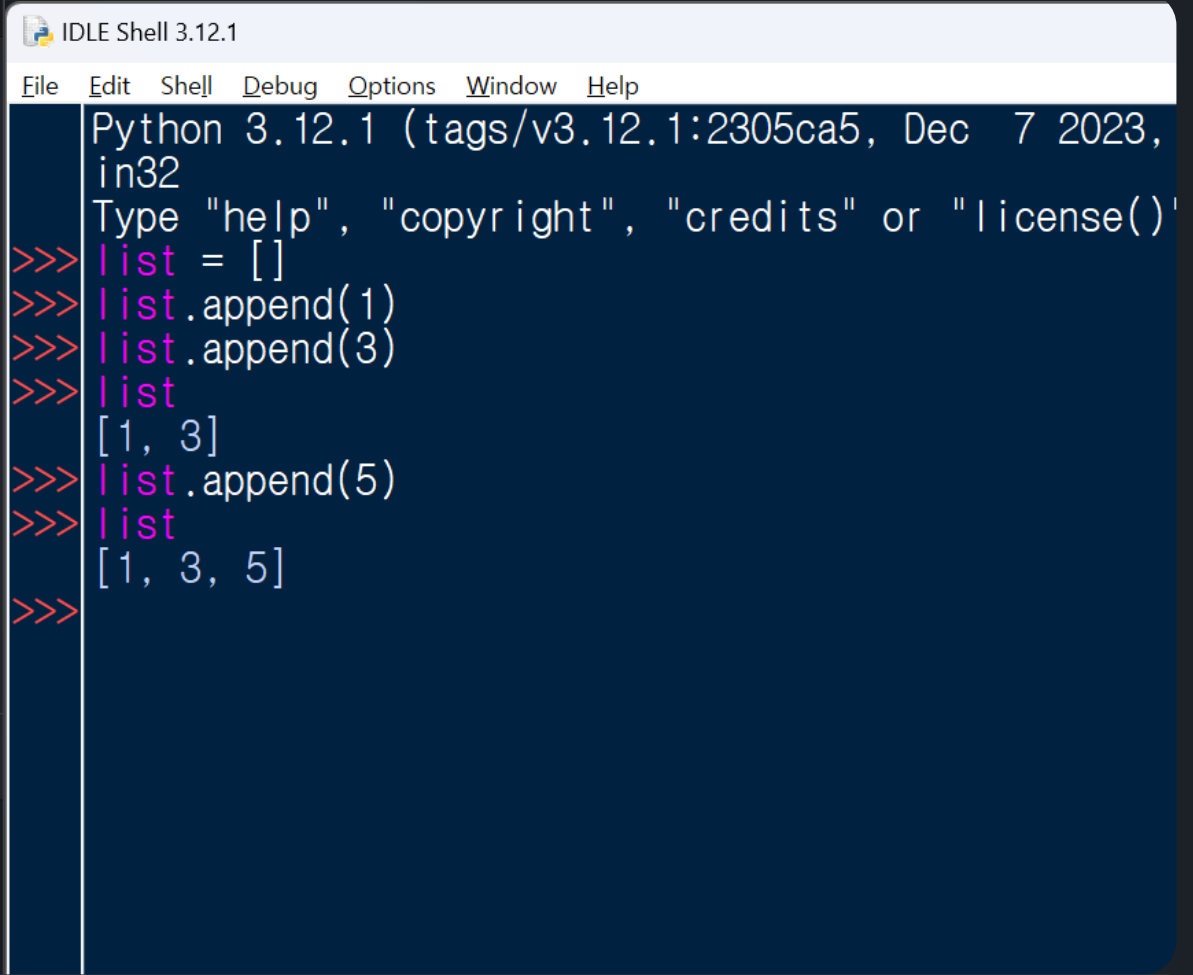
```
1 list=[]
2 list.append(1)
3 list.append(3)
```

The Interactive Window on the right shows the execution of the code in three steps:

- Step 1: `list` is initialized as an empty list. Output: `[]`.
- Step 2: `list.append(1)` is executed. Output: `[1,]`.
- Step 3: `list.append(3)` is executed. Output: `[1, 3]`.

