



OneShell

Mitchell

- Installing Python: Anaconda & PyCharm

Anaconda & PyCharm

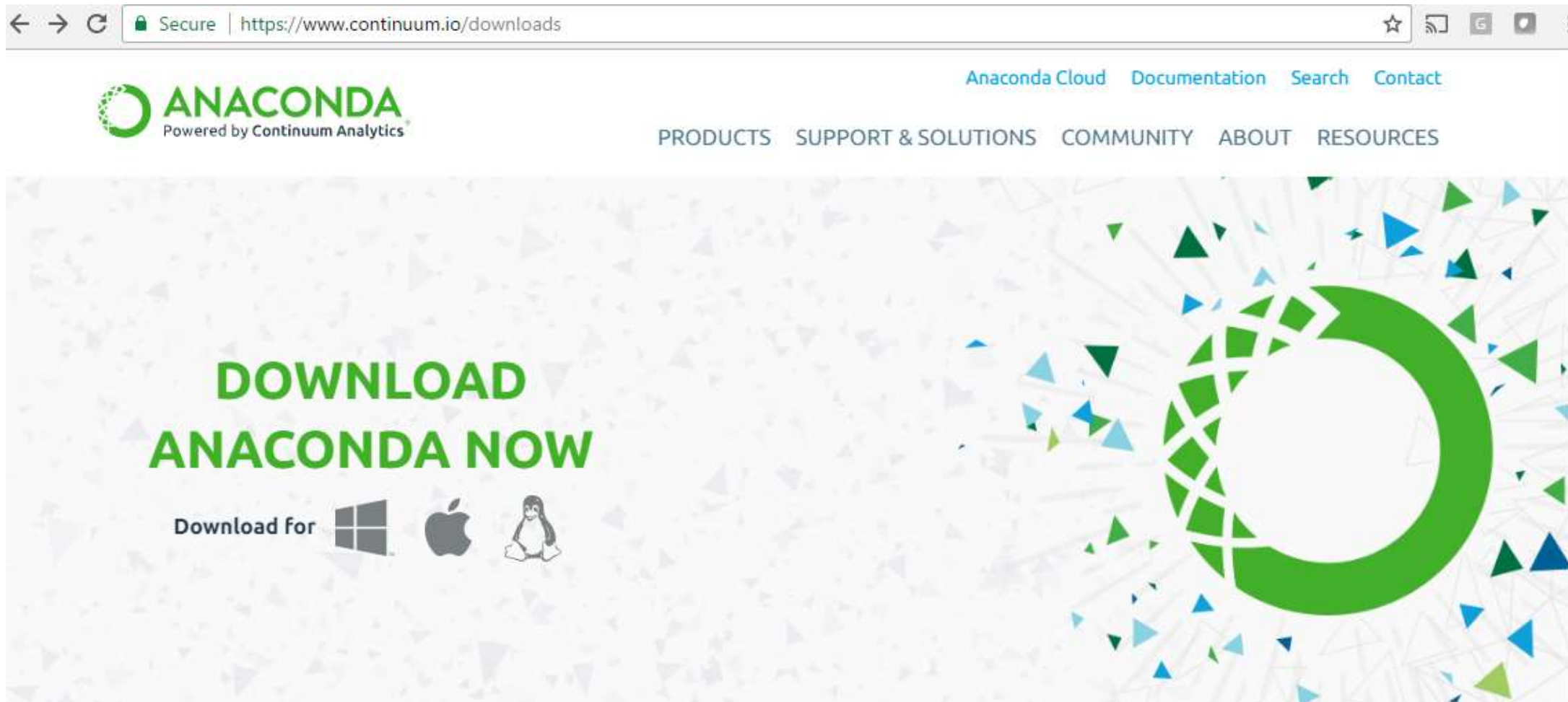
- **Anaconda**: open source distribution of Python aimed at simplifying package management and deployment
- **PyCharm**: an Integrated Development Environment (IDE) used specifically for the Python language

Anaconda & PyCharm

- Begin by downloading & installing both programs

Anaconda

- Download from: <https://www.continuum.io/downloads>



Anaconda

- Download from: <https://www.continuum.io/downloads>

The screenshot shows the Anaconda download page for Windows. At the top, there are three tabs: "Download for Windows" (selected), "Download for macOS", and "Download for Linux". Below the tabs, the page is titled "Anaconda 4.3.1 For Windows". It includes a brief description of the BSD license and a "Changelog" link. A list of three steps guides the user through downloading the installer, verifying data integrity, and installing the software. On the right side, there are two sections for Python versions: "Python 3.6 version" and "Python 2.7 version". Each section offers a "64-BIT INSTALLER" and a "32-BIT INSTALLER" with their respective sizes. A red arrow points to the "64-BIT INSTALLER (414M)" for Python 2.7.

Download for Windows Download for macOS Download for Linux

Anaconda 4.3.1

For Windows

Anaconda is BSD licensed which gives you permission to use Anaconda commercially and for redistribution.

[Changelog](#)

1. Download the installer
2. Optional: Verify data integrity with [MD5](#) or [SHA-256](#) [More info](#)
3. Double-click the **.exe** file to install Anaconda and follow the instructions on the screen

Behind a firewall? Use these [zipped Windows installers](#)

Python 3.6 version

64-BIT INSTALLER (422M)

32-BIT INSTALLER (348M)

Python 2.7 version

64-BIT INSTALLER (414M)

32-BIT INSTALLER (339M)

PyCharm

- Download from: <https://www.jetbrains.com/pycharm/>



PyCharm

- Download from: <https://www.jetbrains.com/pycharm/>

PyCharm

Coming in 2017.2What's NewFeaturesDocs & DemosBuy**Download**



Version: 2017.1.3
Build: 171.4424.42
Released: May 22, 2017

[System requirements](#)

Download PyCharm

WindowsmacOSLinux

Professional

Full-featured IDE for Python & Web development

DOWNLOAD

Free trial

Community

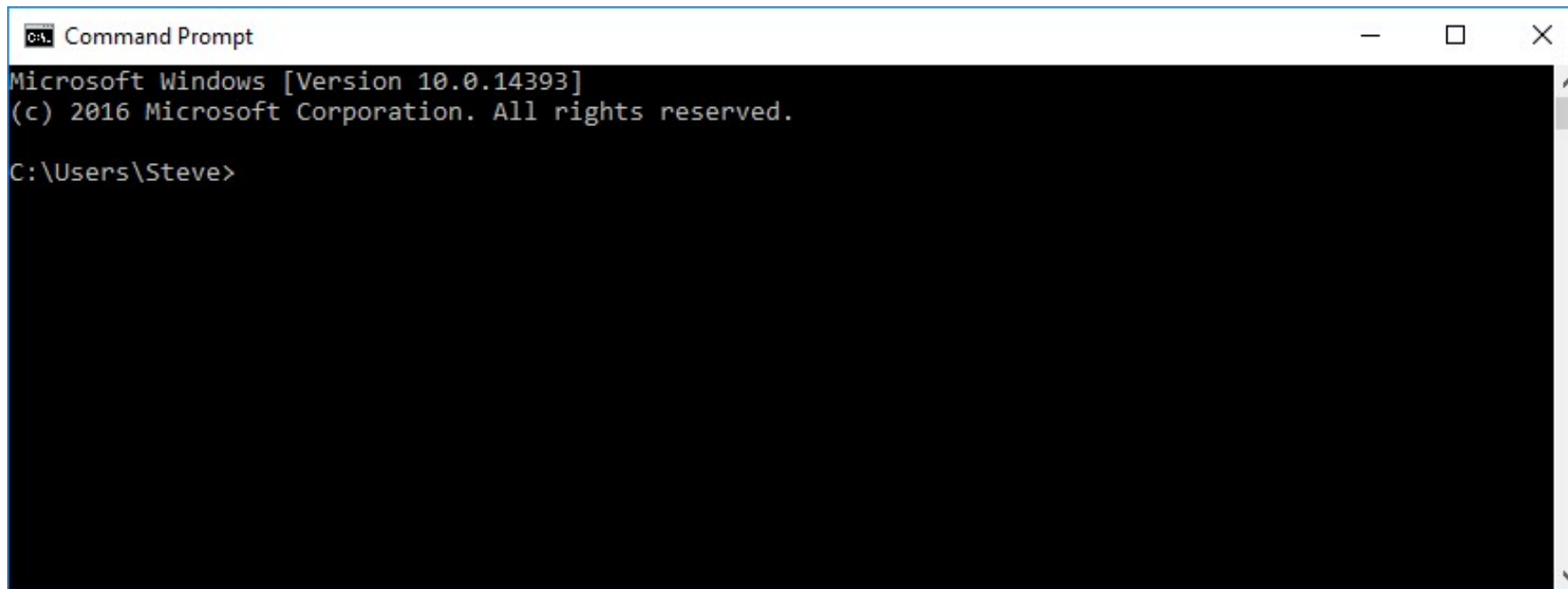
Lightweight IDE for Python & Scientific development

