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?

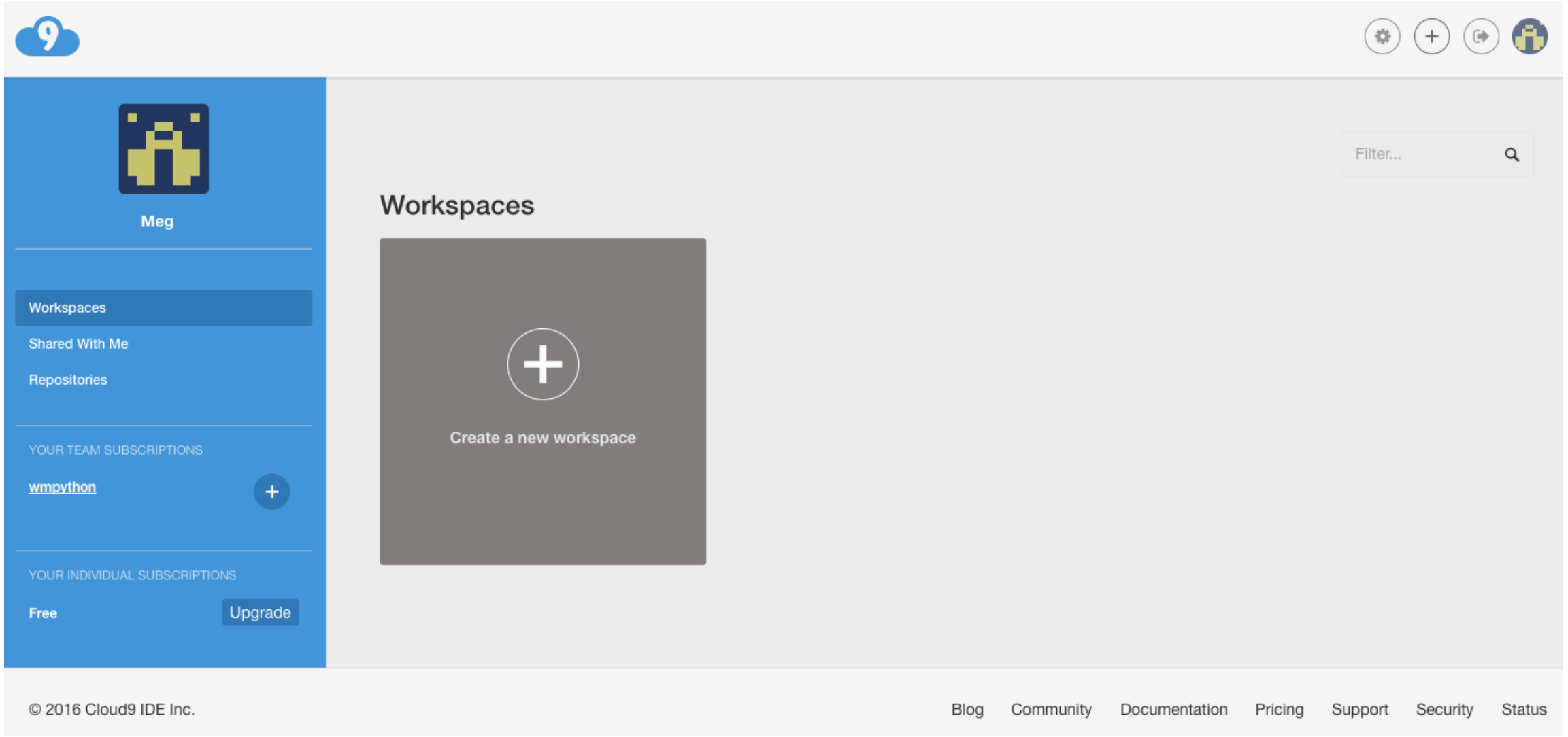
"Python is an interpreted, object-oriented, high-level programming language with dynamic semantics."