The bottom status bar shows the Jupyter interface with a table of variables:

| Name | Type | Size | Value |
|------|------|------|-----------|
| list | list | 3 | [1, 3, 5] |

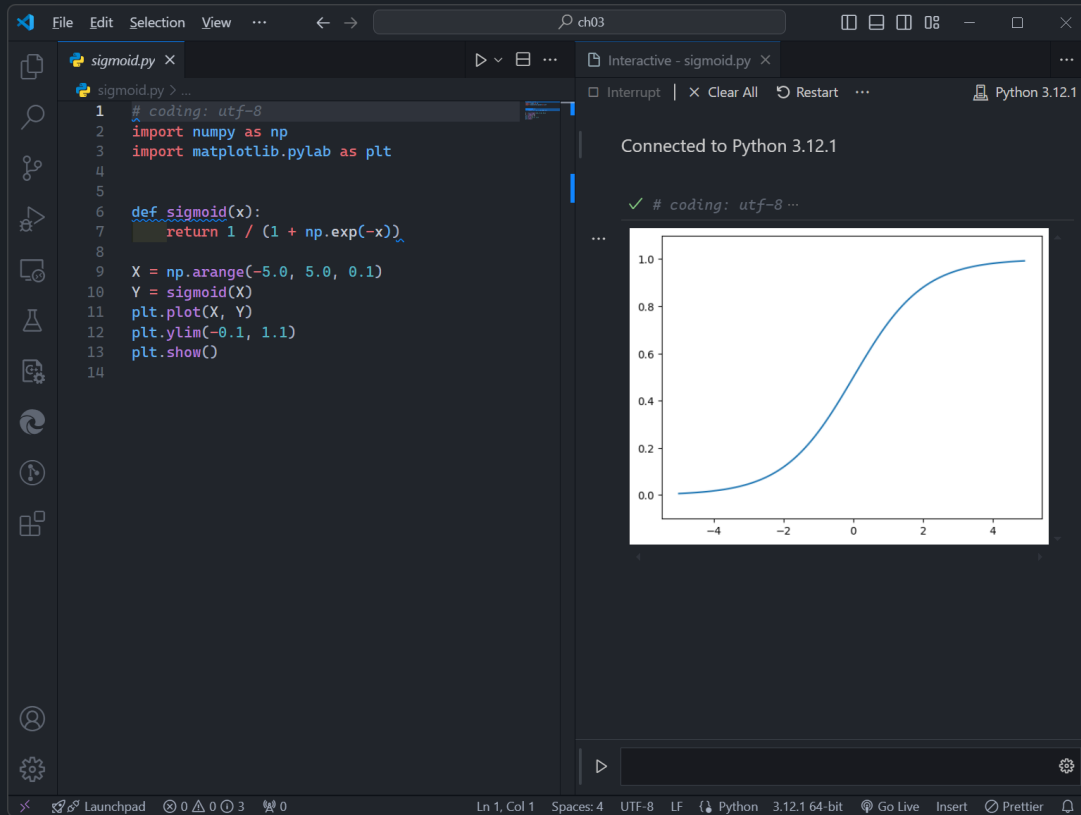


The screenshot shows the IDLE Shell 3.12.1 window with the following code and output:

```
Python 3.12.1 (tags/v3.12.1:2305ca5, Dec 7 2023, in32)
Type "help", "copyright", "credits" or "license()"
>>> list = []
>>> list.append(1)
>>> list.append(3)
>>> list
[1, 3]
>>> list.append(5)
>>> list
[1, 3, 5]
>>>
```

