

Configure for Lab

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

Installation Python Interpreter on Windows 10 64-bit Platform

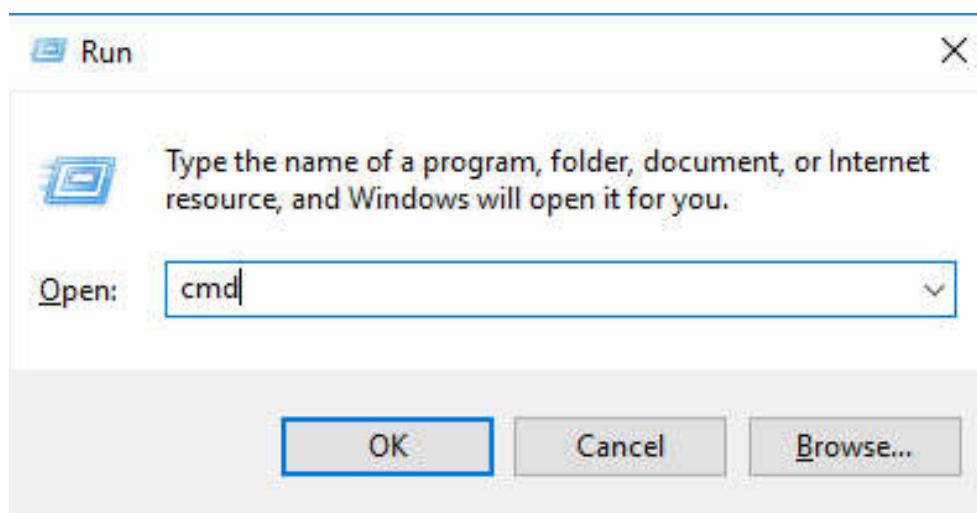


Install Python Interpreter

1. Type



2. Type **cmd**



Install Python Interpreter (Cont.)

3. Type **python**.

cmd 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.
```

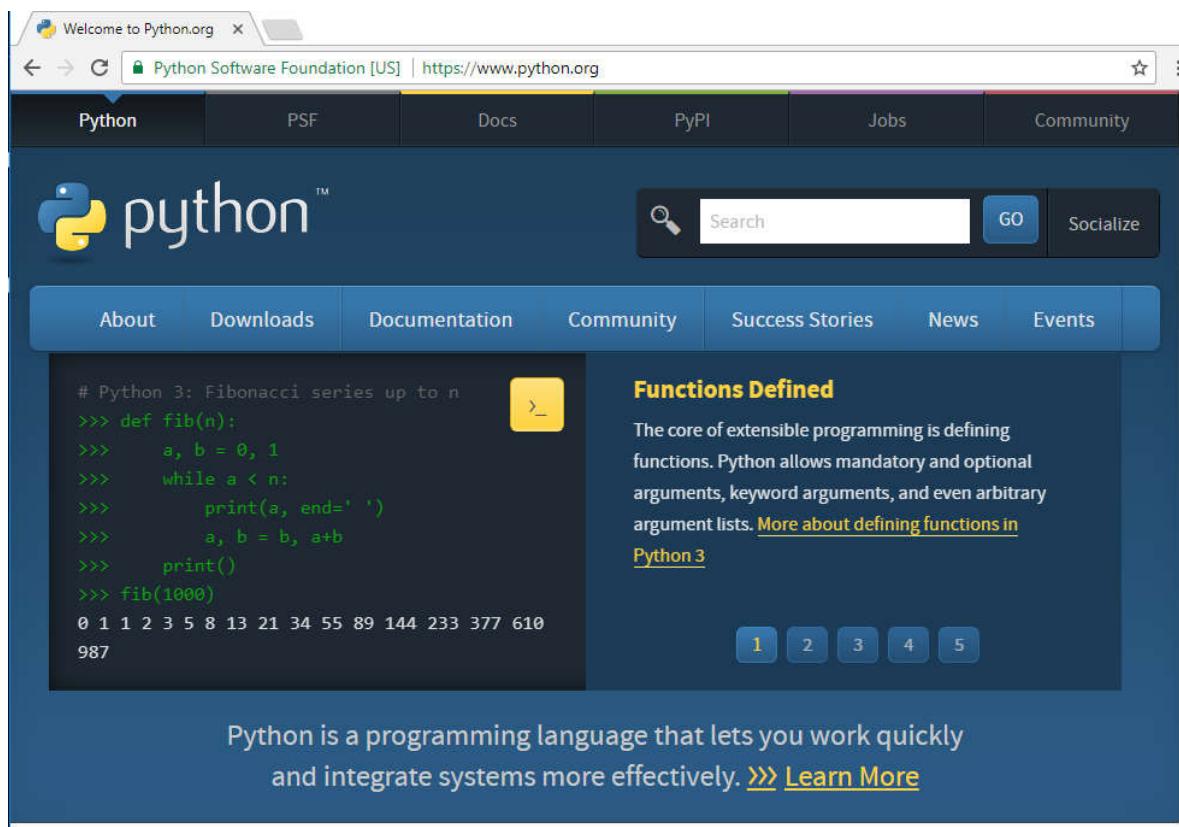
4. Type **wmic os get osarchitecture**

cmd Command Prompt

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

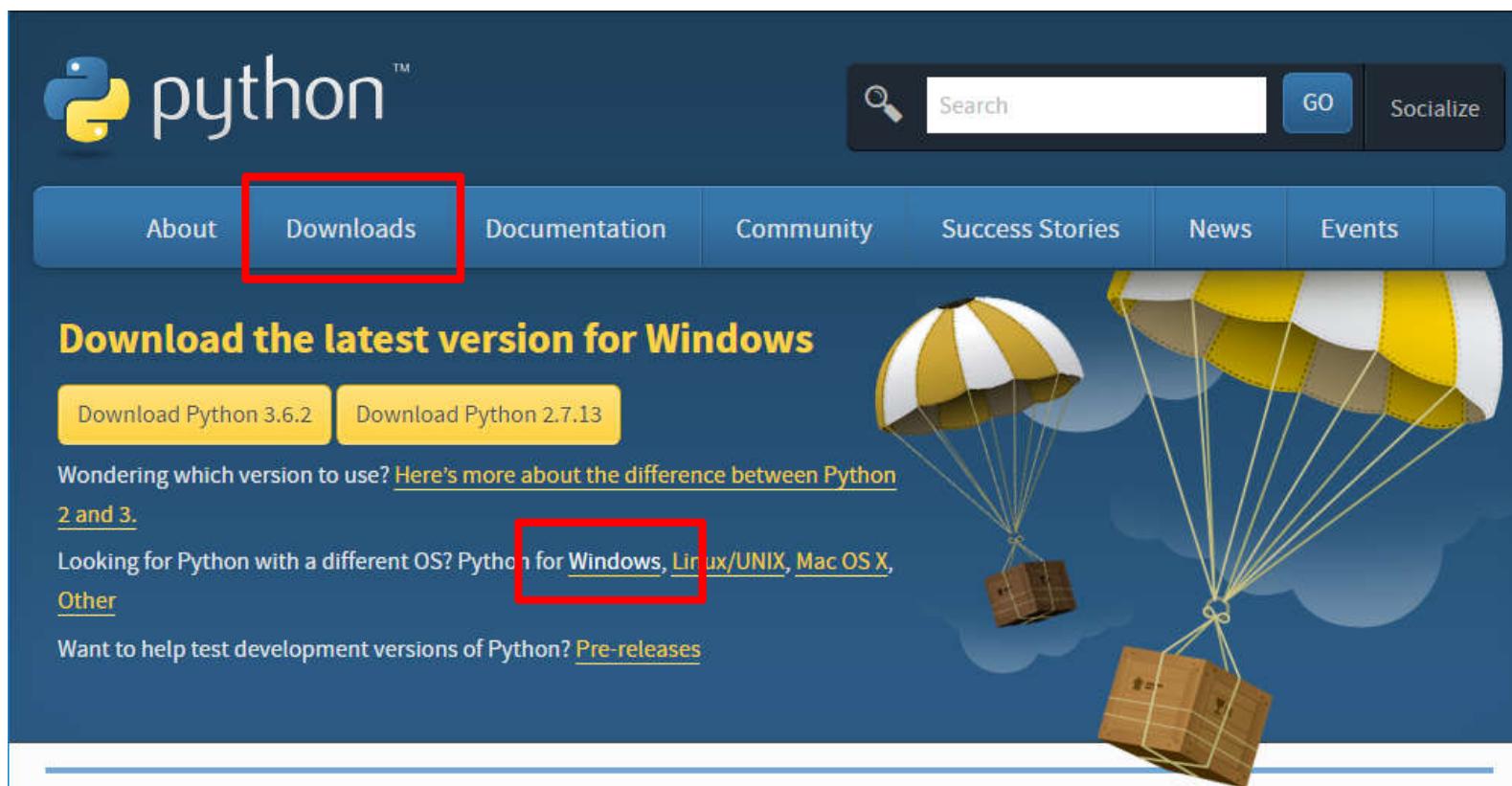
Install Python Interpreter (Cont.)

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



Install Python Interpreter (Cont.)

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



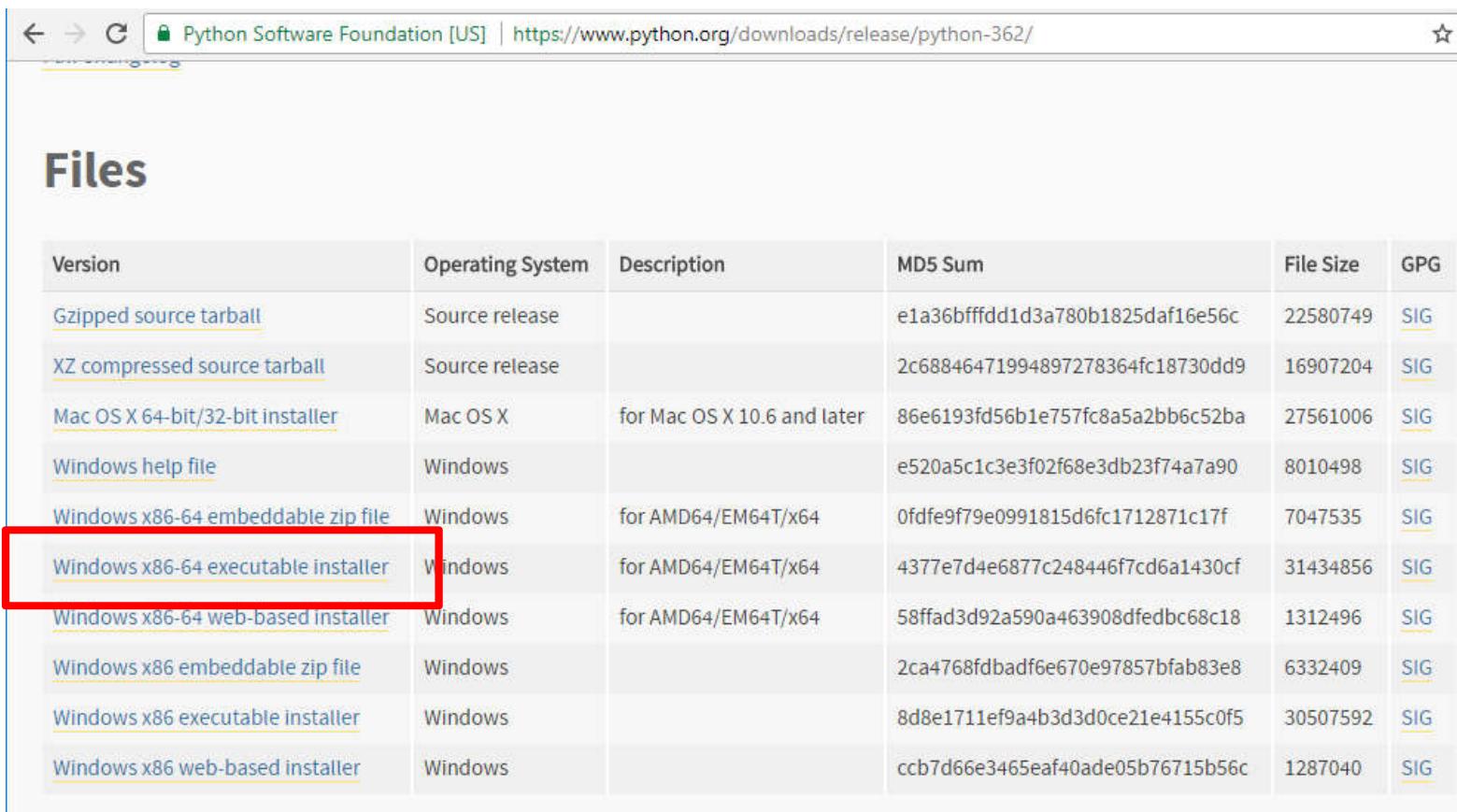
Install Python Interpreter (Cont.)

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



Install Python Interpreter (Cont.)

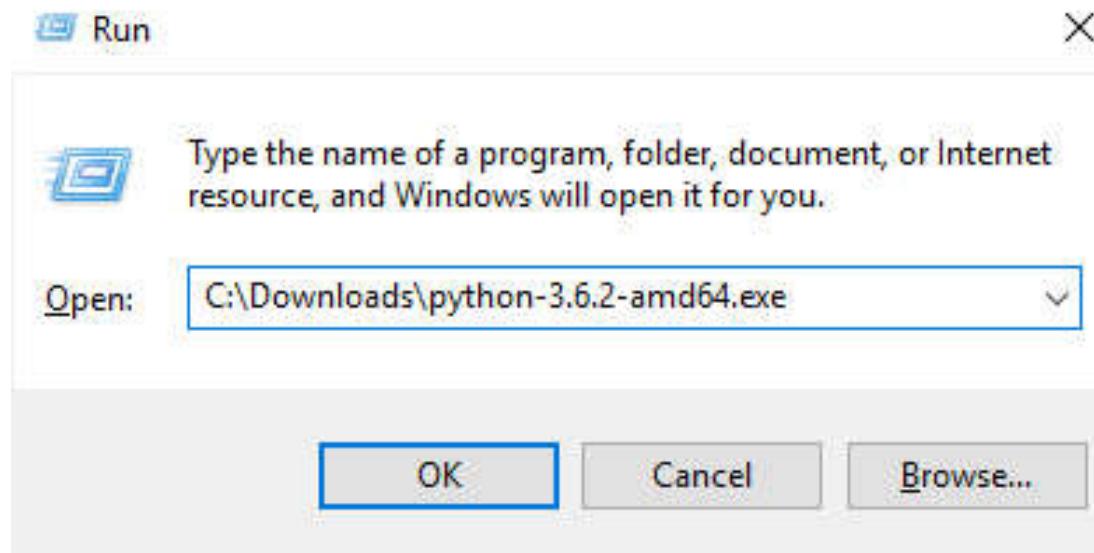
8. Click **Windows x86-64 executable installer** link.



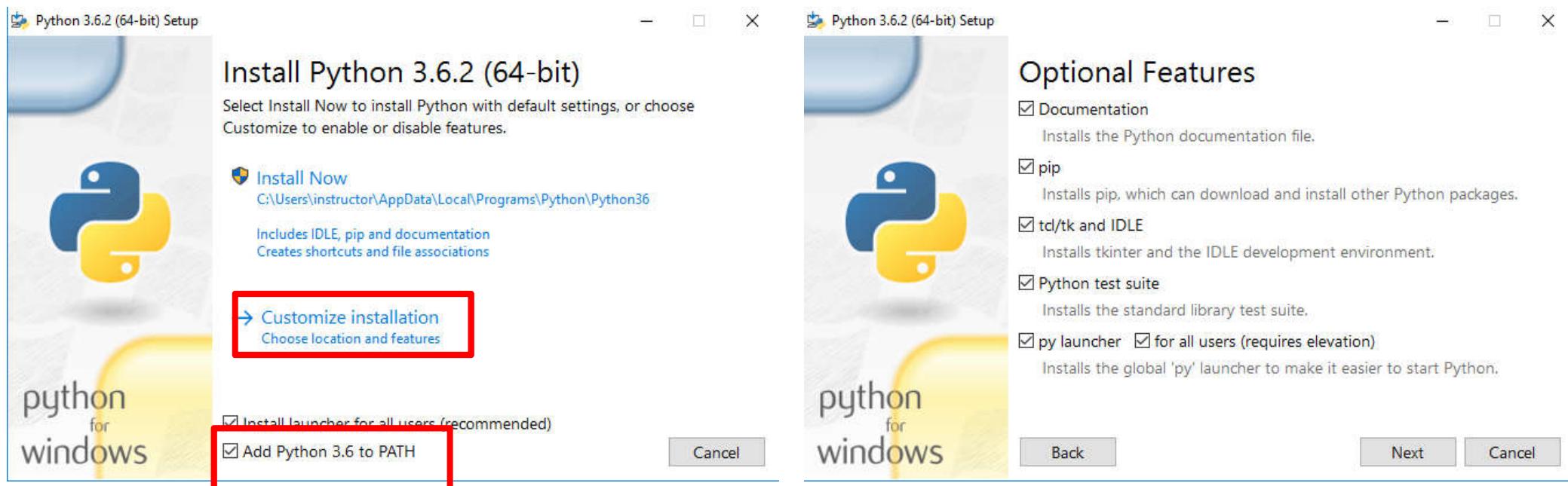
| Version | Operating System | Description | MD5 Sum | File Size | GPG |
|---|------------------|-----------------------------|----------------------------------|-----------|---------------------|
| Gzipped source tarball | Source release | | e1a36bffffd1d3a780b1825daf16e56c | 22580749 | SIG |
| XZ compressed source tarball | Source release | | 2c68846471994897278364fc18730dd9 | 16907204 | SIG |
| Mac OS X 64-bit/32-bit installer | Mac OS X | for Mac OS X 10.6 and later | 86e6193fd56b1e757fc8a5a2bb6c52ba | 27561006 | SIG |
| Windows help file | Windows | | e520a5c1c3e3f02f68e3db23f74a7a90 | 8010498 | SIG |
| Windows x86-64 embeddable zip file | Windows | for AMD64/EM64T/x64 | 0fdfef79e0991815d6fc1712871c17f | 7047535 | SIG |
| Windows x86-64 executable installer | Windows | for AMD64/EM64T/x64 | 4377e7d4e6877c248446f7cd6a1430cf | 31434856 | SIG |
| Windows x86-64 web-based installer | Windows | for AMD64/EM64T/x64 | 58ffad3d92a590a463908dfedbc68c18 | 1312496 | SIG |
| Windows x86 embeddable zip file | Windows | | 2ca4768fdbadf6e670e97857bfab83e8 | 6332409 | SIG |
| Windows x86 executable installer | Windows | | 8d8e1711ef9a4b3d3d0ce21e4155c0f5 | 30507592 | SIG |
| Windows x86 web-based installer | Windows | | ccb7d66e3465eaf40ade05b76715b56c | 1287040 | SIG |

Install Python Interpreter (Cont.)

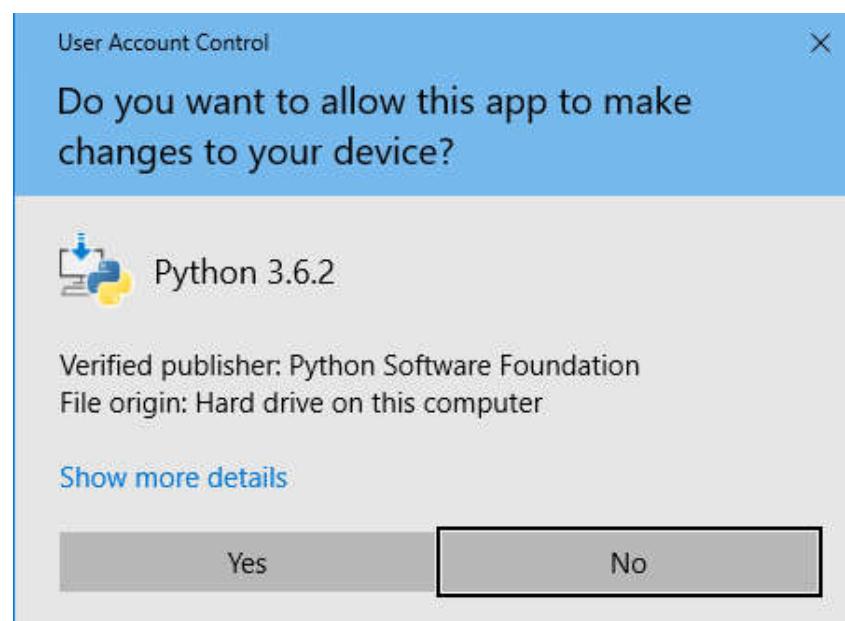
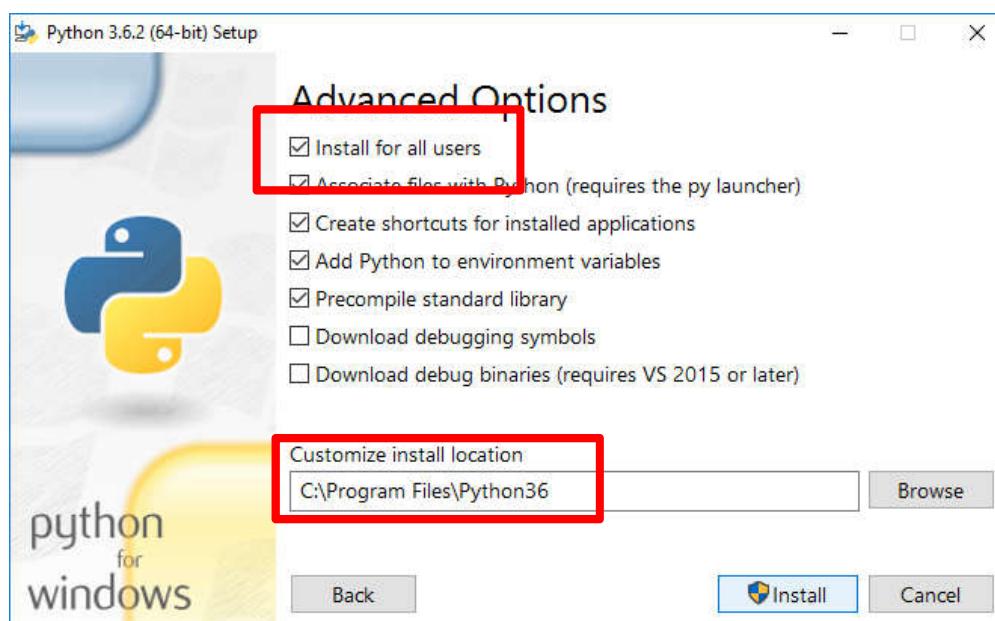
9. Execute **pyton-3.6.2-amd64.exe**.



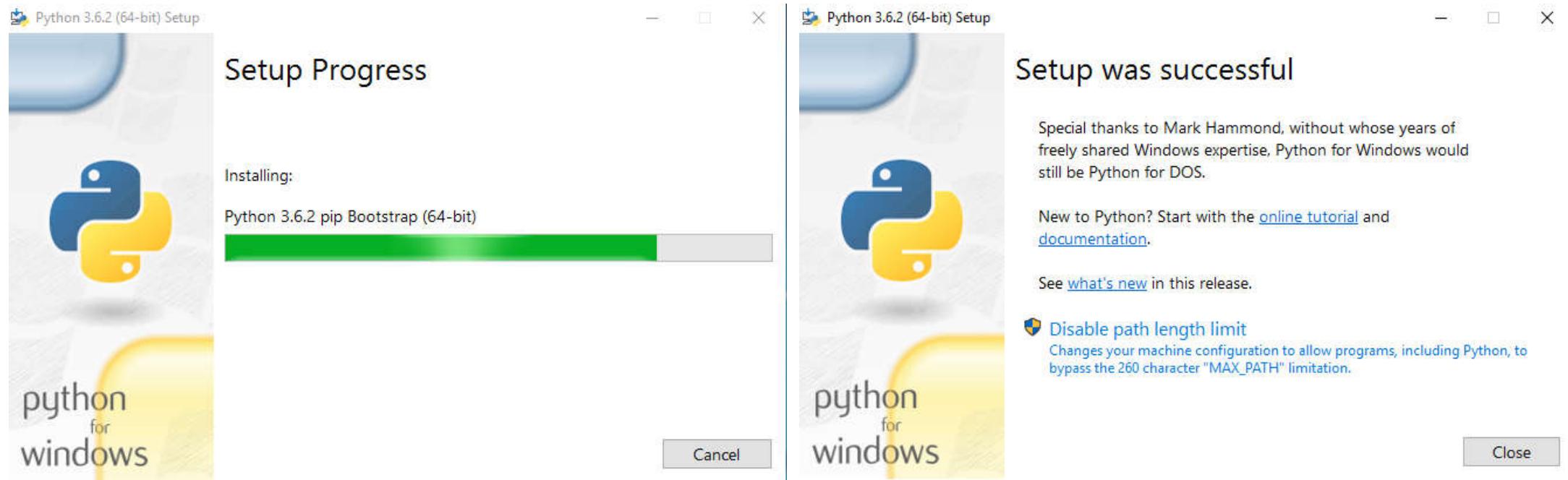
Install Python Interpreter (Cont.)



Install Python Interpreter (Cont.)

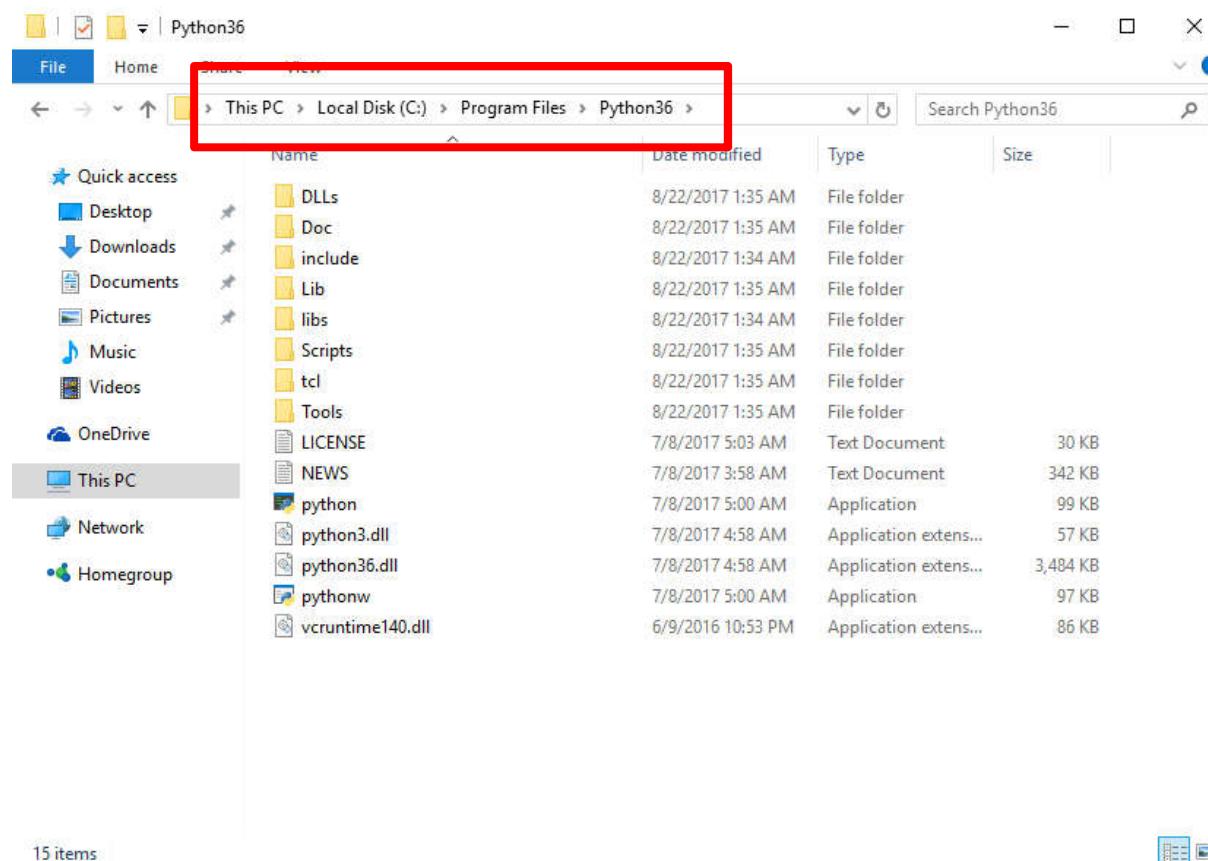


Install Python Interpreter (Cont.)



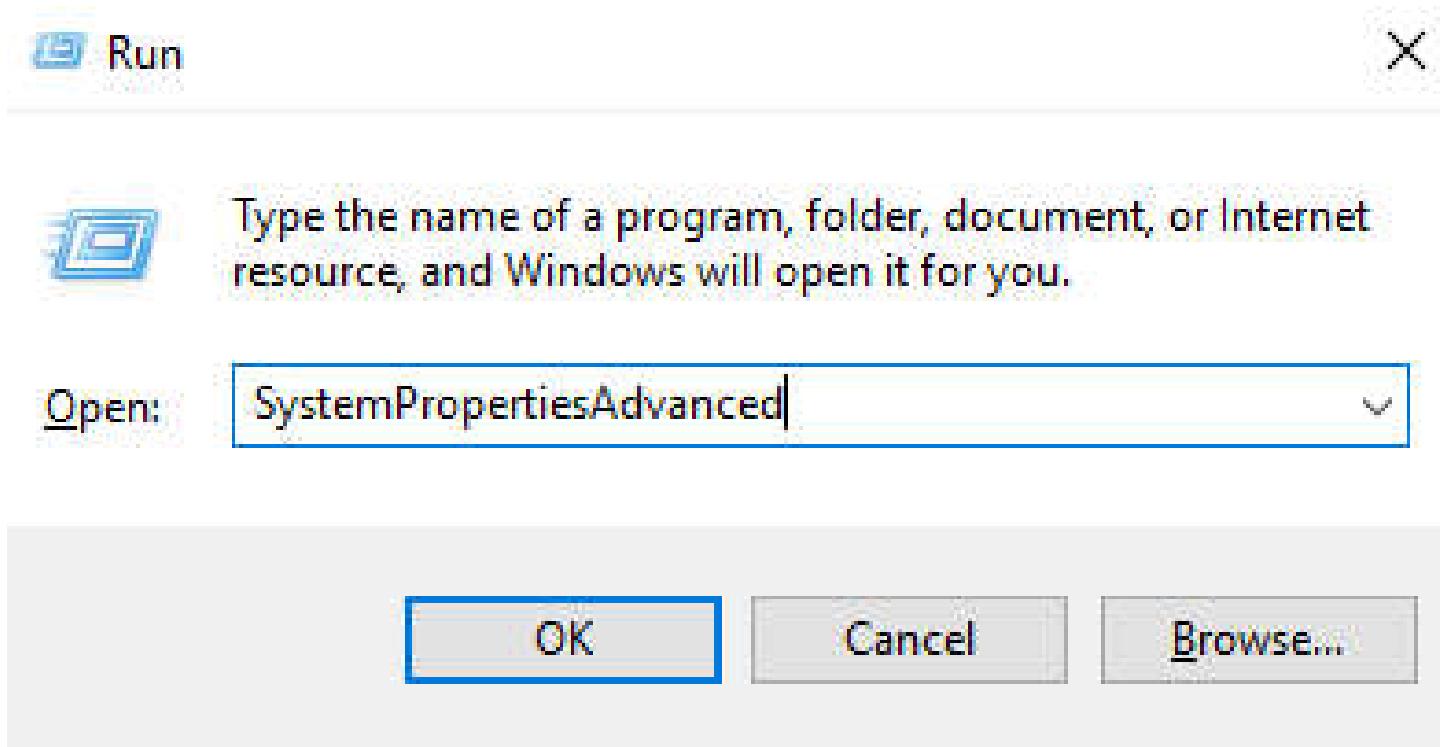
Check Python Installation

■ Installation Folder



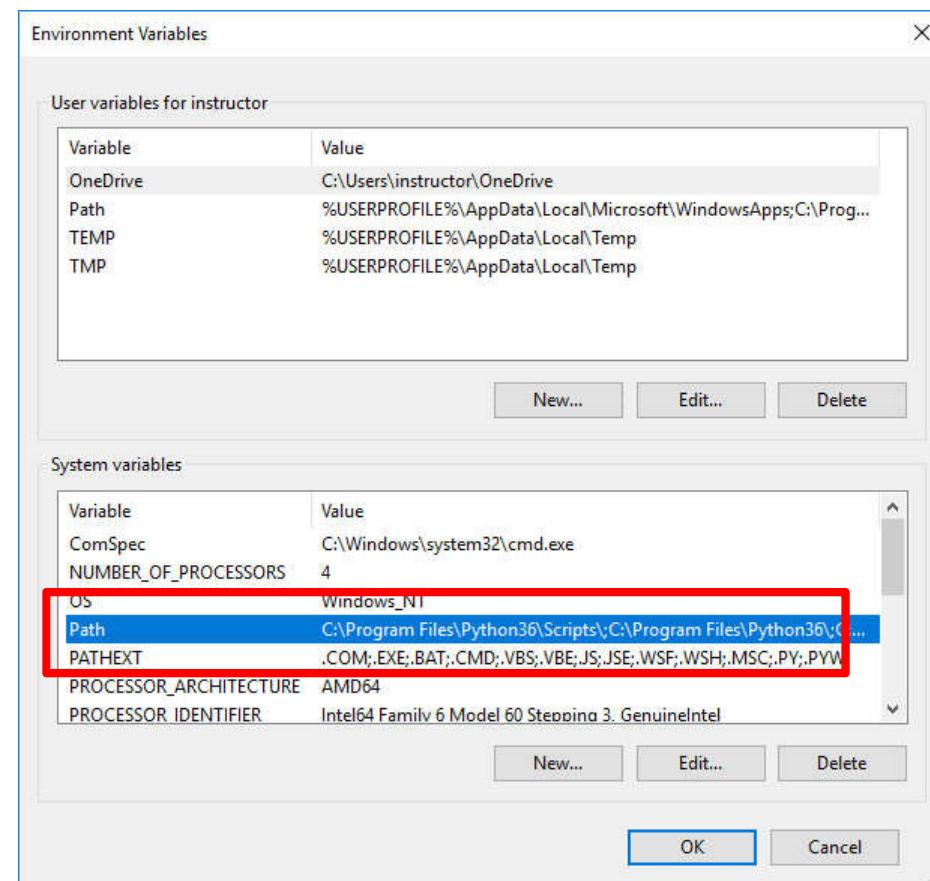
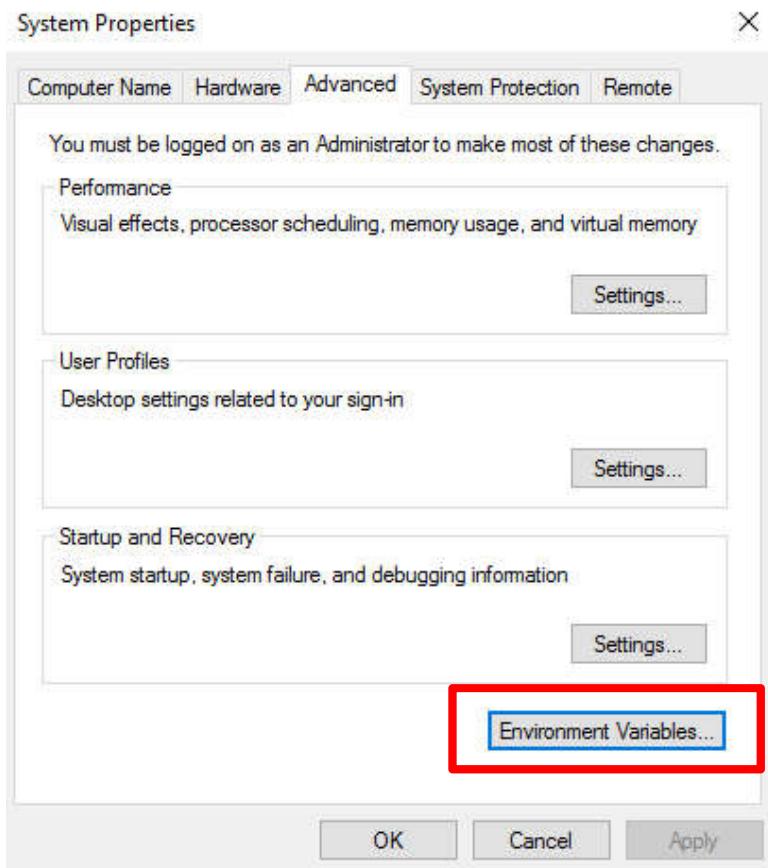
Check Python Installation (Cont.)

■ Windows %PATH%



Check Python Installation (Cont.)

■ Windows %PATH% (Cont.)



Check Python Installation (Cont.)

■ Python Interpreter Version

```
C:\Windows\system32\cmd.exe
```

```
C:\Users\instructor>python -V  
Python 3.6.2
```

```
C:\Users\instructor>python --version  
Python 3.6.2
```

Python Shell in Windows

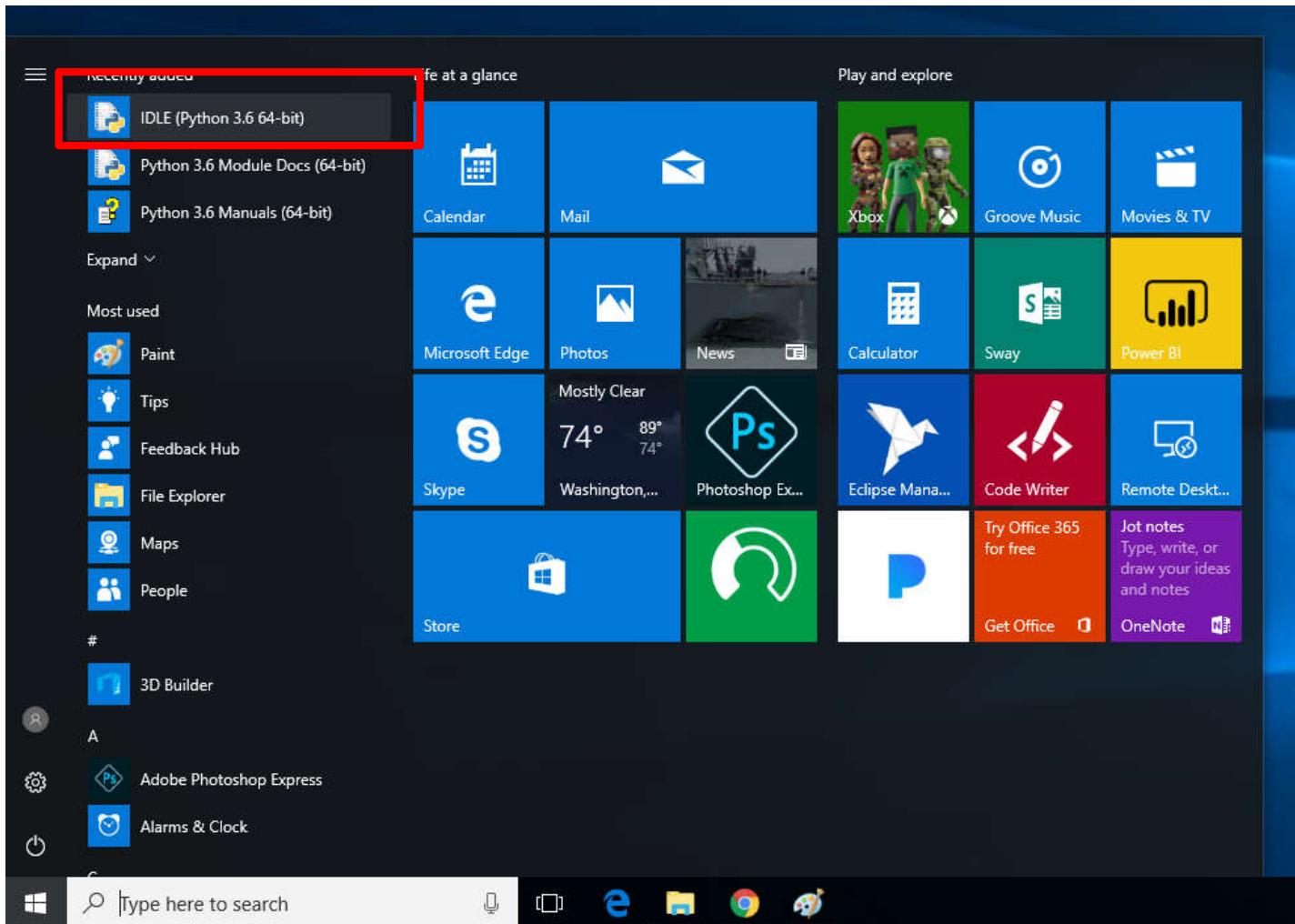
- Type **python** in Command window.

```
C:\Windows\system32\cmd.exe

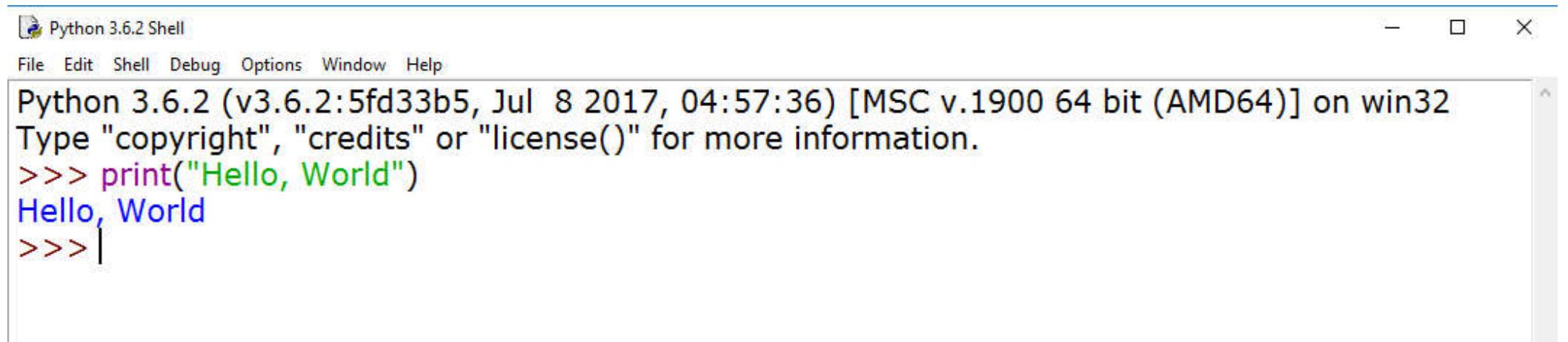
C:\Users\instructor>python
Python 3.6.2 (v3.6.2:5fd33b5, Jul  8 2017, 04:57:36) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello, World")
Hello, World
>>> quit()

C:\Users\instructor>
```

IDLE in Windows



IDLE in Windows (Cont.)



The screenshot shows the Python 3.6.2 Shell window. The title bar reads "Python 3.6.2 Shell". The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The main window displays the Python interpreter's welcome message: "Python 3.6.2 (v3.6.2:5fd33b5, Jul 8 2017, 04:57:36) [MSC v.1900 64 bit (AMD64)] on win32" and "Type "copyright", "credits" or "license()" for more information." Below this, a command line shows the execution of a print statement: ">>> print("Hello, World")" followed by the output "Hello, World" and a new line indicator ">>> |".

