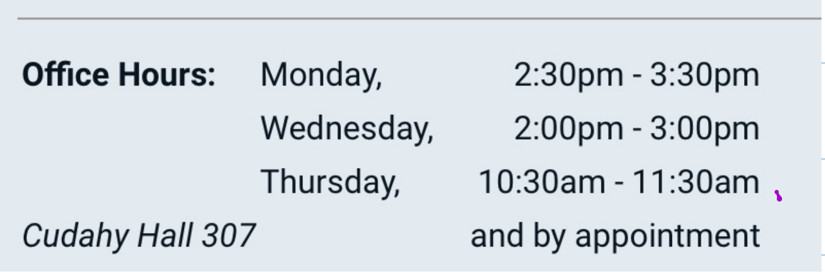
Wed, Feb 14, 2024

Announcements

→ HW 2 in progress.

→ Office Hours!



Office Hours:	Monday,	2:30pm - 3:30pm
	Wednesday,	2:00pm - 3:00pm
	Thursday,	10:30am - 11:30am
Cudahy Hall 307		and by appointment

Lecture #4 – Unix Command line

(8) cat [filename] – prints whole file to your terminal

(9) head [filename] – print first 10 lines

(10) tail [filename] – print last 10 lines

"-n" flag to change from 10 to something else

```
head␣-n␣25 five_letter_words.txt
```

(11) less [filename] - opens the file in the terminal where can scroll but not edit

"q" to quit

Two "advanced" commands

(12) nano [filename]
- text editor in the terminal

(13) touch [filename]
- creates a new blank file with that name

Topic 4.5 - The Coding Process

Hardest Approach:

read the problem → think really hard for a long time write all your code

This is too many steps in your head.

Better Process:

1) Read the problem.
2) Think about what the problem is asking.
3) Try to do some small examples by hand.
4) Think about ways to solve the problem. Ask yourself: "When I was doing this by hand, what were my steps?"
5) Write on paper, in words, the steps of your algorithm (psuedocode)

Collatz:

20 → 10 → 5 → 16 → 8 → 4 → 2 → 1
(length 8 chain)

```
set longest_chain = 0
set longest_num = 0
loop over "num" from 1 to 1 million:
    compute the length of chain starting at num
    if length > longest_chain
        longest_chain = length
        longest_num = num
answer is "longest_num"
```

this line ends up being many lines of code

6) Start coding.

As you code:

7) "Rubber Ducking" - talk to a rubber duck out loud, explaining exactly what you're doing in each step as you code (and why you're doing it)

8) Pause often to test what you've written so far. (From step 3, we have some sample data to test on.)

- Run the code, probably with some print statements
    * Do these lines of code do what I think?
    * Am I looping over the list/set/dict that I think I am? (print statements!)

* Lots of print statements.

9) If it's not working, time to debug.
    * Add lots of print statements.
    * Test on small cases
    * Reread the problem and your psuedocode.
    * Come to office hours.

    * Read the error message!

10) When it's working:
test it again. Run on small examples, run with print statements,

run with big examples to make
sure it's not too slow.