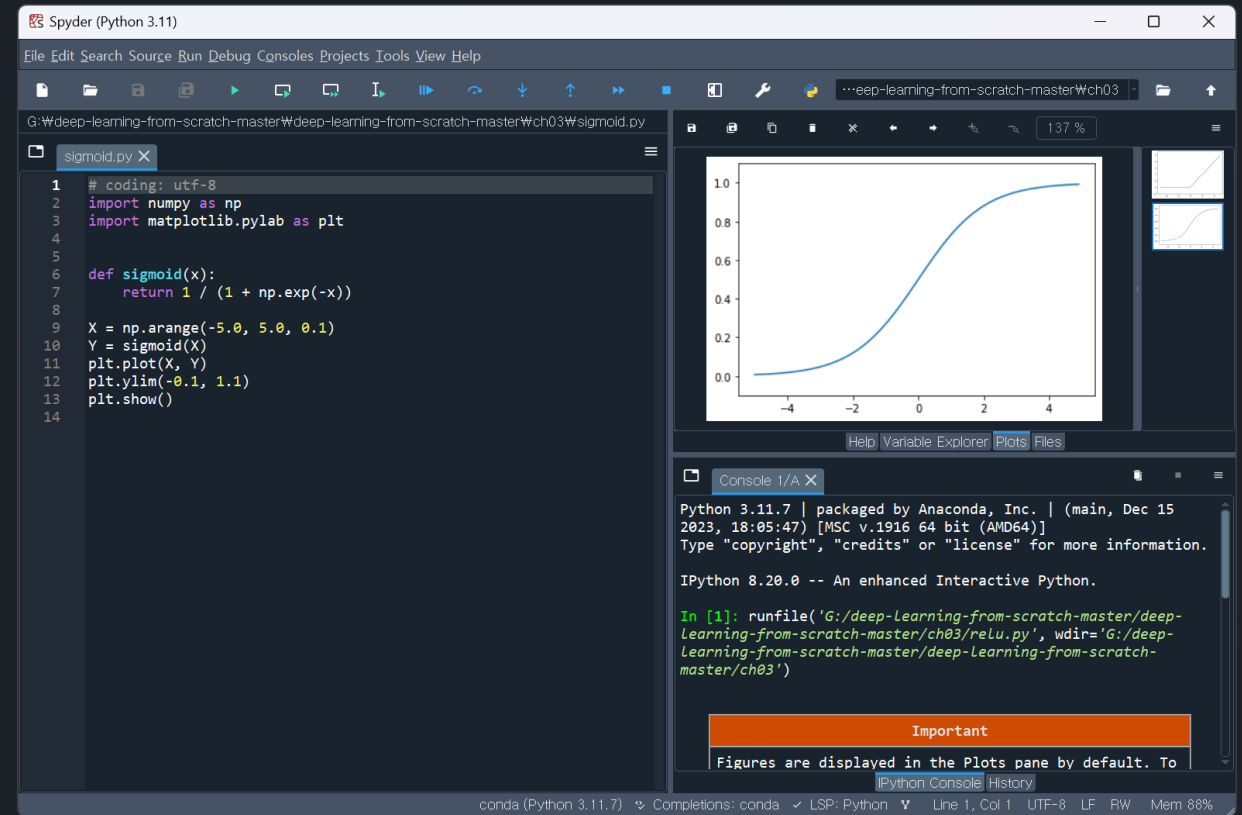
Interactive Window로 실행해보기 - 예시 3

SOURCE: <https://github.com/WegraLee/deep-learning-from-scratch/blob/master/ch03/sigmoid.py>



The VS Code Interactive Window displays the code for `sigmoid.py` on the left and a live plot of the sigmoid function on the right. The code defines a `sigmoid(x)` function using `numpy` and `matplotlib`, and then plots the function for `x` values ranging from -5.0 to 5.0. The plot shows a smooth S-shaped curve starting near 0 and ending near 1.