```
Python 3.6.2 (v3.6.2:5fd33b5, Jul 8 2017, 04:57:36) [MSC v.1900 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("Hello, World")
Hello, World
>>> |
```

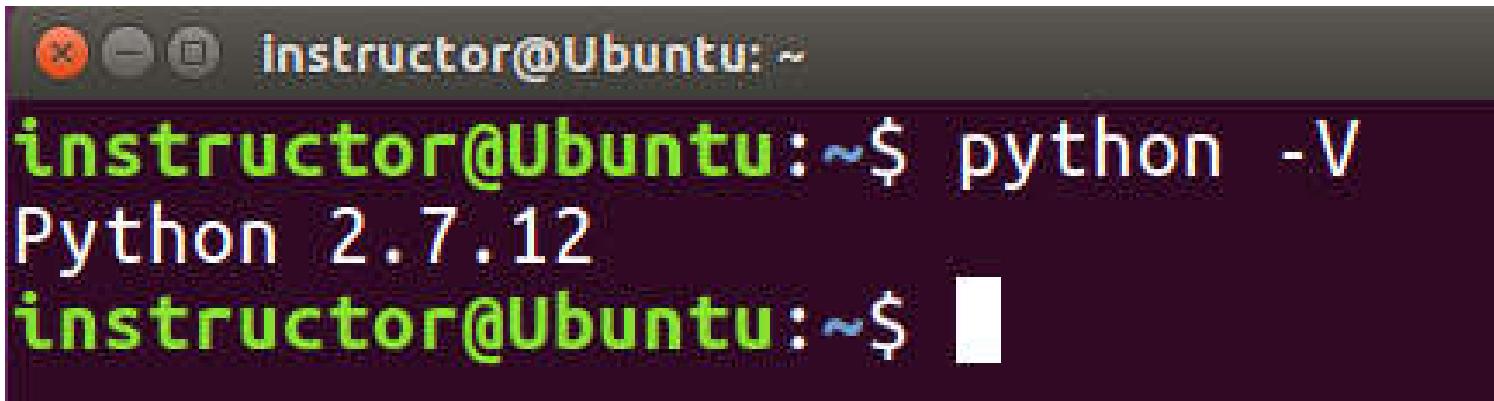
Installation Python Interpreter on Ubuntu Platform



First way – Source Compile

- Refer to

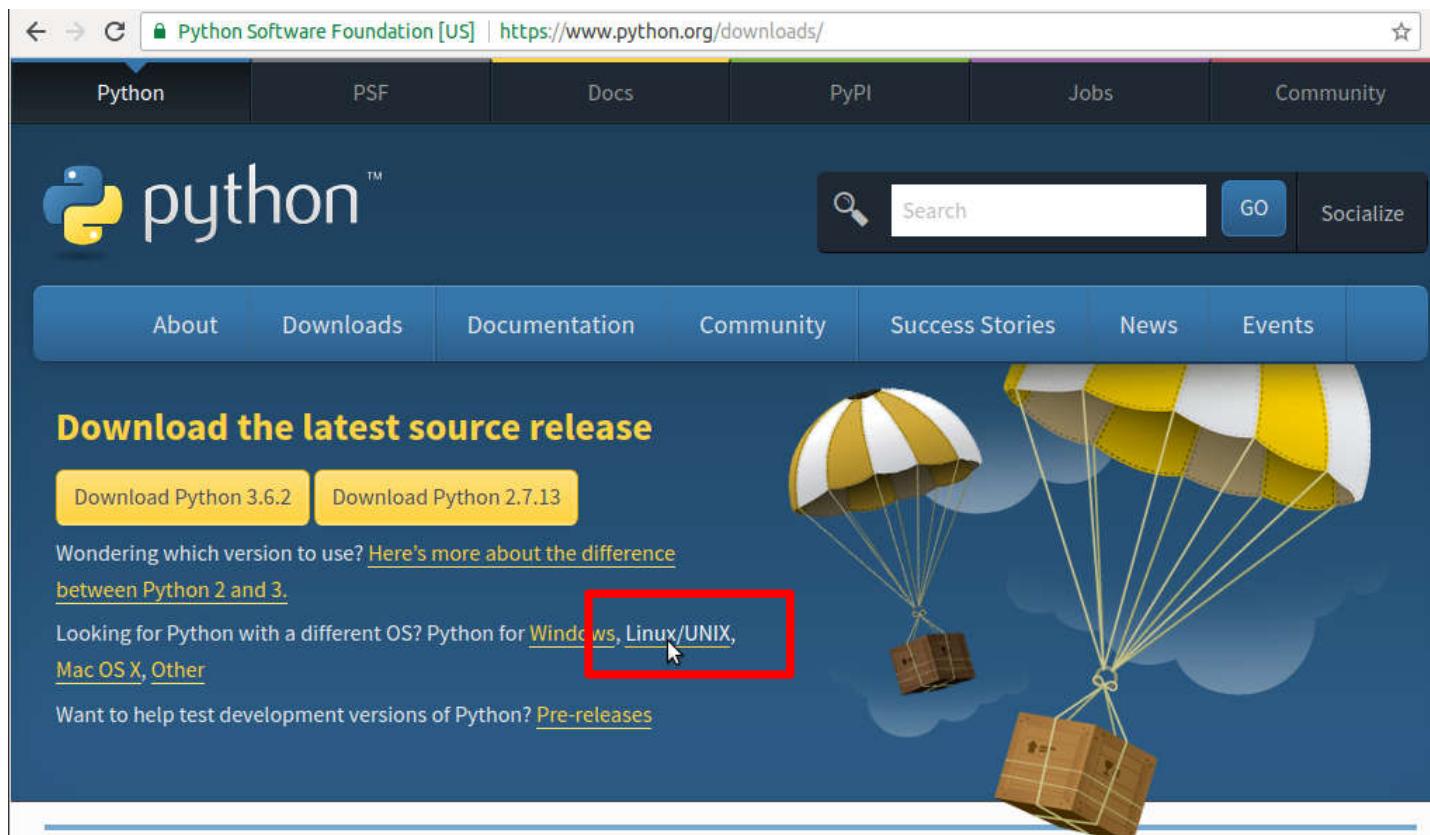
<https://www.youtube.com/watch?v=YFNTNOnJeBo>



A screenshot of a terminal window titled "instructor@Ubuntu: ~". The window contains the following text:
instructor@Ubuntu:~\$ python -V
Python 2.7.12
instructor@Ubuntu:~\$ █

First way – Source Compile (Cont.)

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



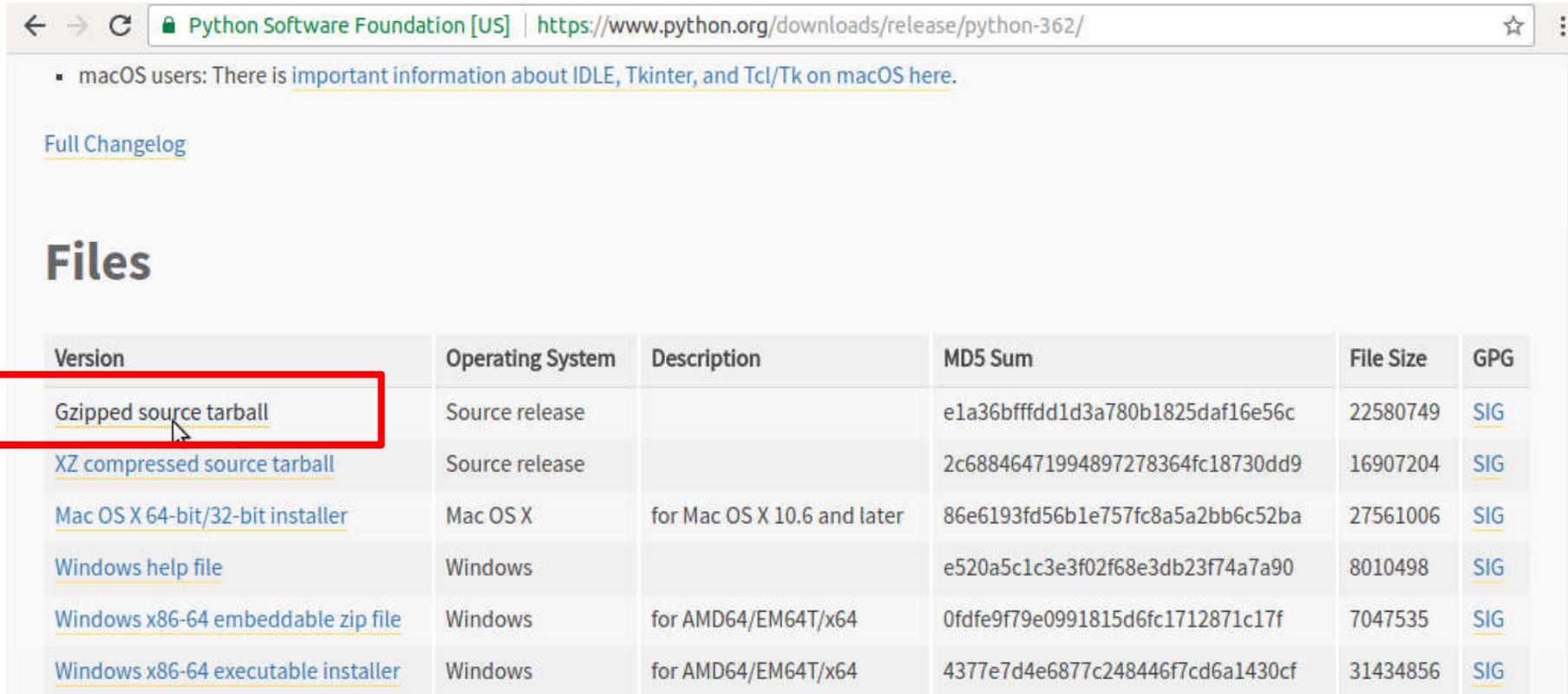
First way – Source Compile (Cont.)

2. Click to **Latest Python 3 Release – Python 3.6.2**



First way – Source Compile (Cont.)

3. Click to Gzipped source tarball



The screenshot shows a web browser window with the URL <https://www.python.org/downloads/release/python-362/>. The page displays information for Python 3.6.2, including a note for macOS users about IDLE, Tkinter, and Tcl/Tk. Below this, there is a 'Full Changelog' link. The main section is titled 'Files' and contains a table with the following data:

| Version | Operating System | Description | MD5 Sum | File Size | GPG |
|---|------------------|-----------------------------|-----------------------------------|-----------|---------------------|
| Gzipped source tarball | Source release | | e1a36bfffdd1d3a780b1825daf16e56c | 22580749 | SIG |
| XZ compressed source tarball | Source release | | 2c68846471994897278364fc18730dd9 | 16907204 | SIG |
| Mac OS X 64-bit/32-bit installer | Mac OS X | for Mac OS X 10.6 and later | 86e6193fd56b1e757fc8a5a2bb6c52ba | 27561006 | SIG |
| Windows help file | Windows | | e520a5c1c3e3f02f68e3db23f74a7a90 | 8010498 | SIG |
| Windows x86-64 embeddable zip file | Windows | for AMD64/EM64T/x64 | 0fdfef9f79e0991815d6fc1712871c17f | 7047535 | SIG |
| Windows x86-64 executable installer | Windows | for AMD64/EM64T/x64 | 4377e7d4e6877c248446f7cd6a1430cf | 31434856 | SIG |

First way – Source Compile (Cont.)

```
instructor@Ubuntu: ~/Downloads
instructor@Ubuntu:~/Downloads$ ls
Python-3.6.2.tgz
instructor@Ubuntu:~/Downloads$
```

4. Uncompress downloaded file.

```
instructor@Ubuntu: ~/Downloads
instructor@Ubuntu:~/Downloads$ ls
Python-3.6.2.tgz
instructor@Ubuntu:~/Downloads$ tar xvfz Python*.tgz
```

First way – Source Compile (Cont.)

```
instructor@Ubuntu: ~/Downloads
instructor@Ubuntu:~/Downloads$ ls
Python-3.6.2  Python-3.6.2.tgz
instructor@Ubuntu:~/Downloads$
```

5. Change directory.

```
instructor@Ubuntu:~/Downloads$
instructor@Ubuntu:~/Downloads$ cd Python-3.6.2/
instructor@Ubuntu:~/Downloads/Python-3.6.2$ ls
aclocal.m4      Doc          LICENSE        Objects      pyconfig.h.in
config.guess   Grammar       Mac           Parser       Python
config.sub     Include       Makefile.pre.in  PC          README.rst
configure      install-sh   Misc           PCbuild    setup.py
configure.ac   Lib          Modules        Programs    Tools
instructor@Ubuntu:~/Downloads/Python-3.6.2$
```

First way – Source Compile (Cont.)

6. Type `./configure`

```
instructor@Ubuntu:~/Downloads/Python-3.6.2$ ./configure
```

```
instructor@Ubuntu: ~/Downloads/Python-3.6.2
checking for gcc ipa-pure-const bug... no
checking for stdatomic.h... yes
checking for GCC >= 4.7 __atomic builtins... yes
checking for ensurepip... upgrade
checking if the dirent structure of a d_type field... yes
checking for the Linux getrandom() syscall... yes
checking for the getrandom() function... no
configure: creating ./config.status
config.status: creating Makefile.pre
config.status: creating Modules/Setup.config
config.status: creating Misc/python.pc
config.status: creating Misc/python-config.sh
config.status: creating Modules/ld_so_aix
config.status: creating pyconfig.h
creating Modules/Setup
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.)

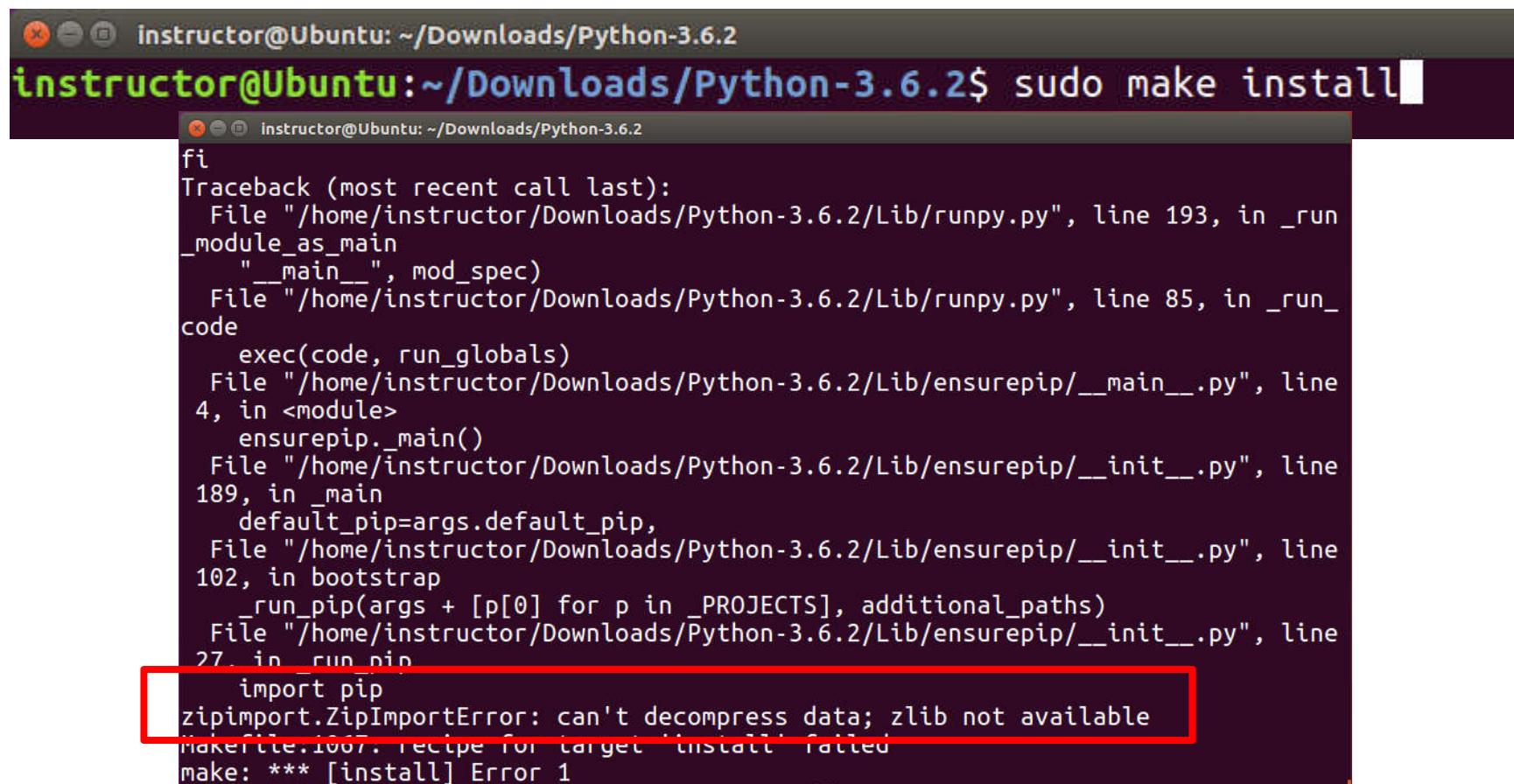
7. Type **make**

instructor@Ubuntu:~/Downloads/Python-3.6.2\$ make

```
instructor@Ubuntu: ~/Downloads/Python-3.6.2
renaming build/scripts-3.6/2to3 to build/scripts-3.6/2to3-3.6
renaming build/scripts-3.6/pyenv to build/scripts-3.6/pyenv-3.6
/usr/bin/install -c -m 644 ./Tools/gdb/libpython.py python-gdb.py
gcc -pthread -c -Wno-unused-result -Wsign-compare -DNDEBUG -g -fwrapv -O3 -Wall
-Wstrict-prototypes -std=c99 -Wextra -Wno-unused-result -Wno-unused-parameter
-Wno-missing-field-initializers -I. -I./Include -DPy_BUILD_CORE -o Programs/_testembed.o ./Programs/_testembed.c
gcc -pthread -Xlinker -export-dynamic -o Programs/_testembed Programs/_testembed.o libpython3.6m.a -lpthread -ldl -lutil -lm
# Substitution happens here, as the completely-expanded BINDIR
# is not available in configure
sed -e "s,@EXENAME@,/usr/local/bin/python3.6m," < ./Misc/python-config.in >python-config.py
# Replace makefile compat. variable references with shell script compat. ones;
->
LC_ALL=C sed -e 's,\$\(\([A-Za-z0-9_]*\)),\$\'\1\',g' < Misc/python-config.sh >python-config
# On Darwin, always use the python version of the script, the shell
# version doesn't use the compiler customizations that are provided
# in python (_osx_support.py).
if test `uname -s` = Darwin; then \
    cp python-config.py python-config; \
fi
```

First way – Source Compile (Cont.)

8. Type **sudo make install**



```
instructor@Ubuntu: ~/Downloads/Python-3.6.2
instructor@Ubuntu:~/Downloads/Python-3.6.2$ sudo make install
fi
Traceback (most recent call last):
  File "/home/instructor/Downloads/Python-3.6.2/Lib/runpy.py", line 193, in _run_module_as_main
    "__main__", mod_spec)
  File "/home/instructor/Downloads/Python-3.6.2/Lib/runpy.py", line 85, in _run_code
    exec(code, run_globals)
  File "/home/instructor/Downloads/Python-3.6.2/Lib/ensurepip/__main__.py", line 4, in <module>
    ensurepip._main()
  File "/home/instructor/Downloads/Python-3.6.2/Lib/ensurepip/__init__.py", line 189, in _main
    default_pip=args.default_pip,
  File "/home/instructor/Downloads/Python-3.6.2/Lib/ensurepip/__init__.py", line 102, in bootstrap
    _run_pip(args + [p[0] for p in _PROJECTS], additional_paths)
  File "/home/instructor/Downloads/Python-3.6.2/Lib/ensurepip/__init__.py", line 27, in _run_pip
    import pip
zipimport.ZipImportError: can't decompress data; zlib not available
makefile:1067: recipe for target 'install' failed
make: *** [install] Error 1
```

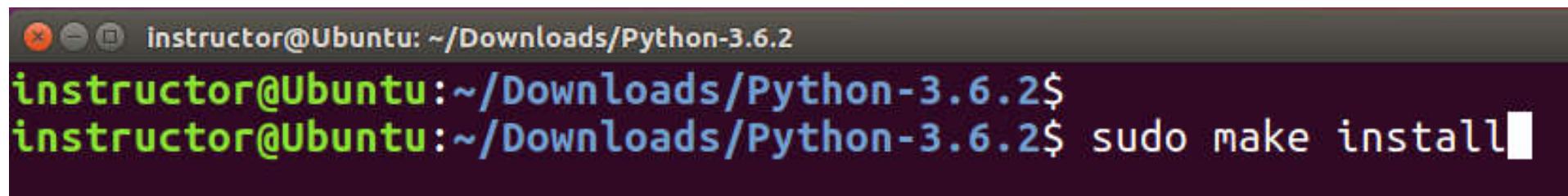
First way – Source Compile (Cont.)

9. Type **sudo apt-get install zlib1g-dev**

```
instructor@Ubuntu:~/Downloads/Python-3.6.2$ sudo apt-get 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:
  linux-headers-4.8.0-36 linux-headers-4.8.0-36-generic
  linux-image-4.8.0-36-generic linux-image-extra-4.8.0-36-generic snap-confine
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 3 not upgraded.
Need to get 168 kB of archives.
After this operation, 425 kB of additional disk space will be used.
Get:1 http://ftp.tsukuba.wide.ad.jp/Linux/ubuntu xenial-updates/main amd64 zlib1g-dev amd64 1:1.2.8.dfsg-2ubuntu4.1 [168 kB]
Fetched 168 kB in 0s (208 kB/s)
Selecting previously unselected package zlib1g-dev:amd64.
(Reading database ... 248122 files and directories currently installed.)
Preparing to unpack .../zlib1g-dev_1%3a1.2.8.dfsg-2ubuntu4.1_amd64.deb ...
Unpacking zlib1g-dev:amd64 (1:1.2.8.dfsg-2ubuntu4.1) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up zlib1g-dev:amd64 (1:1.2.8.dfsg-2ubuntu4.1) ...
```

First way – Source Compile (Cont.)

10. Type **sudo make install**



```
instructor@Ubuntu: ~/Downloads/Python-3.6.2
instructor@Ubuntu:~/Downloads/Python-3.6.2$ instructor@Ubuntu:~/Downloads/Python-3.6.2$ sudo make install
```

A screenshot of a terminal window titled "instructor@Ubuntu: ~/Downloads/Python-3.6.2". The window contains three lines of text: the first line is a prompt, the second line shows the command "instructor@Ubuntu:~/Downloads/Python-3.6.2\$", and the third line shows the command "instructor@Ubuntu:~/Downloads/Python-3.6.2\$ sudo make install" with the cursor at the end of the line.

First way – Source Compile (Cont.)

```
instructor@Ubuntu: ~/Downloads/Python-3.6.2
fi
rm -f /usr/local/share/man/man1/python3.1
(cd /usr/local/share/man/man1; ln -s python3.6.1 python3.1)
if test "xupgrade" != "xno" ; then \
    case upgrade in \
        upgrade) ensurepip="--upgrade" ;; \
        install|*) ensurepip="" ;; \
    esac; \
    ./python -E -m ensurepip \
        $ensurepip --root=/ ; \
fi
The directory '/home/instructor/.cache/pip/http' or its parent directory is not
owned by the current user and the cache has been disabled. Please check the perm
issions and owner of that directory. If executing pip with sudo, you may want su
do's -H flag.
The directory '/home/instructor/.cache/pip' or its parent directory is not owned
by the current user and caching wheels has been disabled. check the permissions
and owner of that directory. If executing pip with sudo, you may want sudo's -H
flag.
Collecting setuptools
Collecting pip
Installing collected packages: setuptools, pip
Successfully installed pip-9.0.1 setuptools-28.8.0
```

First way – Source Compile (Cont.)

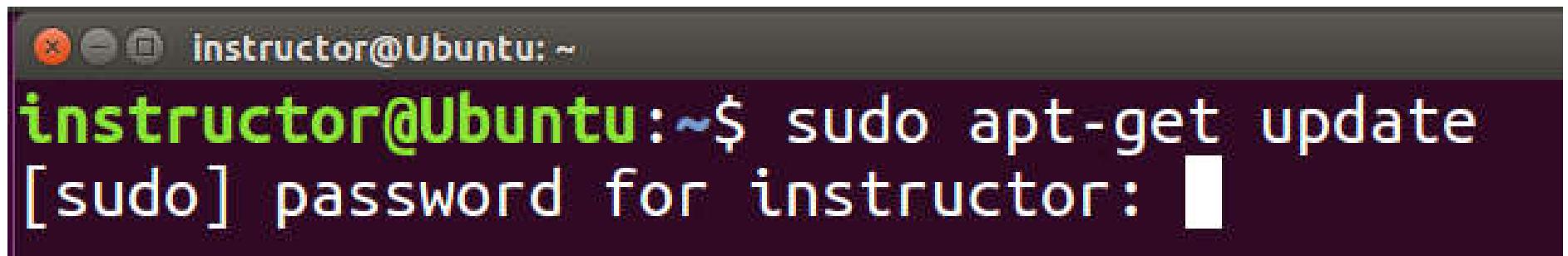
```
instructor@Ubuntu: ~/Downloads/Python-3.6.2
instructor@Ubuntu:~/Downloads/Python-3.6.2$ python -V
Python 2.7.12
instructor@Ubuntu:~/Downloads/Python-3.6.2$ python --version
Python 2.7.12
instructor@Ubuntu:~/Downloads/Python-3.6.2$ python3 -V
Python 3.6.2
instructor@Ubuntu:~/Downloads/Python-3.6.2$ python3 --version
Python 3.6.2
instructor@Ubuntu:~/Downloads/Python-3.6.2$ █
```

First way – Source Compile (Cont.)

```
instructor@Ubuntu: ~/PythonHome  
instructor@Ubuntu:~/PythonHome$  
instructor@Ubuntu:~/PythonHome$  
instructor@Ubuntu:~/PythonHome$ python3  
Python 3.6.2 (default, Aug 23 2017, 09:30:29)  
[GCC 5.4.0 20160609] on linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> print ("Hello, World")  
Hello, World  
>>> quit()  
instructor@Ubuntu:~/PythonHome$
```

Second way – Using apt-get install

1. Type **sudo apt-get update**



A screenshot of a terminal window titled "instructor@Ubuntu:~". The window contains the command "sudo apt-get update" followed by a password prompt "[sudo] password for instructor: [redacted]". The terminal has a dark background with light-colored text.

```
instructor@Ubuntu:~$ sudo apt-get update  
[sudo] password for instructor: [redacted]
```

Second way – Using apt-get install

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

```
instructor@Ubuntu:~$ sudo add-apt-repository ppa:fkrull/deadsnakes
Please use the new repository at

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

instead!
More info: https://launchpad.net/~fkrull/+archive/ubuntu/deadsnakes
Press [ENTER] to continue or ctrl-c to cancel adding it

gpg: keyring `/tmp/tmpou4lkoja/secring.gpg' created
gpg: keyring `/tmp/tmpou4lkoja/pubring.gpg' created
gpg: requesting key DB82666C from hkp server keyserver.ubuntu.com
gpg: /tmp/tmpou4lkoja/trustdb.gpg: trustdb created
gpg: key DB82666C: public key "Launchpad Old Python Versions" imported
gpg: Total number processed: 1
gpg:                         imported: 1  (RSA: 1)
OK
instructor@Ubuntu:~$ █
```

Second way – Using apt-get install

3. Type **sudo apt-get update**

```
instructor@Ubuntu:~$ sudo apt-get update
Hit:1 http://ftp.tsukuba.wide.ad.jp/Linux/ubuntu xenial InRelease
Ign:2 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:3 http://ftp.tsukuba.wide.ad.jp/Linux/ubuntu xenial-updates InRelease
Hit:4 http://ftp.tsukuba.wide.ad.jp/Linux/ubuntu xenial-backports InRelease
Hit:5 http://ftp.tsukuba.wide.ad.jp/Linux/ubuntu xenial-security InRelease
Hit:6 http://dl.google.com/linux/chrome/deb stable Release
Get:8 http://ppa.launchpad.net/fkrull/deadsnakes/ubuntu xenial InRelease [17.5 kB]
Get:9 http://ppa.launchpad.net/fkrull/deadsnakes/ubuntu xenial/main amd64 Packages [20.6 kB]
Get:10 http://ppa.launchpad.net/fkrull/deadsnakes/ubuntu xenial/main i386 Packages [20.6 kB]
Get:11 http://ppa.launchpad.net/fkrull/deadsnakes/ubuntu xenial/main Translation-en [5,652 B]
Fetched 64.4 kB in 2s (26.0 kB/s)
Reading package lists... Done
instructor@Ubuntu:~$ █
```

Second way – Using apt-get install

4. Type **sudo apt-get install python3.6**

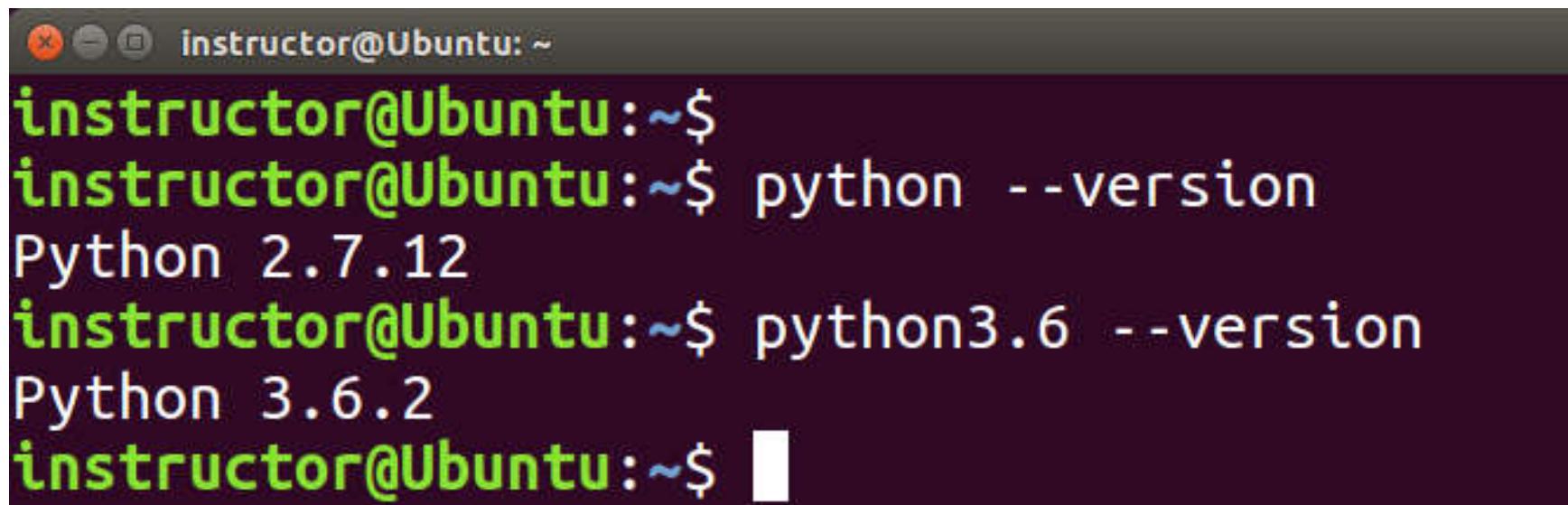
```
Instructor@Ubuntu:~$ sudo apt-get install python3.6
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.8.0-36 linux-headers-4.8.0-36-generic
  linux-image-4.8.0-36-generic linux-image-extra-4.8.0-36-generic snap-confine
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libpython3.6-minimal libpython3.6-stdlib python3.6-minimal
Suggested packages:
  python3.6-venv python3.6-doc binfmt-support
The following NEW packages will be installed:
  libpython3.6-minimal libpython3.6-stdlib python3.6 python3.6-minimal
0 upgraded, 4 newly installed, 0 to remove and 3 not upgraded.
Need to get 4,321 kB of archives.
After this operation, 23.5 MB of additional disk space will be used.
Do you want to continue? [Y/n] ■
```

Second way – Using apt-get install

```
instructor@Ubuntu:~$ Selecting previously unselected package libpython3.6-minimal:amd64.  
(Reading database ... 248122 files and directories currently installed.)  
Preparing to unpack .../libpython3.6-minimal_3.6.2-1+xenial1_amd64.deb ...  
Unpacking libpython3.6-minimal:amd64 (3.6.2-1+xenial1) ...  
Selecting previously unselected package python3.6-minimal.  
Preparing to unpack .../python3.6-minimal_3.6.2-1+xenial1_amd64.deb ...  
Unpacking python3.6-minimal (3.6.2-1+xenial1) ...  
Selecting previously unselected package libpython3.6-stdlib:amd64.  
Preparing to unpack .../libpython3.6-stdlib_3.6.2-1+xenial1_amd64.deb ...  
Unpacking libpython3.6-stdlib:amd64 (3.6.2-1+xenial1) ...  
Selecting previously unselected package python3.6.  
Preparing to unpack .../python3.6_3.6.2-1+xenial1_amd64.deb ...  
Unpacking python3.6 (3.6.2-1+xenial1) ...  
Processing triggers for man-db (2.7.5-1) ...  
Processing triggers for desktop-file-utils (0.22-1ubuntu5.1) ...  
Processing triggers for gnome-menus (3.13.3-6ubuntu3.1) ...  
Processing triggers for bamfdaemon (0.5.3~bzr0+16.04.20160824-0ubuntu1) ...  
Rebuilding /usr/share/applications/bamf-2.index...  
Processing triggers for mime-support (3.59ubuntu1) ...  
Setting up libpython3.6-minimal:amd64 (3.6.2-1+xenial1) ...  
Setting up python3.6-minimal (3.6.2-1+xenial1) ...  
Setting up libpython3.6-stdlib:amd64 (3.6.2-1+xenial1) ...  
Setting up python3.6 (3.6.2-1+xenial1) ...  
instructor@Ubuntu:~$
```

Second way – Using apt-get install

5. Version check



The screenshot shows a terminal window with a dark background and light-colored text. It features a title bar with three icons (close, minimize, maximize) and the text "instructor@Ubuntu: ~". The terminal content is as follows:

```
instructor@Ubuntu:~$  
instructor@Ubuntu:~$ python --version  
Python 2.7.12  
instructor@Ubuntu:~$ python3.6 --version  
Python 3.6.2  
instructor@Ubuntu:~$ █
```

Second way – Using apt-get install

```
instructor@Ubuntu:~$ python3.6
Python 3.6.2 (default, Jul 17 2017, 23:14:31)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print ("Hello, World")
Hello, World
>>> quit()
instructor@Ubuntu:~$ █
```

Second way – Using apt-get install

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

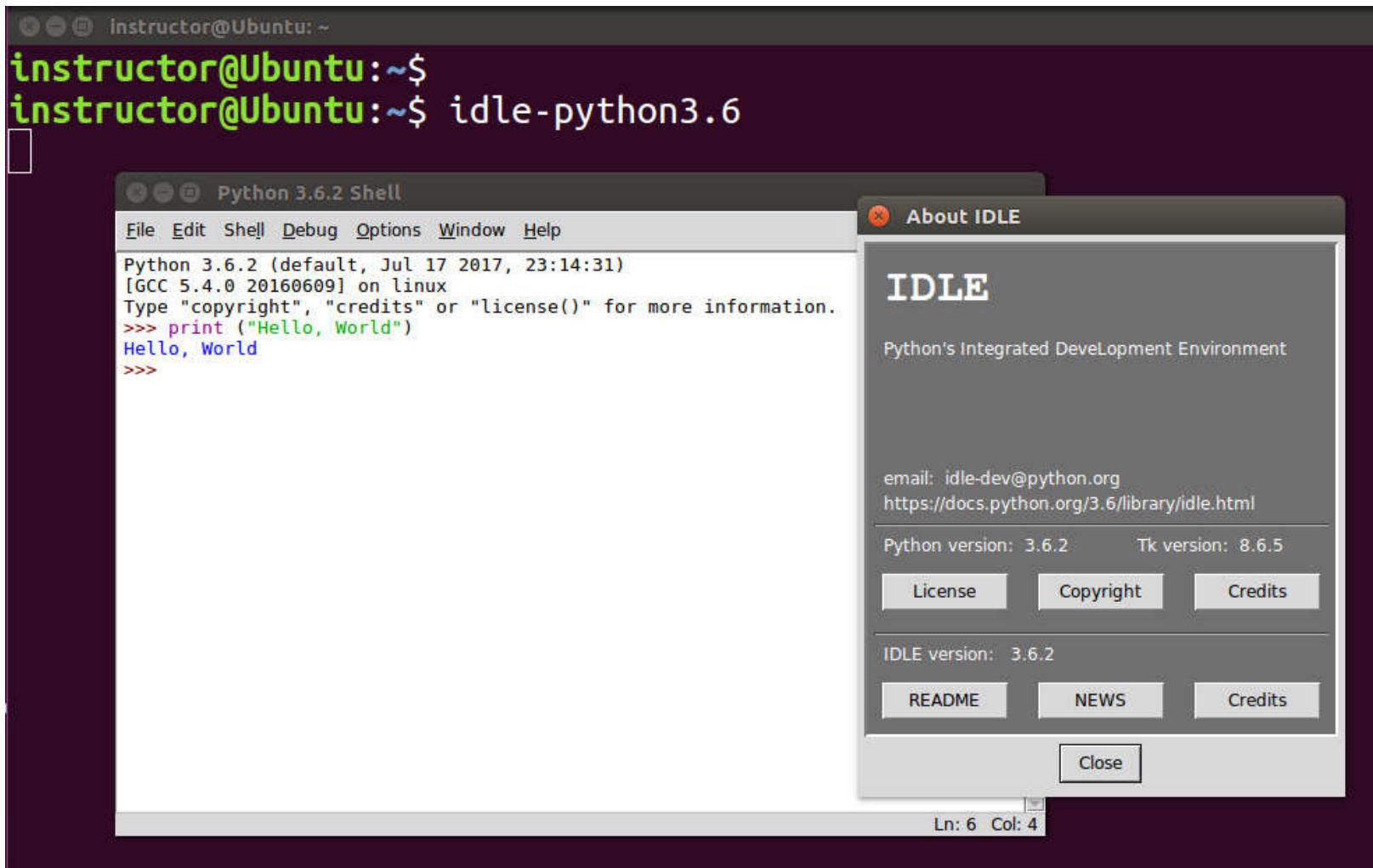
```
instructor@Ubuntu:~$ apt-cache search python3.6
libpython3.6-dbg - Debug Build of the Python Interpreter (version 3.6)
libpython3.6 - Shared Python runtime library (version 3.6)
libpython3.6-dev - Header files and a static library for Python (v3.6)
libpython3.6-minimal - Minimal subset of the Python language (version 3.6)
libpython3.6-stdlib - Interactive high-level object-oriented language (standard
library, version 3.6)
python3.6-dbg - Debug Build of the Python Interpreter (version 3.6)
python3.6-dev - Header files and a static library for Python (v3.6)
python3.6-minimal - Minimal subset of the Python language (version 3.6)
python3.6-venv - Interactive high-level object-oriented language (pyvenv binary,
version 3.6)
python3.6 - Interactive high-level object-oriented language (version 3.6)
idle-python3.6 - IDE for Python (v3.6) using Tkinter
libpython3.6-testsuite - Testsuite for the Python standard library (v3.6)
python3.6-doc - Documentation for the high-level object-oriented language Python
(v3.6)
python3.6-examples - Examples for the Python language (v3.6)
python3.6-gdbm-dbg - GNU dbm database support for Python (version 3.6 debug exte
nsion)
python3.6-gdbm - GNU dbm database support for Python (version 3.6)
python3.6-tk-dbg - Tkinter - Writing Tk applications with Python (version 3.6 de
bug extension)
```

