

# Configure for Lab

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<https://github.com/swacademy/Python>

# Installation Python Interpreter on Windows 10 64-bit Platform

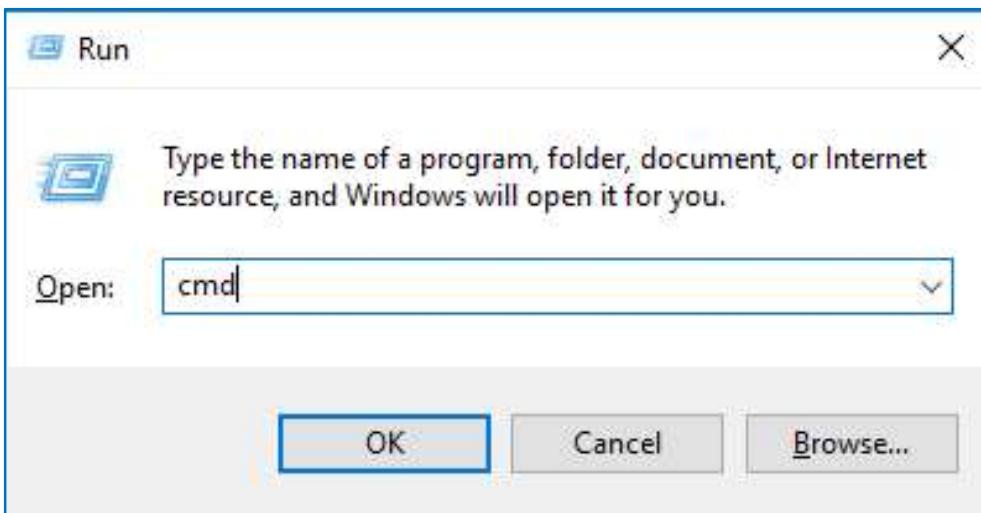


# Install Python Interpreter

1. Type



2. Type **cmd**



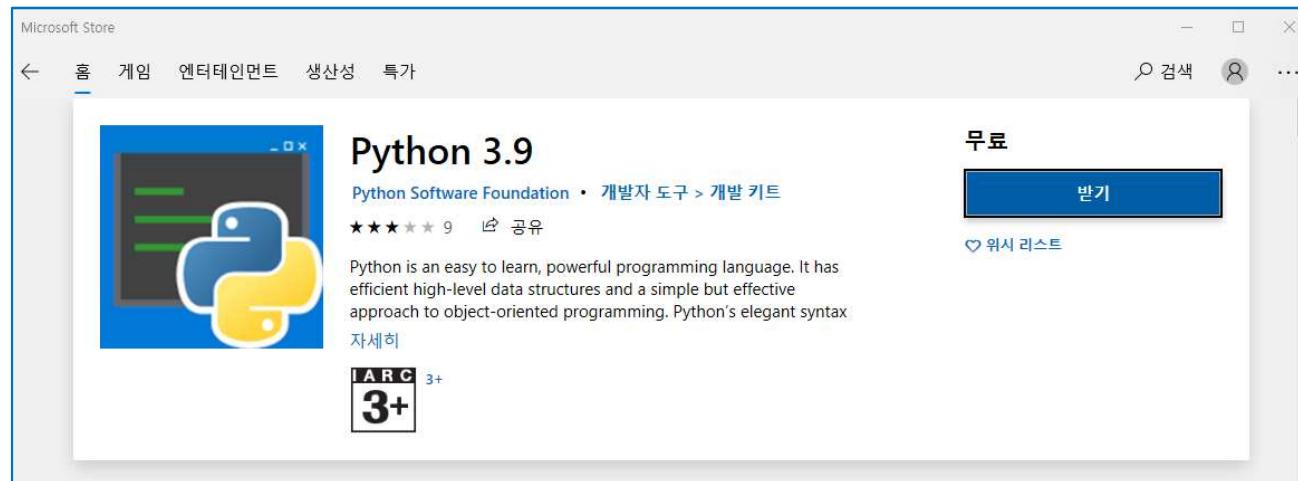
# Install Python Interpreter (Cont.)

## 3. Type **python**.

```
Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\instructor>python
'python' is not recognized as an internal or external command,
operable program or batch file.
```

OR



## Install Python Interpreter (Cont.)

4. Type **wmic os get osarchitecture**

```
cmd Command Prompt  
  
C:\Users\instructor>wmic os get osarchitecture  
OSArchitecture  
64-bit
```

# Install Python Interpreter (Cont.)

5. Visit <https://www.python.org>

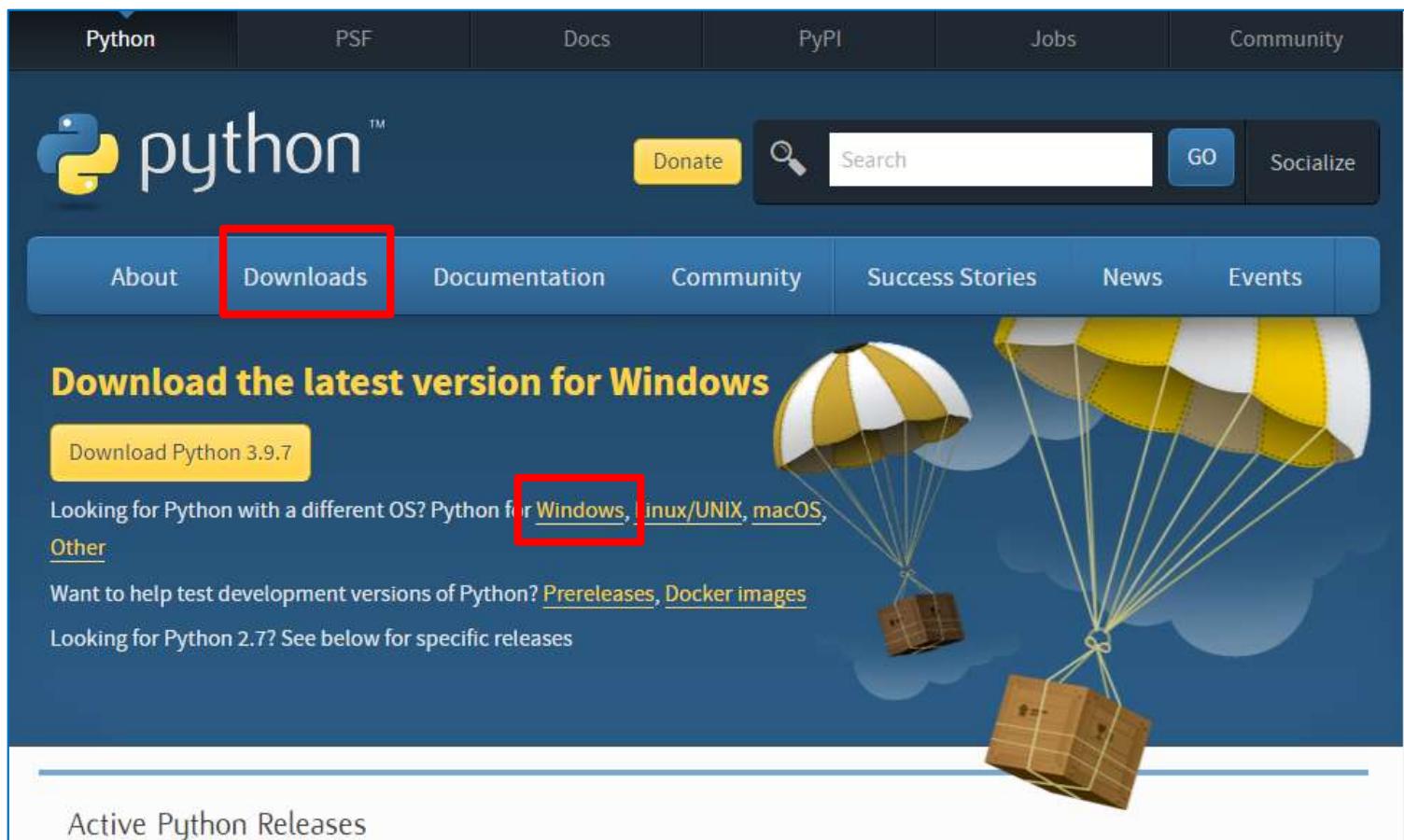
The screenshot shows the official Python website at <https://www.python.org>. The page features a dark blue header with the Python logo and the word "python" in white. The header includes links for Python, PSF, Docs, PyPI, Jobs, and Community. Below the header is a search bar with a magnifying glass icon and a "Search" button, along with "Donate" and "Socialize" buttons. A navigation menu with tabs for About, Downloads, Documentation, Community, Success Stories, News, and Events is visible. On the left, there's a code editor window displaying Python 3 code and its output:

```
# Python 3: Simple arithmetic
>>> 1 / 2
0.5
>>> 2 ** 3
8
>>> 17 / 3 # classic division returns a float
5.666666666666667
>>> 17 // 3 # floor division
5
```

To the right of the code, a yellow button with a double-right arrow icon is positioned above a section titled "Intuitive Interpretation". This section explains Python's arithmetic operators and provides a link to "More about simple math functions in Python 3". At the bottom of the main content area, there are five numbered buttons (1, 2, 3, 4, 5). The footer contains a testimonial: "Python is a programming language that lets you work quickly and integrate systems more effectively. [» Learn More](#)".

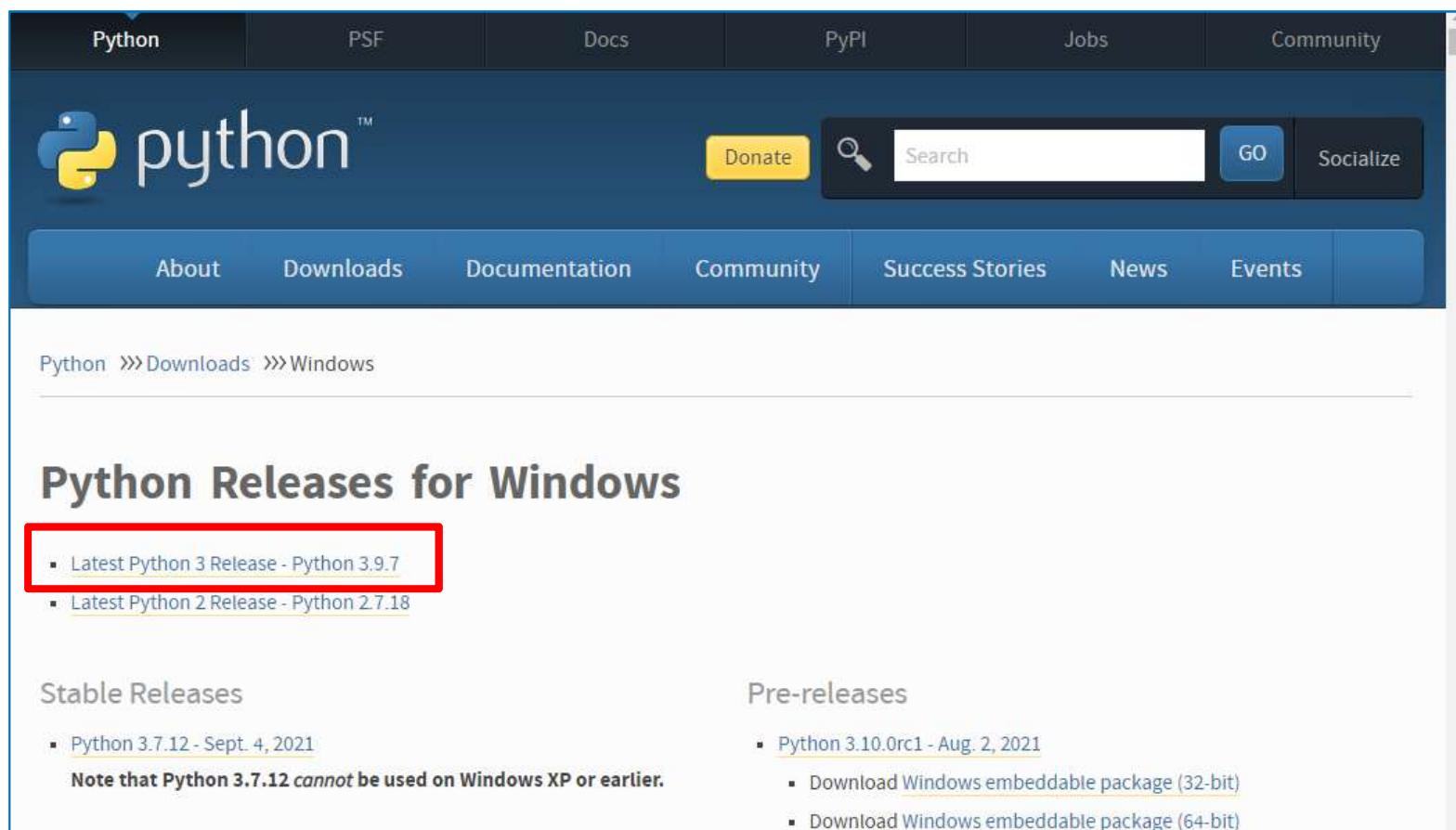
# Install Python Interpreter (Cont.)

6. Click **Windows** link like below.



# Install Python Interpreter (Cont.)

7. Click **Lastest Python 3 Release** link like below.



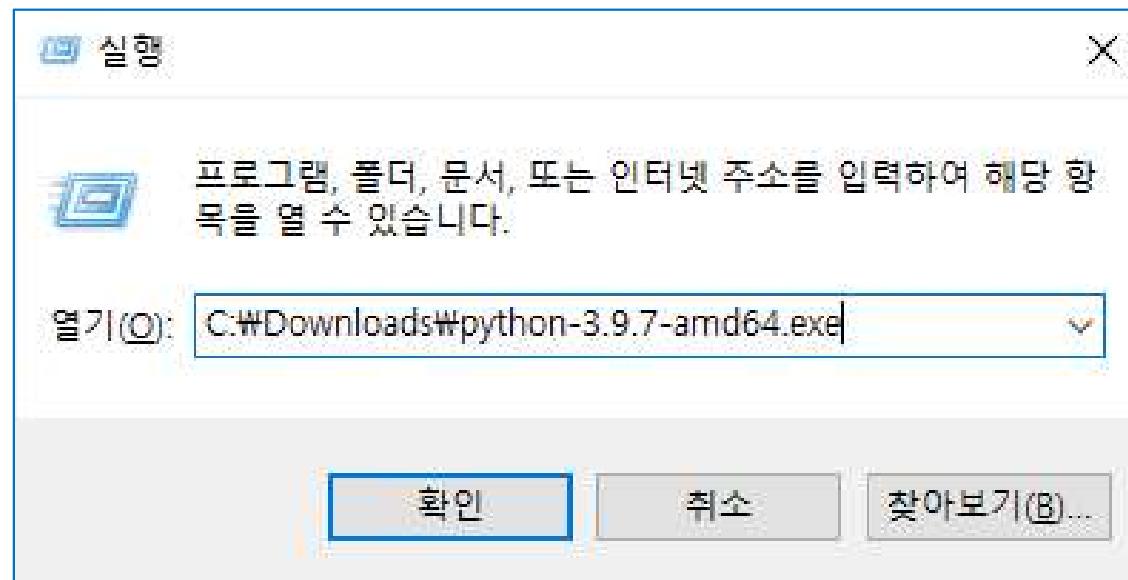
# Install Python Interpreter (Cont.)

8. Click **Windows x86-64 executable installer** link.

Files						
Version	Operating System	Description	MD5 Sum	File Size	GPG	
<a href="#">Gzipped source tarball</a>	Source release		5f463f30b1fdcb545f156583630318b3	25755357	<a href="#">SIG</a>	
<a href="#">XZ compressed source tarball</a>	Source release		fddb060b483bc01850a3f412eea1d954	19123232	<a href="#">SIG</a>	
<a href="#">macOS 64-bit Intel installer</a>	macOS	for macOS 10.9 and later	ce8c2f885f26b09536857610644260d4	30038206	<a href="#">SIG</a>	
<a href="#">macOS 64-bit universal2 installer</a>	macOS	for macOS 10.9 and later, including macOS 11 Big Sur on Apple Silicon (experimental)	825067610b16b03ec814630df1b65193	38144099	<a href="#">SIG</a>	
<a href="#">Windows embeddable package (32-bit)</a>	Windows		6d12e3e0f942830de8466a83d30a45fb	7652688	<a href="#">SIG</a>	
<a href="#">Windows embeddable package (64-bit)</a>	Windows		67e19ff32b3ef62a40bccd50e33b0f53	8473919	<a href="#">SIG</a>	
<a href="#">Windows help file</a>	Windows		b92a78506ccf258d5ad0d98c341fc5d1	9263789	<a href="#">SIG</a>	
<a href="#">Windows installer (32-bit)</a>	Windows		0d949bdedb0c8c66107a980a95efd85	27811736	<a href="#">SIG</a>	
<a href="#">Windows installer (64-bit)</a>	Windows	Recommended	cc3eabc1f9d6c703d1d2a4e7c041bc1d	28895456	<a href="#">SIG</a>	

## Install Python Interpreter (Cont.)

9. Execute **pytyon-3.9.7-amd64.exe**.



# Install Python Interpreter (Cont.)

The image shows two windows from the Python 3.9.7 (64-bit) Setup process. The left window is titled "Install Python 3.9.7 (64-bit)" and contains the following text:

Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

It features a large Python logo and the text "python for windows". Below the main text are three options:

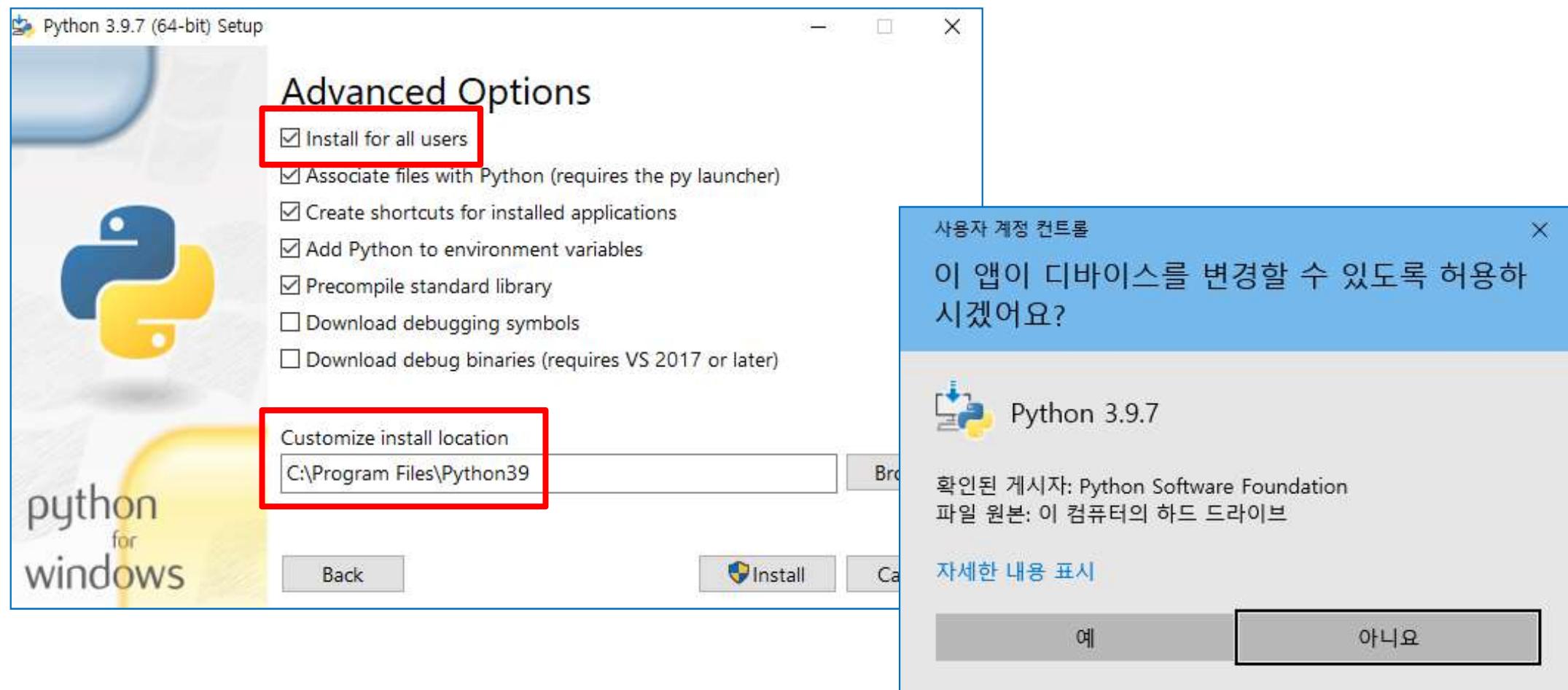
- Install Now**: Includes IDLE, pip and documentation. Creates shortcuts and file associations.
- Customize installation**: Choose location and features (this option is highlighted with a red box).
- Install launcher for all users (recommended)
- Add Python 3.9 to PATH

The right window is titled "Optional Features" and lists several checkboxes:

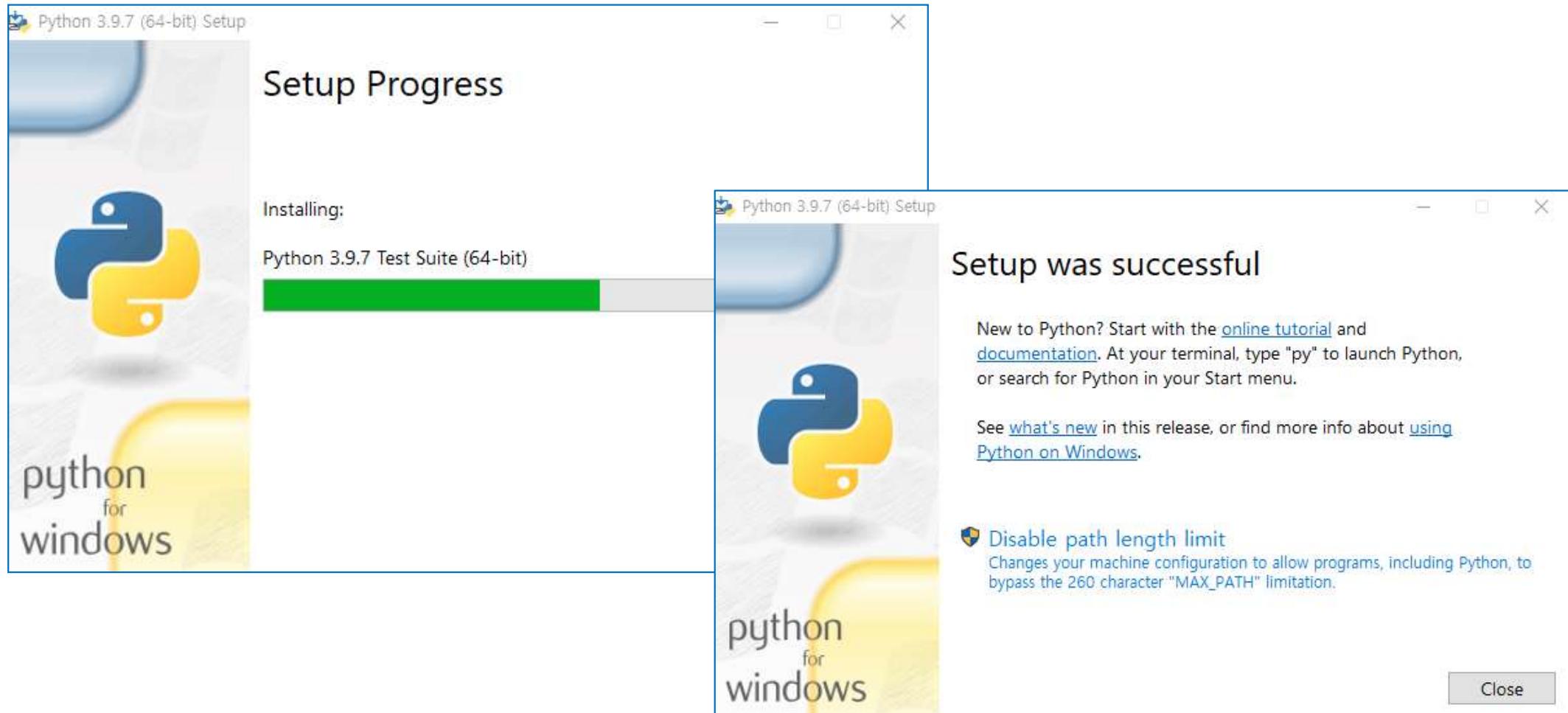
- Documentation: Installs the Python documentation file.
- pip: Installs pip, which can download and install other Python packages.
- tcl/tk and IDLE: Installs tkinter and the IDLE development environment.
- Python test suite: Installs the standard library test suite.
- py launcher  for all users (requires elevation): Installs the global 'py' launcher to make it easier to start Python.

At the bottom of the right window are buttons for "Back", "Next", and "Cancel".

# Install Python Interpreter (Cont.)

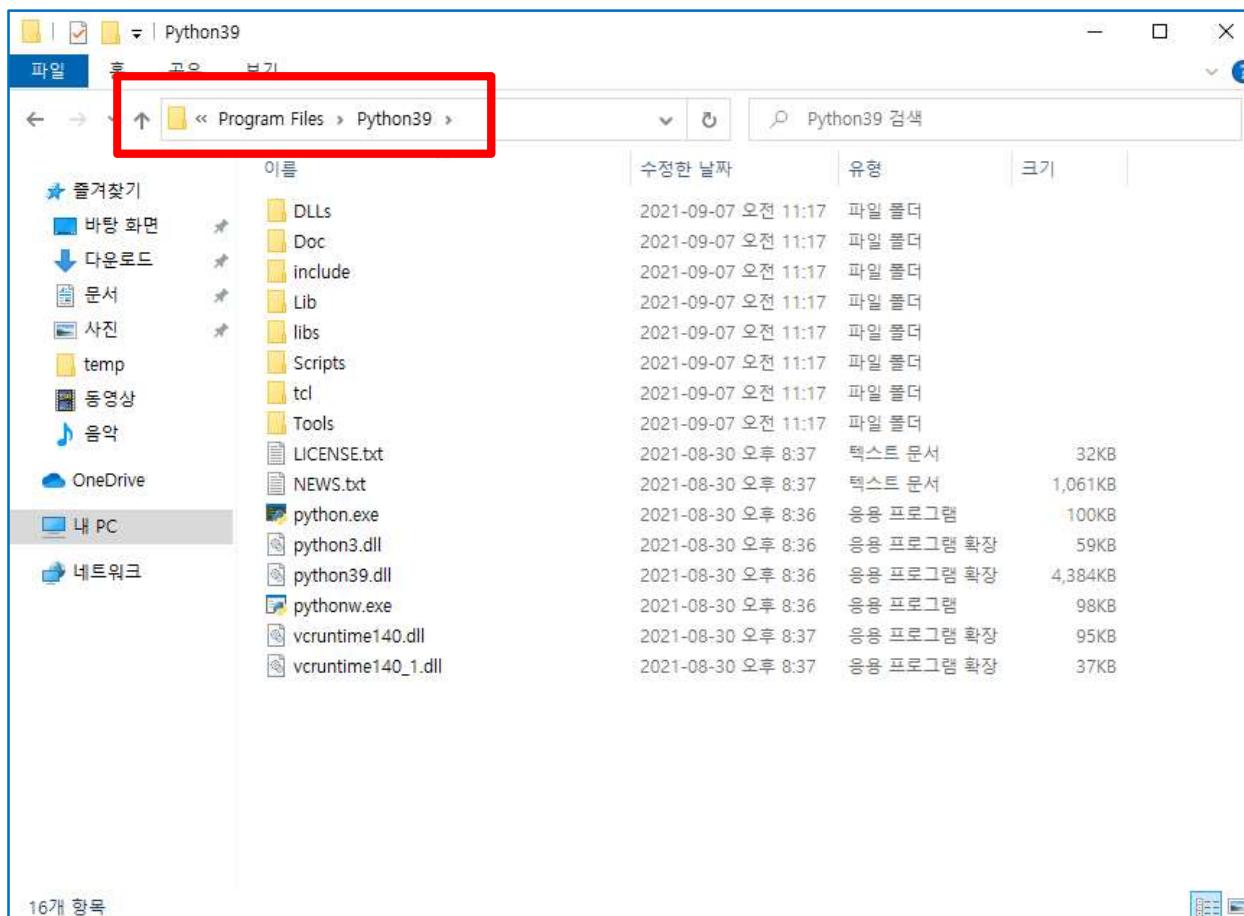


# Install Python Interpreter (Cont.)



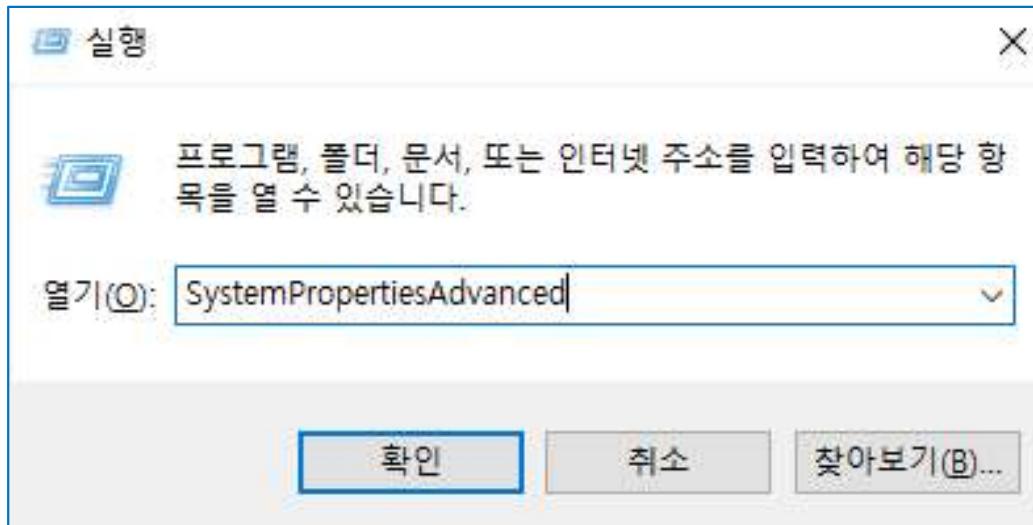
# Check Python Installation

## ■ Installation Folder



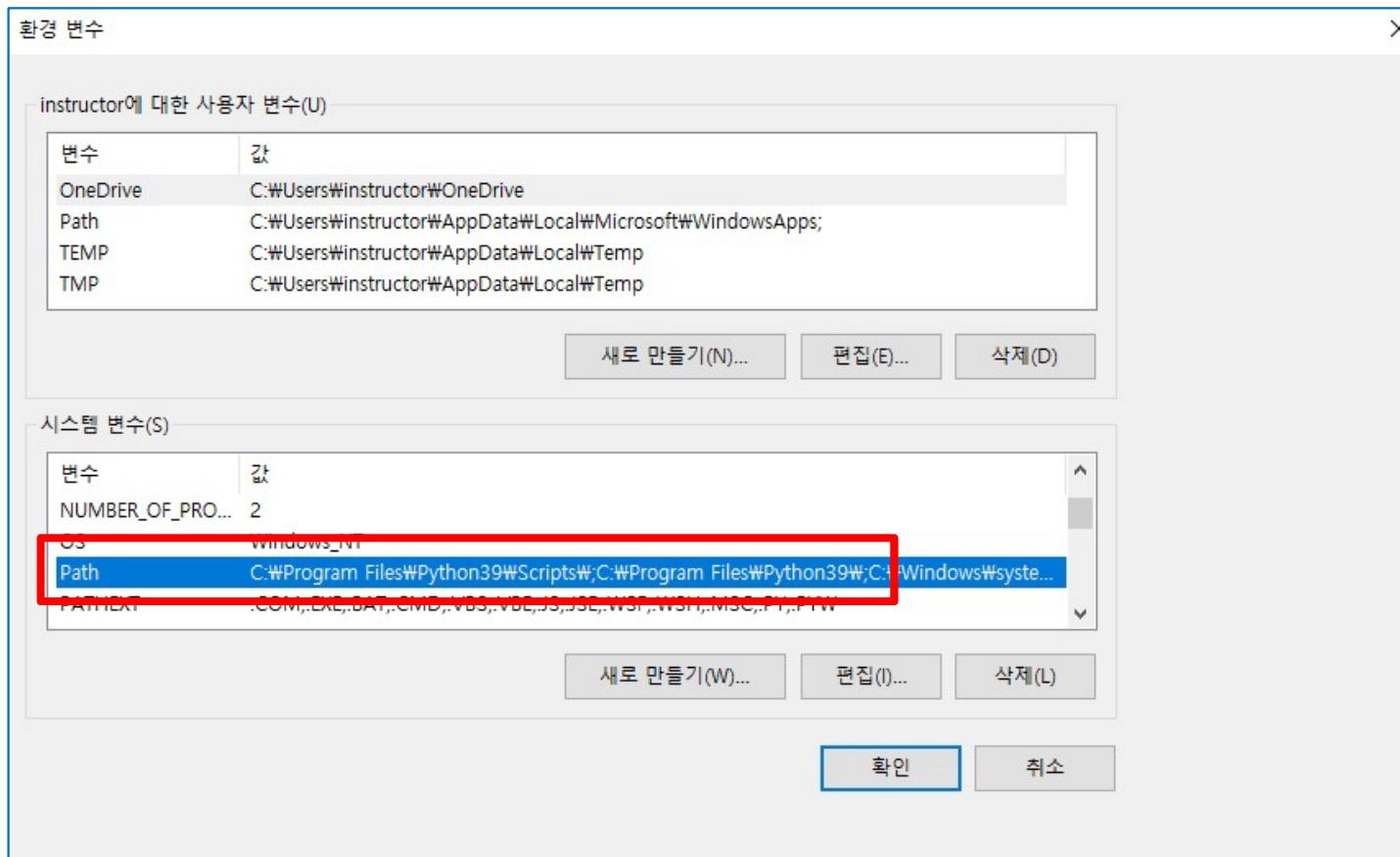
# Check Python Installation (Cont.)

