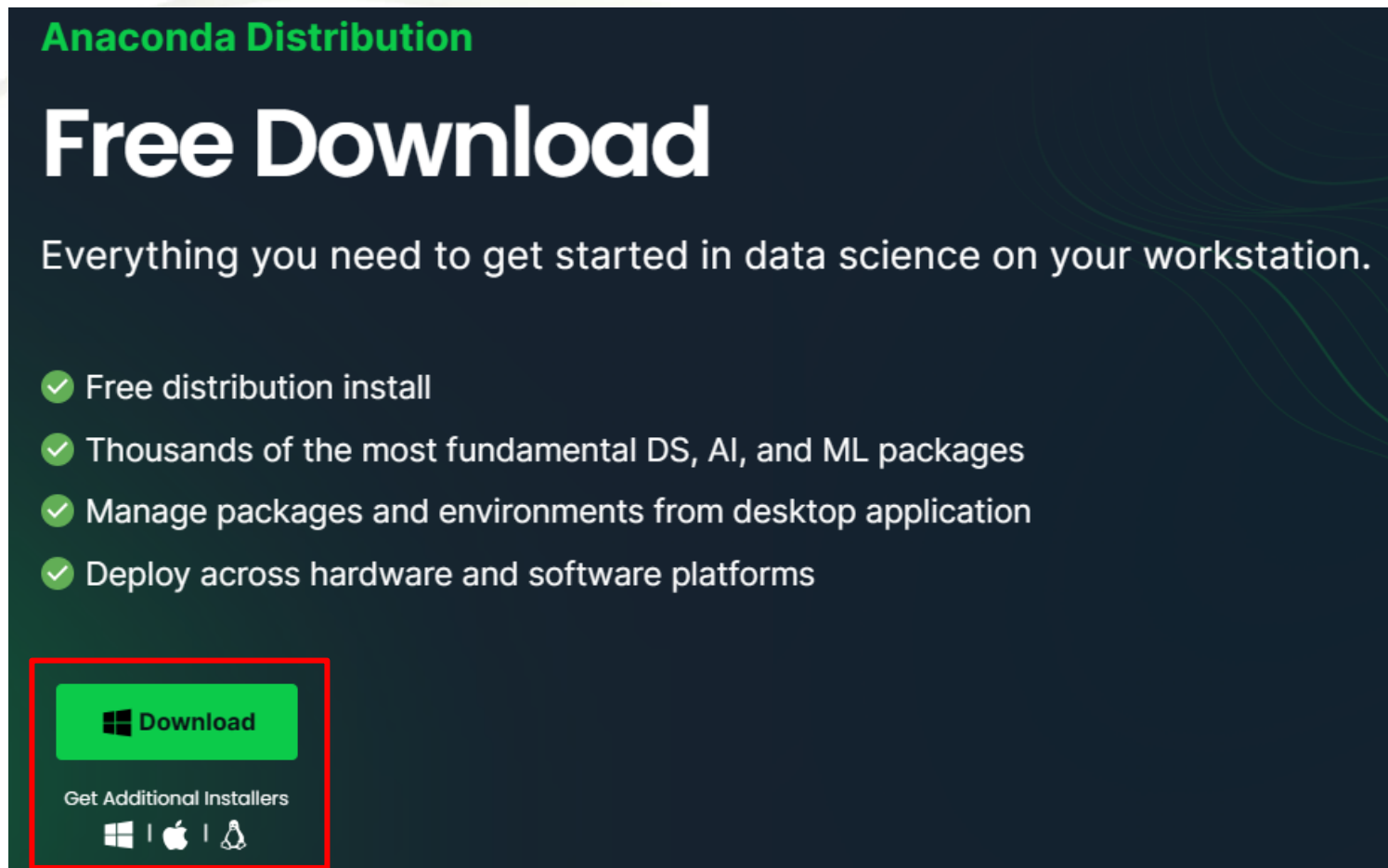


The background features a large, abstract, wavy shape in shades of green and white, resembling a stylized wave or a flowing ribbon. The shape is composed of several overlapping, curved segments that create a sense of movement and depth. The colors range from a light, almost white green to a darker, more saturated green. The overall effect is clean and modern.

테스트 환경 설치 및 설정

파이썬 배포판 설치 (Anaconda)

- 다운로드 경로 → <https://www.anaconda.com/downloads>



- 다운로드 완료 후 관리자 권한으로 실행 → 설치

파이썬 배포판 설치 (Miniconda)

- 다운로드 경로 → <https://docs.conda.io/projects/miniconda/en/latest>

Platform	Name	SHA256 hash
Windows	Miniconda3 Windows 64-bit	e841557c27d438b96e09126a2b0656154a3a34bdb9d87d59ceaea67515713515
macOS	Miniconda3 macOS Intel x86 64-bit bash	8c50faa3880fdef96967477af09d41c52332998beeee7ef8116c79d4f5023d72
	Miniconda3 macOS Intel x86 64-bit pkg	0c9d8ae96c110230a41c0441d5d486d47b627f594090de52989d01d04d18d8ee
	Miniconda3 macOS Apple M1 64-bit bash	5043144d7eaea2286e30d091b62fcf50f7ed983b092230e56c370b592e7a57f2
	Miniconda3 macOS Apple M1 64-bit pkg	6338d7281f9de5d2587037b237b03b285649dad0963db53d05177741c0c8a426
Linux	Miniconda3 Linux 64-bit	d0643508fa49105552c94a523529f4474f91730d3e0d1f168f1700c43ae67595
	Miniconda3 Linux-aarch64 64-bit	a60e70ad7e8ac5bb44ad876b5782d7cdc66e10e1f45291b29f4f8d37cc4aa2c8
	Miniconda3 Linux-ppc64le 64-bit	1a2eda0a9a52a4bd058abbe9de5bb2bc751fcd7904c4755deffdf938d6f4436e
	Miniconda3 Linux-s390x 64-bit	ae212385c9d7f7473da7401d3f5f6cbbbc79a1fce730aa48531947e9c07e0808

- 다운로드 완료 후 관리자 권한으로 실행 → 설치

파이썬 배포판 설치 (Miniforge)

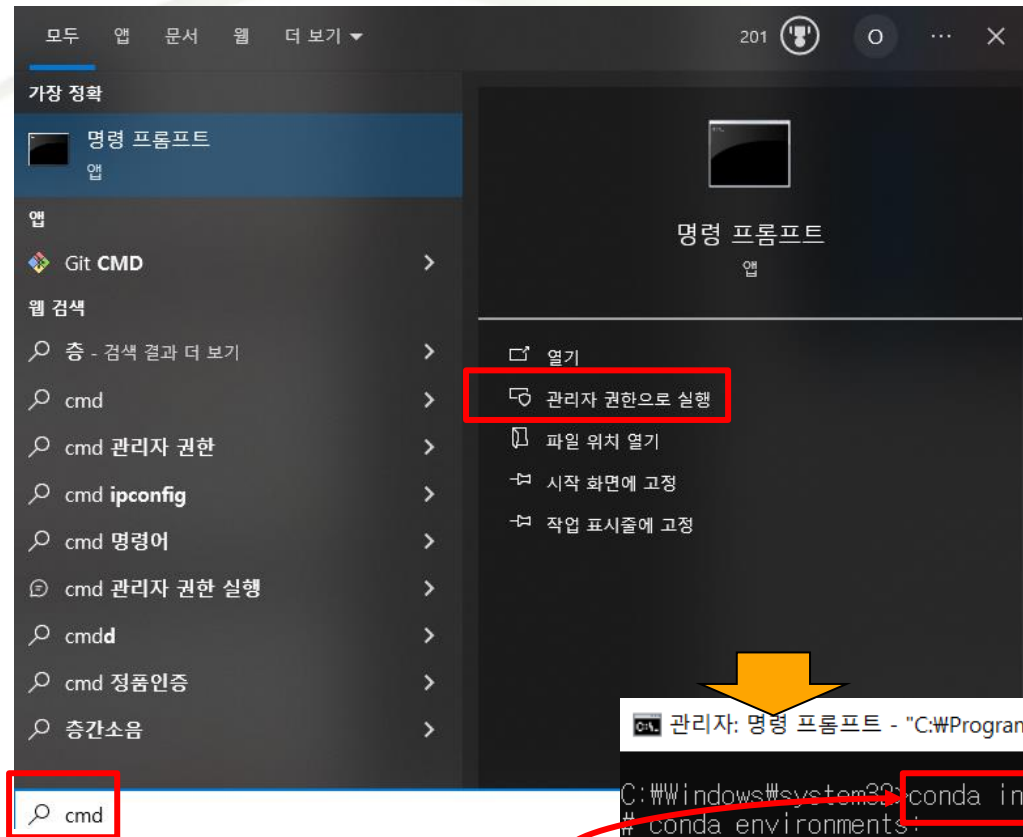
- 다운로드 경로 → <https://github.com/conda-forge/miniforge>

OS	Architecture	Download
Linux	x86_64 (amd64)	Miniforge3-Linux-x86_64
Linux	aarch64 (arm64) (**)	Miniforge3-Linux-aarch64
Linux	ppc64le (POWER8/9)	Miniforge3-Linux-ppc64le
OS X	x86_64	Miniforge3-MacOSX-x86_64
OS X	arm64 (Apple Silicon) (***)	Miniforge3-MacOSX-arm64
Windows	x86_64	Miniforge3-Windows-x86_64

- 다운로드 완료 후 관리자 권한으로 실행 → 설치

가상 파이썬 환경 생성

■ 관리자 권한으로 명령 프롬프트(CMD) 실행



■ 가상 환경 목록 보기

처음 실행한 경우 base 항목만 표시됨

C:\Windows\system32>

가상 파이썬 환경 생성

■ 가상 환경 만들기

ca 관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --all -

```
C:\Windows\system32>conda create --name study-env python=3.9
```

```
Collecting package metadata (current_repodata.json): done  
Solving environment: done
```

```
==> WARNING: A newer version of conda exists. <==  
current version: 23.5.2  
latest version: 23.11.0
```

