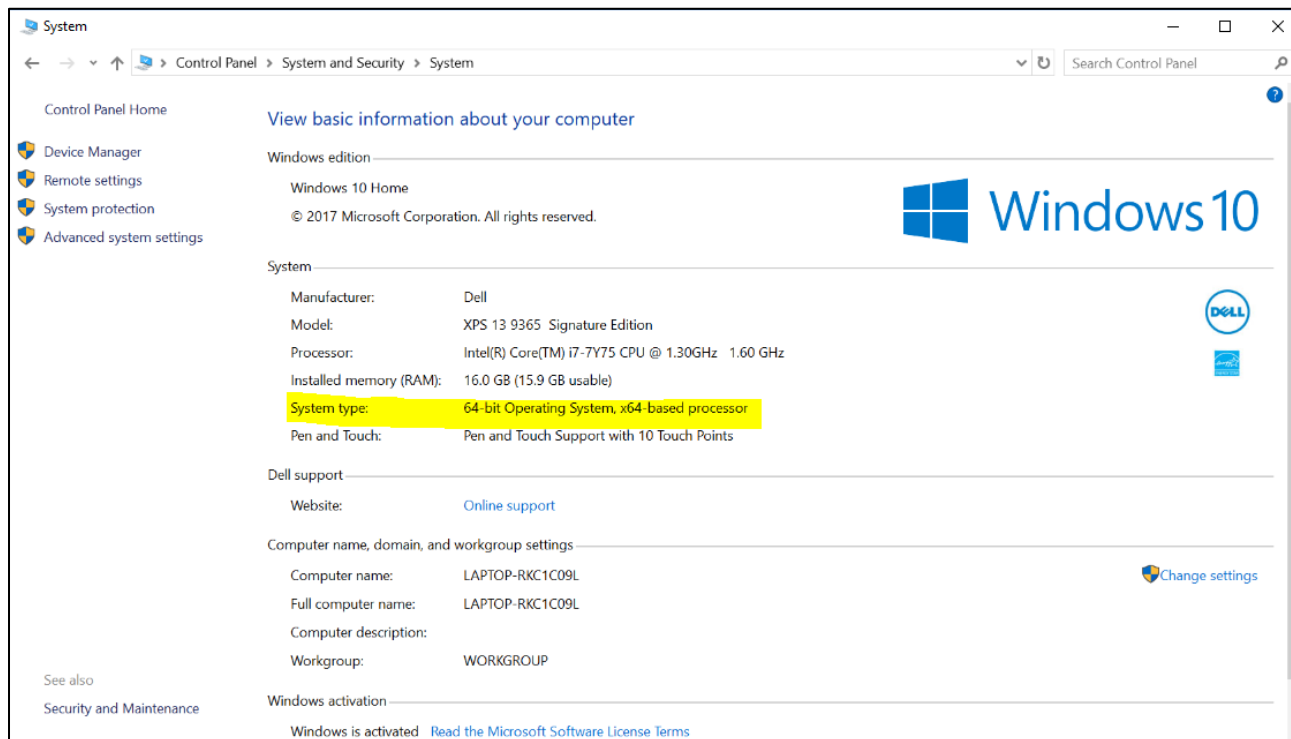


Code With Me – Machine Learning and AI Install Instructions Documentation

This setup requires that you have an 64 bit Operating System.

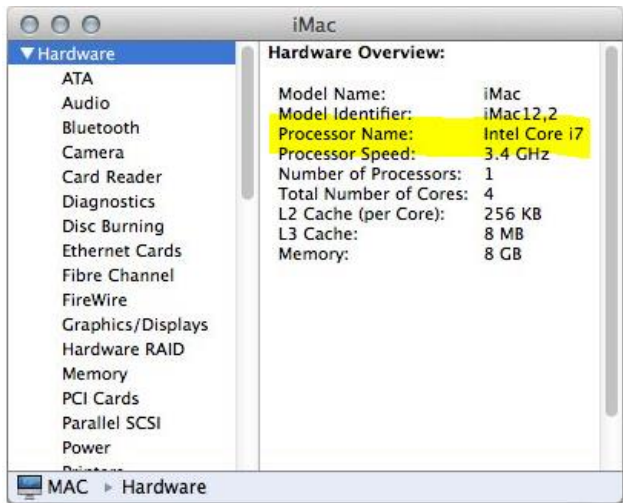
1. Before beginning installation, check to see what type of processor you have.
 - a. For Windows users:
 - i. Enter Control Panel >
 - ii. Select “System and Security”
 - iii. Select “System”
 - iv. On “System type” it will show what type of processor you have



b. For Mac users:

i. Follow the instructions on this link to determine what processor you have:

<https://www.chiefarchitect.com/support/article/KB-01230/determining-if-your-computer-is-32-bit-or-64-bit.html>



The screenshot shows the 'iMac' Hardware Overview window. The 'Processor Name' is highlighted in yellow and listed as 'Intel Core i7'. Other details include 'Model Identifier: iMac12,2', 'Processor Speed: 3.4 GHz', 'Number of Processors: 1', 'Total Number of Cores: 4', 'L2 Cache (per Core): 256 KB', 'L3 Cache: 8 MB', and 'Memory: 8 GB'.

Processor Name	32- or 64-bit
Intel Core Solo	32 bit
Intel Core Duo	32 bit
Intel Core 2 Duo	64 bit
Intel Quad-Core Xeon	64 bit
Dual-Core Intel Xeon	64 bit
Quad-Core Intel Xeon	64 bit
Core i3	64 bit
Core i5	64 bit
Core i7	64 bit

2. Download the 64 bit version of Python 3.6 for your operating system. The latest version can be found here:

<https://www.python.org/downloads/release/python-363/>. You will want to install one of the items highlighted below depending on your operating system.

Files

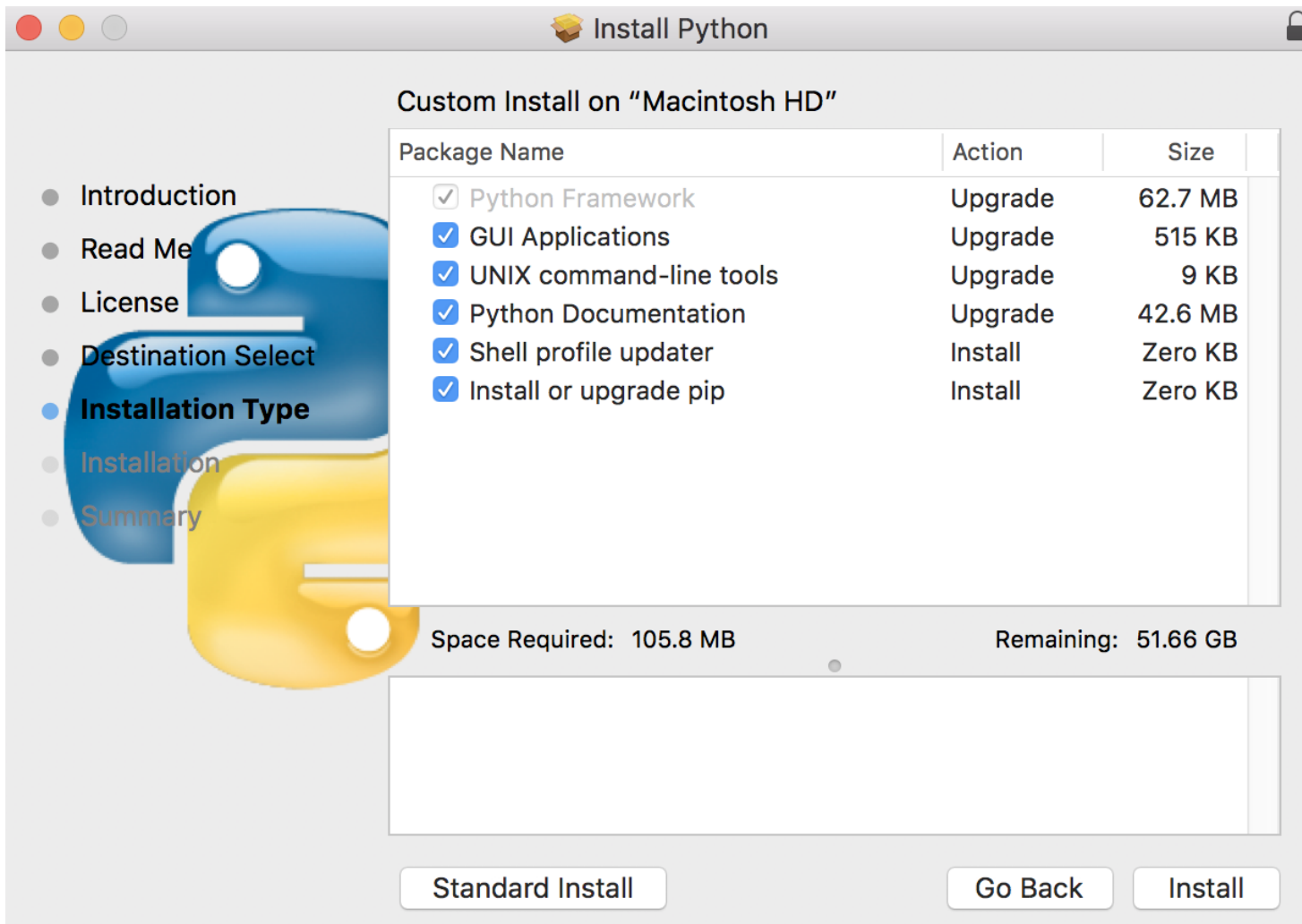
Version	Operating System	Description	MD5 Sum	File Size	GPG
Gzipped source tarball	Source release		e9180c69ed9a878a4a8a3ab221e32fa9	22673115	SIG
XZ compressed source tarball	Source release		b9c2c36c33fb89bda1fef37ad5af9be	16974296	SIG