## ■ Windows %PATH%



# Check Python Installation (Cont.)

## ■ Windows %PATH% (Cont.)



# Check Python Installation (Cont.)

## ■ Python Interpreter Version

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19043.1165]
(c) Microsoft Corporation. All rights reserved.

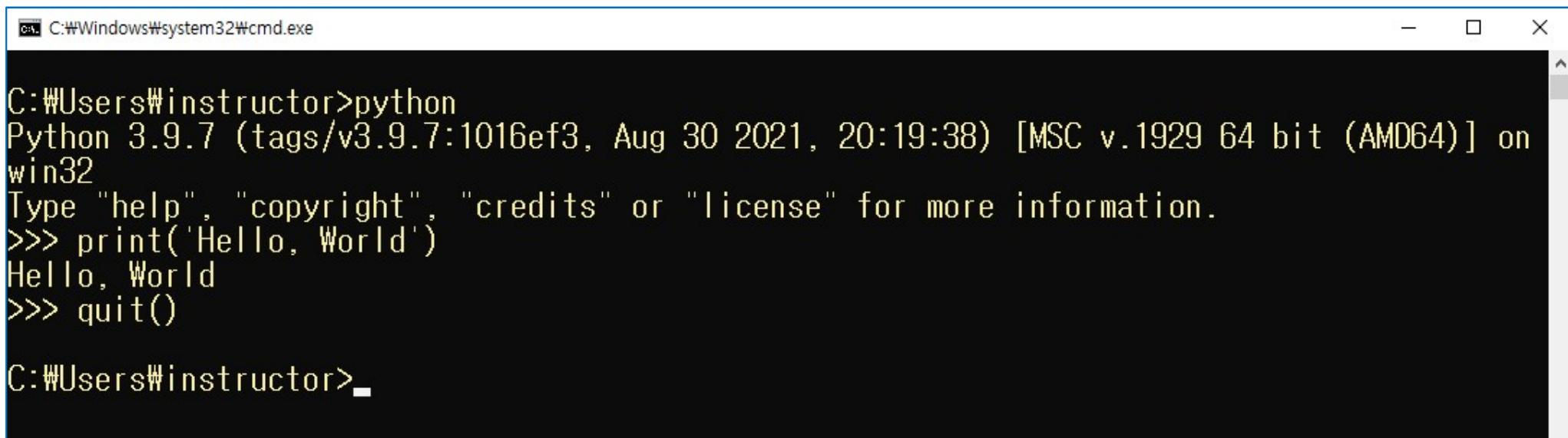
C:\Users\Winstructor>python -V
Python 3.9.7

C:\Users\Winstructor>python --version
Python 3.9.7

C:\Users\Winstructor>
```

# Python Shell in Windows

- Type **python** in Command window.

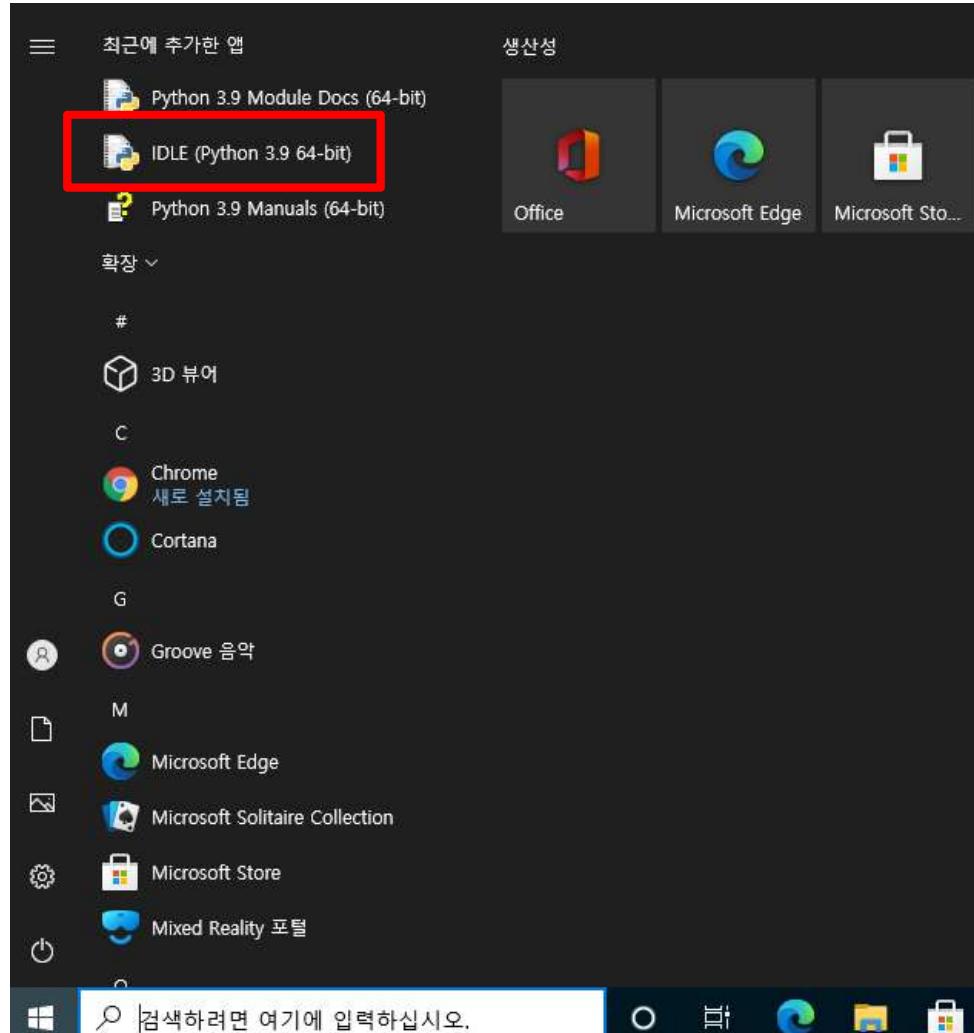


A screenshot of a Windows Command Prompt window titled "cmd.exe". The window shows the following text:

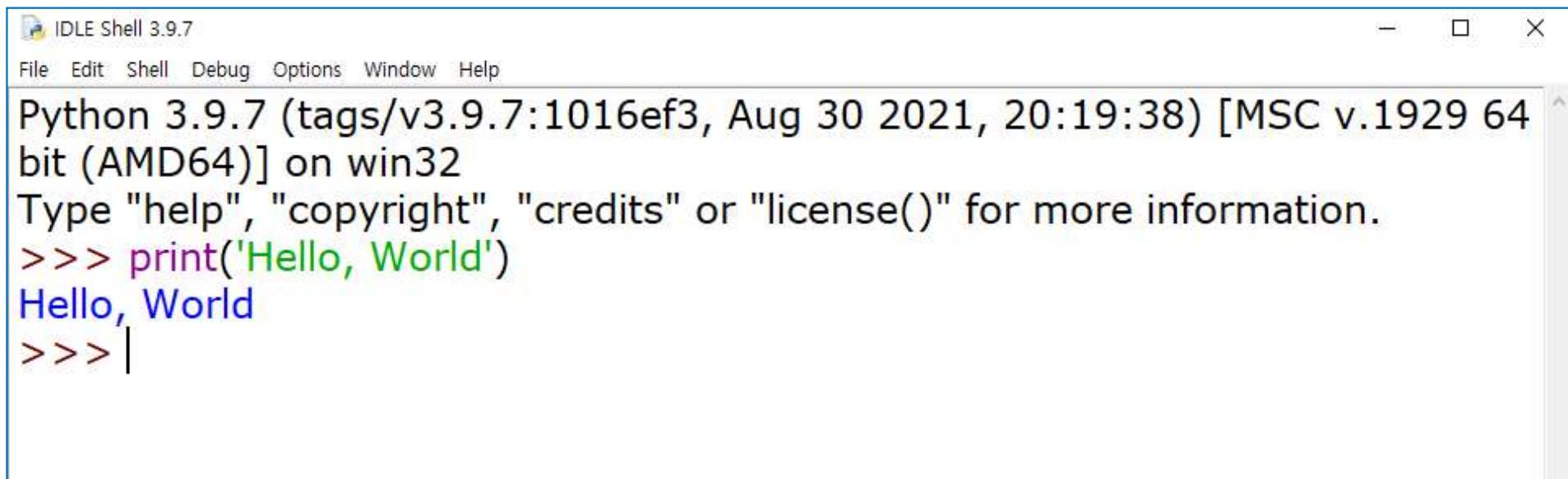
```
C:\Users\instructor>python
Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on
win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print('Hello, World')
Hello, World
>>> quit()

C:\Users\instructor>
```

# IDLE in Windows



# IDLE in Windows (Cont.)



The screenshot shows the IDLE Shell 3.9.7 window. The title bar reads "IDLE Shell 3.9.7". The menu bar includes "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The main window displays the Python version information: "Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32". It also shows the message "Type "help", "copyright", "credits" or "license()" for more information." followed by a command prompt: ">>> print('Hello, World')". The output "Hello, World" is shown in blue, and the cursor is at the end of the line.

```
File Edit Shell Debug Options Window Help
Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64
bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> print('Hello, World')
Hello, World
>>> |
```

# Installation Python Interpreter on Ubuntu Platform



# First way – Source Compile

```
instructor@Ubuntu-Desktop:~$ python -V
Command 'python' not found, did you mean:
  command 'python3' from deb python3
  command 'python' from deb python-is-python3
```

```
instructor@Ubuntu-Desktop:~$ █
```

# First way – Source Compile (Cont.)

1. Visit <https://www.python.org/downloads>

The screenshot shows the Python.org homepage with a dark blue header. The top navigation bar includes links for Python, PSF, Docs, PyPI, Jobs, and Community. Below the header is the Python logo and a search bar with a magnifying glass icon. A yellow 'Donate' button is on the left, and 'GO' and 'Socialize' buttons are on the right. A secondary navigation bar below the header has links for About, Downloads, Documentation, Community, Success Stories, News, and Events. The main content area features a large illustration of two parachutes descending from clouds, each carrying a wooden crate. The text 'Download the latest source release' is prominently displayed in yellow. A yellow button labeled 'Download Python 3.9.7' is visible. Below this, text says 'Looking for Python with a different OS? Python for Windows, Linux/UNIX, macOS, Other' with 'Linux/UNIX' highlighted by a red rectangle. Further down, it says 'Want to help test development versions of Python? Prereleases, Docker images'. At the bottom, it says 'Looking for Python 2.7? See below for specific releases'.

python

Donate

Search

GO

Socialize

About Downloads Documentation Community Success Stories News Events

Download the latest source release

Download Python 3.9.7

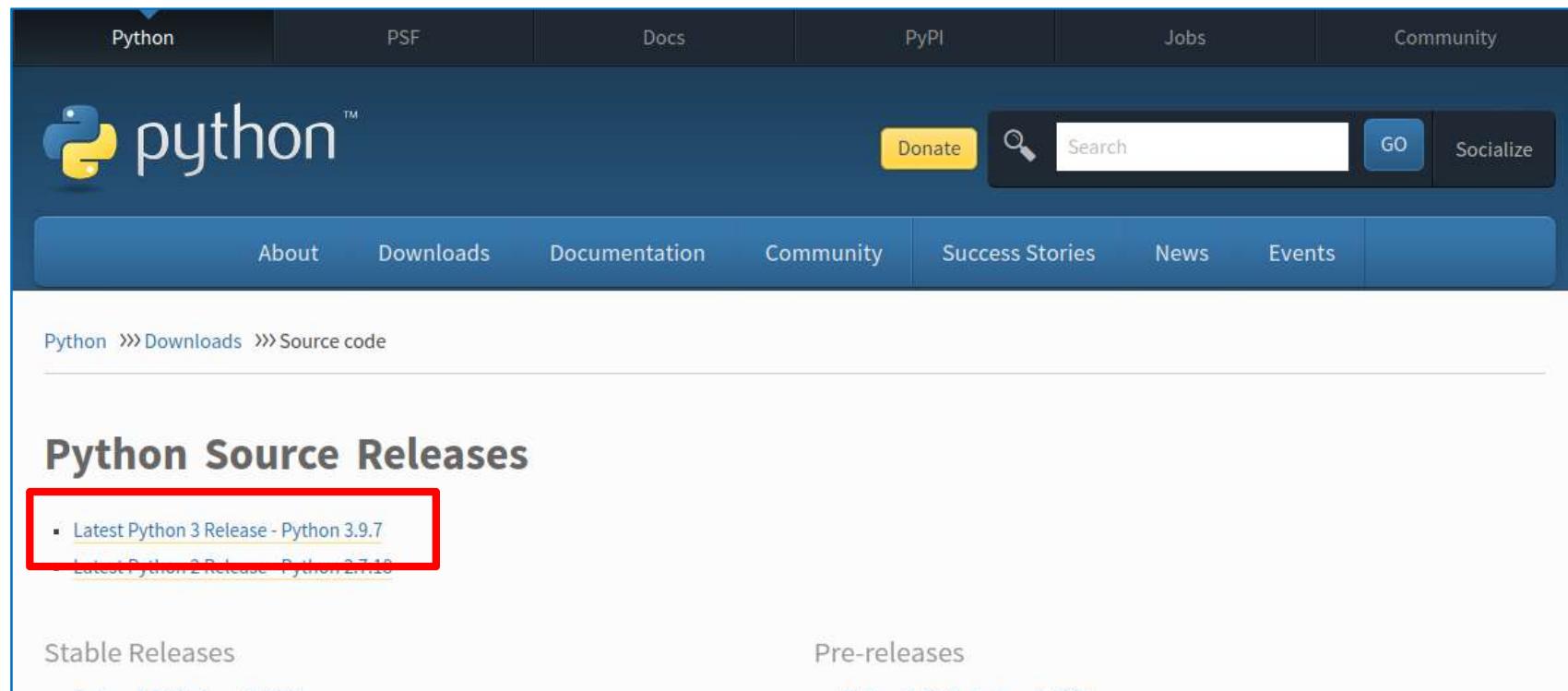
Looking for Python with a different OS? Python for [Windows](#),  
[Linux/UNIX](#), [macOS](#), [Other](#)

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

Looking for Python 2.7? See below for specific releases

# First way – Source Compile (Cont.)

2. Click to **Latest Python 3 Release – Python 3.9.7**



# First way – Source Compile (Cont.)

## 3. Click to **Gzipped source tarball**

Files						
Version	Operating System	Description	MD5 Sum	File Size	GPG	
<a href="#">Gzipped source tarball</a>	Source release		5f463f30b1fdcb545f156583630318b3	25755357	<a href="#">SIG</a>	
<a href="#">XZ compressed source tarball</a>	Source release		fddb060b483bc01850a3f412ee1d954	19123232	<a href="#">SIG</a>	
<a href="#">macOS 64-bit Intel installer</a>	macOS	for macOS 10.9 and later	ce8c2f885f26b09536857610644260d4	30038206	<a href="#">SIG</a>	
<a href="#">macOS 64-bit universal2 installer</a>	macOS	for macOS 10.9 and later, including macOS 11 Big Sur on Apple Silicon (experimental)	825067610b16b03ec814630df1b65193	38144099	<a href="#">SIG</a>	
<a href="#">Windows embeddable package (32-bit)</a>	Windows		6d12e3e0f942830de8466a83d30a45fb	7652688	<a href="#">SIG</a>	
<a href="#">Windows embeddable package (64-bit)</a>	Windows		67e19ff32b3ef62a40bccd50e33b0f53	8473919	<a href="#">SIG</a>	
<a href="#">Windows help file</a>	Windows		b92a78506ccf258d5ad0d98c341fc5d1	9263789	<a href="#">SIG</a>	
<a href="#">Windows installer (32-bit)</a>	Windows		0d949bdfdbd0c8c66107a980a95efd85	27811736	<a href="#">SIG</a>	
<a href="#">Windows installer (64-bit)</a>	Windows	Recommended	cc3eabc1f9d6c703d1d2a4e7c041bc1d	28895456	<a href="#">SIG</a>	

## First way – Source Compile (Cont.)

```
instructor@Ubuntu-Desktop:~/Downloads$  
instructor@Ubuntu-Desktop:~/Downloads$ ls  
Python-3.9.7.tgz  
instructor@Ubuntu-Desktop:~/Downloads$ █
```

### 4. Uncompress downloaded file.

```
instructor@Ubuntu-Desktop:~/Downloads$  
instructor@Ubuntu-Desktop:~/Downloads$ ls  
Python-3.9.7.tgz  
instructor@Ubuntu-Desktop:~/Downloads$ tar xvfz Python-3.9.7.tgz
```

## First way – Source Compile (Cont.)

```
instructor@Ubuntu-Desktop:~/Downloads$ ls  
Python-3.9.7  Python-3.9.7.tgz  
instructor@Ubuntu-Desktop:~/Downloads$ █
```

### 5. Change directory.

```
instructor@Ubuntu-Desktop:~/Downloads$ cd Python-3.9.7/  
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ ls  
aclocal.m4          Doc           Mac          Parser        README.rst  
CODE_OF_CONDUCT.md Grammar       Makefile.pre.in PC          setup.py  
config.guess       Include       Misc         PCbuild      Tools  
config.sub         install-sh   Modules      Programs  
configure          Lib           netlify.toml pyconfig.h.in  
configure.ac        LICENSE      Objects      Python  
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ █
```

# First way – Source Compile (Cont.)

## 6. Type `./configure`

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ ./configure
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for python3.9... no
checking for python3... python3
checking for --enable-universalsdk... no
checking for --with-universal-archs... no
checking MACHDEP... "linux"
checking for gcc... no
checking for cc... no
checking for cl.exe... no
configure: error: in `/home/instructor/Downloads/Python-3.9.7':
configure: error: no acceptable C compiler found in $PATH
See `config.log' for more details
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ █
```

# First way – Source Compile (Cont.)

## 7. Install **gcc**

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ sudo apt install gcc
```

```
Setting up libctf-nobfd0:amd64 (2.34-6ubuntu1.1) ...
Setting up libasan5:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up libquadmath0:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libatomic1:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libubsan1:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libcrypt-dev:amd64 (1:4.4.10-10ubuntu4) ...
Setting up libbinutils:amd64 (2.34-6ubuntu1.1) ...
Setting up libc-dev-bin (2.31-0ubuntu9.2) ...
Setting up liblsan0:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libitm1:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libtsan0:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libctf0:amd64 (2.34-6ubuntu1.1) ...
Setting up libgcc-9-dev:amd64 (9.3.0-17ubuntu1~20.04) ...
Setting up libc6-dev:amd64 (2.31-0ubuntu9.2) ...
Setting up binutils-x86-64-linux-gnu (2.34-6ubuntu1.1) ...
Setting up binutils (2.34-6ubuntu1.1) ...
Setting up gcc-9 (9.3.0-17ubuntu1~20.04) ...
Setting up gcc (4:9.3.0-1ubuntu2) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ █
```

# First way – Source Compile (Cont.)

## 8. Type **make**

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ make
Command 'make' not found, but can be installed with:
  sudo apt install make      # version 4.2.1-1.2, or
  sudo apt install make-guile # version 4.2.1-1.2
```

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ sudo apt install make
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi
  libgstreamer-plugins-bad1.0-0 libllvm11 libva-wayland2
Use 'sudo apt autoremove' to remove them.
Suggested packages:
  make-doc
The following NEW packages will be installed:
  make
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 162 kB of archives.
After this operation, 393 kB of additional disk space will be used.
Get:1 http://kr.archive.ubuntu.com/ubuntu focal/main amd64 make amd64 4.2.1-1.2
[162 kB]
```

# First way – Source Compile (Cont.)

9. Type **configure** again.

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ ./configure
```

```
checking for openssl/ssl.h in /usr/lib/ssl... no
checking for openssl/ssl.h in /usr/ssl... no
checking for openssl/ssl.h in /usr/pkg... no
checking for openssl/ssl.h in /usr/local... no
checking for openssl/ssl.h in /usr... no
checking whether compiling and linking against OpenSSL works... no
checking for --with-ssl-default-suites... python
checking for --with-builtin-hashlib-hashes... md5,sha1,sha256,sha512,sha3,blake2
configure: creating ./config.status
config.status: creating Makefile.pre
config.status: creating Misc/python.pc
config.status: creating Misc/python-embed.pc
config.status: creating Misc/python-config.sh
config.status: creating Modules/ld_so_aix
config.status: creating pyconfig.h
creating Modules/Setup.local
creating Makefile
```

If you want a release build with all stable optimizations active (PGO, etc),  
please run ./configure --enable-optimizations

# First way – Source Compile (Cont.)

10. Type **make** again.

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ make
```

# First way – Source Compile (Cont.)

## 11. Type **sudo make install**

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ sudo make install
```

```
    return _run_pip(args + [p[0] for p in _PROJECTS], additional_paths)
File "/home/instructor/Downloads/Python-3.9.7/Lib/ensurepip/__init__.py", line
38, in _run_pip
    return subprocess.run([sys.executable, "-c", code], check=True).returncode
File "/home/instructor/Downloads/Python-3.9.7/Lib/subprocess.py", line 528, in
run
    raise CalledProcessError(retcode, process.args,
subprocess.CalledProcessError: Command '['/home/instructor/Downloads/Python-3.9.
7/python', '-c', '\nimport runpy\nimport sys\nsys.path = [\'/tmp/tmpxb7drsdk/set
uptools-57.4.0-py3-none-any.whl\', \'/tmp/tmpxb7drsdk/pip-21.2.3-py3-none-any.wh
l\'] + sys.path\nsys.argv[1:] = [\'install\', \'--no-cache-dir\', \'--no-index\',
\'--find-links\', \'/tmp/tmpxb7drsdk\', \'--root\', \'/\', \'--upgrade\', \'se
tuptools\', \'pip\']\nrunpy.run_module("pip", run_name="__main__", alter_sys=True)\n']' returned non-zero exit status 1.
make: *** [Makefile:1265: install] Error 1
instructor@Ubuntu-Desktop: ~/Downloads/Python-3.9.7$
```

# First way – Source Compile (Cont.)

## 12. Type **sudo apt install zlib1g-dev**

```
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ sudo apt install zlib1g-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi libgstreamer-plugins-bad1.0-0
  libllvm11 libva-wayland2
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
  zlib1g-dev
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 155 kB of archives.
After this operation, 605 kB of additional disk space will be used.
Get:1 http://kr.archive.ubuntu.com/ubuntu focal-updates/main amd64 zlib1g-dev amd64 1:1.2.11.dfsg-2ubuntu1.2 [155 kB]
Fetched 155 kB in 2s (101 kB/s)
Selecting previously unselected package zlib1g-dev:amd64.
(Reading database ... 197526 files and directories currently installed.)
Preparing to unpack .../zlib1g-dev_1%3a1.2.11.dfsg-2ubuntu1.2_amd64.deb ...
Unpacking zlib1g-dev:amd64 (1:1.2.11.dfsg-2ubuntu1.2) ...
Setting up zlib1g-dev:amd64 (1:1.2.11.dfsg-2ubuntu1.2) ...
Processing triggers for man-db (2.9.1-1) ...
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ █
```

# First way – Source Compile (Cont.)

13. Type **sudo make install** again.

```
sysconfig: /home/instructor/Downloads/Python-3.9.7/Include/UNKNOWN
WARNING: Additional context:
user = False
home = None
root = '/'
prefix = None
Looking in links: /tmp/tmpoy3doz17
Processing /tmp/tmpoy3doz17/setuptools-57.4.0-py3-none-any.whl
Processing /tmp/tmpoy3doz17/pip-21.2.3-py3-none-any.whl
Installing collected packages: setuptools, pip
    WARNING: Value for scheme.headers does not match. Please report this to <https://github.com/pypa/pip/issues/10151>
        distutils: /usr/local/include/python3.9/setuptools
        sysconfig: /home/instructor/Downloads/Python-3.9.7/Include/setuptools
            WARNING: Value for scheme.headers does not match. Please report this to <https://github.com/pypa/pip/issues/10151>
                distutils: /usr/local/include/python3.9/pip
                sysconfig: /home/instructor/Downloads/Python-3.9.7/Include/pip
Successfully installed pip-21.2.3 setuptools-57.4.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
instructor@Ubuntu-Desktop:~/Downloads/Python-3.9.7$ █
```

## First way – Source Compile (Cont.)

```
instructor@Ubuntu-Desktop:~$ python --version
Command 'python' not found, did you mean:
  command 'python3' from deb python3
  command 'python' from deb python-is-python3

instructor@Ubuntu-Desktop:~$ python3 --version
Python 3.9.7
instructor@Ubuntu-Desktop:~$ python3 -V
Python 3.9.7
instructor@Ubuntu-Desktop:~$ █
```

# First way – Source Compile (Cont.)

```
instructor@Ubuntu-Desktop:~$ python3
Python 3.9.7 (default, Sep  7 2021, 15:53:06)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print('Hello, World')
Hello, World
>>> quit()
instructor@Ubuntu-Desktop:~$ █
```

## Second way – Using apt install

1. Type **sudo apt update**

```
instructor@Ubuntu-Desktop:~$ sudo apt update  
[sudo] password for instructor: █
```

## Second way – Using apt install (Cont.)

2. Type **sudo add-apt-repository  
ppa:deadsnakes/ppa**

```
instructor@Ubuntu-Desktop:~$ sudo add-apt-repository ppa:deadsnakes/ppa
```

## Second way – Using apt install (Cont.)

### 2. Type **sudo add-apt-repository ppa:deadsnakes/ppa**

```
Python modules in the official Ubuntu repositories are packaged to work with the Python interpreters from the official repositories. Accordingly, they generally won't work with the Python interpreters from this PPA. As an exception, pure-Python modules for Python 3 will work, but any compiled extension modules won't.
```

```
To install 3rd-party Python modules, you should use the common Python packaging tools. For an introduction into the Python packaging ecosystem and its tools, refer to the Python Packaging User Guide:  
https://packaging.python.org/installing/
```

```
Sources
```

```
=====
```

```
The package sources are available at:  
https://github.com/deadsnakes/
```

```
Nightly Builds
```

```
=====
```

```
For nightly builds, see ppa:deadsnakes/nightly https://launchpad.net/~deadsnakes/+archive/ubuntu/nightly
```

```
More info: https://launchpad.net/~deadsnakes/+archive/ubuntu/ppa
```

```
Press [ENTER] to continue or Ctrl-c to cancel adding it.
```

## Second way – Using apt install (Cont.)

2. Type **sudo add-apt-repository  
ppa:deadsnakes/ppa**

```
Nightly Builds
=====
For nightly builds, see ppa:deadsnakes/nightly https://launchpad.net/~deadsnakes/+archive/ubuntu/nightly
More info: https://launchpad.net/~deadsnakes/+archive/ubuntu/ppa
Press [ENTER] to continue or Ctrl-c to cancel adding it.

Hit:1 https://mirror.yongbok.net/ubuntu focal InRelease
Hit:2 https://mirror.yongbok.net/ubuntu focal-updates InRelease
Hit:3 https://mirror.yongbok.net/ubuntu focal-backports InRelease
Hit:4 https://mirror.yongbok.net/ubuntu focal-security InRelease
Hit:5 http://packages.microsoft.com/repos/code stable InRelease
Hit:6 http://dl.google.com/linux/chrome/deb stable InRelease
Get:7 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu focal InRelease [18.1 kB]
Get:8 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu focal/main i386 Packages [1
1.0 kB]
Get:9 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu focal/main amd64 Packages [
18.9 kB]
Get:10 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu focal/main Translation-en
[4,628 B]
Fetched 52.6 kB in 3s (18.2 kB/s)
Reading package lists... Done
instructor@Ubuntu-Desktop:~$
```

## Second way – Using apt install (Cont.)

### 3. Type **sudo apt update**

```
instructor@Ubuntu-Desktop:~$  
instructor@Ubuntu-Desktop:~$ sudo apt update  
Hit:1 https://mirror.yongbok.net/ubuntu focal InRelease  
Hit:2 https://mirror.yongbok.net/ubuntu focal-updates InRelease  
Hit:3 https://mirror.yongbok.net/ubuntu focal-backports InRelease  
Hit:4 https://mirror.yongbok.net/ubuntu focal-security InRelease  
Hit:5 http://packages.microsoft.com/repos/code stable InRelease  
Hit:6 http://dl.google.com/linux/chrome/deb stable InRelease  
Hit:7 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu focal InRelease  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
2 packages can be upgraded. Run 'apt list --upgradable' to see them.  
instructor@Ubuntu-Desktop:~$ █
```

## Second way – Using apt install (Cont.)

### 4. Type **sudo apt-get install python3.9**

```
instructor@Ubuntu-Desktop:~$  
instructor@Ubuntu-Desktop:~$ sudo apt install python3.9  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following package was automatically installed and is no longer required:  
  libllvm11  
Use 'sudo apt autoremove' to remove it.  
The following additional packages will be installed:  
  libpython3.9-minimal libpython3.9-stdlib python3.9-minimal  
Suggested packages:  
  python3.9-venv python3.9-doc binutils binfmt-support  
The following NEW packages will be installed:  
  libpython3.9-minimal libpython3.9-stdlib python3.9 python3.9-minimal  
0 upgraded, 4 newly installed, 0 to remove and 2 not upgraded.  
Need to get 4,839 kB of archives.  
After this operation, 19.3 MB of additional disk space will be used.  
Do you want to continue? [Y/n] █
```

## Second way – Using apt install (Cont.)

```
Selecting previously unselected package libpython3.9-minimal:amd64.  
(Reading database ... 192856 files and directories currently installed.)  
Preparing to unpack .../libpython3.9-minimal_3.9.6-1+focal1_amd64.deb ...  
Unpacking libpython3.9-minimal:amd64 (3.9.6-1+focal1) ...  
Selecting previously unselected package python3.9-minimal.  
Preparing to unpack .../python3.9-minimal_3.9.6-1+focal1_amd64.deb ...  
Unpacking python3.9-minimal (3.9.6-1+focal1) ...  
Selecting previously unselected package libpython3.9-stdlib:amd64.  
Preparing to unpack .../libpython3.9-stdlib_3.9.6-1+focal1_amd64.deb ...  
Unpacking libpython3.9-stdlib:amd64 (3.9.6-1+focal1) ...  
Selecting previously unselected package python3.9.  
Preparing to unpack .../python3.9_3.9.6-1+focal1_amd64.deb ...  
Unpacking python3.9 (3.9.6-1+focal1) ...  
Setting up libpython3.9-minimal:amd64 (3.9.6-1+focal1) ...  
Setting up python3.9-minimal (3.9.6-1+focal1) ...  
Setting up libpython3.9-stdlib:amd64 (3.9.6-1+focal1) ...  
Setting up python3.9 (3.9.6-1+focal1) ...  
Processing triggers for mime-support (3.64ubuntu1) ...  
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...  
Processing triggers for man-db (2.9.1-1) ...  
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...  
instructor@Ubuntu-Desktop:~$
```

## Second way – Using apt install (Cont.)

### 5. Version check

```
instructor@Ubuntu-Desktop:~$  
instructor@Ubuntu-Desktop:~$ python3 -V  
Python 3.8.10  
instructor@Ubuntu-Desktop:~$ python3.9 -V  
Python 3.9.6  
instructor@Ubuntu-Desktop:~$ █
```

## Second way – Using apt install (Cont.)

```
instructor@Ubuntu-Desktop:~$ python3.9
Python 3.9.6 (default, Jul  3 2021, 16:40:50)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print('Hello, World')
Hello, World
>>> quit()
instructor@Ubuntu-Desktop:~$ █
```

