Part 01

Definitions:

- What is a synonym for *directory*?

=> *A collection of files*

- What is a file or directory *path*?

=> *The specific location or route through which a file or directory can be accessed within a file system*

- What are *command-line arguments*?

=> *(aka command line parameters) are parameters that are passed to a script while executing them in the bash shell. For example, -l, -r and -t are command line arguments that are used to denote the position in memory where the command and its associated parameters are stored.*

- What are *flags* with respect to Unix commands? What are they used for?

=> *Command line flags (aka options) are a common way to modify the operation of a command. For example, in the command ls -a: single dash (-) followed by the letter 'a' is a flag which gives a list of files in that directory along with the modified option of viewing alias.*

Paths

- What is a *relative* path vs an *absolute* path?

=> Relative paths do NOT begin with a slash ('/') and specifies file's location based on current working directory (pwd). However, an absolute path gives you the full path of a file or directory from root (regardless of pwd) and begins with a slash ('/')

- In Unix commands, how do you refer to the current directory? To the parent directory? To your home directory?
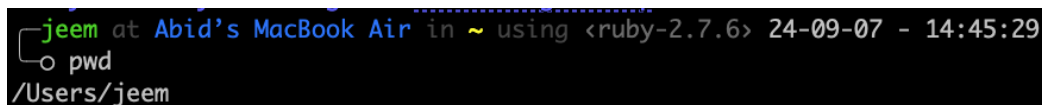
=> current directory: .

=> parent directory: ..

=> home directory: ~

Unix Commands. For each of the following, state the command and then provide an example of using the command.

- How do you find out the path of the current directory?

=> pwd

```
jeem at Abid's MacBook Air in ~ using <ruby-2.7.6> 24-09-07 - 14:45:29
o pwd
/Users/jeem
```

- How do you go into another directory?

=> cd

```
 ┌jeem at Abid's MacBook Air in ~ using ‹ruby-2.7.6› 24-09-07 - 14:46:38
 └o ls
AndroidStudioProjects      Public                     library.py
Applications               Sites                      libraryTest.py
Creative Cloud Files       Zotero                     main.c
Desktop                    __pycache__                n
Documents                  a.out                      newFile.txt
Downloads                  anaconda3                  node_modules
Finance_Abid.docx          datalab.zip                package-lock.json
Library                    eclipse                    package.json
Movies                     gptLib.py                  quantum_Tic_toe.py
Music                      hello2.c                   spongebob-cli
Pictures                   iCloud Drive (Archive)     words_letters.py
Presentation1.mp4          iCloud Drive (Archive) - 1 zipped_message.txt
 ┌jeem at Abid's MacBook Air in ~ using ‹ruby-2.7.6› 24-09-07 - 14:46:39
 └o cd Desktop
 ┌jeem at Abid's MacBook Air in ~/Desktop using ‹ruby-2.7.6› 24-09-07 - 14:46:42
 └o ls
14 Patterns to Ace Any Coding Interview Question _ by Fahim ul Haq _ Grokking the Tech Intervi
ew.pdf
CS112 Labs
```

- ■ How do you view the contents of a directory (both the current directory and another directory)?

=> *for current directory: ls*

=> *for another directory: ls [directory path]*

```
jeem at Abid's MacBook Air in ~ using <ruby-2.7.6> 24-09-07 - 14:49:53
o ls
AndroidStudioProjects      Public                    library.py
Applications               Sites                     libraryTest.py
Creative Cloud Files       Zotero                    main.c
Desktop                    __pycache__               n
Documents                  a.out                     newFile.txt
Downloads                  anaconda3                 node_modules
Finance_Abid.docx          datalab.zip               package-lock.json
Library                    eclipse                   package.json
Movies                     gptLib.py                 quantum_Tic_toe.py
Music                      hello2.c                  spongebob-cli
Pictures                   iCloud Drive (Archive)    words_letters.py
Presentation1.mp4          iCloud Drive (Archive) - 1 zipped_message.txt
jeem at Abid's MacBook Air in ~ using <ruby-2.7.6> 24-09-07 - 14:49:53
o ls /Users/jeem/Desktop
14 Patterns to Ace Any Coding Interview Question _ by Fahim ul Haq _ Grokking the Tech Intervi
ew.pdf
CS112 Labs
Christopher_Computer_Purchase.pdf
Dell_Christopher.pdf
DemoC
DopamineCulture.webp
Grokking
HackerRank_Compilation
Italy Travel
M1 Mac Desktop
Maneli_M3.pdf
Nonimmigrant Visa - Print Application ID.pdf
Pen Testing Essential Training 00_00 Pre-Configuration File.pdf
Quantum Gravity
Screenshot 2024-03-04 at 12.25.26 PM.png
Winter2024
eclipse-workspace
```