DOWNLOAD

Free, open-source

Installation

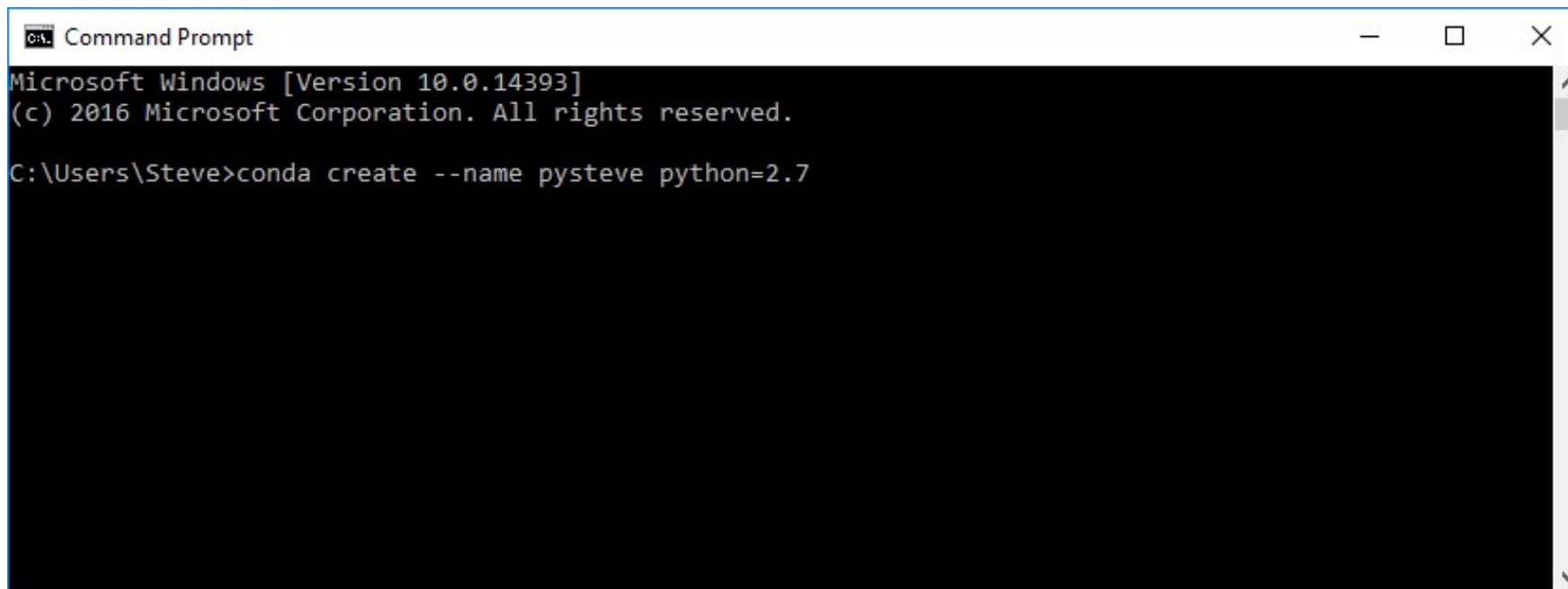
- Open a command line prompt
- In Windows: right-click on Start button > Command Prompt

A screenshot of a Windows Command Prompt window. The title bar at the top reads "C:\> Command Prompt" and includes standard window controls (minimize, maximize, close). The main area is black with white text. It displays "Microsoft Windows [Version 10.0.14393]" and "(c) 2016 Microsoft Corporation. All rights reserved." followed by the prompt "C:\Users\Steve>".

```
C:\> Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.
C:\Users\Steve>
```

Installation

- Type: `conda create --name <name here> python=2.7`
- `<name here>` is the name of the environment you are creating
- This example: `conda create --name pysteve python=2.7`

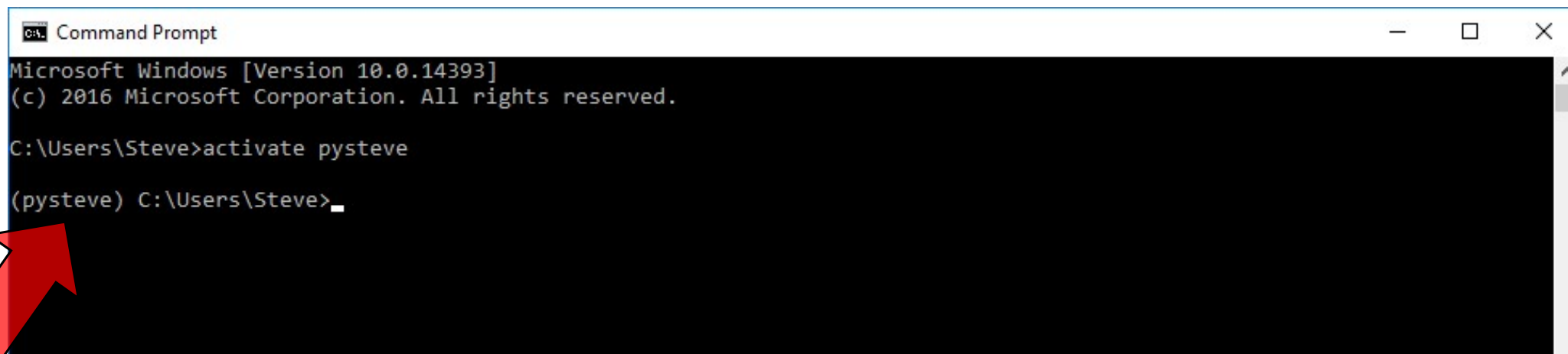


```
Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Steve>conda create --name pysteve python=2.7
```

Installation

- Activate the environment
- Type: `activate <name here>`
- This example: `activate pysteve`