## Second way – Using apt install (Cont.)

6. Type **apt-cache search python3.9**

```
instructor@Ubuntu-Desktop:~$ apt-cache search python3.9
python3-distutils - distutils package for Python 3.x
python3-gdbm - GNU dbm database support for Python 3.x
python3-lib2to3 - Interactive high-level object-oriented language (lib2to3)
python3-tk - Tkinter - Writing Tk applications with Python 3.x
idle-python3.9 - IDE for Python (v3.9) using Tkinter
libpython3.9 - Shared Python runtime library (version 3.9)
libpython3.9-dbg - Debug Build of the Python Interpreter (version 3.9)
libpython3.9-dev - Header files and a static library for Python (v3.9)
libpython3.9-minimal - Minimal subset of the Python language (version 3.9)
libpython3.9-stdlib - Interactive high-level object-oriented language (standard
library, version 3.9)
libpython3.9-testsuite - Testsuite for the Python standard library (v3.9)
```

## Second way – Using apt install (Cont.)

### 7. Type **sudo apt install idle-python3.9**

```
instructor@Ubuntu-Desktop:~$ sudo apt install idle-python3.9
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm11
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  blt fonts-mathjax libjs-mathjax libtcl8.6 libtk8.6 python3-tk tk8.6-blt2.5
Suggested packages:
  blt-demo fonts-mathjax-extras fonts-stix libjs-mathjax-doc tcl8.6 tk8.6 tix
  python3-tk-dbg
The following NEW packages will be installed:
  blt fonts-mathjax idle-python3.9 libjs-mathjax libtcl8.6 libtk8.6 python3-tk
  tk8.6-blt2.5
0 upgraded, 8 newly installed, 0 to remove and 2 not upgraded.
Need to get 10.5 MB of archives.
After this operation, 57.8 MB of additional disk space will be used.
Do you want to continue? [Y/n] █
```

## Second way – Using apt install (Cont.)

```
instructor@Ubuntu-Desktop:~$ idle-python3.9
```

The terminal window displays the following text:

```
Python 3.9.6 (default, Jul 3 2021, 16:40:50)
[GCC 9.3.0] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>> print('Hello World')
Hello World
>>>
```

An 'About IDLE 3.9.6 (64 bit)' dialog box is overlaid on the terminal window. The dialog box contains the following information:

IDLE  
Python's Integrated Development and Learning Environment

email: idle-dev@python.org  
<https://docs.python.org/3.9/library/idle.html>

Python version: 3.9.6 Tk version: 8.6.10

License Copyright Credits

IDLE version: 3.9.6

README NEWS Credits

Close

## Second way – Using apt install (Cont.)

### ■ Python version change

```
instructor@Ubuntu-Desktop:~$ sudo update-alternatives --config python
update-alternatives: error: no alternatives for python
instructor@Ubuntu-Desktop:~$ sudo update-alternatives --install \
> /usr/bin/python python /usr/bin/python3.9 1
update-alternatives: using /usr/bin/python3.9 to provide /usr/bin/python (python)
) in auto mode
instructor@Ubuntu-Desktop:~$ sudo update-alternatives --config python
There is only one alternative in link group python (providing /usr/bin/python):
/usr/bin/python3.9
Nothing to configure.
instructor@Ubuntu-Desktop:~$ python -V
Python 3.9.6
instructor@Ubuntu-Desktop:~$ █
```

# Installation Python Interpreter on Mac OS X Platform



Refer to <https://www.digitalocean.com/community/tutorials/how-to-install-python-3-and-set-up-a-local-programming-environment-on-macos>

# Install Python Interpreter

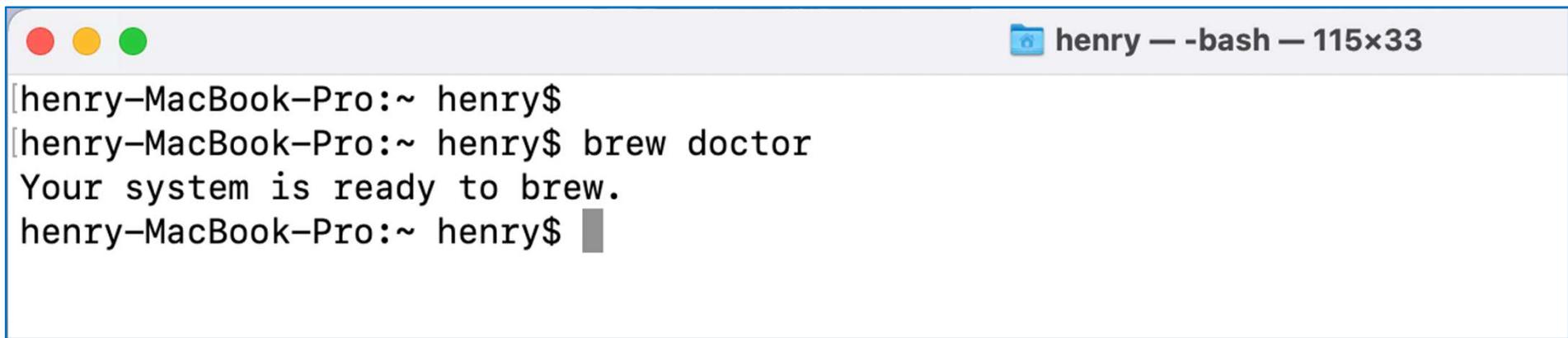
Refer to

<https://www.digitalocean.com/community/tutorials/how-to-install-python-3-and-set-up-a-local-programming-environment-on-macos>

1. Open **Terminal**

# Install Python Interpreter (Cont.)

## 2. Install and Setup up **Homebrew**



henry—MacBook-Pro:~ henry\$  
henry—MacBook-Pro:~ henry\$ brew doctor  
Your system is ready to brew.  
henry—MacBook-Pro:~ henry\$

# Install Python Interpreter (Cont.)

## 3. Python search with **Homebrew**

```
[henry-MacBook-Pro:~ henry$ brew search python
==> Formulae
app-engine-python           micropython          python-yq           pythran
boost-python                 ptpython            python@3.7        jython
boost-python3                python-launcher      python@3.8        cython
bpython                      python-markdown     python@3.9        reorder-python-imports
gst-python                   python-tabulate     wxpython
ipython                      python-tk@3.9       homebrew/cask/mysql-connector-python
==> Casks
homebrew/cask/awips-python
```

# Install Python Interpreter (Cont.)

## 4. Install Python 3

```
henry-MacBook-Pro:~ henry$ brew install python@3.9
```

```
==> Summary
🍺 /usr/local/Cellar/python@3.9/3.9.7: 3,080 files, 54.7MB
==> Caveats
==> python@3.9
Python has been installed as
/usr/local/bin/python3

Unversioned symlinks `python`, `python-config`, `pip` etc. pointing to
`python3`, `python3-config`, `pip3` etc., respectively, have been installed into
/usr/local/opt/python@3.9/libexec/bin

You can install Python packages with
  pip3 install <package>
They will install into the site-package directory
  /usr/local/lib/python3.9/site-packages

tkinter is no longer included with this formula, but it is available separately:
  brew install python-tk@3.9

See: https://docs.brew.sh/Homebrew-and-Python
henry-MacBook-Pro:~ henry$
```

# Install Python Interpreter (Cont.)

## 5. Python version check

```
[henry-MacBook-Pro:~ henry$  
[henry-MacBook-Pro:~ henry$ python --version  
Python 2.7.16  
[henry-MacBook-Pro:~ henry$ python3 --version  
Python 3.9.7  
henry-MacBook-Pro:~ henry$ █
```

# Install Python Interpreter (Cont.)

## 6. Create a Simple Program.

```
[henry-MacBook-Pro:~ henry$  
[henry-MacBook-Pro:~ henry$ mkdir PythonHome  
[henry-MacBook-Pro:~ henry$ cd PythonHome  
[henry-MacBook-Pro:PythonHome henry$ cat > hello.py  
print ('Hello, World')  
^Z  
[1]+  Stopped                  cat > hello.py  
[henry-MacBook-Pro:PythonHome henry$ ls  
hello.py  
[henry-MacBook-Pro:PythonHome henry$ cat hello.py  
print ('Hello, World')  
[henry-MacBook-Pro:PythonHome henry$ python3 hello.py  
Hello, World  
henry-MacBook-Pro:PythonHome henry$ █
```

# Text Editors

# Text Editor – Sublime Text 4

- Sublime Text 4 (<http://www.sublimetext.com/download>)
  - Half Freeware

A screenshot of the Sublime Text 4 interface. The window title is "hello.py – PythonHome". The left sidebar shows a "FOLDERS" section with a "PythonHome" folder containing "hello.py". The main editor area displays the following code:

```
1 print ('Hello, World')
2
```

Below the editor, the output pane shows the result of running the script:

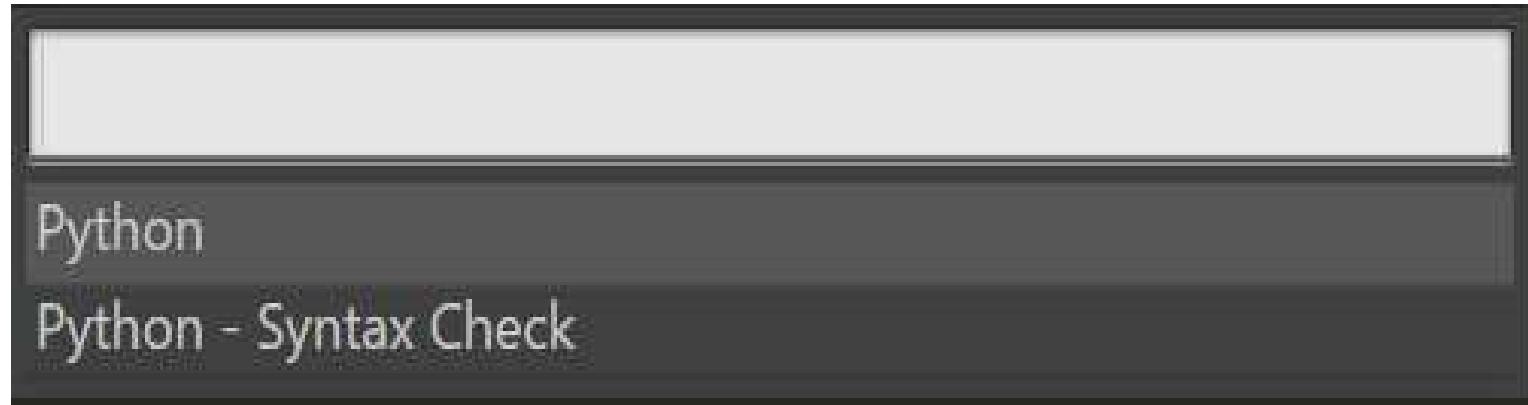
```
Hello, World
[Finished in 183ms]
```

The status bar at the bottom indicates "Line 1, Column 1", "Tab Size: 4", and "Python".



## Text Editor – Sublime Text 4 (Cont.)

- Refer to <http://webnautes.tistory.com/454>



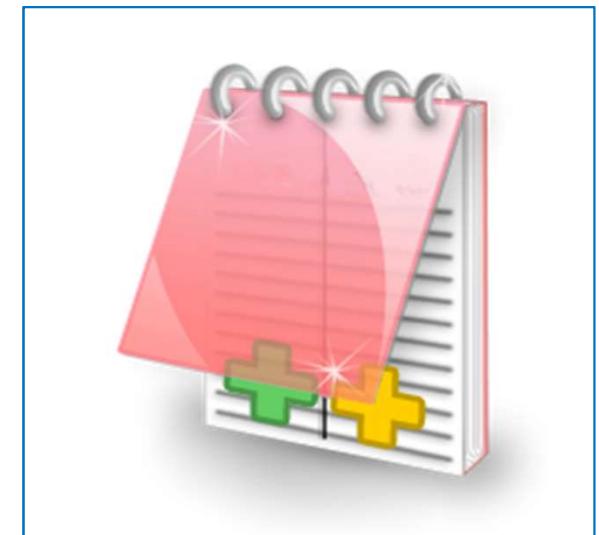
# Text Editor - EditPlus



■ EditPlus – (<http://www.editplus.com/>) – Shareware

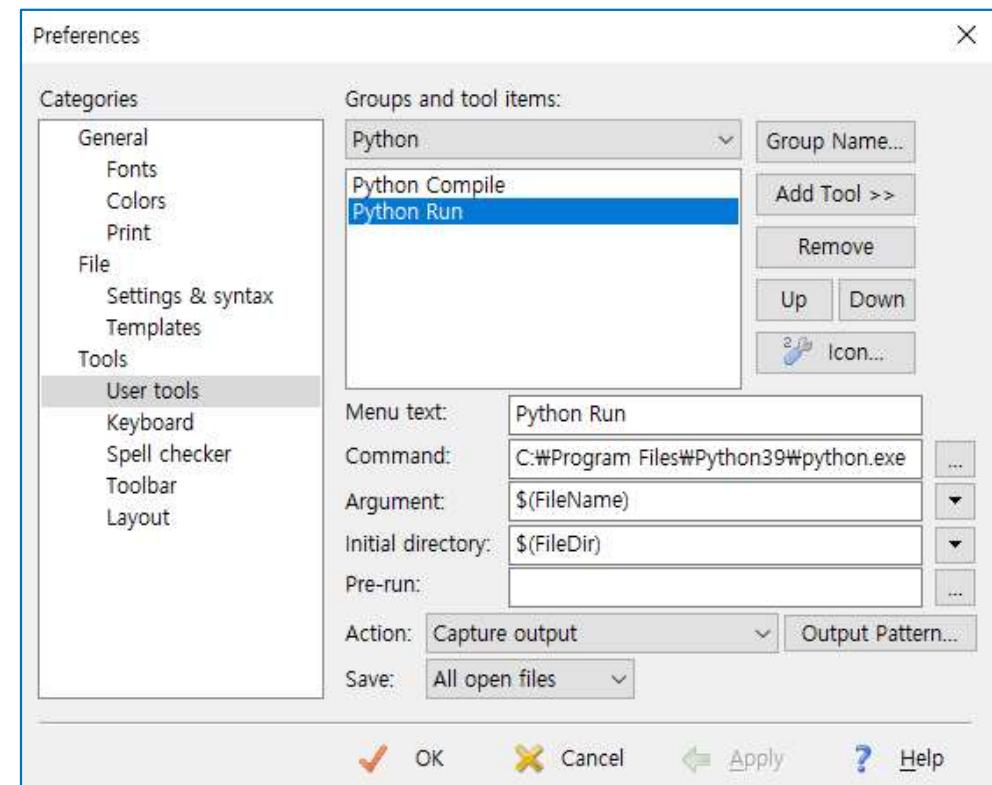
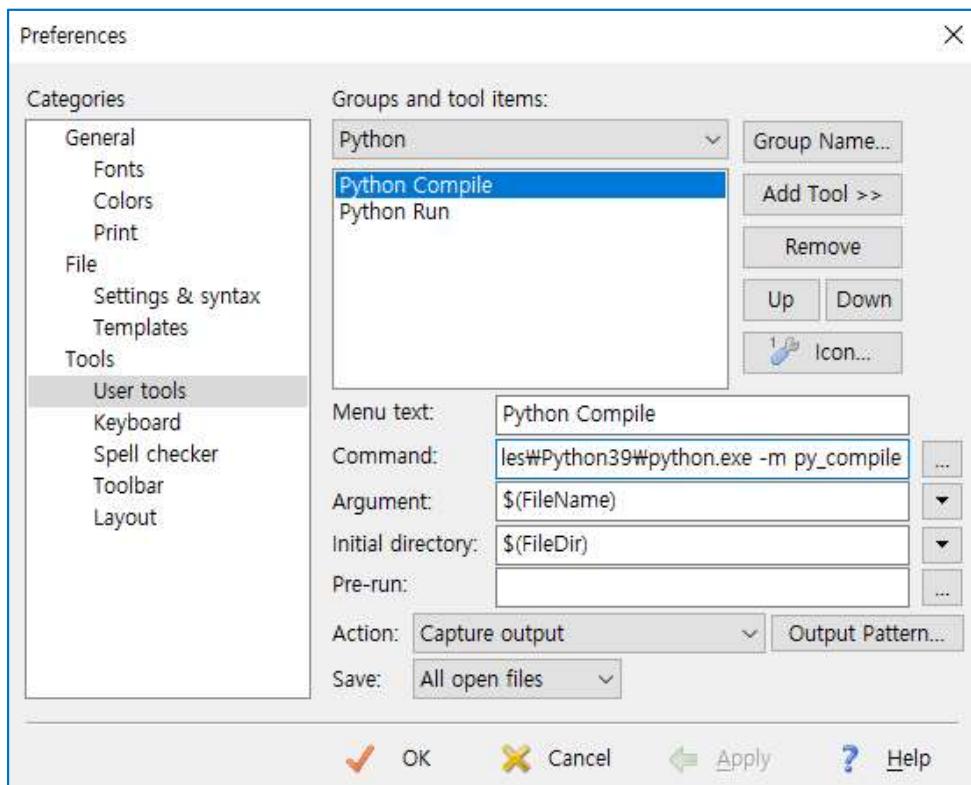
```
File Edit View Search Document Project Tools Browser Emmet Window Help
Directory Clipboar 1 2 3 4 5
[C:] C:\temp _pycache_
hello.py
----- Python Run -----
Hello, World
Output completed (0 sec consumed) - Normal Termination
All Files (*.*) hello.py
For Help, press F1 In 1 col 22 1 00 PC ANSI 21
```

The screenshot shows the EditPlus interface. The main window displays a Python script named 'hello.py' with the code `print('Hello, World')`. The status bar at the bottom indicates the current line is 'In 1' and the column is 'col 22'. The output window below the editor shows the result of running the script: 'Hello, World'. The status bar also shows 'Output completed (0 sec consumed) - Normal Termination'.



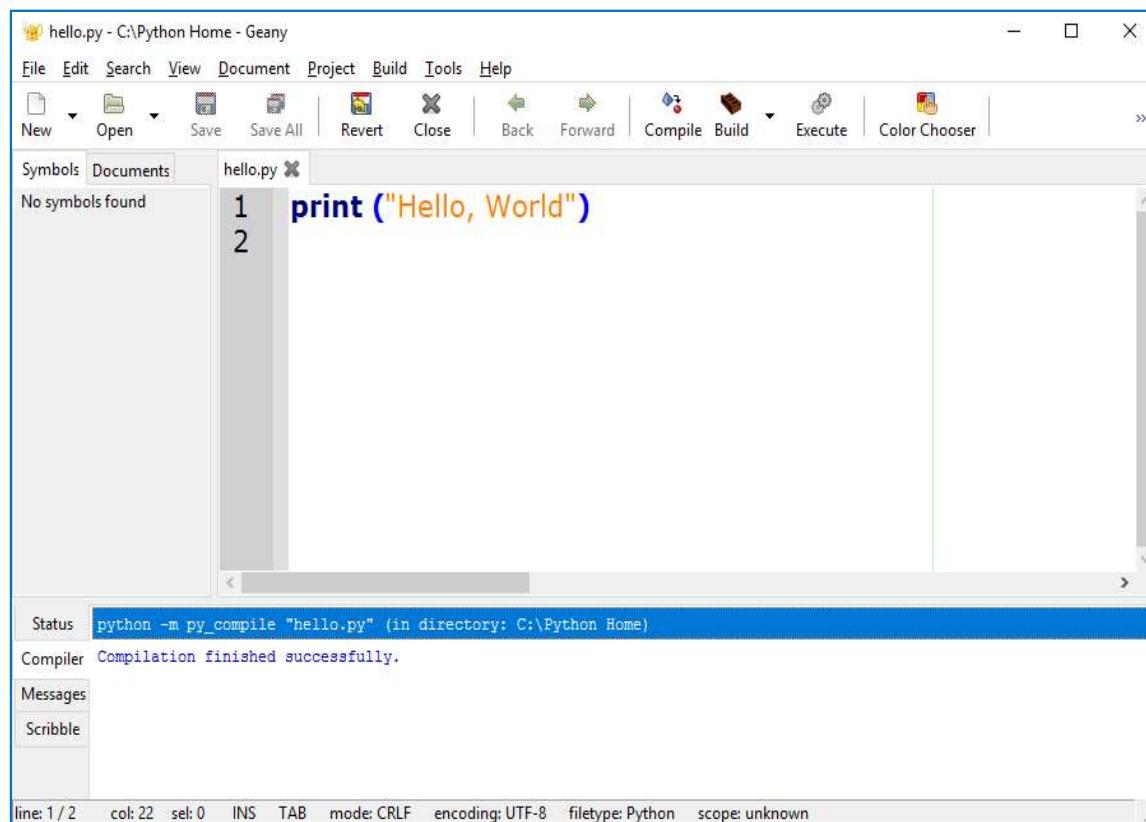
# Text Editor – EditPlus (Cont.)

- Refer to <http://findnew.tistory.com/21>



# Text Editor - Geany

- Geany – (<http://www.geany.org/>) – OpenSource



The screenshot shows the Geany text editor interface. The title bar reads "hello.py - C:\Python Home - Geany". The menu bar includes File, Edit, Search, View, Document, Project, Build, Tools, and Help. The toolbar contains icons for New, Open, Save, Save All, Revert, Close, Back, Forward, Compile, Build, Execute, and Color Chooser. The left sidebar has tabs for Symbols and Documents, with "Documents" selected. The main editor area displays the following Python code:

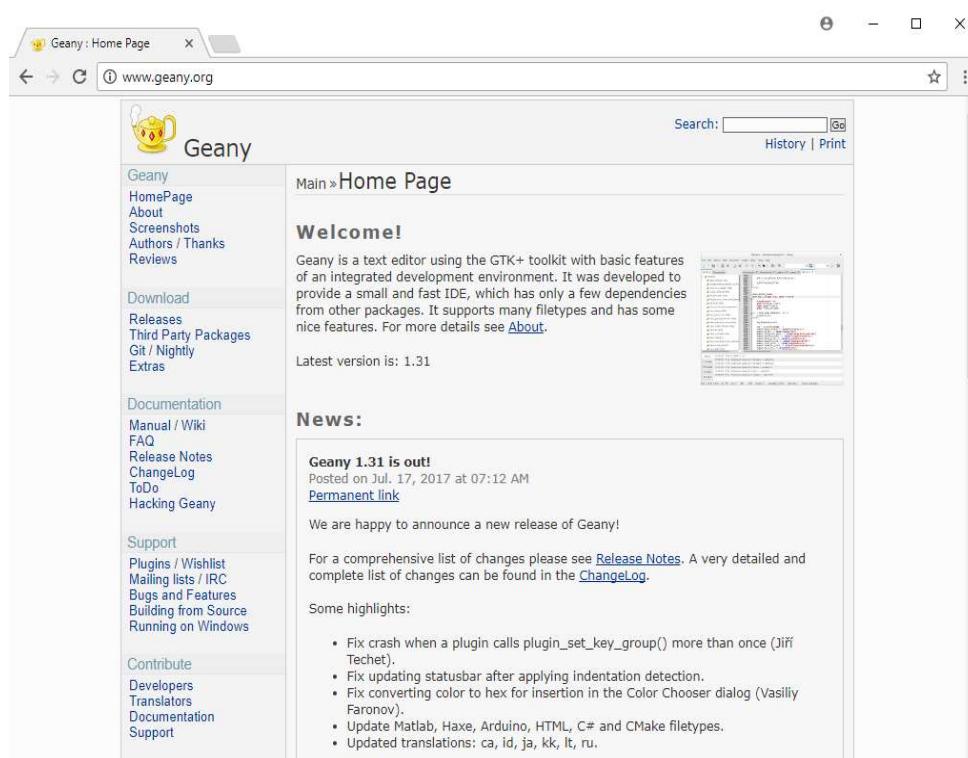
```
1 print ("Hello, World")
2
```

The status bar at the bottom shows "Status python -m py\_compile "hello.py" (in directory: C:\Python Home)" and "Compiler Compilation finished successfully.". The message area says "Messages" and "Scribble". The bottom status bar also shows "line: 1 / 2 col: 22 sel: 0 INS TAB mode: CRLF encoding: UTF-8 filetype: Python scope: unknown".



# Text Editor – Geany (Cont.)

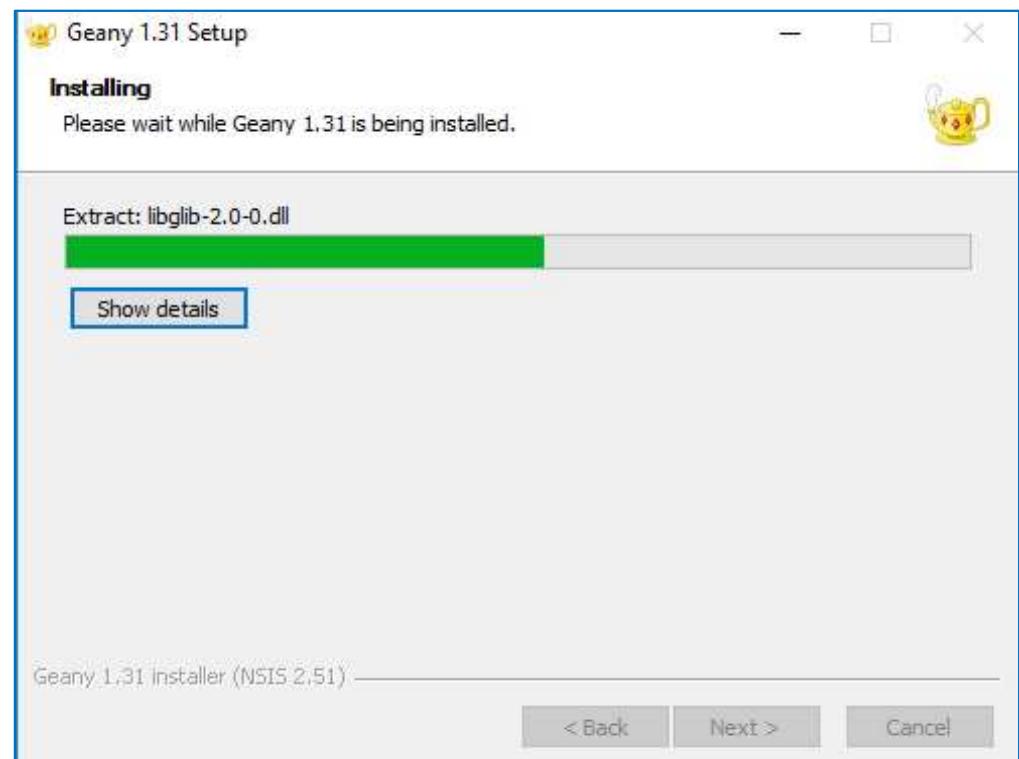
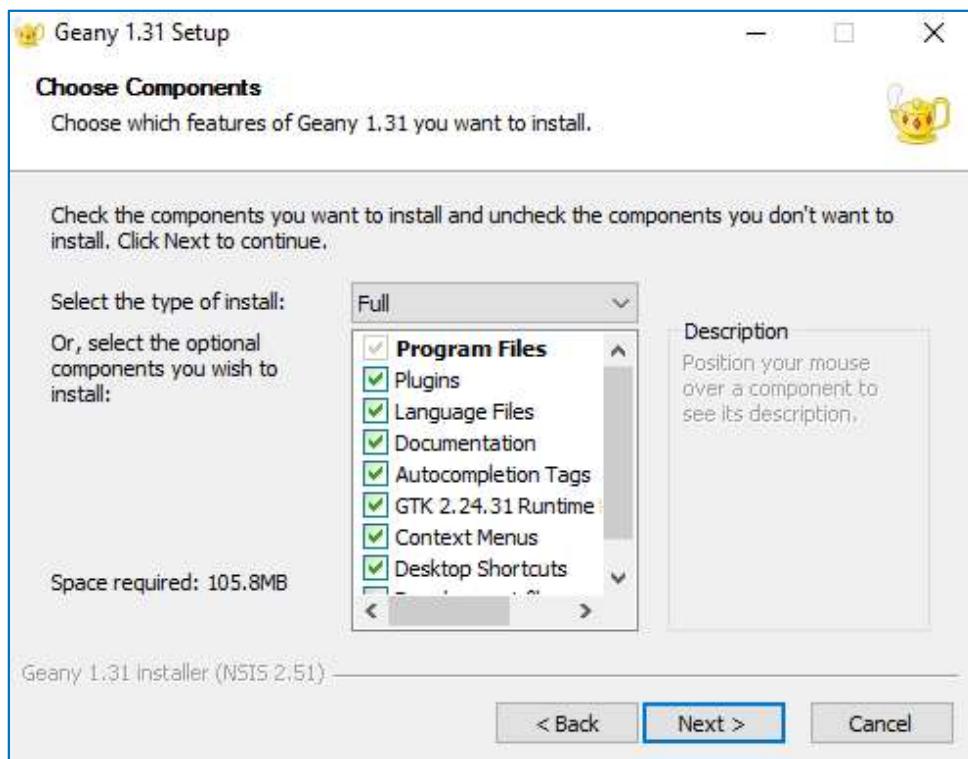
## ■ Geany – (<http://www.geany.org/>) – OpenSource



A screenshot of the Geany website's releases page. The page has a header with the Geany logo and a search bar. It features a sidebar with links to Geany, HomePage, About, Screenshots, Authors / Thanks, Reviews, Download, Releases, Third Party Packages, Git / Nightly, Extras, Documentation, Manual / Wiki, FAQ, Release Notes, ChangeLog, ToDo, and Hacking Geany. The main content includes sections for "Download » Releases" (with links to Source, WindowsBinaries, Mac OSX Binaries, Older Versions, and Third Party Packages), "Source distribution" (with links to geany-1.31.tar.gz (GPG Sig) and geany-1.31.tar.bz2 (GPG Sig)), and "Windows Binaries" (mentioning geany-1.31\_setup.exe). There is also a "Mac OS X" section with a link to geany-1.31\_osx.dmg.

# Text Editor – Geany (Cont.)

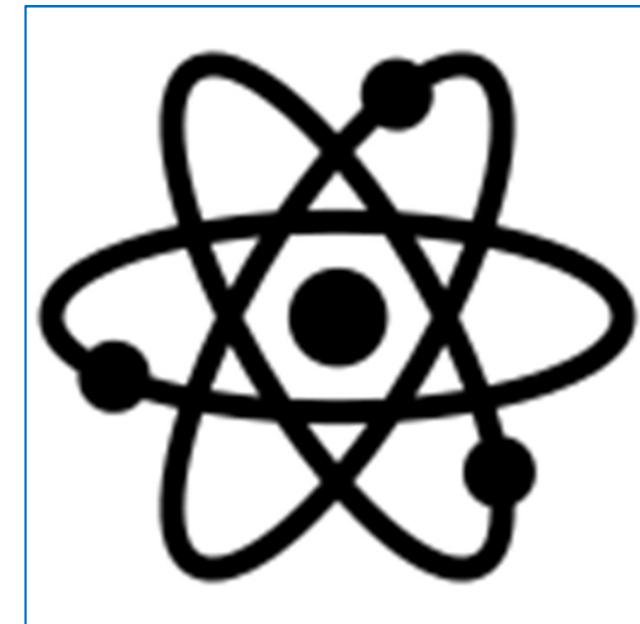
## ■ Geany – (<http://www.geany.org/>) – OpenSource



# Text Editor – Atom

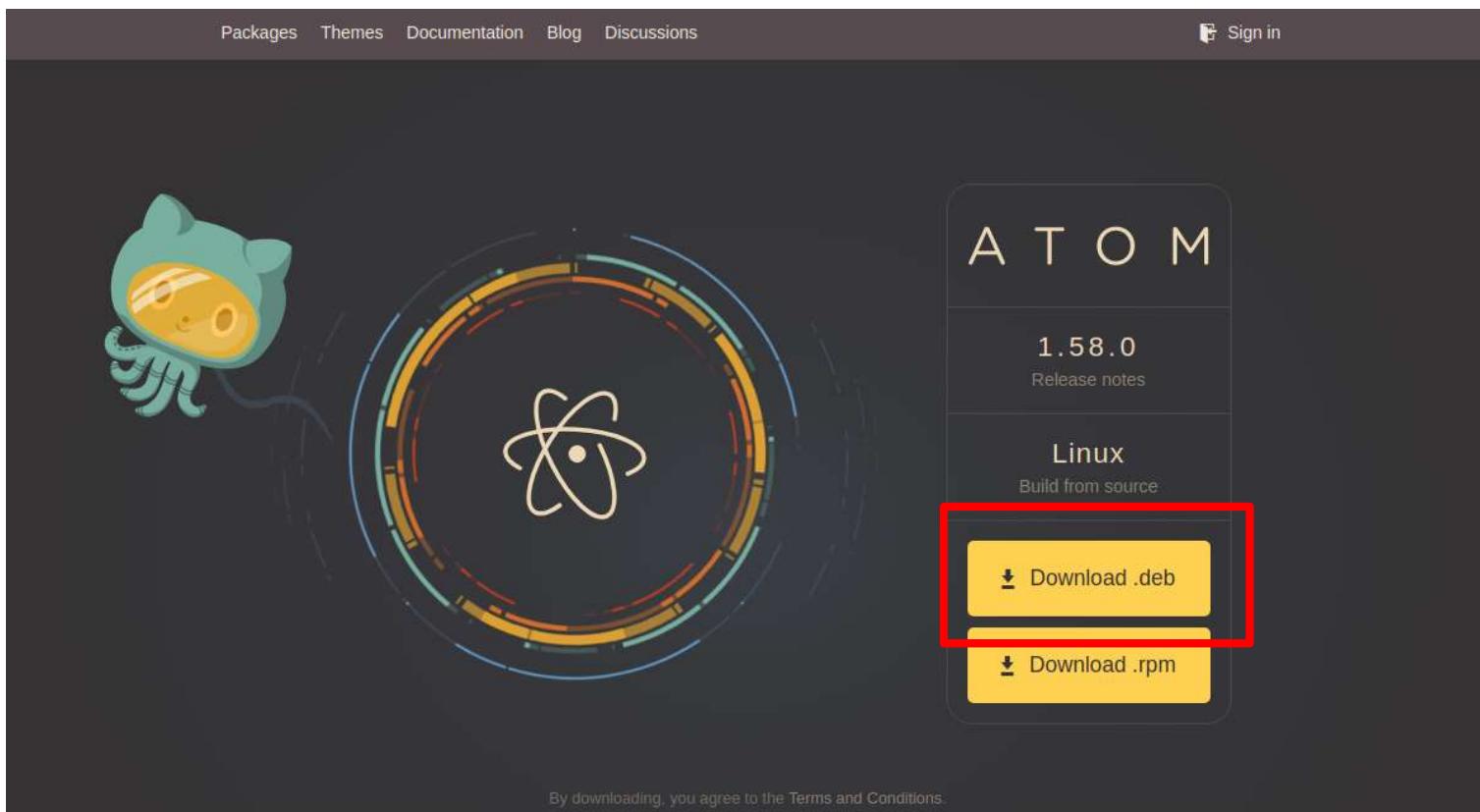
- Atom – (<https://atom.io>) – OpenSource

The screenshot shows the Atom text editor interface. The title bar reads "hello.py — ~/PythonHome — Atom". The menu bar includes File, Edit, View, Selection, Find, Packages, and Help. A "Project" sidebar on the left shows a folder named "PythonHome". The main editor area displays the code "print('Hello, World')". Below the editor is a terminal window titled "Python - hello.py:1" showing the output "Hello, World [Finished in 0.097s]". The status bar at the bottom indicates "hello.py 1:22" and "LF UTF-8 Python GitHub Git (0)".