Mac OS X 64-bit/32-bit installer	Mac OS X	for Mac OS X 10.6 and later	ce31f17c952c657244a5cd0cccae34ad	27696231	SIG
Windows help file	Windows		a82270d7193f9fb8554687e7ca342df1	8020197	SIG
Windows x86-64 embeddable zip file	Windows	for AMD64/EM64T/x64, not Itanium processors	b1daa2a41589d7504117991104b96fe5	7145844	SIG
Windows x86-64 executable installer	Windows	for AMD64/EM64T/x64, not Itanium processors	89044fb577636803bf49f36371dca09c	31619840	SIG
Windows x86-64 web-based installer	Windows	for AMD64/EM64T/x64, not Itanium processors	b6d61642327f25a5ebd1a7f11a6d3707	1312480	SIG
Windows x86 embeddable zip file	Windows		cf1c75ad7ccf9dec57ba7269198fd56b	6388018	SIG
Windows x86 executable installer	Windows		3811c6d3203358e0c0c6b6677ae980d3	30584520	SIG
Windows x86 web-based installer	Windows		39c2879cecf252d4c935e4f8c3087aa2	1287056	SIG

3. Begin installing Python: Follow the directions on the install wizard to finish installing. It is recommended that all check boxes are checked, specifically “add Python to PATH” for Windows. Proceed as you normally would install any application for Mac users.

A STANDARD installation is sufficient Windows users, a CUSTOMIZED installation is not necessary Windows users.

On the contrary, a CUSTOMIZED installation with all checkboxes checked is necessary for Mac users.

