

Intro to Python

WILLIAM & MARY – NOVEMBER 2016

Outline for today

- What is Python?
- Hello world!
- Scraping Twitter with Python
- Parsing JSON in Python

What is Python?

“Python is an interpreted, object-oriented, high-level programming language with dynamic semantics.”

- Object-oriented
- Emphasizes readability

Used all over the place

- Data analysis – Web scraping, machine learning
- Websites – Django and Flask

Cloud9 – Cloud Python environment

The screenshot displays the Cloud9 IDE web interface. On the left is a blue sidebar with a user profile for 'Meg' and a list of navigation items: 'Workspaces' (highlighted), 'Shared With Me', and 'Repositories'. Below these are sections for 'YOUR TEAM SUBSCRIPTIONS' (showing 'wmpython' with a plus icon) and 'YOUR INDIVIDUAL SUBSCRIPTIONS' (showing 'Free' with an 'Upgrade' button). The main area is titled 'Workspaces' and features a large grey button with a white plus icon and the text 'Create a new workspace'. A search bar with the placeholder 'Filter...' is located in the top right of the main area. The footer contains the copyright notice '© 2016 Cloud9 IDE Inc.' and a row of links: 'Blog', 'Community', 'Documentation', 'Pricing', 'Support', 'Security', and 'Status'.

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Meg

Workspaces

Shared With Me

Repositories

YOUR TEAM SUBSCRIPTIONS

[wmpython](#) +

YOUR INDIVIDUAL SUBSCRIPTIONS

Free Upgrade

Workspaces

Create a new workspace

Filter... 🔍

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Workspace

CommandsNavigate


python_workshop

ex50

README.md


Untitled1


1

1:1TextSpaces: 4

bash - "schwenzl" ×

Immediate ×



 ×

schwenzfeier:~/workspace \$

The world's shortest command line tutorial

pwd – tells you where you currently are (“Print working directory”)

- Same as `getwd()` in R

cd – changes the directory

- Ex: `cd ../` - changes the directory one folder up
- Ex: `cd /home/users/meg/python_workshop` – changes to python workshop folder

ls – lists files in the directory

- `ls` – lists files in current working directory
- `ls python_workshop` – lists files in the `python_workshop` directory that is in my current directory

touch – creates a file

- Ex: `touch helloworld.py` – creates a file in the current working directory called `helloworld.py`

bash - "schwenz x

Immediate

x



```
schwenzfeier:~/workspace $ pwd
```

```
/home/ubuntu/workspace
```

```
schwenzfeier:~/workspace $ ls
```

```
README.md  ex50/
```

```
schwenzfeier:~/workspace $ touch helloworld.py
```

```
schwenzfeier:~/workspace $ ls
```

```
README.md  ex50/  helloworld.py
```

```
schwenzfeier:~/workspace $
```

Create a file called “helloworld.py”

Hello world!

Printing

Try to print

- Your name
- William and Mary's president is Taylor Reveley
- President Reveley says "succulent" frequently

Data types

What type are each of these?

- 5
- "5"
- 5.0
- "5.0"
- [5, "5", 5.0]
- Hint – you can use **type()** to help

What do the following give you?

- 5.0 * 5
- "5.0" * 5
- [5, "5", 5.0] * 5

Nonsense Program – Sandwich Maker

- Write a program that tells you whether you have the ingredients to make a PB&J
 - Take inputs:
 - # of slices of bread
 - # of servings of peanut butter
 - # of servings of jelly you have
 - Evaluate the input ingredients and print a message – can you make a sandwich or not?
- **Bonus:** What would you need to do to the program to make it say how many sandwiches you could make with the input ingredients?

Scraping Twitter with Python

Go to:
apps.twitter.com

 Application Management



Twitter Apps

Create New App

[Details](#)[Settings](#)[Keys and Access Tokens](#)[Permissions](#)

Application Settings

Keep the "Consumer Secret" a secret. This key should never be human-readable in your application.

Consumer Key (API Key) YF49ll...CTQ

Consumer Secret (API Secret) 575...8u4dV

Access Level Read and write ([modify app permissions](#))

Owner _Schwenzfeier

Owner ID 225468091

Application Actions

[Regenerate Consumer Key and Secret](#)[Change App Permissions](#)

Your Access Token

You haven't authorized this application for your own account yet.

By creating your access token here, you will have everything you need to make API calls right away. The application's current permission level.

Token Actions

[Create my access token](#)