

A Quick Introduction to Python

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What is Python?

- Object-oriented
- Dynamically typed
- General purpose (scientific, web development, mobile app dev, etc.)

Section 0. Setting Up the Environment

1. Creating a Directory

Create a directory for the workshop. We'll be saving our work in this directory. An example could be `py-workshop` on the Desktop.

2. Checking if Python is Installed

1. Open up the Terminal (Unix) or Command Prompt (Windows).
2. Type `python --version`. Make sure the version returned is at least 2.5.
3. Navigate to the folder you just created via the command line. Use the `cd` command to do so.

3. The IPython Interpreter

After making sure you're in the directory you just created, type `ipython notebook` in your Terminal. This will start up the IPython notebook interface through your default web browser.

IPython is a special version of Python that adds a good amount of useful features to the Python interpreter. In addition, it comes with a Notebook version that allows you to interactively run your code in your browser. Since Python is a dynamic language, you do not need to compile your code - simply type the code in a block and hit Enter to view the results live.

IPython also allows you to include images, text, and video along with your code. More details can be found in the IPython [documentation](#).

Section 1. Variables, Types, and User Input

```
# Setup some variables of different types
a = 5
b = 12.0
c = 'apple'
d = True
e = [1, 5.0, False, 'orange']
f = {1: 'kiwi', 'banana': 3}

# Simple operations and access
print (a + 10) ** 2
print 'Value = %f' % (b * a)
print c + ' ' + c
print d
print e[1], e[-1]
print f['banana']

# Take user input
name = raw_input('Enter your name: ')
print 'Hello, %s!' % name
```

Section 2. Flow Control and Looping

```
# Simple if-elif-else block
if a < 5:
    print 'Less.'
elif a == 5:
    print 'Equal.'
else:
    print 'Greater.'

# Iterate over a range of numbers (1-10)
m = 10

for i in range(1, m+1):
    print i

# Iterate over a list
e.append('mango')
e.append(33.5)

for item in e:
    print e

# Simple while loop
i = 0

while i < 5:
    print 'Iteration: %d' % i
    i += 1
```