Second way – Using apt-get install

7. Type **sudo apt-get install idle-python3.6**

```
instructor@Ubuntu:~$ sudo apt-get install idle-python3.6
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.8.0-36 linux-headers-4.8.0-36-generic
  linux-image-4.8.0-36-generic linux-image-extra-4.8.0-36-generic snap-confine
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  python3.6-tk tk8.6-blt2.5
Suggested packages:
  tix python3.6-tk-dbg blt-demo
The following NEW packages will be installed:
  idle-python3.6 python3.6-tk tk8.6-blt2.5
0 upgraded, 3 newly installed, 0 to remove and 3 not upgraded.
Need to get 739 kB of archives.
After this operation, 2,347 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

Second way – Using apt-get install



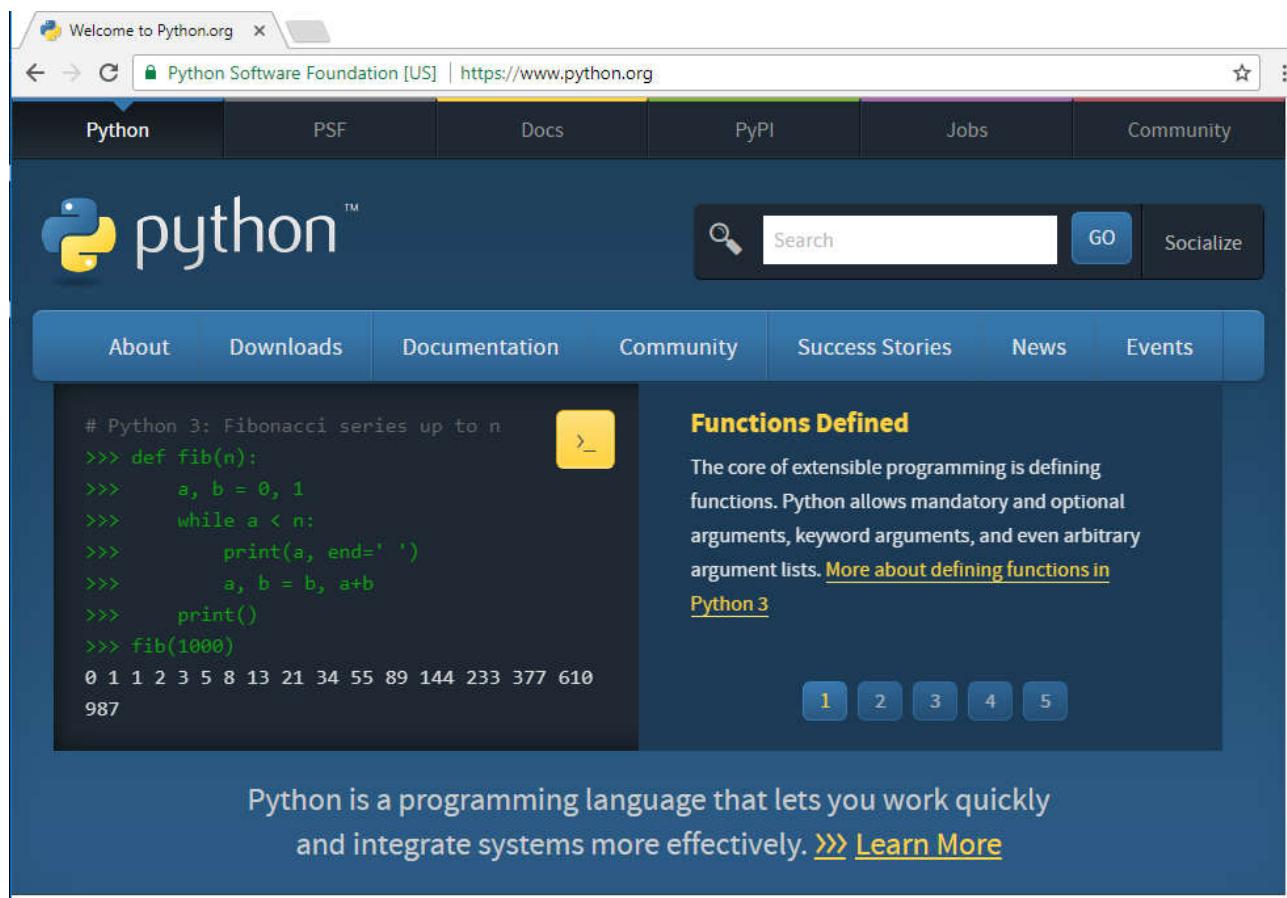
Installation Python Interpreter on Mac OS X Platform



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

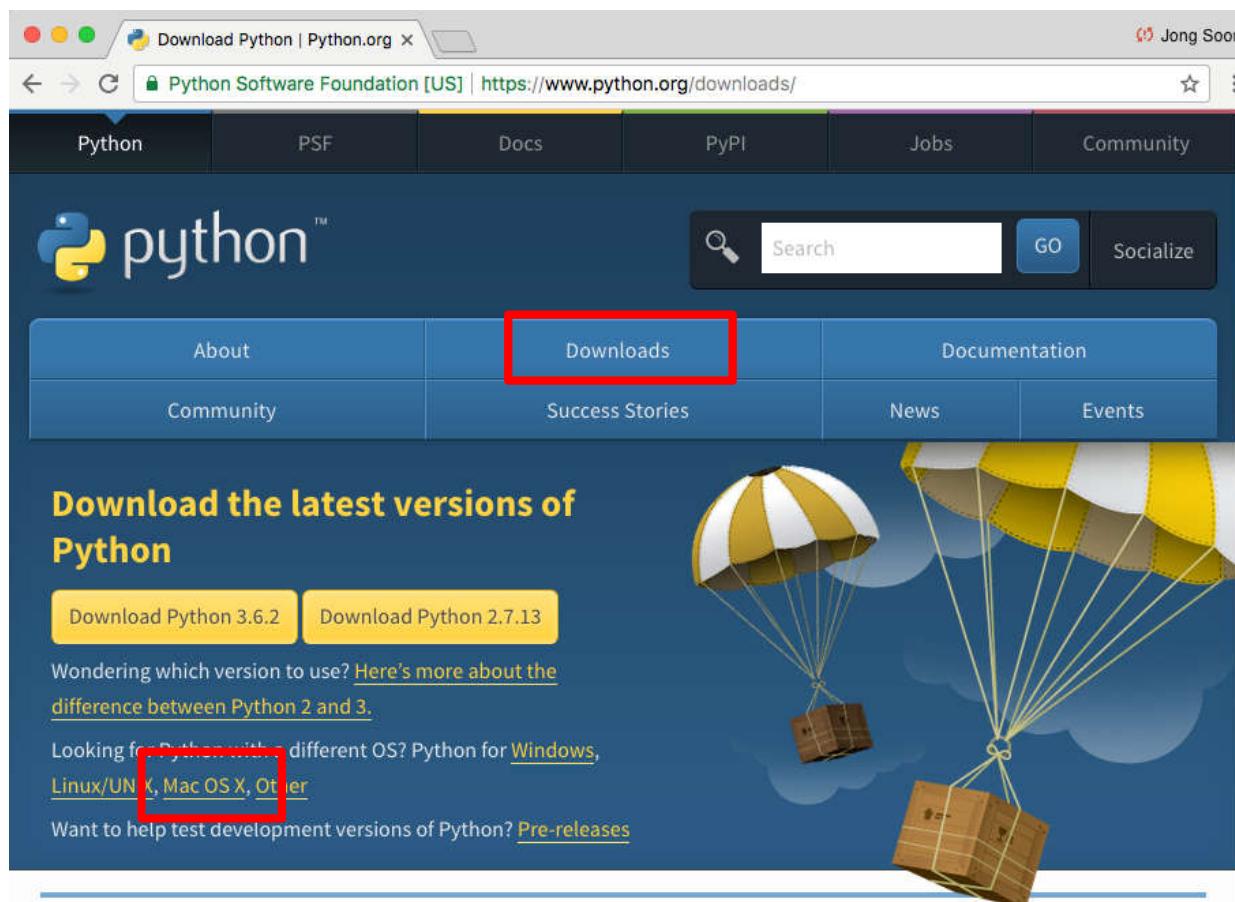
Install Python Interpreter – First Way

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



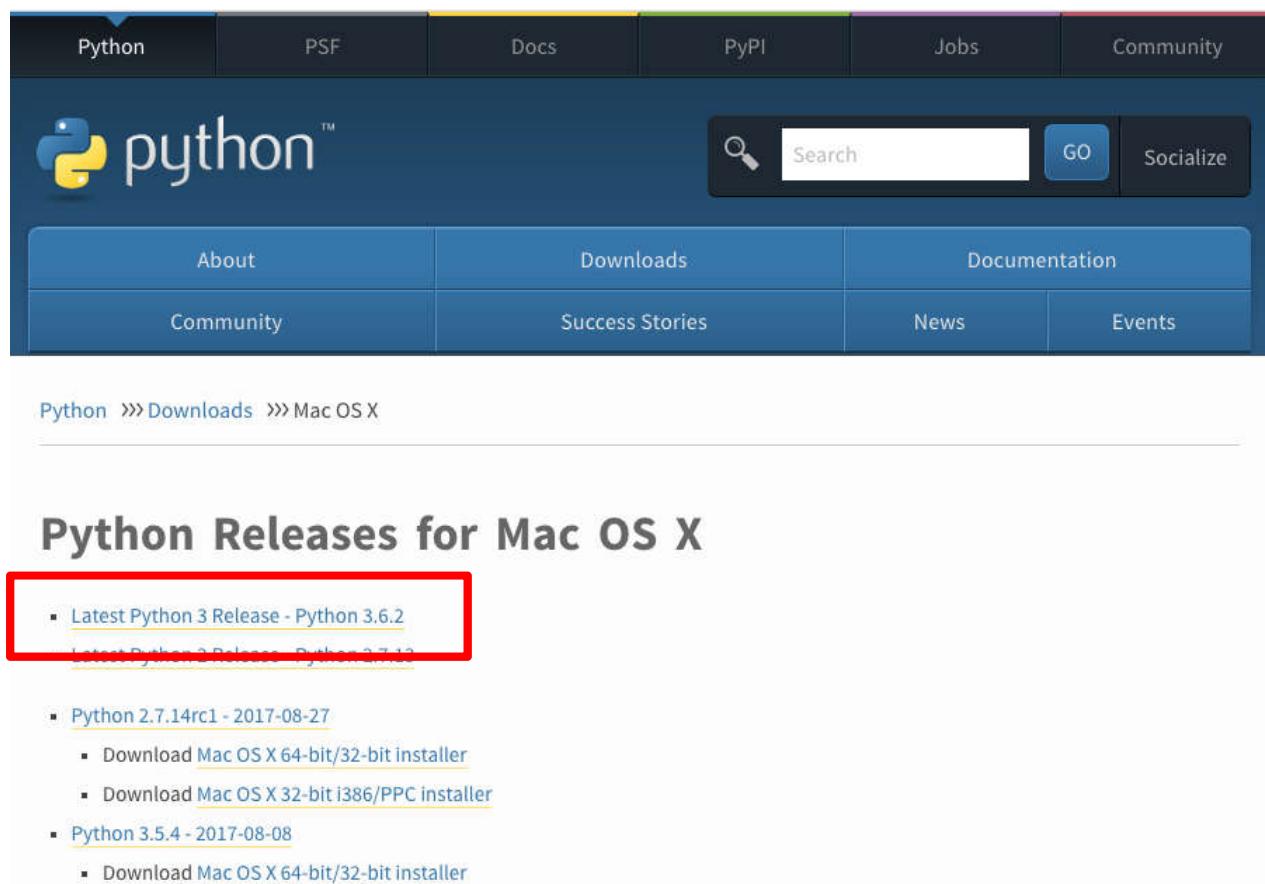
Install Python Interpreter – First Way (Cont.)

2. Click **Downloads > Mac OS X** link like below.



Install Python Interpreter – First Way (Cont.)

3. Click **Latest Python 3 Release** link like below.



The screenshot shows the Python.org website's navigation bar with tabs for Python, PSF, Docs, PyPI, Jobs, and Community. Below the navigation bar is the Python logo and a search bar with a magnifying glass icon and a 'GO' button. The main menu includes links for About, Downloads, Documentation, Community, Success Stories, News, and Events. The URL in the address bar is 'Python >>> Downloads >>> Mac OS X'. The page title is 'Python Releases for Mac OS X'. A red box highlights the first item in the list: 'Latest Python 3 Release - Python 3.6.2' with a link to 'Latest Python 3 Release - Python 3.7.3'. Other items listed include 'Python 2.7.14rc1 - 2017-08-27' with download links for Mac OS X 64-bit/32-bit installer and Mac OS X 32-bit i386/PPC installer, and 'Python 3.5.4 - 2017-08-08' with a download link for Mac OS X 64-bit/32-bit installer.

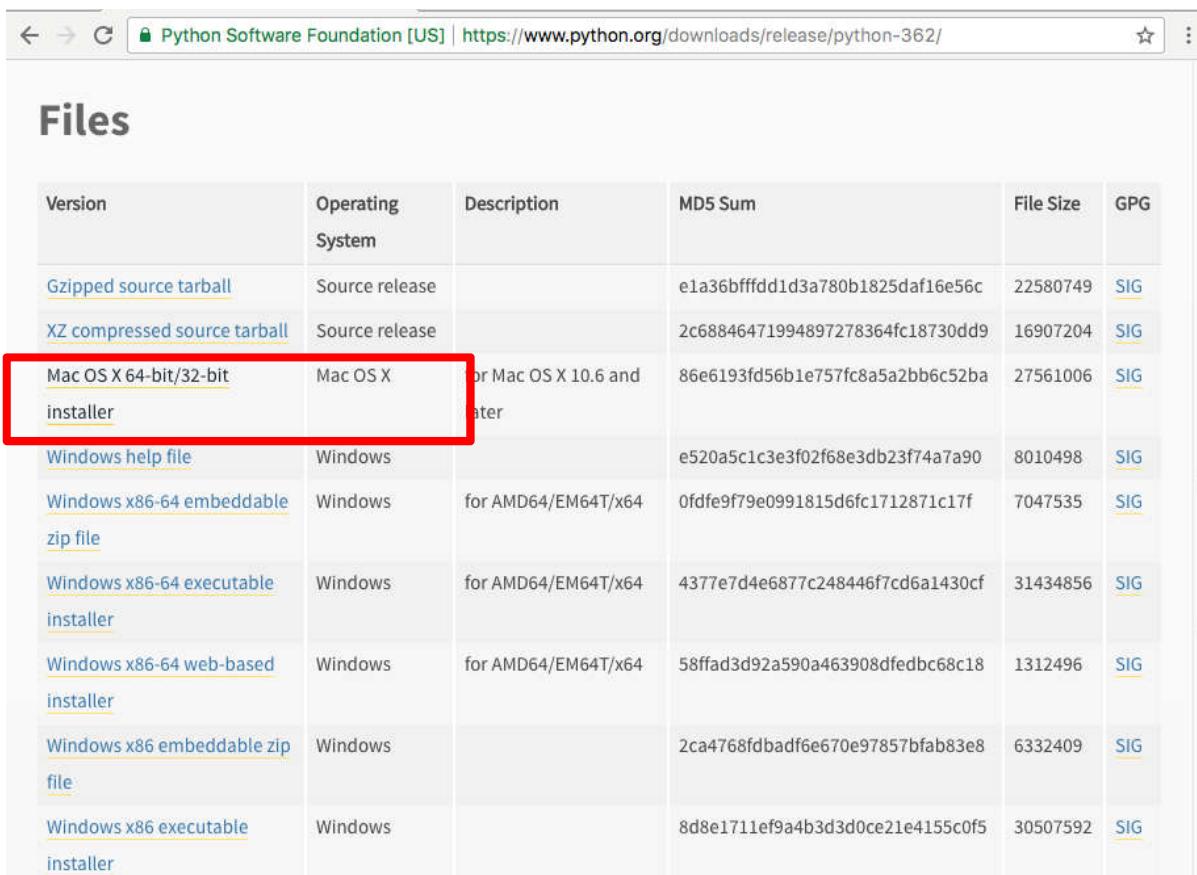
Python >>> Downloads >>> Mac OS X

Python Releases for Mac OS X

- [Latest Python 3 Release - Python 3.6.2](#)
[Latest Python 3 Release - Python 3.7.3](#)
- [Python 2.7.14rc1 - 2017-08-27](#)
 - Download [Mac OS X 64-bit/32-bit installer](#)
 - Download [Mac OS X 32-bit i386/PPC installer](#)
- [Python 3.5.4 - 2017-08-08](#)
 - Download [Mac OS X 64-bit/32-bit installer](#)

Install Python Interpreter – First Way (Cont.)

4. Click **Mac OS X 64-bit/32-bit installer** link.



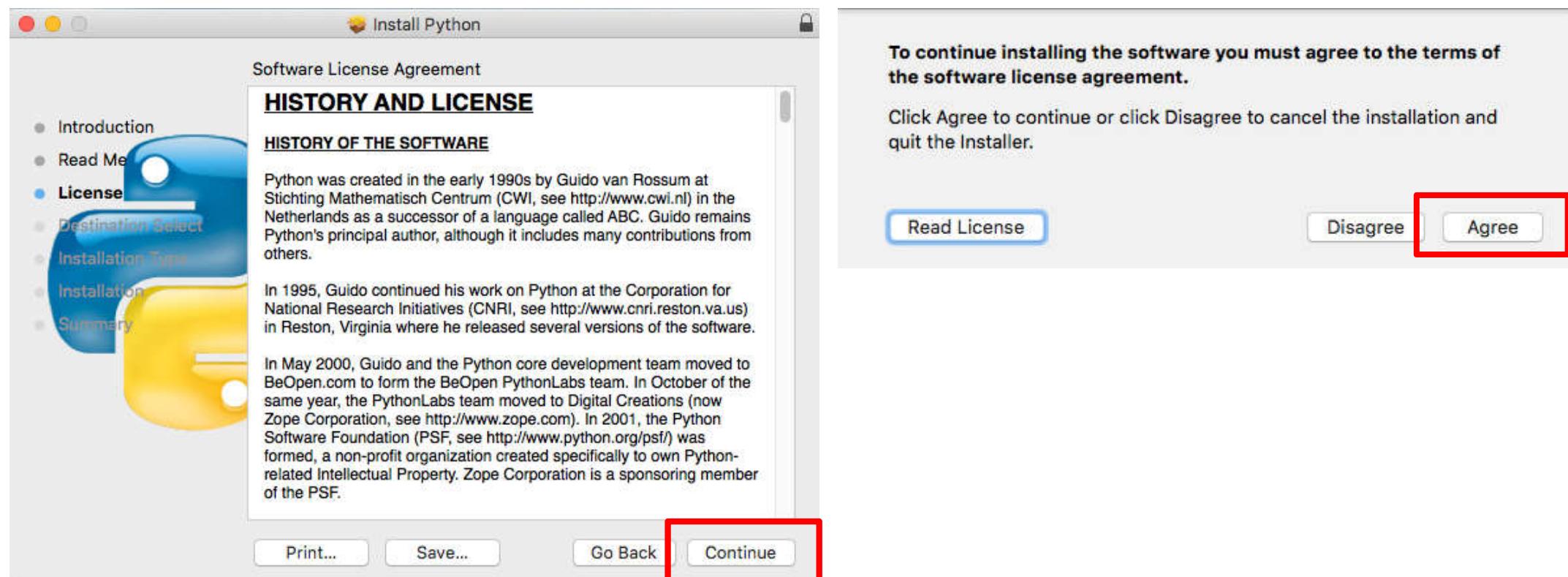
The screenshot shows a web browser displaying the Python Software Foundation download page for Python 3.6.2. The URL in the address bar is <https://www.python.org/downloads/release/python-362/>. The page title is "Files". A table lists various Python releases and their details. The row for "Mac OS X 64-bit/32-bit installer" is highlighted with a red box.

| Version | Operating System | Description | MD5 Sum | File Size | GPG |
|---|------------------|-----------------------------|----------------------------------|-----------|---------------------|
| Gzipped source tarball | Source release | | e1a36bfffdd1d3a780b1825daf16e56c | 22580749 | SIG |
| XZ compressed source tarball | Source release | | 2c6884671994897278364fc18730dd9 | 16907204 | SIG |
| Mac OS X 64-bit/32-bit installer | Mac OS X | for Mac OS X 10.6 and later | 86e6193fd56b1e757fc8a5a2bb6c52ba | 27561006 | SIG |
| Windows help file | Windows | | e520a5c1c3e3f02f68e3db23f74a7a90 | 8010498 | SIG |
| Windows x86-64 embeddable zip file | Windows | for AMD64/EM64T/x64 | 0fdfe9f79e0991815d6fc1712871c17f | 7047535 | SIG |
| Windows x86-64 executable installer | Windows | for AMD64/EM64T/x64 | 4377e7d4e6877c248446f7cd6a1430cf | 31434856 | SIG |
| Windows x86-64 web-based installer | Windows | for AMD64/EM64T/x64 | 58ffad3d92a590a463908dfedbc68c18 | 1312496 | SIG |
| Windows x86 embeddable zip file | Windows | | 2ca4768fdbadf6e670e97857bfab83e8 | 6332409 | SIG |
| Windows x86 executable installer | Windows | | 8d8e1711ef9a4b3d3d0ce21e4155c0f5 | 30507592 | SIG |

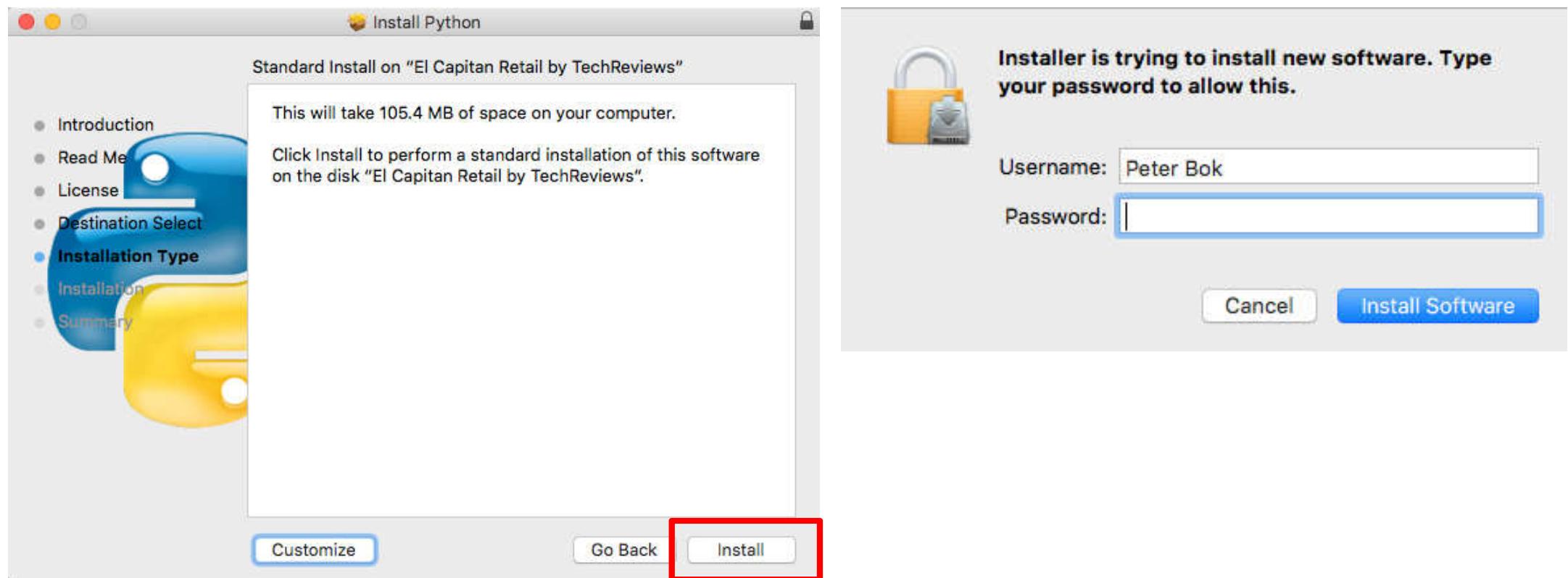
Install Python Interpreter – First Way (Cont.)



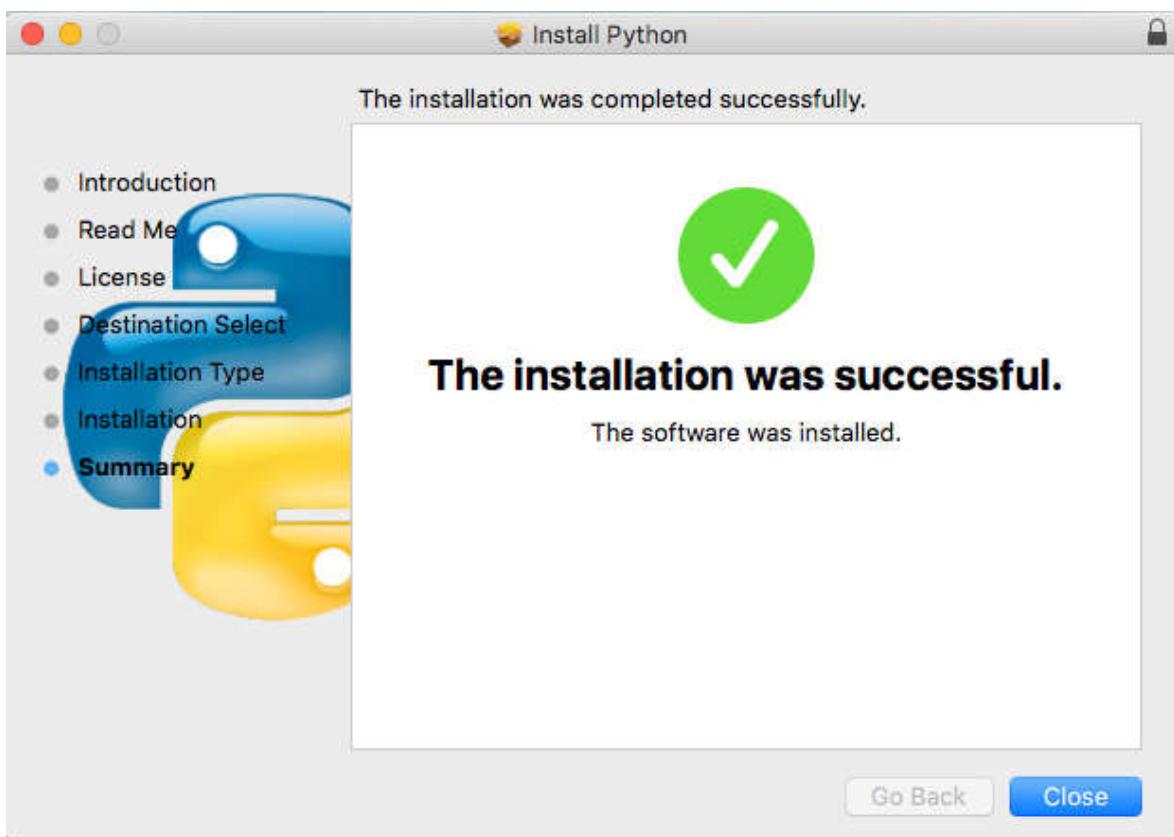
Install Python Interpreter – First Way (Cont.)



Install Python Interpreter – First Way (Cont.)

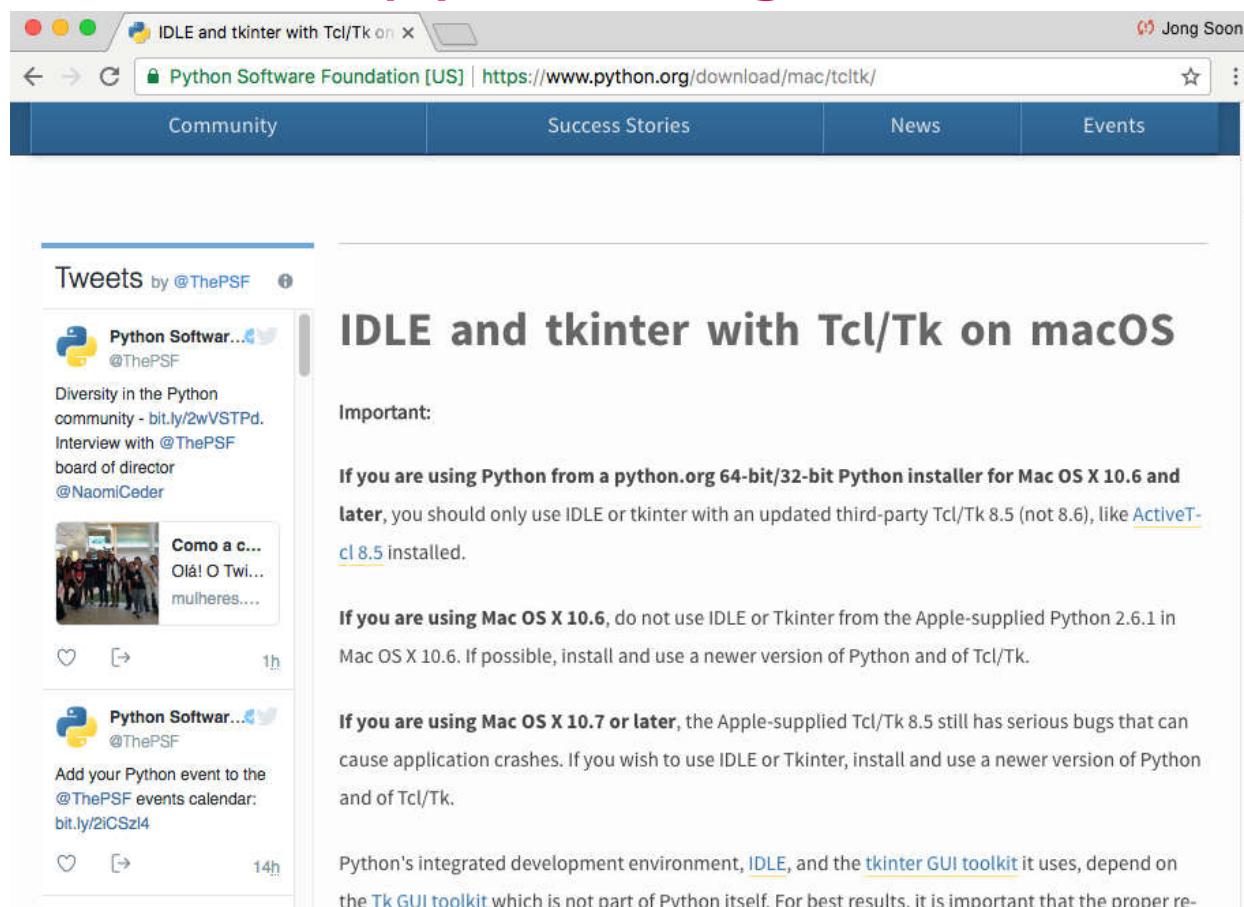


Install Python Interpreter – First Way (Cont.)



Install Python IDLE

1. Visit <https://www.python.org/download/mac/tcltk>



The screenshot shows a web browser window with the title "IDLE and tkinter with Tcl/Tk on". The address bar displays "Python Software Foundation [US] | https://www.python.org/download/mac/tcltk/". The page content includes a navigation bar with links to "Community", "Success Stories", "News", and "Events". On the left, there is a sidebar titled "Tweets by @ThePSF" featuring two tweets from the Python Software Foundation account. The main content area is titled "IDLE and tkinter with Tcl/Tk on macOS" and contains several paragraphs of text providing instructions and important notes about the installation of Python on Mac OS X.

Tweets by @ThePSF

IDLE and tkinter with Tcl/Tk on macOS

Important:

If you are using Python from a python.org 64-bit/32-bit Python installer for Mac OS X 10.6 and later, you should only use IDLE or tkinter with an updated third-party Tcl/Tk 8.5 (not 8.6), like ActiveTcl 8.5 installed.

If you are using Mac OS X 10.6, do not use IDLE or Tkinter from the Apple-supplied Python 2.6.1 in Mac OS X 10.6. If possible, install and use a newer version of Python and of Tcl/Tk.

If you are using Mac OS X 10.7 or later, the Apple-supplied Tcl/Tk 8.5 still has serious bugs that can cause application crashes. If you wish to use IDLE or Tkinter, install and use a newer version of Python and of Tcl/Tk.

Python's integrated development environment, IDLE, and the tkinter GUI toolkit it uses, depend on the Tk GUI toolkit which is not part of Python itself. For best results, it is important that the proper re-

Install Python IDLE (Cont.)

2. Click **ActiveTcl 8.5.18.0** link like below.

| Python Release | Installer Variant | macOS Release | Recommended Tcl/Tk | Alternate Tcl/Tk | Not Recommended |
|---|-------------------|---------------|---|-----------------------------|-----------------------------|
| 3.6.2, 3.5.3, 2.7.13 | 64-/32-bit | 10.12 | ActiveTcl 8.5.18.0 | Apple 8.5.9 | |
| | | 10.11 | ActiveTcl 8.5.18.0 | Apple 8.5.9 | |
| | | 10.10 | ActiveTcl 8.5.18.0 | Apple 8.5.9 | |
| | | 10.9 | ActiveTcl 8.5.18.0 | Apple 8.5.9 | |
| | | 10.8 | ActiveTcl 8.5.18.0 | Apple 8.5.9 | |
| | | 10.7 | ActiveTcl 8.5.18.0 | Apple 8.5.9 | |
| | | 10.6 | ActiveTcl 8.5.18.0 | | Apple 8.5.7 |
| 3.5.3, 2.7.13 | 32-bit-only | 10.5 | ActiveTcl 8.4.20 | Apple 8.4.7 | |

Install Python IDLE (Cont.)

3. Click the ActiveState web site link like below.

ActiveTcl 8.5.18.0

ActiveState provides binary distributions of Tcl/Tk which are upward compatible with and generally more up-to-date than those provided by Apple in macOS releases. This version of Tcl/Tk includes fixes for some critical problems that you may encounter using tkinter or IDLE (see [Apple 8.5.9](#) below). You can download an installer for this release from [the ActiveState web site](#). Note that ActiveState Community Edition binaries are not open source and are covered by an ActiveState license. You should read the license before downloading to verify that your usage complies with its terms of use. This is an *Aqua Cocoa Tk*.

Install Python IDLE (Cont.)

4. Click **Mac Disk Image (DMG)** link like below.

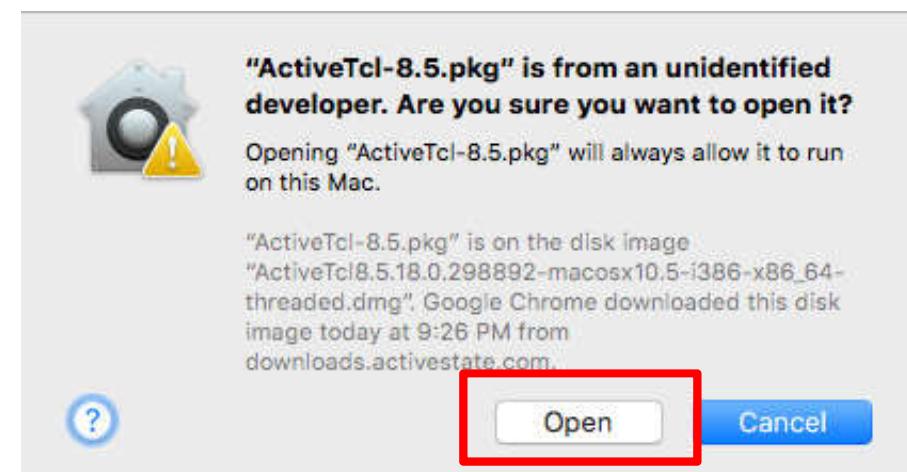
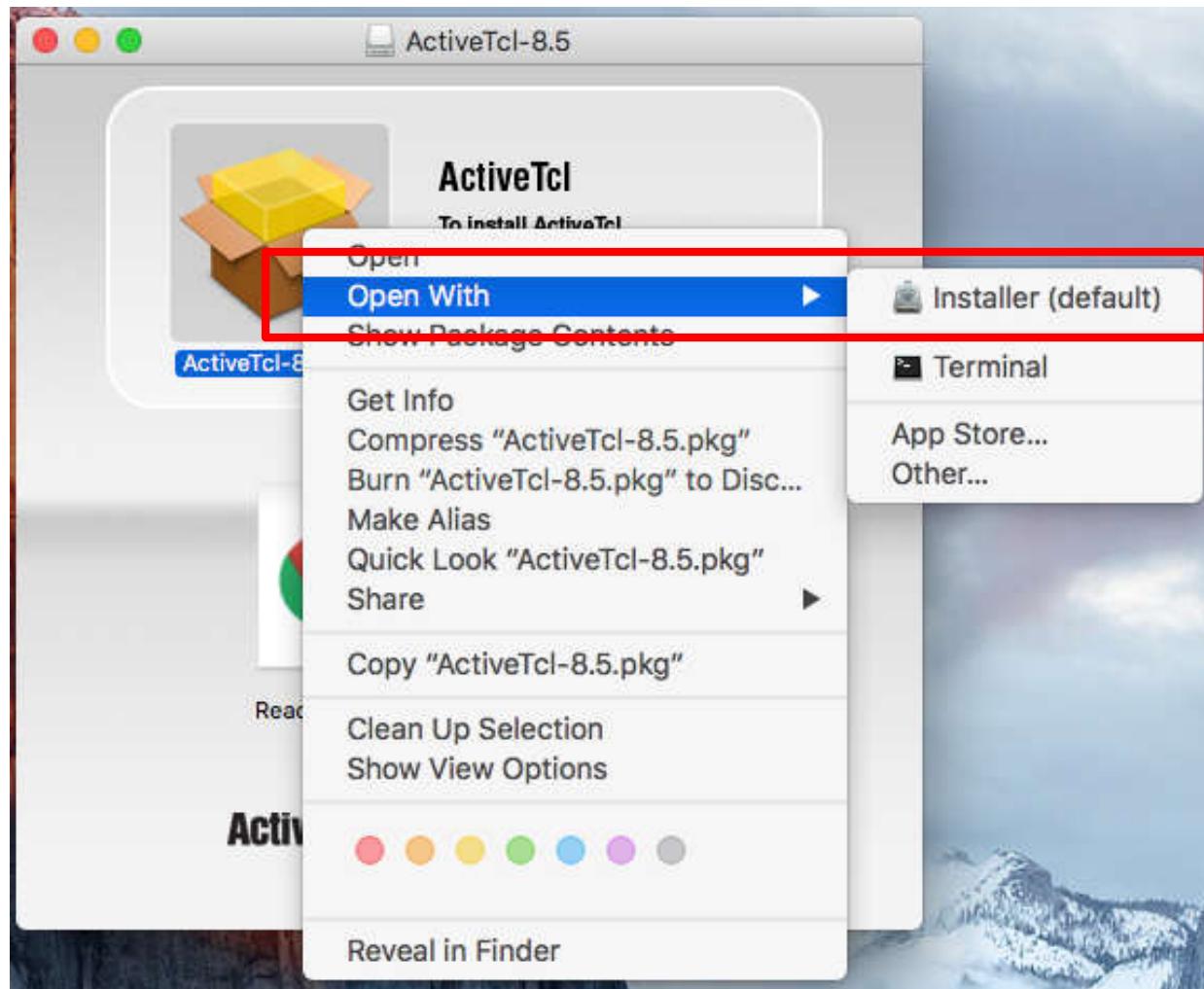
The screenshot shows a web browser window with the title "AS Download and Install Tcl: Activ..." and a URL bar showing "Secure | https://www.activestate.com/activetcl/downloads". The main content area is titled "DOWNLOAD TCL: OTHER PLATFORMS AND VERSIONS". Below this, there is a table of download links for different versions and platforms. The version 8.5.18.0 row is highlighted with a red box around the "Mac Disk Image (DMG)" link in the Windows Installer (EXE) column.

| Version | Windows (64-bit, x64) | Mac OS X (10.9+, x64) | Linux (x86) | Linux (x86_64) | Windows (x86) | Mac OS X (10.5+, x86_64/x86) |
|--------------------|---|---|--------------------------------|--------------------------------|---|---|
| 8.6.6.8606 | Windows Installer (EXE) | Mac Package (PKG) | AS Package | AS Package | n/a | n/a |
| 8.6.6.8607 | n/a | n/a | AS Package | n/a | Windows Installer (EXE) | n/a |
| 8.5.19.8519 | n/a | n/a | AS Package | AS Package | n/a | n/a |
| 8.5.18.0 | Windows Installer (EXE) | n/a | AS Package | AS Package | Windows Installer (EXE) | <u>Mac Disk Image (DMG)</u> |

Install Python IDLE (Cont.)



Install Python IDLE (Cont.)



Install Python IDLE (Cont.)

Welcome to the ActiveState ActiveTcl 8.5.18.0.298892 Installer

Welcome to the ActiveState ActiveTcl 8.5.18.0.298892 distribution for OS X/ Leopard/i386-x86_64.

Package Management: new

TEAcup, the TEApot Repository Client

Packages:

- Tcl 8.5 Trofs 0.4.4
- Tk 8.5

ActiveTcl 8.5 is compatible with most ActiveTcl 8.4 packages. More packages can be obtained with the teacup (accessing TEApot), or by installing this distribution into the same directory as an existing ActiveTcl 8.4 installation.

Using ActiveTcl at work?

Our ActiveTcl Enterprise business solution is a support and maintenance package for organizations of all sizes that depend on Tcl. Safeguard your

Go Back Continue

Software License Agreement

**ACTIVESTATE
COMMUNITY EDITION
SOFTWARE LICENSE
AGREEMENT**

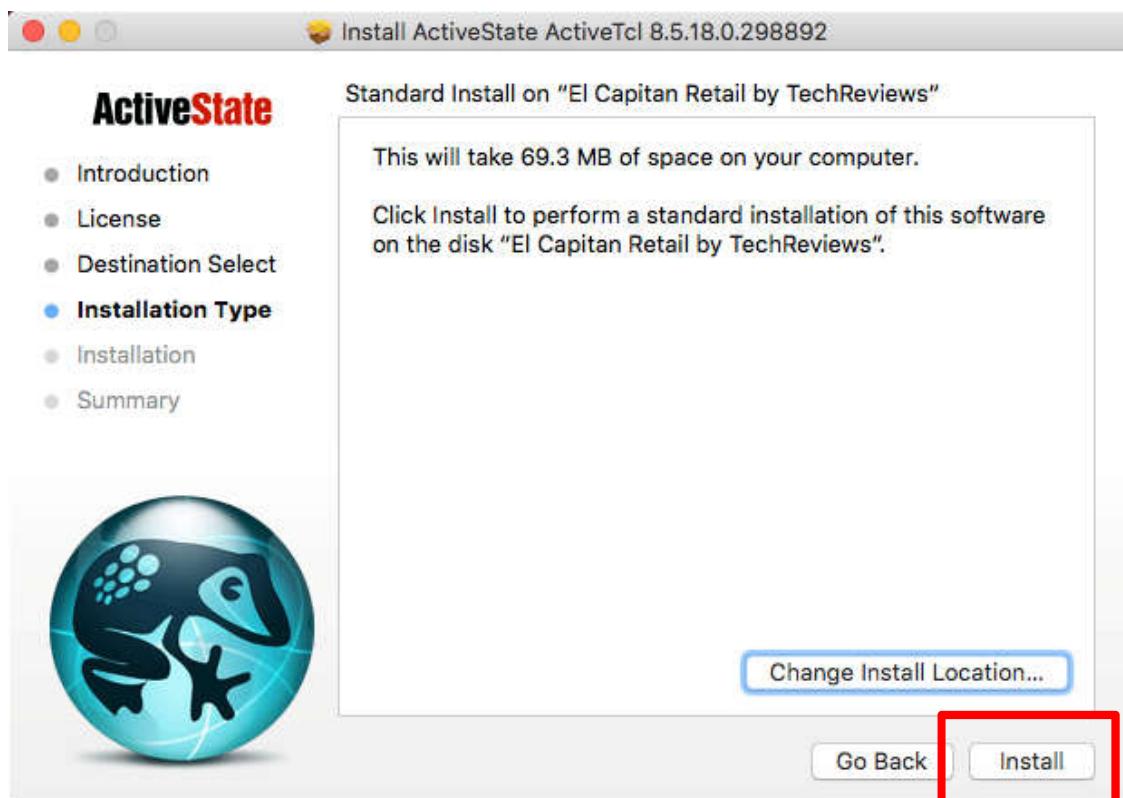
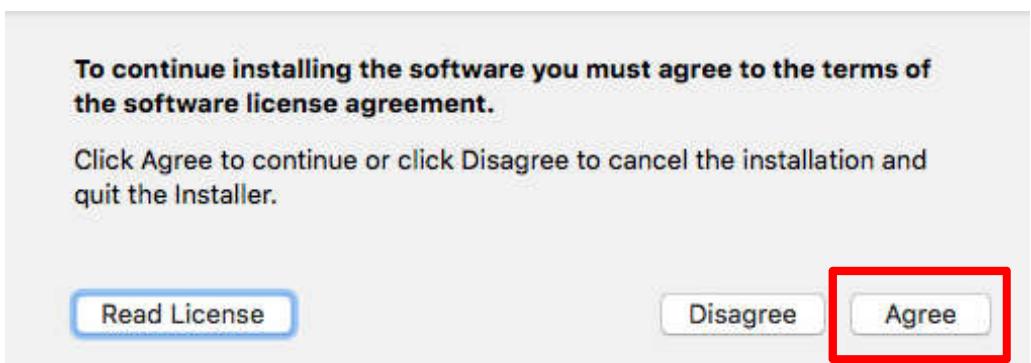
Version effective date: May 31, 2013

Preamble:

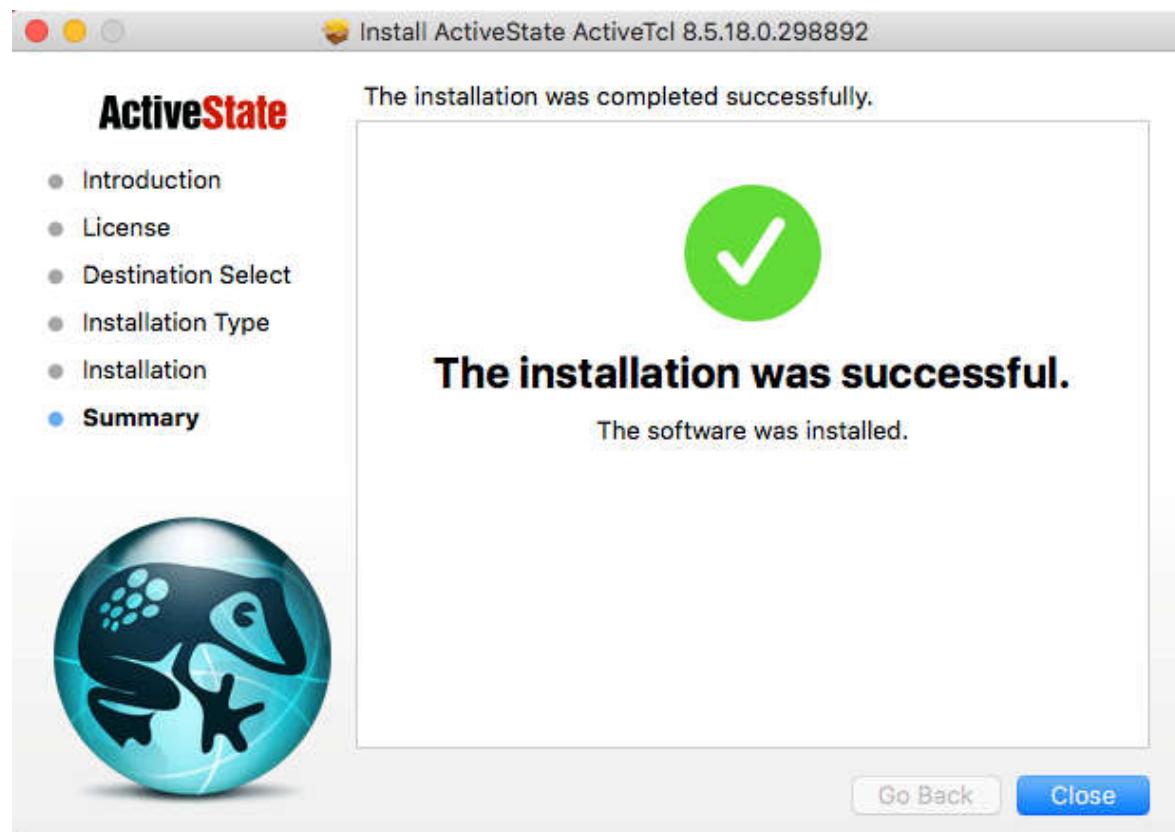
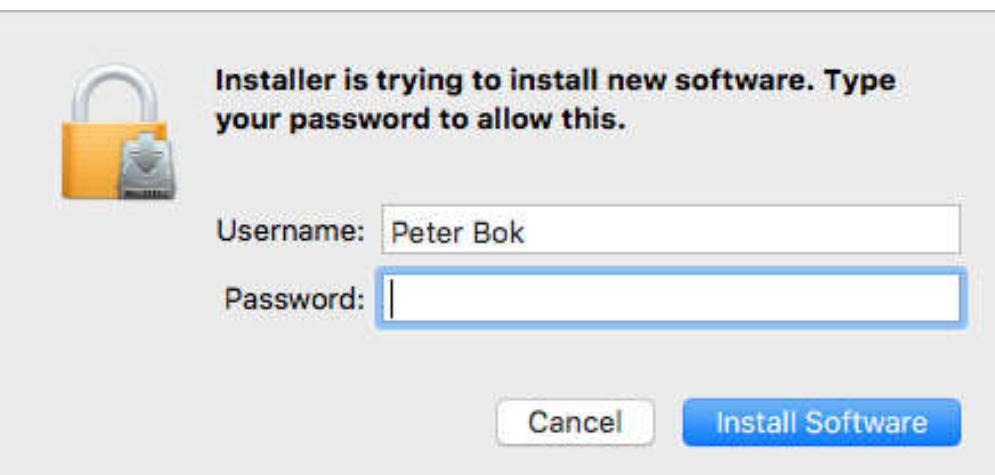
The use of the Software is unsupported and is for non-commercial or non-production use. Support is available from ACTIVESTATE under a separate agreement, see Part 3.d. To use the Software for internal-facing or external-facing production servers you require a Business Edition license, see Part 4.b. For redistribution,

Print... Save... Go Back Continue

Install Python IDLE (Cont.)



Install Python IDLE (Cont.)



Install Python IDLE (Cont.)



Python 3.6.2 (v3.6.2:5fd33b5926, Jul 16 2017, 20:11:06)
[GCC 4.2.1 (Apple Inc. build 5666) (dot 3)] on darwin
Type "copyright", "credits" or "license()" for more information.
>>> print ("Hello, World")
Hello, World
>>> |

Ln: 6 Col: 4

Install Python Interpreter – Second Way

Refer to

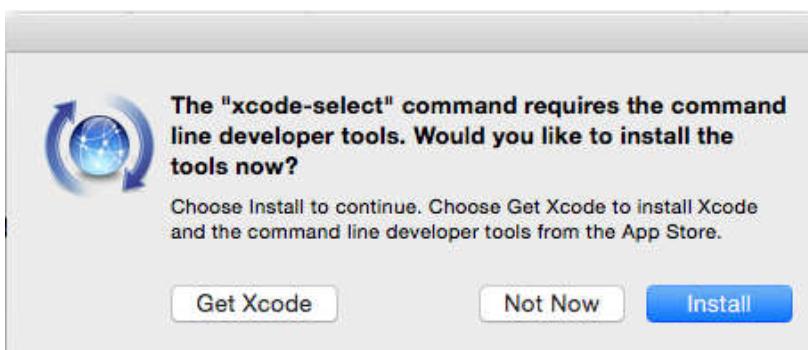
<https://www.digitalocean.com/community/tutorials/how-to-install-python-3-and-set-up-a-local-programming-environment-on-macos>

1. Open **Terminal**

Install Python Interpreter – Second Way (Cont.)

2. Install Xcode

```
Last login: Thu Sep  7 05:22:15 on console
Instructors-Mac:~ instructor$ xcode-select -p
xcode-select: error: unable to get active developer directory, use `xcode-select
--switch` to set one (or see `man xcode-select`)
Instructors-Mac:~ instructor$
Instructors-Mac:~ instructor$
Instructors-Mac:~ instructor$ xcode-select --install
```



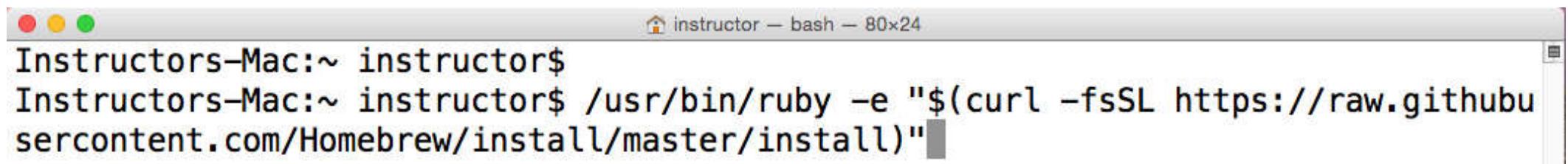
The "xcode-select" command requires the command line developer tools. Would you like to install the tools now?

Choose [Install](#) to continue. Choose [Get Xcode](#) to install Xcode and the command line developer tools from the App Store.

[Get Xcode](#) [Not Now](#) [Install](#)

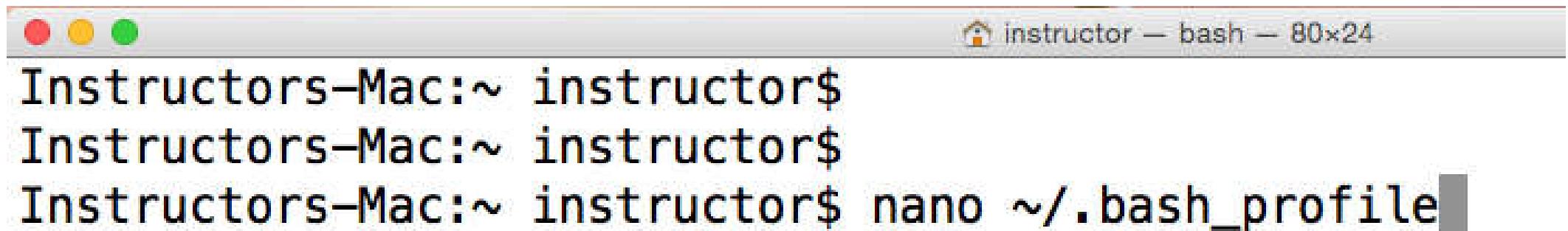
Install Python Interpreter – Second Way (Cont.)

3. Install and Setup up **Homebrew**



A screenshot of a Mac OS X terminal window titled "instructor — bash — 80x24". The window shows the following command being typed:

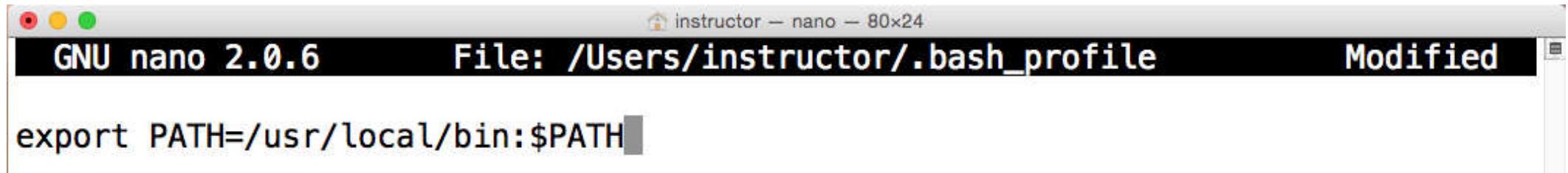
```
Instructors-Mac:~ instructor$ /usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```



A screenshot of a Mac OS X terminal window titled "instructor — bash — 80x24". The window shows the following commands being typed:

```
Instructors-Mac:~ instructor$  
Instructors-Mac:~ instructor$  
Instructors-Mac:~ instructor$ nano ~/.bash_profile
```

Install Python Interpreter – Second Way (Cont.)