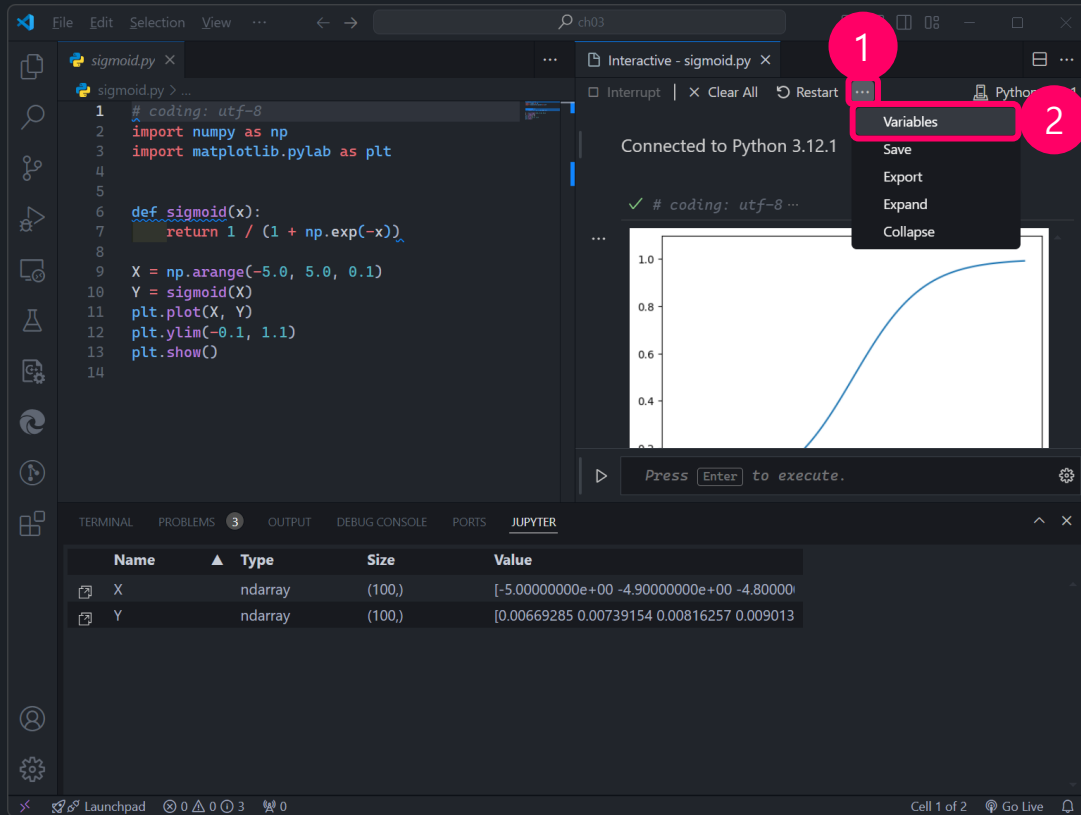
```
1 # coding: utf-8
2 import numpy as np
3 import matplotlib.pyplot as plt
4
5
6 def sigmoid(x):
7     return 1 / (1 + np.exp(-x))
8
9
10 X = np.arange(-5.0, 5.0, 0.1)
11 Y = sigmoid(X)
12 plt.plot(X, Y)
13 plt.ylim(-0.1, 1.1)
14 plt.show()
```



The Spyder Python IDE shows the same `sigmoid.py` code on the left and a live plot of the sigmoid function on the right. The interface includes a file explorer, a console, and a variable explorer. The console shows the output of the `runfile` command, indicating that the script was executed successfully.

```
1 # coding: utf-8
2 import numpy as np
3 import matplotlib.pyplot as plt
4
5
6 def sigmoid(x):
7     return 1 / (1 + np.exp(-x))
8
9
10 X = np.arange(-5.0, 5.0, 0.1)
11 Y = sigmoid(X)
12 plt.plot(X, Y)
13 plt.ylim(-0.1, 1.1)
14 plt.show()
```