Please update conda by running

```
$ conda update -n base -c defaults conda
```

Or to minimize the number of packages updated during conda update use

```
conda install conda=23.11.0
```

Package Plan

```
environment location: C:\ProgramData\miniconda3\envs\study-env
```

```
added / updated specs:  
- python=3.9
```

The following NEW packages will be INSTALLED:

ca-certificates	pkgs/main/win-64::ca-certificates-2023.08.22-haa95532_0
openssl	pkgs/main/win-64::openssl-3.0.12-h2bbff1b_0
pip	pkgs/main/win-64::pip-23.3.1-py39haa95532_0
python	pkgs/main/win-64::python-3.9.18-h1aa4202_0
setuptools	pkgs/main/win-64::setuptools-68.0.0-py39haa95532_0
sqlite	pkgs/main/win-64::sqlite-3.41.2-h2bbff1b_0
tzdata	pkgs/main/noarch::tzdata-2023c-h04d1e81_0
vc	pkgs/main/win-64::vc-14.2-h21ffa1_1
vs2015_runtime	pkgs/main/win-64::vs2015_runtime-14.27.29016-h5e58377_2
wheel	pkgs/main/win-64::wheel-0.41.2-py39haa95532_0

```
Proceed ([y]/n)?
```

```
Proceed ([y]/n)? y
```

Downloading and Extracting Packages

```
Preparing transaction: done  
Verifying transaction: done  
Executing transaction: done
```

```
#  
# To activate this environment, use  
#  
# $ conda activate study-env
```

```
#  
# To deactivate an active environment, use  
#  
# $ conda deactivate
```

```
C:\Windows\system32>
```

가상 파이썬 환경 생성

■ 설치된 가상 환경 확인 (가상 환경 목록 보기)

관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --all

```
C:\Windows\system32>conda info --envs
# conda environments:
#
base                                C:\ProgramData\miniconda3
study-env                           C:\ProgramData\miniconda3\envs\study-env
```

```
C:\Windows\system32>
```

■ 가상 환경 진입 (선택)

관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --all - "C:\ProgramData\miniconda3\envs\study-env\Scripts\activate.bat"

```
C:\Windows\system32>conda activate study-env
(study-env) C:\Windows\system32>
```

가상 파이썬 환경 제거

■ 가상 파이썬 환경에서 나가기

관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --all - "C:\Progr:

```
(study-env) C:\Windows\system32>conda deactivate
```

```
C:\Windows\system32>
```

■ 가상 파이썬 환경 제거

관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --a

```
C:\Windows\system32>conda remove --name study-env --all
```

```
Remove all packages in environment C:\ProgramData\miniconda3\envs\study-env:
```

```
## Package Plan ##
```

```
environment location: C:\ProgramData\miniconda3\envs\study-env
```

```
The following packages will be REMOVED:
```

```
ca-certificates-2023.08.22-haa95532_0
openssl-3.0.12-h2bfff1b_0
pip-23.3.1-py39haa95532_0
python-3.9.18-h1aa4202_0
setuptools-68.0.0-py39haa95532_0
sqlite-3.41.2-h2bfff1b_0
tzdata-2023c-h04d1e81_0
vc-14.2-h21ff451_1
vs2015_runtime-14.27.29016-h5e58377_2
wheel-0.41.2-py39haa95532_0
```

```
Proceed ([y]/n)? y
```

관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --all

```
C:\Windows\system32>conda info --envs
```

```
# conda environments:
```

```
#
base C:\ProgramData\miniconda3
```

```
C:\Windows\system32>
```


가상 파이썬 환경 사용

- 실습을 위해 study-env 이름으로 가상 파이썬 환경을 다시 만들고 새 가상 파이썬 환경에 진입
 - » 과정 생략
- 명령 프롬프트에서 대화형 프로그램 환경 실행

관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --all - "C:\WF

```
(study-env) C:\Windows\system32>python
Python 3.9.18 (main, Sep 11 2023, 14:09:26) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
>>>
>>> print("Hello, Python World !!!!!")
Hello, Python World !!!!!
>>>
>>>
>>>
```

- » 종료는 `exit()` 또는 `quit()` 함수 호출

가상 파이썬 환경 사용

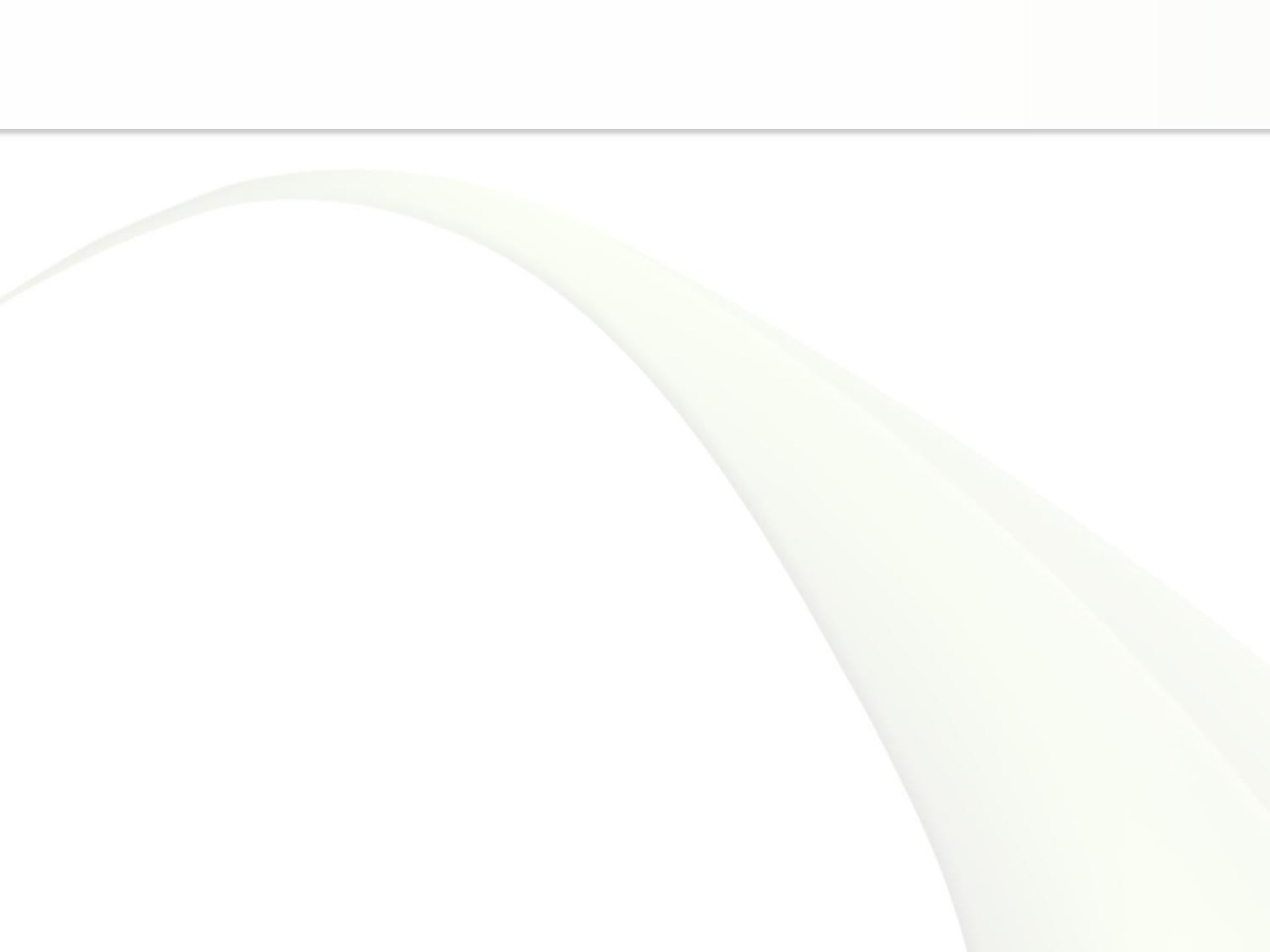
■ 주요 기본 패키지 설치

관리자: 명령 프롬프트 - "C:\ProgramData\miniconda3\condabin\conda.bat" remove --name study-env --all - "C:\ProgramData\miniconda3\condabin\conda.bat"

```
(study-env) C:\Windows\system32> pip install numpy pandas matplotlib seaborn jupyter jupyterlab
Collecting numpy
  Using cached numpy-1.26.2-cp39-cp39-win_amd64.whl.metadata (61 kB)
Collecting pandas
  Using cached pandas-2.1.4-cp39-cp39-win_amd64.whl.metadata (18 kB)
Collecting matplotlib
  Using cached matplotlib-3.8.2-cp39-cp39-win_amd64.whl.metadata (5.9 kB)
Collecting seaborn
  Using cached seaborn-0.13.0-py3-none-any.whl.metadata (5.3 kB)
```

