Feb 18, 2022   – Day 12

Lecture 4 – Unix command line (continued)

Why it's useful to know this stuff:
- On your computer, a lot can be done with the GUI, but using the terminal can be more efficient.

Ex: If you want the first 10 lines of a 1 gb text file:

    head filename.txt

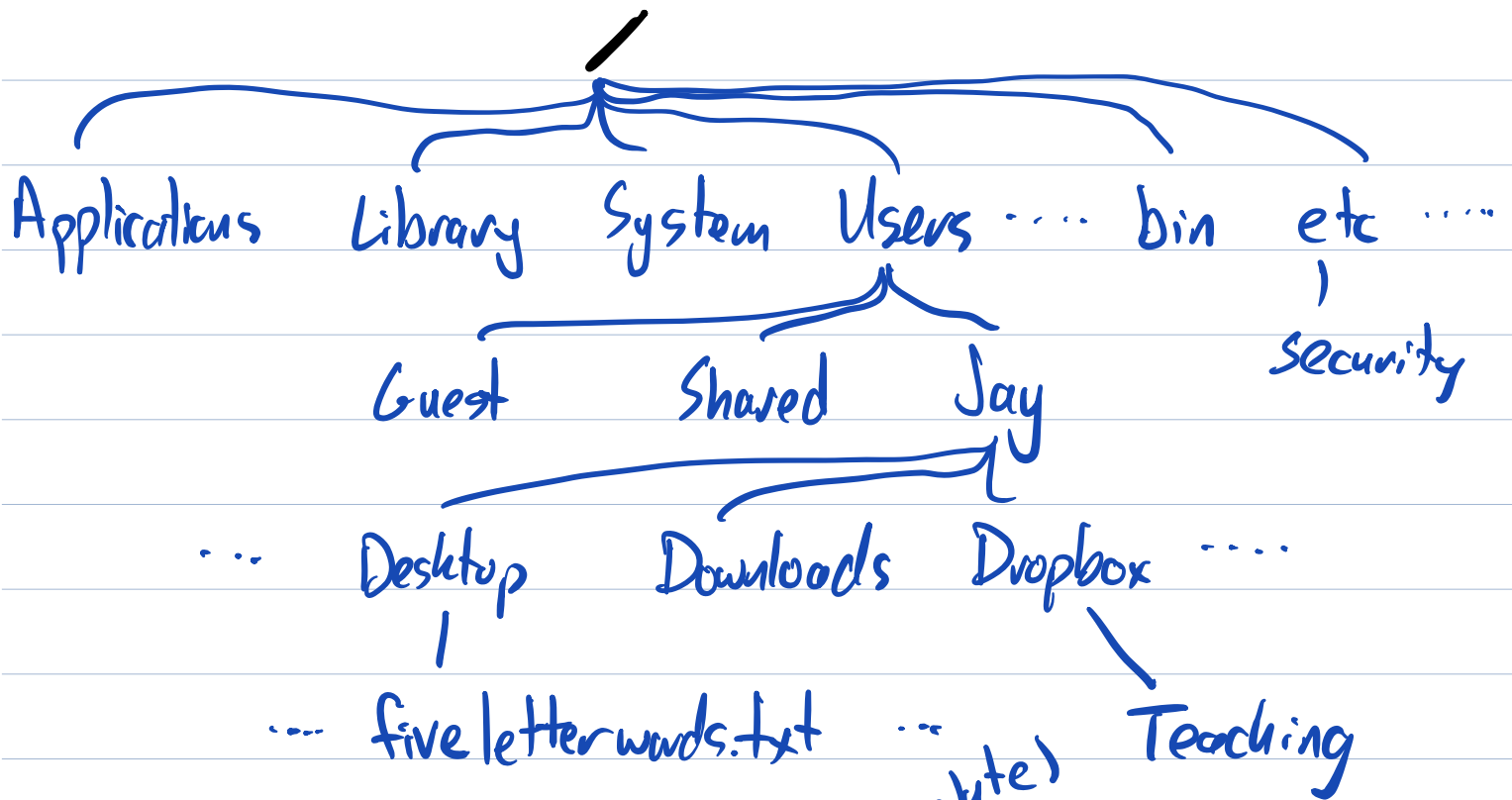- If you have to work on a remote machine via SSH, there is no GUI.

(Software Carpentry has some great resources for learning this stuff.)

File System:
Files in a computer are stored in a hierarchy. The very top is called "/" on Unix-like systems (Mac, Linux) and

usually "C:\" in windows.

On my mac:

So every file has a full address: (absolute)

/Users/jay/Desktop/fiveletterwords.txt

Demo: A few commands to try in terminal
or Git for Windows (Git BASH)

(1) pwd - "present working directory"
shows where you are in the
filesystem

(2) ls - "list", displays the files in

the current folder.

Most commands have extra arguments
("flags") to change the behavior.
"python3 (-m) pip install ...."
            flag

"ls -l" list the files, with extra information

To see the full "manual page" for a command,
you run "man [command]" (man ls).
(Press "q" to exit.)

You can tell ls and many other commands
to act only on <u>some</u> files, using "*"
as a symbol that means "anything".

                ls -l *.txt
                ls -l matrix *

(3) "cd" — "change directory", moves the
         terminal to a different place in
         the filesystem.

cd [directory]

If your directory starts with "/", you are specifying an __absolute path__, giving the full path from the top.

If it doesn't start with "/", you are specifying a path relative to where you are now.

```
> pwd
    /etc/security
> cd /Users/jay
> pwd
    /Users/jay
> cd Dropbox
> pwd
    /Users/jay/Dropbox
```

Shortcuts: "." - current folder (not helpful here)

"‥" - up one level

"~" - your home directory

```
> cd ~/Dropbox/Teaching
   "/Users/jay"
> pwd
      /Users/jay/Dropbox/Teaching
> cd ../../Desktop
> pwd
      /Users/jay/Desktop
```

More commands:

(4) mkdir [name] — "make directory" (folder)

(5) mv [current location] [new location]
        — moves the file or folder from
          one place to another

Rename, but leave in same spot:
     mv fiveletterwords.txt   FLW.txt

To move:
     mv fiveletterwords.txt   /Users/jay

(6) cp [source file] [destination file]
        — copies a file or a folder

requires "-R"
for "recursive"

(7) rm [file or folder]
    - deletes files or folders

"-r"

⚠ This is dangerous.
When you delete files with rm, they don't go into trash / recycle, they're just gone.

"rm -rf /" will delete everything until it crashes.

(8) cat [file name] - prints a whole file to the window.

(9) head [file name] - print the first 10 lines of a file

(10) tail [file name] - print last 10 lines
    "-n" to change the # of lines

head -n 20 [filename]

(11) less [filename] - opens a file to read that you can scroll through
    ["q" to quit)

(12) nano [filename] - terminal text editor.