## Text Editor – Atom (Cont.)

- Atom – (<https://atom.io>) – OpenSource



## Text Editor – Atom (Cont.)

- Atom – (<https://atom.io>) – OpenSource

```
instructor@Ubuntu-Desktop:~/Downloads$ sudo dpkg -i atom-amd64.deb
[sudo] password for instructor:
Selecting previously unselected package atom.
(Reading database ... 184016 files and directories currently installed.)
Preparing to unpack atom-amd64.deb ...
Unpacking atom (1.58.0) ...
dpkg: dependency problems prevent configuration of atom:
  atom depends on git; however:
    Package git is not installed.

dpkg: error processing package atom (--install):
  dependency problems - leaving unconfigured
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Errors were encountered while processing:
  atom
instructor@Ubuntu-Desktop:~/Downloads$ █
```

## Text Editor – Atom (Cont.)

### ■ Atom – (<https://atom.io>) – OpenSource

```
instructor@Ubuntu-Desktop:~/Downloads$ sudo apt install -f
Reading package lists... Done
Building dependency tree
Reading state information... Done
Correcting dependencies... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi
  libgstreamer-plugins-bad1.0-0 libllvm11 libva-wayland2
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  git git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-el git-email git-gui gitk
  gitweb git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 2 not upgraded.
1 not fully installed or removed.
Need to get 5,468 kB of archives.
After this operation, 38.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] █
```

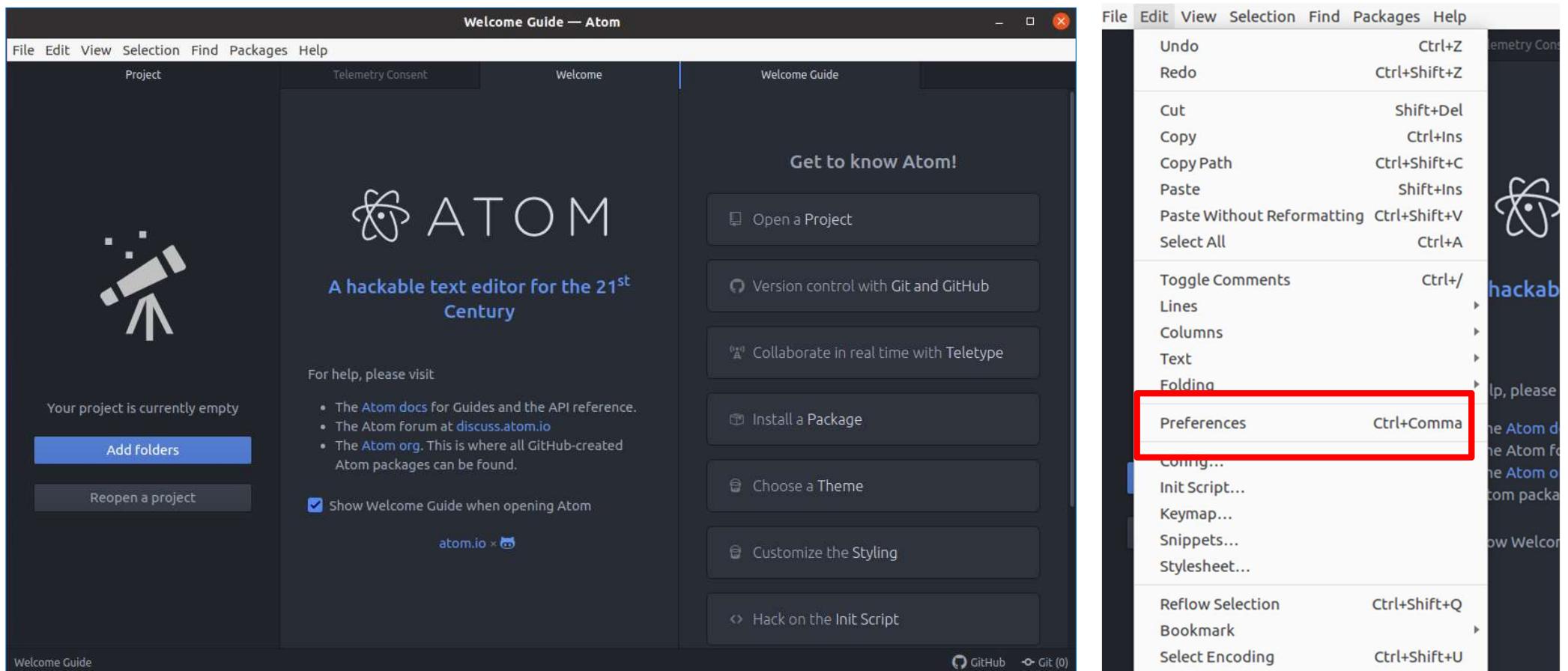
## Text Editor – Atom (Cont.)

- Atom – (<https://atom.io>) – OpenSource



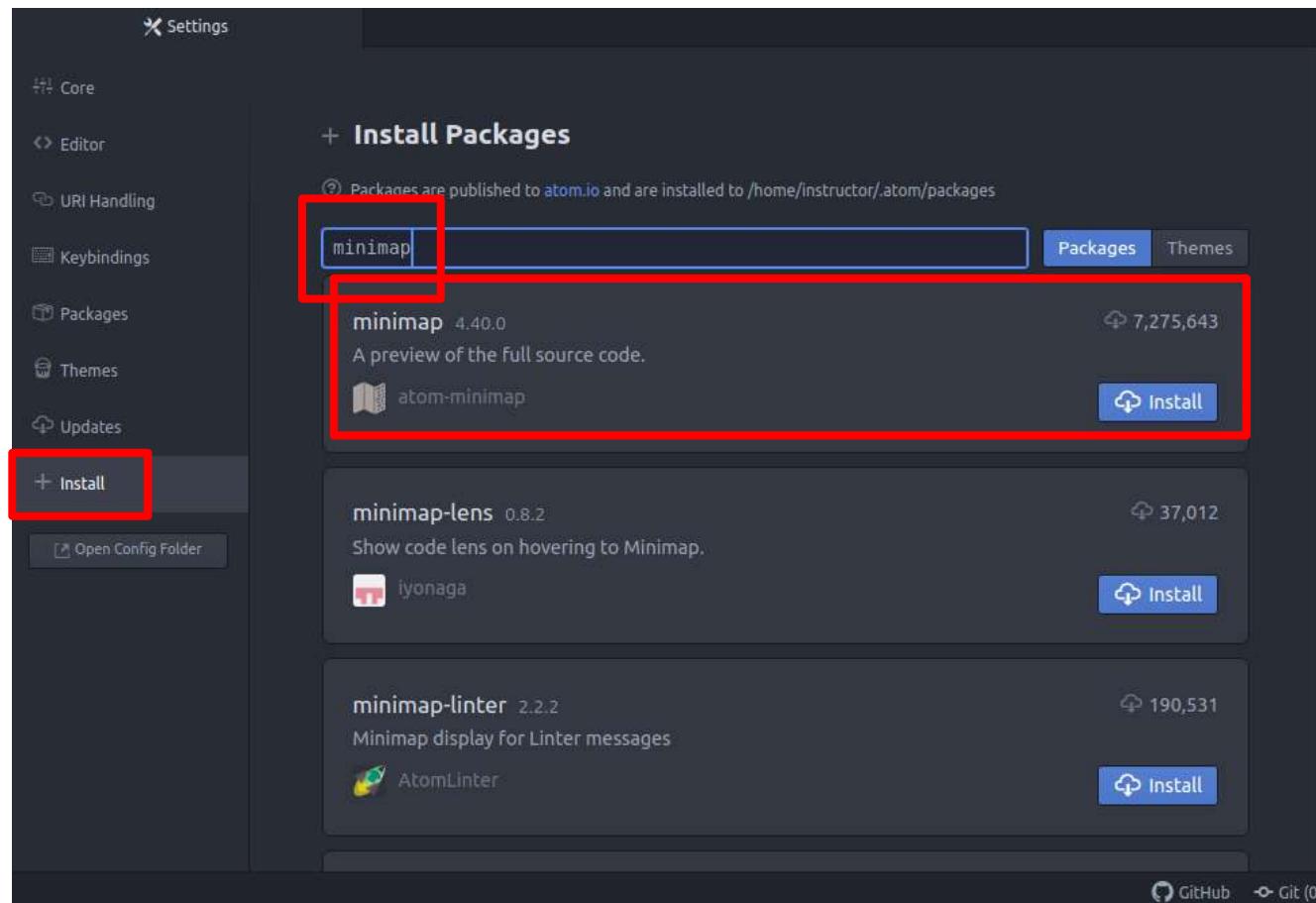
# Text Editor – Atom (Cont.)

## ■ Atom – (<https://atom.io>) – OpenSource



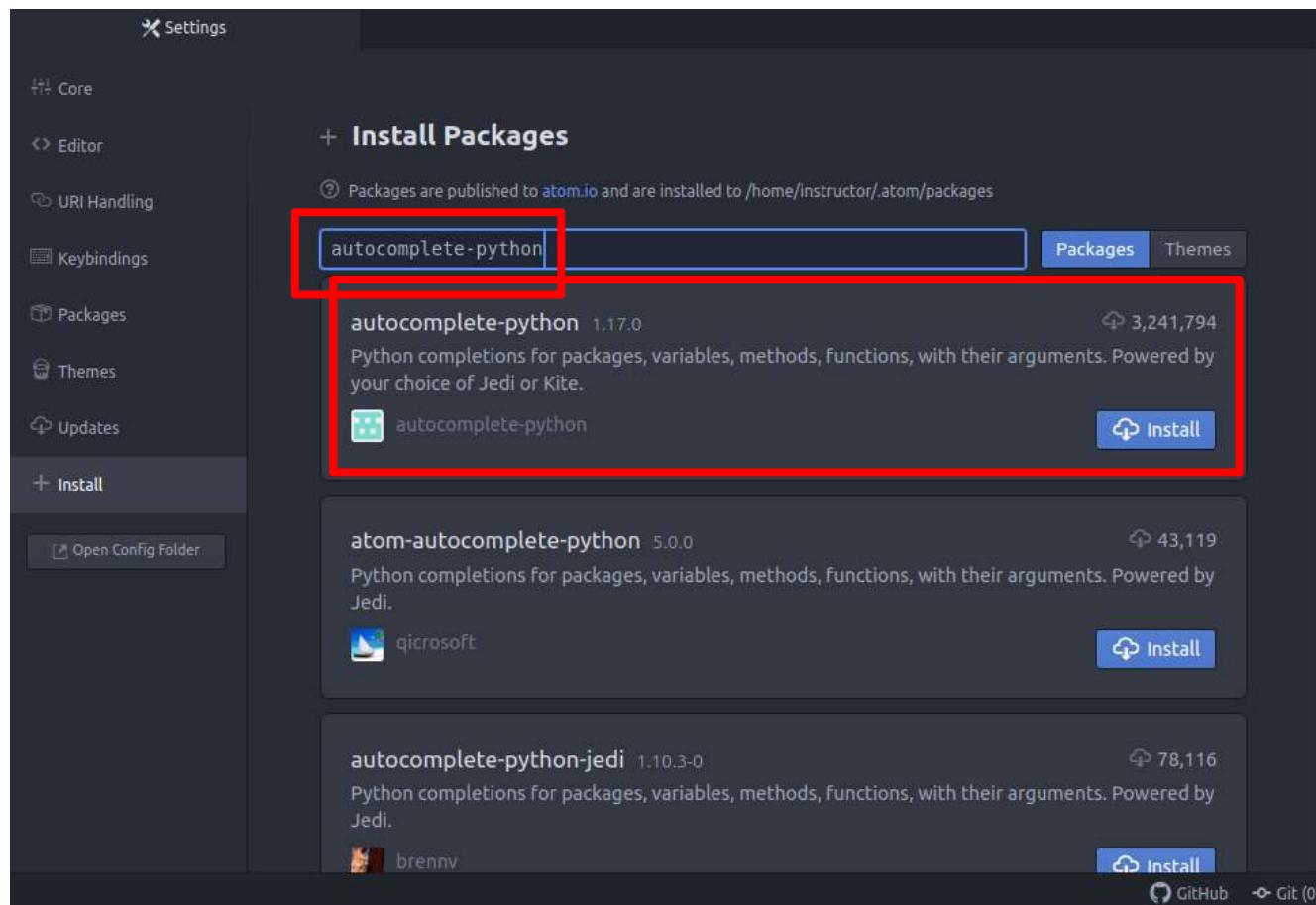
# Text Editor – Atom (Cont.)

## ■ Atom – (<https://atom.io>) – OpenSource



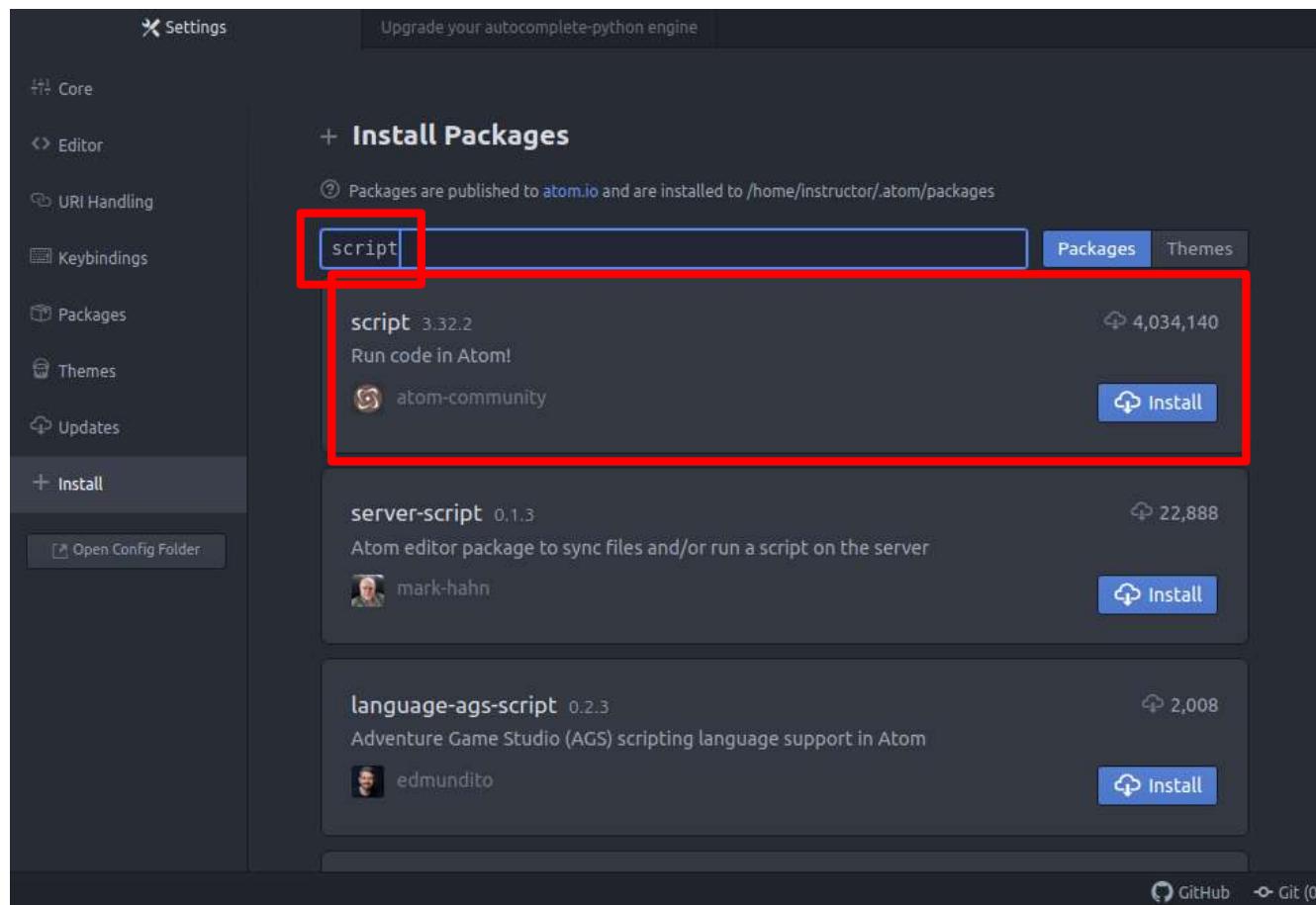
# Text Editor – Atom (Cont.)

## ■ Atom – (<https://atom.io>) – OpenSource



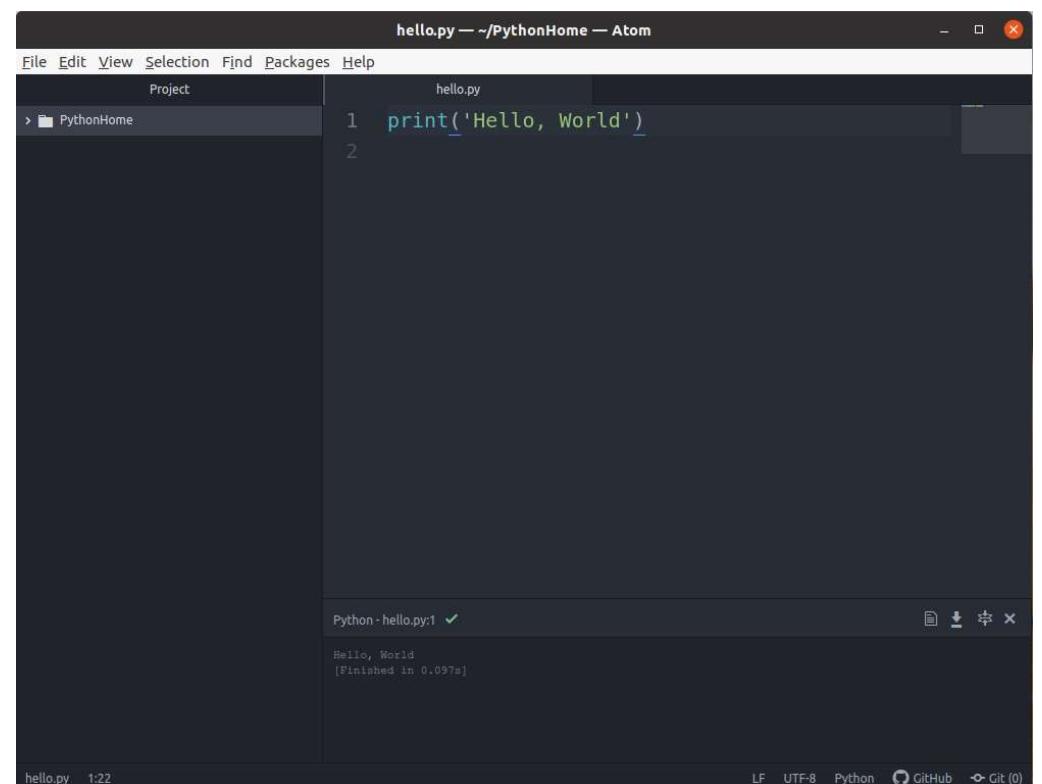
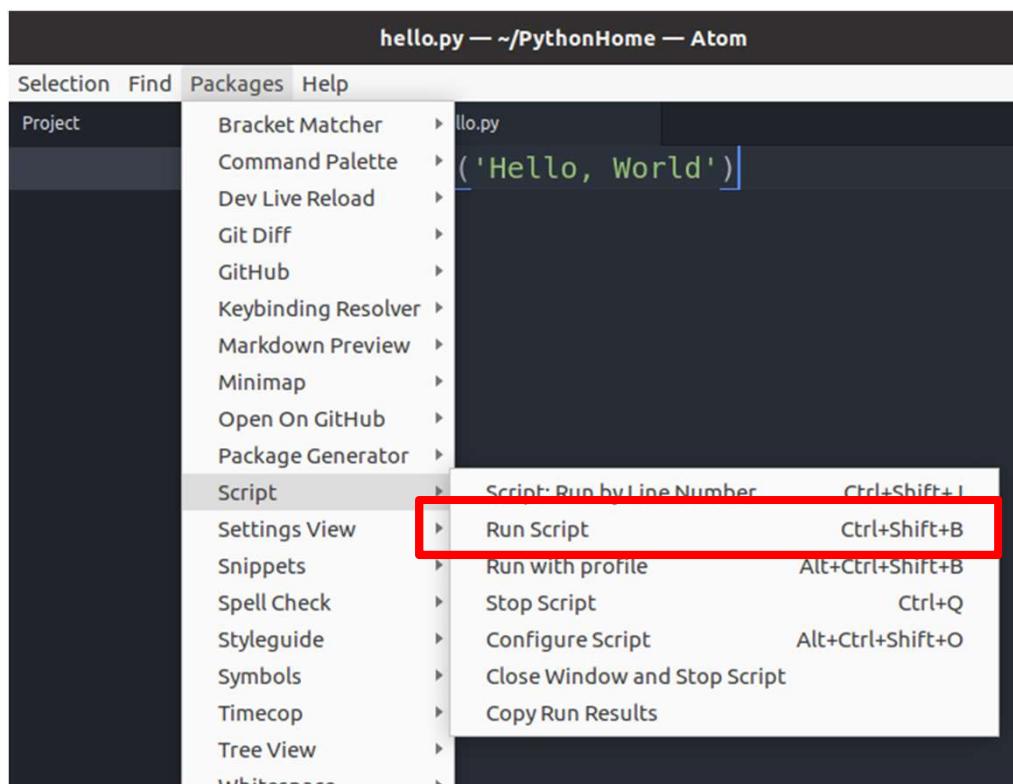
# Text Editor – Atom (Cont.)

## ■ Atom – (<https://atom.io>) – OpenSource



# Text Editor – Atom (Cont.)

## ■ Atom – (<https://atom.io>) – OpenSource



# Text Editor – Visual Studio Code

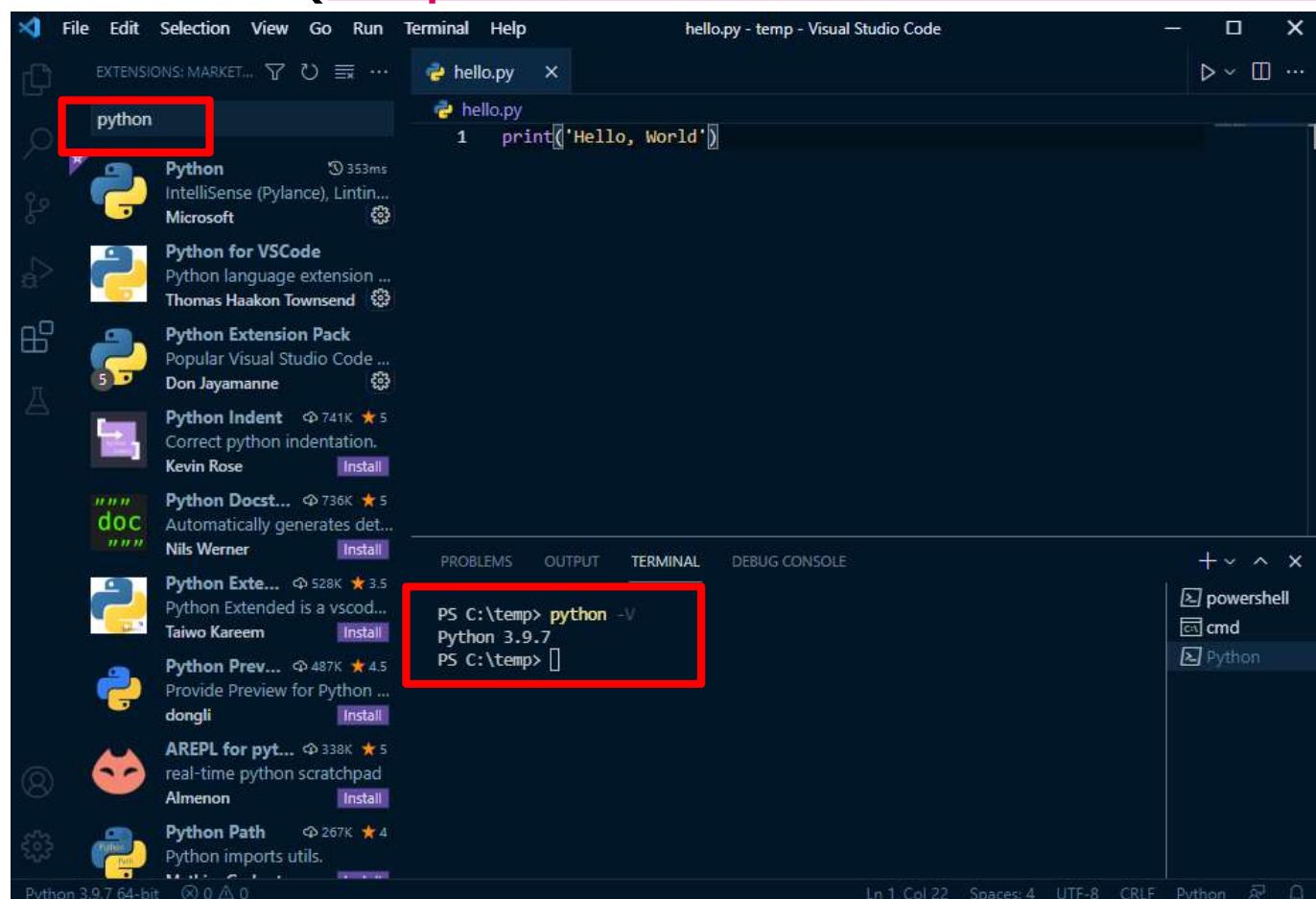


- Visual Studio Code – (<https://code.visualstudio.com/>) – OpenSource

The image shows two views of Visual Studio Code. On the left is the official website homepage with a dark background. It features the Visual Studio Code logo, a large "Code editing. Redefined." heading, and a "Download for Windows" button. Below the download button is a note about agreeing to the license and privacy statement. On the right is a screenshot of the Visual Studio Code IDE interface. The interface includes a top navigation bar with "File", "Edit", "Selection", "View", "Go", "Debug", "Terminal", and "Help". Below the navigation bar is a code editor window showing a file named "serviceWorker.js". To the left of the code editor is the "EXTENSIONS MARKETPLACE" sidebar, which lists various extensions like Python, GitLens, ESLint, Debugger for Chrome, Language Support for Java, vscode-icons, and others. At the bottom of the IDE interface, there are tabs for "PROBLEMS", "OUTPUT", "DEBUG CONSOLE", "TERMINAL", and "E node". A status bar at the very bottom displays "Local: http://localhost:3000/" and "On Your Network: http://18.211.55.3:3000/".