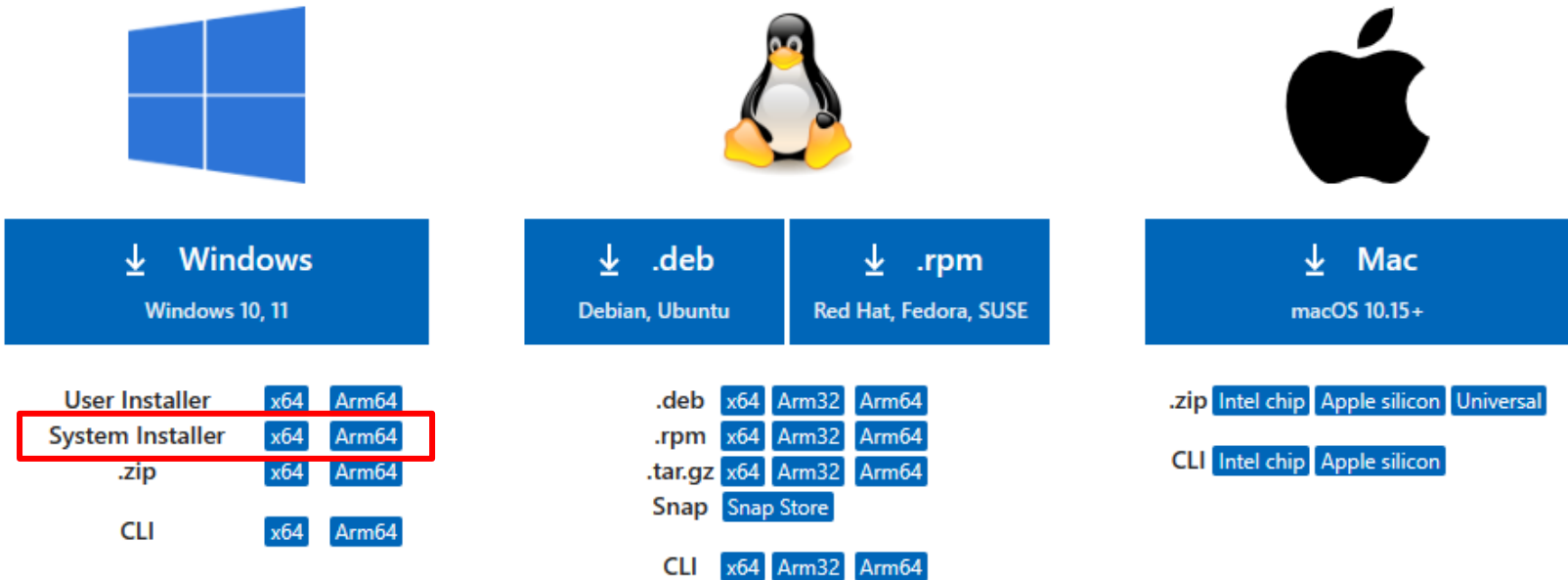
... (중간 생략)

```
yparser-2.21 pygments-2.17.2 pyparsing-3.1.1 python-dateutil-2.8.2 python-json-logger-2.0.7 pytz-2023.3
06 pywinpty-2.0.12 pyyaml-6.0.1 pyzmq-25.1.2 qtconsole-5.5.1 qtpy-2.4.1 referencing-0.32.0 requests-2.31
ator-0.1.4 rfc3986-validator-0.1.1 rpds-py-0.13.2 seaborn-0.13.0 send2trash-1.8.2 six-1.16.0 sniffio-1.3
stack-data-0.6.3 terminado-0.18.0 tinycss2-1.2.1 tomli-2.0.1 tornado-6.4 traitlets-5.14.0 types-python-
14 typing-extensions-4.9.0 tzdata-2023.3 uri-template-1.3.0 urllib3-2.1.0 wcwidth-0.2.12 webcolors-1.13
.1 websocket-client-1.7.0 widgetsnbextension-4.0.9 zipp-3.17.0
(study-env) C:\Windows\system32>
```



Visual Studio Code 설치

- 다운로드 → <https://code.visualstudio.com/Download>



The image shows the download page for Visual Studio Code, organized into three main sections: Windows, Linux, and Mac. Each section has a header with a download icon and the platform name. Below the headers are lists of available installers with their respective architectures.

Windows (Windows 10, 11)

User Installer	x64	Arm64
System Installer	x64	Arm64
.zip	x64	Arm64
CLI	x64	Arm64

Linux (Debian, Ubuntu / Red Hat, Fedora, SUSE)

.deb	x64	Arm32	Arm64
.rpm	x64	Arm32	Arm64
.tar.gz	x64	Arm32	Arm64
Snap	Snap Store		
CLI	x64	Arm32	Arm64

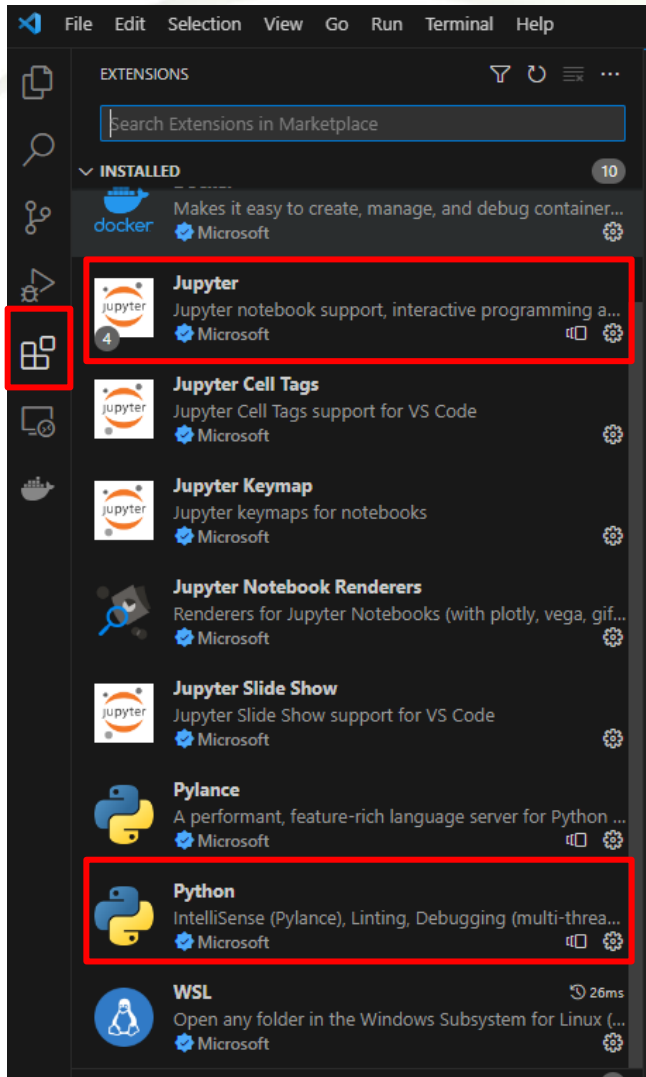
Mac (macOS 10.15+)