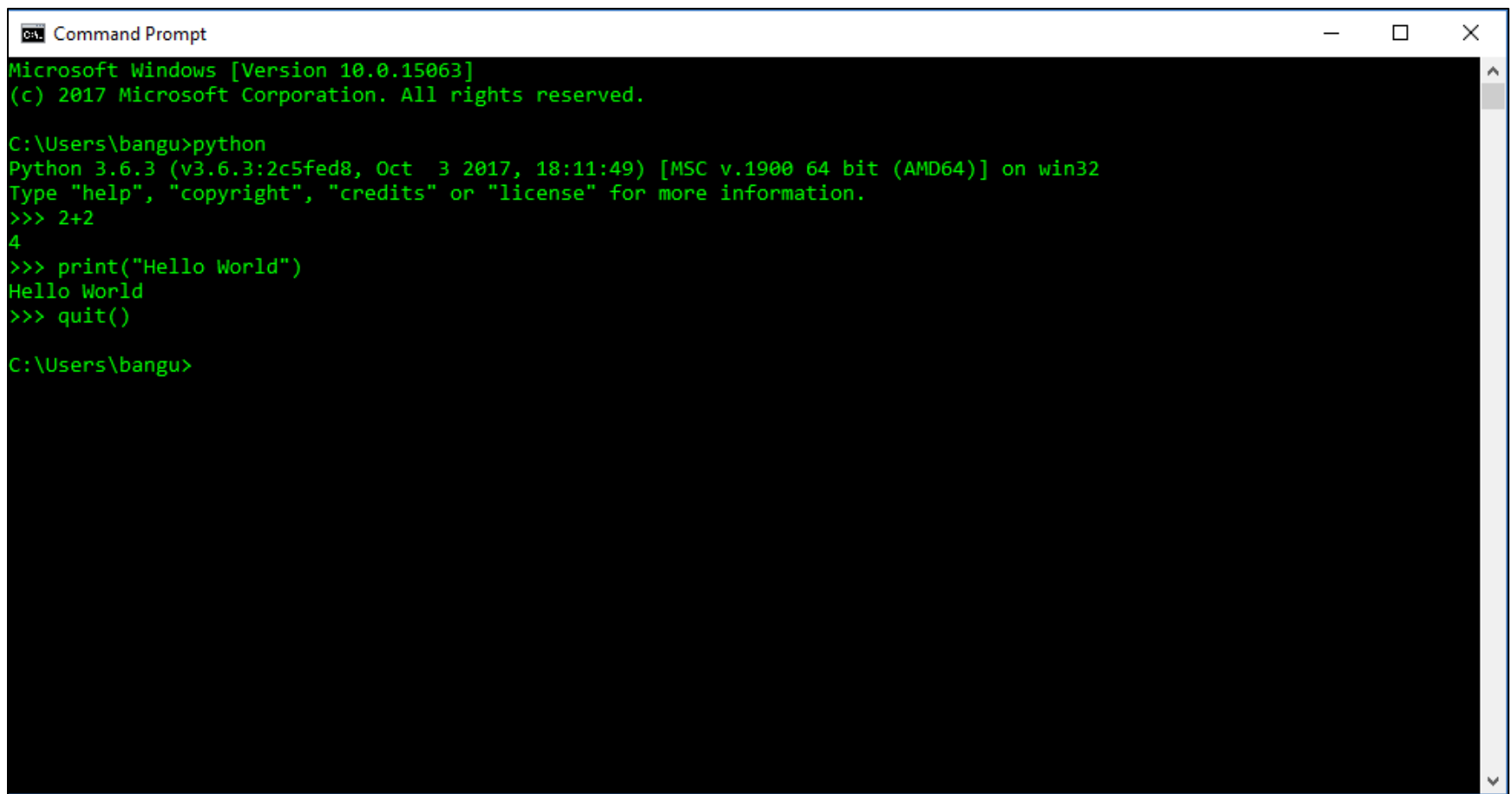




4. Ensure Python is fully installed and works:

- a. For Windows users open the command line by selecting “Start” > “Run” > and typing in “cmd” and hit Enter or search for “cmd” in the Start menu.
- b. For Mac users open terminal by going into Finder and selecting “Applications” > “Utilities” > “Terminal”.
- c. Check to see if Python works by typing “python” or “python3” in the command line or in terminal. Perform these quick calculations to make sure it’s working properly.