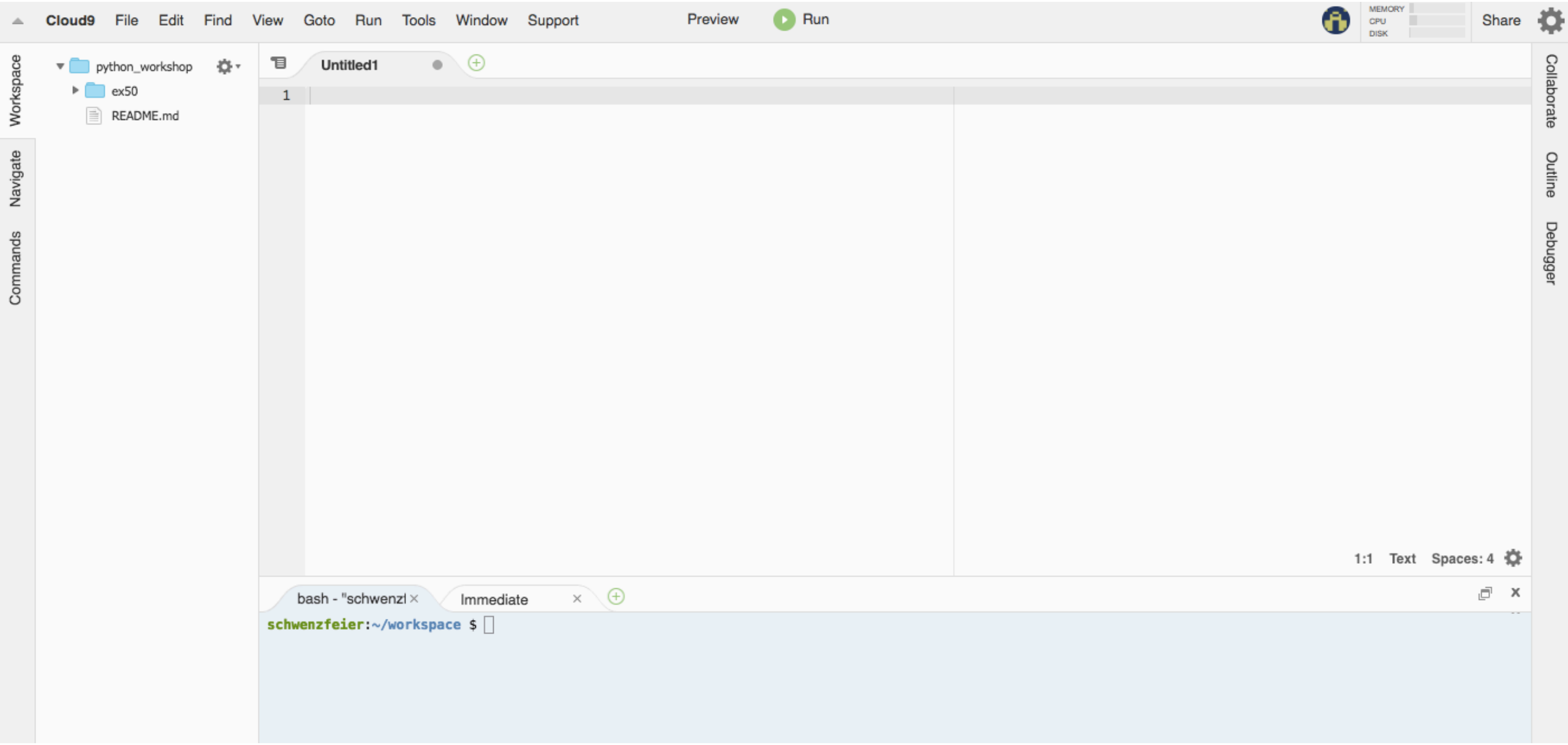
- Object-oriented
- Emphasizes readability

Used all over the place

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

Cloud9 – Cloud Python environment




Cloud9 File Edit Find View Goto Run Tools Window Support
Preview
Run
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CPU
DISK
Share
Workspace
Navigate
Commands
python_workshop
ex50
README.md
Untitled1
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Collaborate
Outline
Debugger
1:1 Text Spaces: 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

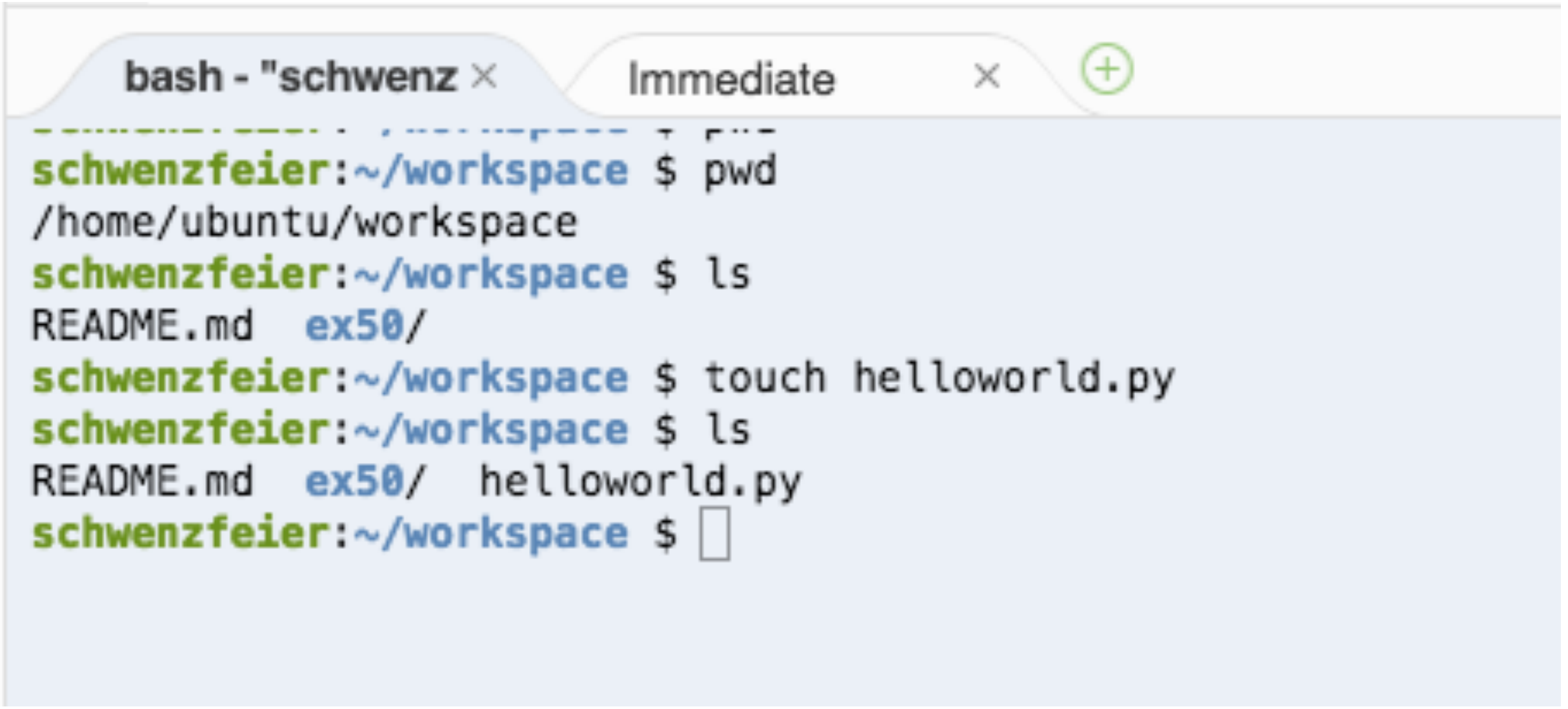
- Ex: cd ../ - changes the directory one folder up
- Ex: cd /home/users/meg/python_workshop – changes to python workshop folder

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
Immediate
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

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)	[redacted]
Consumer Secret (API Secret)	[redacted]
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 ac application's current permission level.

Token Actions

Create my access token