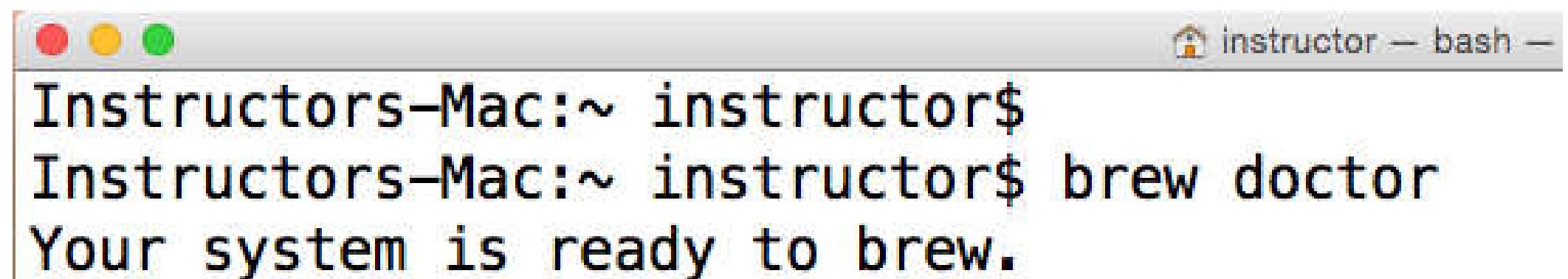
A screenshot of a macOS terminal window titled "instructor – nano – 80x24". The window title bar includes the application icon, window controls, and the title. The main area shows the command "export PATH=/usr/local/bin:\$PATH". The status bar at the bottom indicates "GNU nano 2.0.6", "File: /Users/instructor/.bash_profile", and "Modified".

```
export PATH=/usr/local/bin:$PATH
```

Instructors-Mac:~ instructor\$

Instructors-Mac:~ instructor\$ source ~/.bash_profile

Instructors-Mac:~ instructor\$



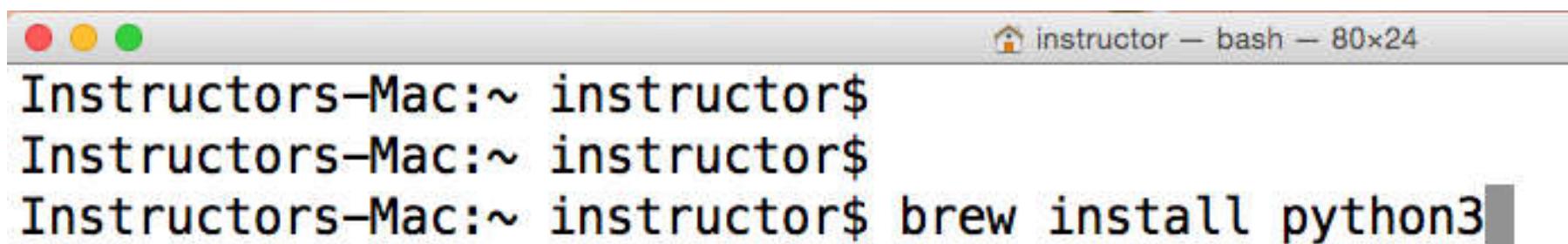
A screenshot of a macOS terminal window titled "instructor – bash –". The window title bar includes the application icon, window controls, and the title. The main area shows the command "brew doctor" being run, followed by the output "Your system is ready to brew.". The status bar at the bottom indicates the application is "instructor – bash –".

```
Instructors-Mac:~ instructor$ brew doctor
Your system is ready to brew.
```

Install Python Interpreter – Second Way (Cont.)

4. Install Python 3

```
Instructors-Mac:~ instructor$ brew search python
==> Searching local taps...
app-engine-python    gst-python          micropython      python3
boost-python         ipython            python          wxpython
boost-python@1.59    ipython@5        python-markdown zpython
==> Searching taps on GitHub...
caskroom/cask/mysql-connector-python   homebrew/apache/mod_python
caskroom/cask/kk7ds-python-runtime
==> Searching blacklisted, migrated and deleted formulae...
Instructors-Mac:~ instructor$
```



The screenshot shows a terminal window with the title bar 'instructor — bash — 80x24'. The window contains three lines of text:
1. 'Instructors-Mac:~ instructor\$'
2. 'Instructors-Mac:~ instructor\$'
3. 'Instructors-Mac:~ instructor\$ brew install python3' (with the command partially typed)

Install Python Interpreter – Second Way (Cont.)

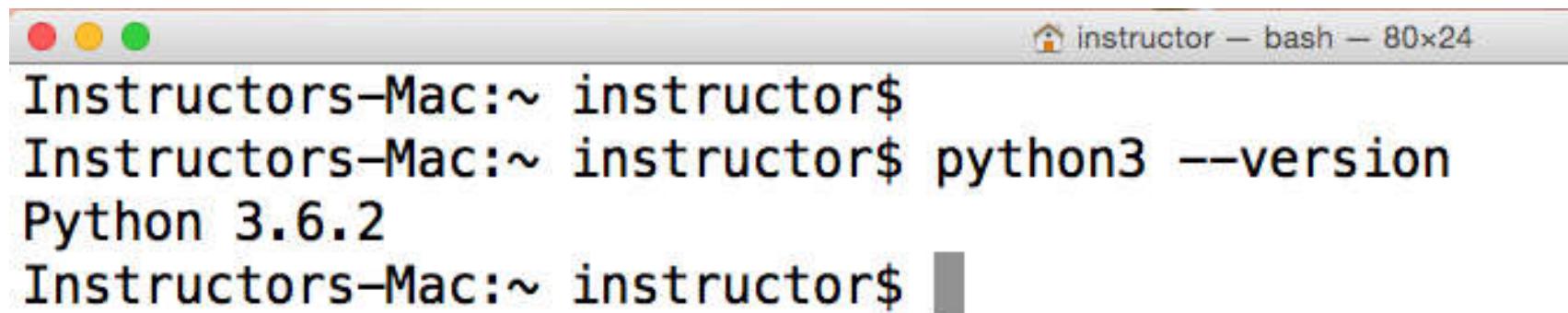
```
instructor ~ % brew install python3
#####
# 100.0%
==> Pouring xz-5.2.3.yosemite.bottle.tar.gz
🍺 /usr/local/Cellar/xz/5.2.3: 92 files, 1.4MB
==> Installing python3
==> Downloading https://homebrew.bintray.com/bottles/python3-3.6.2.yosemite.bott
#####
# 100.0%
==> Pouring python3-3.6.2.yosemite.bottle.tar.gz
==> /usr/local/Cellar/python3/3.6.2/bin/python3 -s setup.py --no-user-cfg instal
==> /usr/local/Cellar/python3/3.6.2/bin/python3 -s setup.py --no-user-cfg instal
==> /usr/local/Cellar/python3/3.6.2/bin/python3 -s setup.py --no-user-cfg instal
==> Caveats
Pip, setuptools, and wheel have been installed. To update them
  pip3 install --upgrade pip setuptools wheel

You can install Python packages with
  pip3 install <package>

They will install into the site-package directory
  /usr/local/lib/python3.6/site-packages

See: https://docs.brew.sh/Homebrew-and-Python.html
==> Summary
🍺 /usr/local/Cellar/python3/3.6.2: 3,598 files, 56.0MB
Instructors-Mac:~ instructor%
```

Install Python Interpreter – Second Way (Cont.)



```
Instructors-Mac:~ instructor$ python3 --version
Python 3.6.2
Instructors-Mac:~ instructor$
```

Install Python Interpreter – Second Way (Cont.)

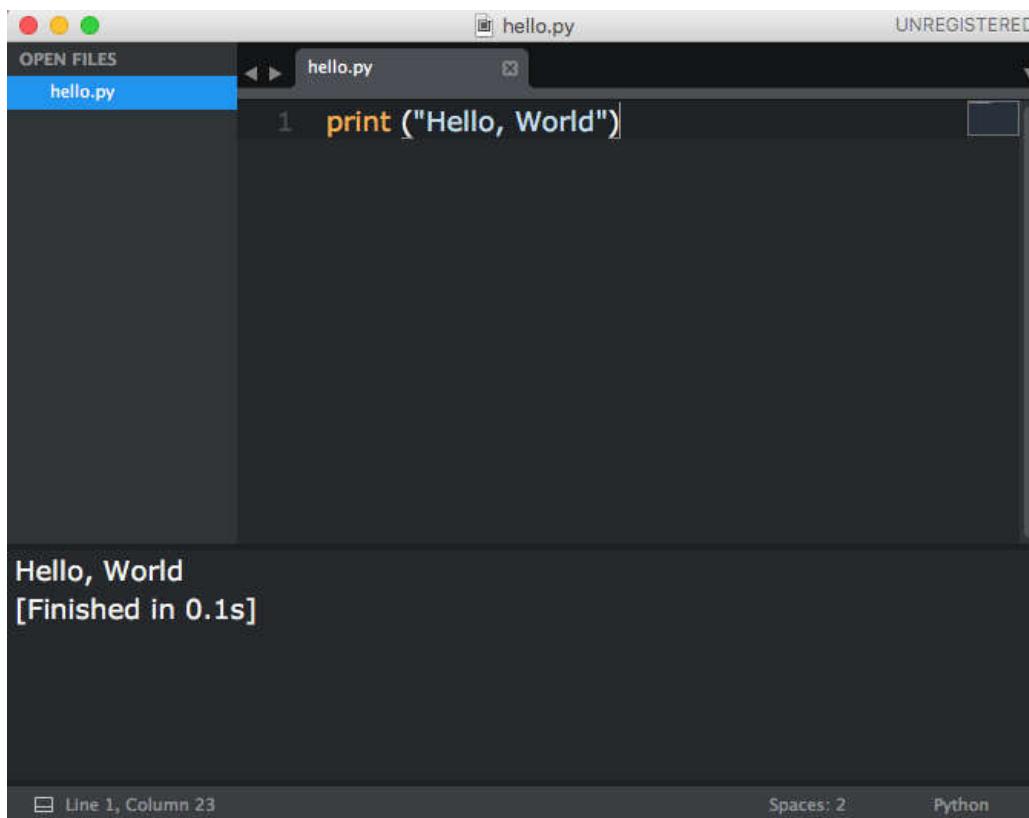
5. Create a Simple Program.

```
Peters-Mac:~ instructor$ mkdir PythonHome
Peters-Mac:~ instructor$ cd PythonHome
Peters-Mac:PythonHome instructor$ cat > hello.py
print ("Hello, World")
^Z
[2]+  Stopped                  cat > hello.py
Peters-Mac:PythonHome instructor$ ls
hello.py
Peters-Mac:PythonHome instructor$ cat hello.py
print ("Hello, World")
Peters-Mac:PythonHome instructor$ python3 hello.py
Hello, World
Peters-Mac:PythonHome instructor$ █
```

Text Editors

Text Editor – Sublime Text 3

- Sublime Text 3 (<http://www.sublimetext.com/3>) – Half Freeware



A screenshot of the Sublime Text 3 interface. The window title is "hello.py". The status bar at the bottom shows "Line 1, Column 23", "Spaces: 2", and "Python". The code editor contains the following Python code:

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

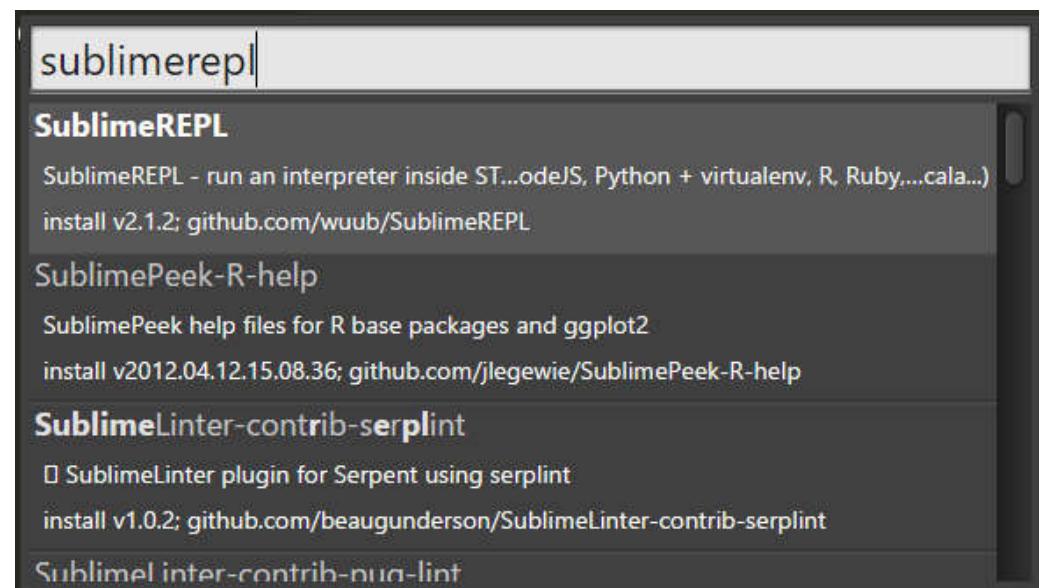
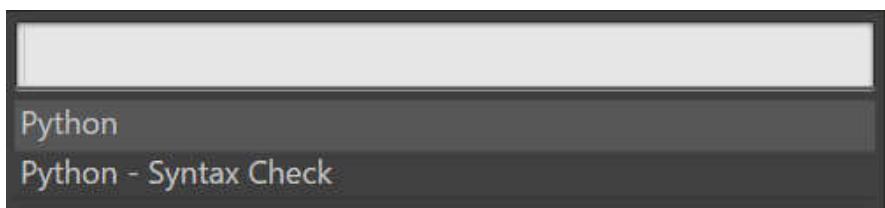
The output panel at the bottom displays the result of the execution:

```
Hello, World
[Finished in 0.1s]
```



Text Editor – Sublime Text 3 (Cont.)

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



Text Editor - EditPlus

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

A screenshot of the EditPlus text editor interface. The title bar shows "C:\Python Home\hello.py - EditPlus". The menu bar includes File, Edit, View, Search, Document, Project, Tools, Browser, Emmet, Window, and Help. The toolbar has various icons for file operations like Open, Save, Find, and Copy. The left sidebar shows a directory tree with "C:\Python Home" selected. The main editor area displays the following code:

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

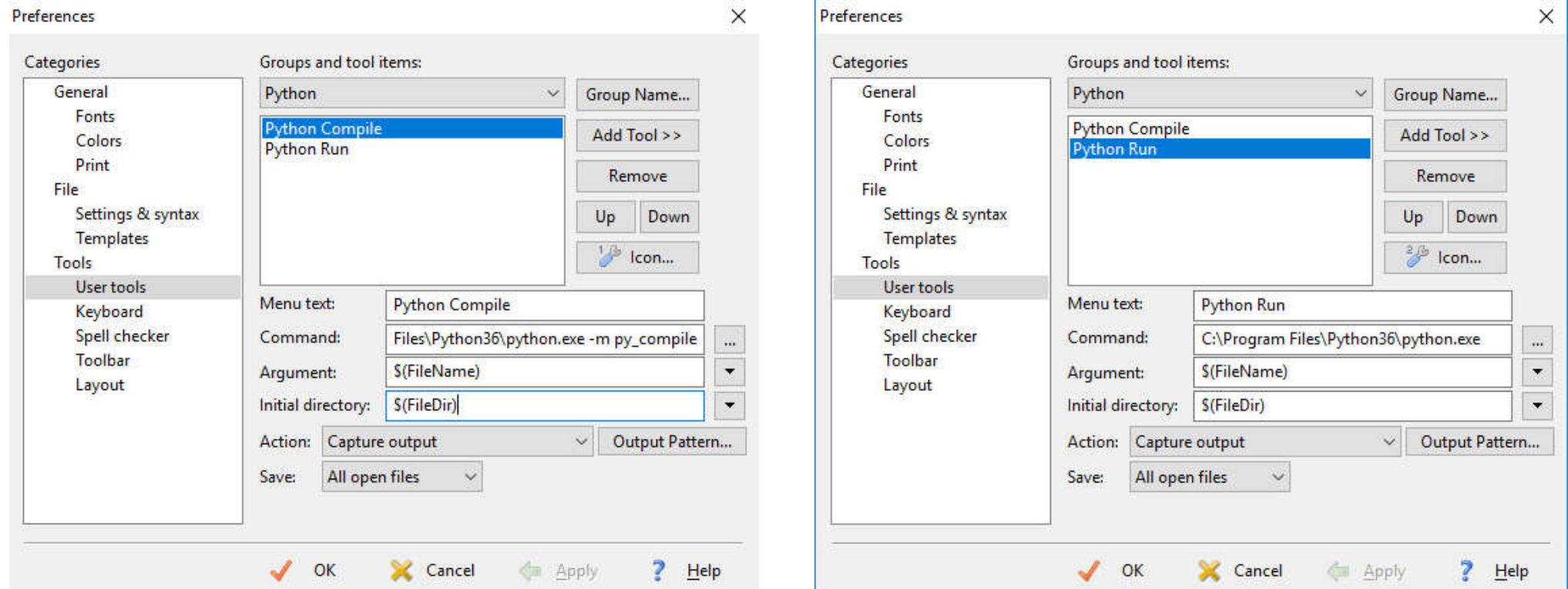
The status bar at the bottom shows "In 1 col 22 1 00 PC UTF-8". Below the editor is a terminal window titled "Python Run" showing the output:

```
Hello, World
Output completed (0 sec consumed) - Normal Termination
```



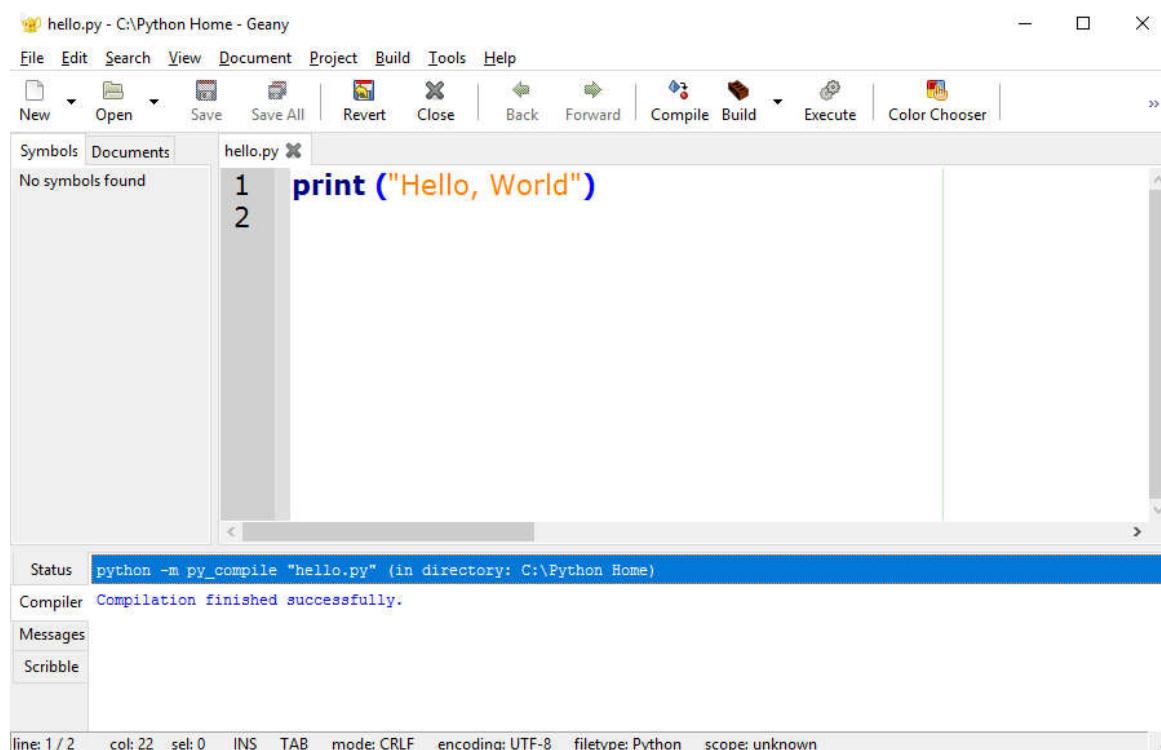
Text Editor – EditPlus (Cont.)

■ 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 has buttons 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 "No symbols found" in the Symbols tab. The main code editor window contains the following Python code:

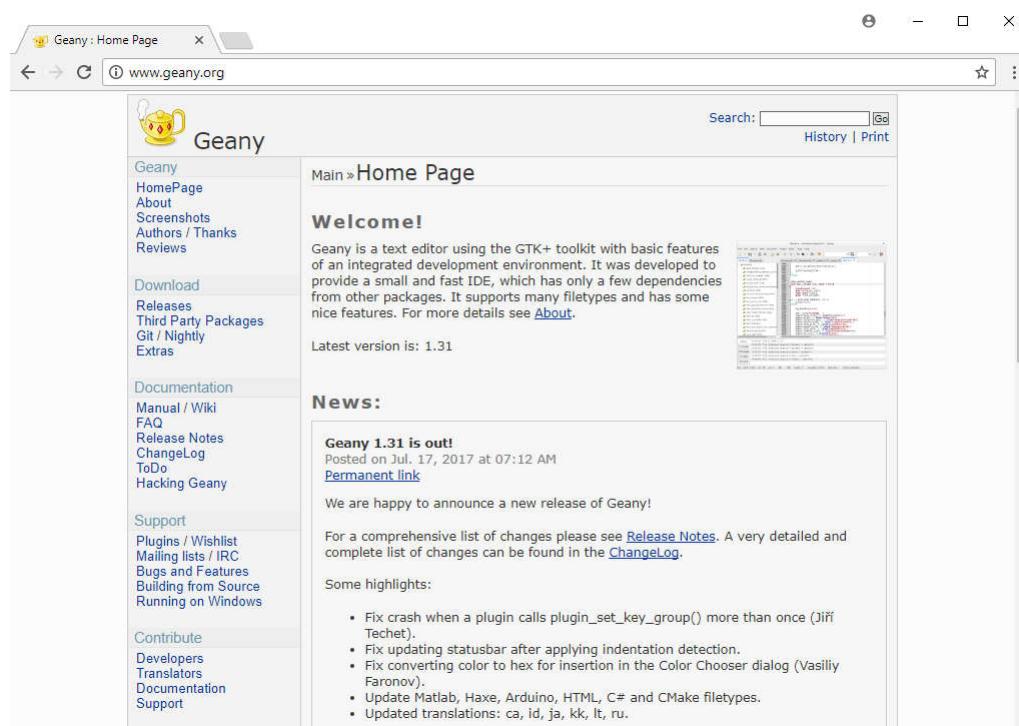
```
1 print ("Hello, World")
2
```

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 bar also displays this compilation message. The bottom status bar includes information like line: 1 / 2, col: 22, sel: 0, INS, TAB, mode: CRLF, encoding: UTF-8, filetype: Python, and scope: unknown.



Text Editor – Geany (Cont.)

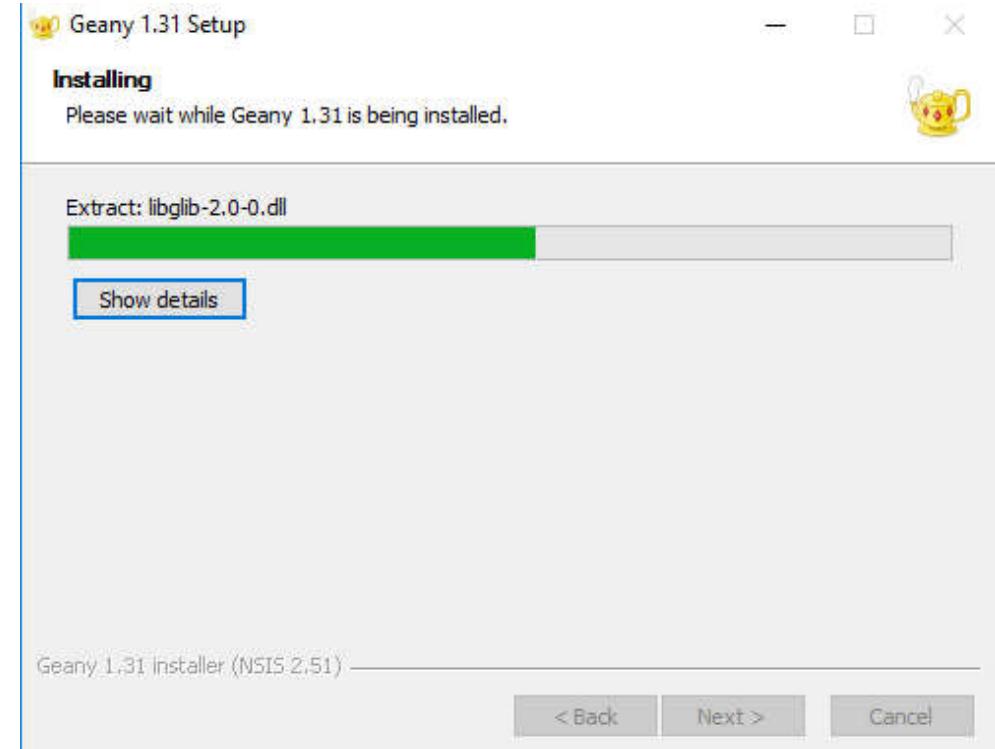
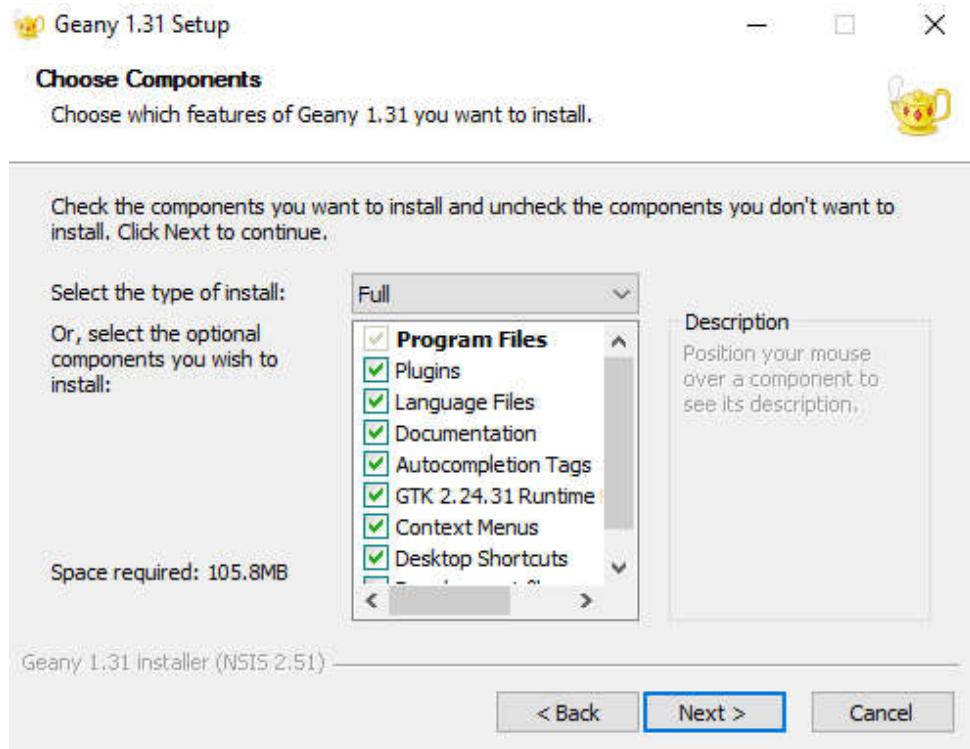
■ Geany – (<http://www.geany.org/>) – OpenSource



A screenshot of the Geany website homepage. The header features a logo of a golden teapot with a face, the word "Geany", and a search bar. The main navigation menu includes "Geany", "Download", "Source", "Documentation", and "Support". Below the menu, there's a "Releases" section with links for "Source", "WindowsBinaries", "MacOSXBinaries", "OlderVersions", and "Third Party Packages". A "Source distribution" section links to "geany-1.31.tar.gz (GPG Sig)" and "geany-1.31.tar.bz2 (GPG Sig)". A note mentions a GPG key for source packages. The "Windows Binaries" section links to "geany-1.31_setup.exe". The "Mac OSX" section links to "geany-1.31_osx.dmg".

Text Editor – Geany (Cont.)

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



Text Editor – Atom

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

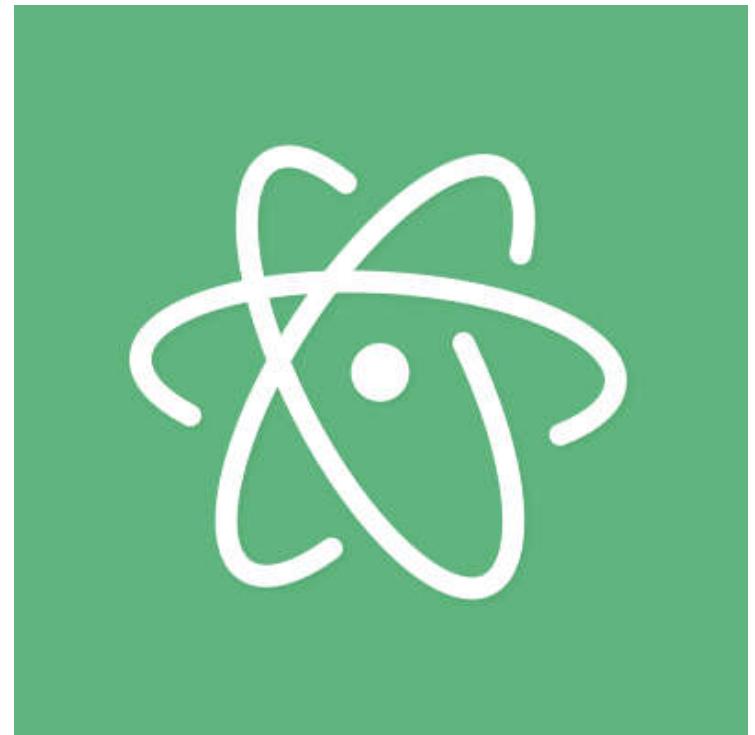
A screenshot of the Atom text editor interface. The window title is "test.py — ~/PythonHome — Atom". The left sidebar shows a "Project" tree with "PythonHome" expanded, containing ".metadata", "0823", and "test.py". The main editor area displays the following Python code:

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

The bottom status bar shows "Python - test.py:2 ✓" and the output console shows:

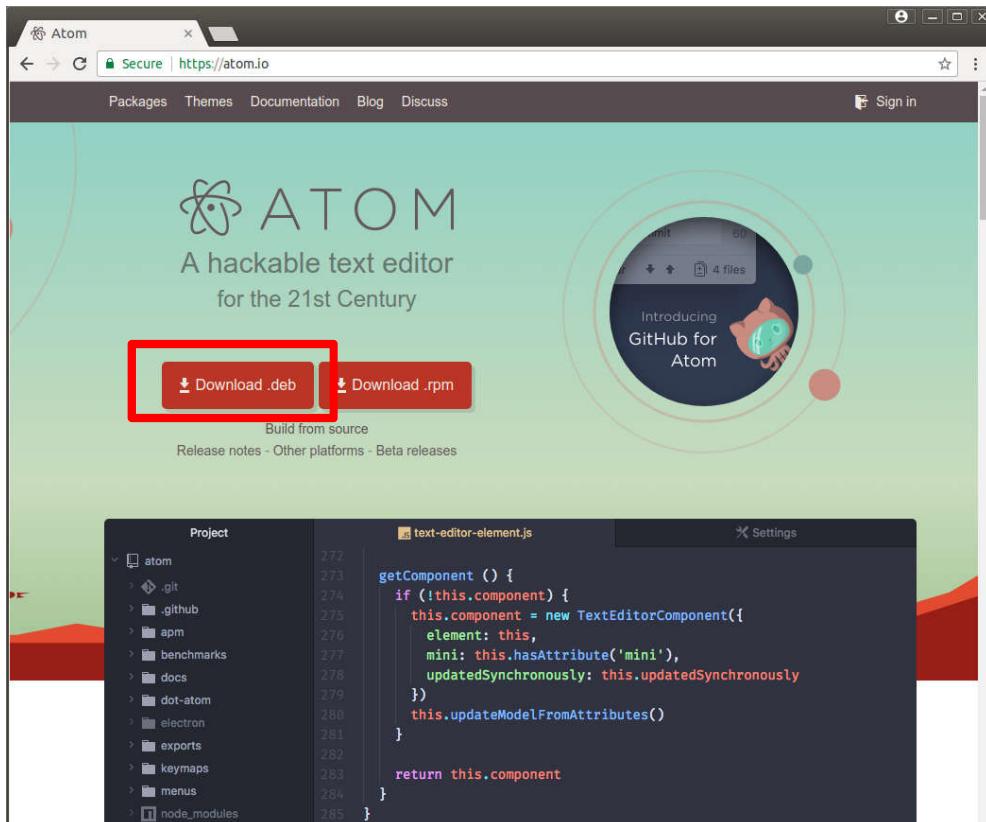
```
Hello, World
[Finished in 0.068s]
```

The bottom navigation bar includes "LF", "UTF-8", "Python", and "0 files".



Text Editor – Atom

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



```
instructor@Ubuntu: ~/Downloads$ ls
atom-amd64.deb
instructor@Ubuntu:~/Downloads$
```

```
/Downloads$ sudo dpkg -i atom-amd64.deb
```

Text Editor – Atom

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

```
instructor@Ubuntu:~/Downloads$ sudo dpkg -i atom-amd64.deb
[sudo] password for instructor:
Selecting previously unselected package atom.
(Reading database ... 249086 files and directories currently installed.)
Preparing to unpack atom-amd64.deb ...
Unpacking atom (1.19.3) ...
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 desktop-file-utils (0.22-1ubuntu5.1) ...
Processing triggers for gnome-menus (3.13.3-6ubuntu3.1) ...
Processing triggers for bamfdaemon (0.5.3~bzr0+16.04.20160824-0ubuntu1) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for mime-support (3.59ubuntu1) ...
Errors were encountered while processing:
  atom
instructor@Ubuntu:~/Downloads$
```

Text Editor – Atom

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

```
instructor@Ubuntu:~/Downloads$ sudo apt-get 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:
  linux-headers-4.8.0-36 linux-headers-4.8.0-36-generic
  linux-image-4.8.0-36-generic linux-image-extra-4.8.0-36-generic snap-confine
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-arch 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 7 not upgraded.
1 not fully installed or removed.
Need to get 3,918 kB of archives.
After this operation, 25.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

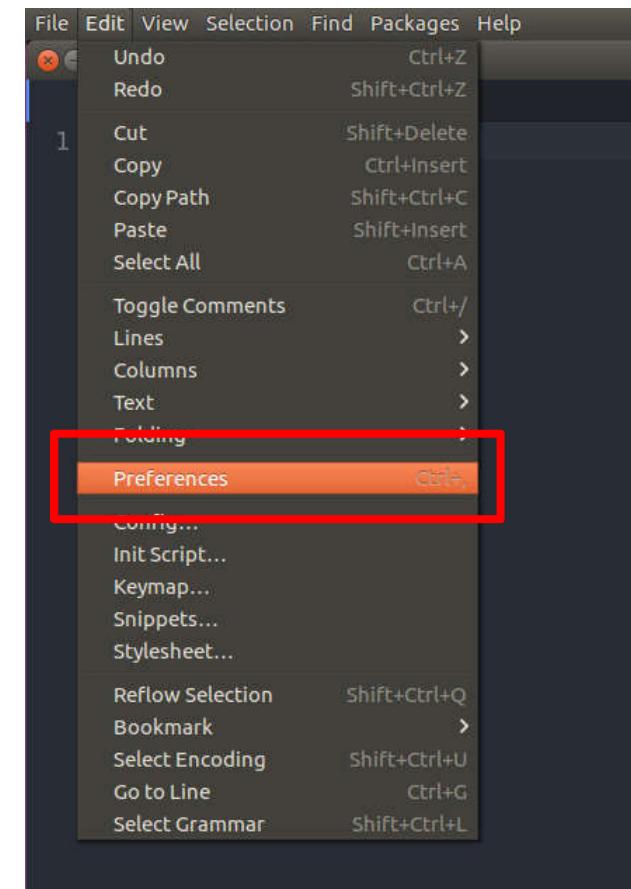
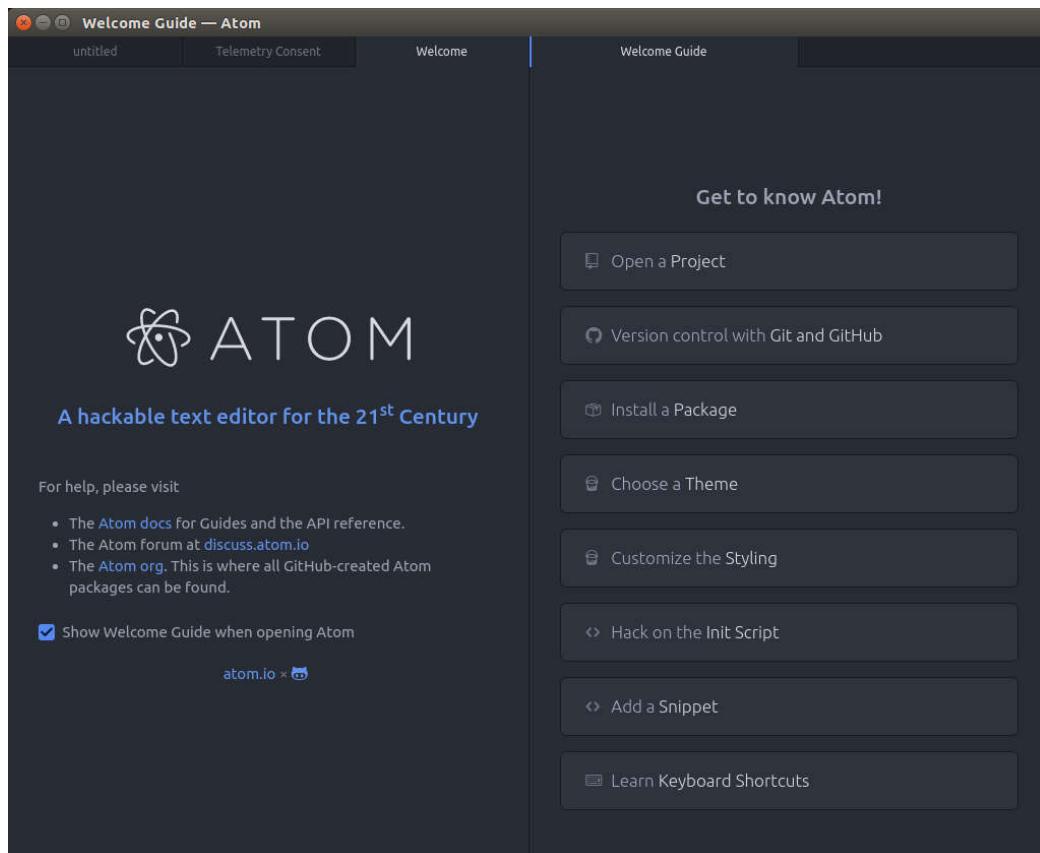
Text Editor – Atom

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



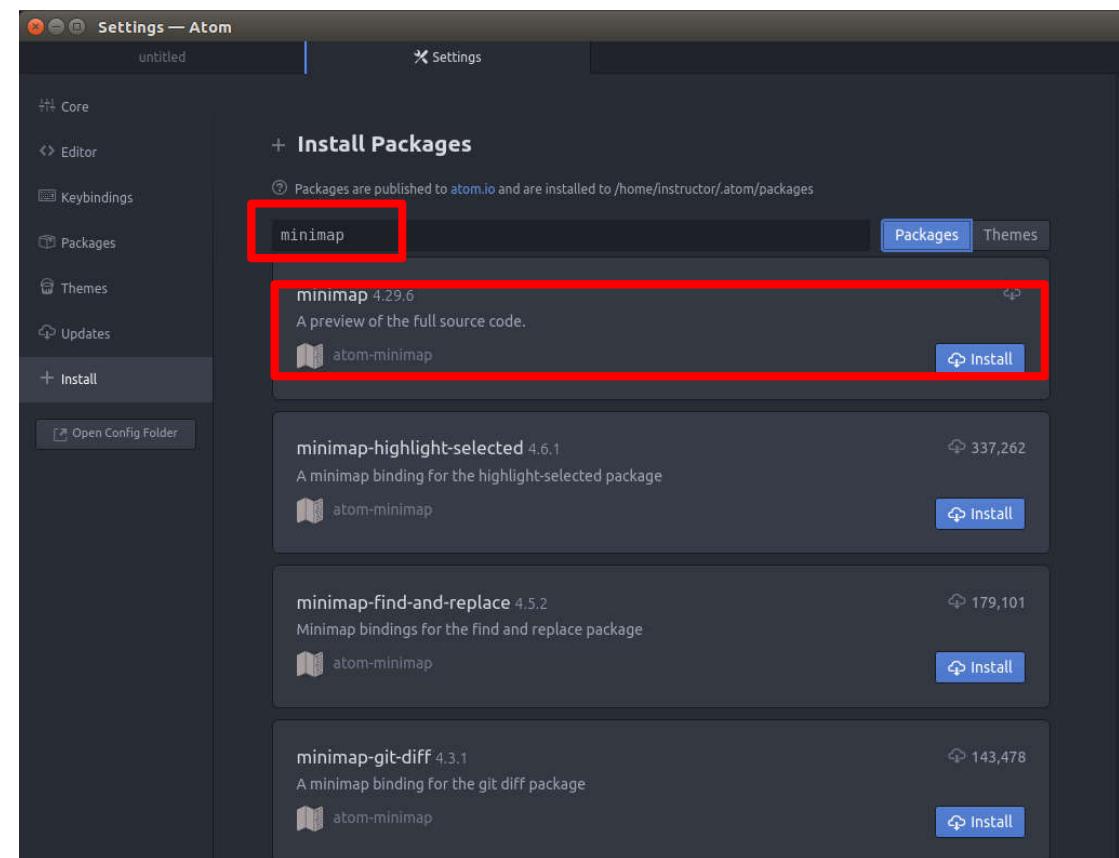
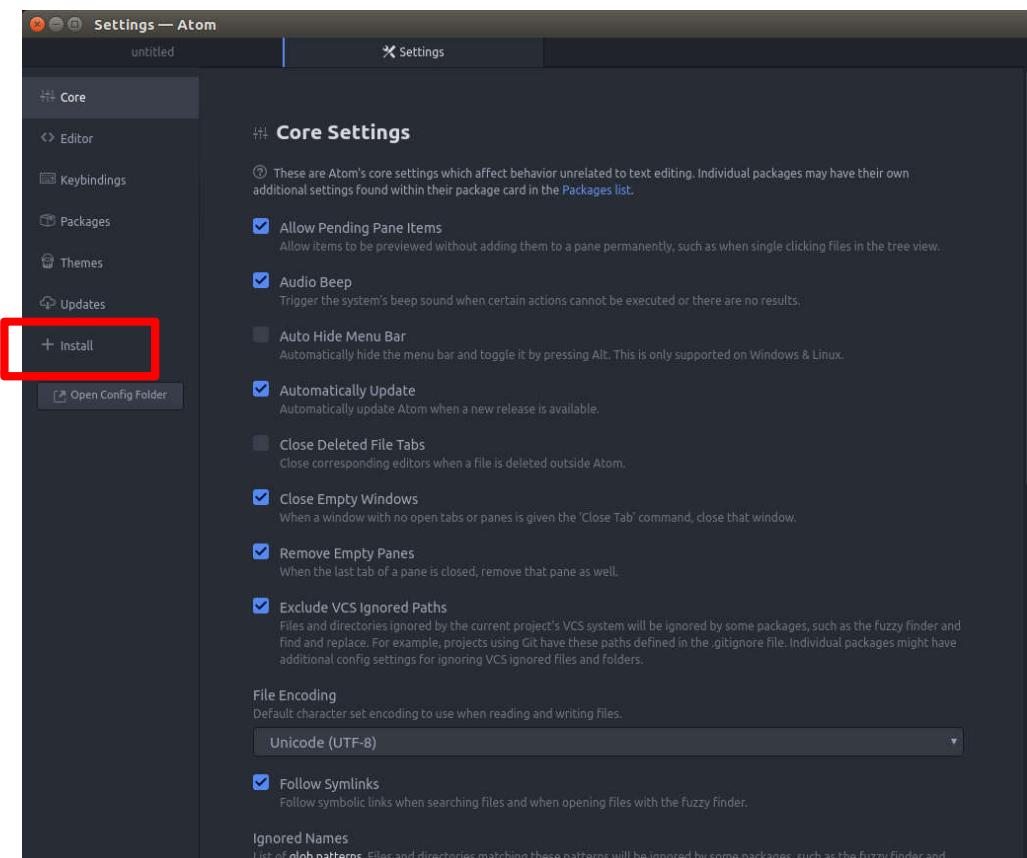
Text Editor – Atom

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



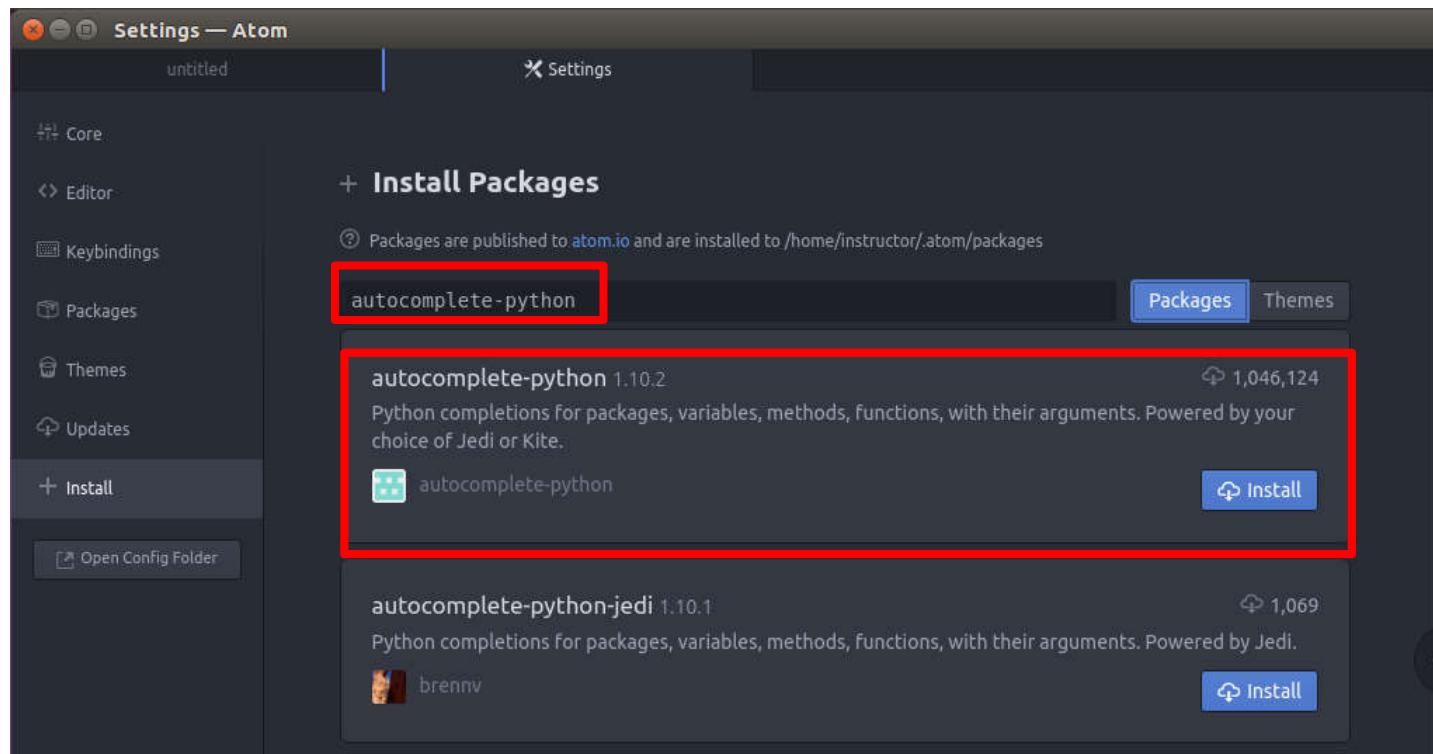
Text Editor – Atom

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



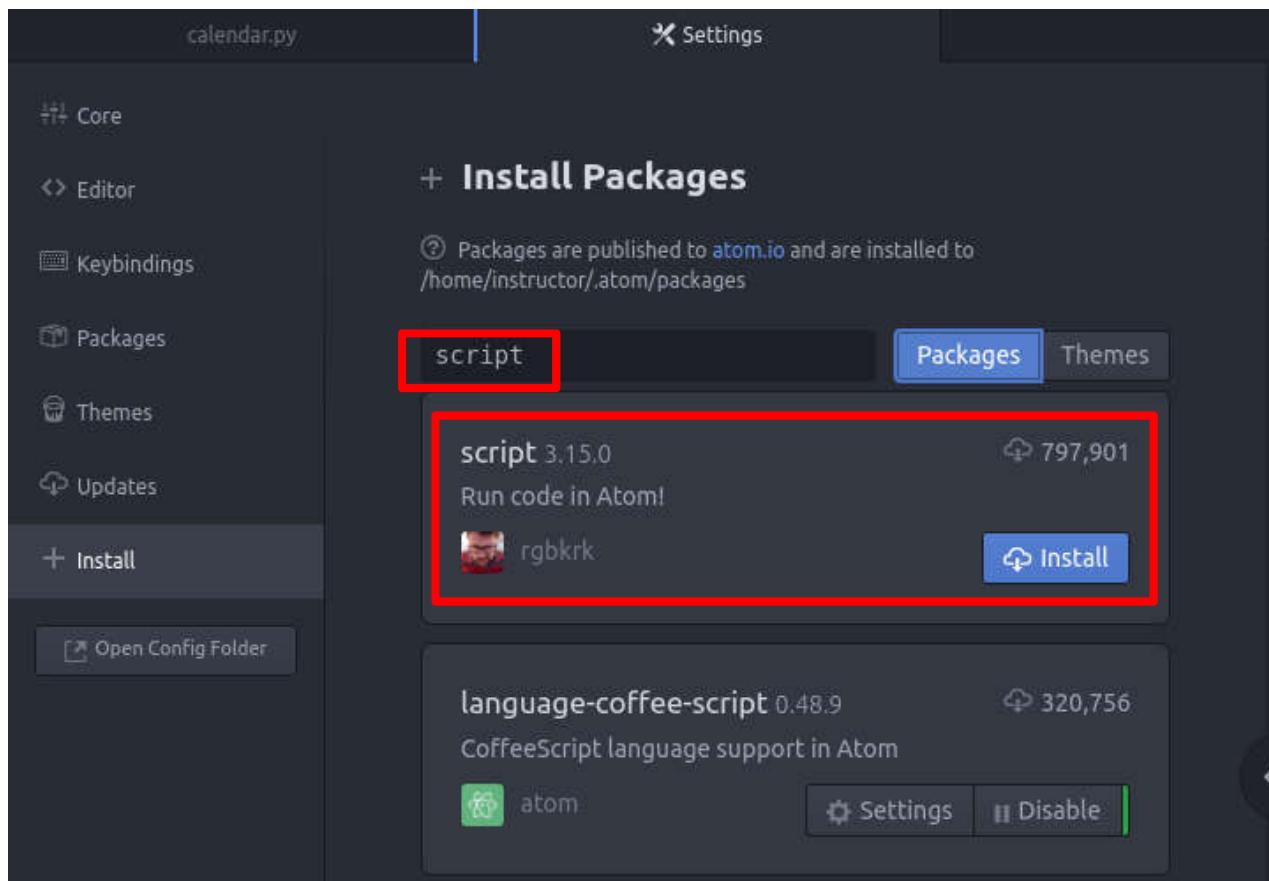
Text Editor – Atom

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



Text Editor – Atom

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



Python IDEs

Enthought Canopy

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

The screenshot shows the Enthought Canopy IDE interface. At the top is a menu bar with File, Edit, View, Search, Run, Tools, Window, and Help. Below the menu is a toolbar with various icons. On the left is a 'File Browser' panel showing a directory tree with 'instructor' and 'Recent Files'. The main area has a code editor window titled '*untitled-1' containing the following Python code:

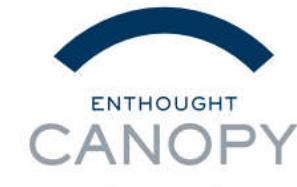
```
1 print ("Hello, World")
2
```

Below the code editor is an IPython console window titled 'Python' with the path 'C:\Users\instructor'. The console displays the following output:

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

In [2]:
```