Interactive Window로 실행해보기 - 예시 3



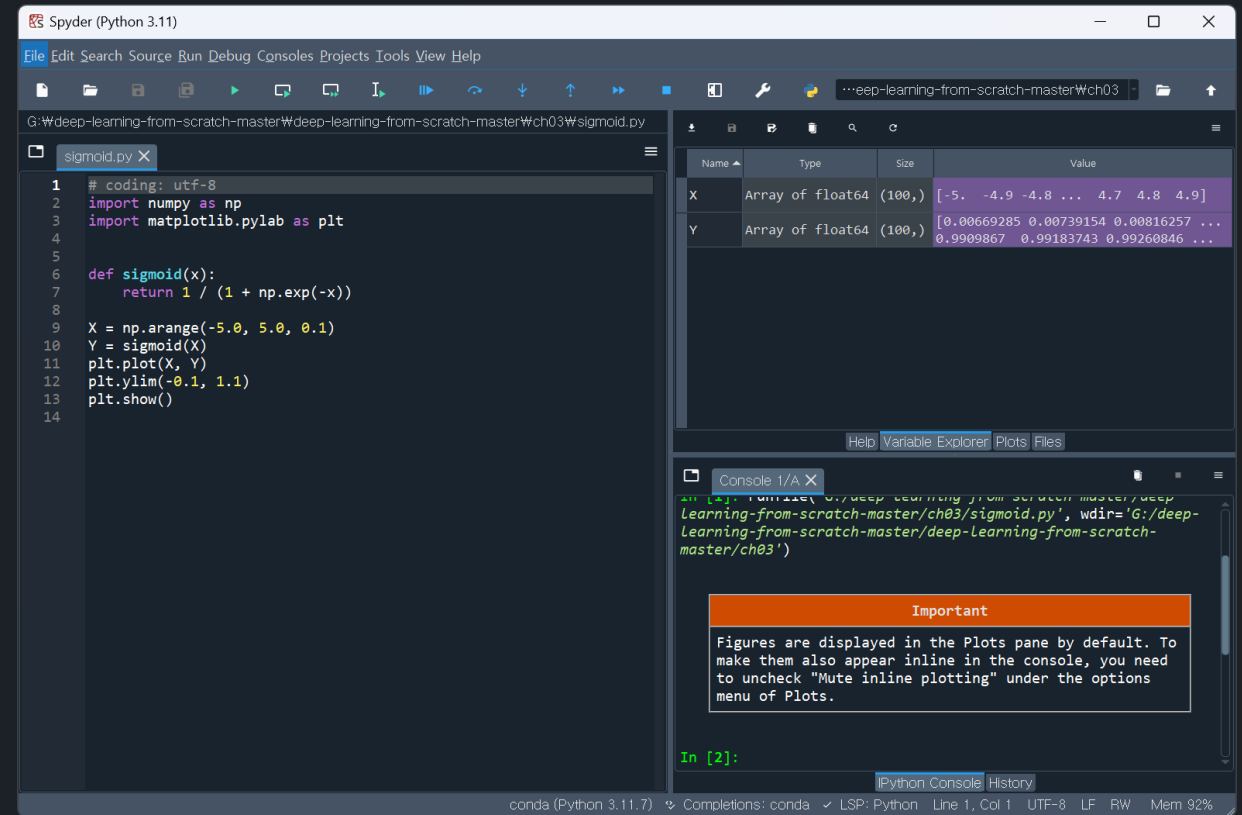
The screenshot shows the VS Code Jupyter interface. The code editor on the left contains a Python script for a sigmoid function. The Interactive Window on the right displays a plot of the sigmoid function. A context menu is open over the plot, with 'Variables' highlighted. The Variable Explorer at the bottom shows the variables X and Y.

```
1 # coding: utf-8
2 import numpy as np
3 import matplotlib.pyplot as plt
4
5
6 def sigmoid(x):
7     return 1 / (1 + np.exp(-x))
8
9 X = np.arange(-5.0, 5.0, 0.1)
10 Y = sigmoid(X)
11 plt.plot(X, Y)
12 plt.ylim(-0.1, 1.1)
13 plt.show()
14
```

Connected to Python 3.12.1

Press **Enter** to execute.

| Name | Type | Size | Value |
|------|---------|--------|--|
| X | ndarray | (100,) | [-5.00000000e+00 -4.90000000e+00 -4.80000000e+00 ... 4.7 4.8 4.9] |
| Y | ndarray | (100,) | [0.00669285 0.00739154 0.00816257 ... 0.9909867 0.99183743 0.99260846 ...] |



The screenshot shows the Spyder Python IDE interface. The code editor on the left contains the same Python script for a sigmoid function. The Variable Explorer on the right shows the variables X and Y. The Console at the bottom displays the execution output.

```
1 # coding: utf-8
2 import numpy as np
3 import matplotlib.pyplot as plt
4
5
6 def sigmoid(x):
7     return 1 / (1 + np.exp(-x))
8
9 X = np.arange(-5.0, 5.0, 0.1)
10 Y = sigmoid(X)
11 plt.plot(X, Y)
12 plt.ylim(-0.1, 1.1)
13 plt.show()
14
```

| Name | Type | Size | Value |
|------|------------------|--------|--|
| X | Array of float64 | (100,) | [-5. -4.9 -4.8 ... 4.7 4.8 4.9] |
| Y | Array of float64 | (100,) | [0.00669285 0.00739154 0.00816257 ... 0.9909867 0.99183743 0.99260846 ...] |