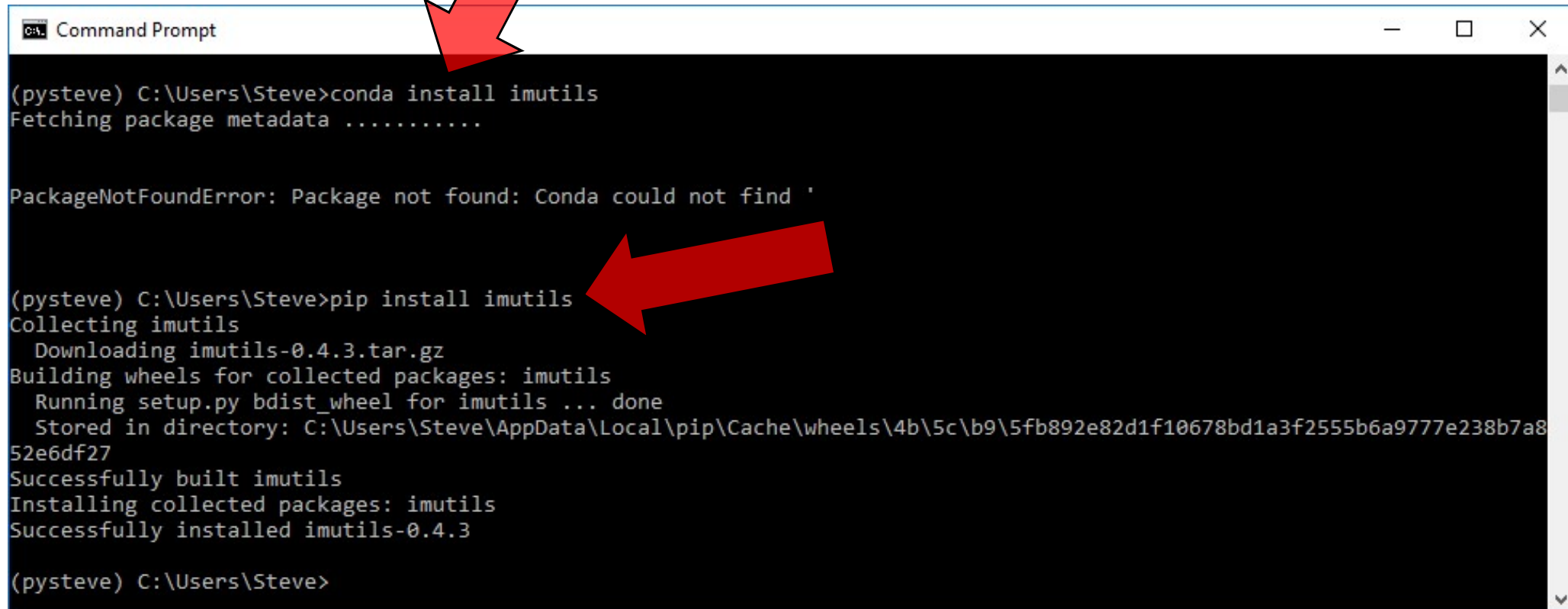
```
Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Steve>activate pysteve

(pysteve) C:\Users\Steve>_
```

Installation

- Install desired packages
- Type: `conda install <name here>` or `pip install <name here>`
- For example: `conda install imutils` or `pip install imutils`



```
(pysteve) C:\Users\Steve>conda install imutils
Fetching package metadata .....

PackageNotFoundError: Package not found: Conda could not find '

(pysteve) C:\Users\Steve>pip install imutils
Collecting imutils
  Downloading imutils-0.4.3.tar.gz
Building wheels for collected packages: imutils
  Running setup.py bdist_wheel for imutils ... done
  Stored in directory: C:\Users\Steve\AppData\Local\pip\Cache\wheels\4b\5c\b9\5fb892e82d1f10678bd1a3f2555b6a9777e238b7a852e6df27
Successfully built imutils
Installing collected packages: imutils
Successfully installed imutils-0.4.3

(pysteve) C:\Users\Steve>
```

Installation

- Confirm packages have been installed
- Type: `conda list`
- Lists all packages installed in the `<name here>` environment

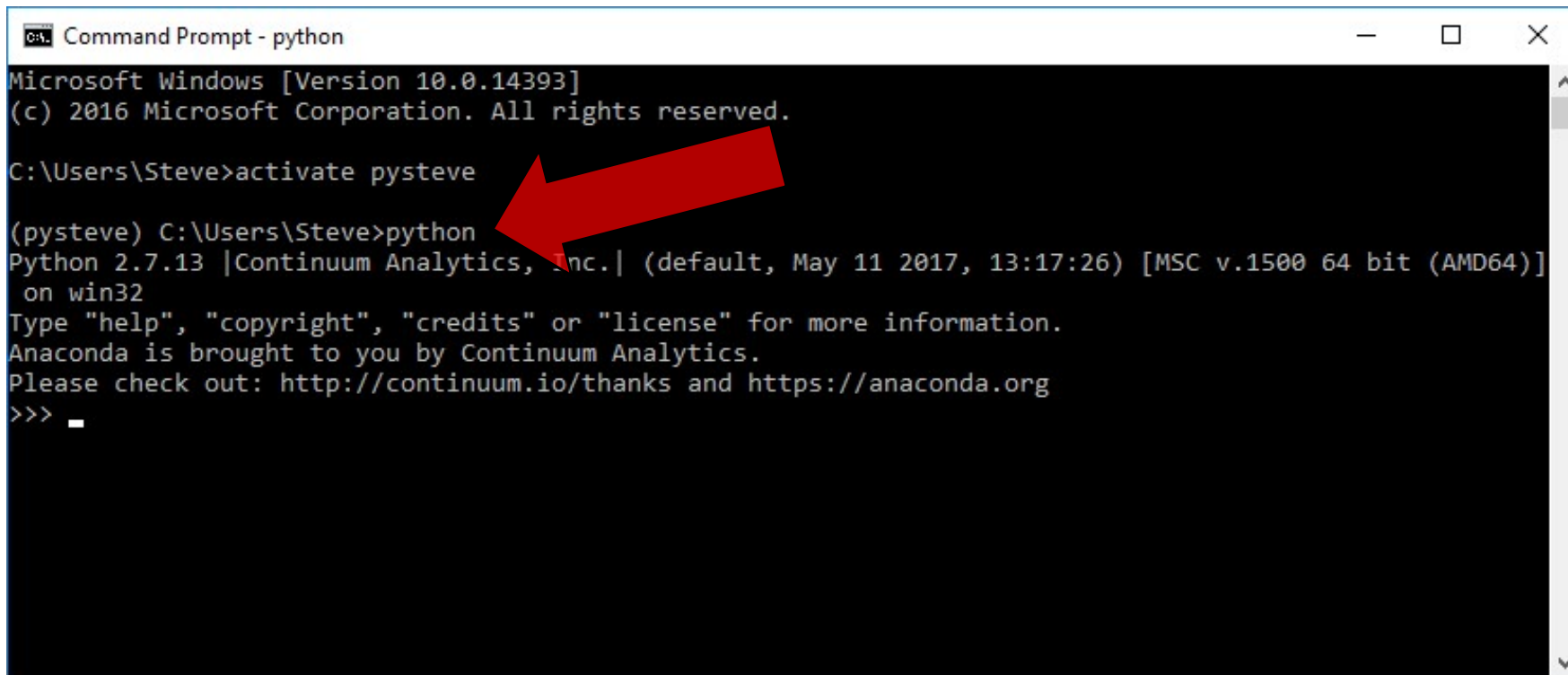
```
Command Prompt

(pysteve) C:\Users\Steve>conda list
# packages in environment at C:\Users\Steve\Anaconda2\envs\pysteve:
#
control                0.7.0                <pip>
cyclor                 0.10.0              py27_0
functools32            3.2.3.2             py27_0
icu                    57.1                vc9_0    [vc9]
jpeg                   9b                  vc9_0    [vc9]
libpng                 1.6.27              vc9_0    [vc9]
matplotlib             2.0.2               np112py27_0
mkl                    2017.0.1            0
mpmath                  0.19                py27_1
numpy                  1.12.1              py27_0
opencv3                3.1.0               py27_0    menpo
openssl                1.0.2k              vc9_0    [vc9]
pip                    9.0.1               py27_1
pyparsing              2.1.4               py27_0
pyqt                   5.6.0               py27_2
python                 2.7.13              1
python-dateutil        2.6.0               py27_0
pytz                   2017.2              py27_0
qt                     5.6.2               vc9_4    [vc9]
scipy                  0.19.0              np112py27_0
setuptools             27.2.0              py27_1
sip                    4.18                py27_0
six                    1.10.0              py27_0
subprocess32           3.2.7               py27_0
sympy                  1.0                  py27_0
tk                     8.5.18              vc9_0    [vc9]
vs2008_runtime         9.00.30729.5054     0
wheel                  0.29.0              py27_0
zlib                   1.2.8               vc9_3    [vc9]

(pysteve) C:\Users\Steve>
```