.zip	Intel chip	Apple silicon	Universal
CLI	Intel chip	Apple silicon	

- 다운로드 완료 후 관리자 권한으로 실행 → 설치

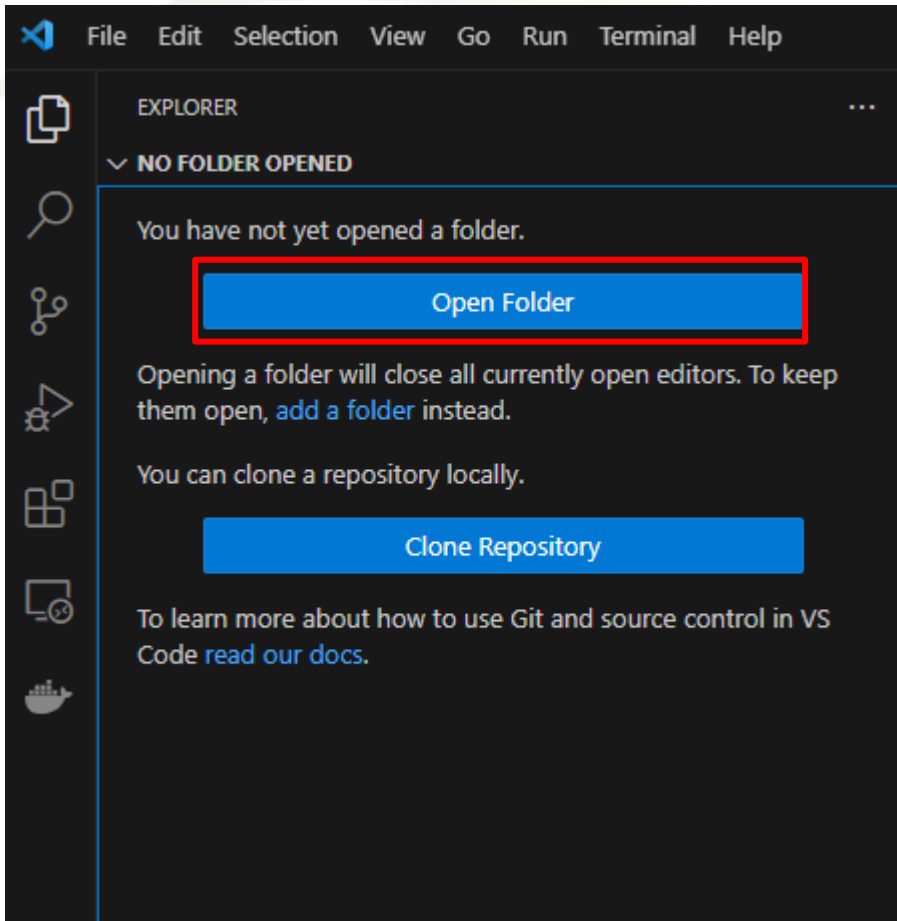
Visual Studio Code 사용

■ 파이썬 확장 설치



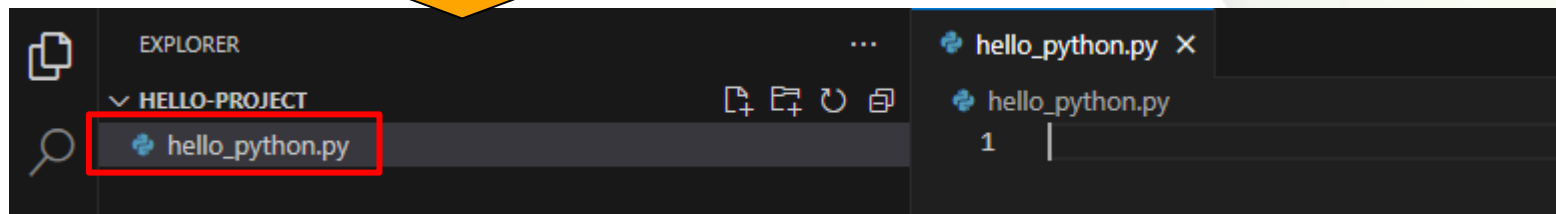
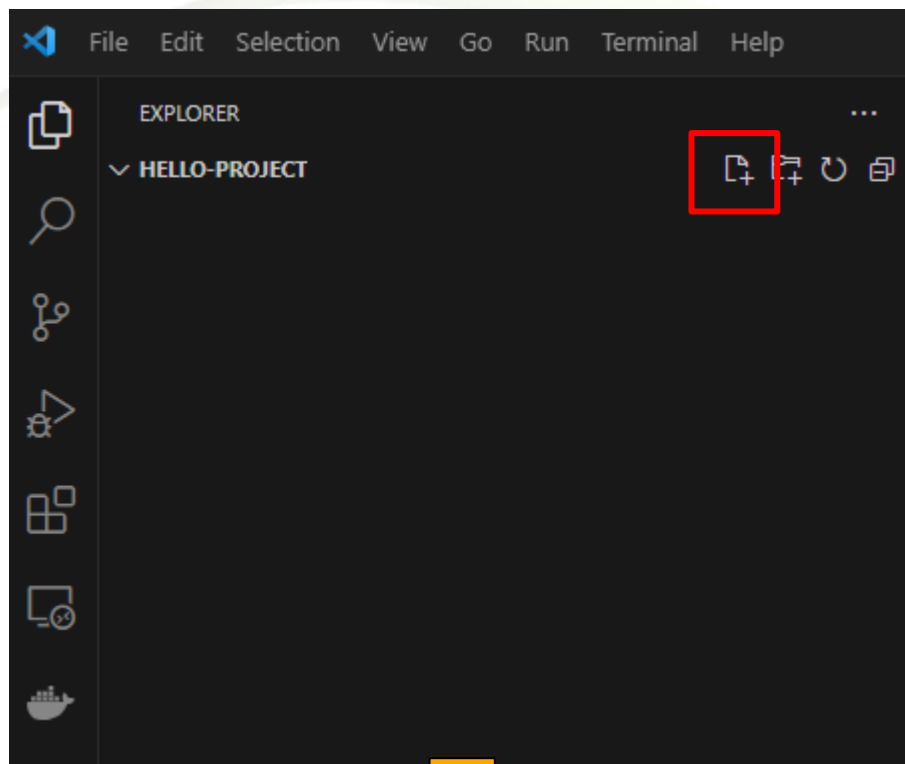
Visual Studio Code 사용

- 작업 디렉터리 지정



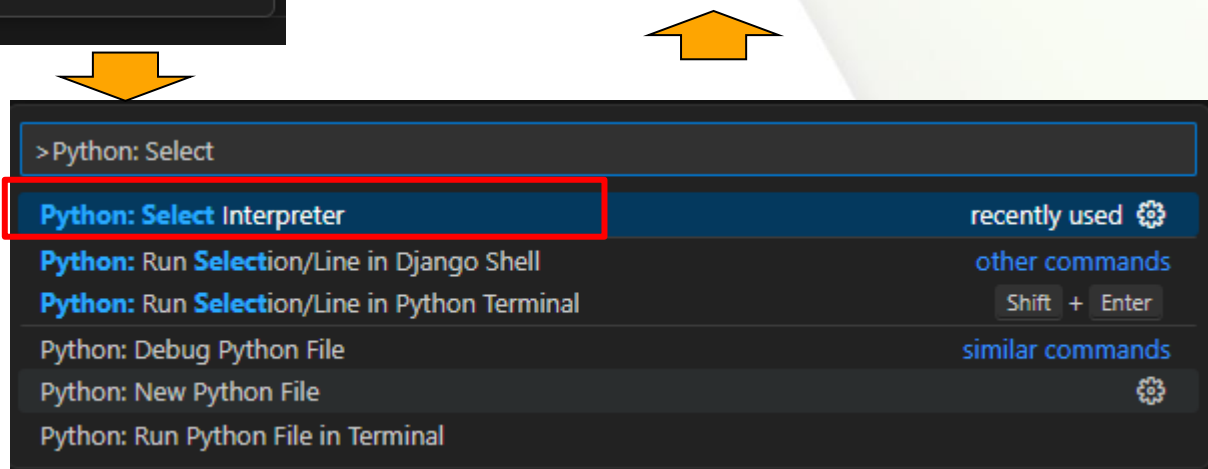
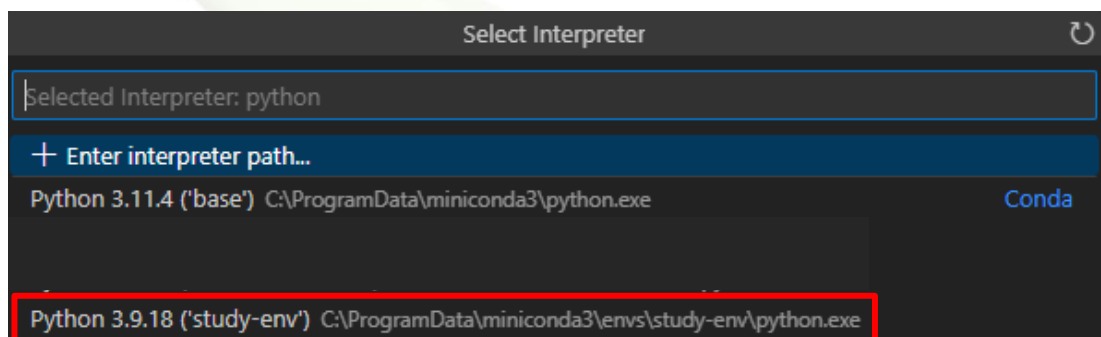
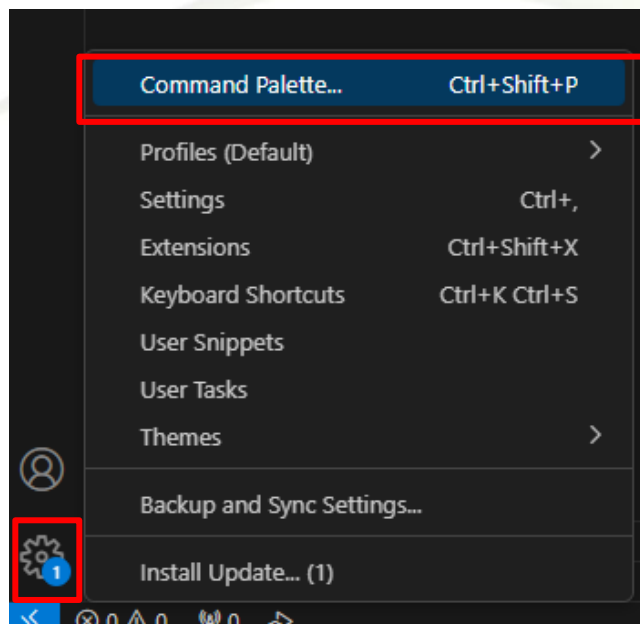
Visual Studio Code 사용