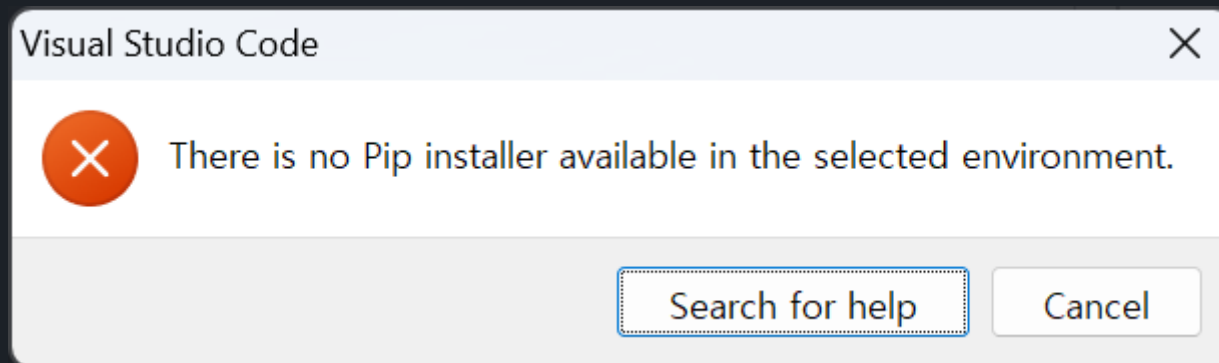
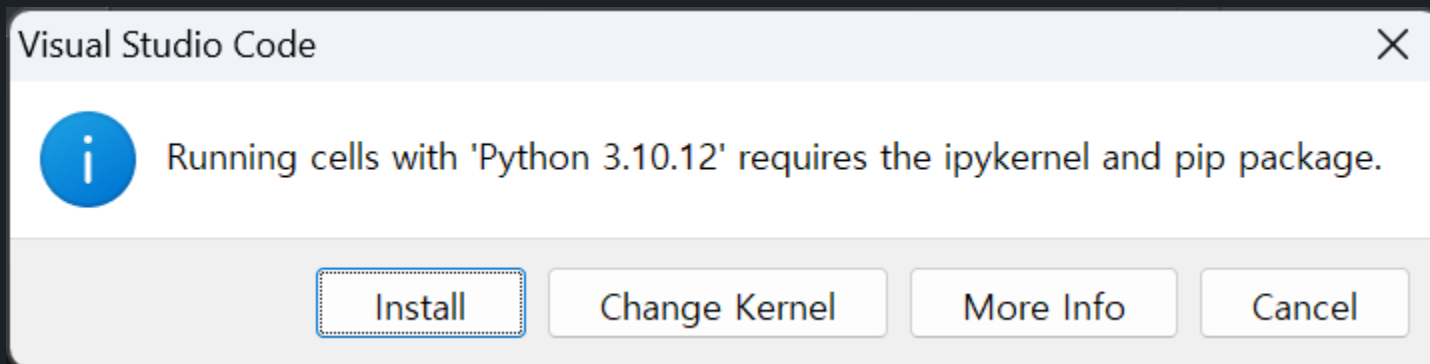
Console 1/A X

```
In [2]:
```

Important

Figures are displayed in the Plots pane by default. To make them also appear inline in the console, you need to uncheck "Mute inline plotting" under the options menu of Plots.

오류 해결 방법 → Pip 설치 필요



Pip 설치

```
username@hostname: ~  
username@hostname:~$ sudo apt install python3-pip -y
```