At the bottom of the interface, there is a status bar with '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 >](#)



Secure | https://www.enthought.com/canopy-subscriptions/

Download and Subscription Options

Need help choosing the best package for you or your team's needs? [Contact us.](#) (See academic subscriptions [here](#).)

ENTHOUGHT CANOPY

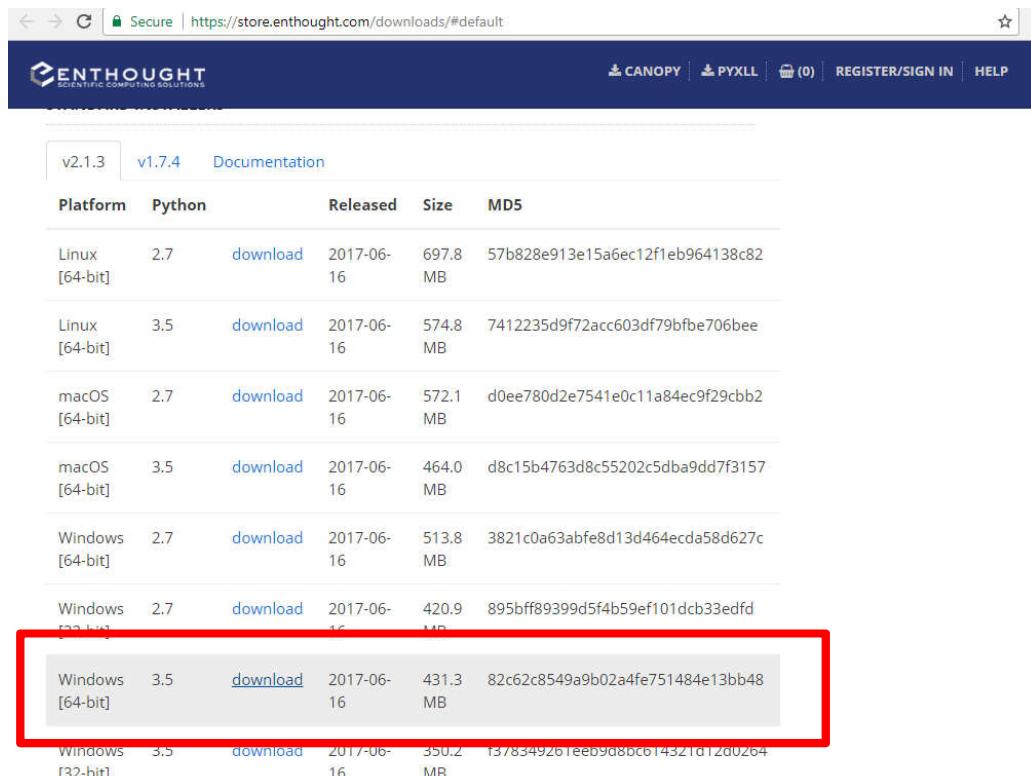
Get Started with Canopy Express - FREE
450+ Python Packages PLUS Interactive Analysis Environment

Download

| | |
|---|---|
| Canopy Subscription \$199 Buy See Group Pricing Complete 450+ Package Library Additional Analysis Environment Features: <ul style="list-style-type: none">• Data Import Tool• Graphical Debugger and Variable Browser Getting Started Support | Canopy with Premium Support \$799 Buy See Group Pricing Complete 450+ Package Library Additional Analysis Environment Features: <ul style="list-style-type: none">• Data Import Tool• Graphical Debugger and Variable Browser Premium Support |
|---|---|

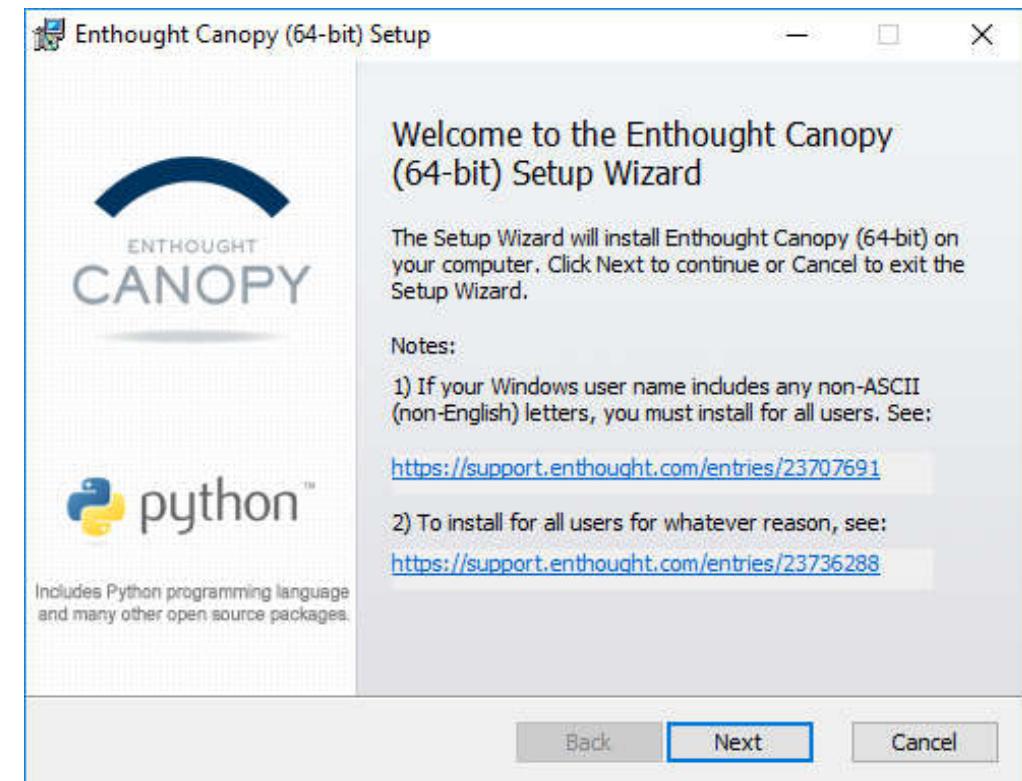
[Canopy License](#) [Canopy License](#)

Enthought Canopy (Cont.)

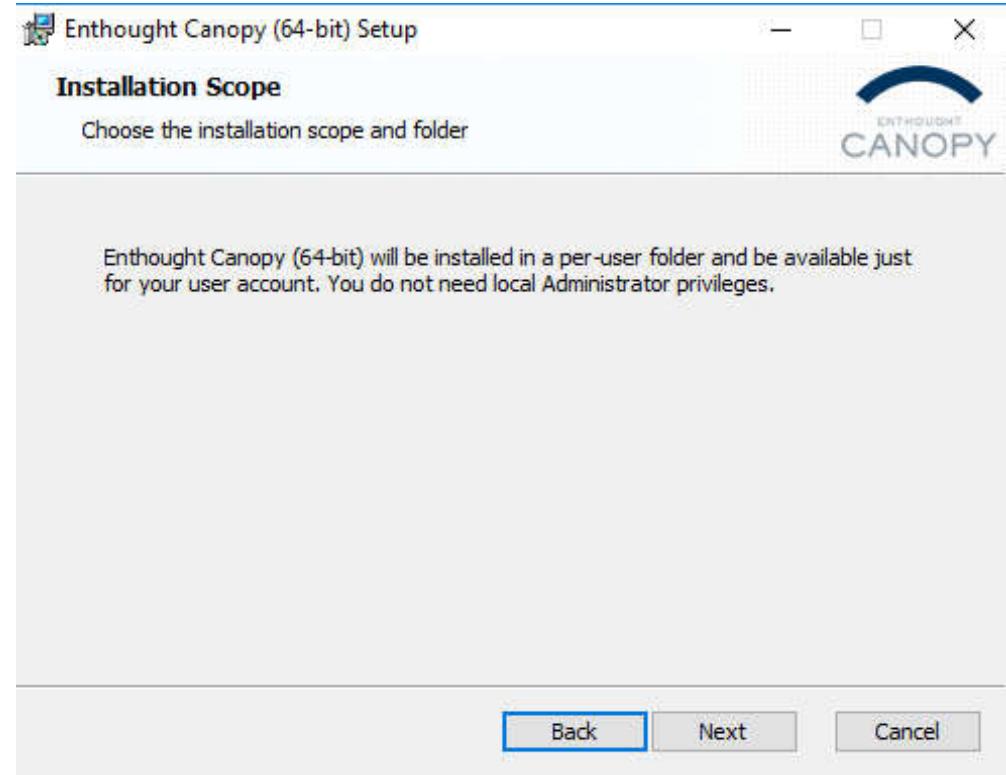
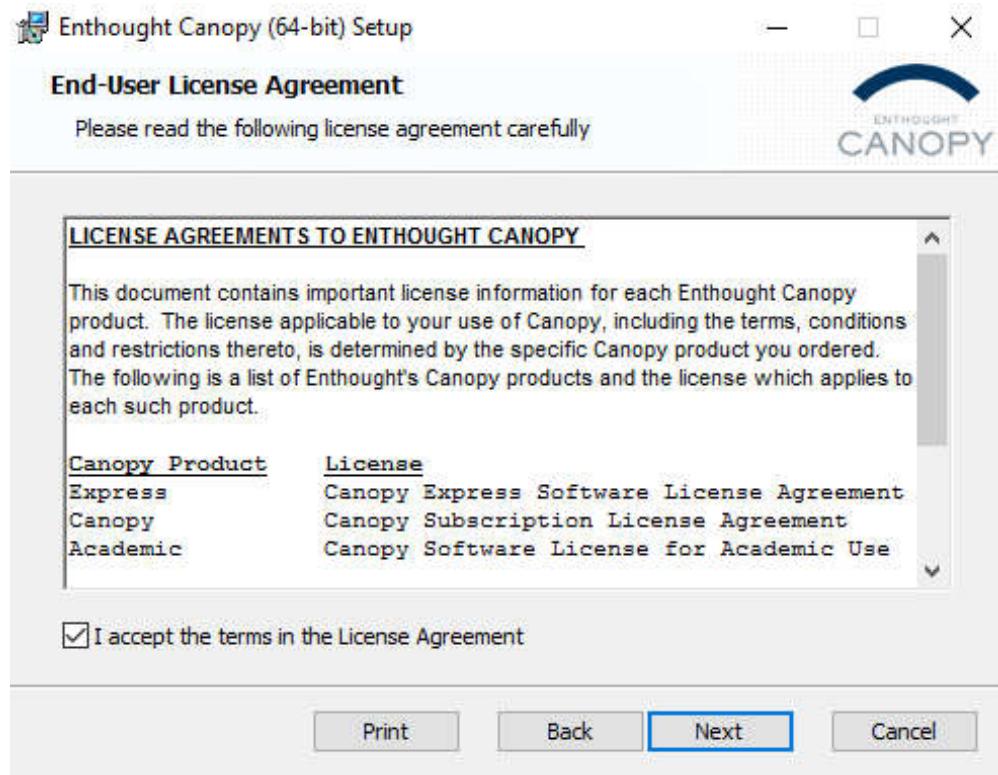


The screenshot shows the Enthought download page for Python versions 2.1.3 and 1.7.4. The Python 3.5 (64-bit) download link is highlighted with a red box.

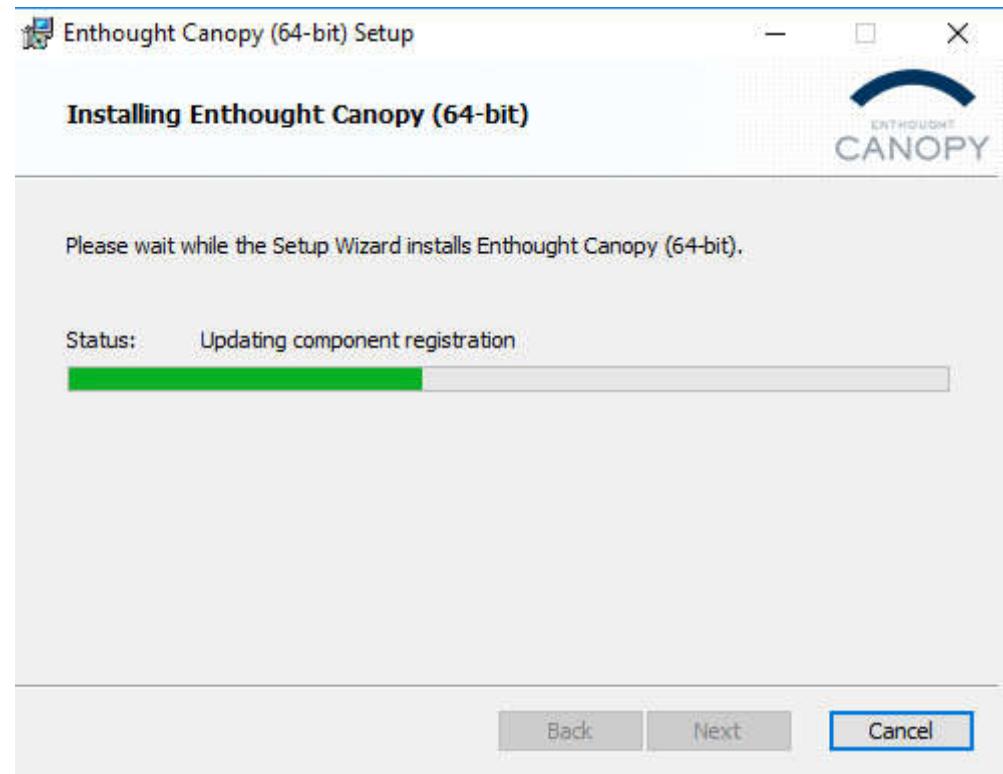
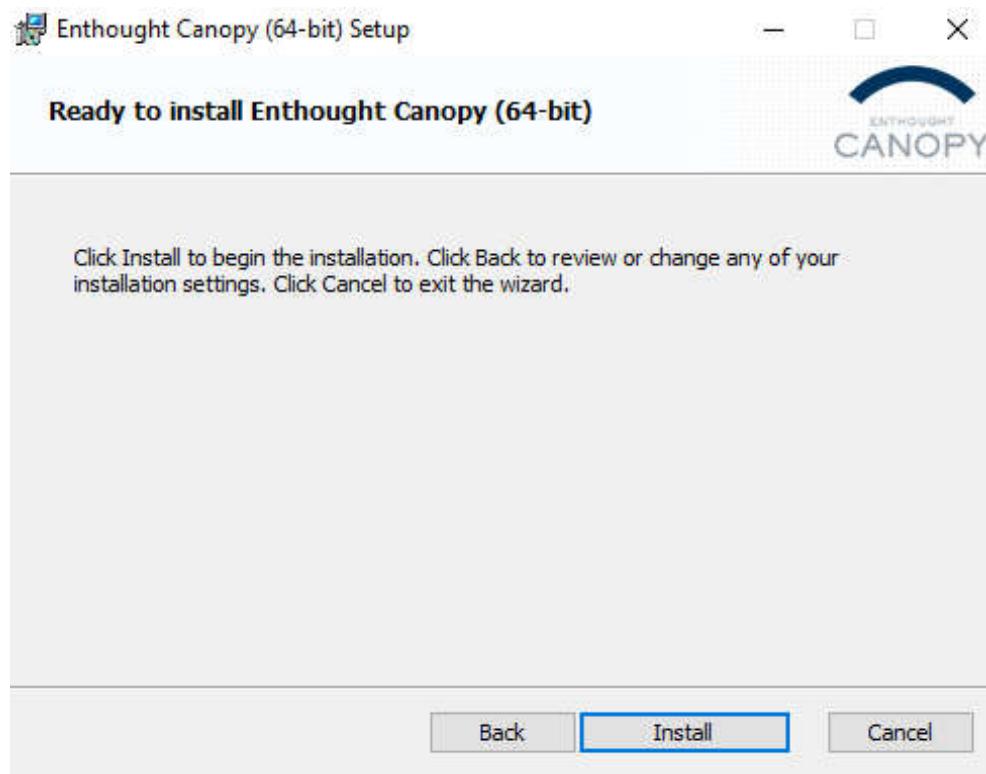
| Platform | Python | Released | Size | MD5 |
|------------------|--------|----------|------------|--|
| Linux [64-bit] | 2.7 | download | 2017-06-16 | 697.8 MB 57b828e913e15a6ec12f1eb964138c82 |
| Linux [64-bit] | 3.5 | download | 2017-06-16 | 574.8 MB 7412235d9f72acc603df79fbfe706bee |
| macOS [64-bit] | 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 3821c0a63abfe8d13d464ecda58d627c |
| 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 |



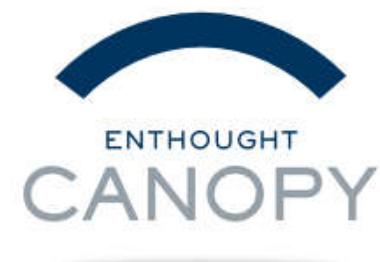
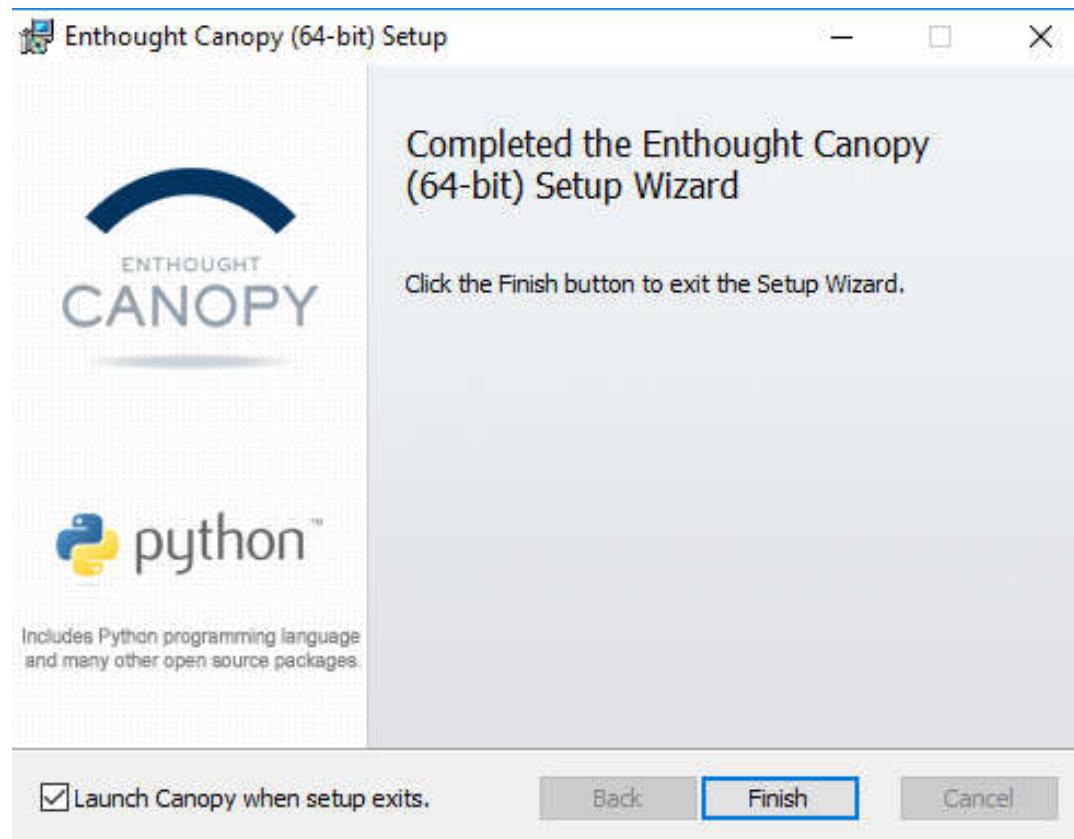
Enthought Canopy (Cont.)



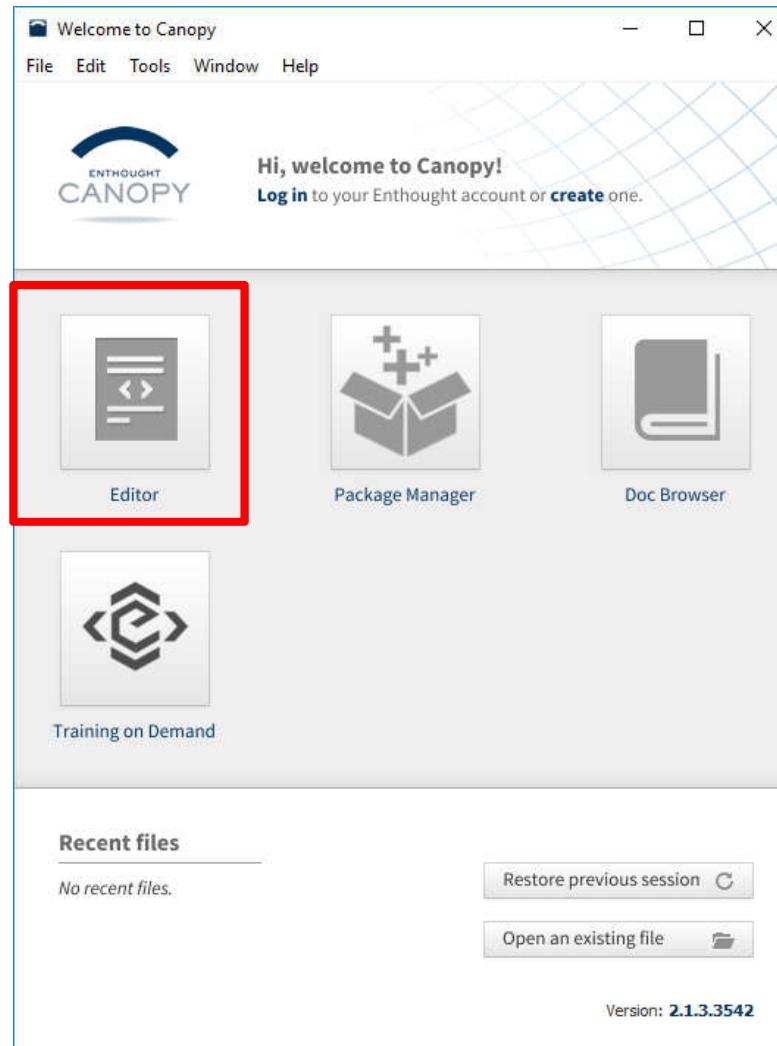
Enthought Canopy (Cont.)



Enthought Canopy (Cont.)

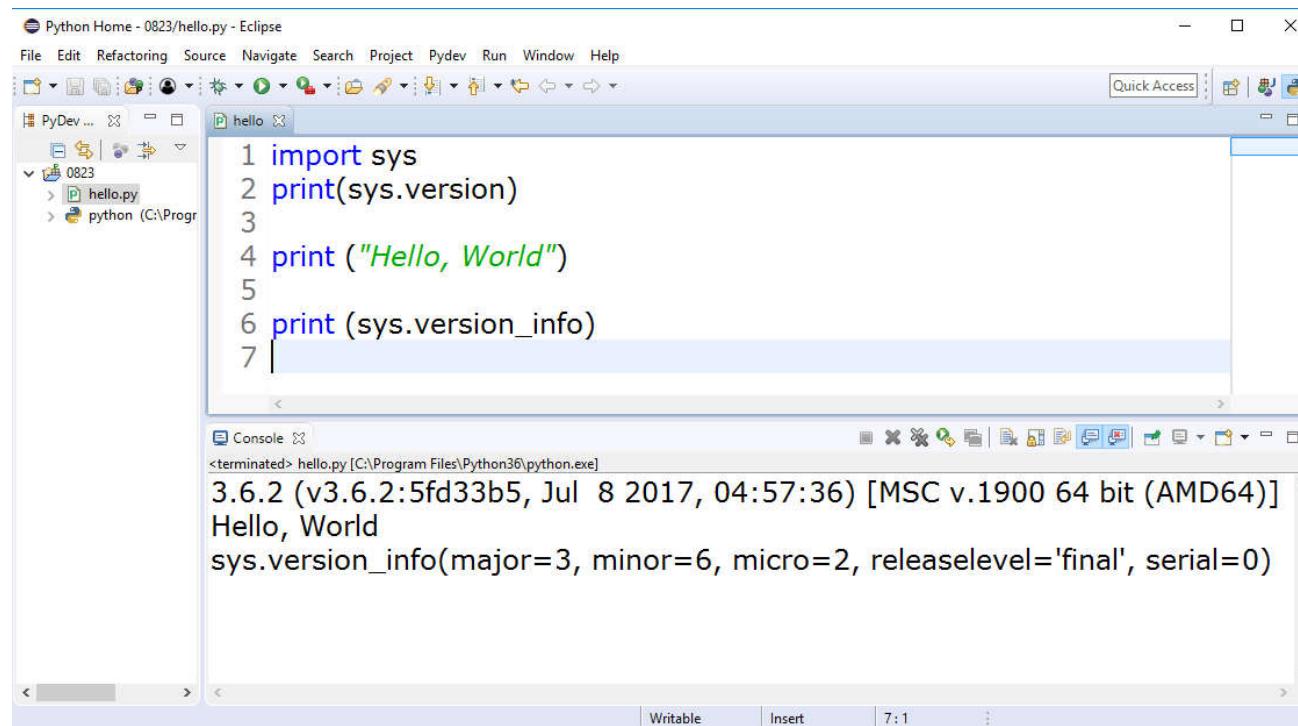


Enthought Canopy (Cont.)



Eclipse & PyDev in Windows

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



The screenshot shows the Eclipse IDE interface with the following details:

- Title Bar:** Python Home - 0823/hello.py - Eclipse
- Menu Bar:** File Edit Refactoring Source Navigate Search Project Pydev Run Window Help
- Toolbar:** Standard Eclipse toolbar icons.
- PyDev Project Explorer:** Shows a project named "0823" with files "hello.py" and "python (C:\Program".
- Editor Area:** Displays the Python code for "hello.py":

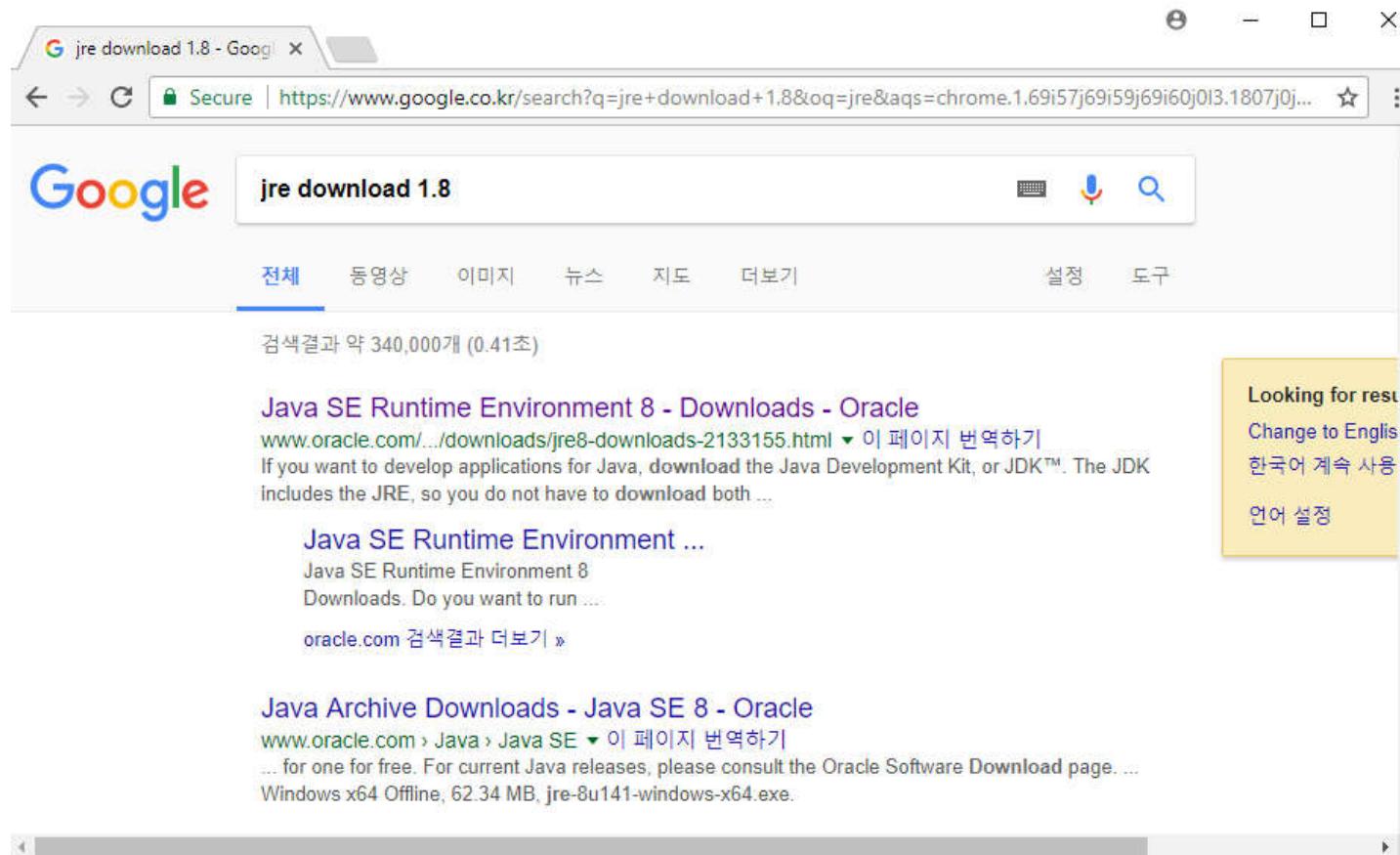
```
1 import sys
2 print(sys.version)
3
4 print ("Hello, World")
5
6 print (sys.version_info)
7
```
- Console Area:** Shows the output of running the script:

```
<terminated> hello.py [C:\Program Files\Python36\python.exe]
3.6.2 (v3.6.2:5fd33b5, Jul  8 2017, 04:57:36) [MSC v.1900 64 bit (AMD64)]
Hello, World
sys.version_info(major=3, minor=6, micro=2, releaselevel='final', serial=0)
```
- Status Bar:** Writable Insert 7:1



Eclipse & PyDev in Windows (Cont.)

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



Eclipse & PyDev in Windows (Cont.)

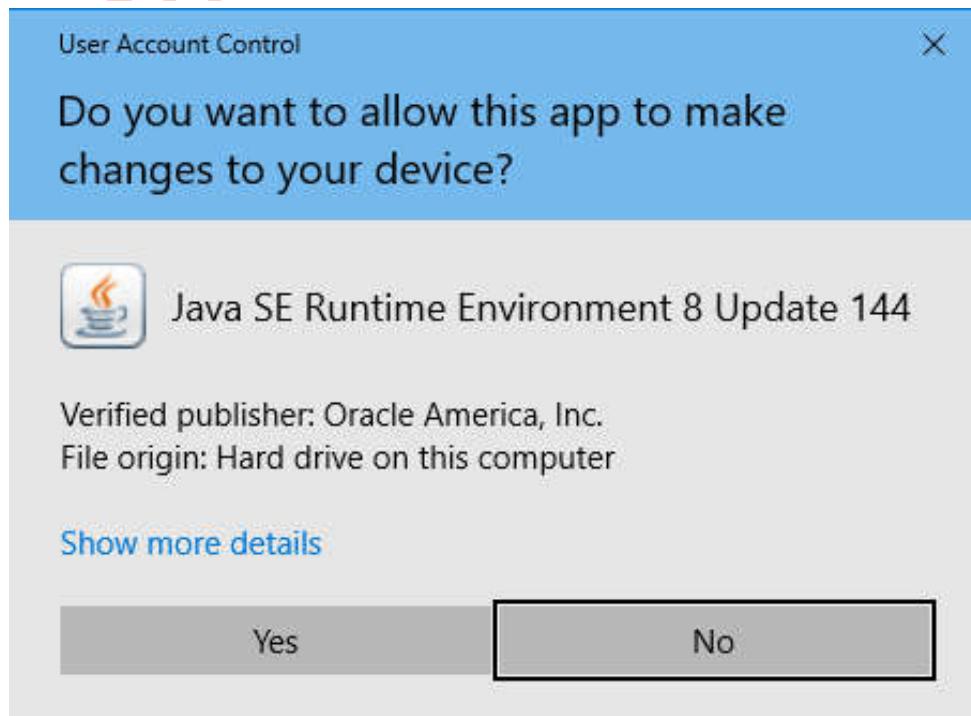
2. Click to Windows x64 Offline

The screenshot shows a web browser displaying the Oracle Java SE Runtime Environment 8 Downloads page. The URL in the address bar is www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html. The page title is "Java SE Runtime Environment 8 Downloads". On the left, there's a sidebar with links for Java SE, Java EE, Java ME, Java Support, Java Advanced & Suite, Java Embedded, Java DB, Web Tier, Java Card, Java TV, New to Java, Community, and Java Magazine. The main content area has tabs for Overview, Downloads (which is selected), Documentation, Community, Technologies, and Training. Below these tabs, there's a section titled "Java SE Runtime Environment 8u144" with a note about accepting the Oracle Binary Code License Agreement. A table lists download options for various platforms, with the "Windows x64 Offline" row highlighted by a red box. The table columns are Product / File Description, File Size, and Download. The "Windows x64 Offline" row shows a file size of 62.34 MB and a download link labeled "jre-8u144-windows-x64.exe".

| Product / File Description | File Size | Download |
|----------------------------|-----------|--|
| Linux x86 | 59.13 MB | jre-8u144-linux-i586.rpm |
| Linux x86 | 75.01 MB | jre-8u144-linux-i586.tar.gz |
| Linux x64 | 56.48 MB | jre-8u144-linux-x64.rpm |
| Linux x64 | 72.41 MB | jre-8u144-linux-x64.tar.gz |
| Mac OS X | 63.94 MB | jre-8u144-macosx-x64.dmg |
| Mac OS X | 55.56 MB | jre-8u144-macosx-x64.tar.gz |
| Solaris SPARC 64-bit | 52.12 MB | jre-8u144-solaris-sparcv9.tar.gz |
| Solaris x64 | 49.95 MB | jre-8u144-solaris-x64.tar.gz |
| Windows x86 Online | 0.7 MB | jre-8u144-windows-i586-iflw.exe |
| Windows x86 Offline | 54.57 MB | jre-8u144-windows-i586.exe |
| Windows x86 | 60.2 MB | jre-8u144-windows-i586.tar.gz |
| Windows x64 Offline | 62.34 MB | jre-8u144-windows-x64.exe |
| Windows x64 | 65.35 MB | jre-8u144-windows-x64.tar.gz |

Eclipse & PyDev in Windows (Cont.)

3. Install Java SE Runtime Environment 8 Update 144



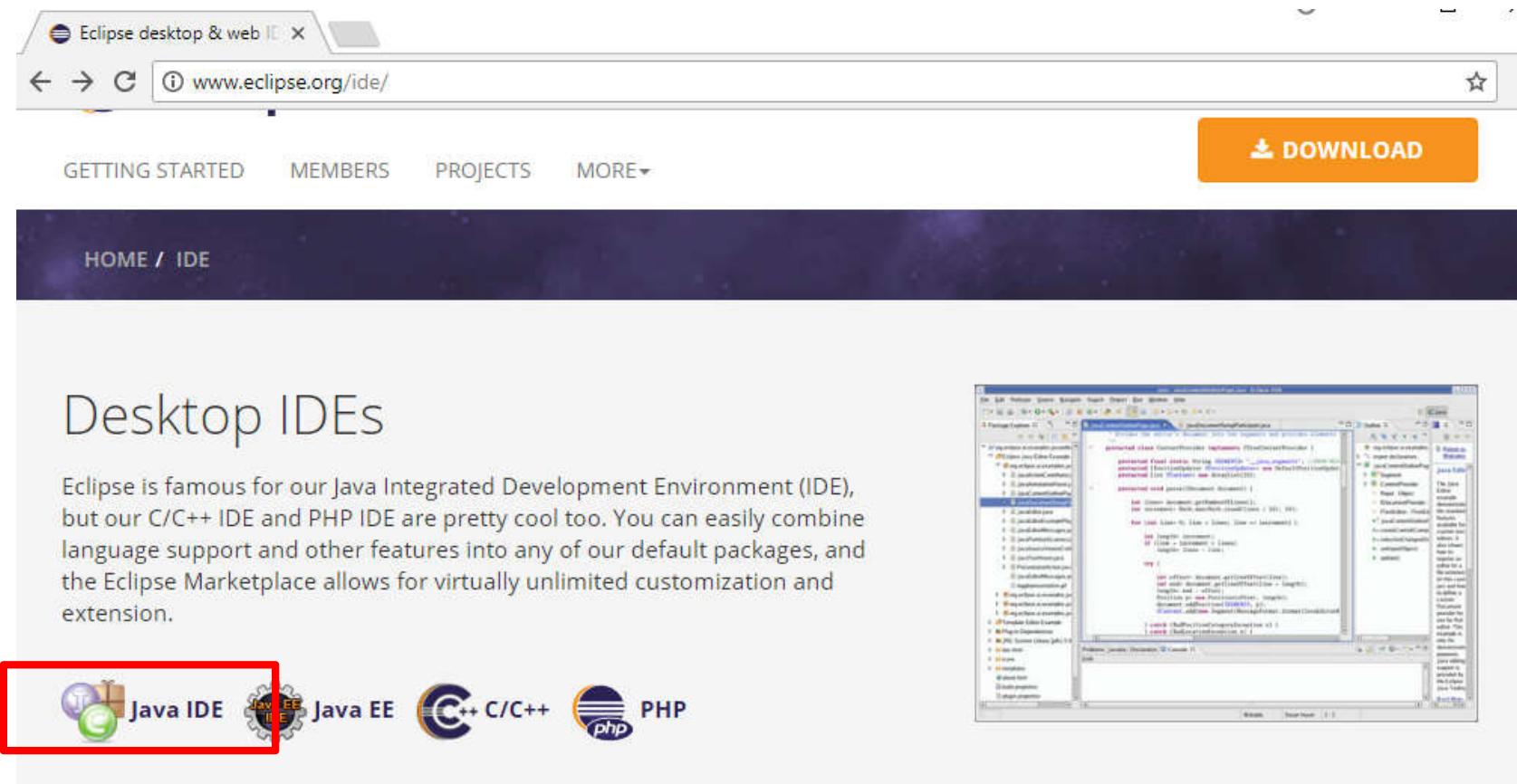
Eclipse & PyDev in Windows (Cont.)