# Text Editor – Visual Studio Code

- Visual Studio Code – (<https://code.visualstudio.com/>) – OpenSource

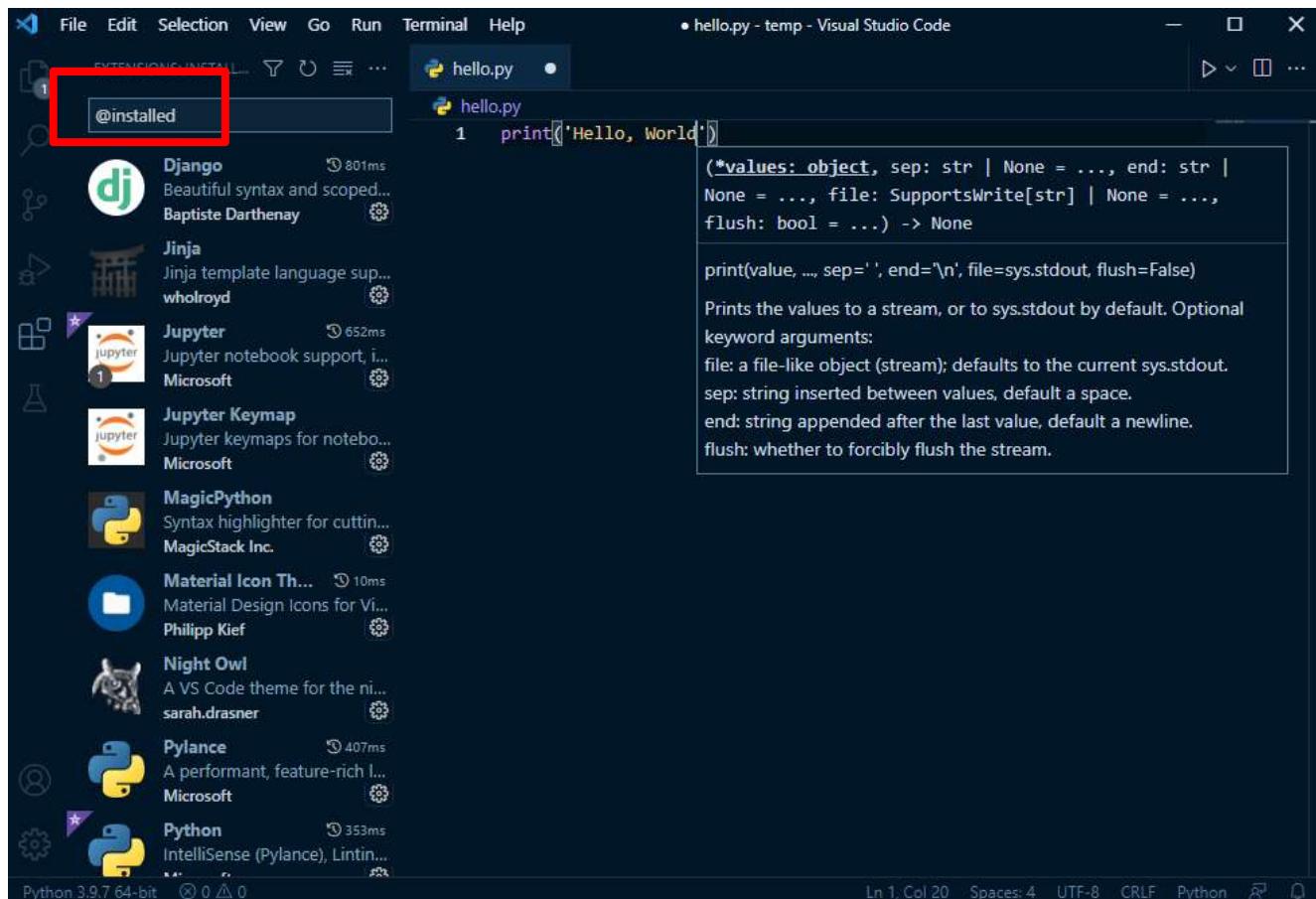


# Text Editor – Visual Studio Code

- Visual Studio Code – (<https://code.visualstudio.com/>)
  - OpenSource
  - Extensions
    - Python
    - Python for VSCode
    - Python Extension Pack

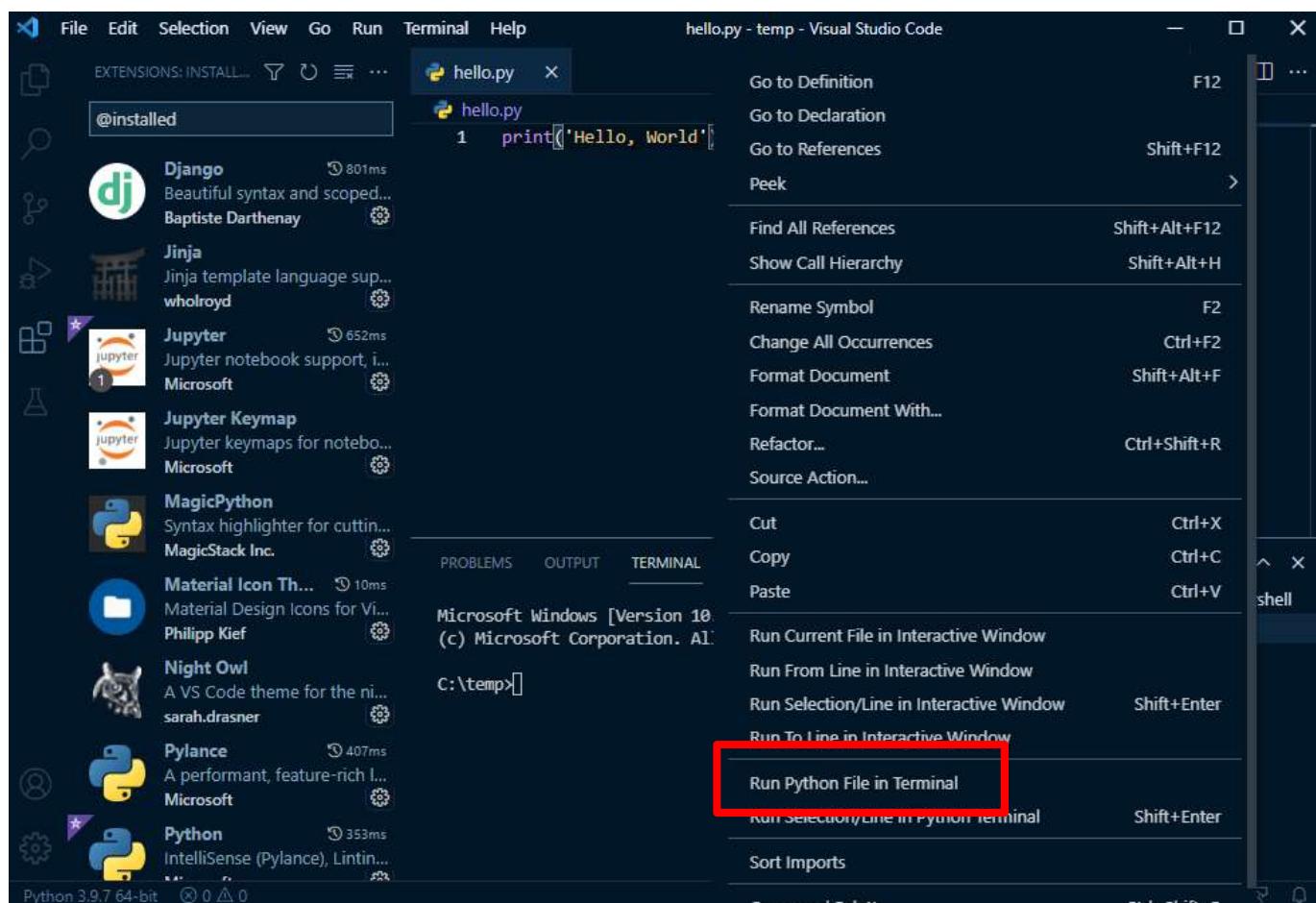
# Text Editor – Visual Studio Code

- Visual Studio Code – (<https://code.visualstudio.com/>) – OpenSource



# Text Editor – Visual Studio Code

- Visual Studio Code – (<https://code.visualstudio.com/>) – OpenSource



# Text Editor – Visual Studio Code

- Visual Studio Code – (<https://code.visualstudio.com/>) – OpenSource

The screenshot shows the Visual Studio Code interface. In the center, there's a code editor window displaying the following Python code:

```
1 print('Hello, World')
```

To the left of the code editor is the Explorer sidebar, which shows two entries under 'OPEN EDITORS': 'first.py' and another 'first.py' entry under 'PYTHONHOME'. Below these are icons for 'RECENT FILES', 'FOLDERS', and 'PROJECTS'.

At the bottom of the screen is the Windows PowerShell terminal. It displays the following text:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

새로운 크로스 플랫폼 PowerShell 사용 https://aka.ms/powershell

PS C:\PythonHome> & "C:/Program Files/Python38/python.exe" c:/PythonHome/first.py
Hello, World
PS C:\PythonHome>
```

The terminal output from the command 'python first.py' is highlighted with a red rectangular box.

# Python IDEs

# Enthought Canopy

- Enthought Canopy (<https://www.enthought.com/products/canopy/>)
  - Half Freeware

The screenshot shows the Enthought Canopy IDE interface. On the left is a 'File Browser' pane with a 'Recent Files' section containing 'instructor'. The main area has a code editor window titled 'untitled-1' containing the following Python code:

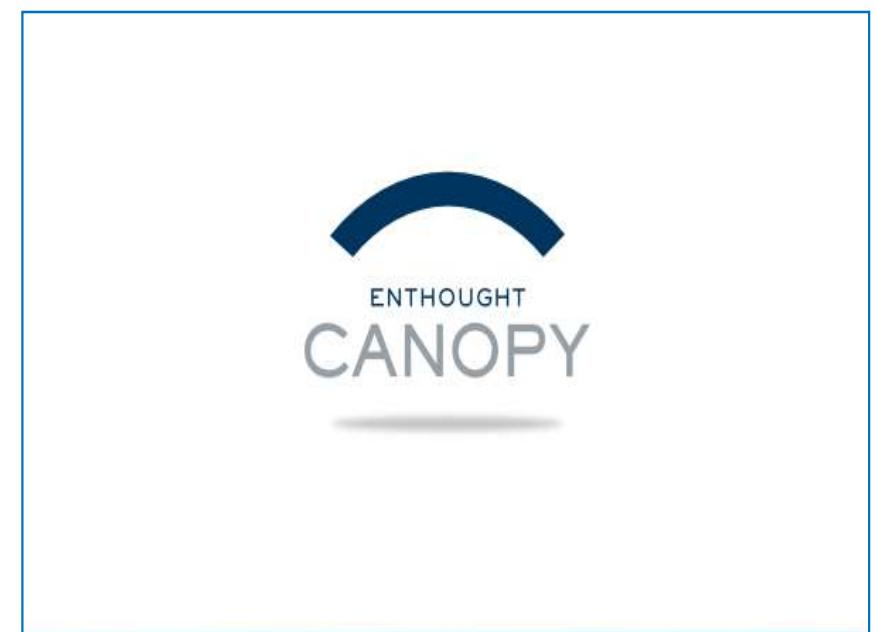
```
1 print ("Hello, World")
2
```

Below the code editor is an 'IPython' console window. The console output shows:

```
In [1]: %run "c:\users\instru~1\appdata\local\temp\tmpiuljsi.py"
Hello, World

In [2]: |
```

The bottom status bar indicates 'Cursor pos 2 : 1' and 'Python 2'.



# Enthought Canopy (Cont.)

Secure | https://www.enthought.com/products/canopy/

Canopy | PyXLL | (0) | Register/Sign In

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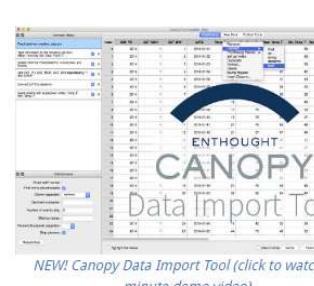
## Enthought Canopy

Proven Scientific Python Distribution Plus Integrated Analysis Environment

Enthought Canopy is a comprehensive Python analysis environment that provides easy installation of over 450 core scientific analytic and Python packages, creating a robust platform you can explore, develop, and visualize on. In addition to its pre-built, tested Python distribution, Enthought Canopy has valuable tools for iterative data analysis, visualization and application development including:

- One-Click Python Package Installation with a Graphical Package Manager
- Data Import Tool (NEW!) for importing columnar text files into Pandas DataFrames and creating repeatable data munging scripts
- Code Editor with Jupyter/IPython Notebook Support
- Interactive Graphical Python Code Debugger and Variable Browser
- Integrated IPython Prompt
- Python for Excel with PyXLL (add-on)
- Integration with the Intel MKL and Microsoft Python Tools for Visual Studio

[Get Canopy >](#)



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 **Get Started with Canopy Express - FREE**  
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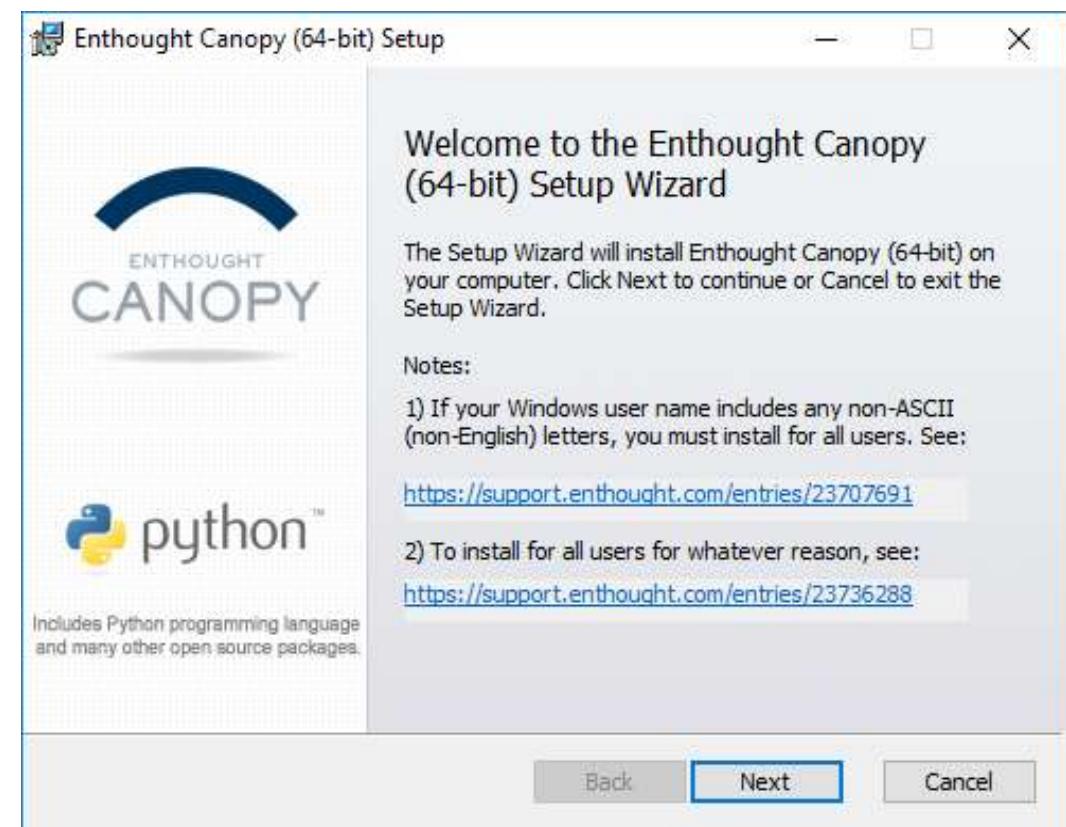
Canopy Subscription	Canopy with Premium Support
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<a href="#">Buy</a>	<a href="#">Buy</a>
<a href="#">See Group Pricing</a>	<a href="#">See Group Pricing</a>
<a href="#">Complete 450+ Package Library</a>	<a href="#">Complete 450+ Package Library</a>
<b>Additional Analysis Environment Features:</b>	<b>Additional Analysis Environment Features:</b>
<ul style="list-style-type: none"><li>• Data Import Tool</li><li>• Graphical Debugger and Variable Browser</li></ul>	<ul style="list-style-type: none"><li>• Data Import Tool</li><li>• Graphical Debugger and Variable Browser</li></ul>
<a href="#">Getting Started Support</a>	<a href="#">Premium Support</a>
<a href="#">Canopy License</a>	<a href="#">Canopy License</a>

# Enthought Canopy (Cont.)

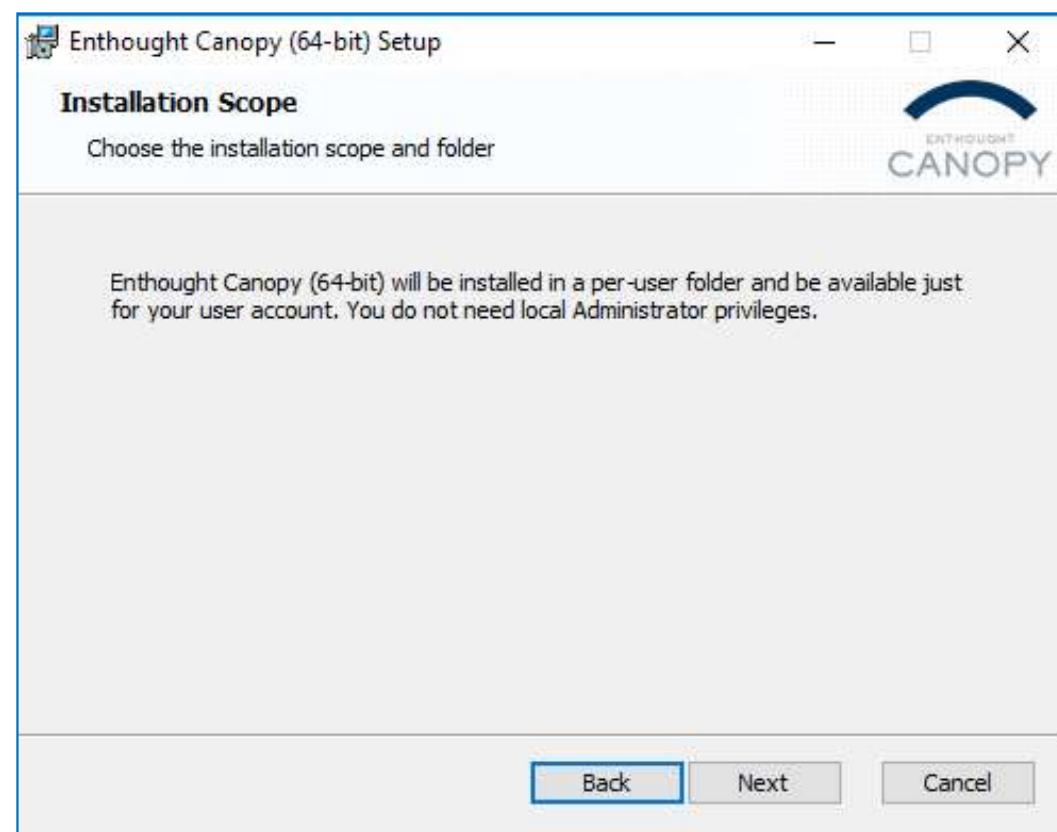
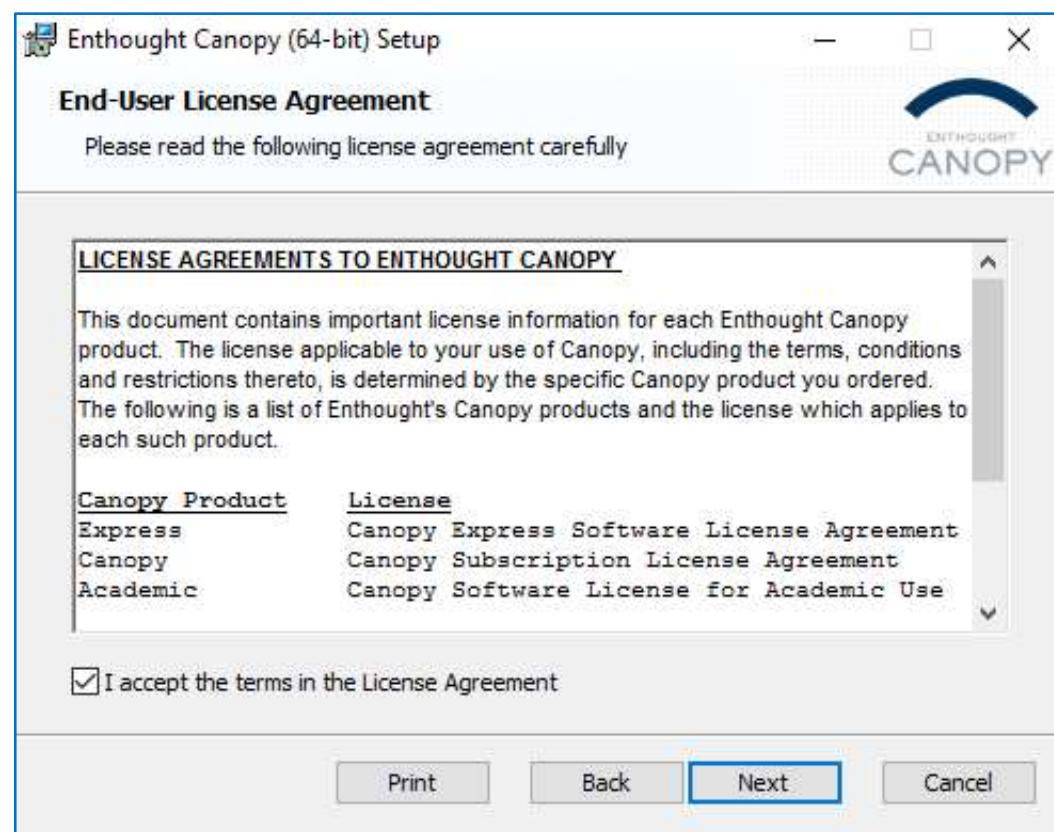
The screenshot shows a web browser displaying the Enthought download page at <https://store.enthought.com/downloads/#default>. The page header includes the Enthought logo, navigation links for CANOPY, PYXLL, and HELP, and a user session indicator showing 0 items in the cart.

The main content is a table listing Python releases:

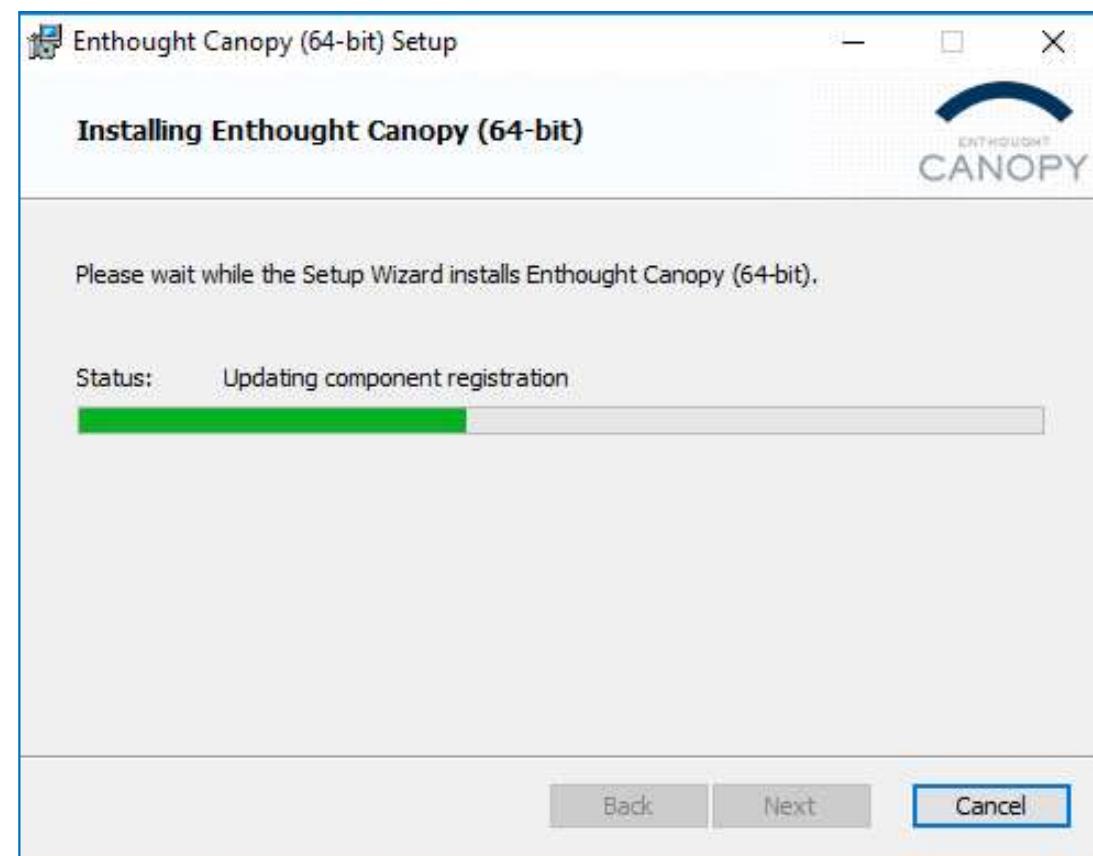
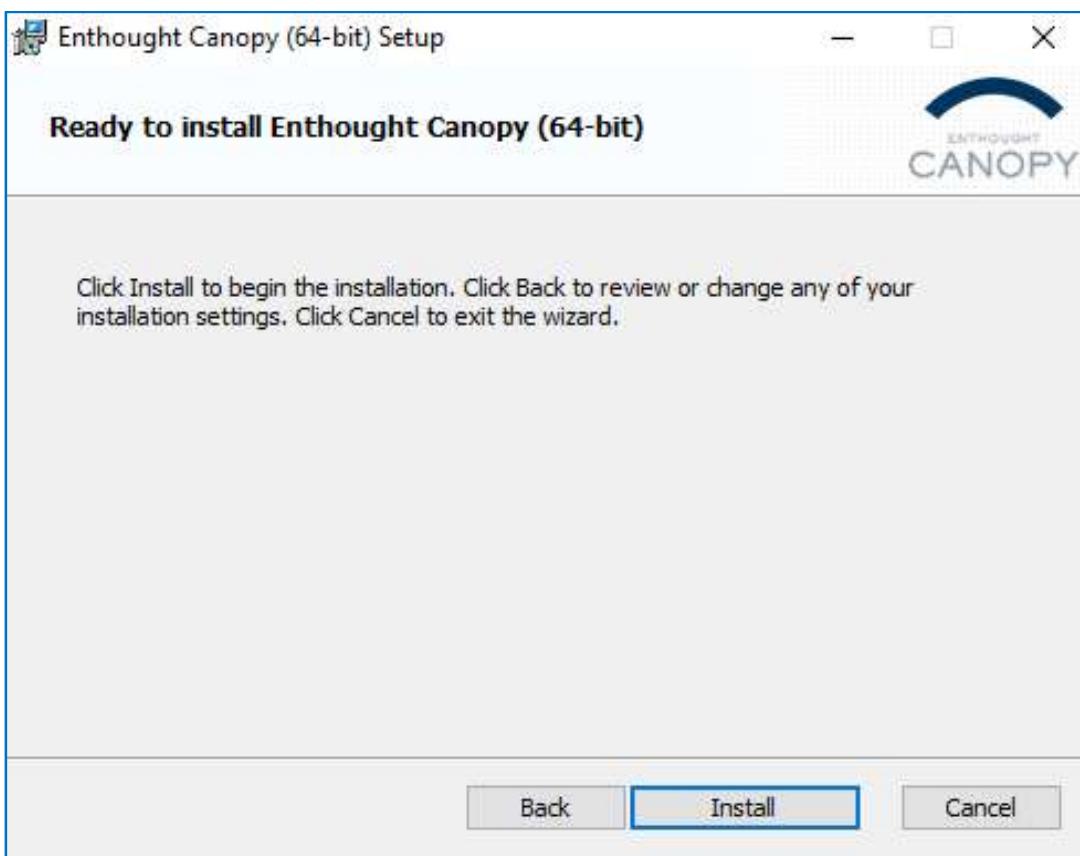
Platform	Python	Action	Released	Size	MD5
Linux [64-bit]	2.7	download	2017-06-16	697.8 MB	57b828e913e15a6ec12f1eb964138c82
Linux [64-bit]	3.5	download	2017-06-16	574.8 MB	7412235d9f72acc603df79bfb706bee
macOS [64-bit]	2.7	download	2017-06-16	572.1 MB	d0ee780d2e7541e0c11a84ec9f29cbb2
macOS [64-bit]	3.5	download	2017-06-16	464.0 MB	d8c15b4763d8c55202c5dba9dd7f3157
Windows [64-bit]	2.7	download	2017-06-16	513.8 MB	3821c0a63abfe8d13d464ecd58d627c
Windows [32-bit]	2.7	download	2017-06-16	420.9 MB	895bff89399d5f4b59ef101dcb33edfd
Windows [64-bit]	3.5	download	2017-06-16	431.3 MB	82c62c8549a9b02a4fe751484e13bb48
Windows [32-bit]	3.5	download	2017-06-16	350.2 MB	f378349261eeb9d8bc614321d12d0264



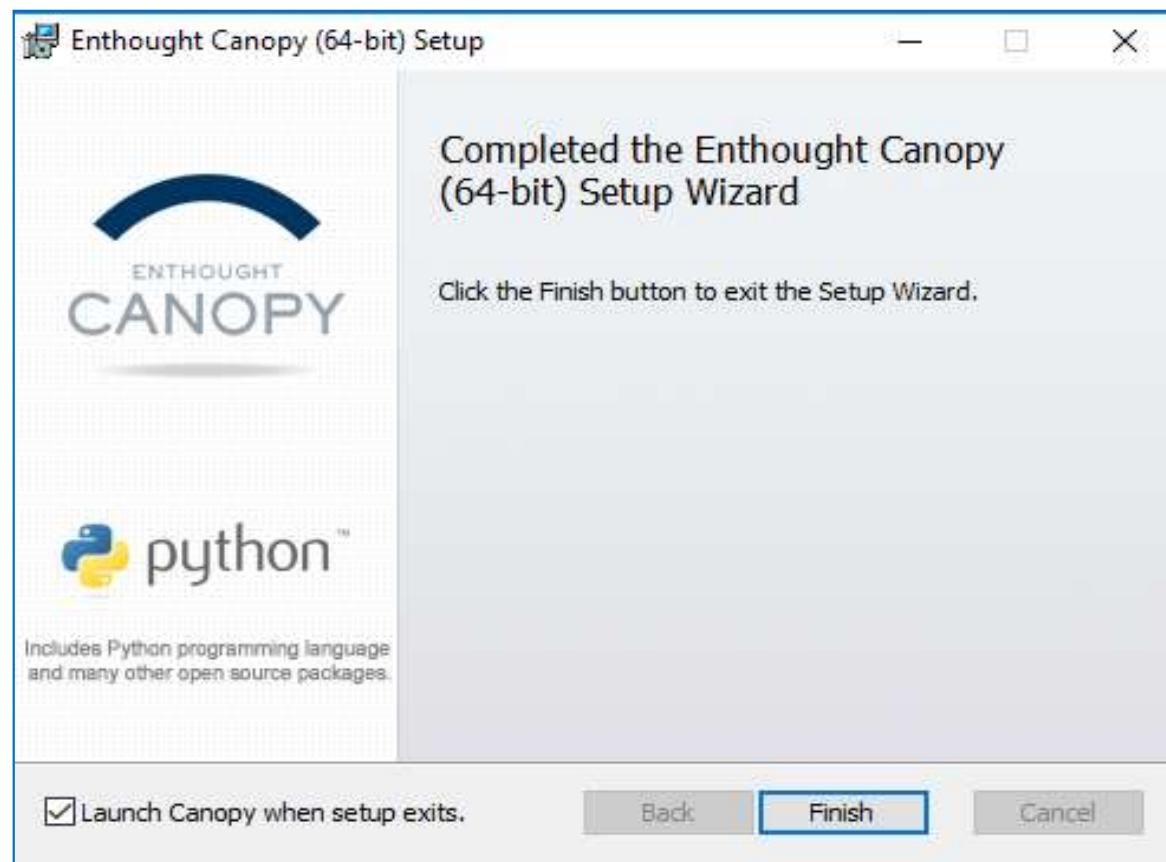
# Enthought Canopy (Cont.)



# Enthought Canopy (Cont.)



# Enthought Canopy (Cont.)



# Eclipse & PyDev in Windows



## ■ Eclipse (<http://www.eclipse.org/>) – Freeware

```
PythonHome - HelloPython/hello.py - Eclipse IDE
File Edit Refactoring Source Navigate Search Project Pydev Run Window Help
File Explorer Properties Search PyDev Run Task View
P hello
HelloPython hello.py python
1 import sys
2 print(sys.version)
3
4 print('Hello, World')
5
6 print(sys.version_info)

