Content

Basic introduction to python

• Setup

• Code Walkthrough
Mac and Windows

Mac
Most Macs come with Python 2.7 already installed, open the Terminal, type command:

```
python -V
```
```
Python 2.7.3
```

Windows 7
Open the Windows menu, search **Command Prompt** and type command:

```
python
```
```
Python 2.7.4 (r264:75708, Oct 10 2009, 07:36:50) [MSC v.1500 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license" for further information.
Linux users

Ubuntu 14.04 comes with python 2 and python 3

We opt to Python 2.7 for this tutorial since much existing code needs quite some modification to run in Python 3.
Python version and directory

Check your Python version and directory

zhibin@alebotics:~$ python -V
Python 2.7.6
zhibin@alebotics:~$ which python
/usr/bin/python
zhibin@alebotics:~$ python3 -V
Python 3.4.3
Text editor

Linux default: gedit

Or install sublime

1. `wget -qO - https://download.sublimetext.com/sublimehq-pub.gpg | sudo apt-key add -`
2. `echo "deb https://download.sublimetext.com/ apt/stable/" | sudo tee /etc/apt/sources.list.d/sublime-text.list`
3. `sudo apt-get update`
4. `sudo apt-get install sublime-text`

IDLE  
sudo apt-get install idle
Getting started with IDLE

Both single/double quotation marks work.

```
Python 2.7.6 (default, Oct 26 2016, 20:30:19)
[GCC 4.8.4] on linux2
Type "copyright", "credits" or "license()" for more information.
>>> print 'RSS Python Tutorial'
RSS Python Tutorial
>>> print "RSS Python Tutorial"
RSS Python Tutorial
>>> |
```

```
zhibin@alebotics:-$ python3
Python 3.4.3 (default, Nov 17 2016, 01:08:31)
[GCC 4.8.4] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print('This is Python 3')
This is Python 3
>>> print("This is Python 3")
This is Python 3
```
Python’s built-in functions (direct use without import math)

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Code walk-through

➢ Reading and writing files
➢ Common math operation with built-in functions
➢ Math operation by `math`
➢ Matrix operation by `numpy`
➢ Create and call functions
➢ If else statement
➢ Creating loops
Programming!

Write a function for solving the roots of a quadratic polynomial:

\[ ax^2 + bx + c = 0 \]

Use \( a, b, c \) as arguments

Hint:
\[
\begin{align*}
x_1 &= \frac{-b + \sqrt{b^2 - 4ac}}{2a} \\
x_2 &= \frac{-b - \sqrt{b^2 - 4ac}}{2a}
\end{align*}
\]

Then, solve two roots of the following equation: \( x^2 - 8x - 16 \)
Resources for learning Python

Python online resources:

wiki.python.org/moin/BeginnersGuide

en.wikibooks.org/wiki/A_Beginner's_Python_Tutorial/

scipy.org

Or textbooks (library)