3. Install Java SE Runtime Environment 8 Update 144 (Cont.)



Eclipse & PyDev in Windows (Cont.)

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



The screenshot shows the official Eclipse website at www.eclipse.org/ide. The page has a dark header with the Eclipse logo and navigation links for 'GETTING STARTED', 'MEMBERS', 'PROJECTS', and 'MORE'. A large orange 'DOWNLOAD' button is prominent. Below the header, a banner says 'HOME / IDE'. The main content area features a heading 'Desktop IDEs' and a paragraph about Eclipse's support for Java, C/C++, and PHP. At the bottom, there are icons for Java IDE, Java EE, C/C++ IDE, and PHP, with the Java IDE icon highlighted by a red box.

Java IDE

Java EE

C/C++ IDE

PHP

Eclipse & PyDev in Windows (Cont.)

5. Downloads Eclipse for Windows 64-bit

The screenshot shows the official Eclipse website at www.eclipse.org/downloads/packages/eclipse-ide-java-developers/oxygenr. The page displays the Eclipse logo and navigation links for 'GETTING STARTED', 'MEMBERS', 'PROJECTS', and 'MORE'. A prominent orange 'DOWNLOAD' button is visible. The main content area is titled 'Eclipse IDE for Java Developers' and includes a 'Package Description' section detailing the essential tools for Java development. On the right, there's a 'Download Links' section with options for 'Windows 32-bit', 'Windows 64-bit' (which is highlighted with a red box), 'Mac OS X (Cocoa) 64-bit', 'Linux 32-bit', and 'Linux 64-bit'. Below this, it shows 'Downloaded 327,089 Times' and a link to 'Checksums...'. A sidebar on the left lists various Eclipse package releases from Oxygen down to Ganymede, along with a link to 'All Releases'.

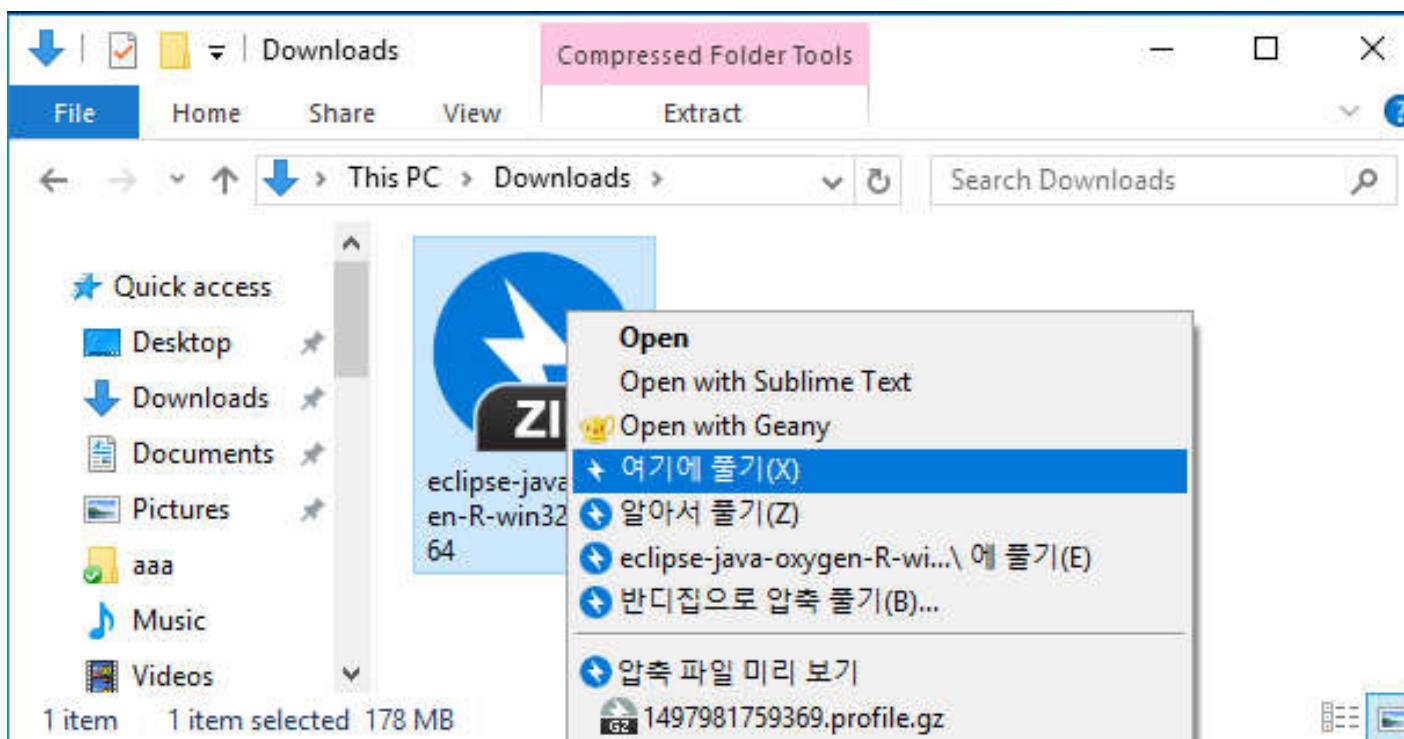
Eclipse & PyDev in Windows (Cont.)

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

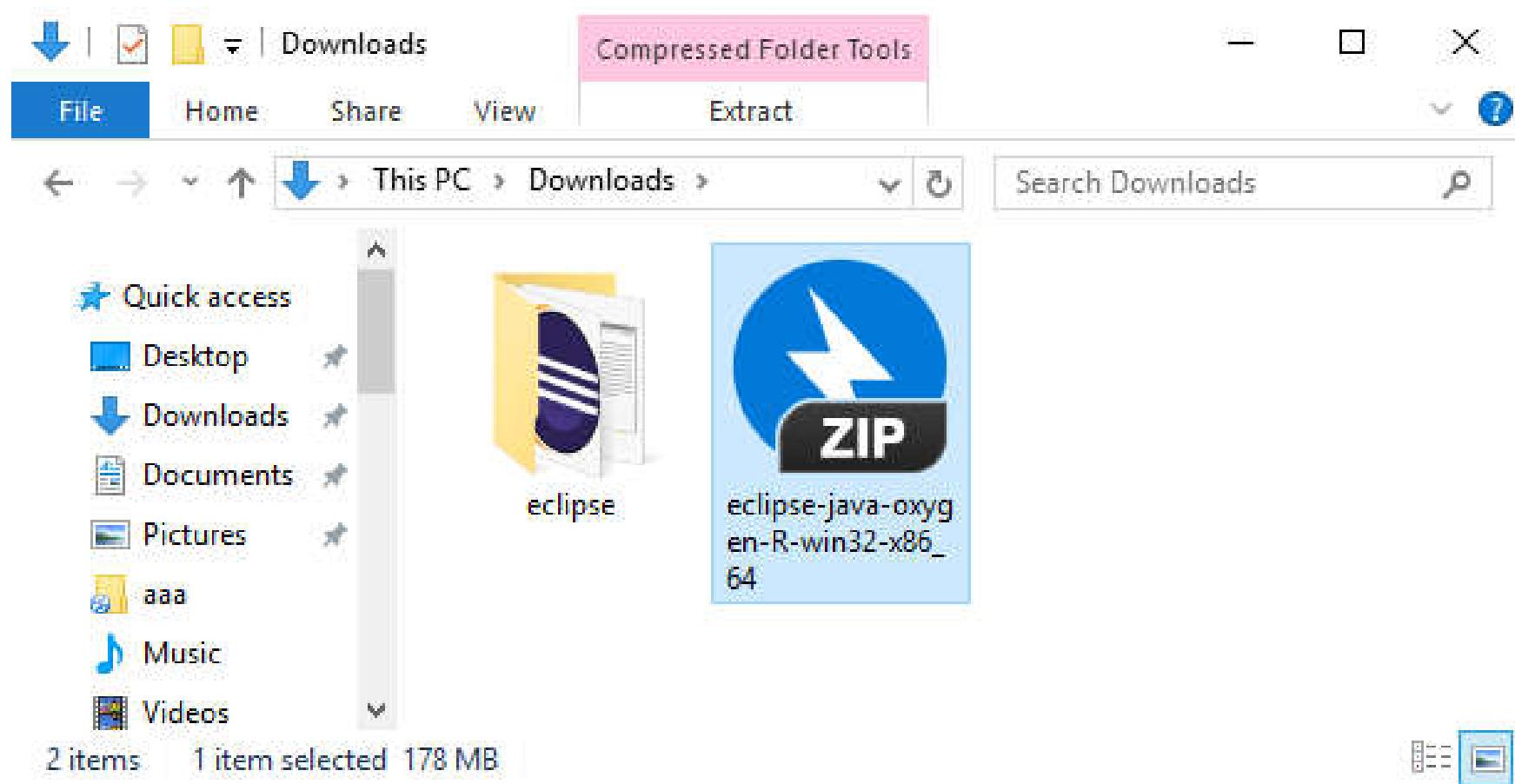
The screenshot shows a web browser displaying the Eclipse Downloads page. The URL in the address bar is www.eclipse.org/downloads/download.php?file=/technology/epp/downloads/release/oxygen/R/eclipse-java-oxygen-R-win32-x86_64.zip. The page header includes the Eclipse logo, a Google Custom Search bar, and links for 'Create account' and 'Log in'. The main navigation menu at the top has options like 'GETTING STARTED', 'MEMBERS', 'PROJECTS', and 'MORE'. Below the menu, a dark banner displays the path 'HOME / DOWNLOADS / ECLIPSE DOWNLOADS - SELECT A MIRROR'. A message states: 'All downloads are provided under the terms and conditions of the [Eclipse Foundation Software User Agreement](#) unless otherwise specified.' A large orange 'DOWNLOAD' button is centered on the page. Below it, the download information is listed: 'Download from: Japan - Japan Advanced Institute of Science and Technology (http)', 'File: [eclipse-java-oxygen-R-win32-x86_64.zip](#) SHA-512', and a link to 'Select Another Mirror'. To the right of the main content, there is a sidebar titled 'yatta' with icons for 'TEAM SETTINGS', 'UPDATE SITES', 'WORKING SETS', 'PLUGINS', 'PROJECTS', and 'REPOSITORIES', along with a 'DOWNLOAD LAUNCHER' button and a 'OTHER OPTIONS FOR' section.

Eclipse & PyDev in Windows (Cont.)

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

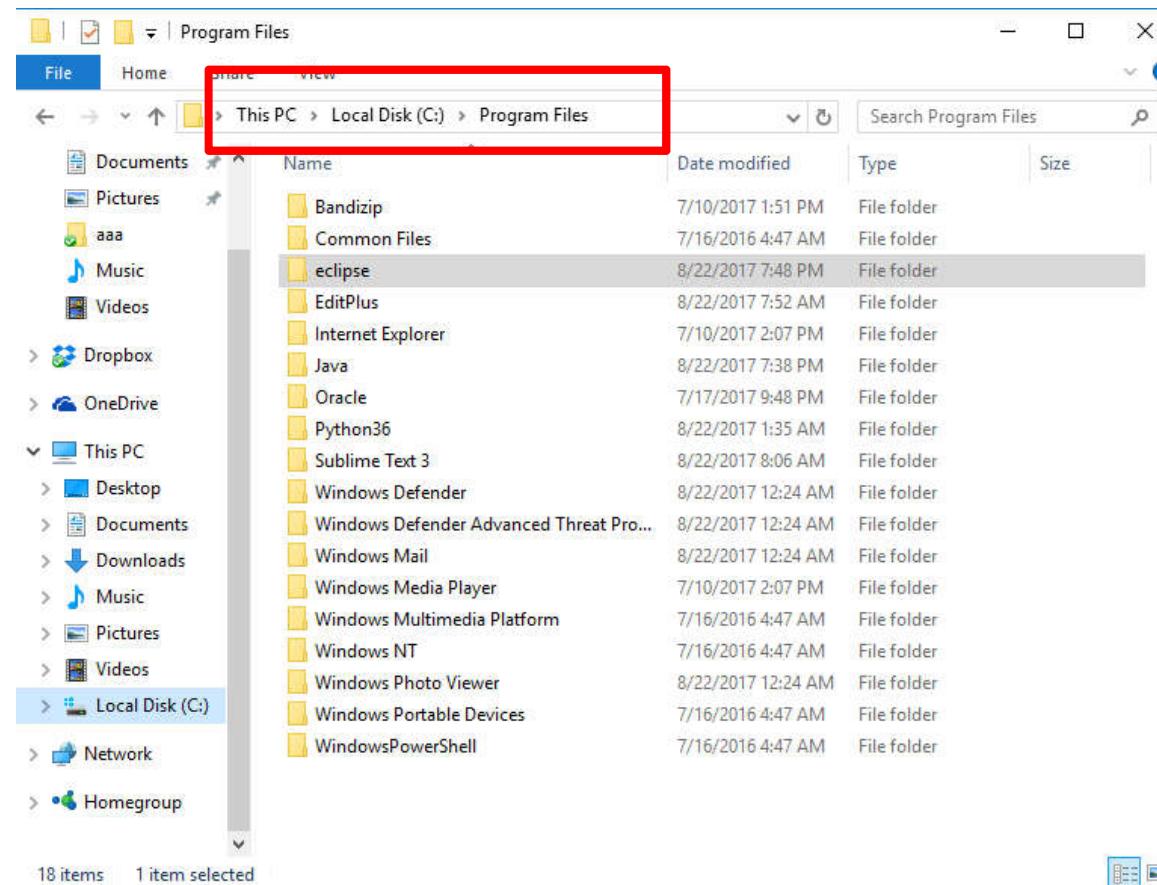


Eclipse & PyDev in Windows (Cont.)



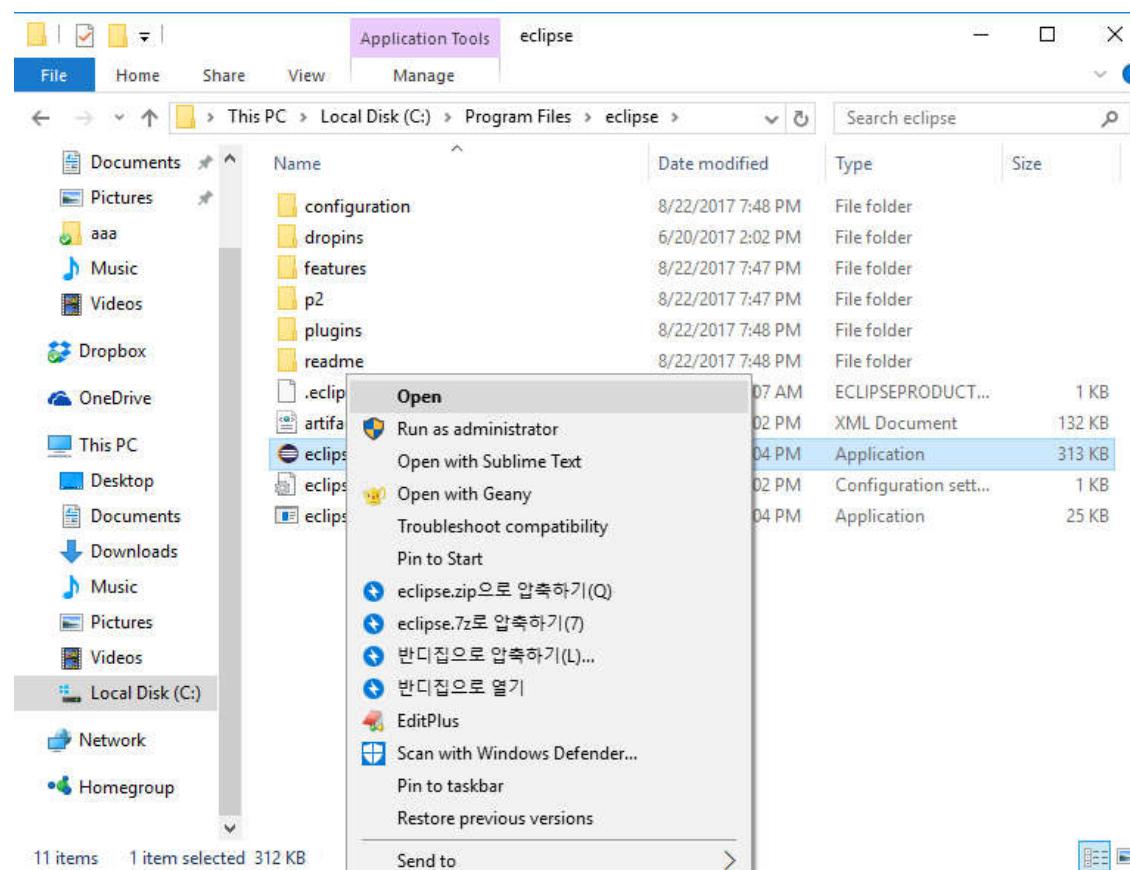
Eclipse & PyDev in Windows (Cont.)

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



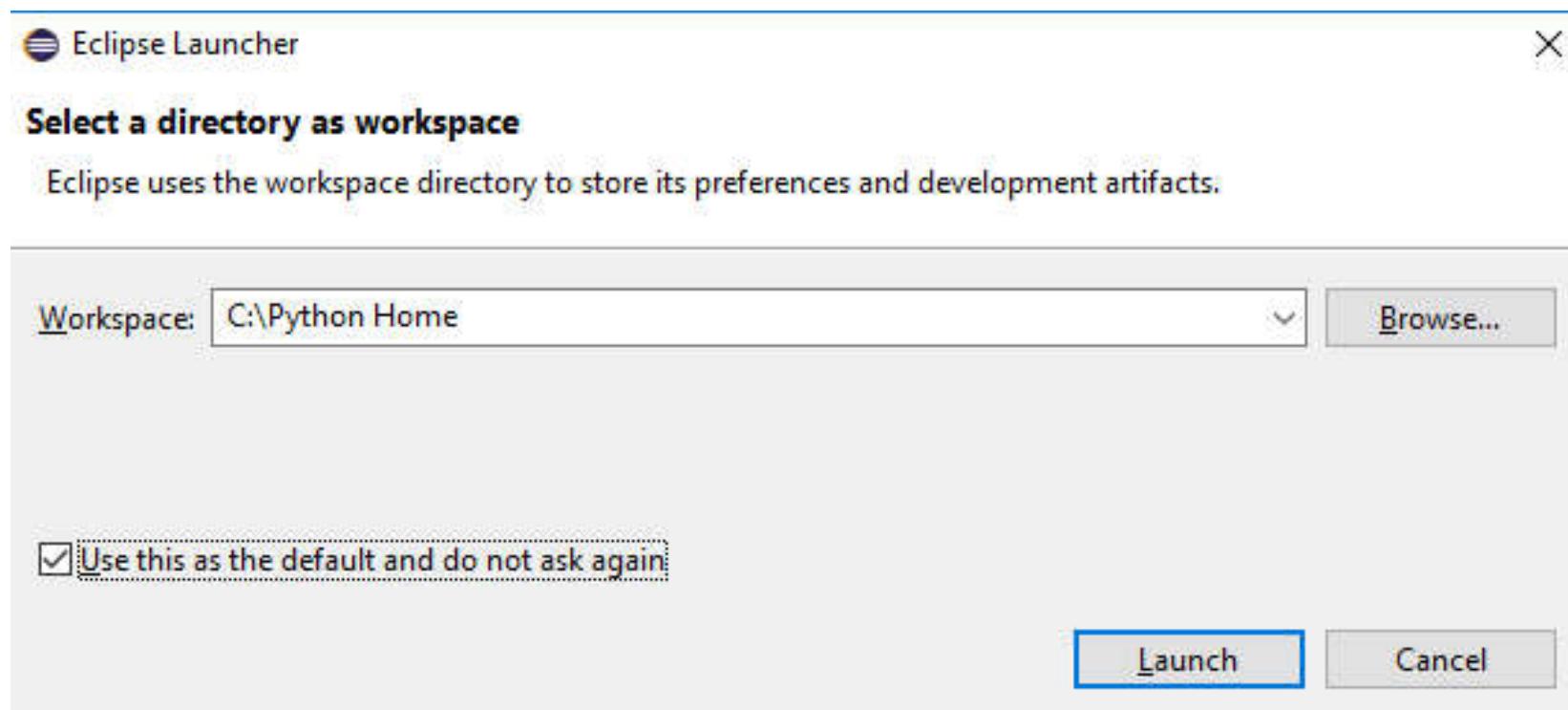
Eclipse & PyDev in Windows (Cont.)

8. Execute **eclipse**

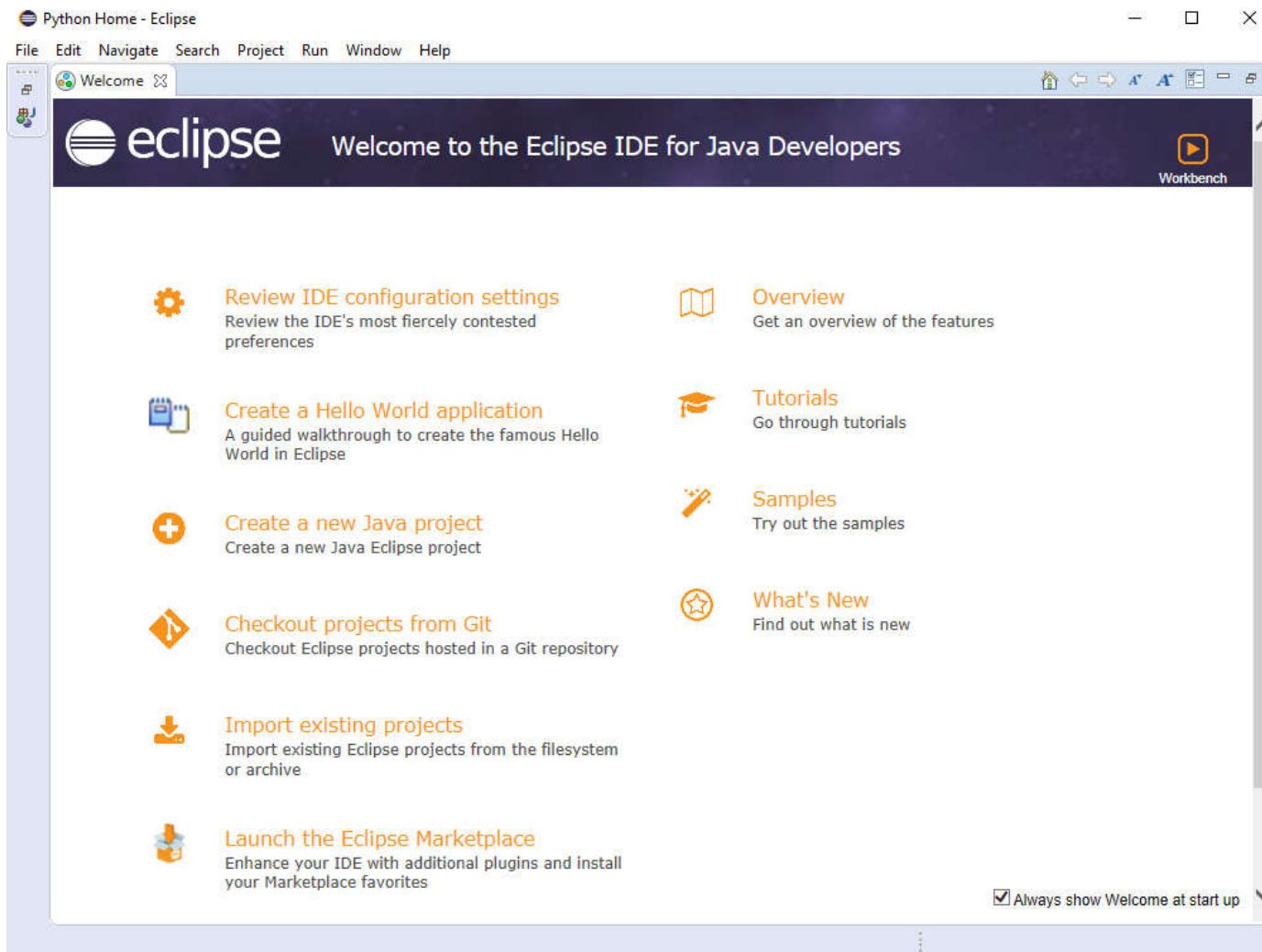


Eclipse & PyDev in Windows (Cont.)

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

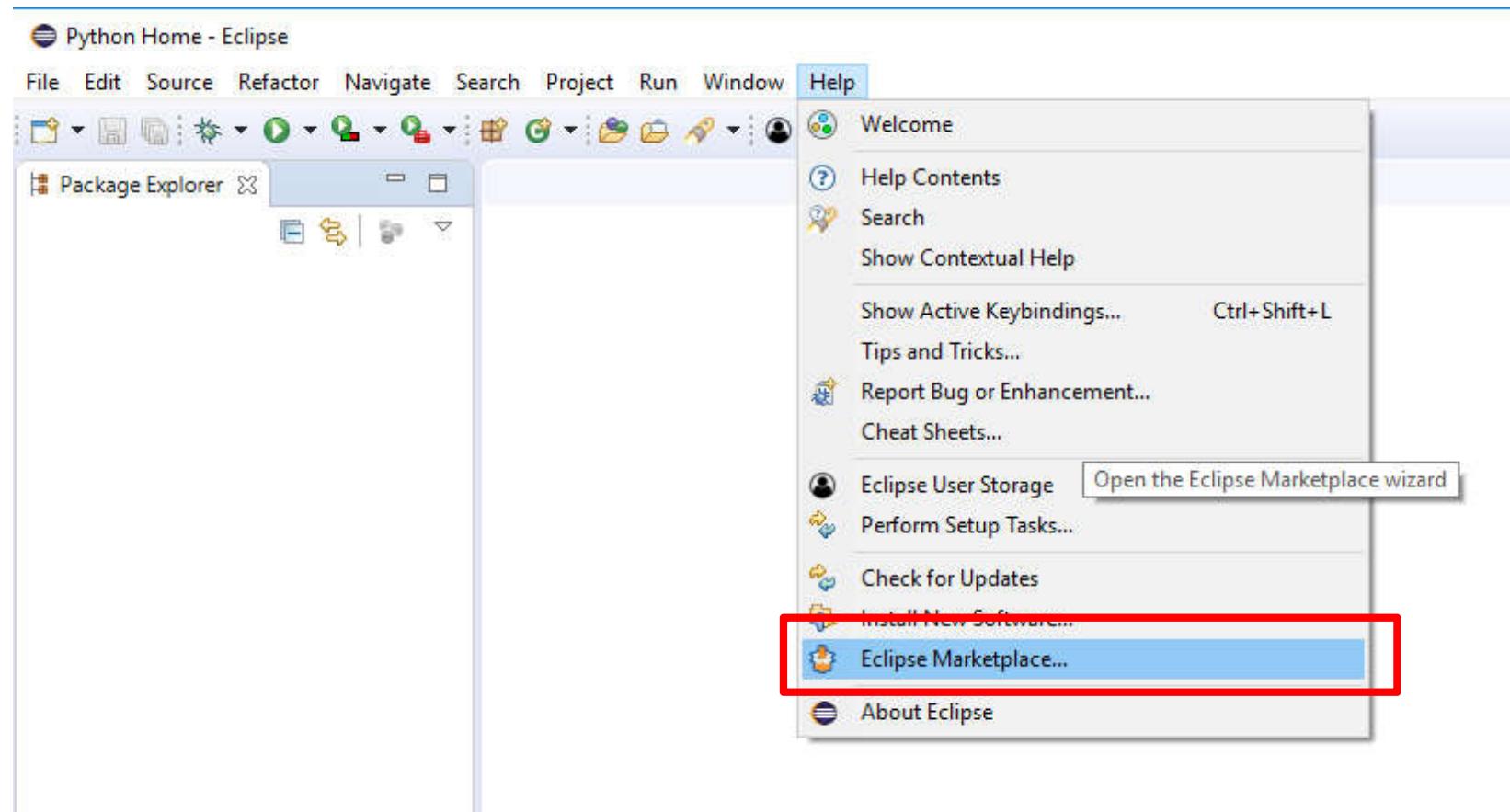


Eclipse & PyDev in Windows (Cont.)



Eclipse & PyDev in Windows (Cont.)

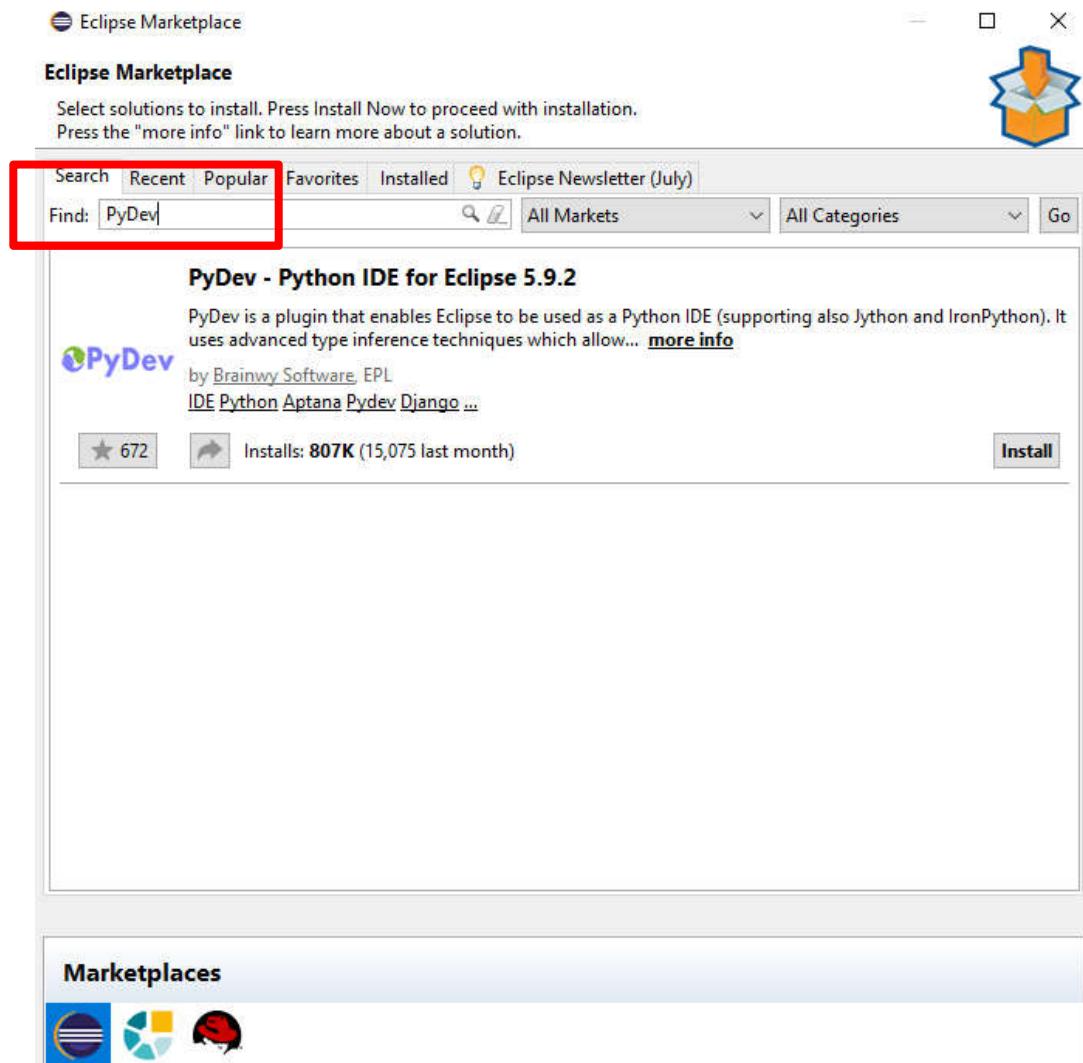
10. Click to **Help** > **Eclipse Marketplace...**



Eclipse & PyDev in Windows (Cont.)

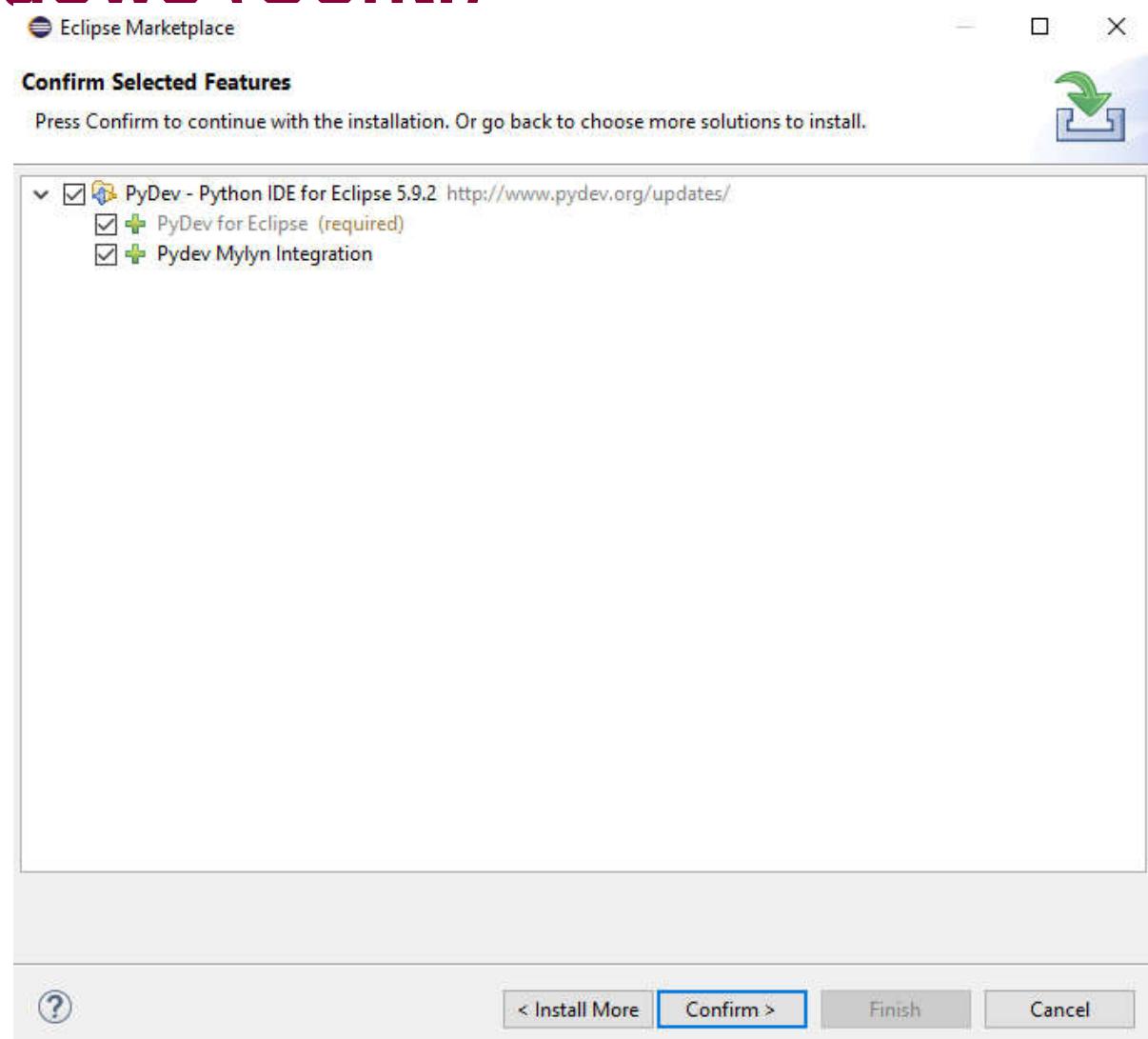
11. Search for **PyDev**

12. Click **Install**



Eclipse & PyDev in Windows (Cont.)

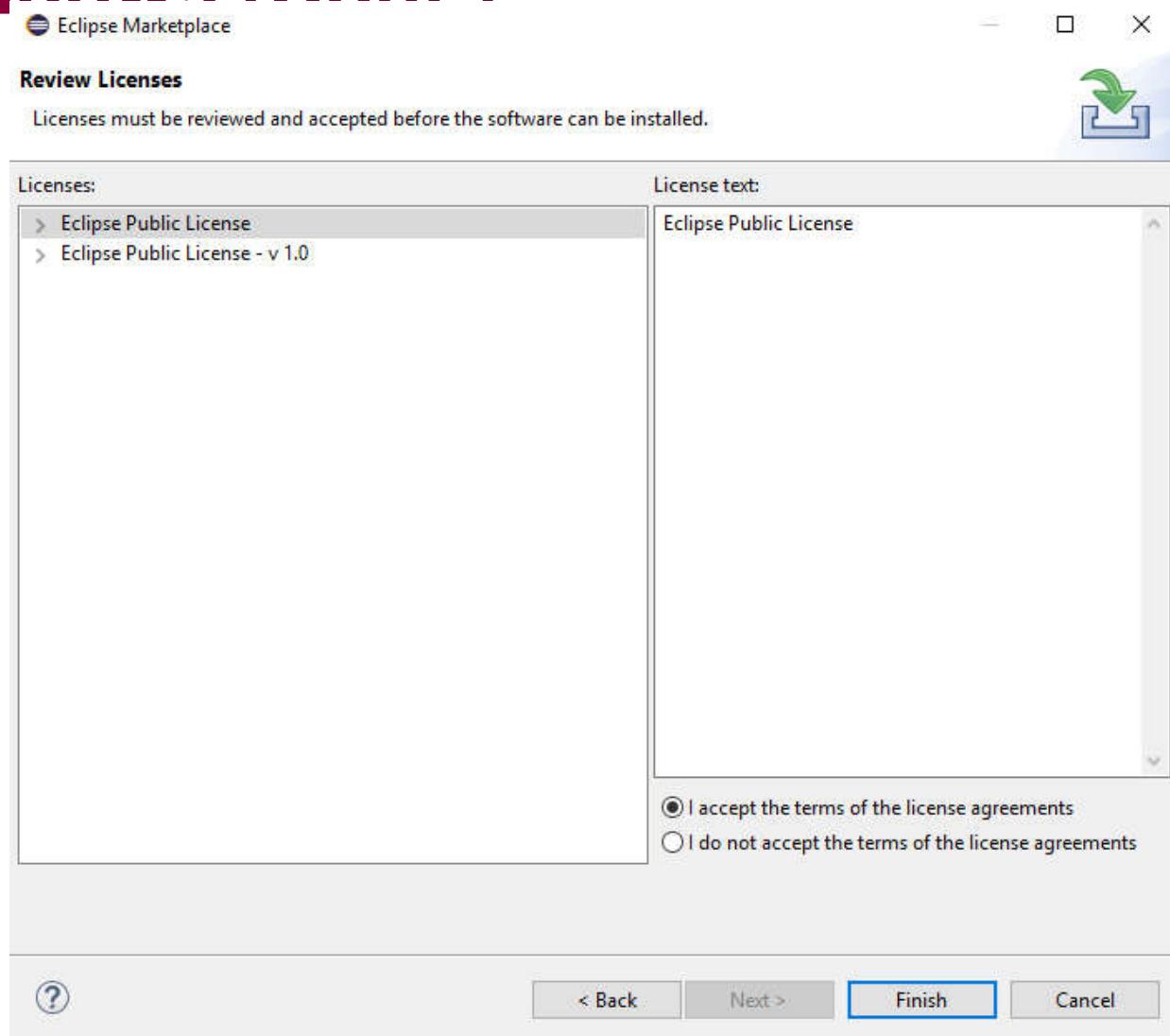
13. Click Confirm



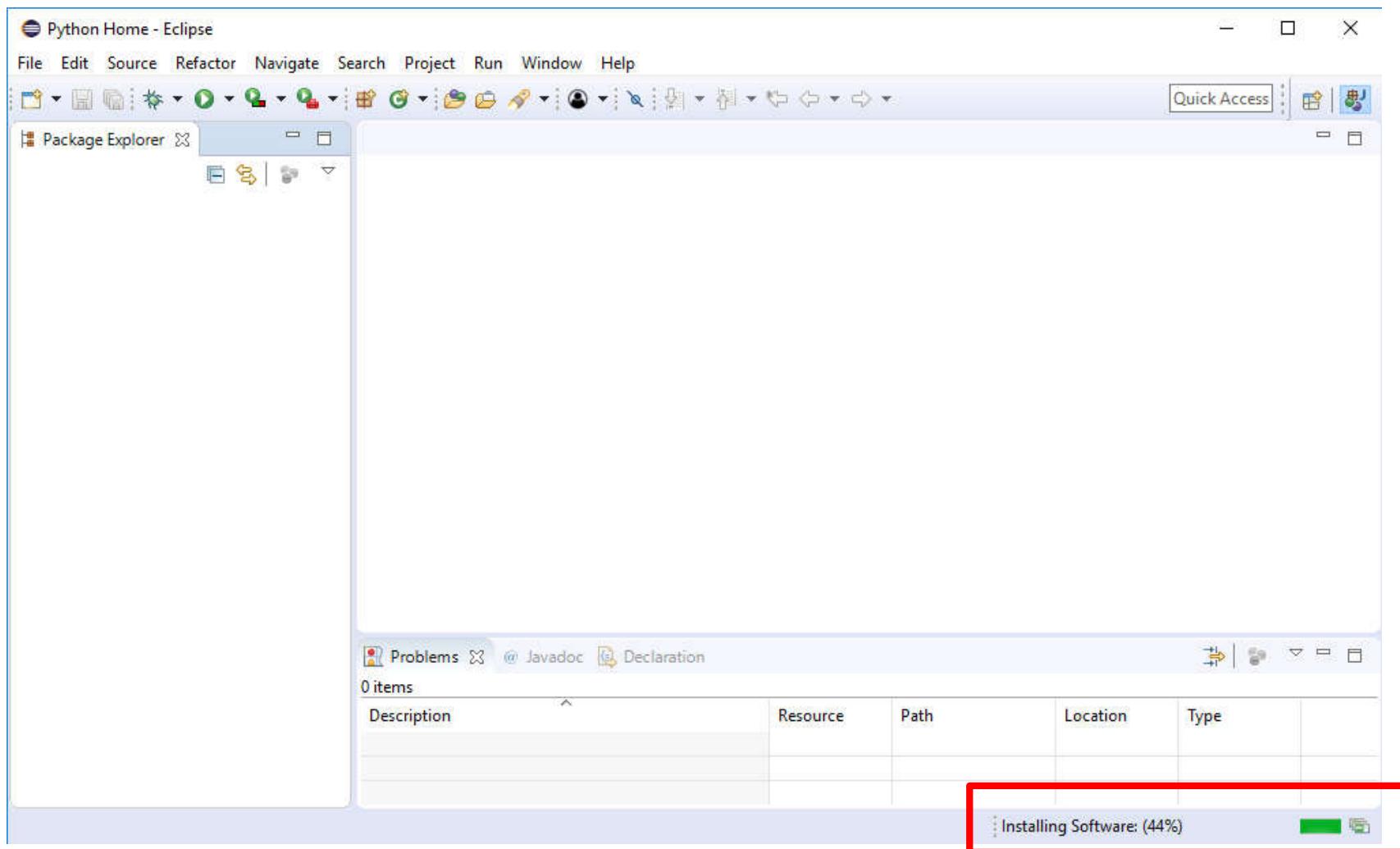
Eclipse & PyDev in Windows (Cont)

14. Select I accept..

15. Click Finish

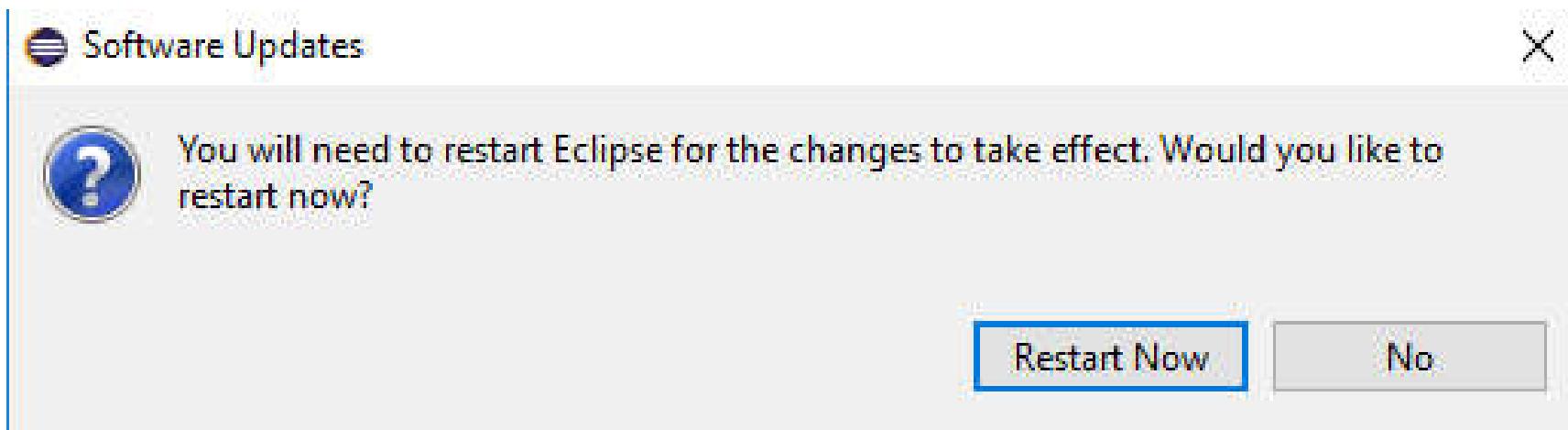


Eclipse & PyDev in Windows (Cont.)