Console
terminated> hello.py [C:\Program Files\Python39\python.exe]
3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit
Hello, World
sys.version_info(major=3, minor=9, micro=7, releaselevel='final', serial=
```



# Eclipse & PyDev in Windows (Cont.)

## 1. Google Search for **jre download 1.8**

A screenshot of a Google search results page. The search bar at the top contains the query "jre download 1.8". Below the search bar, there are navigation links for "전체" (All), "동영상" (Videos), "뉴스" (News), "이미지" (Images), "쇼핑" (Shopping), and "더보기" (More). To the right of these links is a "도구" (Tools) button. The search results section shows the following content:

검색결과 약 631,000개 (0.35초)

[https://www.oracle.com/java/technologies/javase-j... ▾](https://www.oracle.com/java/technologies/javase-j...)

**Java SE Runtime Environment 8 - Downloads | Oracle 대한민국**

If you want to run Java programs, but not develop them, **download** the Java Runtime Environment, or **JRE™**. Important Oracle JDK License Update. The Oracle JDK ...

[https://www.oracle.com/java/technologies/javase-j... ▾](https://www.oracle.com/java/technologies/javase-j...)

**Java SE Runtime Environment 8 - Downloads - Oracle**

Product / File Description	File Size	Download
Linux x86 RPM Package	58.85 MB	jre-8u301-linux-i586.rpm
Linux x86 Compressed Archive	87.97 MB	jre-8u301-linux-i586.tar.gz
Linux x64 RPM Package	58.48 MB	jre-8u301-linux-x64.rpm

10행 더보기

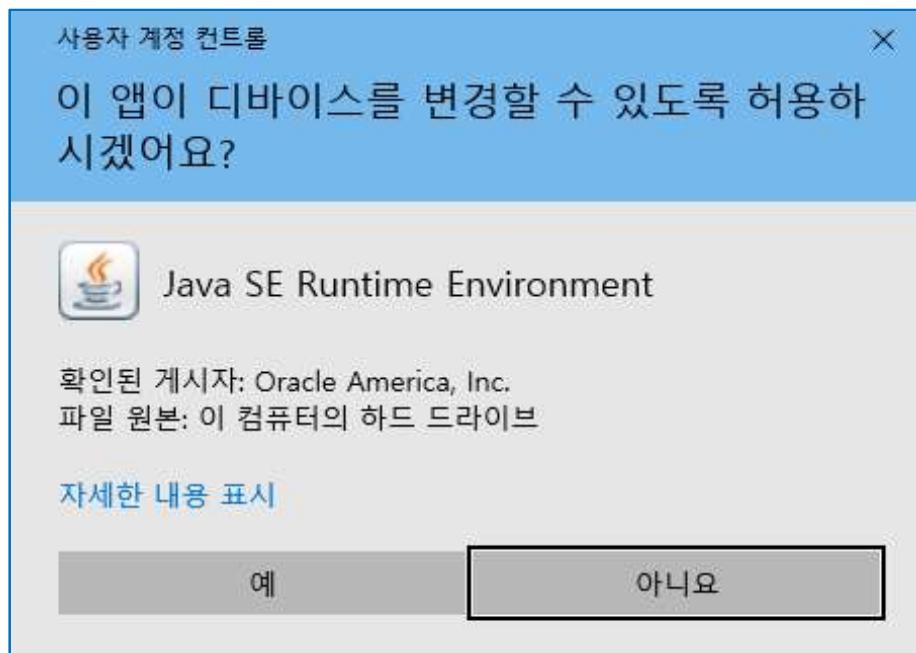
# Eclipse & PyDev in Windows (Cont.)

## 2. Click to Windows x64 Offline

macOS x64 Compressed Archive	76 MB	 <a href="#">jre-8u301-macosx-x64.tar.gz</a>
Solaris SPARC 64-bit	52.78 MB	 <a href="#">jre-8u301-solaris-sparcv9.tar.gz</a>
Solaris x64 Compressed Archive	50.68 MB	 <a href="#">jre-8u301-solaris-x64.tar.gz</a>
Windows x86 Online	2 MB	 <a href="#">jre-8u301-windows-i586-iftw.exe</a>
Windows x86 Offline	70.72 MB	 <a href="#">jre-8u301-windows-i586.exe</a>
Windows x86	69.55 MB	 <a href="#">jre-8u301-windows-i586.tar.gz</a>
Windows x64	81.08 MB	 <a href="#">jre-8u301-windows-x64.exe</a>
Windows x64	75.33 MB	 <a href="#">jre-8u301-windows-x64.tar.gz</a>

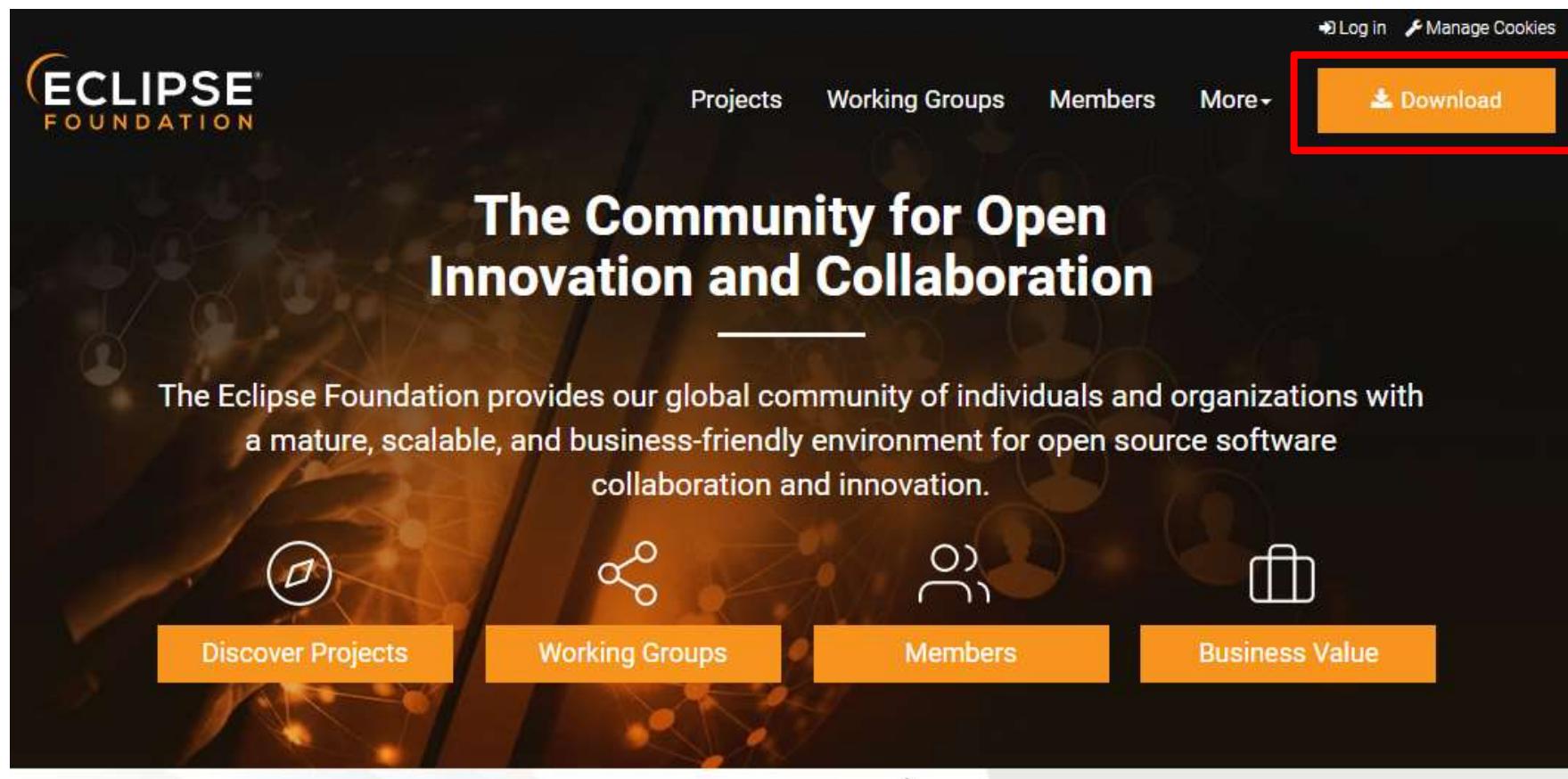
# Eclipse & PyDev in Windows (Cont.)

## 3. Install Java SE Runtime Environment 8 Update 301



# Eclipse & PyDev in Windows (Cont.)

4. Visit <http://www.eclipse.org>



# Eclipse & PyDev in Windows (Cont.)

## 4. Visit <http://www.eclipse.org>

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Tool Platforms

 Eclipse Che

Eclipse Che is a developer workspace server and cloud IDE.

 ORION

A modern, open source software development environment that runs in the cloud.

# Eclipse & PyDev in Windows (Cont.)

## 5. Downloads **Eclipse for Windows 64-bit**

The Eclipse Installer 2021-06 R now includes a JRE for macOS, Windows and Linux.

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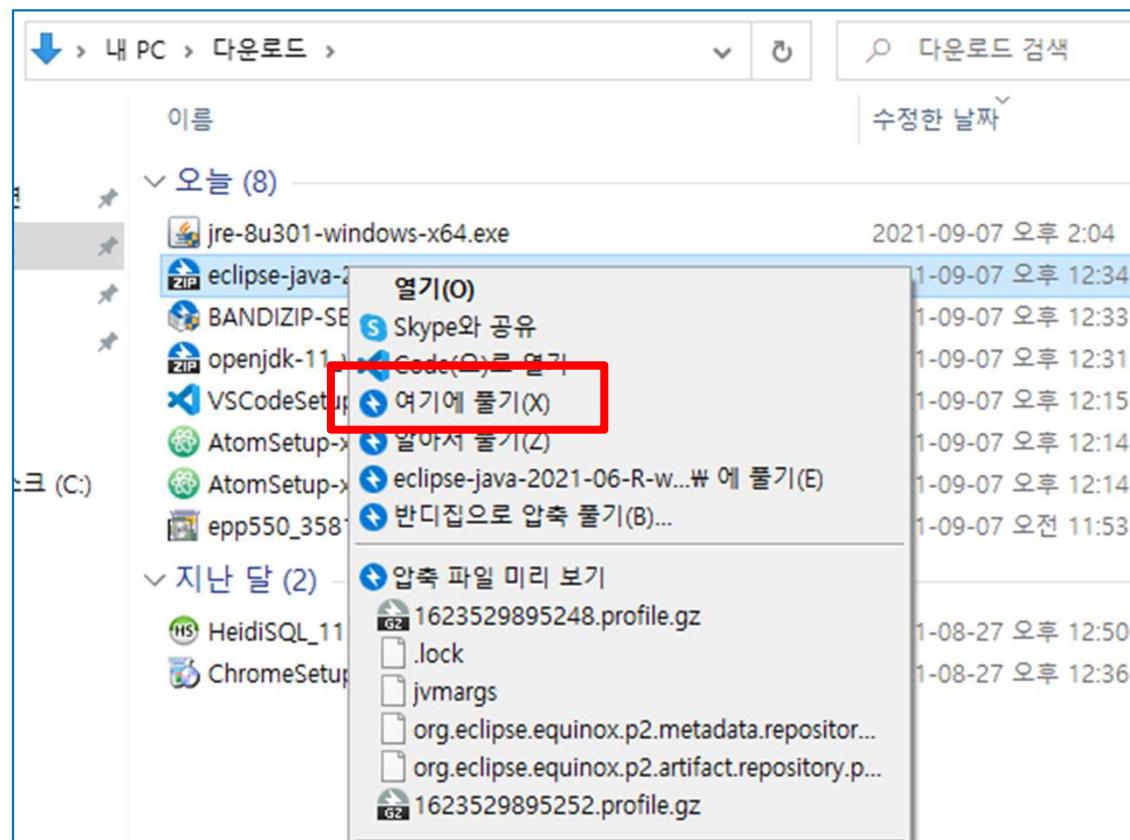
# Eclipse & PyDev in Windows (Cont.)

## 5. Downloads **Eclipse for Windows 64-bit** (Cont.)

The screenshot shows the Eclipse Foundation's website at <https://www.eclipse.org/downloads/>. The user is on the 'Eclipse downloads - Select a mirror' page. The main content area displays a large orange 'Download' button for the file 'eclipse-java-2021-06-R-win32-x86\_64.zip'. Below the button, it says 'Download from: China - TUNA (https)'. To the right of the download button, there is a 'SHA-512' hash value. Below these, a link reads '>> Select Another Mirror'. On the right side of the page, there is a sidebar with a 'JAKARTA EE' logo and the text 'Why Jakarta EE Is the Right Choice for Today's Java Applications' followed by a 'NEW WHITE PAPER' button. At the bottom right of the main content area, there is a box titled 'Other options for this file' containing two bullet points: 'All mirrors (xml)' and 'Direct link to file (download starts immediately from best mirror)'.