Pip 설치 확인



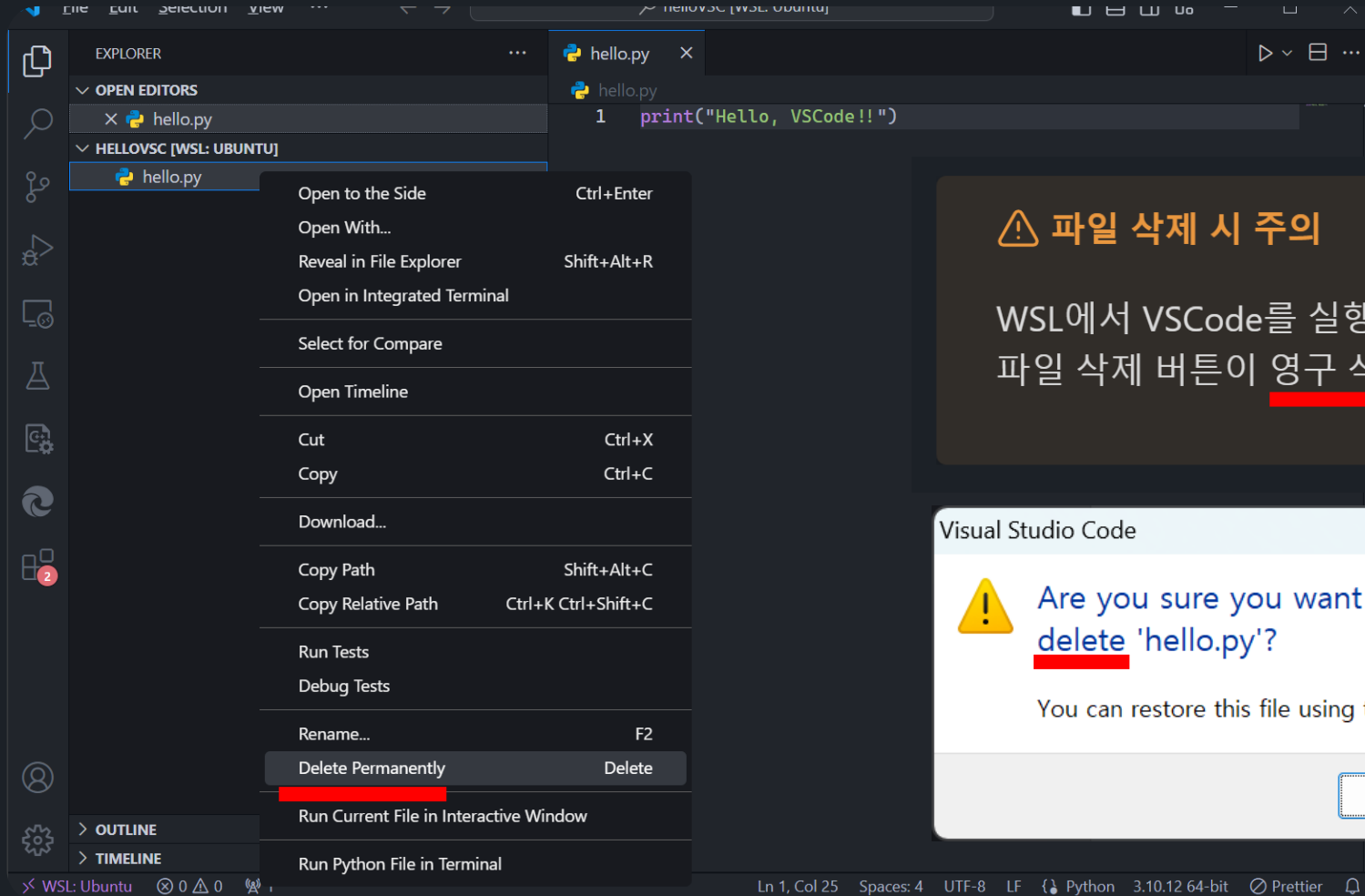
username@hostname: ~



```
username@hostname:~$ pip --version  
pip 22.0.2 from /usr/lib/python3/dist-packages/pip (python 3.10)  
username@hostname:~$
```

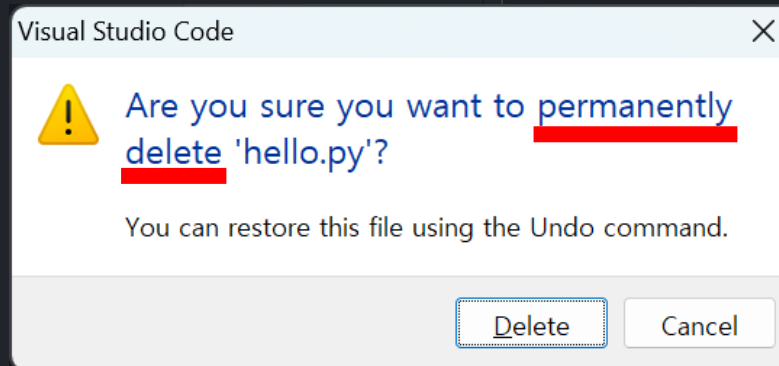


파일 삭제 주의







⚠ 파일 삭제 시 주의

WSL에서 VSCode를 실행시키면 일종의 원격(Remote)상태로 실행됩니다.
파일 삭제 버튼이 영구 삭제(permanently delete)로 작동됩니다.



Q & A

참고 자료

-  Python 개발을 위한 Visual Studio Code 설치 및 구성 - Training | Microsoft Learn
(<https://learn.microsoft.com/ko-kr/training/modules/python-install-vscode/>). 
-  Working with Jupyter code cells in the Python Interactive window
(<https://code.visualstudio.com/docs/python/jupyter-support-py>). 

감사합니다