Installation

- Confirm packages function properly
- Open Python by typing: `python`



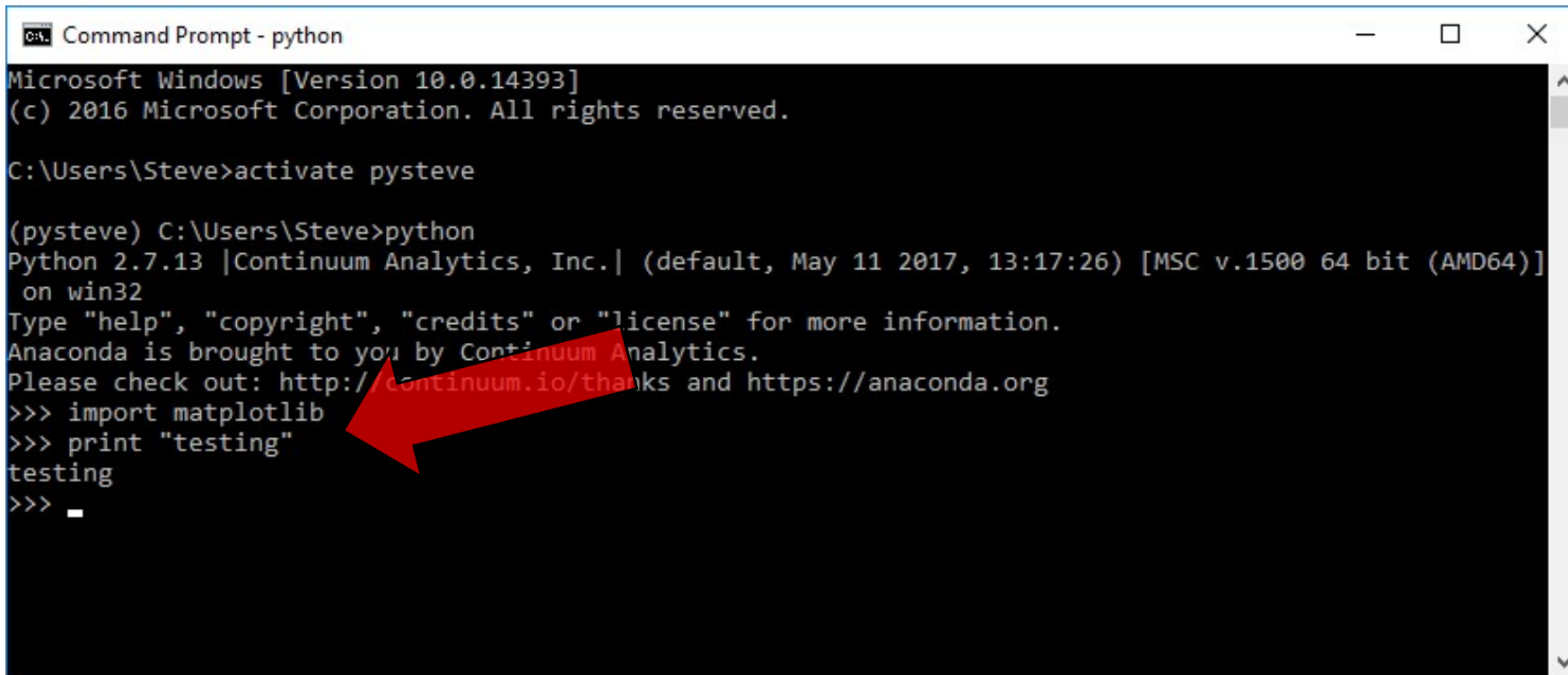
```
Command Prompt - python
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Steve>activate pysteve

(pysteve) C:\Users\Steve>python
Python 2.7.13 |Continuum Analytics, Inc.| (default, May 11 2017, 13:17:26) [MSC v.1500 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license" for more information.
Anaconda is brought to you by Continuum Analytics.
Please check out: http://continuum.io/thanks and https://anaconda.org
>>> _
```

Installation

- Confirm packages function properly
- Import matplotlib by typing: `python` <Enter> then `print "testing"`