■ 새 파일 추가



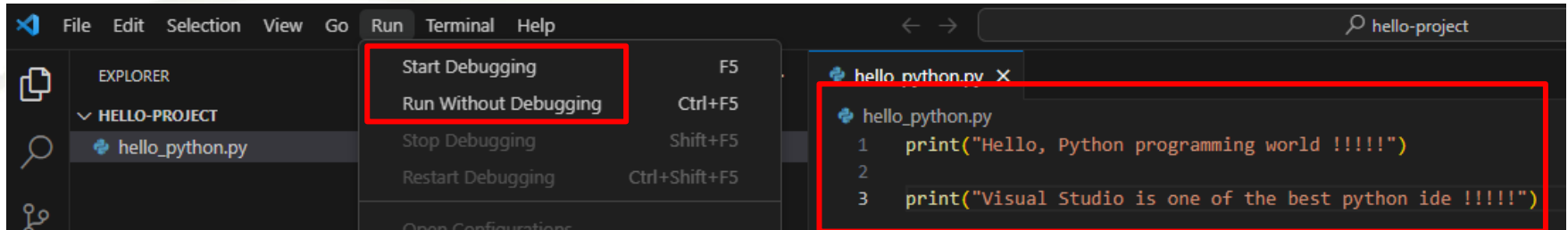
Visual Studio Code 사용

■ 인터프리터 선택



Visual Studio Code 사용

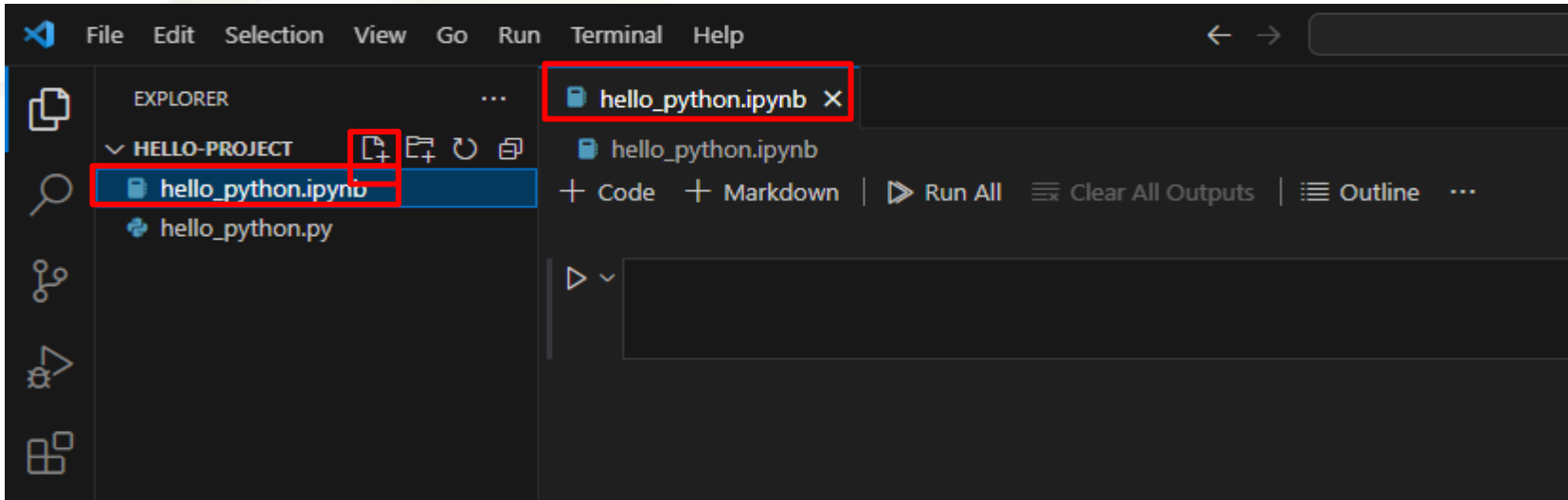
■ 파일 실행



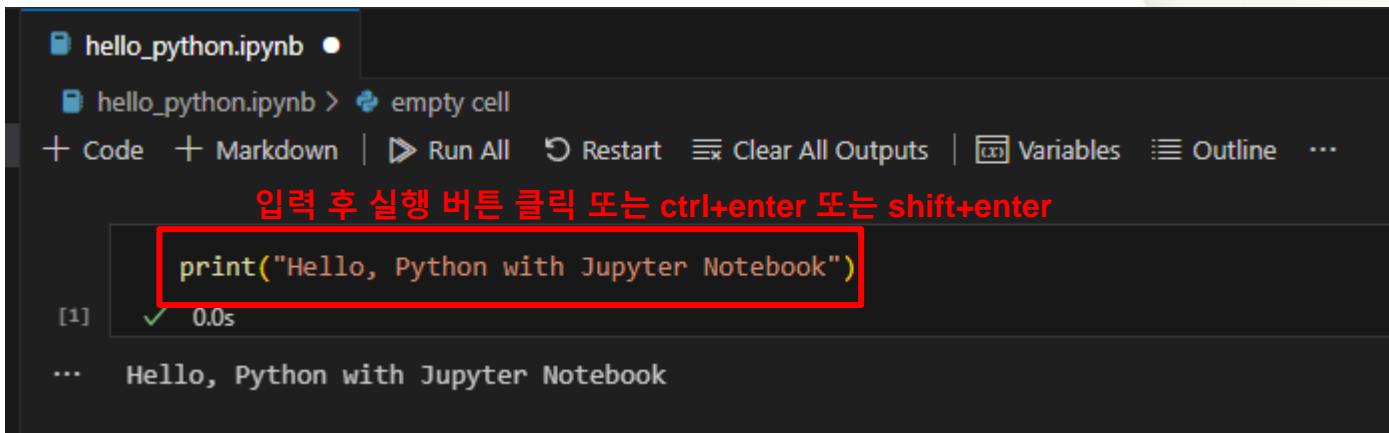
```
(study-env) PS C:\vscode-workspace\hello-project> & 'C:\ProgramData\miniconda3\envs\stu
2.0\pythonFiles\lib\python\debugpy\adapter/.../debugpy\launcher' '63548' '--' 'c:\vsco
Hello, Python programming world !!!!!
Visual Studio is one of the best python ide !!!!!
(study-env) PS C:\vscode-workspace\hello-project>
```

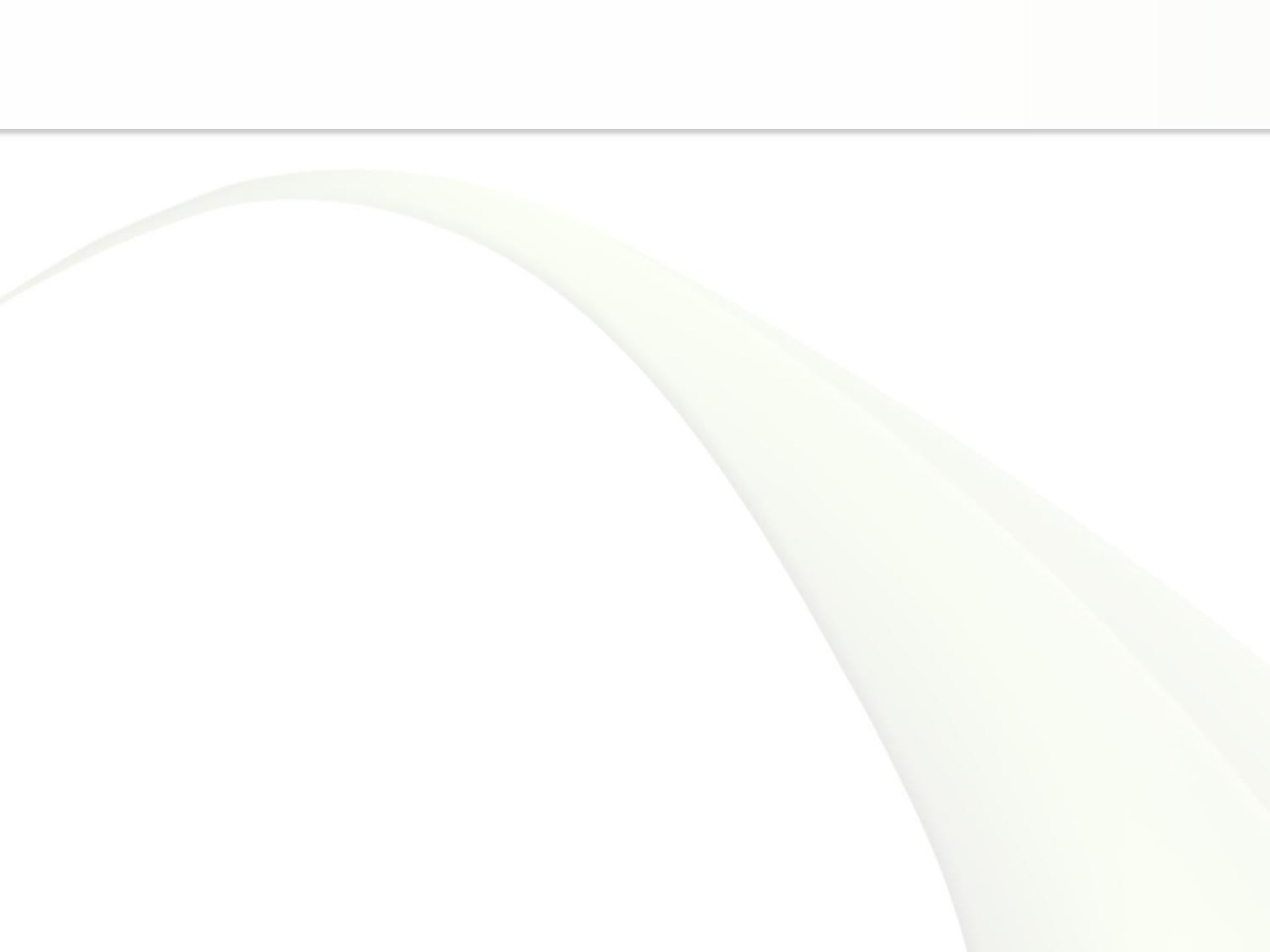
Visual Studio Code 사용

■ 대화형 실행 파일 만들기



■ 대화형 명령 실행





PyCharm 설치

- 다운로드 경로 → <https://www.jetbrains.com/pycharm/download>

We value the vibrant Python community, and that's why we proudly offer the PyCharm Community Edition for free, as our open-source contribution to support the Python ecosystem.