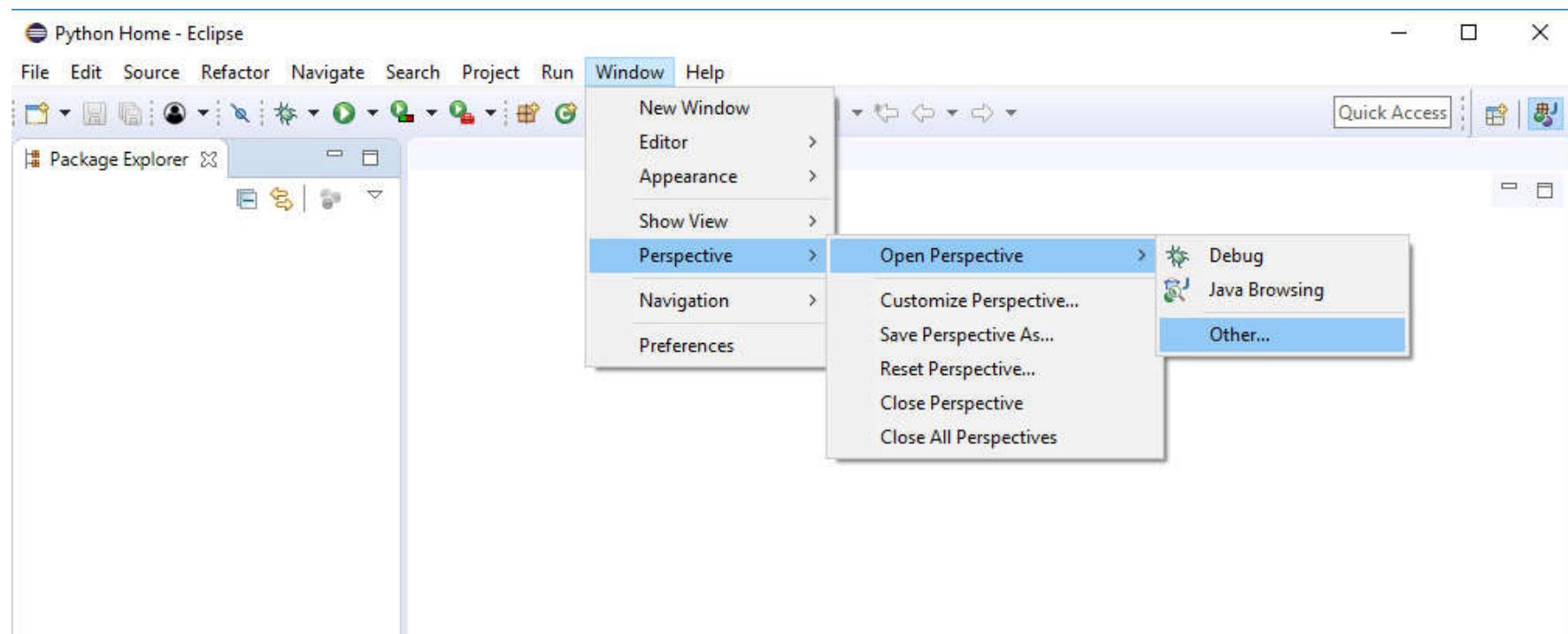
Eclipse & PyDev in Windows (Cont.)

16. Click **Restart Now**



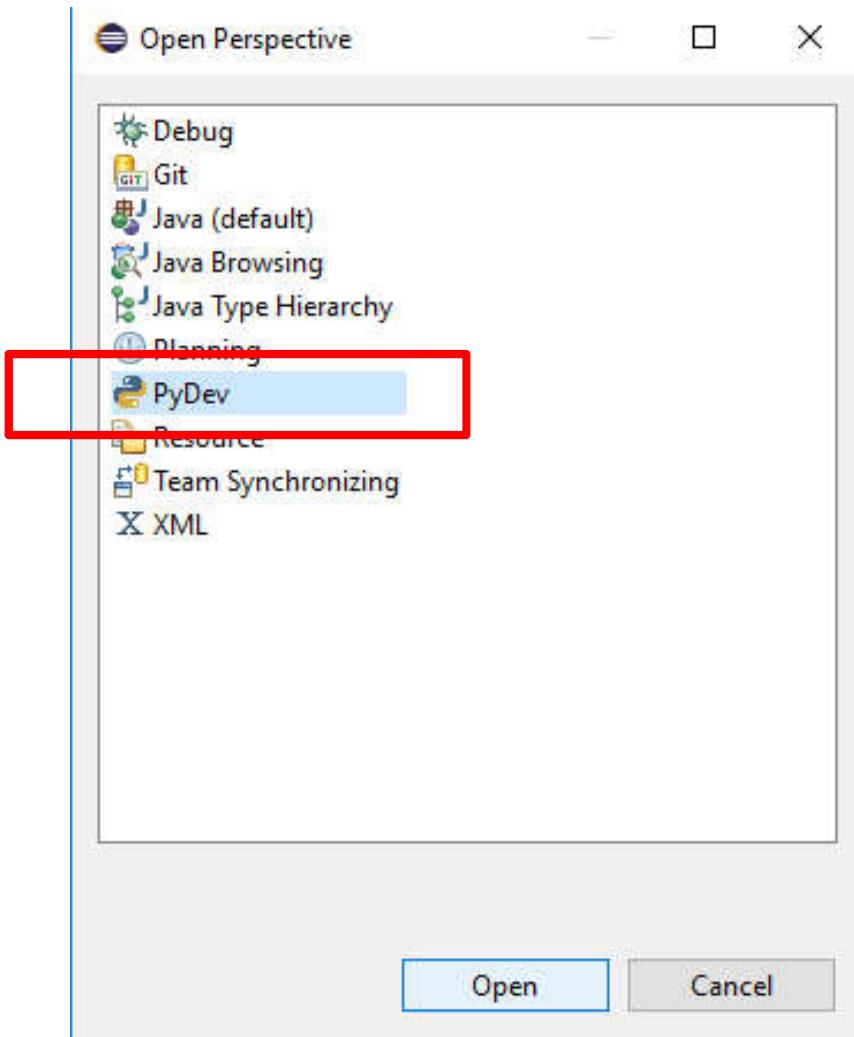
Eclipse & PyDev in Windows (Cont.)

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

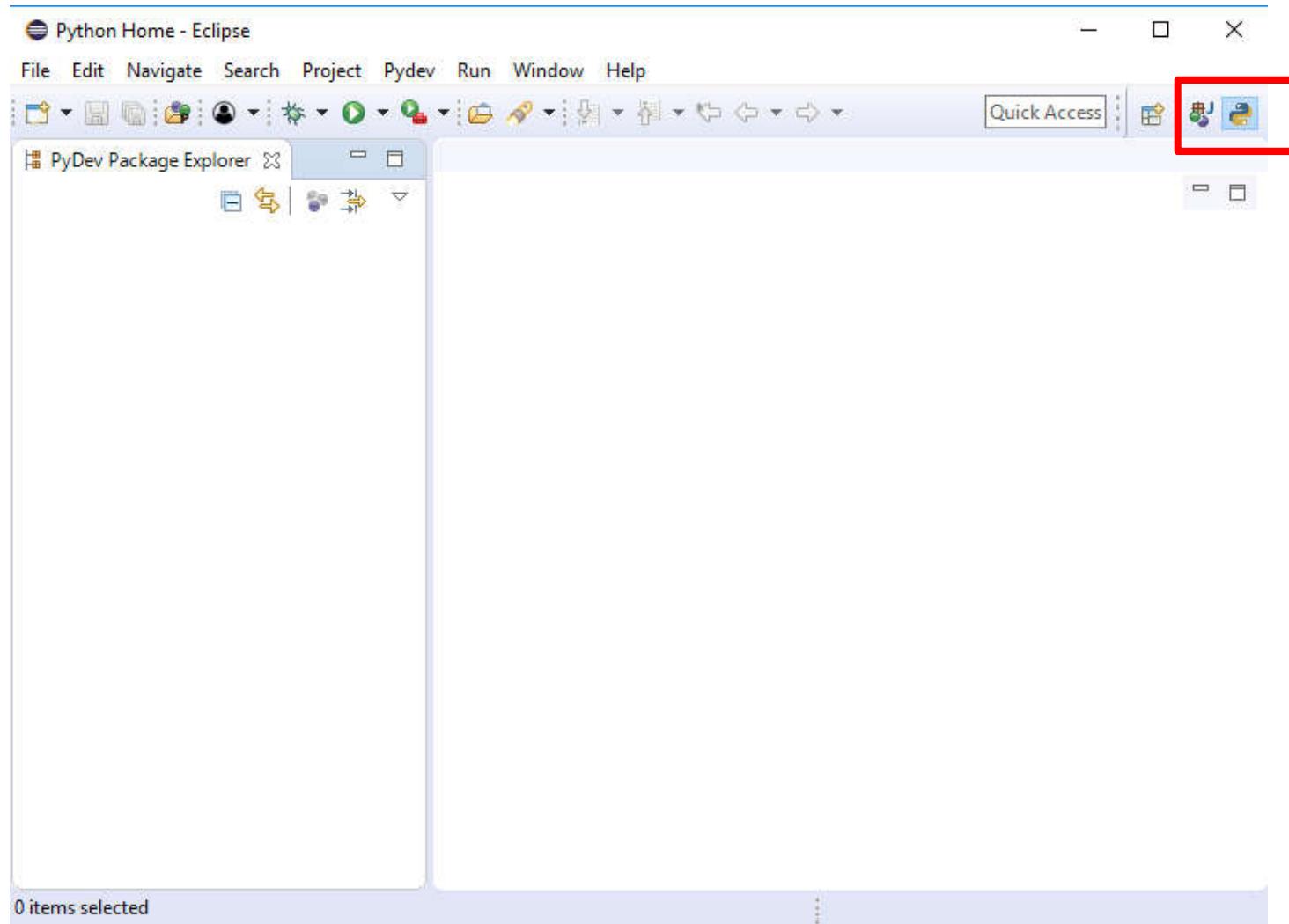


Eclipse & PyDev in Windows (Cont.)

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

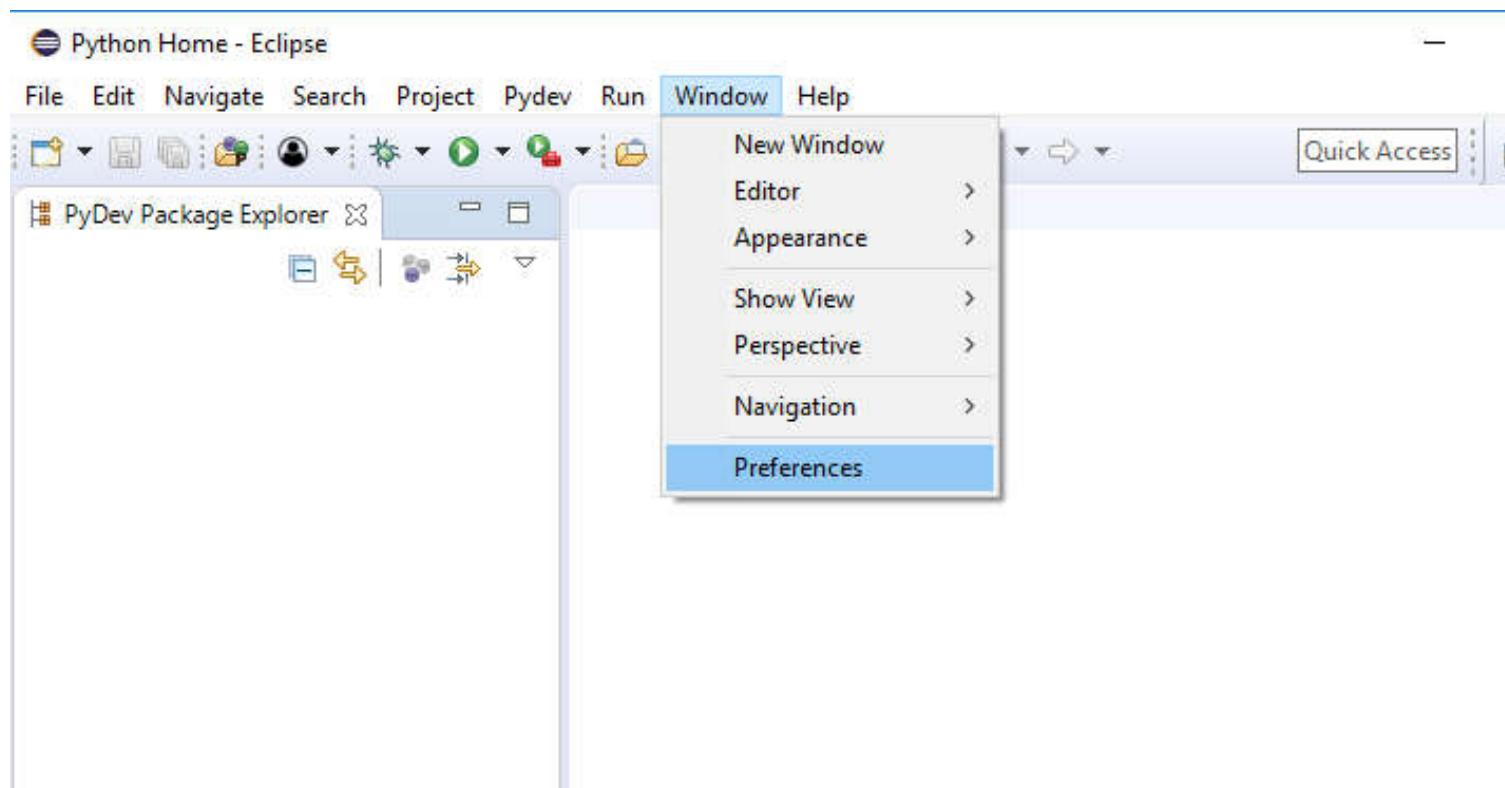


Eclipse & PyDev in Windows (Cont.)



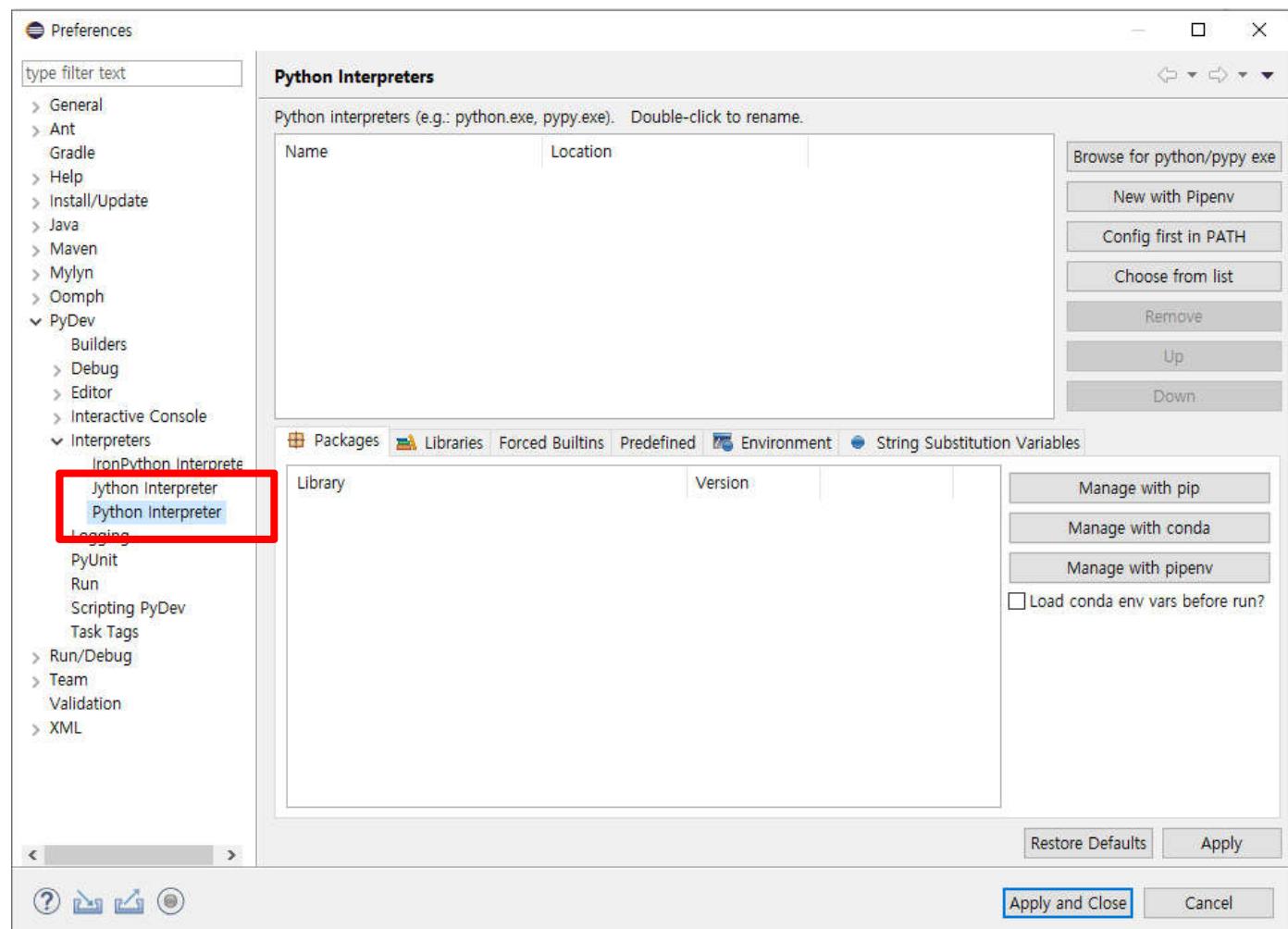
Eclipse & PyDev in Windows (Cont.)

19. Click **Window > Preferences**



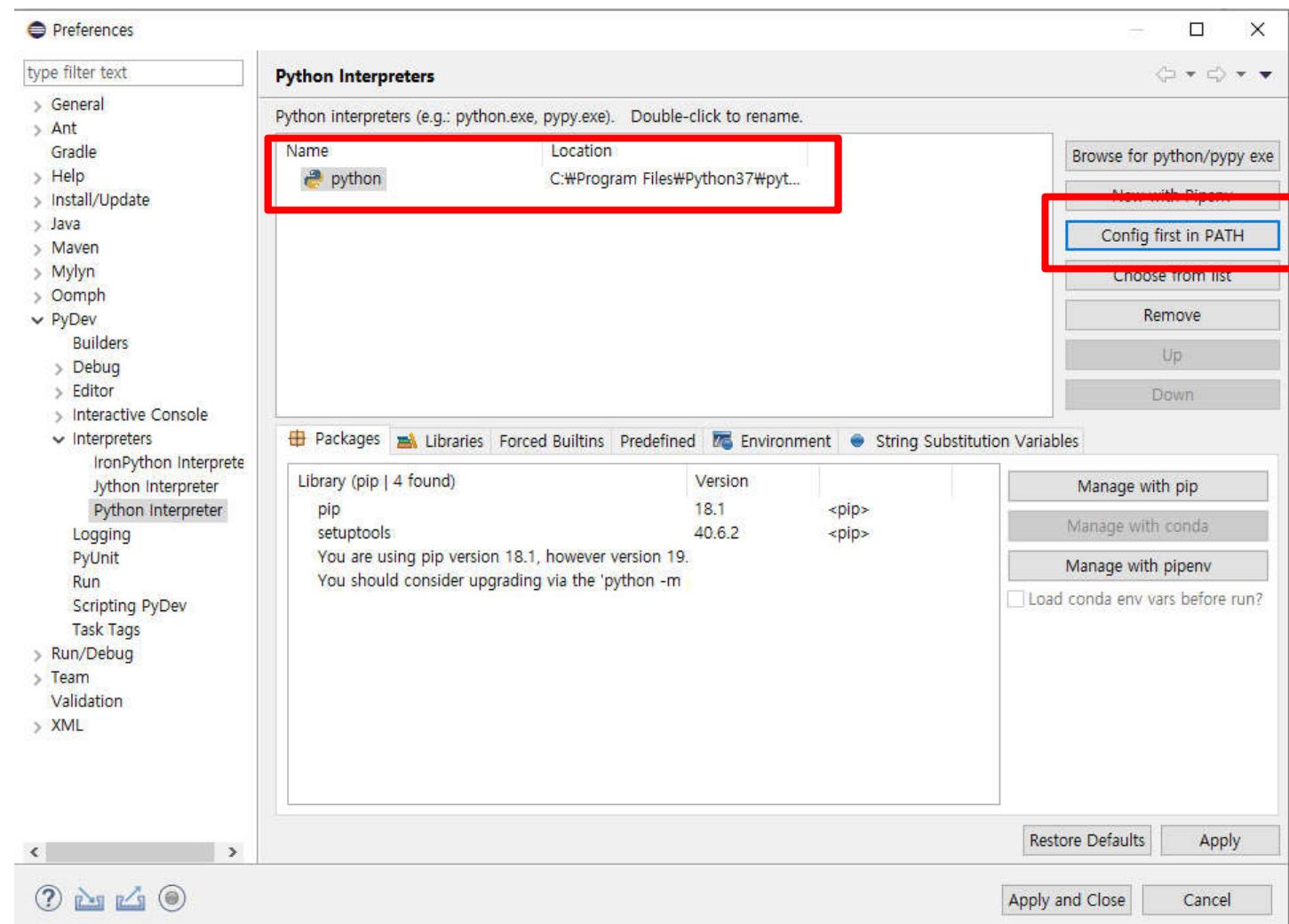
Eclipse & PyDev in Windows (Cont.)

20. Click PyDev >
Interpreters >
Python
Interpreter



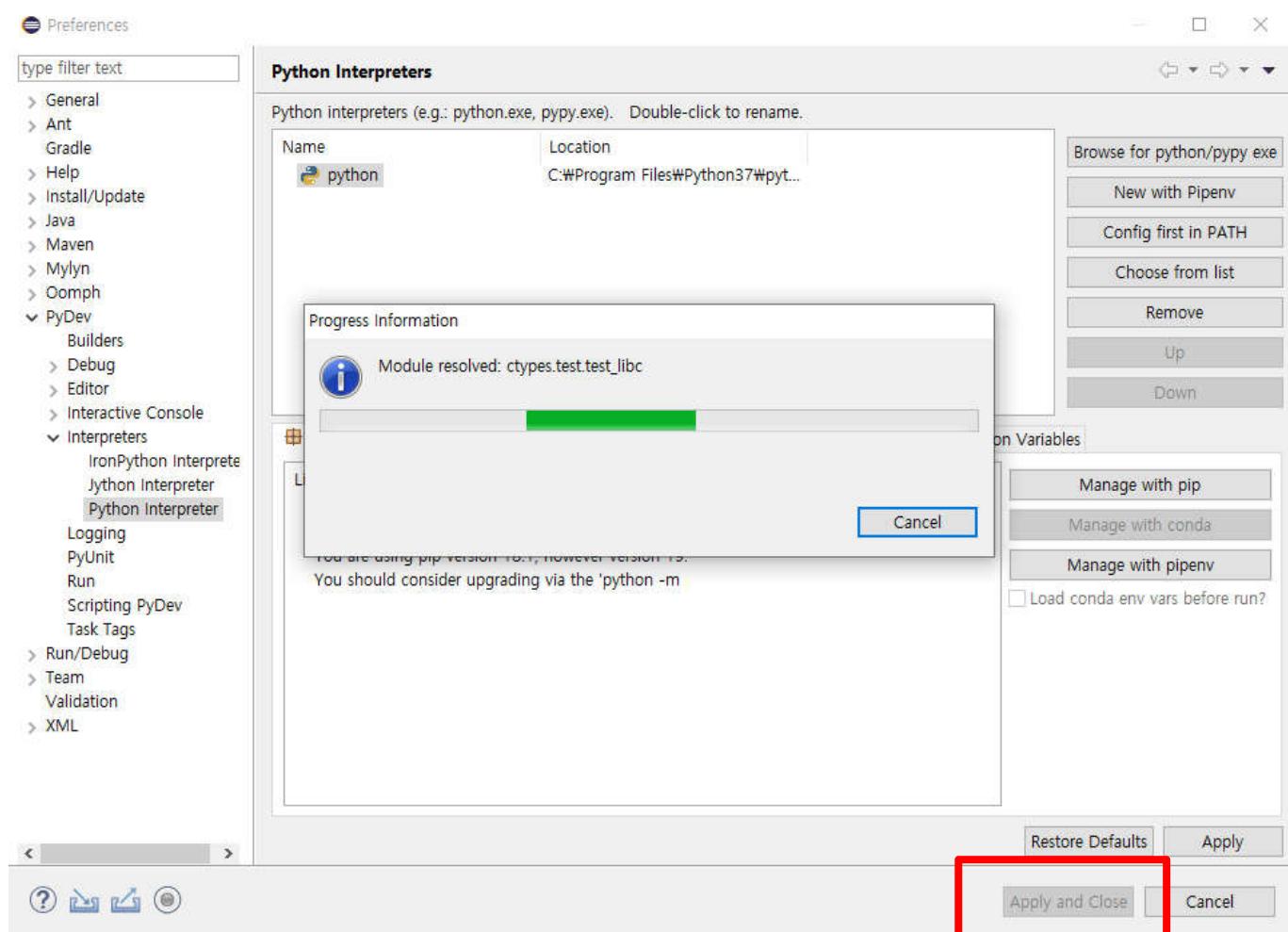
Eclipse & PyDev in Windows (Cont.)

21. Click Config first in PATH button.



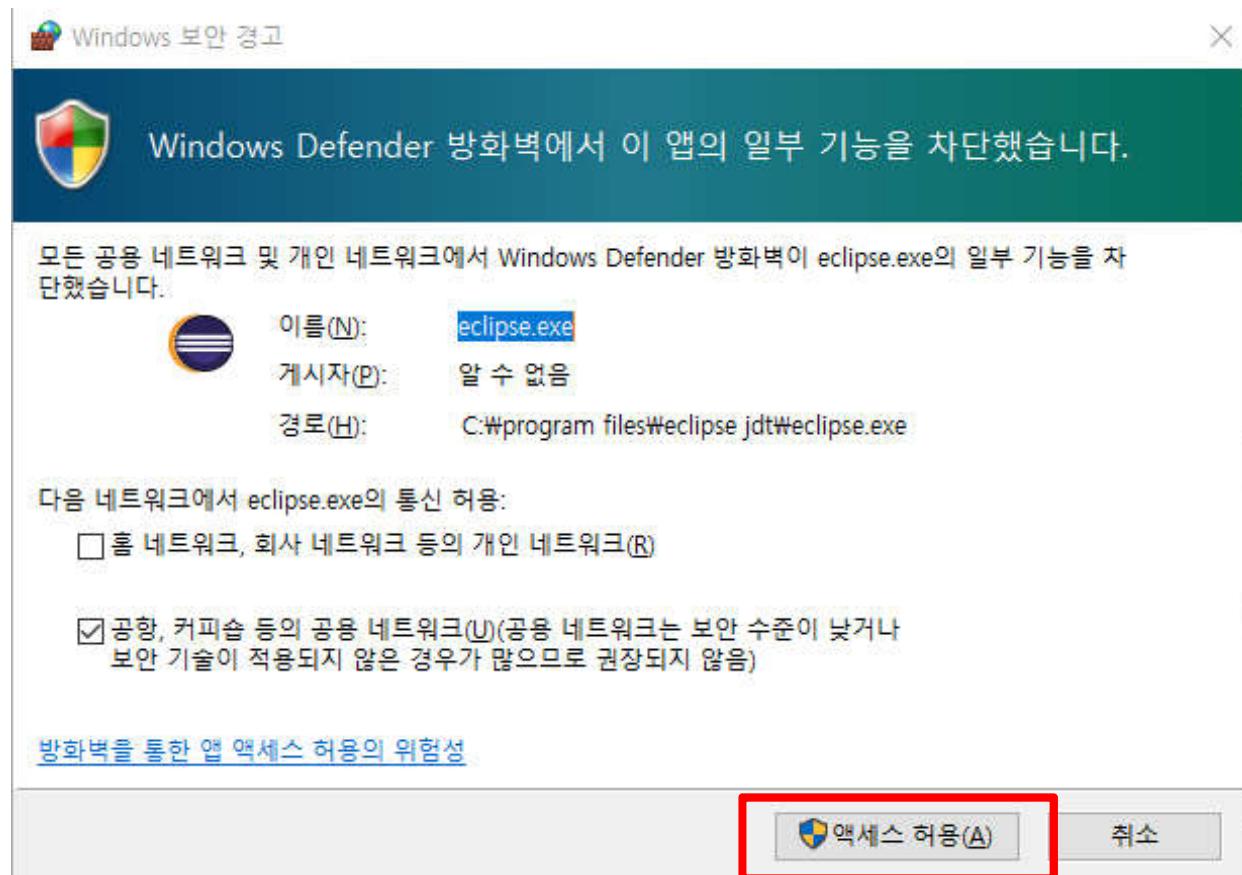
Eclipse & PyDev in Windows (Cont.)

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



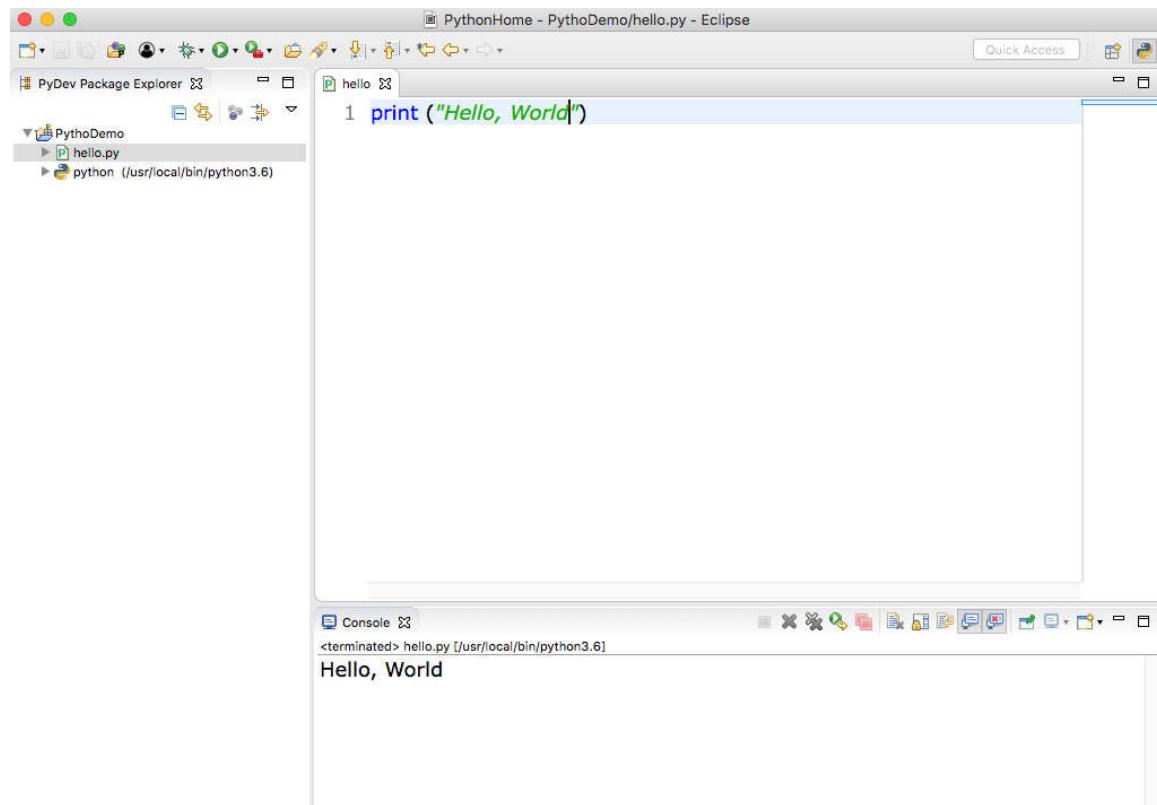
Eclipse & PyDev in Windows (Cont.)

23. Click **Allow access** button.



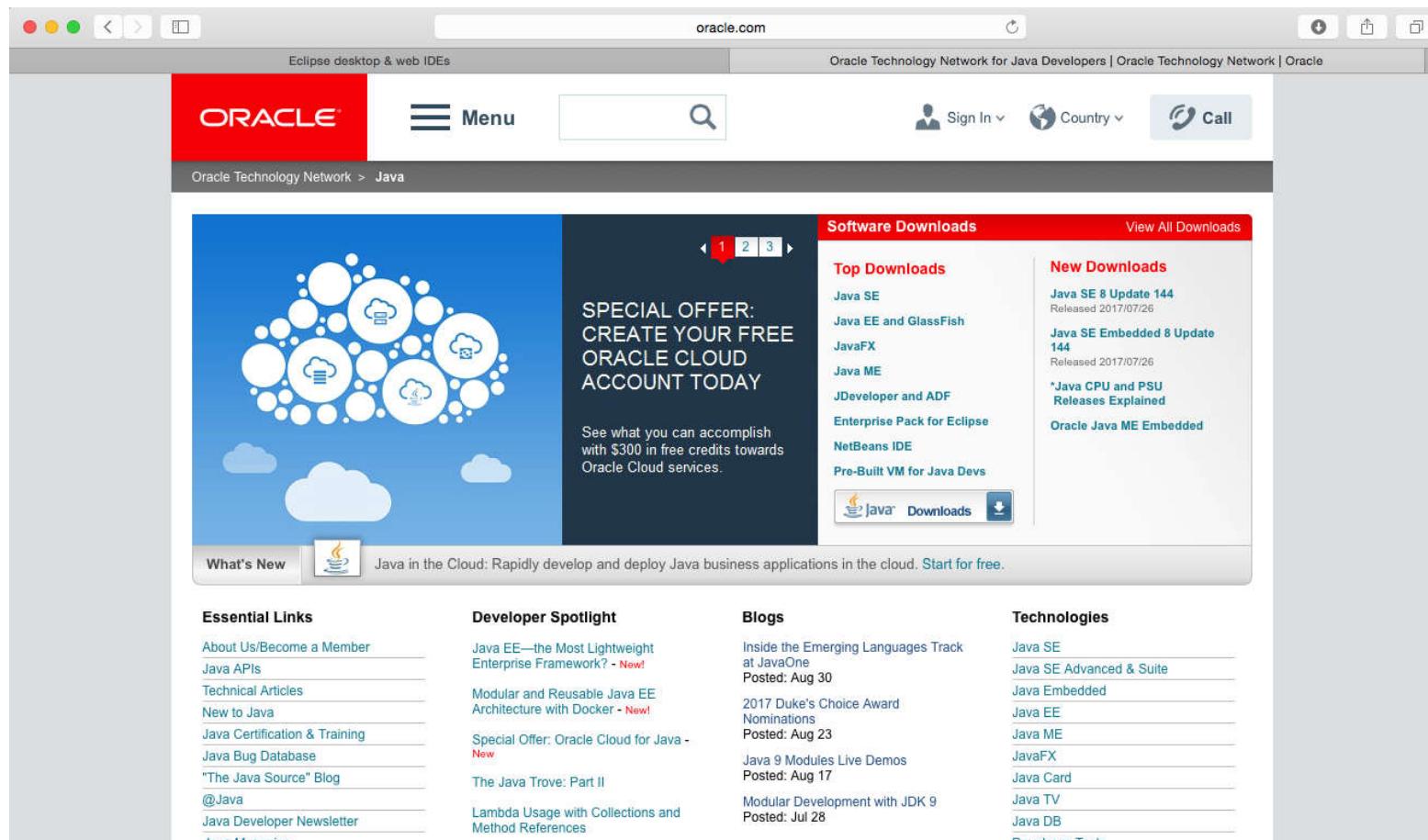
Eclipse & PyDev in Max OS X

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



Eclipse & PyDev in Max OS X (Cont.)

1. Visit Website to <http://java.sun.com>



Eclipse & PyDev in Max OS X (Cont.)

2. Click to Java Download Button



Eclipse & PyDev in Max OS X (Cont.)

3. Click to Mac OS X

| Java SE Development Kit 8u144 | | |
|---|-----------|---|
| You must accept the Oracle Binary Code License Agreement for Java SE to download this software. | | |
| Thank you for accepting the Oracle Binary Code License Agreement for Java SE; you may now download this software. | | |
| Product / File Description | File Size | Download |
| Linux ARM 32 Hard Float ABI | 77.89 MB | jdk-8u144-linux-arm32-vfp-hflt.tar.gz |
| Linux ARM 64 Hard Float ABI | 74.83 MB | jdk-8u144-linux-arm64-vfp-hflt.tar.gz |
| Linux x86 | 164.65 MB | jdk-8u144-linux-i586.rpm |
| Linux x86 | 179.44 MB | jdk-8u144-linux-i586.tar.gz |
| Linux x64 | 162.1 MB | jdk-8u144-linux-x64.rpm |
| Linux x64 | 176.92 MB | jdk-8u144-linux-x64.tar.gz |
| Mac OS X | 226.6 MB | jdk-8u144-macosx-x64.dmg |
| Solaris SPARC 64-bit | 139.87 MB | jdk-8u144-solaris-sparcv9.tar.Z |
| Solaris SPARC 64-bit | 99.18 MB | jdk-8u144-solaris-sparcv9.tar.gz |
| Solaris x64 | 140.51 MB | jdk-8u144-solaris-x64.tar.Z |
| Solaris x64 | 96.99 MB | jdk-8u144-solaris-x64.tar.gz |
| Windows x86 | 190.94 MB | jdk-8u144-windows-i586.exe |
| Windows x64 | 197.78 MB | jdk-8u144-windows-x64.exe |

Eclipse & PyDev in Max OS X (Cont.)

4. Double-click **JDK 8 Update 144.pkg**



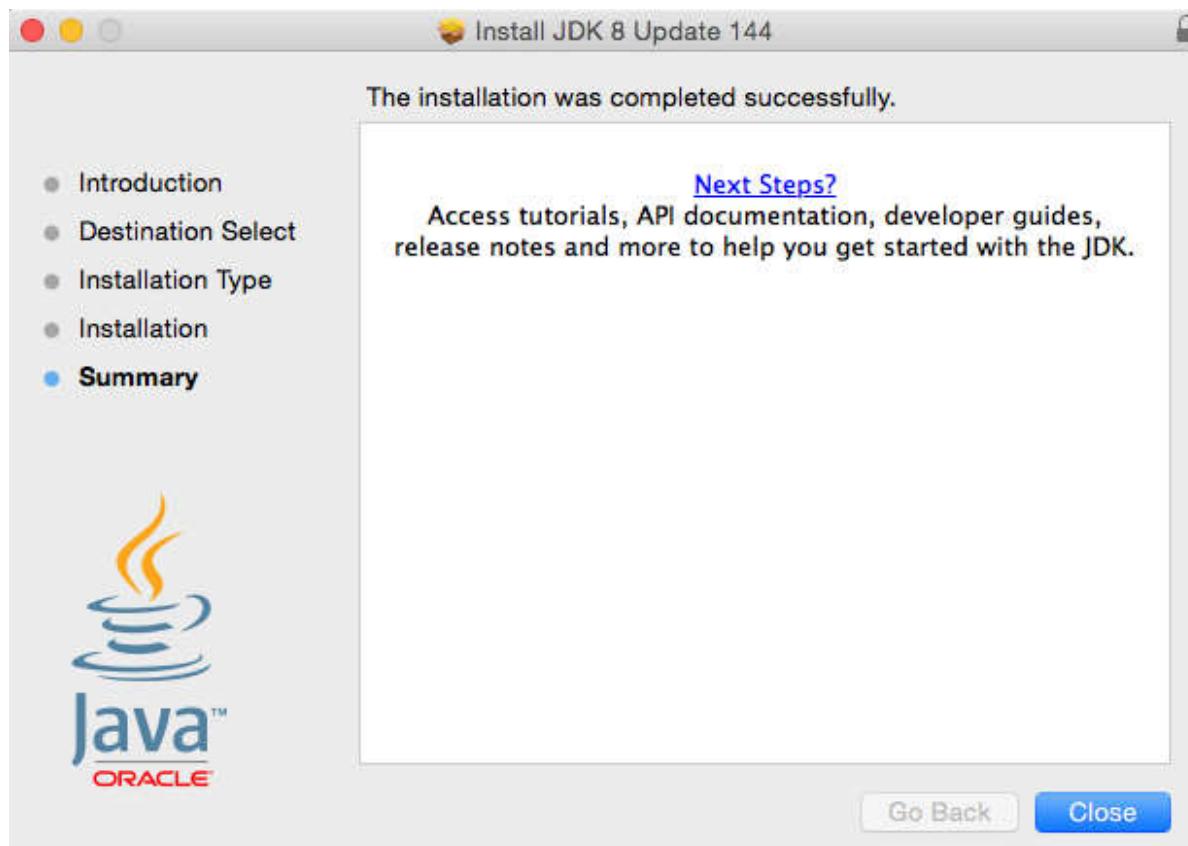
Eclipse & PyDev in Max OS X (Cont.)

The image displays two side-by-side screenshots of the Java JDK 8 Update 144 installer window on a Mac OS X system.

Left Screenshot: The title bar reads "Install JDK 8 Update 144". The main content area is titled "Welcome to the JDK 8 Update 144 Installer". On the left, a sidebar lists the steps: "Introduction" (selected), "Destination Select", "Installation Type", "Installation", and "Summary". Below the sidebar, the Java logo is displayed. The central text area states: "The Java Development Kit is a development environment for building applications, applets, and components using the Java programming language." At the bottom, it says: "The Java Mission Control profiling and diagnostic tools suite is now available as part of JDK." At the very bottom are "Go Back" and "Continue" buttons.

Right Screenshot: The title bar also reads "Install JDK 8 Update 144". The main content area is titled "Standard Install on "Macintosh HD"". On the left, the same step sidebar is shown, with "Installation Type" selected. The central text area states: "This will take 525.5 MB of space on your computer." Below that, it says: "Click Install to perform a standard installation of this software for all users of this computer. All users of this computer will be able to use this software." At the bottom are "Go Back" and "Install" buttons.

Eclipse & PyDev in Max OS X (Cont.)



Eclipse & PyDev in Max OS X (Cont.)

5. Check JDK Installation Directory

```
Peters-Mac:bin instructor$ pwd  
/Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/Contents/Home/bin  
Peters-Mac:bin instructor$ ls  
appletviewer      javah          jjs                  jvisualvm        schemagen  
extcheck          javap          jmap                 keytool          serialver  
idlj              javapackager   jmc                  native2ascii    servertool  
jar                jcmd           jps                  orbd            tnameserv  
jarsigner         jconsole       jrunscript         pack200         unpack200  
java               jdb            jsadebugd        policytool      wsgen  
javac              jdeps          jstack              rmic            wsimport  
javadoc            jhat           jstat              rmid            xjc  
javafxpackager   jinfo          jstatd             rmiregistry  
Peters-Mac:bin instructor$
```

Eclipse & PyDev in Max OS X (Cont.)

6. Configure Java Home

```
Peters-Mac:~ instructor$
```

```
Peters-Mac:~ instructor$ vi ~/.bash_profile
```



```
instructor — vi ~/.bash_profile — 82x24
export JAVA_HOME=/Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/Contents/Home
export PATH=$PATH:$JAVA_HOME/bin
```

```
Peters-Mac:~ instructor$ source ~/.bash_profile
```

```
Peters-Mac:~ instructor$ echo $JAVA_HOME
```

```
/Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/Contents/Home
```

```
Peters-Mac:~ instructor$ echo $PATH
```

```
/usr/local/bin:/usr/local/bin:/usr/bin:/bin:/usr/sbin:/sbin:/Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/Contents/Home/bin
```

```
Peters-Mac:~ instructor$
```

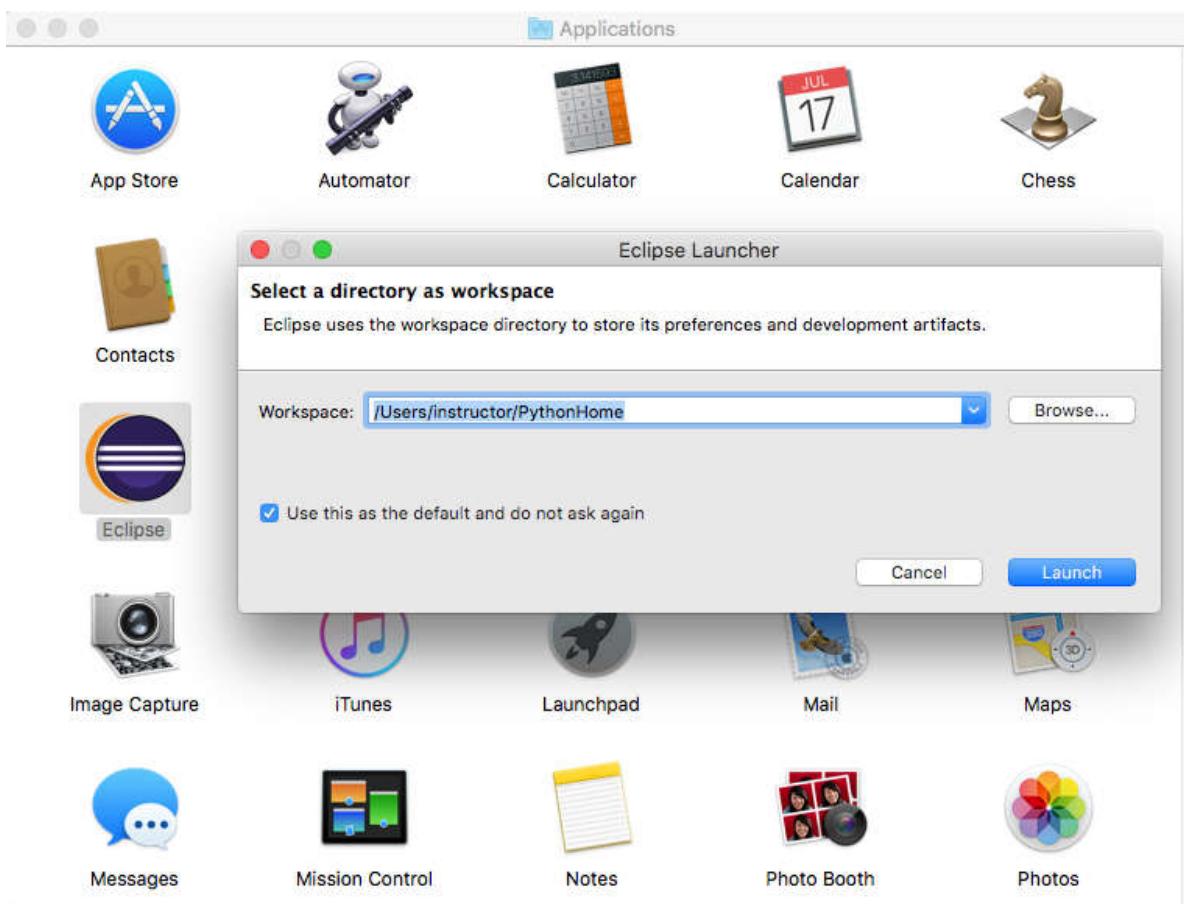
Eclipse & PyDev in Max OS X (Cont.)

7. Verify Java Version

```
Peters-Mac:~ instructor$ java -version  
java version "1.8.0_144"  
Java(TM) SE Runtime Environment (build 1.8.0_144-b01)  
Java HotSpot(TM) 64-Bit Server VM (build 25.144-b01, mixed mode)  
Peters-Mac:~ instructor$ javac -version  
javac 1.8.0_144  
Peters-Mac:~ instructor$ █
```

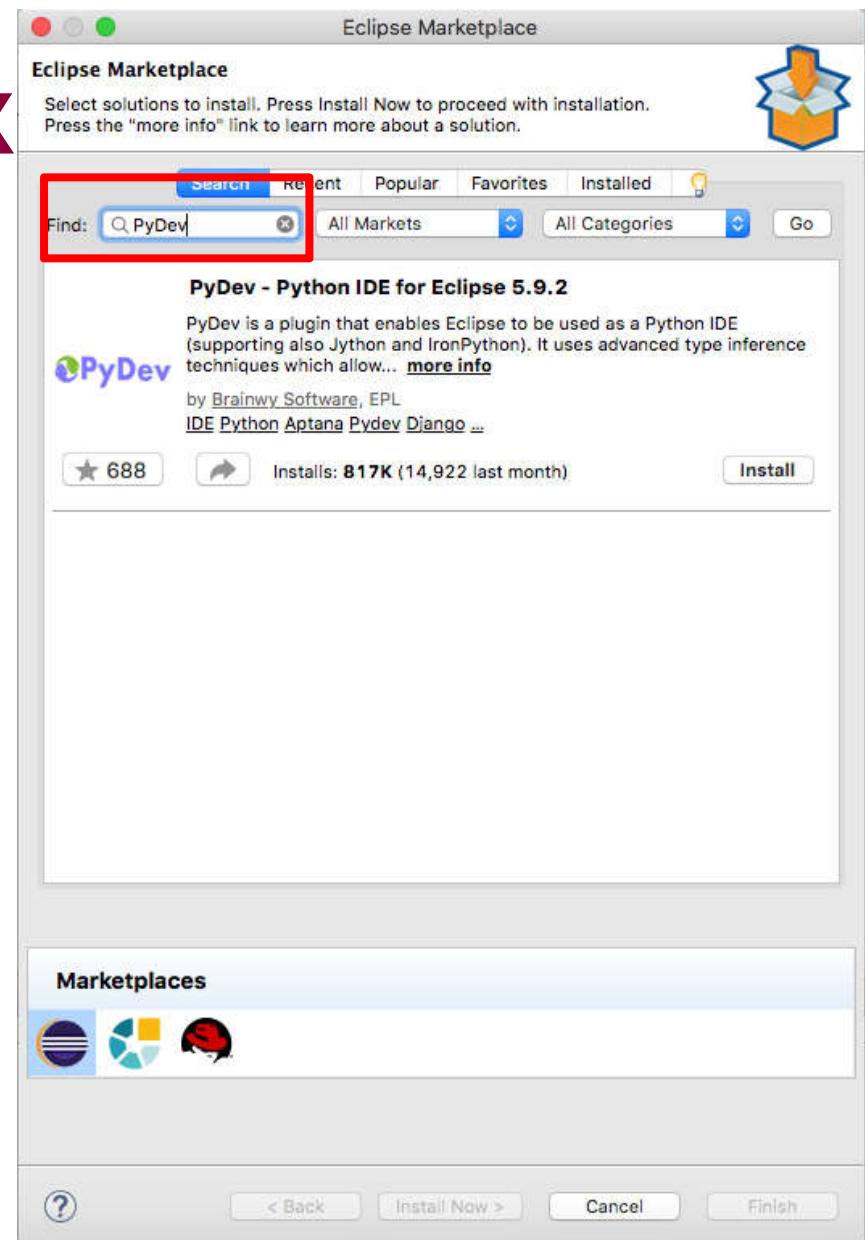
Eclipse & PyDev in Max OS X (Cont.)

8. Execute **eclipse**



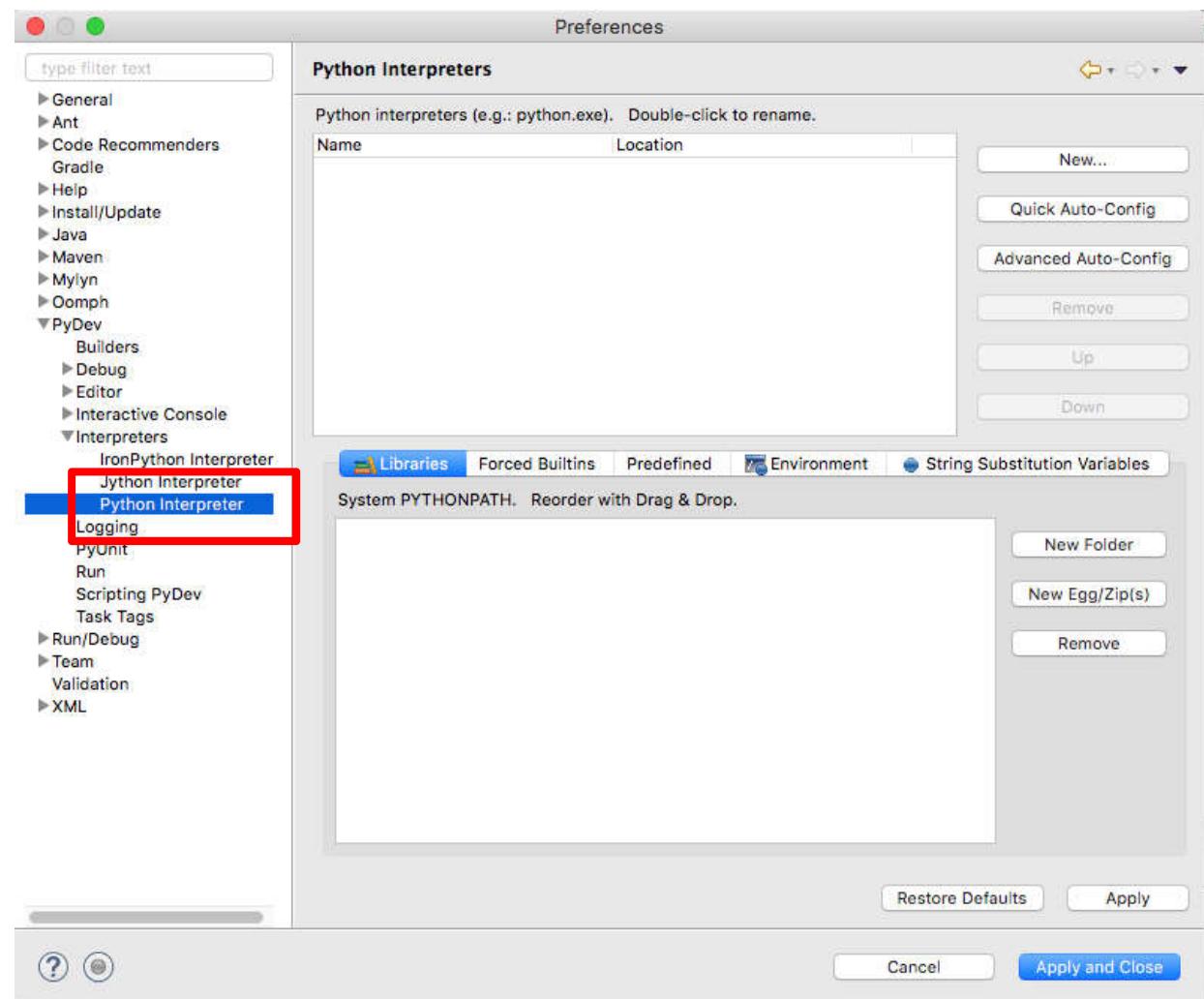
Eclipse & PyDev in Max OS X

9. Search for PyDev



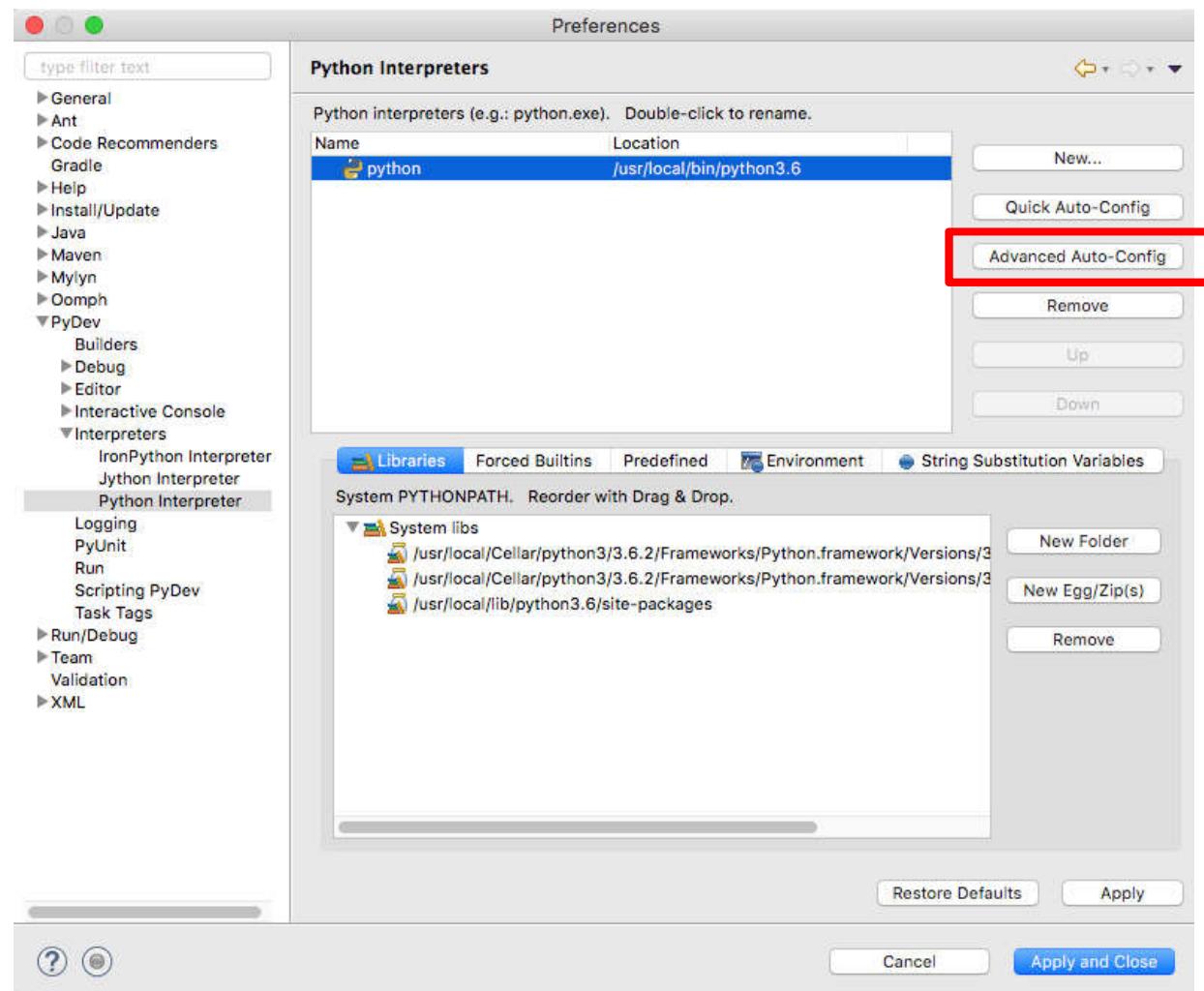
Eclipse & PyDev in Windows (Cont.)

10. Click PyDev >
Interpreters >
Python
Interpreter



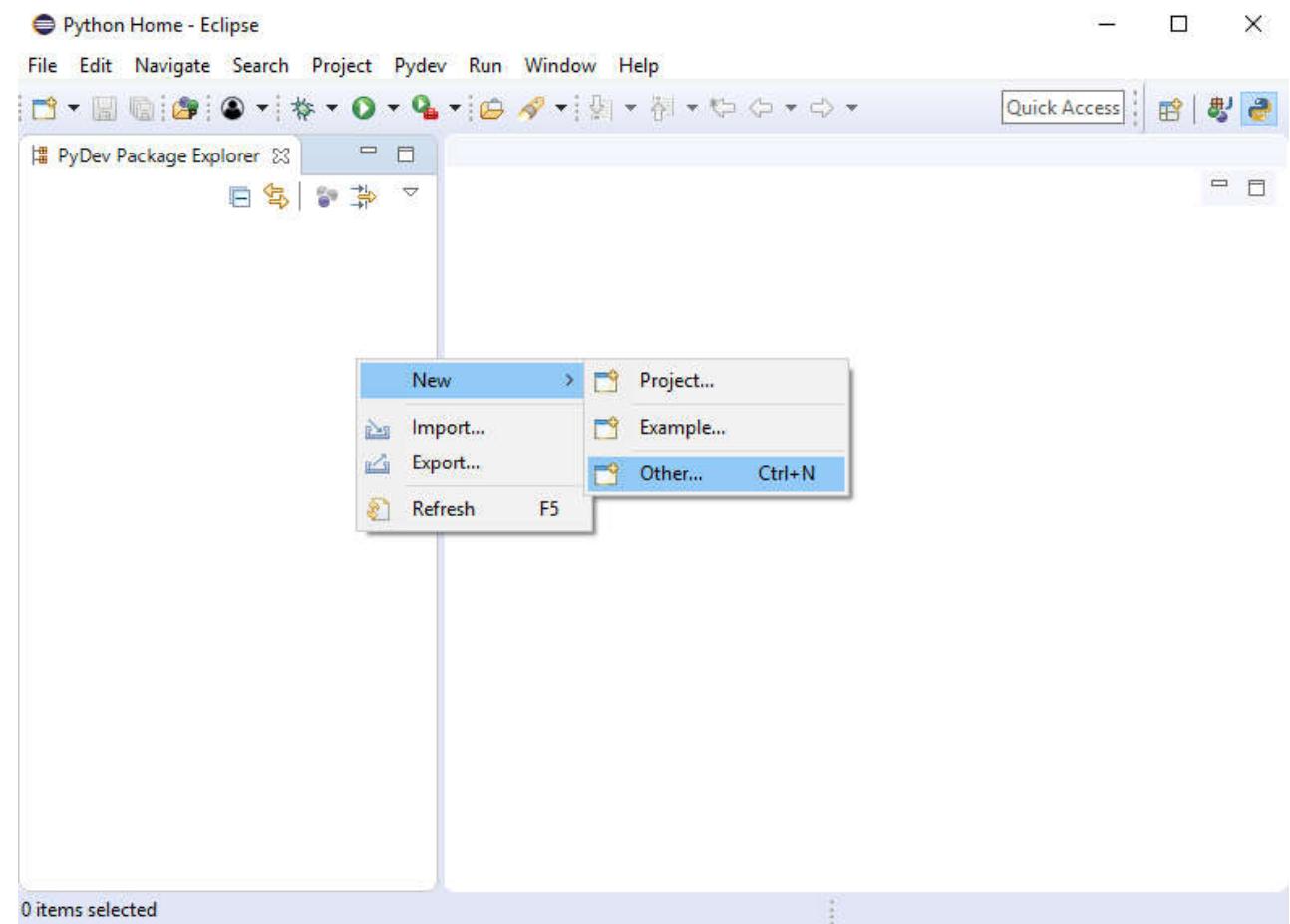
Eclipse & PyDev in Windows (Cont.)

11. Click **Advanced Auto-Config** button.



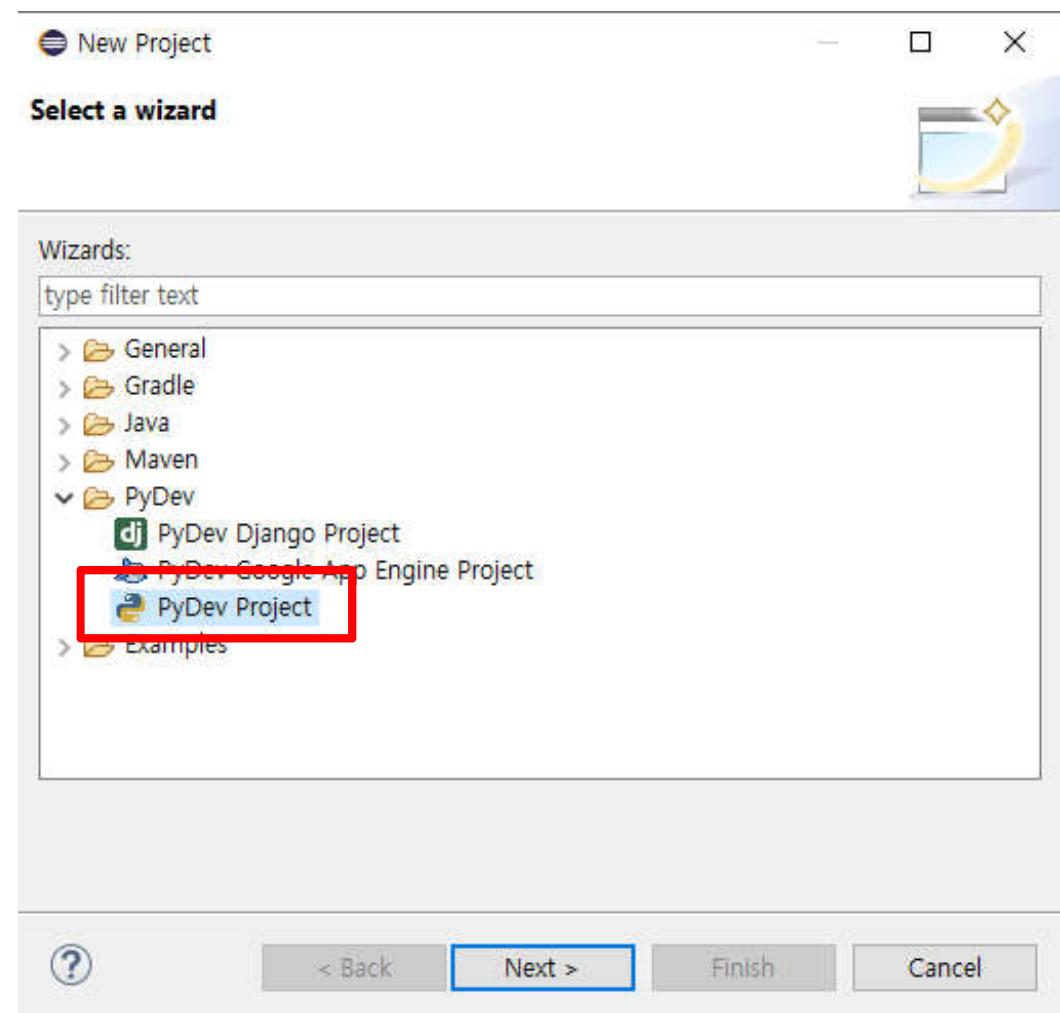
Eclipse Hello World Project

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



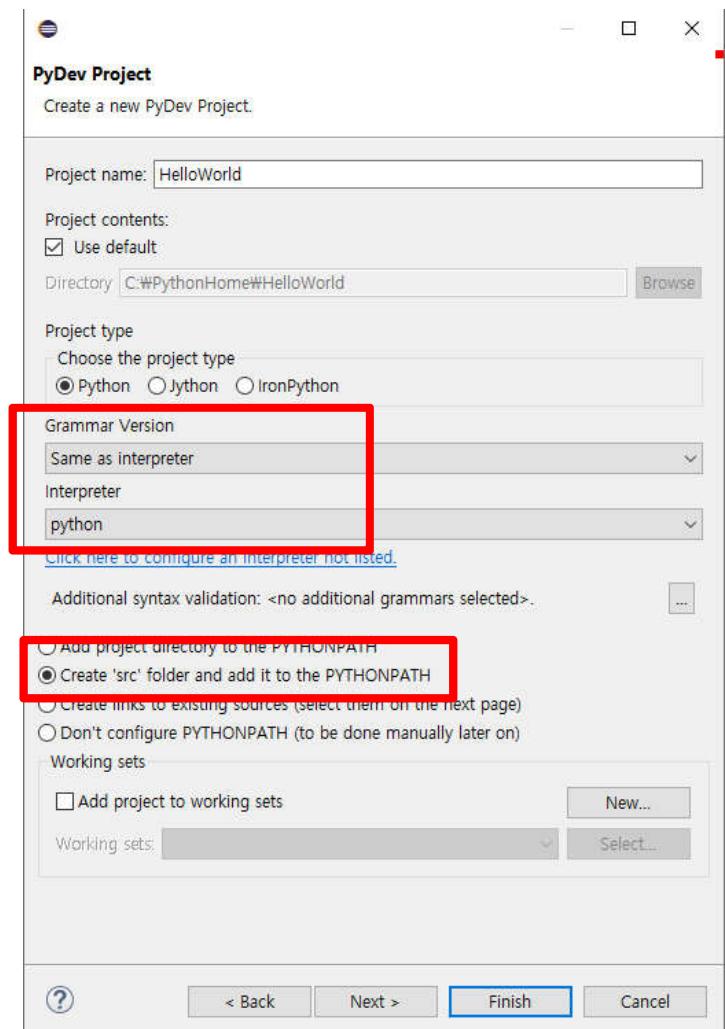
Eclipse Hello World Project (Cont.)

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



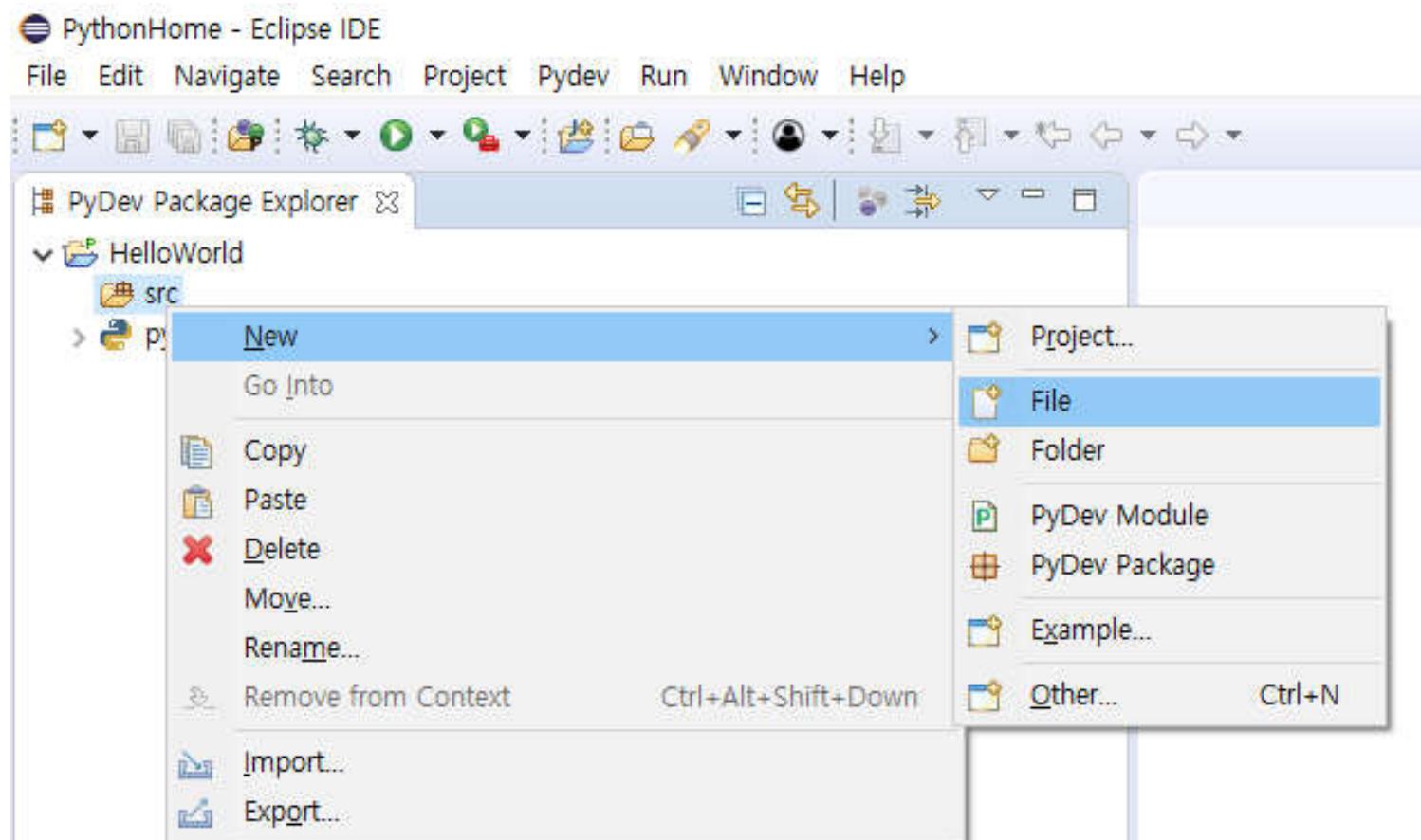
Eclipse Hello World Project (Cont.)

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.)

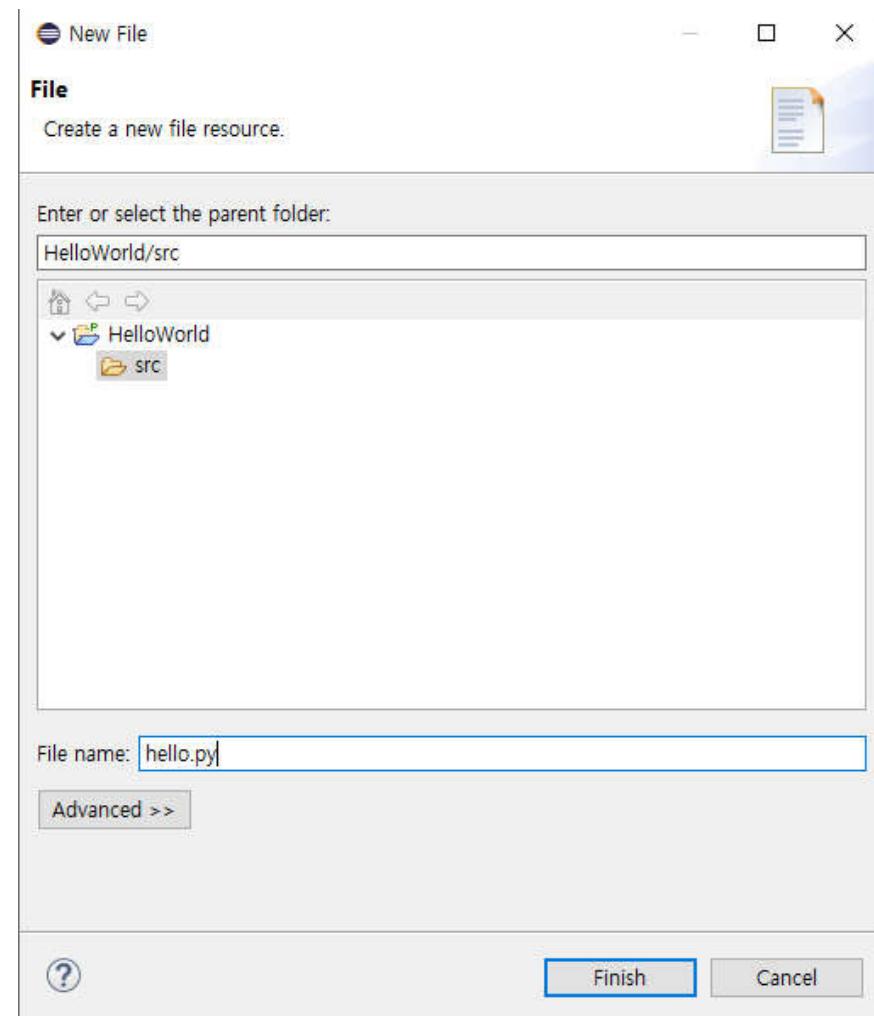
9. In **src** folder > **right-click** > **New** > **File**



Eclipse Hello World Project (Cont.)

10. File name :

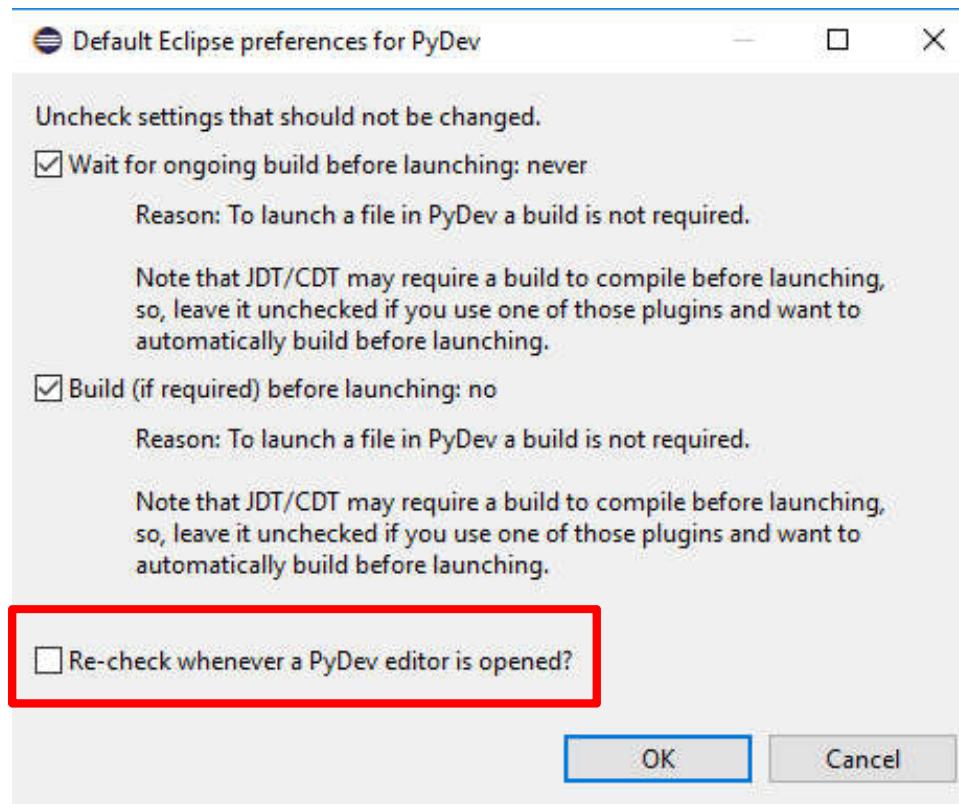
11. Click **Finish** button.



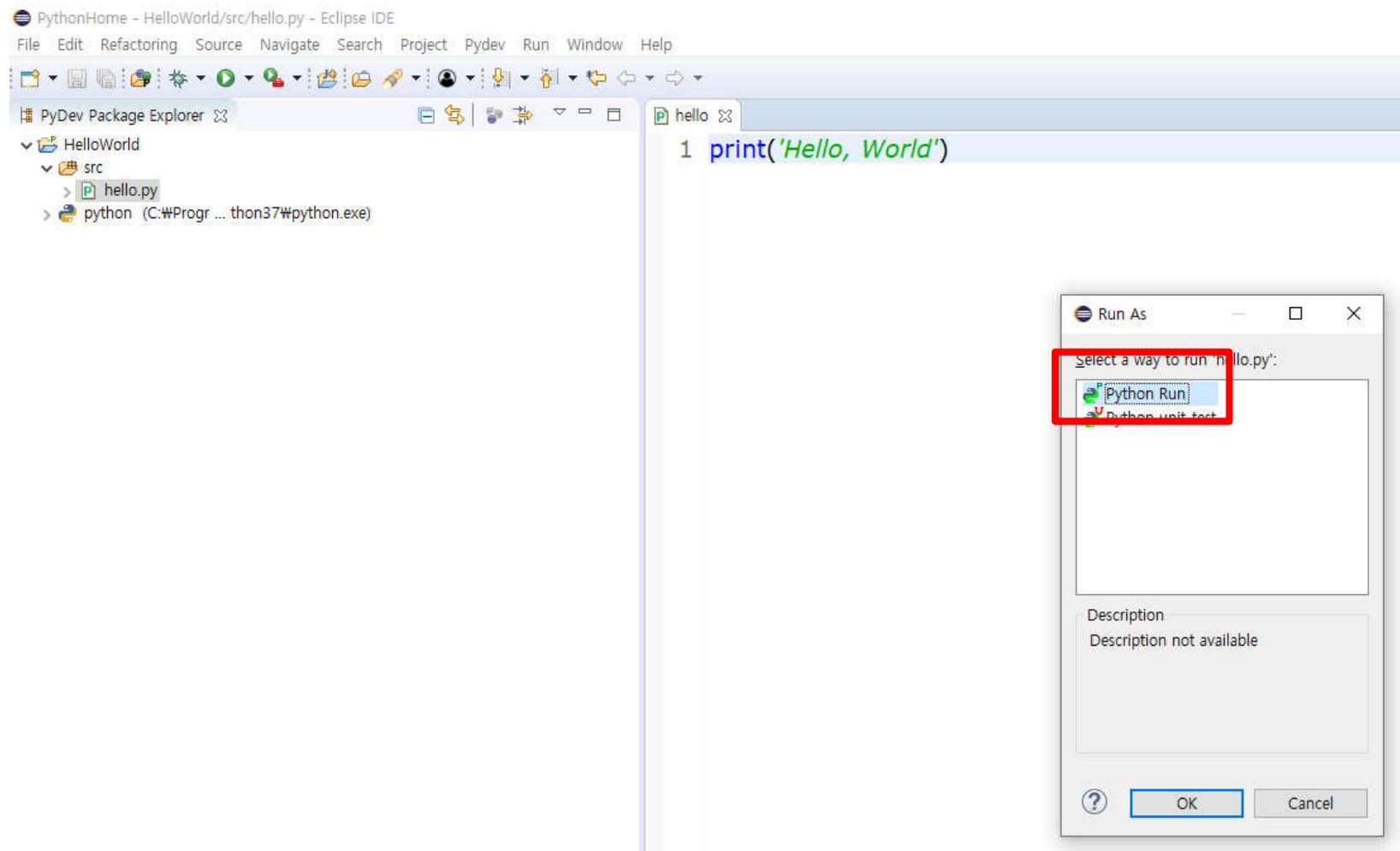
Eclipse Hello World Project (Cont.)

12. Uncheck **Re-check whenever...**

13. Click **OK** button.



Eclipse Hello World Project (Cont.)



Eclipse Hello World Project (Cont.)

The screenshot shows the Eclipse IDE interface with two open windows:

- Editor Window (top):** Titled "hello", it contains the following Python code:

```
1 import sys
2 print(sys.version)
3
4 print ("Hello, World")
5
6 print (sys.version_info)
7
```
- Console Window (bottom):** Titled "Console", it shows the output of running the script "hello.py":

```
<terminated> hello.py [C:\Program Files\Python36\python.exe]
3.6.2 (v3.6.2:5fd33b5, Jul  8 2017, 04:57:36) [MSC v.1900 64 bit (AMD64)]
Hello, World
sys.version_info(major=3, minor=6, micro=2, releaselevel='final', serial=0)
```

Eclipse Hello World Project (Cont.)

```
C:\Python Home\0823>dir  
Volume in drive C has no label.  
Volume Serial Number is 6015-352D
```

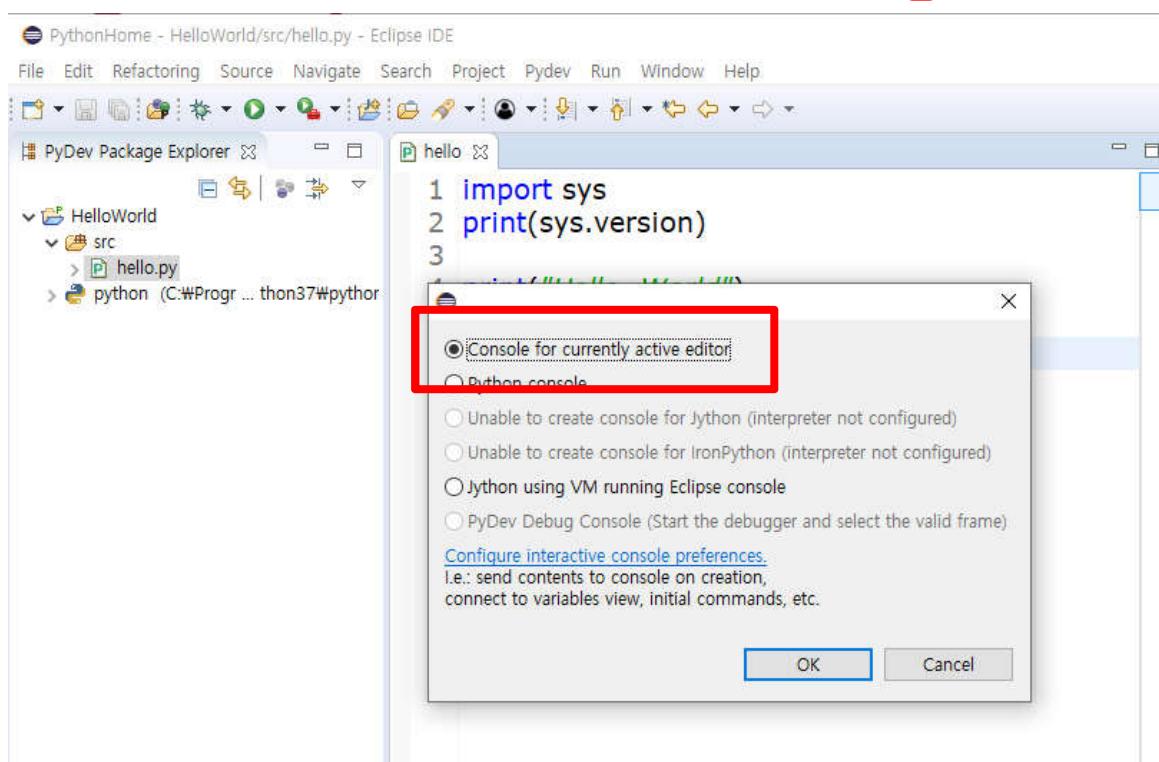
Directory of C:\Python Home\0823

| | | | |
|------------|----------|-----------|---------------------------|
| 08/22/2017 | 08:08 PM | <DIR> | . |
| 08/22/2017 | 08:08 PM | <DIR> | .. |
| 08/22/2017 | 08:07 PM | | 375 .project |
| 08/22/2017 | 08:07 PM | | 430 .pydevproject |
| 08/22/2017 | 08:11 PM | | 86 hello.py |
| | | 3 File(s) | 891 bytes |
| | | 2 Dir(s) | 30,374,715,392 bytes free |

```
C:\Python Home\0823>python hello.py  
3.6.2 (v3.6.2:5fd33b5, Jul  8 2017, 04:57:36) [MSC v.1900 64 bit (AMD64)]  
Hello, World  
sys.version_info(major=3, minor=6, micro=2, releaselevel='final', serial=0)
```

PyDev Interactive Console

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



PyDev Interactive Console (Cont.)

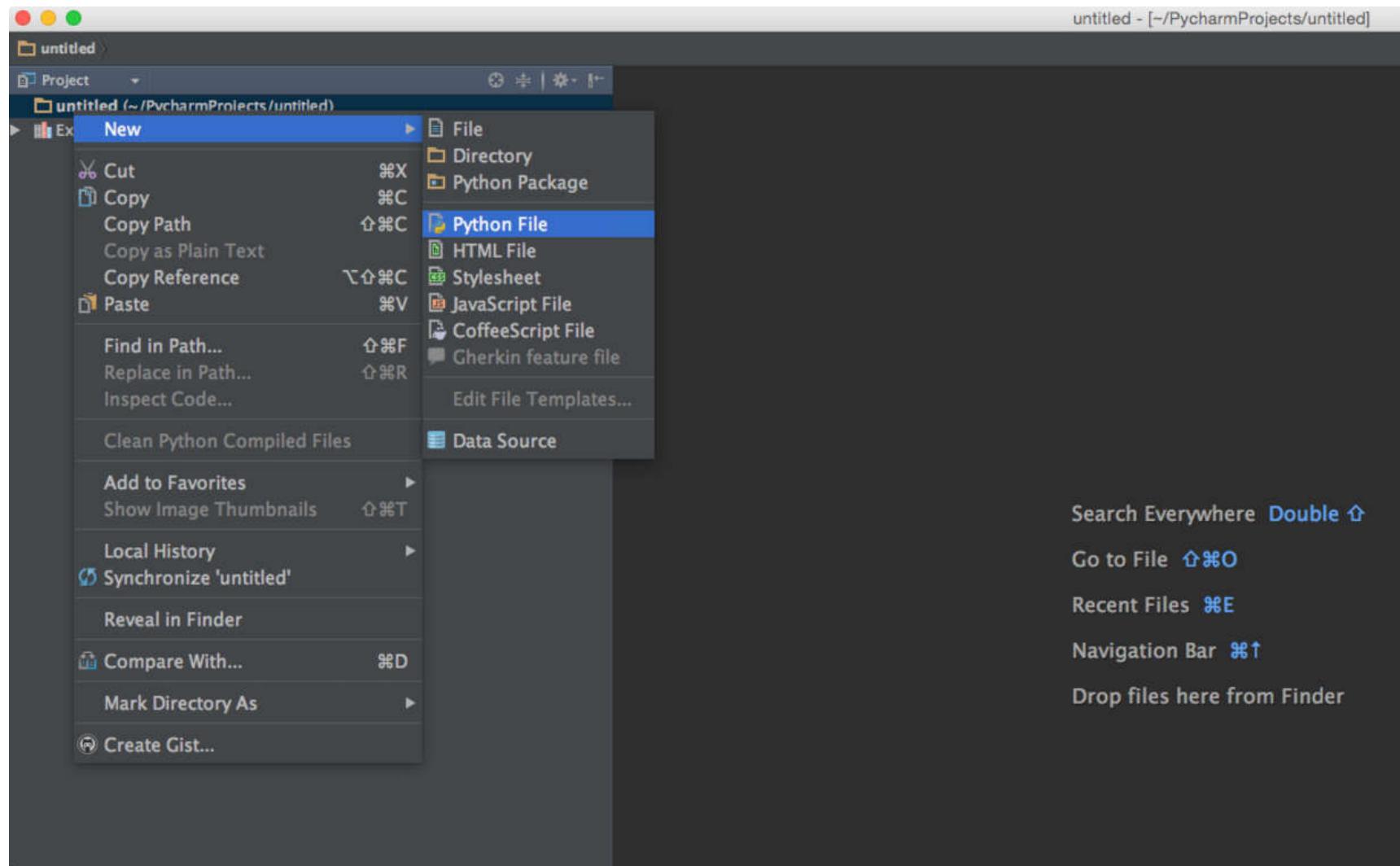
The screenshot shows the PyDev IDE interface. At the top, there is a script editor window titled "hello" containing the following Python code:

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

Below the script editor is a "Console" window titled "PyDev Console [0]". The console output is as follows:

```
C:\Program Files\Python36\python.exe 3.6.2 (v3.6.2:5fd33b5, Jul  8 2017, 04^
PyDev console: starting.
>>>
>>> print (4 + 5)
9
>>> |
```

PyCharm – Shareware



Python Coding using Web

■ Codepad(<http://codepad.org>)

The image shows two side-by-side screenshots of the Codepad web interface. Both windows have a decorative floral header.

Left Window: The title bar says "codepad". The address bar shows "codepad.org". The main content area contains a code editor with the following Python code:

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

Below the code editor is a "Language:" dropdown menu with the following options:

- C
- C++
- D
- Haskell
- Lua
- OCaml
- PHP
- Perl
- Plain Text
- Python
- Ruby
- Scheme
- Tcl

At the bottom of the editor are three buttons: "Private" (unchecked), "Run code" (checked), and "Submit".

Right Window: The title bar says "Python code - 1 line - codepad". The address bar shows "codepad.org/h8HBfQal". The main content area has a "Recent Pastes" sidebar with links like "Get a Project Page", "Hello World Examples", "FizzBuzz", "Vim Plugin", and "Emacs Integration".

The "Output:" section shows the result of running the code:

```
Hello, World
```

The "New paste:" section shows the same Python code again:

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

At the bottom of the right window are three buttons: "Private" (unchecked), "Run code" (checked), and "Submit".

Python Coding using Web

■ Paiza.io(<https://paiza.io>)

The screenshot shows the Paiza.io homepage. At the top, there's a navigation bar with links for 'New code', 'Recent codes', 'Terminal', 'English', 'Sign Up', and 'Sign In'. A 'Beta' badge is visible. Below the navigation, a large banner says 'Just write and run code online !'. It features a video player showing a person coding on a computer screen with the Paiza.io interface. The video has a play button and a timer at 01:29. Below the video, there's a green button labeled 'Start coding (Free)'. At the bottom, there's a section titled 'Featured codes' with a snippet of HTML code.

The screenshot shows the Paiza.io code editor interface. The URL in the address bar is https://paiza.io/projects/pLftd7N_j_sdrSLmYgD1vg. The language selected is 'Swift'. A text input field says 'Enter a title here'. Below it, a code editor window shows 'main.swift' with the following code:

```
1 // Here your code !
2
3 print("Hello, World")
4
```

The status bar indicates 'Success'. At the bottom, there's a 'Run (Ctrl-Enter)' button, an 'Output' tab showing 'Hello, World', and a message box with a 'Leave a message' button.

Python Coding using Web

- runnable(<http://code.runnable.com>)