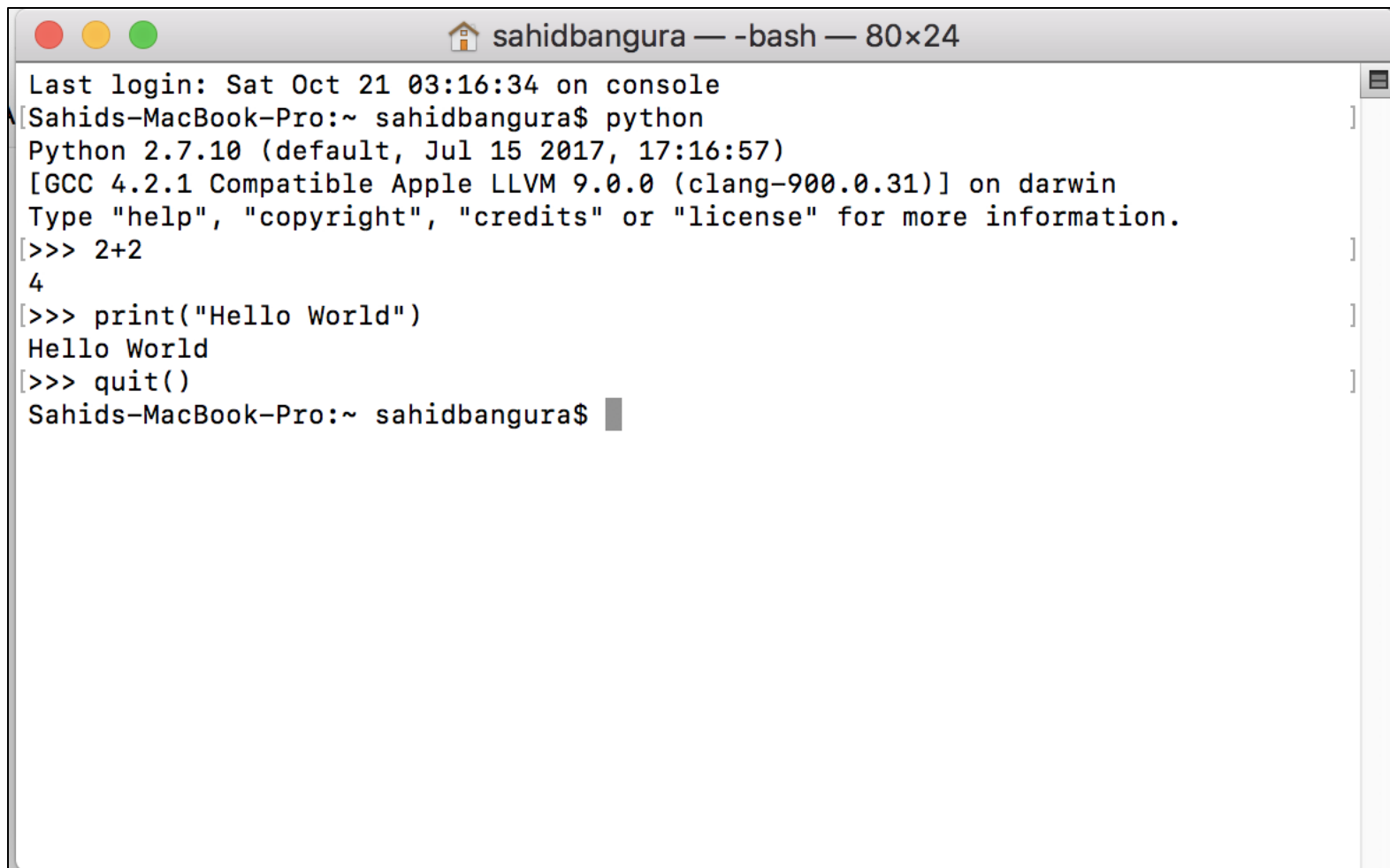
```
>>> 2+2
>>> print("Hello World")
>>> quit()
```



```
ca. Command Prompt
Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\bangu>python
Python 3.6.3 (v3.6.3:2c5fed8, Oct  3 2017, 18:11:49) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> 2+2
4
>>> print("Hello World")
Hello World
>>> quit()

C:\Users\bangu>
```



```
Last login: Sat Oct 21 03:16:34 on console
Sahids-MacBook-Pro:~ sahidbangura$ python
Python 2.7.10 (default, Jul 15 2017, 17:16:57)
[GCC 4.2.1 Compatible Apple LLVM 9.0.0 (clang-900.0.31)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
[>>> 2+2
4
[>>> print("Hello World")
Hello World
[>>> quit()
Sahids-MacBook-Pro:~ sahidbangura$
```


5. Install PyCharm: Make sure you download the free community edition located here:

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

NOTE: Install to the default location from the installer to avoid issues with finding the location of Python in PyCharm.