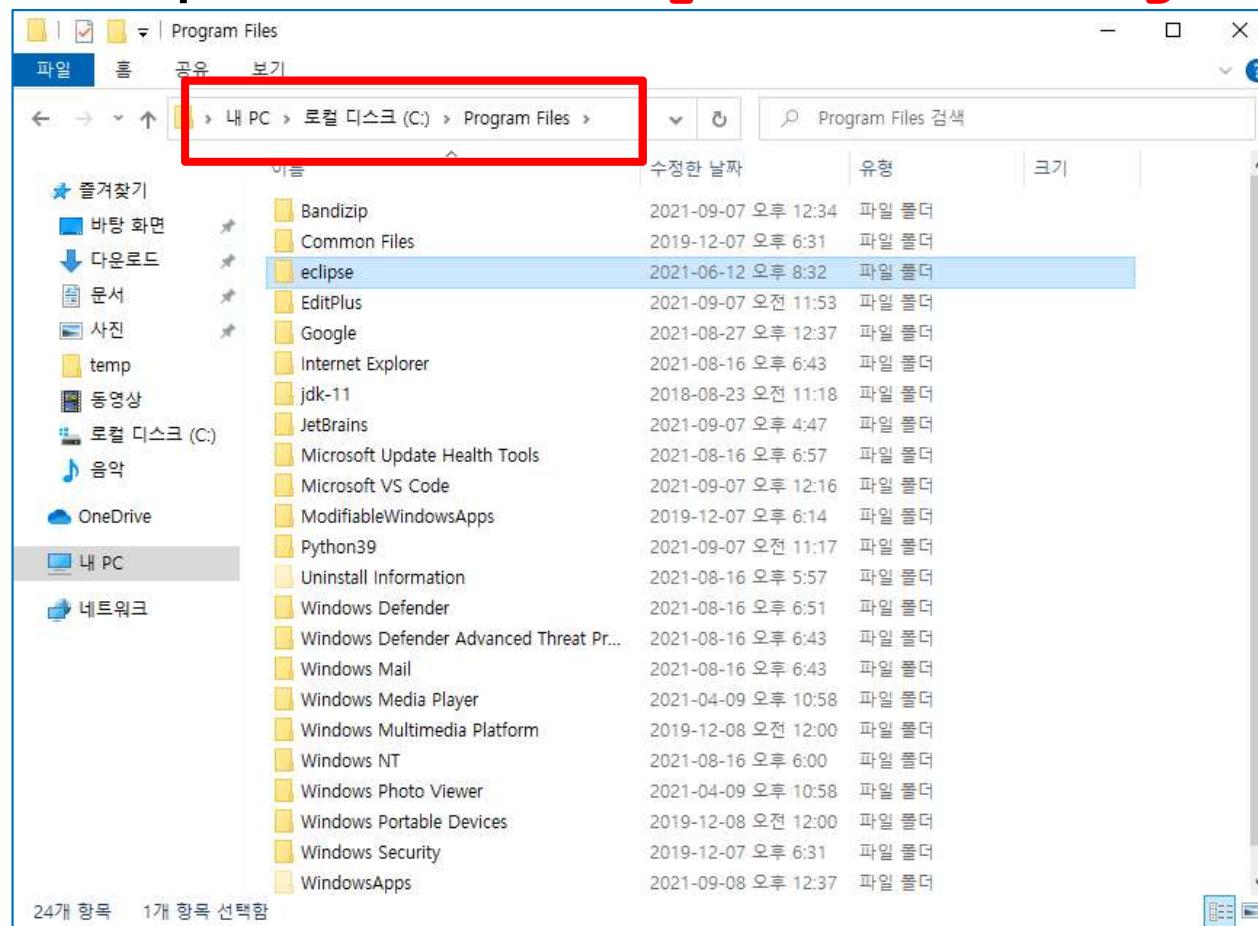
# Eclipse & PyDev in Windows (Cont.)

## 6. Uncompress **eclipse-java-\*\*.zip**



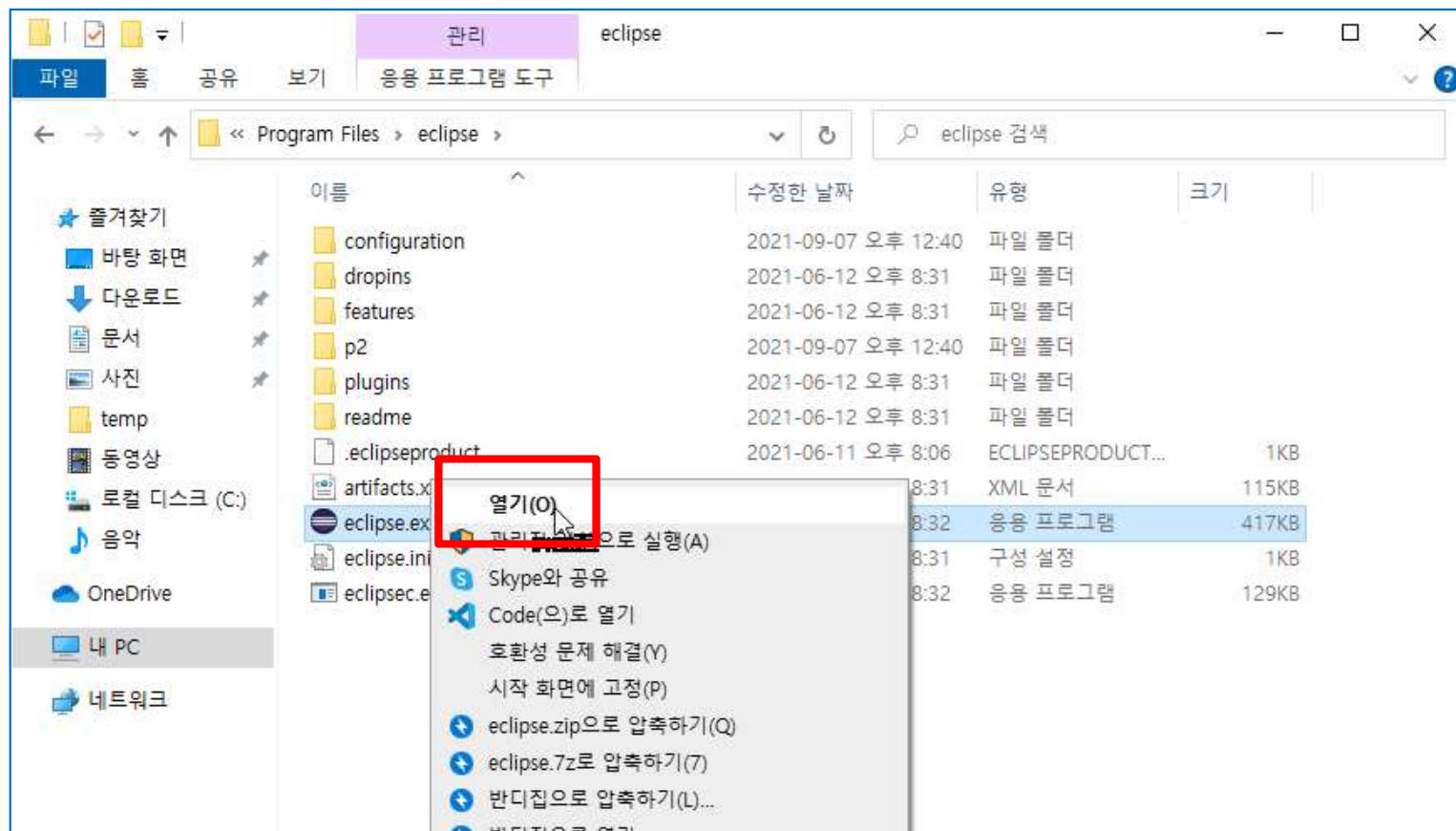
# Eclipse & PyDev in Windows (Cont.)

## 7. Move uncompressed **eclipse** into Program Files



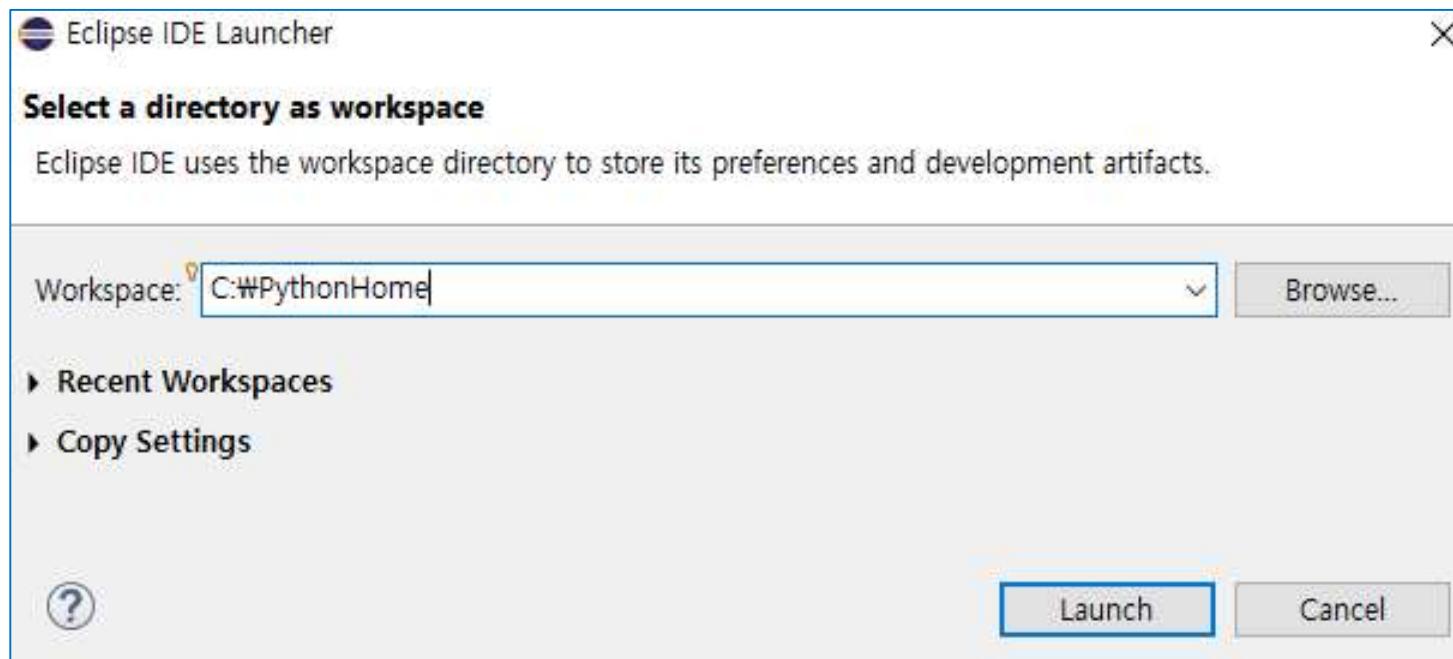
# Eclipse & PyDev in Windows (Cont.)

## 8. Execute **eclipse**

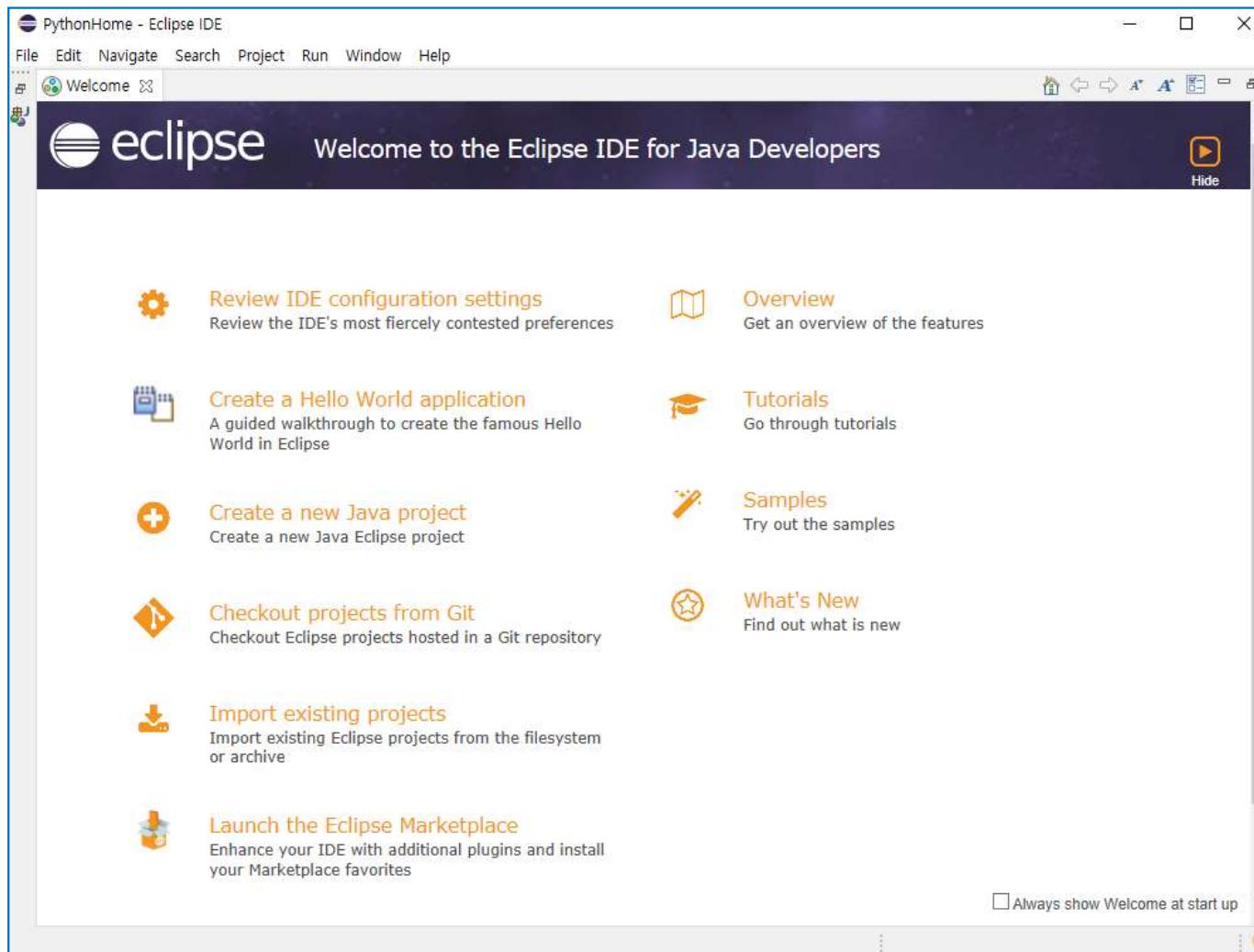


# Eclipse & PyDev in Windows (Cont.)

## 9. Select **workspace** for python code.

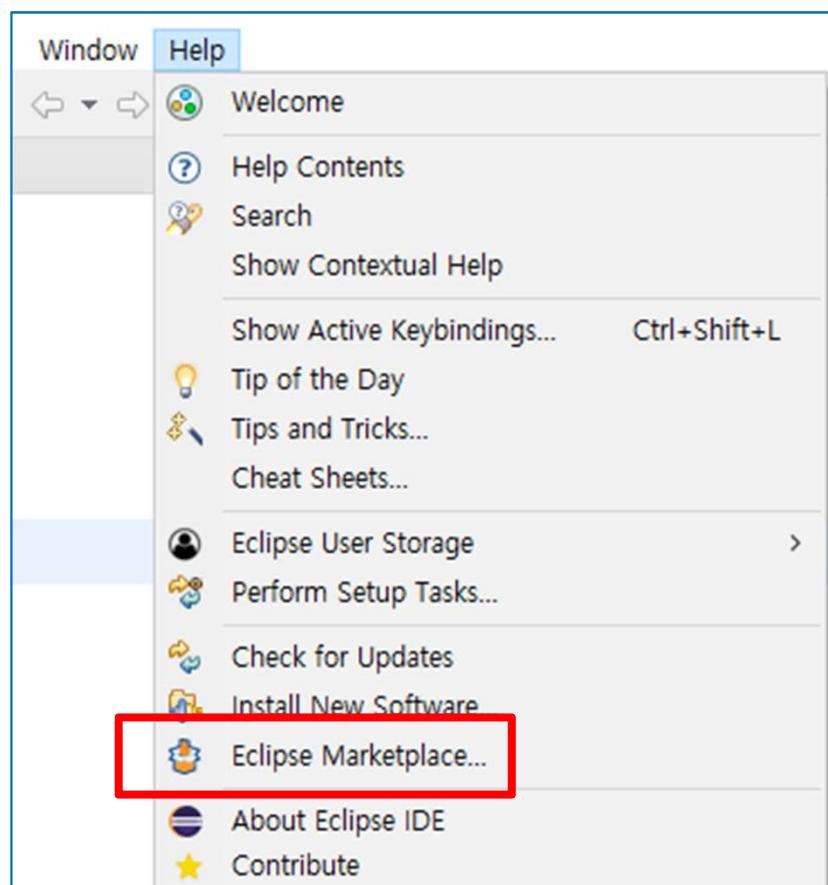


# Eclipse & PyDev in Windows (Cont.)



## Eclipse & PyDev in Windows (Cont.)

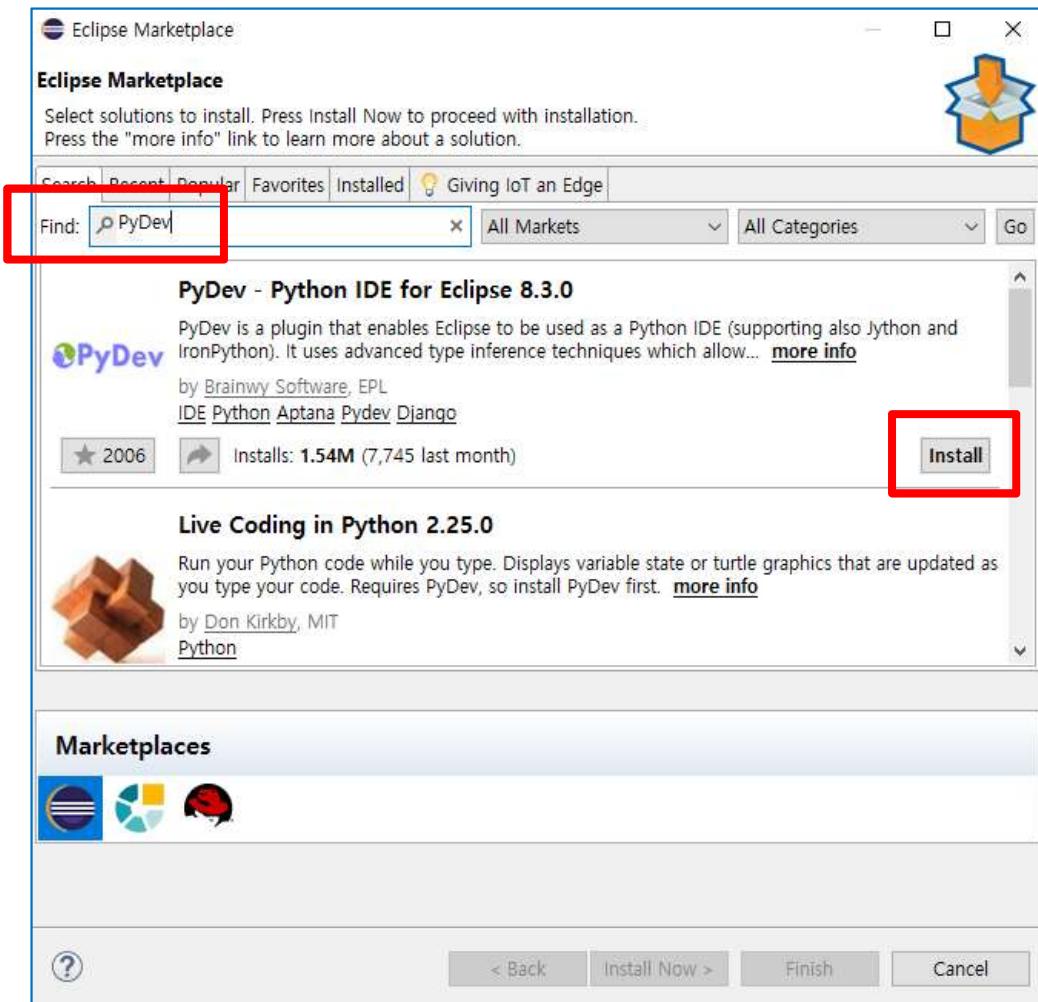
10. Click to **Help** > **Eclipse Marketplace...**



# Eclipse & PyDev in Windows (Cont.)

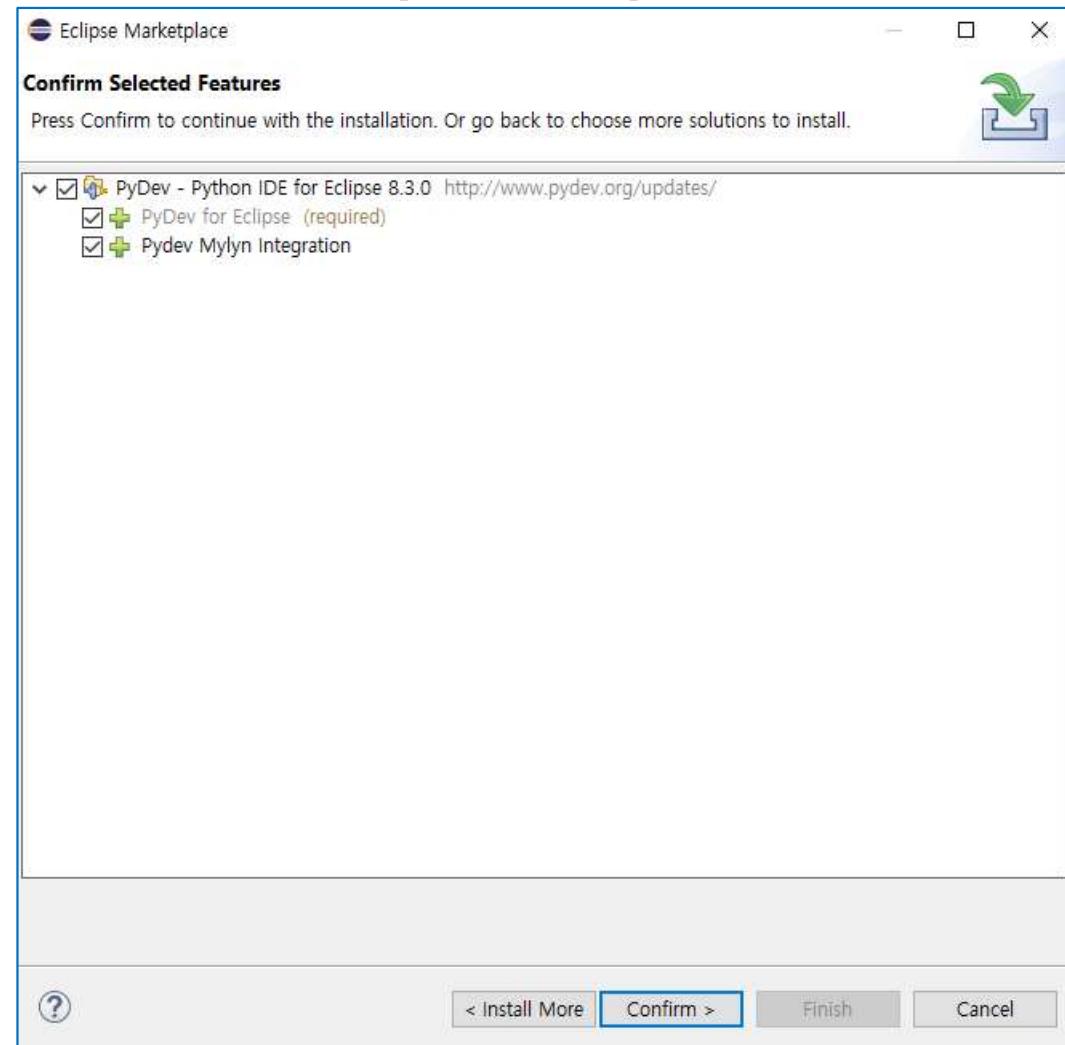
11. Search for **PyDev**

12. Click **Install**



# Eclipse & PyDev in Windows (Cont.)

13. Click Confirm

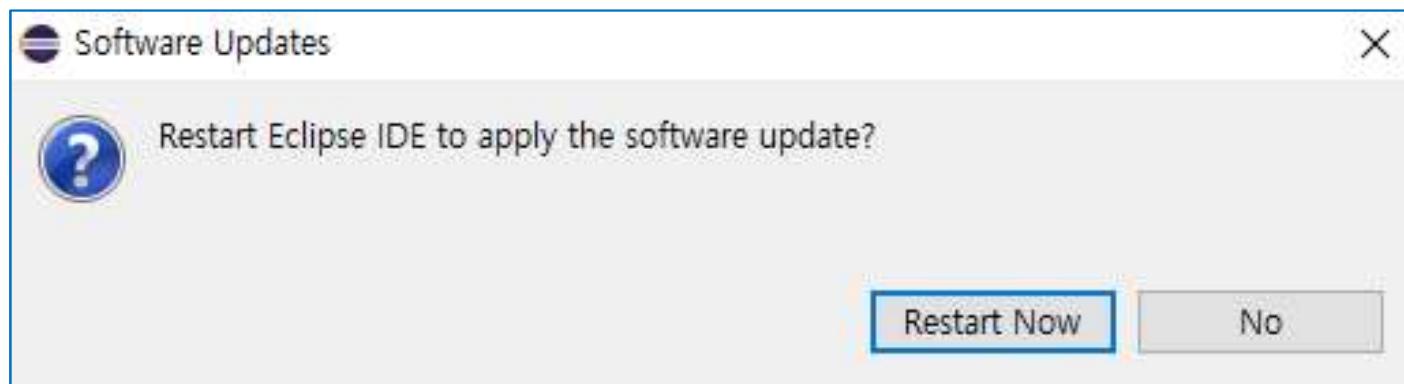


## Eclipse & PyDev in Windows (Cont.)

14. Select **I accept..**

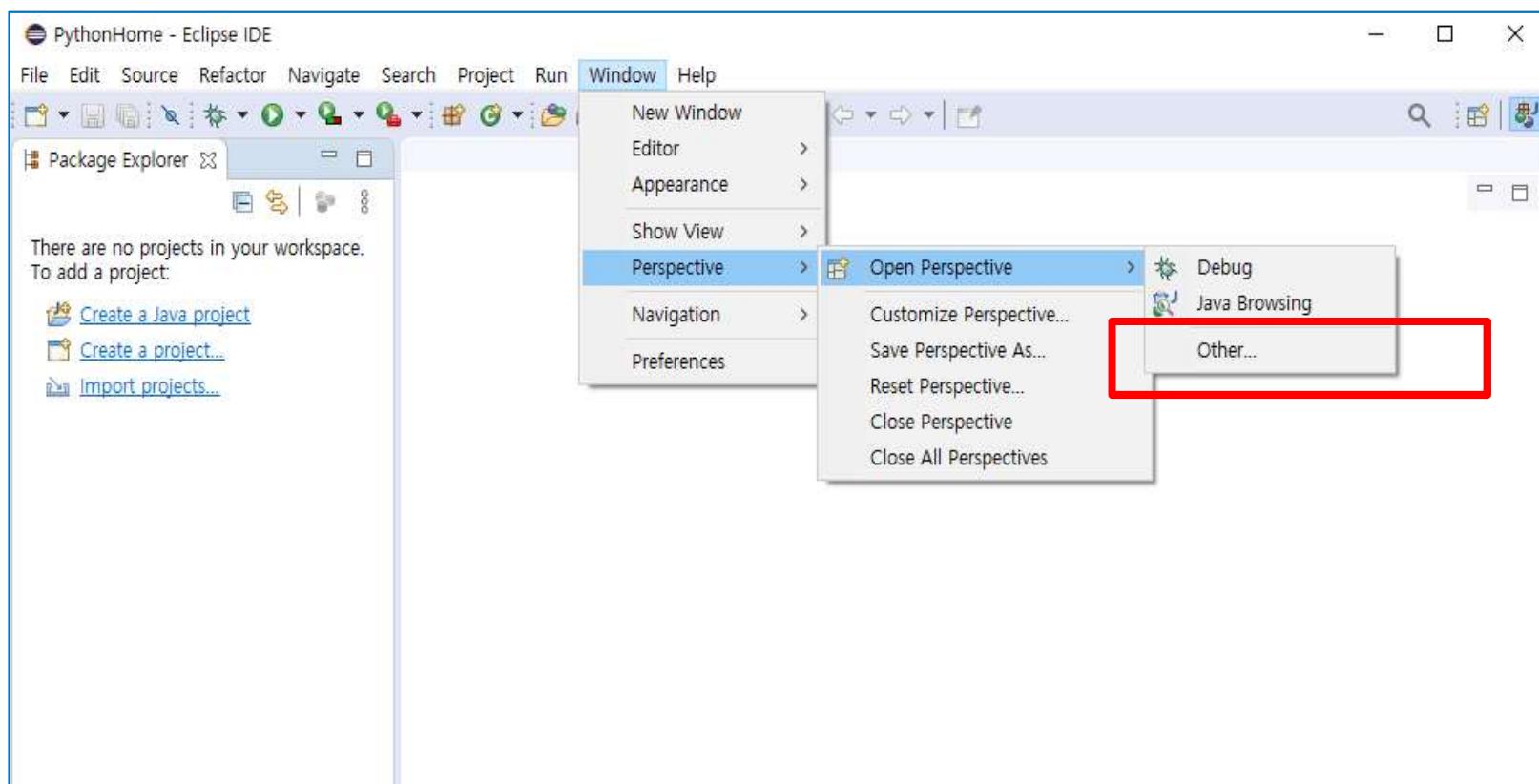
15. Click **Finish**

16. Click **Restart Now**



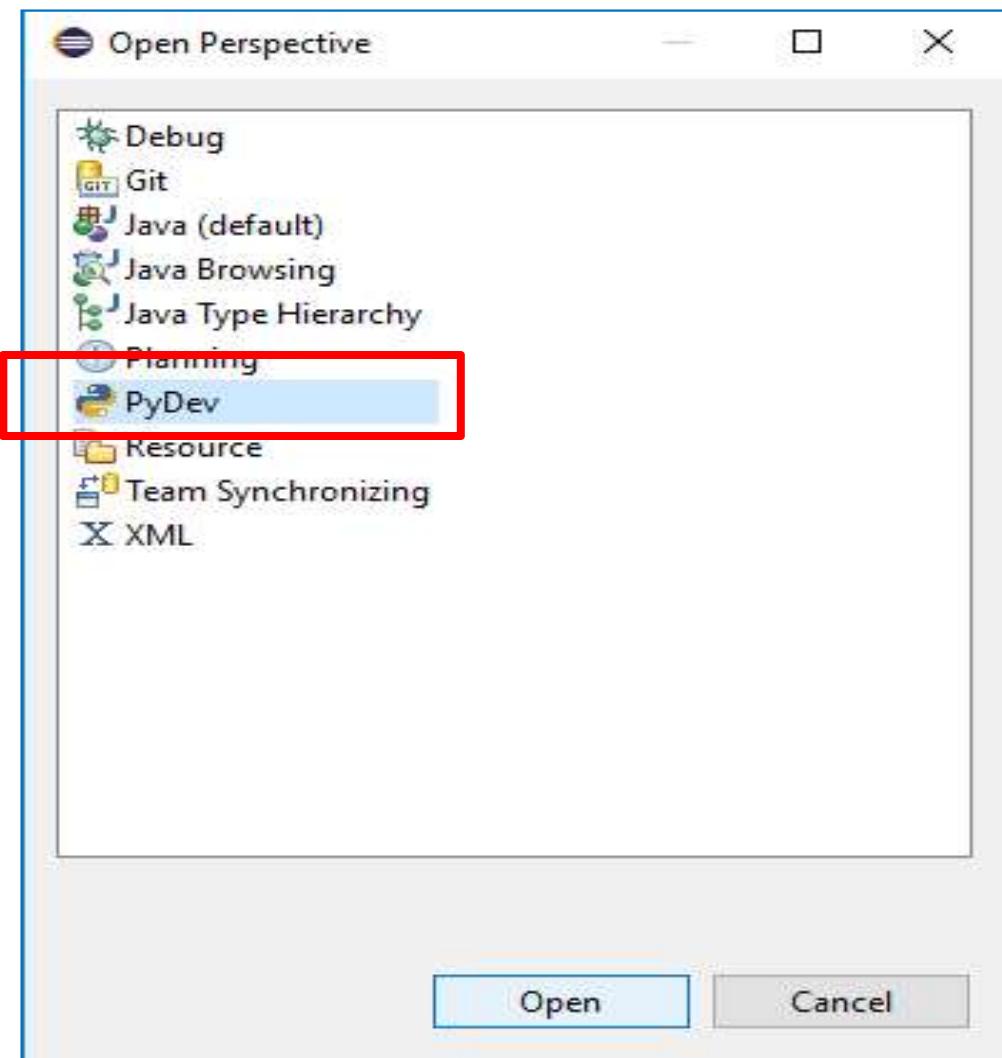
# Eclipse & PyDev in Windows (Cont.)

17. Click **Window > Perspective > Open Perspective > Other...**

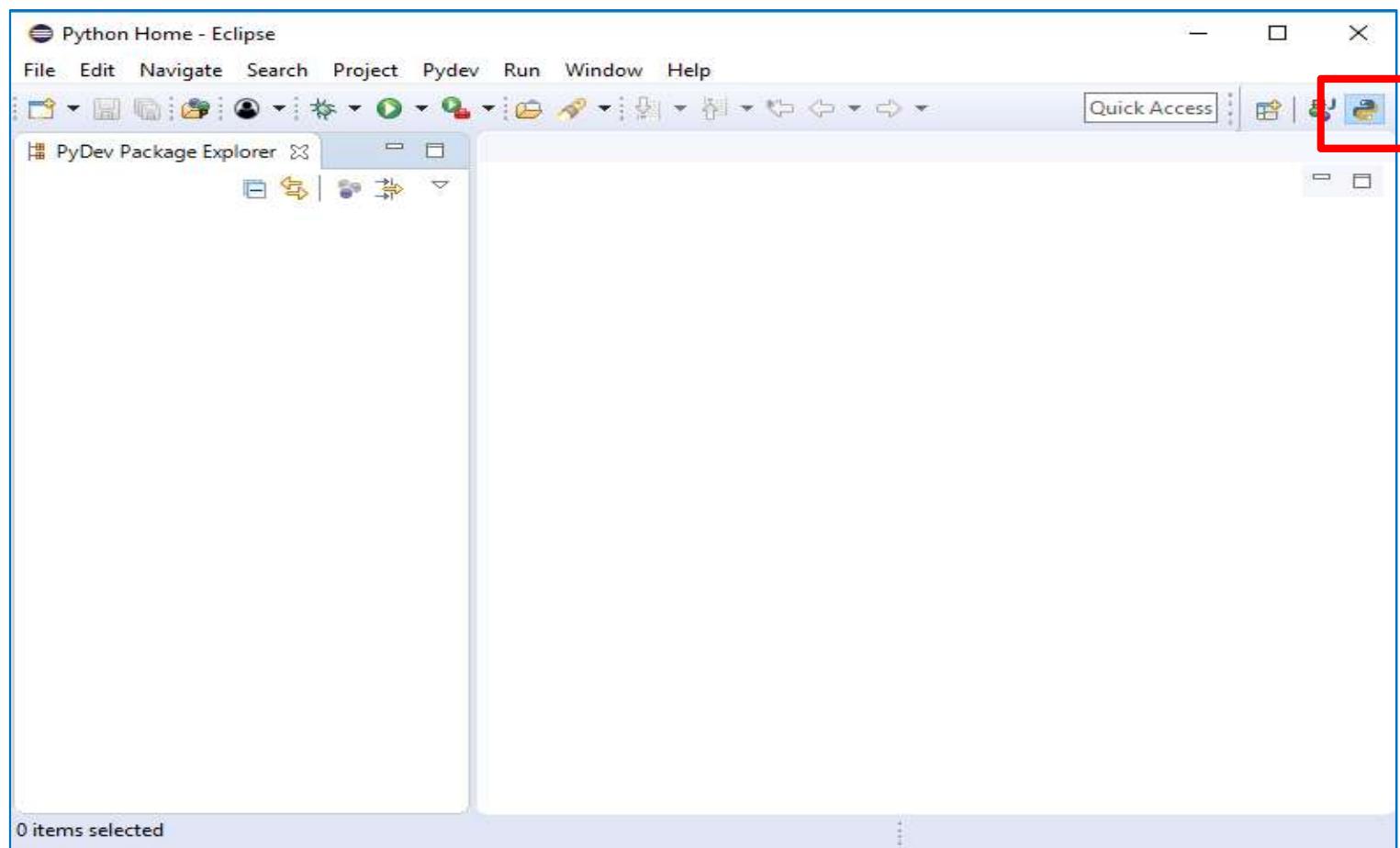


## Eclipse & PyDev in Windows (Cont.)

18. Select **PyDev** and Click **Open** button.

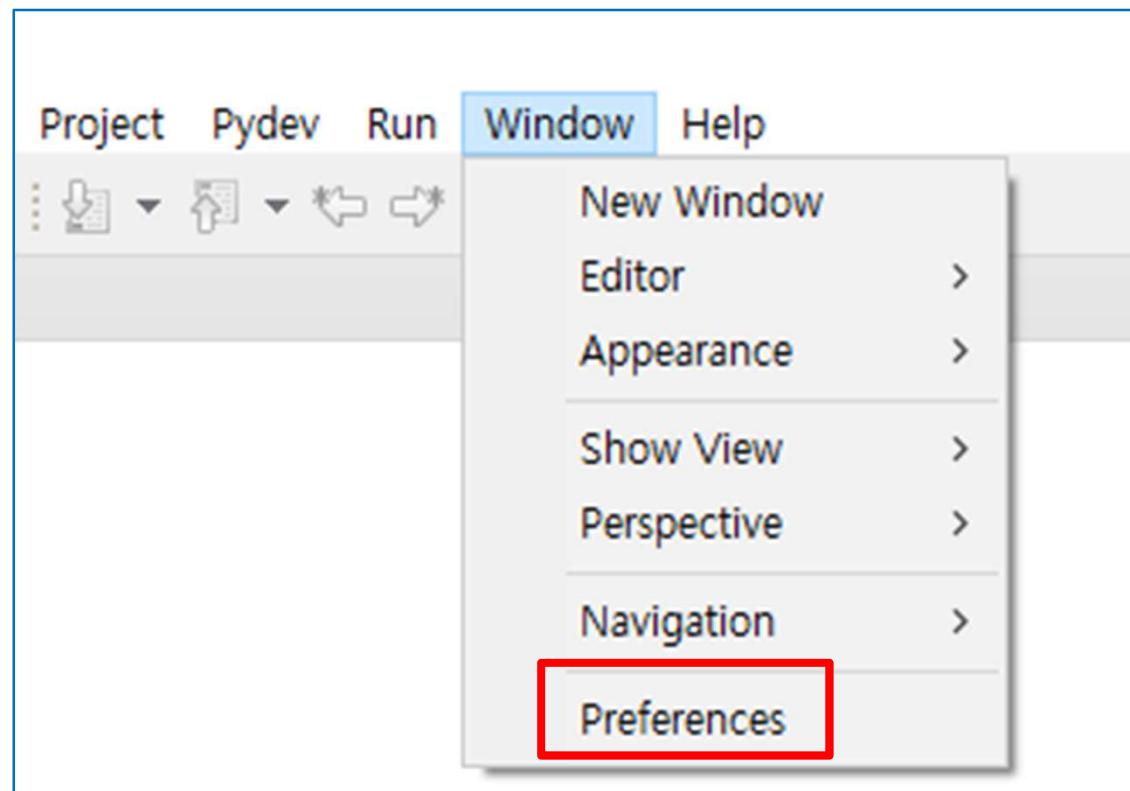


# Eclipse & PyDev in Windows (Cont.)



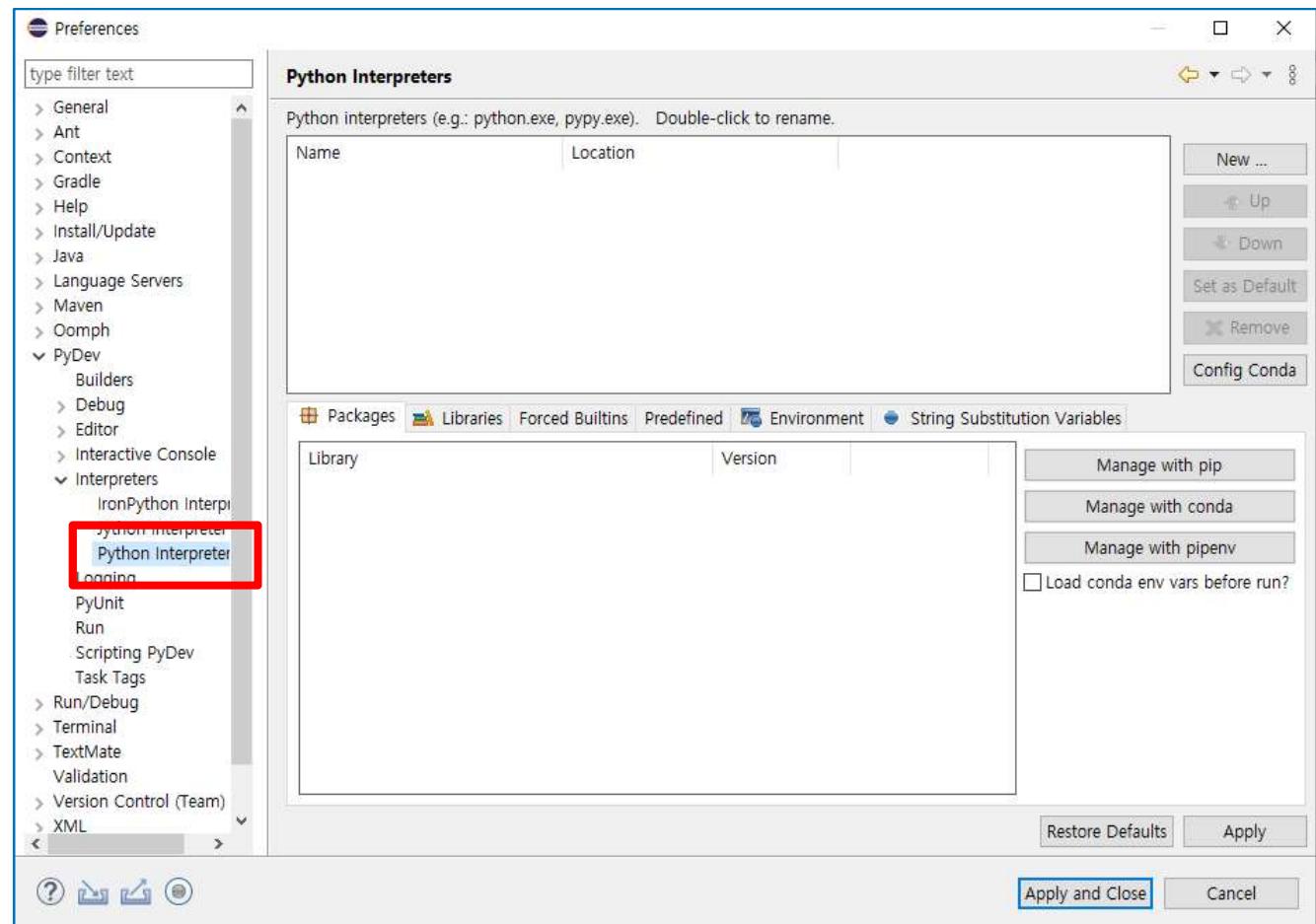
# Eclipse & PyDev in Windows (Cont.)

19. Click **Window > Preferences**



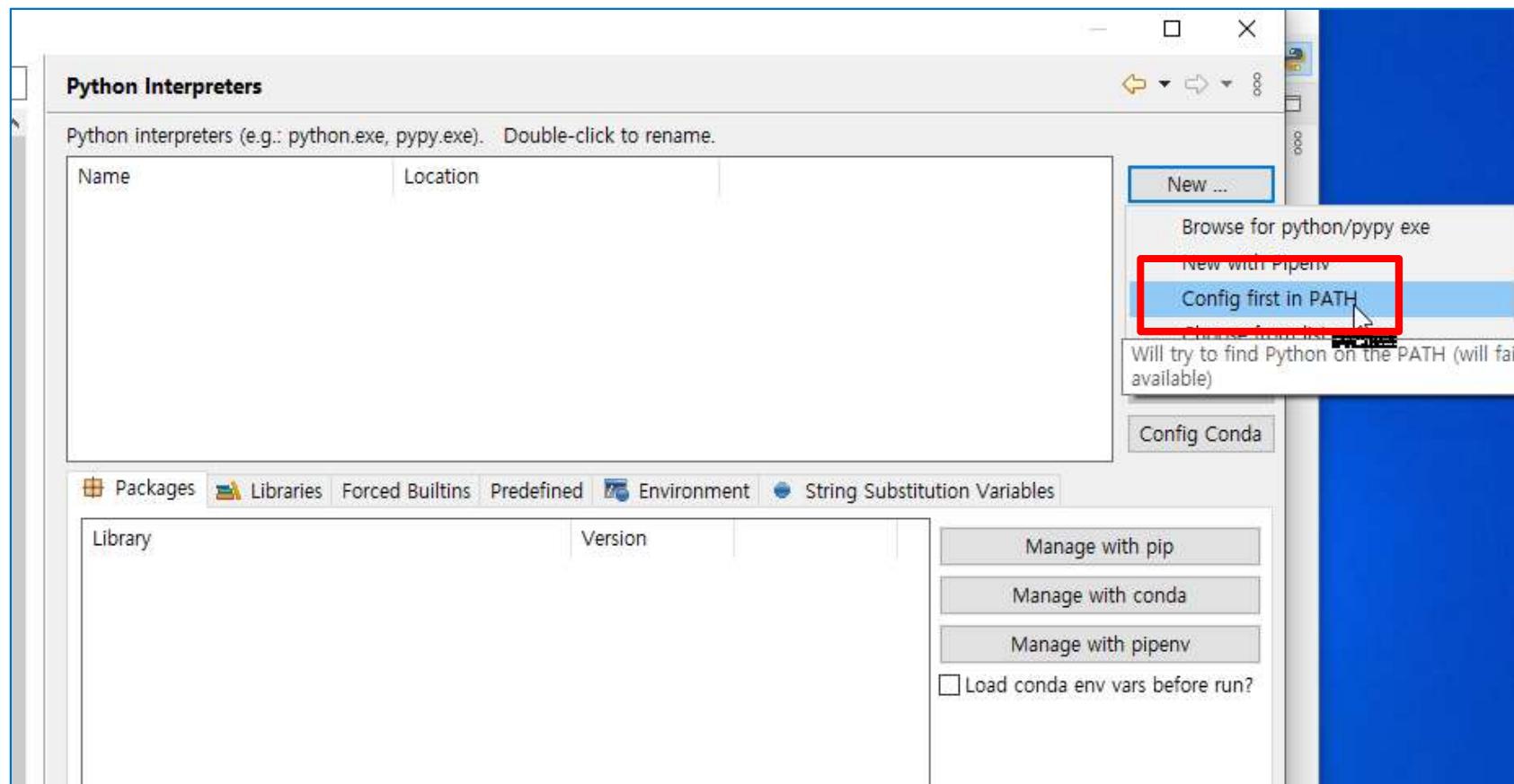
# Eclipse & PyDev in Windows (Cont.)

20. Click PyDev >  
Interpreters >  
Python  
Interpreter



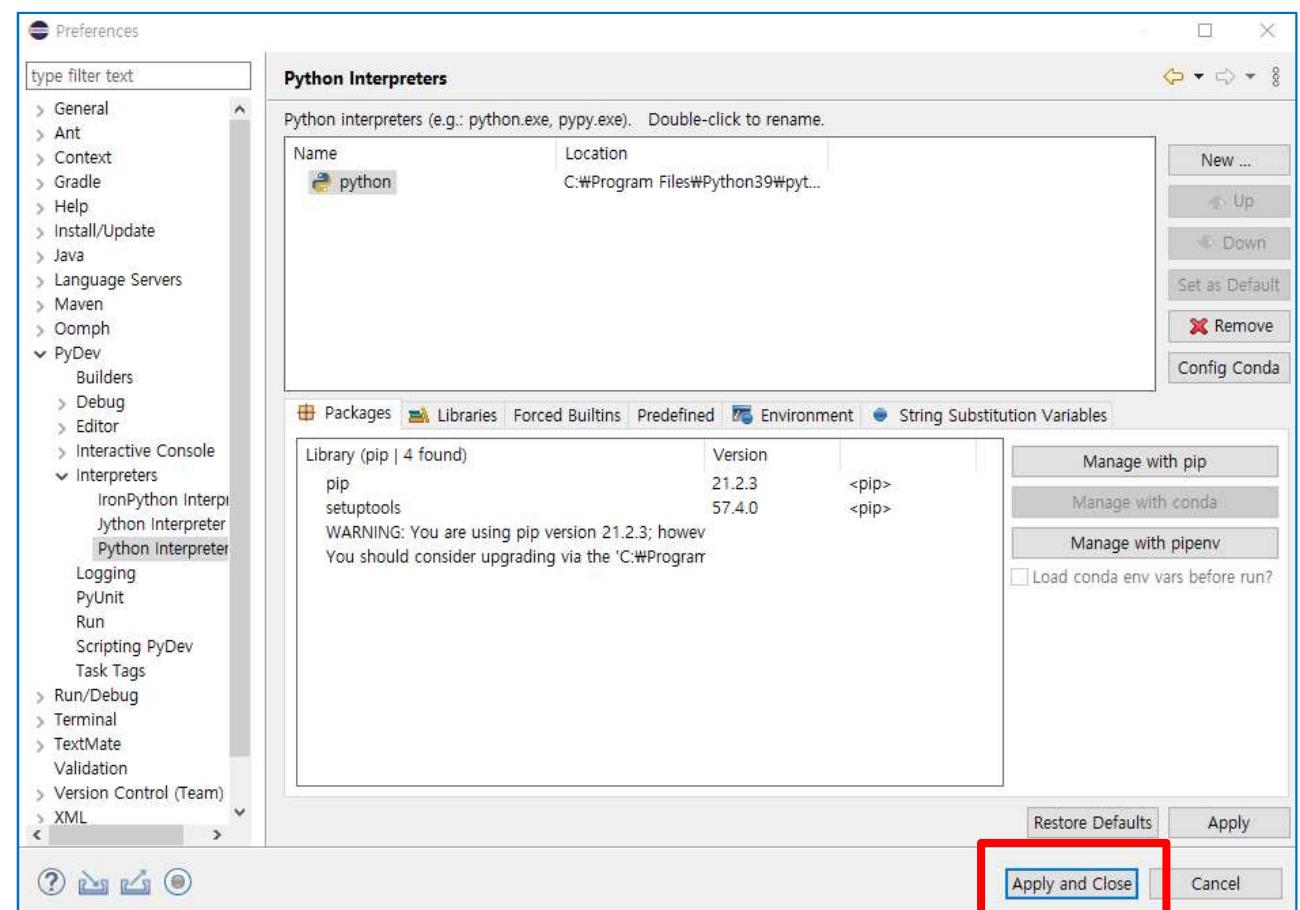
# Eclipse & PyDev in Windows (Cont.)

21. Click **New > Config first in PATH** button.



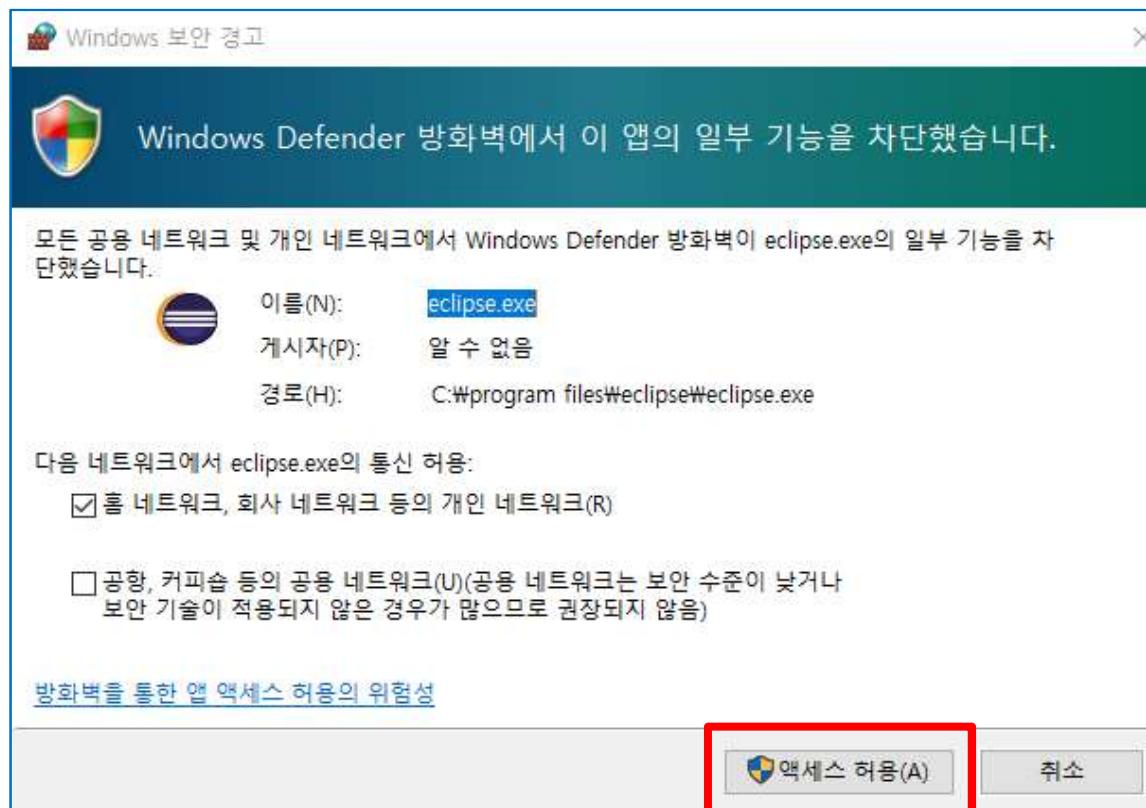
# Eclipse & PyDev in Windows (Cont.)

22. Click **Apply** and **Close** button.



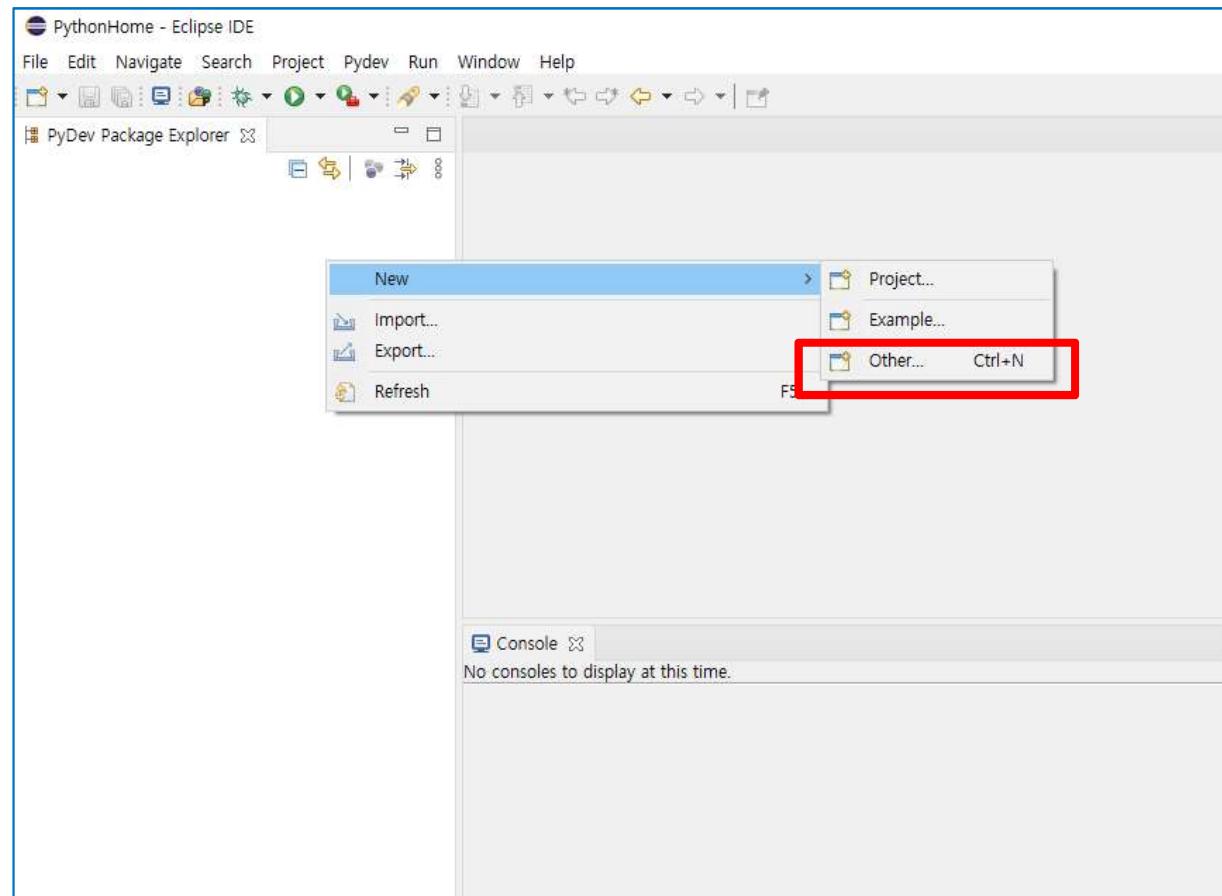
# Eclipse & PyDev in Windows (Cont.)

23. Click **Allow access** button.



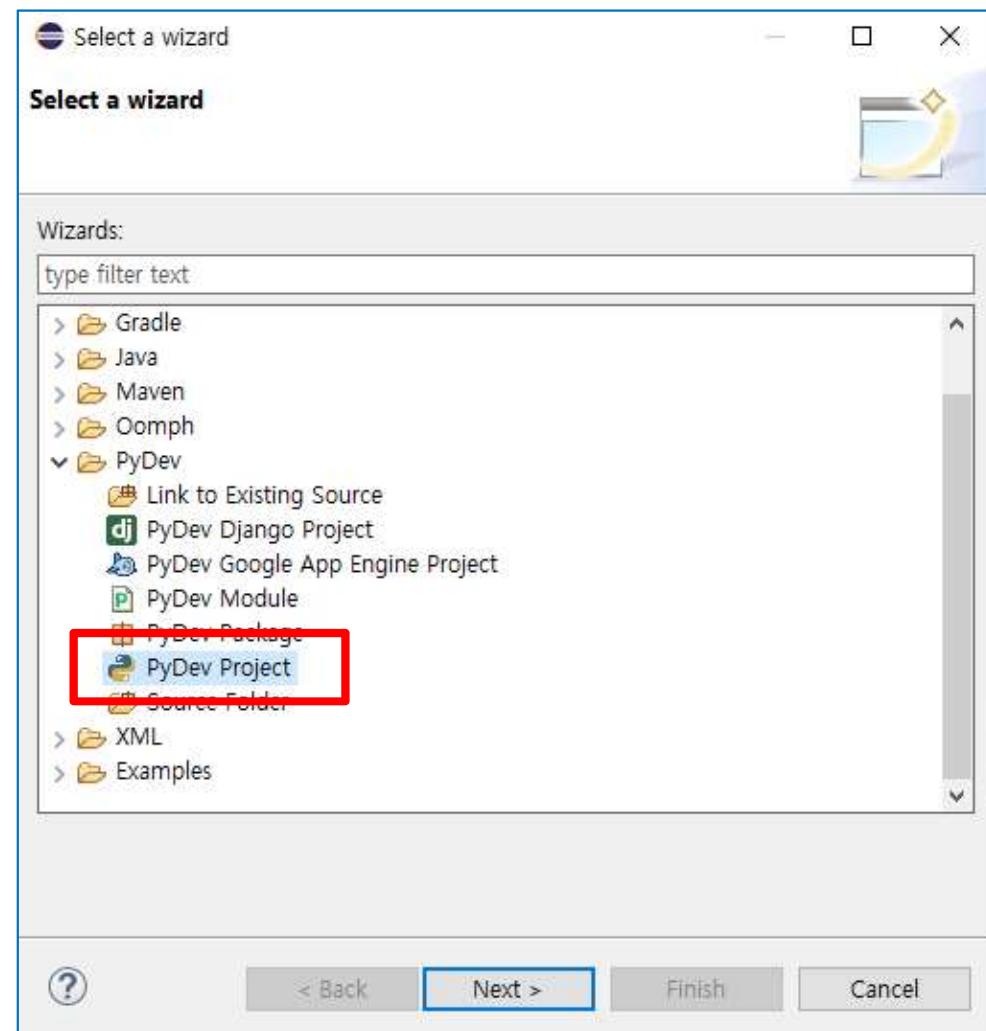
# Eclipse Hello World Project

1. In PyDev Package Explorer > right-click >  
New > Other...



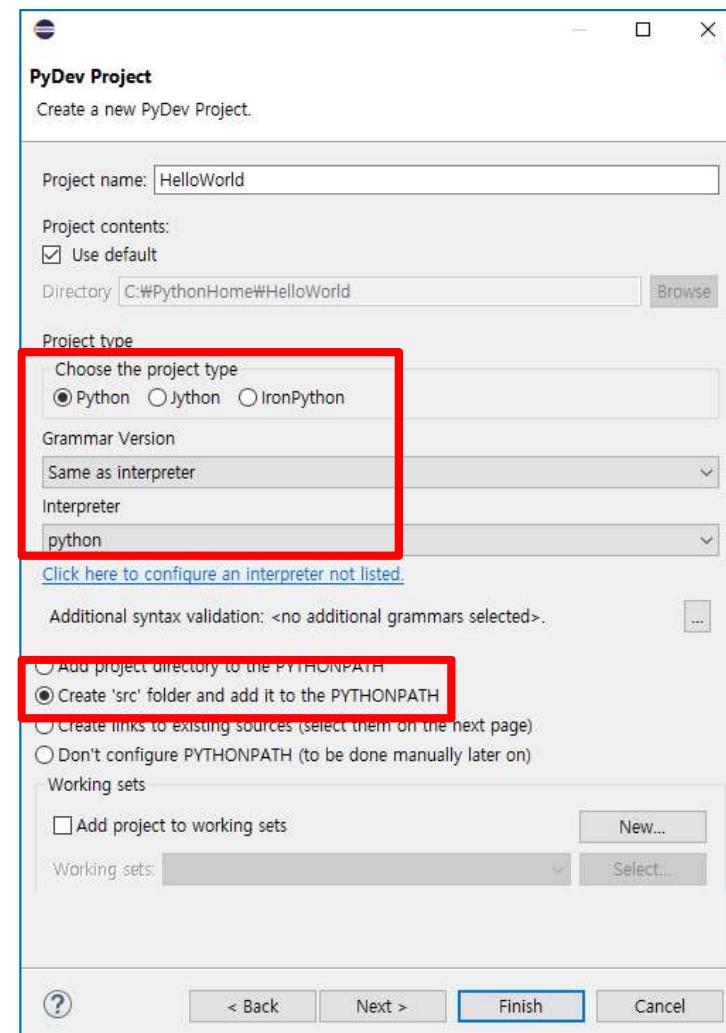
# Eclipse Hello World Project (Cont.)

2. Click **PyDev > PyDev Project**
3. Click **Next** button.



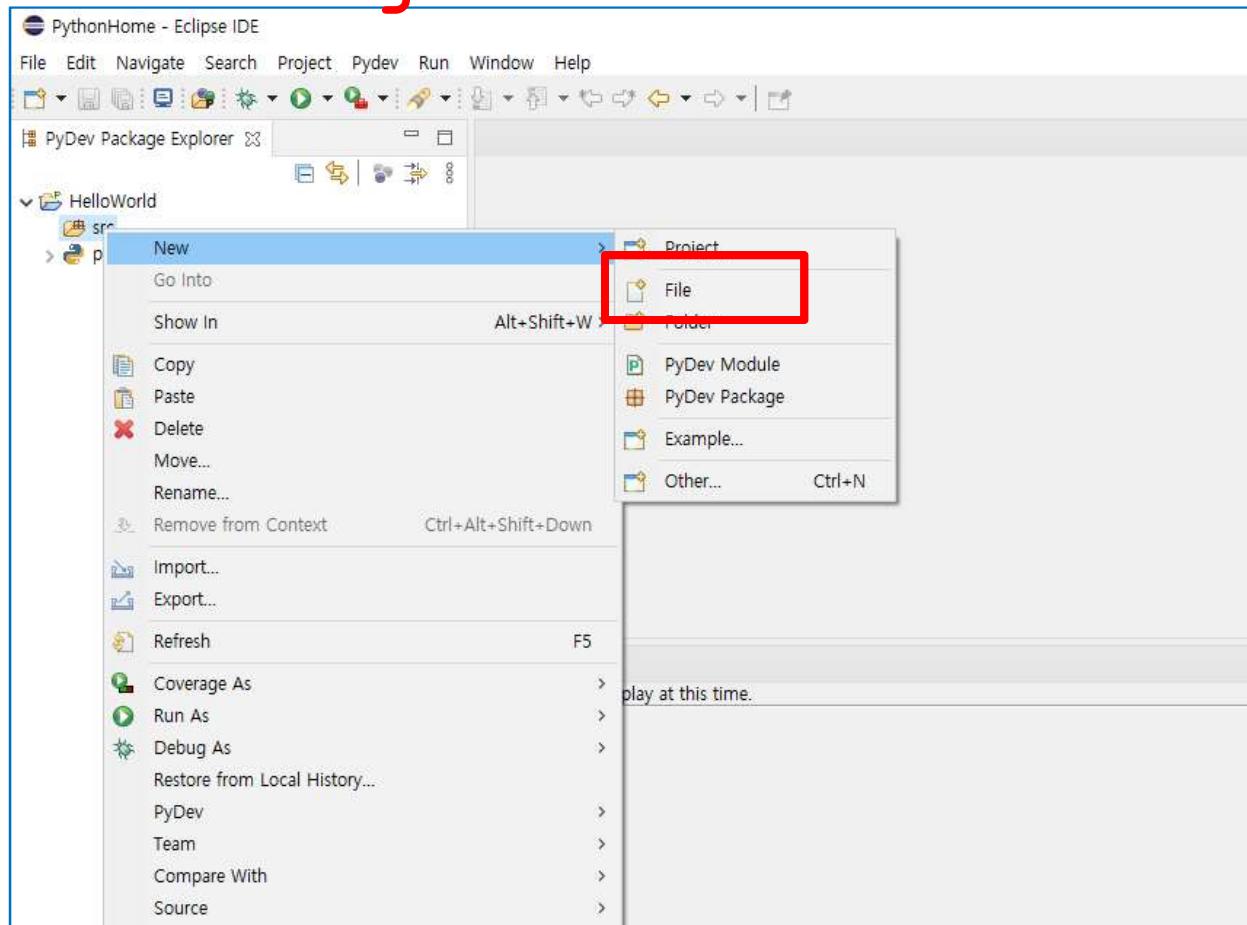
# Eclipse Hello World Project (Cont.)

4. Project name :
5. Grammar Version : **Same as Interpreter**
6. Interpreter : **python**
7. Select **Create 'src' ...**
8. Click **Finish** button.



# Eclipse Hello World Project (Cont.)

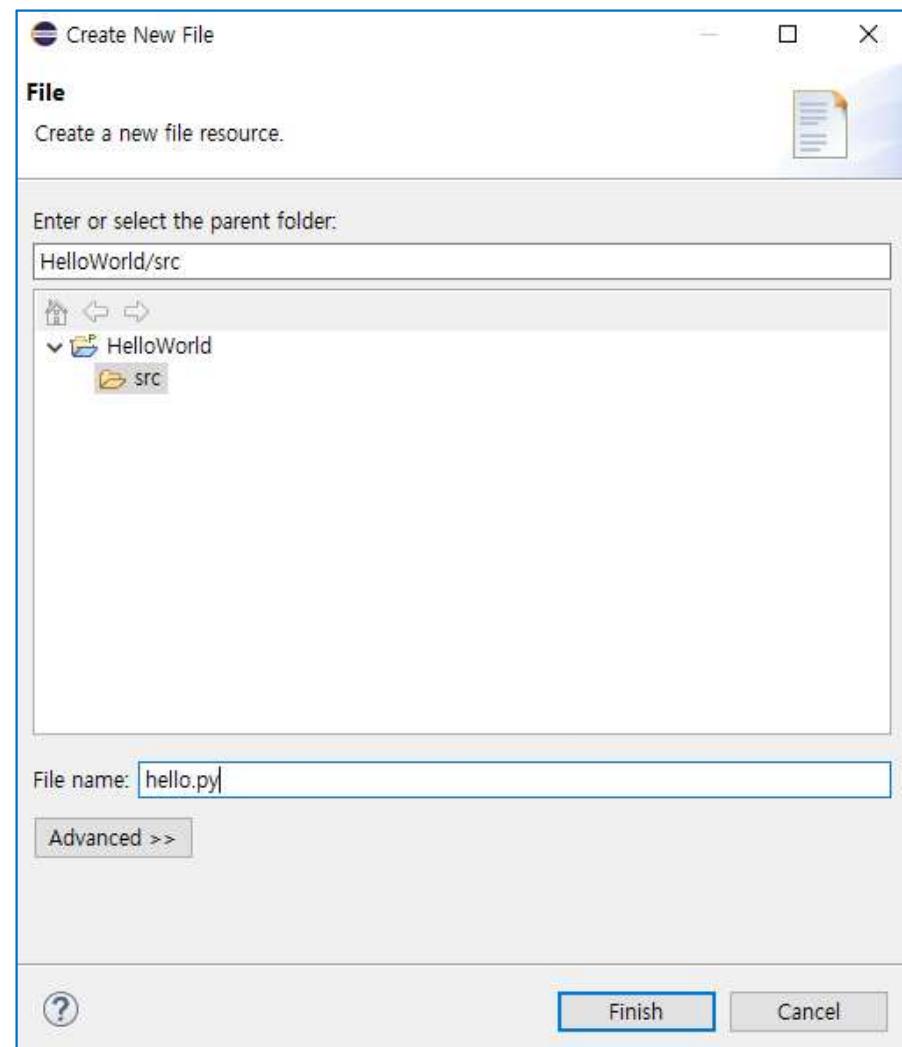
9. In **src** folder > **right-click** > **New** > **File**



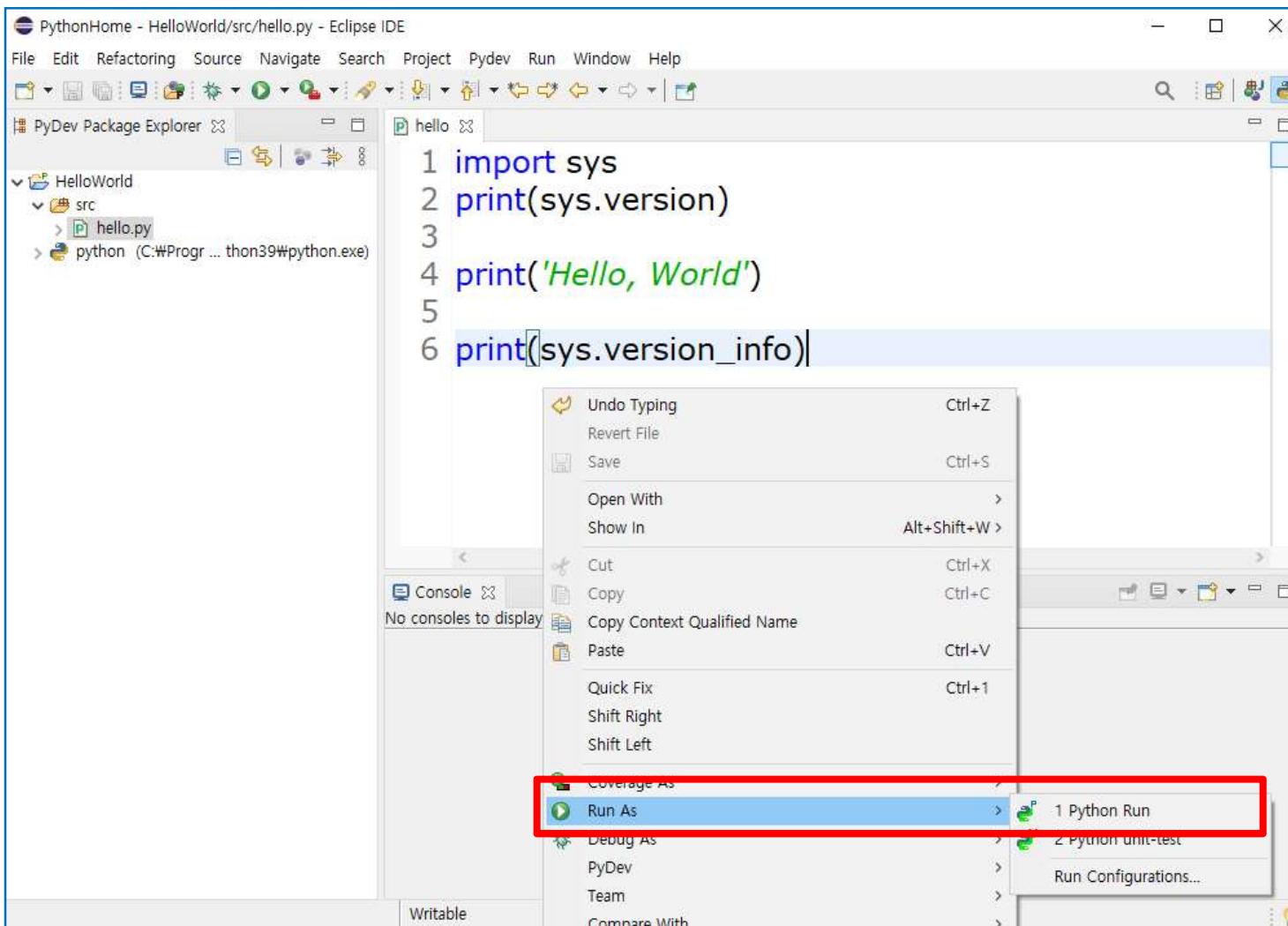
# Eclipse Hello World Project (Cont.)

10. File name :

11. Click **Finish** button.



# Eclipse Hello World Project (Cont.)



# Eclipse Hello World Project (Cont.)

The screenshot shows the Eclipse IDE interface with a Python project named "hello". The code editor window displays the following Python script:

```
1 import sys
2 print(sys.version);
3
4 print('Hello, World')
5
6 print(sys.version_info)
```

The "Console" tab at the bottom shows the output of running the script:

```
<terminated> hello.py [C:\Program Files\Python39\python.exe]
3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)]
Hello, World
sys.version_info(major=3, minor=9, micro=7, releaselevel='final', serial=0)
```

# Eclipse Hello World Project (Cont.)

```
c:\PythonHome\HelloWorld\src>dir
C 드라이브의 볼륨에는 이름이 없습니다.
볼륨 일련 번호: F400-FE6B

c:\PythonHome\HelloWorld\src 디렉터리

2021-09-07 오후 04:37 <DIR> .
2021-09-07 오후 04:37 <DIR> ..
2021-09-07 오후 04:34 83 hello.py
|   1개 파일 83 바이트
2개 디렉터리 77,871,775,744 바이트 남음

c:\PythonHome\HelloWorld\src>python hello.py
3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)]
Hello, World
sys.version_info(major=3, minor=9, micro=7, releaselevel='final', serial=0)
```

# PyDev Interactive Console

1. Type **F2**.
2. Select **Console for currently active editor**

The screenshot shows the PyDev IDE interface. At the top, there is an editor window titled '+hello' containing Python code:

```
1 import sys
2 print(sys.version);
3
4 print('Hello, World')
5
6 print(sys.version_info)
7 |
```

Below the editor is a console window titled 'Console' showing the output of the executed script:

```
<terminated> hello.py [C:\Program Files\Python38\python.exe]
3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)]
Hello, World
sys.version_info(major=3, minor=8, micro=2, releaselevel='final', serial=0)
```

# PyDev Interactive Console (Cont.)

The screenshot shows the PyDev IDE interface. At the top, there is a code editor window titled "hello" containing the following Python script:

```
1 import sys
2 print(sys.version);
3
4 print('Hello, World')
5
6 print(sys.version_info)
```

Below the code editor is a "PyDev Console [0]" window. It displays the output of running the script:

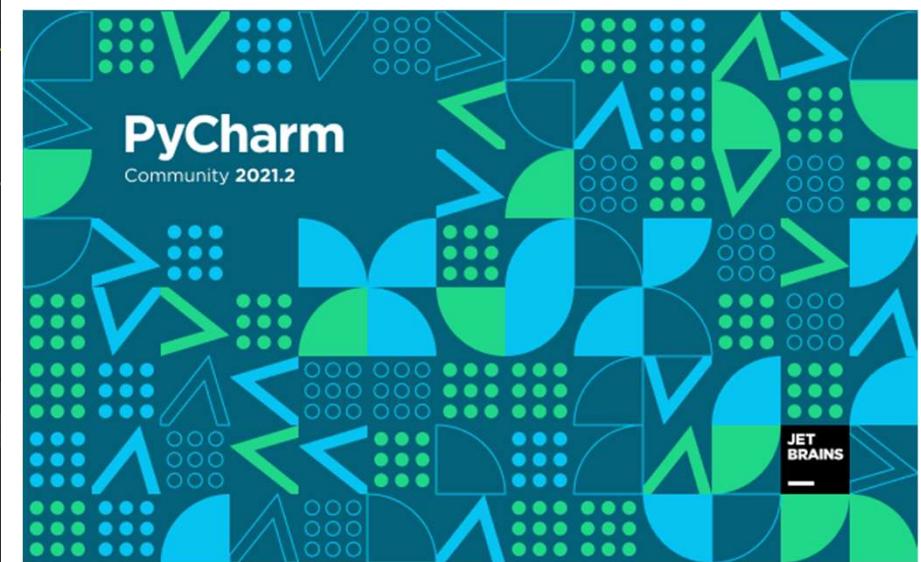
```
>>> import sys; print('%s %s' % (sys.executable or sys.platform, sys.version))
C:\Program Files\Python39\python.exe 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021,
>>>
>>> print(4 + 5)
9
>>> |
```

# PyCharm – Shareware/Freeware



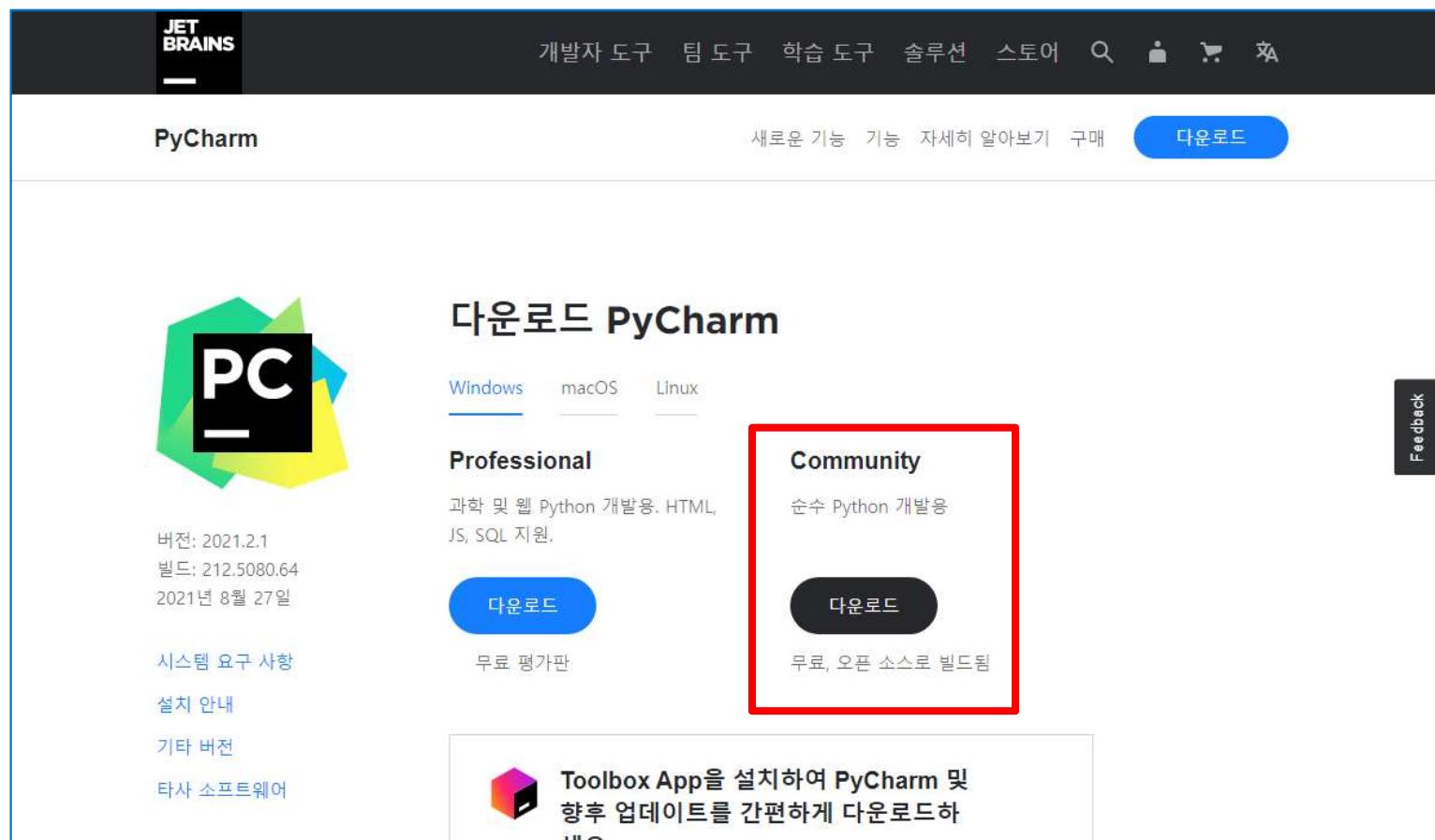
```
import sys
print(sys.version)
print('Hello, World')
print(sys.version_info)
```

Process finished with exit code 0

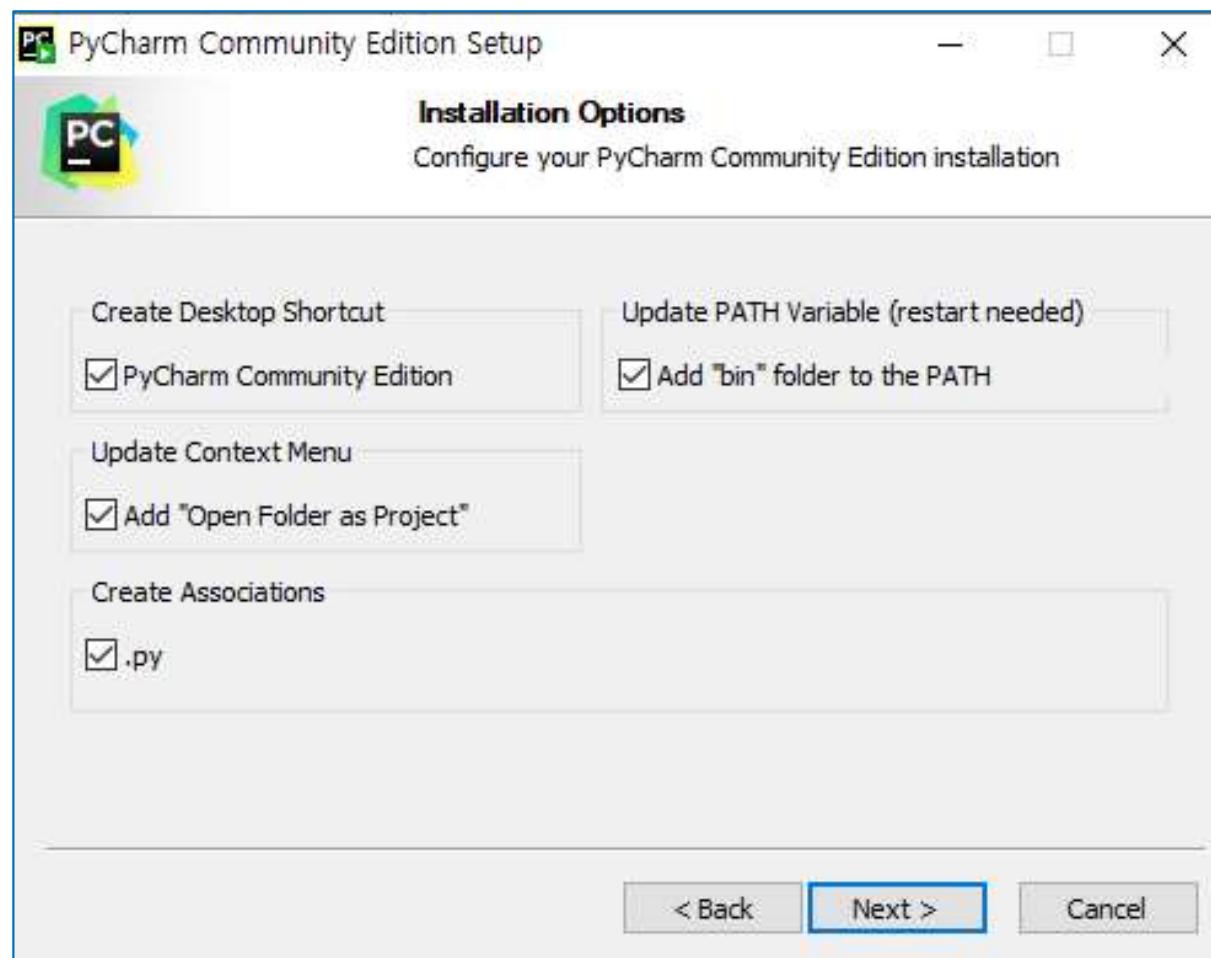


# PyCharm – Shareware/Freeware (Cont.)

- Visit <https://www.jetbrains.com/pycharm/>



# PyCharm – Shareware/Freeware (Cont.)



# PyCharm – Shareware/Freeware (Cont.)

The screenshot shows the PyCharm IDE interface. The top menu bar includes File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, Help, and a tab labeled HelloWorld - hello.py. The main window has a dark theme. On the left is a Project tool window showing a project named 'HelloWorld' with a 'src' folder containing 'hello.py', '.project', and '.pydevproject'. Below these are 'External Libraries' and 'Scratches and Consoles'. The central code editor window displays the following Python code:

```
import sys
print(sys.version);
print('Hello, World')
print(sys.version_info)
```

The bottom right corner of the code editor shows two small warning icons. At the bottom of the screen is a Run tool window. It shows the command "C:\Program Files\Python39\python.exe" C:/PythonHome/HelloWorld/src/hello.py, the output "3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)]", the printed text "Hello, World", the version information "sys.version\_info(major=3, minor=9, micro=7, releaselevel='final', serial=0)", and the message "Process finished with exit code 0". The bottom navigation bar includes Run, TODO, Problems, Terminal, Python Packages, Python Console, Event Log, and a status message about indexing completed. The status bar at the very bottom shows indexing progress, file encoding (1:1 CRLF), character set (UTF-8), spaces (4 spaces), Python version (Python 3.9), and a file size indicator.

# Python Coding using Web

## ■ Codepad(<http://codepad.org>)

The image shows two side-by-side browser windows demonstrating the Codepad web application.

**Left Window:** The URL is [codepad.org](http://codepad.org). The code editor contains the Python code: `print ('Hello, World')`. The language dropdown menu is set to Python. Below the code editor are three buttons: "Private" (unchecked), "Run code" (checked), and "Submit". To the right of the code editor is a sidebar with a "Recent Pastes" section containing links: "Get a Project Page", "Hello World Examples", "FizzBuzz", "Vim Plugin", and "Emacs Integration". A text block below the sidebar states: "codepad was created by Steven Hazel, one of the founders of [Sauce Labs](#)".

**Right Window:** The URL is [codepad.org/h8HBfQal](http://codepad.org/h8HBfQal). The code editor shows the same Python code: `print ('Hello, World')`. The output window below it displays the result: "Hello, World". The "New paste" section at the bottom has "Language: Python" selected. At the bottom of both windows are the "Private", "Run code", and "Submit" buttons.

# Python Coding using Web

## ■ Paiza.io(<https://paiza.io>)