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

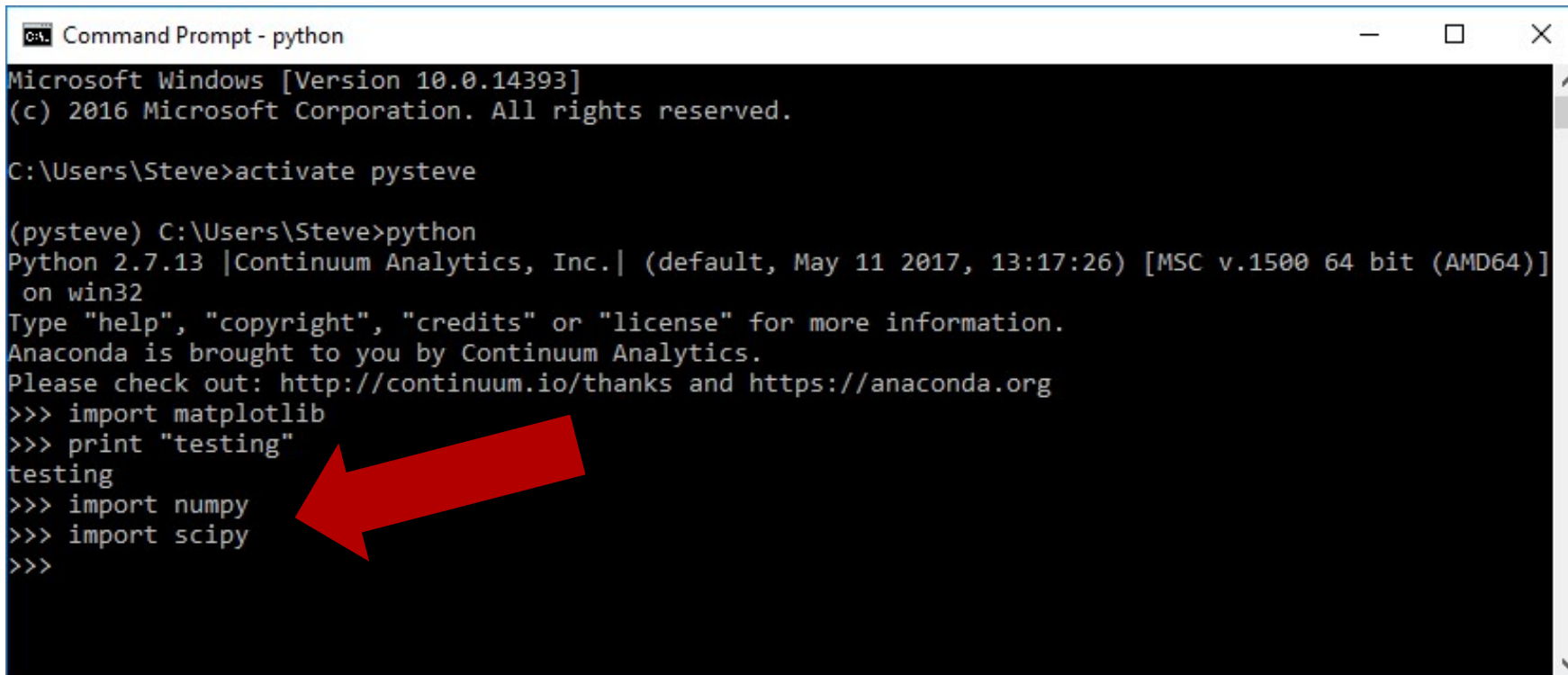
C:\Users\Steve>activate pysteve

(pysteve) C:\Users\Steve>python
Python 2.7.13 |Continuum Analytics, Inc.| (default, May 11 2017, 13:17:26) [MSC v.1500 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license" for more information.
Anaconda is brought to you by Continuum Analytics.
Please check out: http://continuum.io/thanks and https://anaconda.org
>>> import matplotlib
>>> print "testing"
testing
>>> _
```

A red arrow points from the text "Import matplotlib by typing: `python` <Enter> then `print "testing"`" to the `import matplotlib` line in the screenshot.

Installation

- Confirm packages function properly
- Import numpy and scipy: `import numpy` and `import scipy`



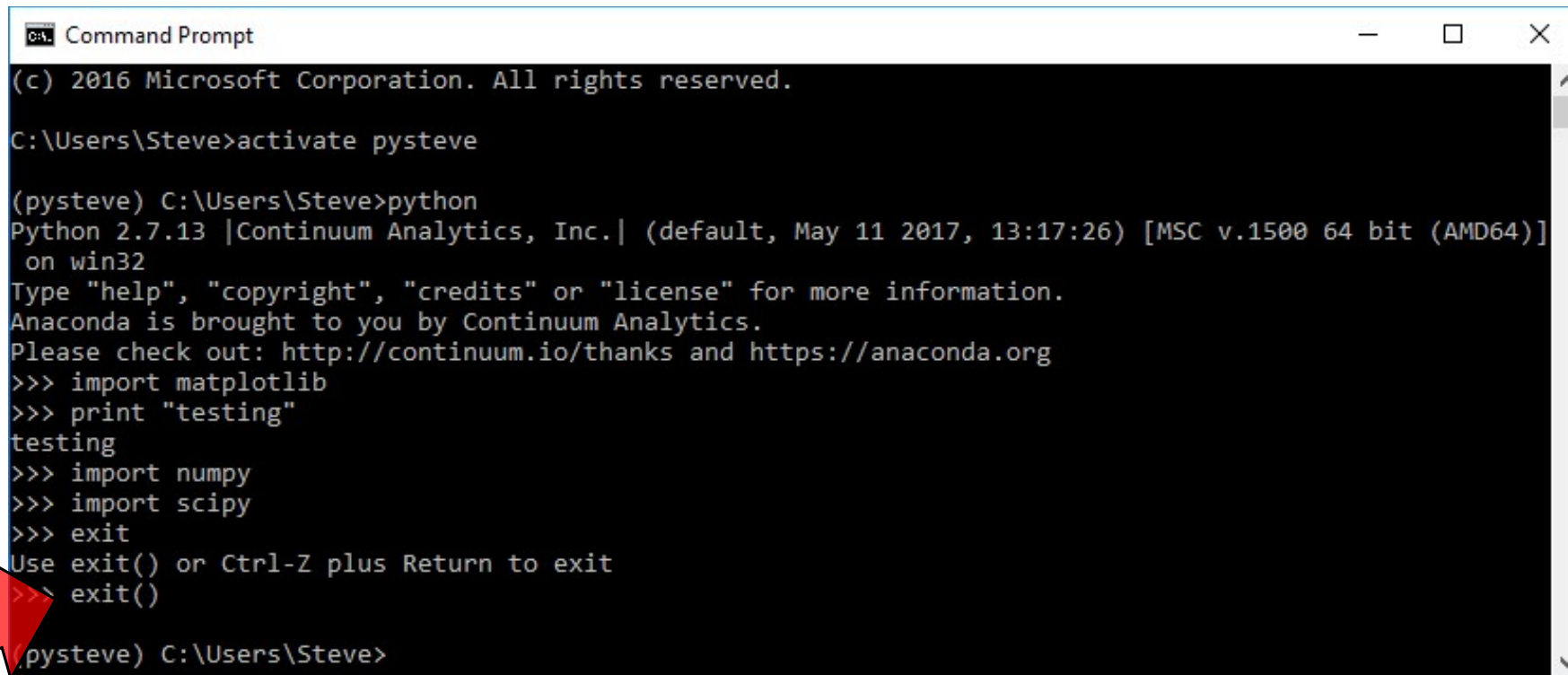
```
Command Prompt - python
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Steve>activate pysteve

(pysteve) C:\Users\Steve>python
Python 2.7.13 |Continuum Analytics, Inc.| (default, May 11 2017, 13:17:26) [MSC v.1500 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license" for more information.
Anaconda is brought to you by Continuum Analytics.
Please check out: http://continuum.io/thanks and https://anaconda.org
>>> import matplotlib
>>> print "testing"
testing
>>> import numpy
>>> import scipy
>>>
```

Installation

- Confirm packages function properly
- Exit Python by typing: `exit()`



```
Command Prompt
(c) 2016 Microsoft Corporation. All rights reserved.

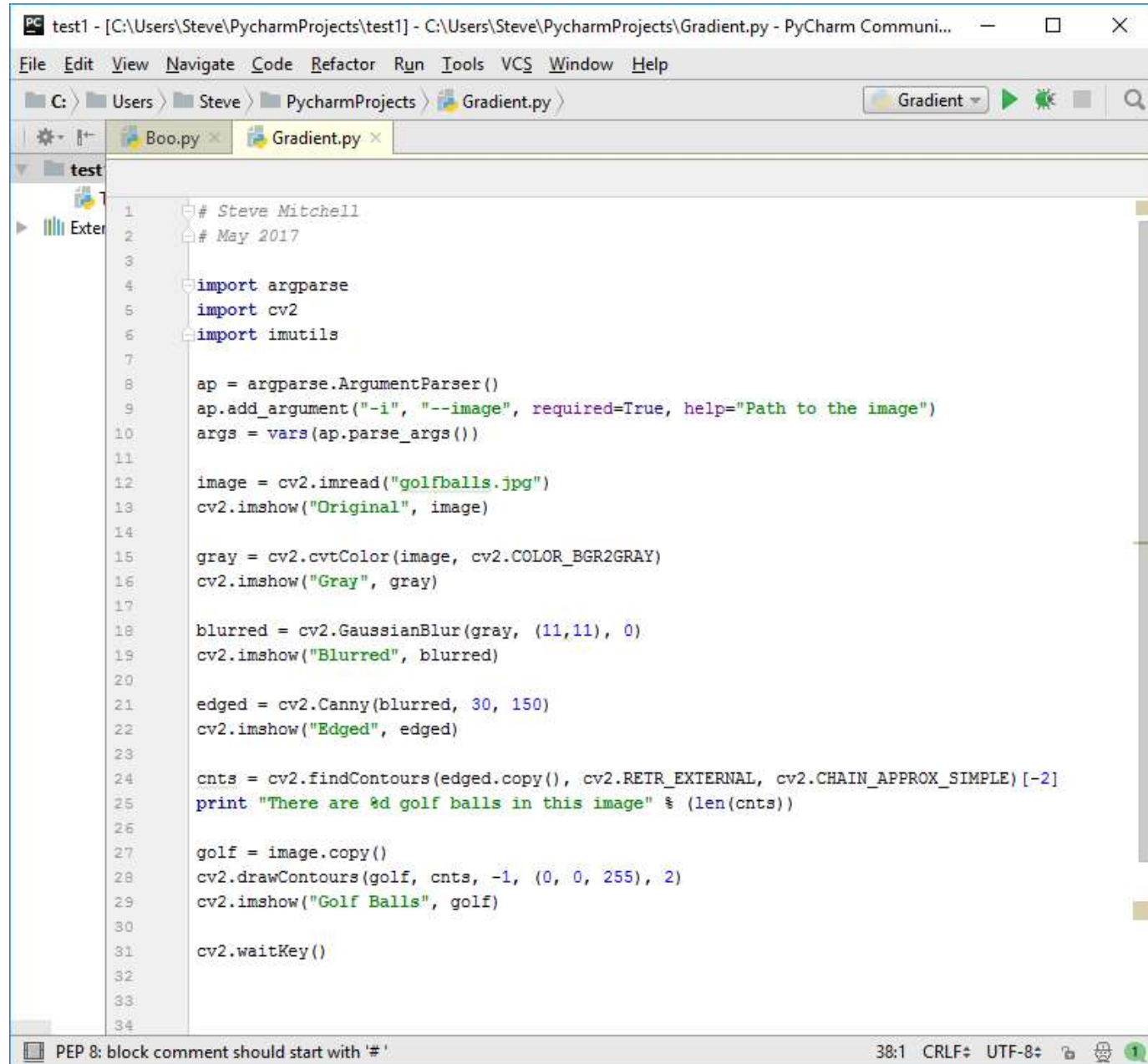
C:\Users\Steve>activate pysteve

(pysteve) C:\Users\Steve>python
Python 2.7.13 |Continuum Analytics, Inc.| (default, May 11 2017, 13:17:26) [MSC v.1500 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license" for more information.
Anaconda is brought to you by Continuum Analytics.
Please check out: http://continuum.io/thanks and https://anaconda.org
>>> import matplotlib
>>> print "testing"
testing
>>> import numpy
>>> import scipy
>>> exit
Use exit() or Ctrl-Z plus Return to exit
>>> exit()