PyCharm Community Edition

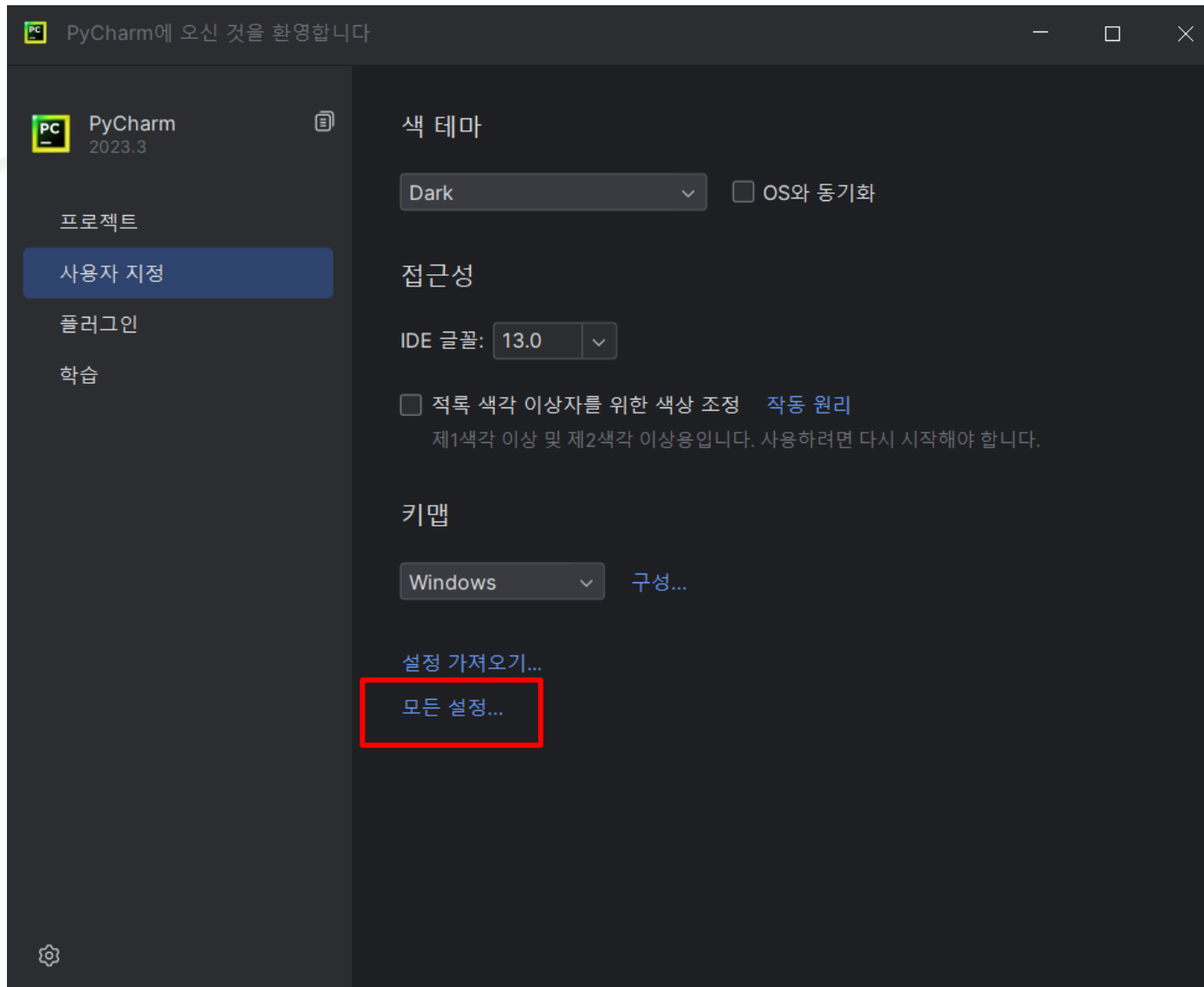
The IDE for Pure Python Development

Download

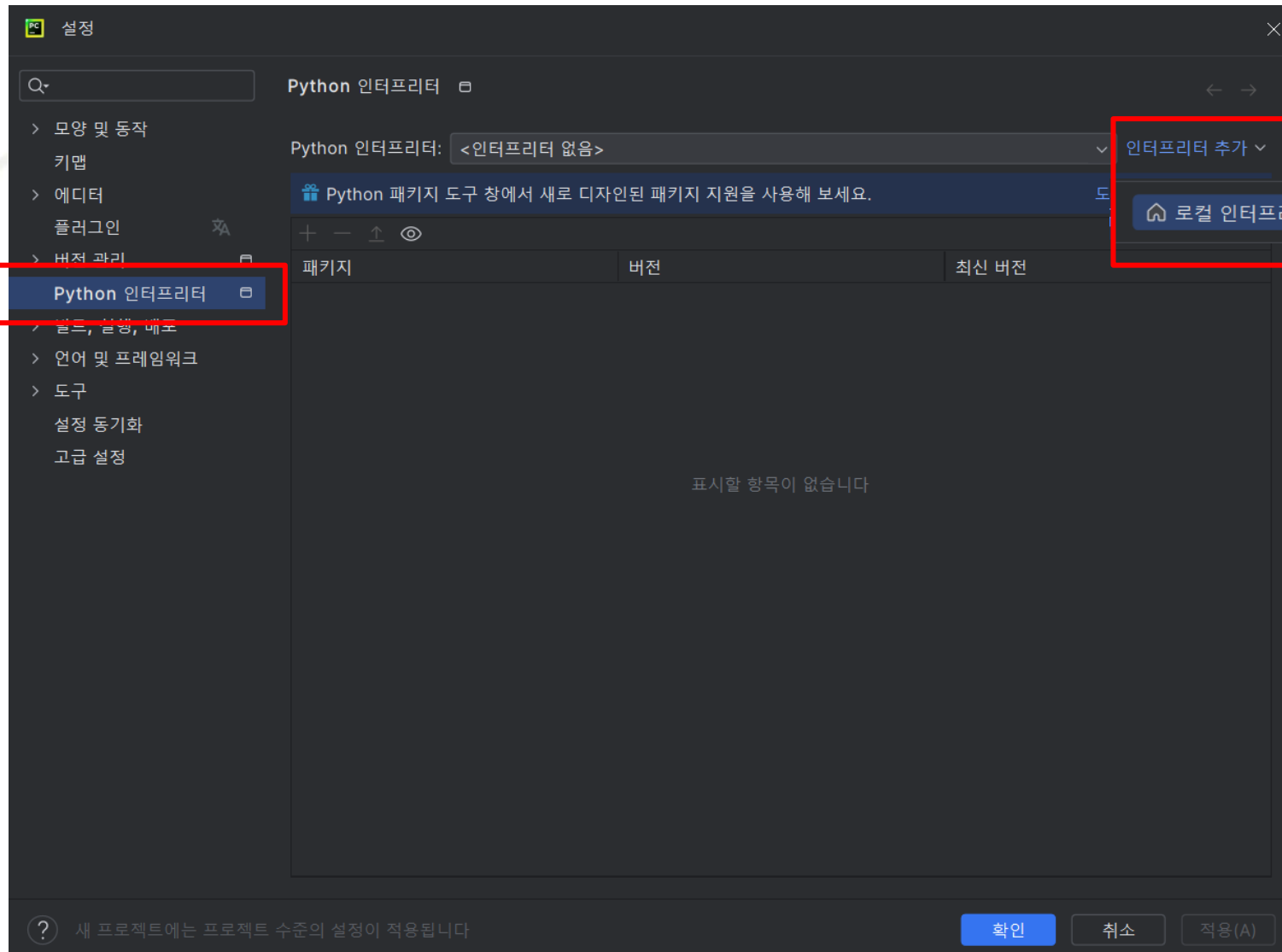
.exe ▼

Free, built on open source

파이썬 인터프리터 설정



파이썬 인터프리터 설정





Python 인터프리터 추가



Virtualenv 환경



Conda 환경



시스템 인터프리터



Pipenv 환경



Poetry Environment

Conda 실행 파일:

C:\ProgramData\Miniconda3\condabin\conda.bat



환경 로드

☒ 기존 환경 사용

☐ 새 환경 생성

기존 환경 사용:

C:\ProgramData\miniconda3



C:\ProgramData\miniconda3

study-env

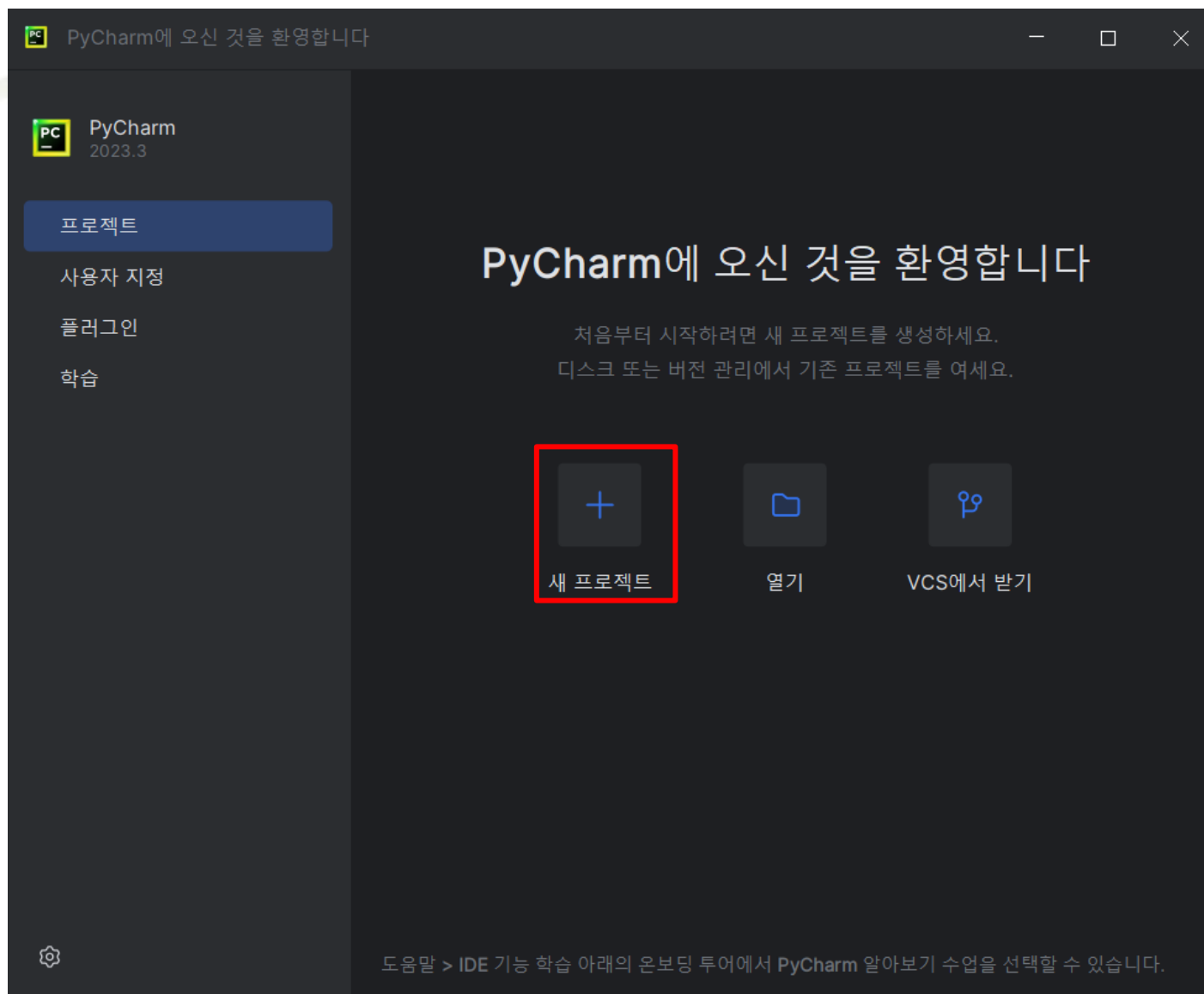
instructor-env

instructor-env36

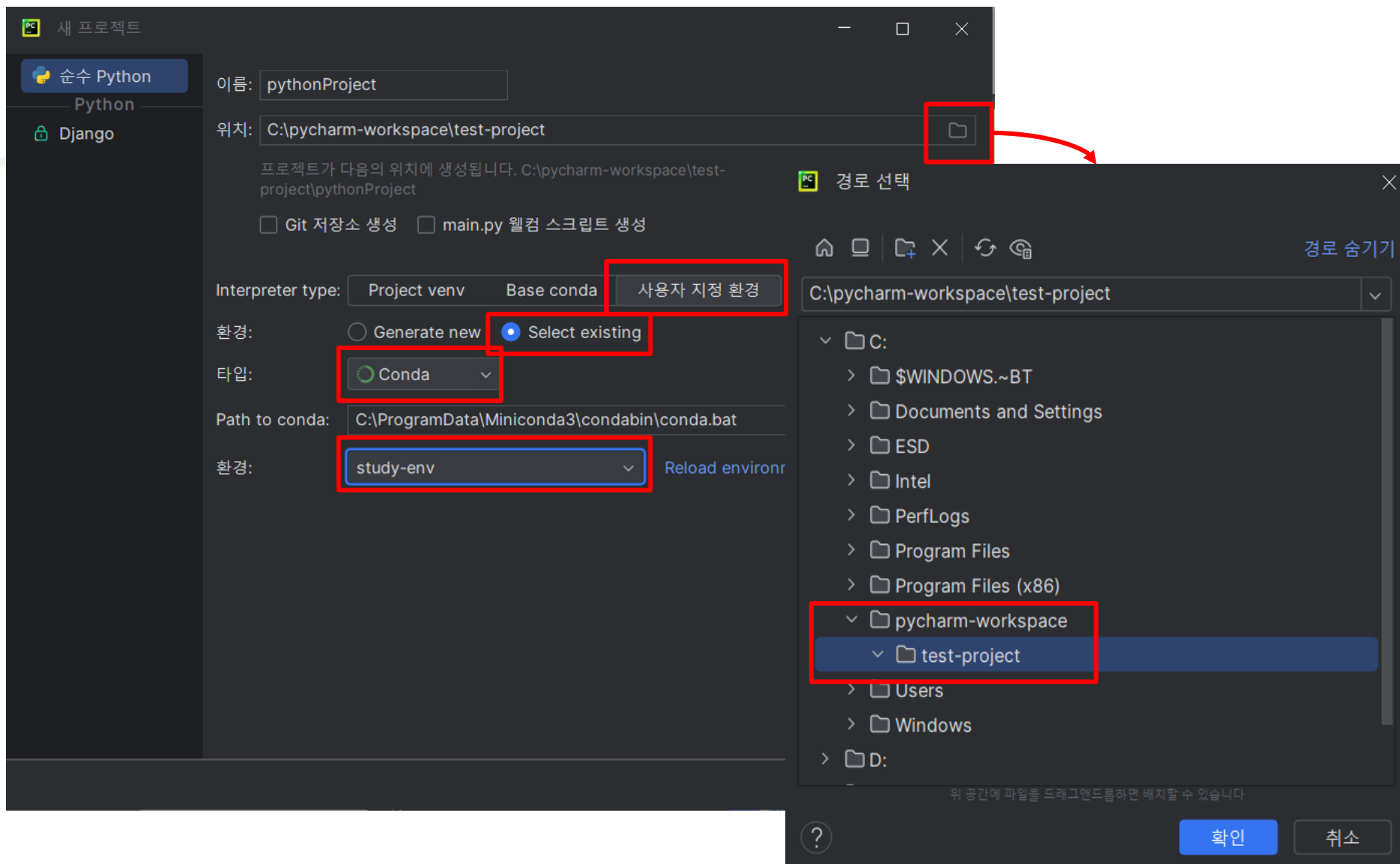
확인

취소

프로젝트 생성

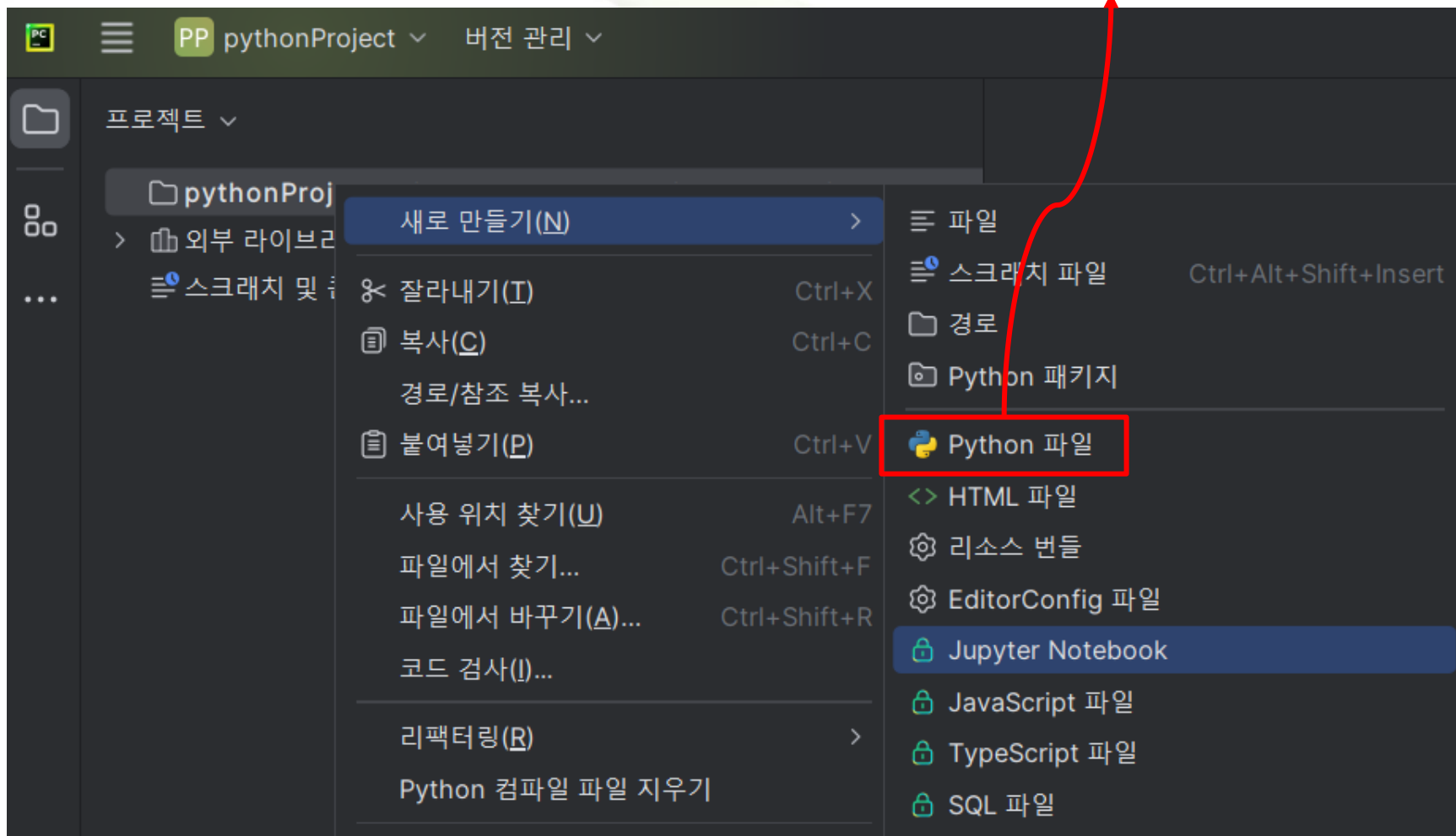


프로젝트 생성



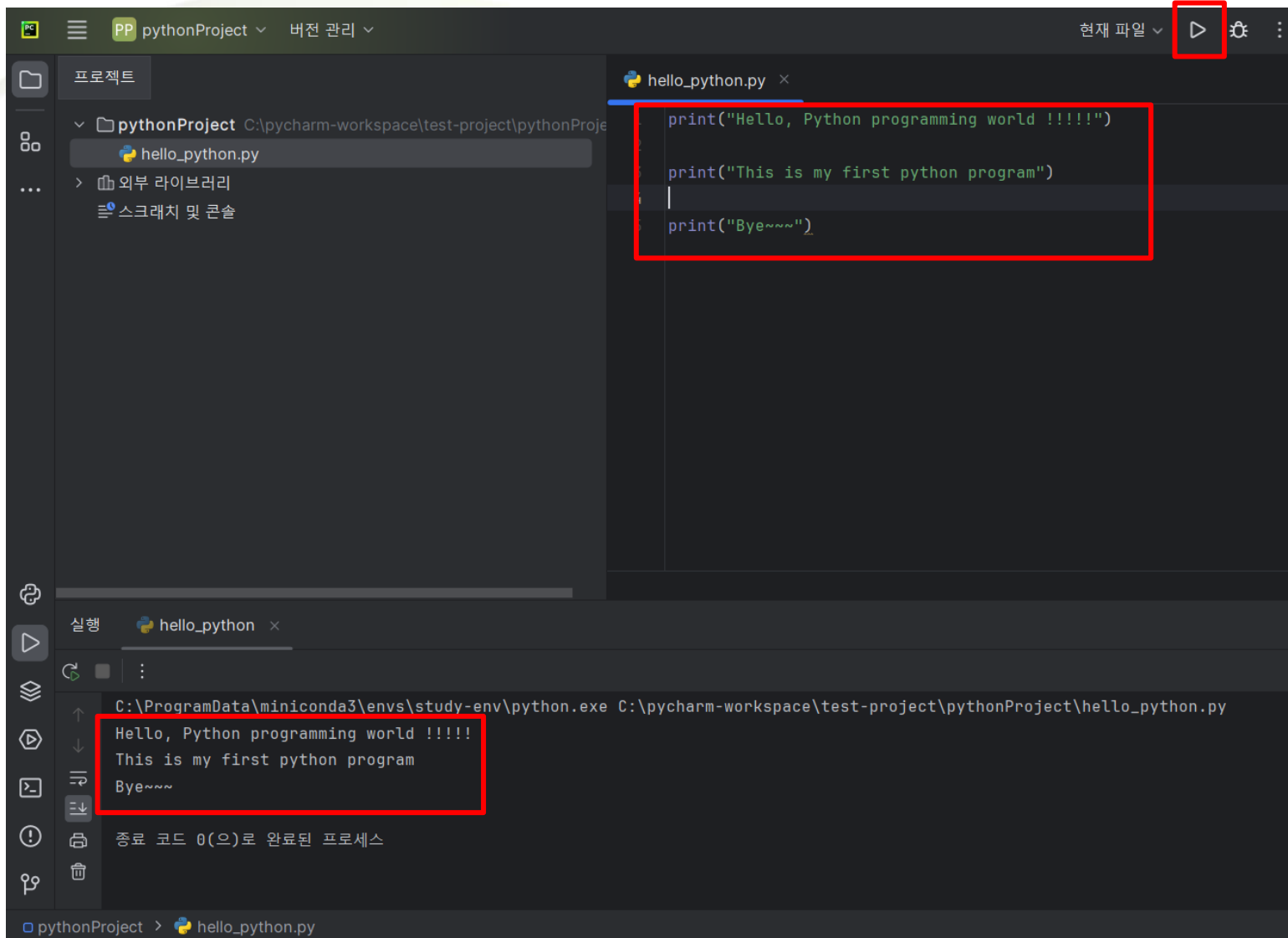
코드 작성