6. Install other Python modules using pip through the command line or terminal by typing:

```
pip3 install wheel  
pip3 install ipython
```

We can take a look at all the modules pip has installed by calling:

```
pip3 list
```

When all the commands have been executed, you should see something like:

Windows:

```
Command Prompt

Running setup.py bdist_wheel for simplegeneric ... done
Stored in directory: C:\Users\bangu\AppData\Local\pip\Cache\wheels\7b\31\08\c85e74c84188cbec6a6827beec4d640f2bd78ae003dc1ec09d
Successfully built simplegeneric
Installing collected packages: wcwidth, six, prompt-toolkit, parso, jedi, decorator, simplegeneric, pygments, ipython-genutils, traitlets, colorama, pickleshare, ipython
Successfully installed colorama-0.3.9 decorator-4.1.2 ipython-6.2.1 ipython-genutils-0.2.0 jedi-0.11.0 parso-0.1.0 pickleshare-0.7.4 prompt-toolkit-1.0.15 pygments-2.2.0 simplegeneric-0.8.1 six-1.11.0 traitlets-4.3.2 wcwidth-0.1.7

C:\Users\bangu>pip list
DEPRECATION: The default format will switch to columns in the future. You can use --format=(legacy|columns) (or define a
format=(legacy|columns) in your pip.conf under the [list] section) to disable this warning.
colorama (0.3.9)
decorator (4.1.2)
ipython (6.2.1)
ipython-genutils (0.2.0)
jedi (0.11.0)
parso (0.1.0)
pickleshare (0.7.4)
pip (9.0.1)
prompt-toolkit (1.0.15)
Pygments (2.2.0)
setuptools (28.8.0)
simplegeneric (0.8.1)
six (1.11.0)
traitlets (4.3.2)
wcwidth (0.1.7)
wheel (0.30.0)

C:\Users\bangu>
```

```
sahidbangura — -bash — 89x33
Running setup.py bdist_wheel for simplegeneric ... done
Stored in directory: /Users/sahidbangura/Library/Caches/pip/wheels/7b/31/08/c85e74c84188c
bec6a6827beec4d640f2bd78ae003dc1ec09d
Successfully built simplegeneric
Installing collected packages: decorator, six, ipython-genutils, traitlets, ptyprocess, p
expect, parso, jedi, pygments, wcwidth, prompt-toolkit, simplegeneric, appnope, picklesha
re, ipython
Successfully installed appnope-0.1.0 decorator-4.1.2 ipython-6.2.1 ipython-genutils-0.2.0
jedi-0.11.0 parso-0.1.0 pexpect-4.3.0 pickleshare-0.7.4 prompt-toolkit-1.0.15 ptyprocess
-0.5.2 pygments-2.2.0 simplegeneric-0.8.1 six-1.11.0 traitlets-4.3.2 wcwidth-0.1.7
Sahids-MacBook-Pro:~ sahidbangura$ pip3 list
DEPRECATION: The default format will switch to columns in the future. You can use --forma
t=(legacy|columns) (or define a format=(legacy|columns) in your pip.conf under the [list]
section) to disable this warning.
appnope (0.1.0)
decorator (4.1.2)
ipython (6.2.1)
ipython-genutils (0.2.0)
jedi (0.11.0)
parso (0.1.0)
pexpect (4.3.0)
pickleshare (0.7.4)
pip (9.0.1)
prompt-toolkit (1.0.15)
ptyprocess (0.5.2)
Pygments (2.2.0)
setuptools (28.8.0)
simplegeneric (0.8.1)
six (1.11.0)
traitlets (4.3.2)
wcwidth (0.1.7)
wheel (0.30.0)
Sahids-MacBook-Pro:~ sahidbangura$
```

7. TensorFlow and the NumPy Stack:

For Windows:

BEFORE we install TensorFlow we need to install the NumPy stack. Specifically on Windows > `pip install numpy` MIGHT NOT work with certain modules that depend on Numpy for Windows, therefore we should install `numpy+mkl`. We can find the wheel file for the `numpy+mkl` installation here at the un-offical python package index:

<https://www.lfd.uci.edu/~gohlke/pythonlibs/>

Numpy+MKL Version 1.13, CPython 3.6, Windows 64 bit. After the download we can open the command prompt and change directory into the Downloads folder.

```
cd Downloads
pip3 install numpy-1.13.3+mkl-cp36-cp36m-win_amd64.whl
```

For Mac:

Simply install the NumPy stack in terminal by typing:

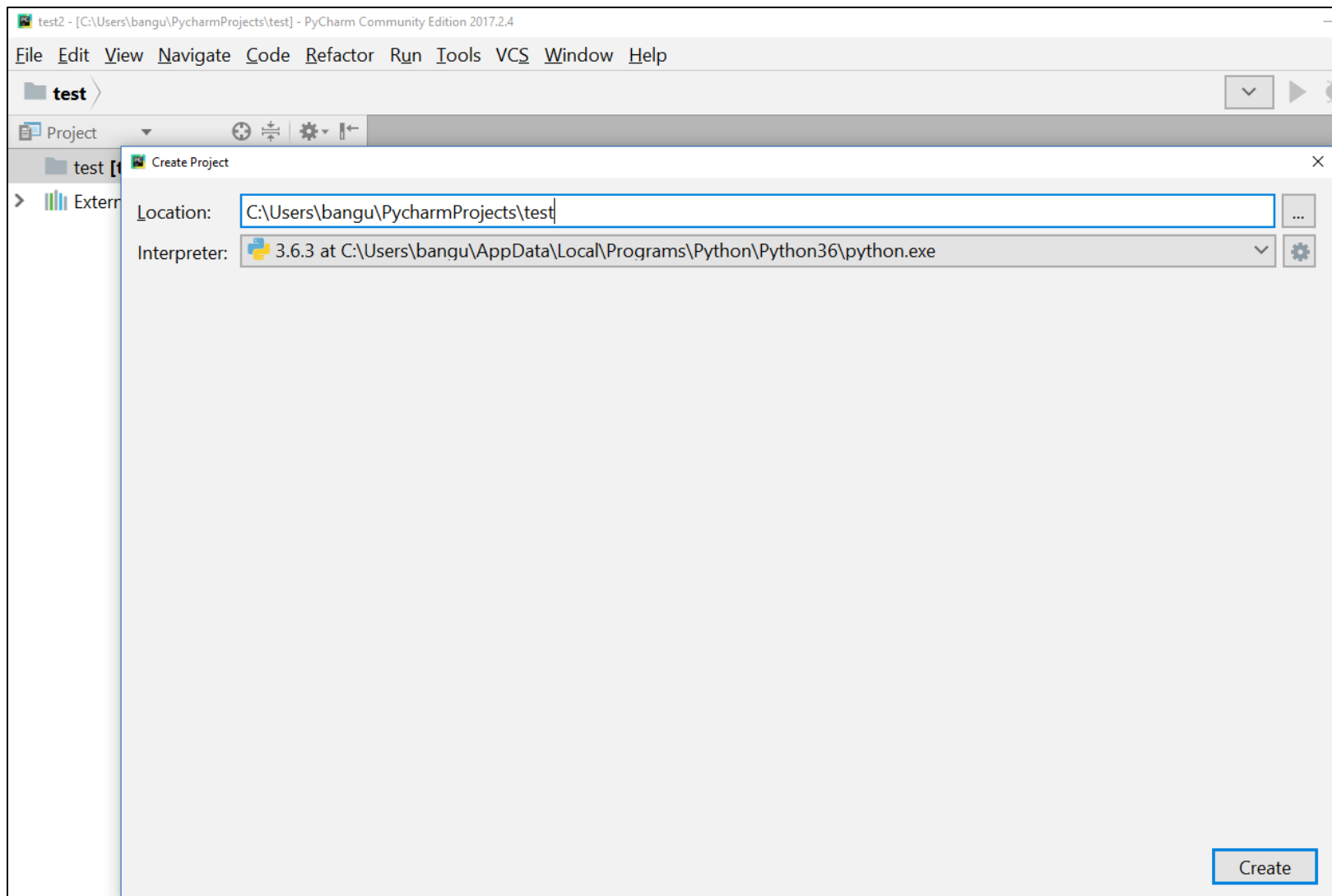
```
pip3 install numpy
```

8. Install Machine Learning Libraries and the NumPy Stack (NOTE: This might take a while). Type in the command line or terminal:

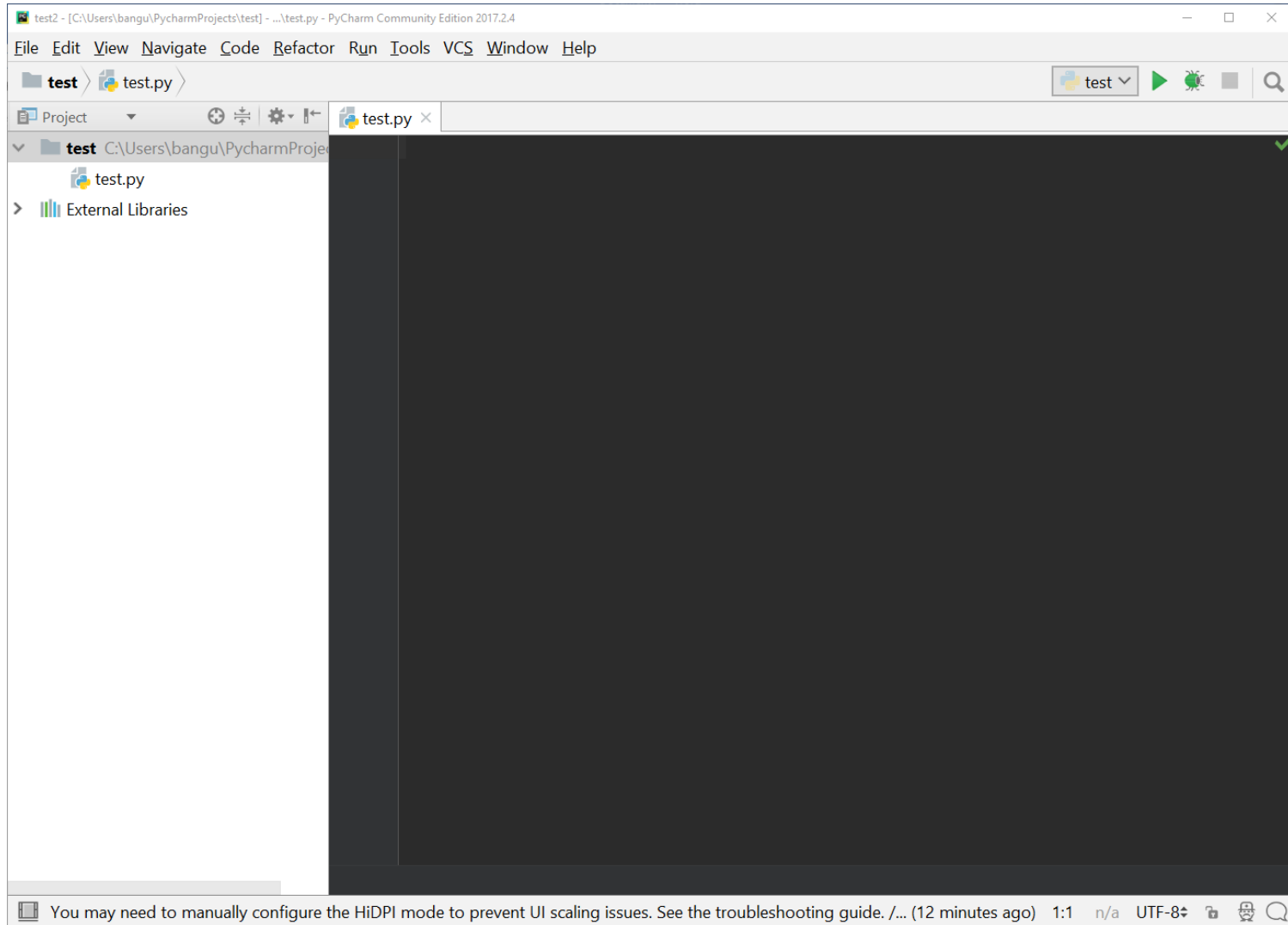
```
pip3 install tensorflow pandas matplotlib scipy keras
```

9. Now we can run our first “Hello World” in TensorFlow!

Open PyCharm and create a new Project (use the default Interpreter location):



Once the project is created, right click on the project name of the left panel and select “New” > “Python File”. A new Python File will be created.



Enter this code in:

```
import tensorflow as tf

hello = tf.constant('Hello, TensorFlow!')
sess = tf.Session()
print(sess.run(hello))
```

If everything is successful, you should see in you console (you can ignore the warning):

```
b'Hello, TensorFlow!'
```

```
Process finished with exit code 0
```

As well as the screenshot below:

