



DS 2001: Practicum 1

<https://course.ccs.neu.edu/ds2001/cs/index.html>

Who am I?

- Felix Muzny ("Muse-knee", IPA: /mjuzni/)
 - pronouns: they/them & he/him
 - Call me: "Felix" or "Professor Muzny" or "Professor Felix"
- I'm from Colorado (it's a rectangle with mountains!)
- My area of expertise is called "digital humanities"--I use computational techniques to investigate humanities-driven inquiries



today's plan

- (Logistics)
- icebreakers
 - We will be doing a significant amount of group work in this class. It will be very beneficial for you to meet your fellow classmates :)
- (Logistics)
- Programming activity
 - I'll do a demo, then you'll work in groups

Logistics

- Syllabus on class website: <https://course.ccs.neu.edu/ds2001/cs/index.html>
- 40% of your grade is Practicums
 - Due the Friday of the week that we do them at noon eastern
 - Lowest graded practicum dropped
 - Today's practicum is not graded
- 60% final project
 - We'll start working on this about 5 - 7 weeks from now

Ice breaker #1

- Introduce yourself
- What is one piece of media that you consumed over break that you enjoyed? (movie, tv show, book, etc)
- Find one common attribute between all of you. Do you all like the same food? Do you all enjoy the same music? Do you all live in the same place? Do you all have the same favorite schoolhouse rock video?
- You will share this back with the group, so make sure to write it down :)

Ice breaker #2

- Introduce yourselves
- What is one thing that you'd like to be able to do with programming in the future?
- In one or two words, how is your group feeling about the coming semester?

Ice breaker #3

- Introduce yourselves
- Open one of the "Mystery" files under the Materials column for practicum today on the course webpage
- Are you looking at a computer? why/why not?
 - Make sure to write down your reasoning — we'll talk about these as a group!
- When you're down — (re)read the syllabus and write down any questions that you have

What is a computer?

Our (most) general definition of a computer is that it has the following four traits:

- 1) input - can receive data
- 2) storage - can store/retrieve data
- 3) processing - can do some manipulation to that data
- 4) output - can display some information/produce some action/etc

python, computation, etc

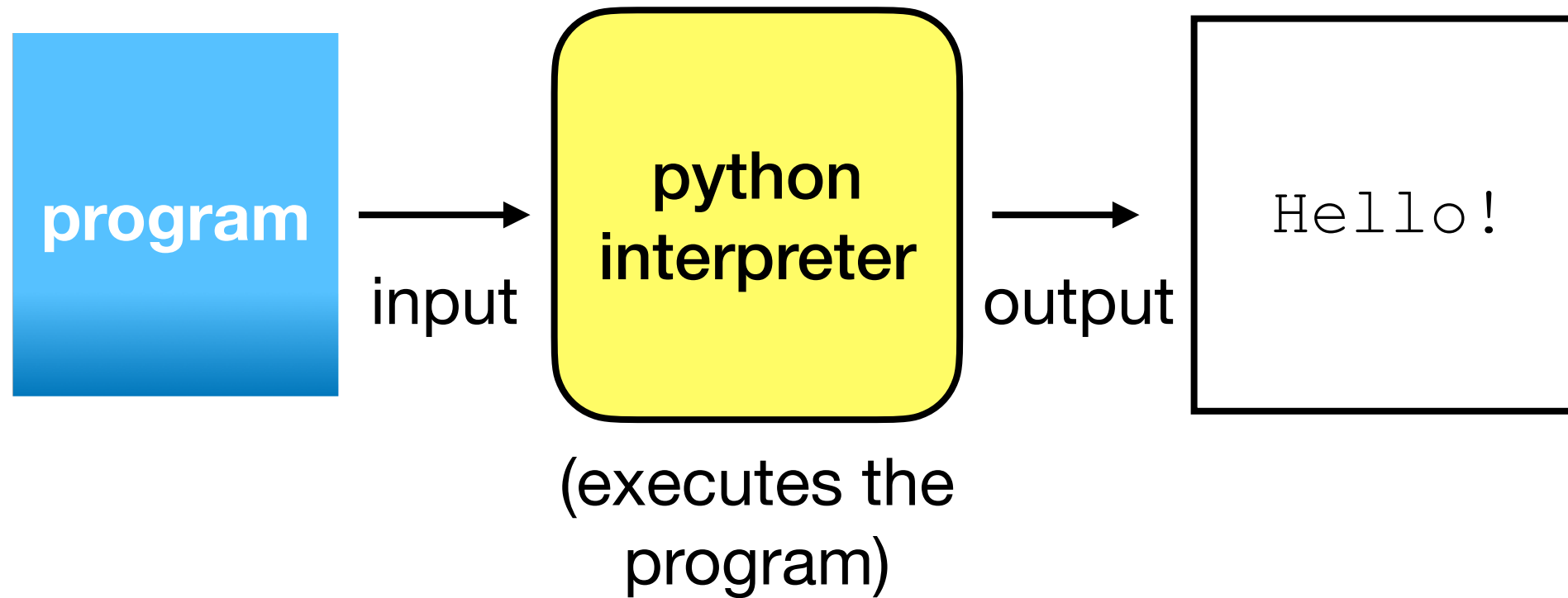
- **python** is the name of the programming language that we will be using
- **computation** is breaking down problems into subproblems and coming up with reproducible solutions
 - a series of steps or strategy to solve a problem/achieve a task that can be reproduced
- the practice of writing programs is writing down these steps in a way that your computer can translate to actions

python, computation, etc

- A few other terms that you'll often hear:
 - a **bit** is a single "1" or "0"
 - A **binary number** is any number encoded as 1s and 0s. Generally, **binary** is the underlying way we'll encode *any* data on a computer.

Demo time!

Running python programs



print function

```
print("Hello!")
```

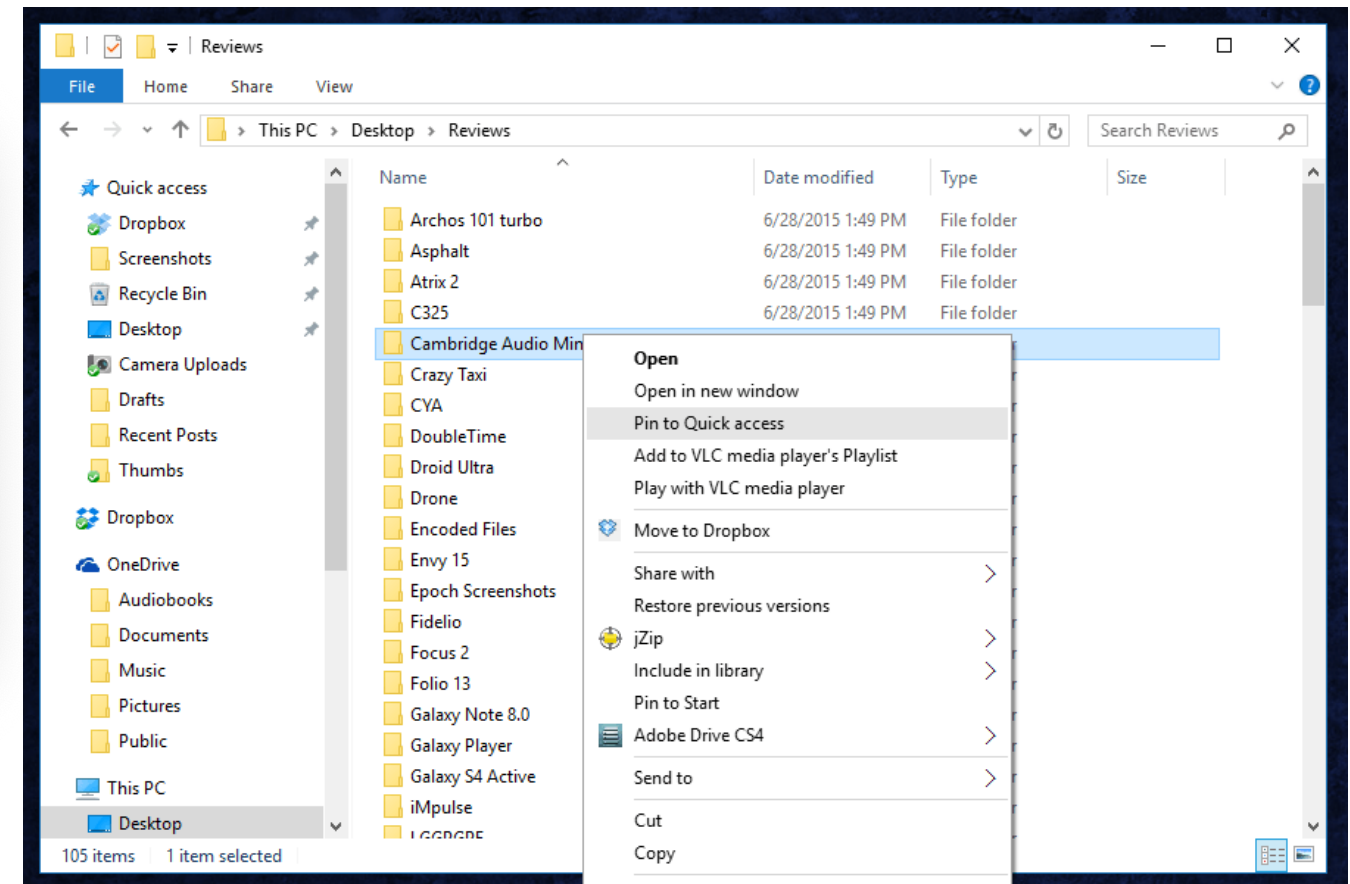
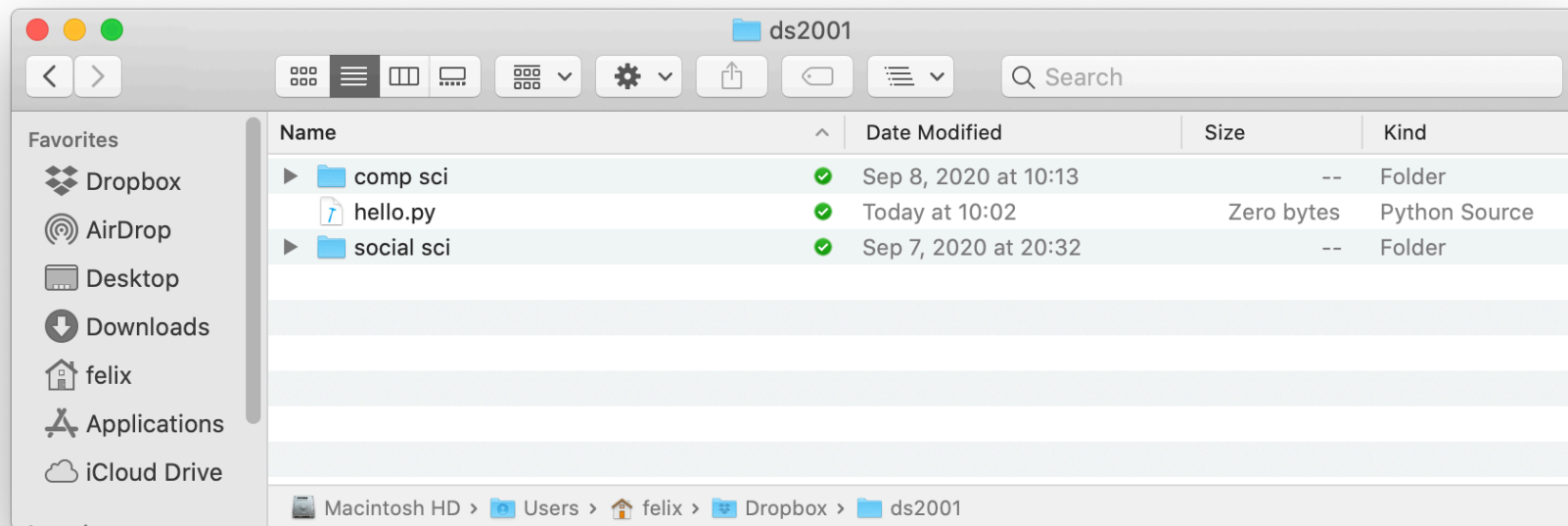
1. print - the function name ("what I want to do")
2. () - parentheses tell python "this is a function"
3. "Hello!" - the argument/parameter ("what do I want to apply #1 to")

Python statements

- There are two general kinds of statements:
 - executable statements, like `print()` that cause the kernel to take some sort of action
 - comments, that look `# like this`
 - Comments are for us as programmers. The kernel ignores them!

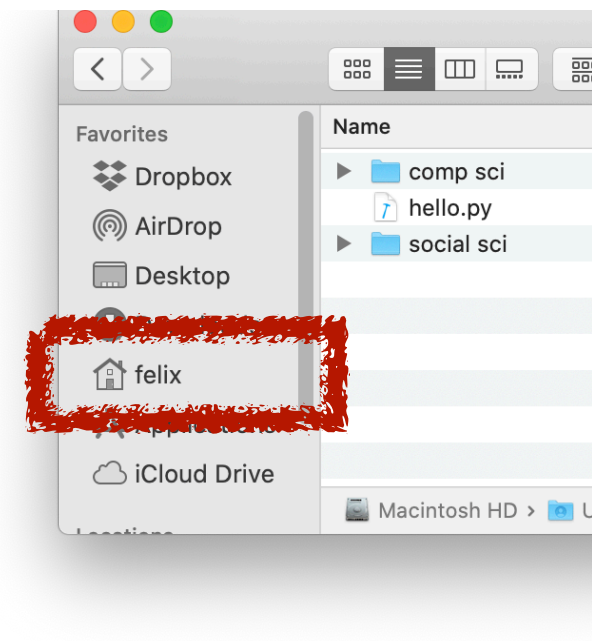
File systems

- The documents, programs, etc that are stored on your computer are in what is called a file system.
- You typically access your file system via "Finder" or "File Explorer" — but there are other ways to do this as well!



File systems

- **Recommendation:** create a folder called something like "ds 2000" or "ds 2001" in a location that is easy for you to access (for instance, on your desktop)
- Store the programs that you write in this folder. This will make it much easier for you to find and run them!
- We are happy to help you do this if you haven't before!
- **Recommendation:** create a "quick link" to your home directory (how-to linked under "Getting Started & Miscellaneous Resources" on the website)



Work on your programming practicum

- If you **do not have** Anaconda Navigator installed, let us know now!
- In groups of 2 - 4
 - Follow the Practicum instructions on the course website to write your first program!
- Reminder: practicum today is ungraded (all about practice) so **do not panic** if you don't finish. I will stop you all ~5 minutes early to demo how to turn in your program when you finish.

Gradescope output

- If you have properly named your file and there are no errors in it, you should see something like this when you submit it:
- if you named your file anything other than "p1.py", you'll see:

This screenshot shows the Gradescope interface for a submission. The 'Autograder Results' section has 'Results' selected. The 'Autograder Output' shows the text 'hi' and a successful test result: 'test_files_exist (test_files_exist.TestFilesExist) (0.0/0.0)'. On the right, the student's name is 'Felix Muzny', the 'AUTOGRADER SCORE' is '0.0 / 0.0', and the test is listed as 'PASSED TESTS test_files_exist (test_files_exist.TestFilesExist) (0.0/0.0)'. The question is identified as 'QUESTION 2 Practicum #1' with a score of '- / 5.0 pts'.

This screenshot shows the Gradescope interface for a submission. The 'Autograder Results' section has 'Results' selected. The 'Autograder Output' shows a Python error: 'python3: can't open file 'p1.py': [Errno 2] No such file or dire' and a failed test result: 'test_files_exist (test_files_exist.TestFilesExist) (0.0/0.0)'. Below the test result, it says 'Test Failed: False is not true : Required file p1.py does not ex'. On the right, the student's name is 'Felix Muzny', the 'AUTOGRADER SCORE' is '0.0 / 0.0', and the test is listed as 'PASSED TESTS test_files_exist (test_files_exist.TestFilesExist) (0.0/0.0)'. The question is identified as 'QUESTION 2 Practicum #1' with a score of '- / 5.0 pts'.

Gradescope output

- If you have properly named your file BUT it contains errors, you'll see something like:

The screenshot shows the Gradescope interface. At the top right, there is a hamburger menu icon and the Gradescope logo. Below the logo, the text "Autograder Results" is displayed. To the right of this text are two tabs: "Results" (which is active and highlighted in green) and "Code".

Under the "Autograder Results" section, there is a sub-section titled "Autograder Output". It contains the following text:

```
File "p1.py", line 1
  print('hi
SyntaxError: EOL while scanning string literal
```

Below the error message, there is a green box containing the text: `test_files_exist (test_files_exist.TestFilesExist) (0.0/0.0)`.

On the right side of the interface, there is a summary panel with the following information:

- STUDENT**: Felix Muzny
- AUTOGRADER SCORE**: 0.0 / 0.0
- PASSED TESTS**: test_files_exist (test_files_exist.TestFilesExist) (0.0/0.0)
- QUESTION 2**: Practicum #1 - / 5.0 pts