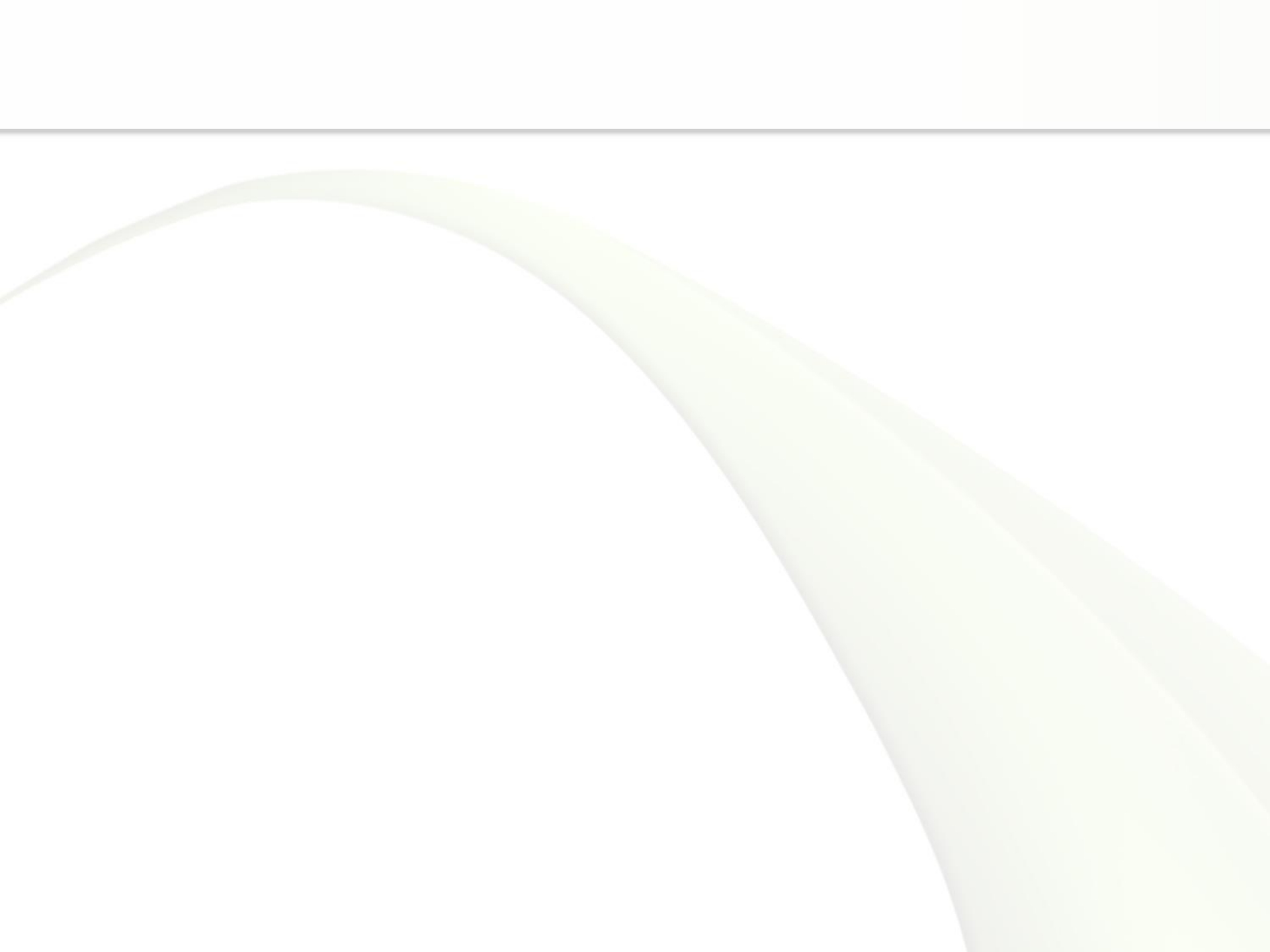
python 파일 만들기



코드 작성

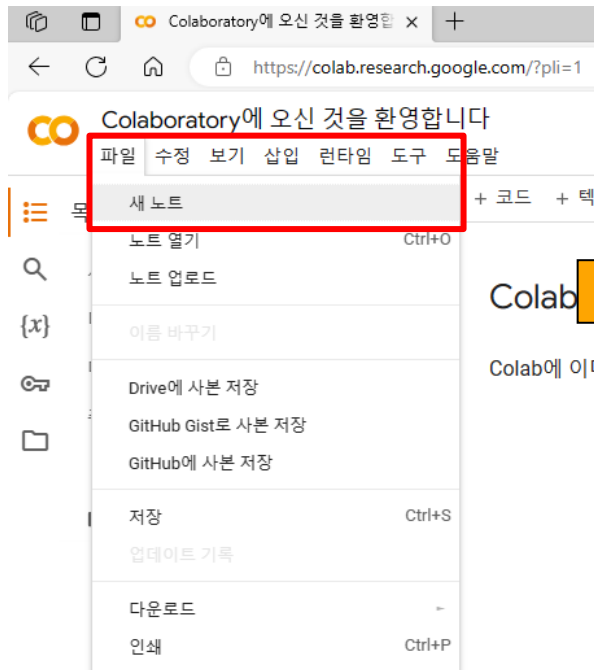
■ 코드 작성 및 실행





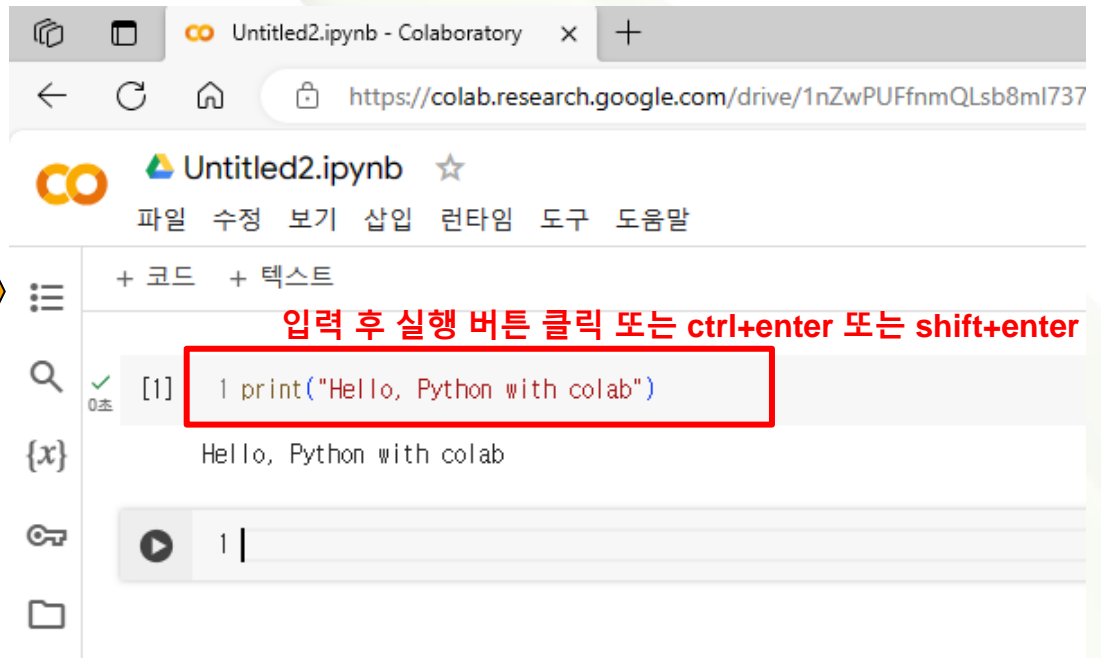
Colab 환경 사용

- 사이트 접속 (<https://colab.research.google.com>)
- 구글 계정으로 로그인
- 대화형 실행 환경 만들기



Colab

Colab에 이



입력 후 실행 버튼 클릭 또는 ctrl+enter 또는 shift+enter