(pysteve) C:\Users\Steve>
```

Installation

- Open PyCharm



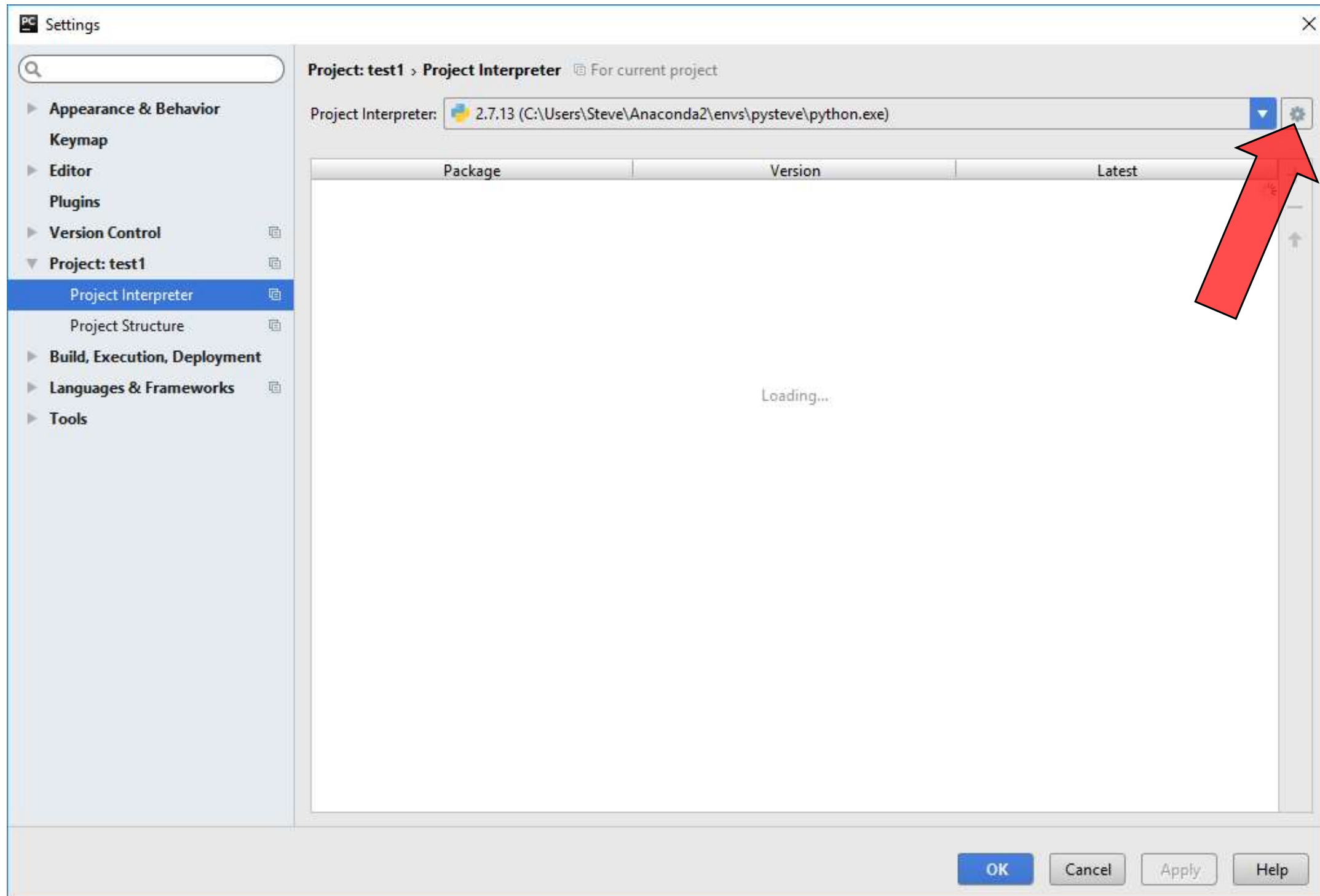
The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, and Help. The breadcrumb navigation shows the path: C:\Users\Steve\PycharmProjects\test1 - C:\Users\Steve\PycharmProjects\Gradient.py - PyCharm Communi... The file explorer on the left shows a project named 'test1' with a subdirectory 'External Libraries'. The main editor window displays the 'Gradient.py' file with the following Python code:

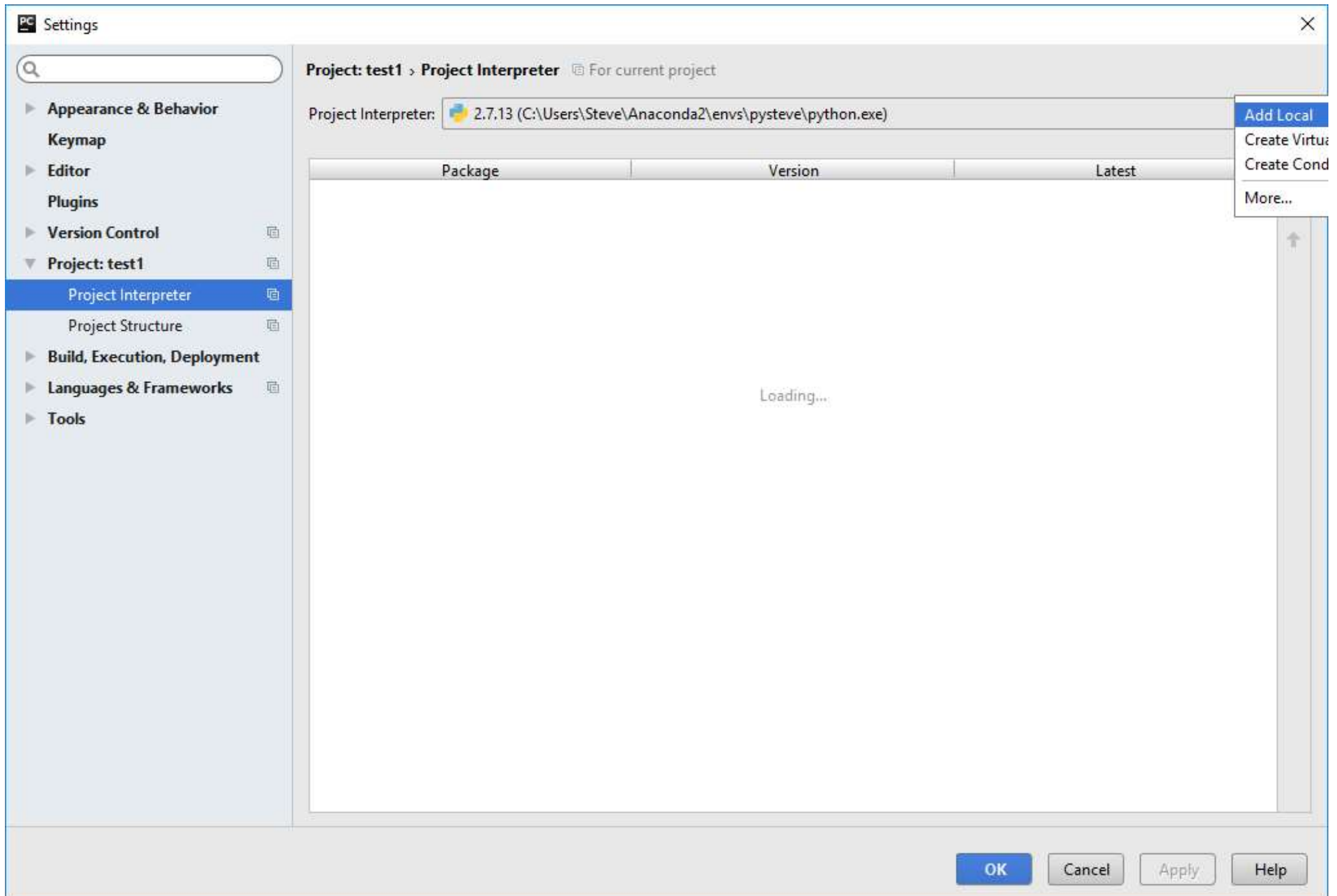
```
1  # Steve Mitchell
2  # May 2017
3
4  import argparse
5  import cv2
6  import imutils
7
8  ap = argparse.ArgumentParser()
9  ap.add_argument("-i", "--image", required=True, help="Path to the image")
10 args = vars(ap.parse_args())
11
12 image = cv2.imread("golfballs.jpg")
13 cv2.imshow("Original", image)
14
15 gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
16 cv2.imshow("Gray", gray)
17
18 blurred = cv2.GaussianBlur(gray, (11,11), 0)
19 cv2.imshow("Blurred", blurred)
20
21 edged = cv2.Canny(blurred, 30, 150)
22 cv2.imshow("Edged", edged)
23
24 cnts = cv2.findContours(edged.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE)[-2]
25 print "There are %d golf balls in this image" % (len(cnts))
26
27 golf = image.copy()
28 cv2.drawContours(golf, cnts, -1, (0, 0, 255), 2)
29 cv2.imshow("Golf Balls", golf)
30
31 cv2.waitKey()
