python workshop!

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First: Our Goals

We're here to show you:

- Some of the basic elements of Python
- Resources to get un-stuck and/or un-confused
- Why the kool-aid tastes so good

Workshop outline

- Part 1: Installation ✓
- Part 2: Intro to Python
- Part 3: Data types
- Part 4: Reading and writing data
- Part 5: Functions and iterations

We have one rule

If you have a “wtf” moment, ask for help!

Helpful resources

www.stackoverflow.com

https://docs.python.org/2.7/

Part 2: Intro to Python

- Some history
- What is Python?
- What's an interpreter? A shell? A script?
- Basic commands

“Don’t care much about history…”

- Created in 1990 by the BDFL
- Ophidiophobics rejoice: it’s not named after the snake
- Pretty unpopular until 2.0 was released in 2000
- 3.0 was released in 2008
  - Backwards incompatibility issues

We’re using v2.7 for this workshop

Programming elements

- A **program** or **script** is a sequence of commands
- These sequences are evaluated and executed by the Python interpreter in a **shell**
- A **command** or **statement** is an instruction for the interpreter

Fire up the interactive Python shell

```
$ python
```

-OR-

```
$ ipython **
```

$, >>>, ???

- `$`
  - Command is for your terminal
- `>>>`
  - Command is for the Python shell
- `In [<line_number>]:`
  - Command in IPython shell

Things you can do in the Python shell

Math

```
>>> 3 + 2
5
>>> 6.0 + 2
8.0
```

Tests

```
>>> 6 + 5 == 11
True
>>> 1 + 1 == 3
False
```

Variable assignment

```
>>> a = ‘tune’
>>> print a
tune
```

I quit!

```
>>> exit()
```

ipython:

```
    >>> quit
        -OR-
    >>> exit
        -OR-
    >>> exit()
```

Do I really need to retype every sequence of commands all the time??

- Thankfully, no.
- This is where scripts come in handy.

Script example

- Let's say you want to print the string 'Hello, world!'

Script example

- Here’s what to do:
  1. Open your favorite editor
  2. Type the following two lines:

```
phrase = ‘Hello, world!’
print phrase
```

  3. Save it as ‘hello.py’ (no quotes)
  4. To run it, type:

```
$ python hello.py
```

Rule of thumb

If you're copying and pasting code in a script, there's a better way to write it.

Part 3: Data types

- Built-in data types
- What’s a dictionary? A list? A tuple?
- Indexing and slicing