```

The status bar at the bottom indicates a PEP 8 warning: 'PEP 8: block comment should start with '#''. The right side of the status bar shows '38:1 CRLF UTF-8' and a green icon.

Installation

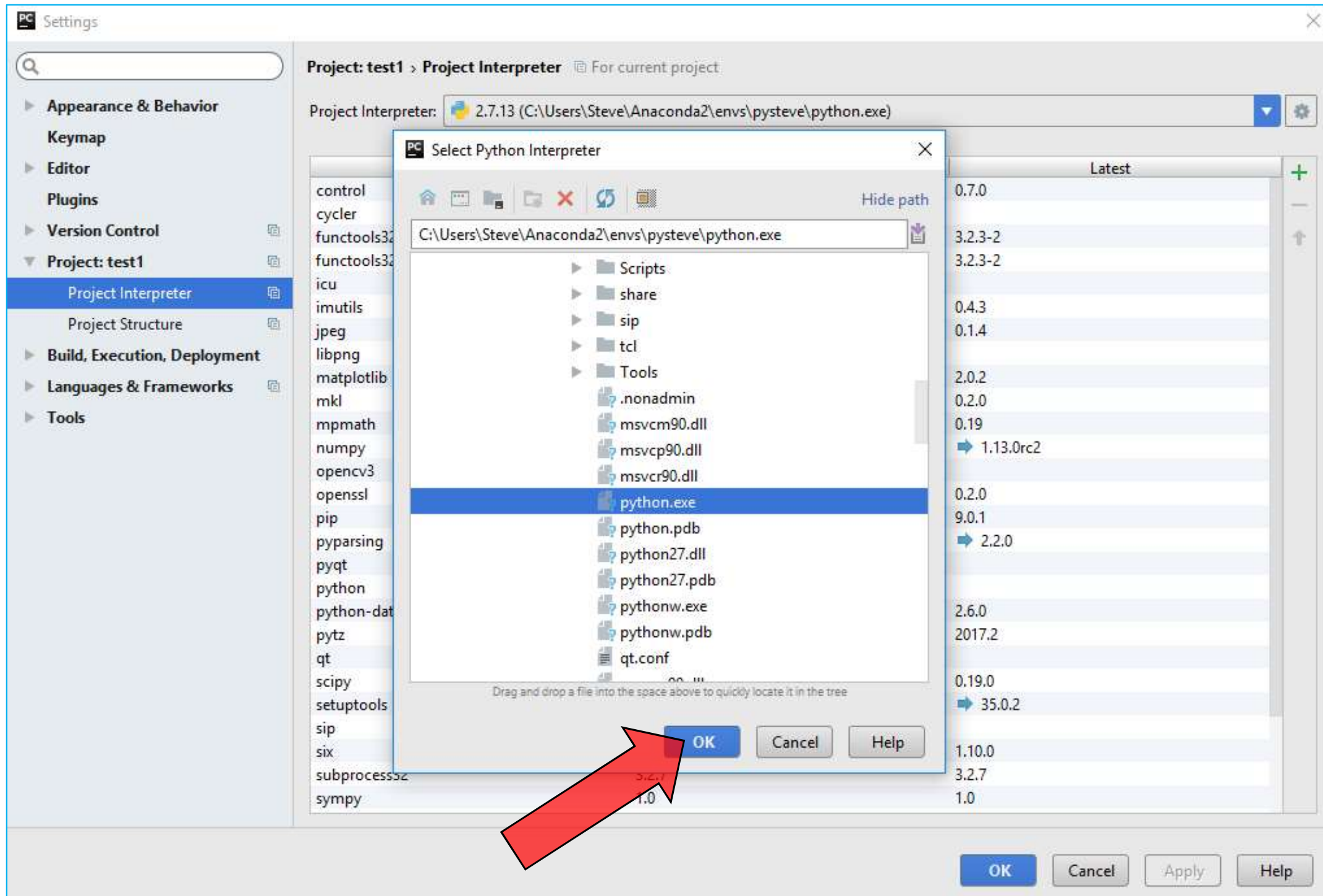
- Add local environment
- File > Settings
- Project Interpreter
- Add Local





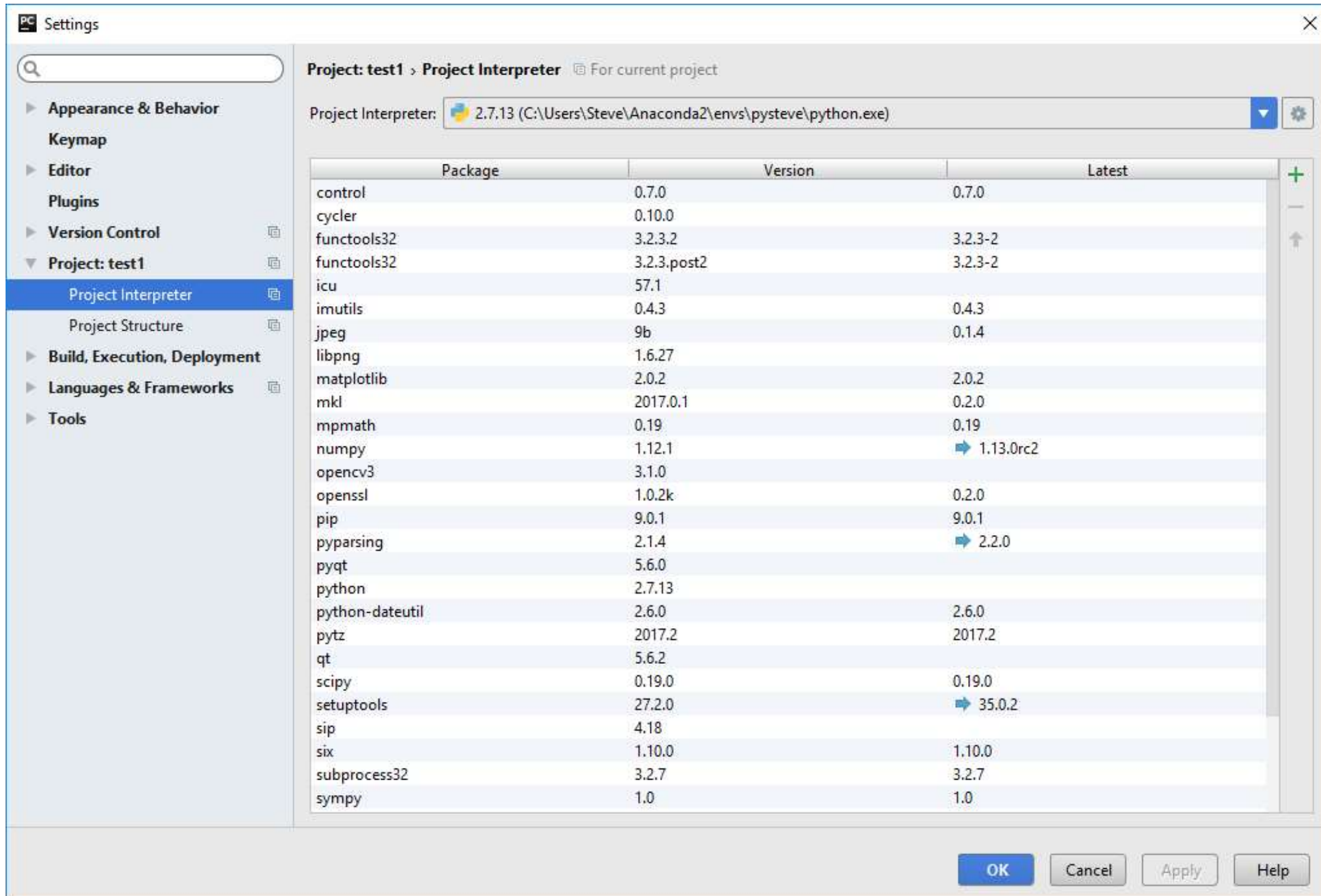
Installation

- Add local environment
- Locate python.exe in recently created environment
- Click **OK**



Installation

- Similar to typing `conda list` in the Command Prompt, installed packages are listed in PyCharm

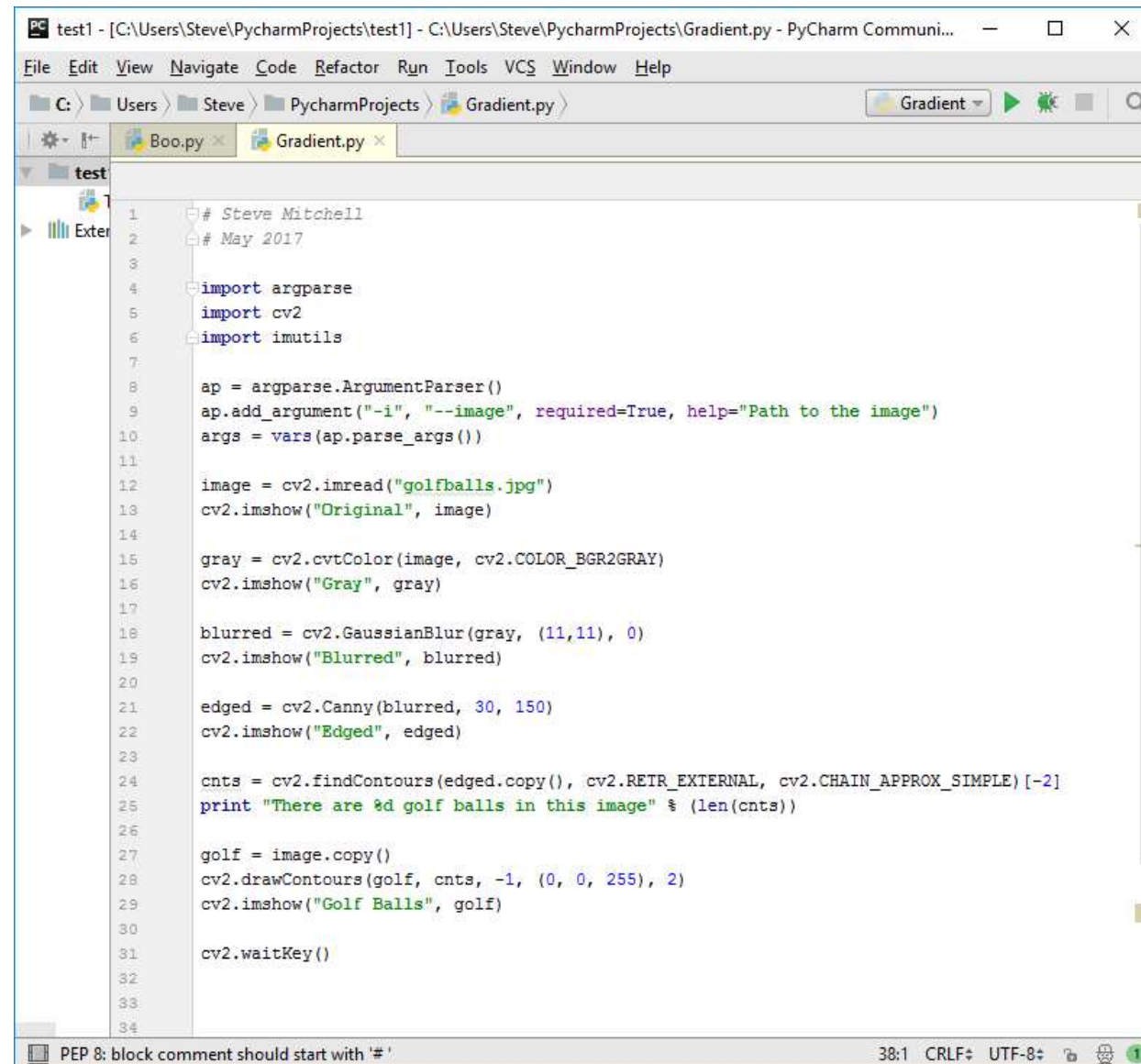


Installation

- Additional packages can be added at any time by returning to Anaconda via the Command Prompt
- Be sure to active the environment, then type `conda install <name here>` or `pip install <name here>`

Installation

- Start coding in Python!



The screenshot shows a PyCharm IDE window titled 'test1 - [C:\Users\Steve\PycharmProjects\test1] - C:\Users\Steve\PycharmProjects\Gradient.py - PyCharm Communi...'. The main editor displays a Python script for image processing using OpenCV. The script includes comments, imports for argparse, cv2, and imutils, and logic to load an image, convert it to grayscale, blur it, detect edges, find contours, and print the number of contours. It also draws the contours on the original image and shows the result.

```
1  # Steve Mitchell
2  # May 2017
3
4  import argparse
5  import cv2
6  import imutils
7
8  ap = argparse.ArgumentParser()
9  ap.add_argument("-i", "--image", required=True, help="Path to the image")
10 args = vars(ap.parse_args())
11
12 image = cv2.imread("golfballs.jpg")
13 cv2.imshow("Original", image)
14
15 gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
16 cv2.imshow("Gray", gray)
17
18 blurred = cv2.GaussianBlur(gray, (11,11), 0)
19 cv2.imshow("Blurred", blurred)
20
21 edged = cv2.Canny(blurred, 30, 150)
22 cv2.imshow("Edged", edged)
23
24 cnts = cv2.findContours(edged.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE)[-2]
25 print "There are %d golf balls in this image" % (len(cnts))
26
27 golf = image.copy()
28 cv2.drawContours(golf, cnts, -1, (0, 0, 255), 2)
29 cv2.imshow("Golf Balls", golf)
30
31 cv2.waitKey()
```

References

- *Anaconda*
 - <https://www.continuum.io/Anaconda-Overview>
- *PyCharm*
 - <https://www.jetbrains.com/pycharm/>
- *Getting started with python through Anaconda and PyCharm: Installation 1 / 2*
 - <https://www.youtube.com/watch?v=y-B2sybfX80>
- *Getting started with python through Anaconda and PyCharm: Installation 2 / 2*
 - https://www.youtube.com/watch?v=nuFpkBc_5Ks
- A complete tutorial to learn data science with Python from scratch
 - <https://www.analyticsvidhya.com/blog/2016/01/complete-tutorial-learn-data-science-python-scratch-2/>
- Ultimate guide for data exploration in Python using NumPy, Matplotlib, and Pandas
 - <https://www.analyticsvidhya.com/blog/2015/04/comprehensive-guide-data-exploration-sas-using-python-numpy-scipy-matplotlib-pandas/>