■ How do you create a directory?

=> mkdir

```
jeem at Abid's MacBook Air in ~/Documents using <ruby-2.7.6> 24-09-07 - 14:51:22
o ls
Adobe                MATLAB                Zoom                mockCon
Calendar             Wolfram Mathematica   first-app           newGitTest
jeem at Abid's MacBook Air in ~/Documents using <ruby-2.7.6> 24-09-07 - 14:51:23
o mkdir newDirectory
jeem at Abid's MacBook Air in ~/Documents using <ruby-2.7.6> 24-09-07 - 14:51:33
o ls
Adobe                Wolfram Mathematica mockCon
Calendar             Zoom                newDirectory
MATLAB               first-app           newGitTest
jeem at Abid's MacBook Air in ~/Documents using <ruby-2.7.6> 24-09-07 - 14:51:34
o
```

■ How do you copy a file?

=> cp

```
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:54:26
└─o touch newFile
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:54:30
└─o cp newFile copyFile
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:54:41
└─o ls
copyFile newFile
```

- ■ How do you rename a file?

=> mv

```
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:54:41
└─o ls
copyFile newFile
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:54:42
└─o mv copyFile newCopyFile
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:55:55
└─o ls
newCopyFile newFile
```

- ■ How do you delete a file?

=> rm

```
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:56:46
└─o ls
newCopyFile newFile
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:56:47
└─o rm newFile
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:56:53
└─o ls
newCopyFile
```

- ■ How can you view the contents of a text file?

=> cat

```
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:56:54
└─o cat >> newCopyFile
This is now a text file
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-07 - 14:58:18
└─o cat newCopyFile
This is now a text file
```

- ■ How do you find specific (text) content within a set of text files (i.e., files that end with `.txt`) in a directory?

=> grep -r "string-name" *

```
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-08 - 21:53:53
└─o ls
newCopyFile words.txt
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-08 - 21:53:54
└─o touch letters.txt
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-08 - 21:54:07
└─o cat >> letters.txt
This is another text file with some text on it. I will now apply grep on this text file.
┌─jeem at Abid's MacBook Air in ~/Documents/newDirectory using <ruby-2.7.6> 24-09-08 - 21:54:33
└─o grep -r "text" *
letters.txt:This is another text file with some text on it. I will now apply grep on this text file.
newCopyFile:This is now a text file
words.txt:This a text file with text.
```

- ■ How do you combine multiple commands together, e.g., you want the output of the first command to be the input of the second command?

=> We use the concept of piping |

```
┌─jeem at Abid's MacBook Air in ~/Documents using <ruby-2.7.6> 24-09-08 - 22:04:18
└─o ls
Adobe              MATLAB              Zoom              mockCon              newGitTest
Calendar           Wolfram Mathematica first-app         newDirectory
┌─jeem at Abid's MacBook Air in ~/Documents using <ruby-2.7.6> 24-09-08 - 22:04:22
└─o ls -l | less
┌─jeem at Abid's MacBook Air in ~/Documents using <ruby-2.7.6> 24-09-08 - 22:05:59
└─o ls -l | less
```

```
total 0
drwxrwxr-x@  6 jeem  staff  192 Sep 29  2021 Adobe
drwxr-xr-x@ 26 jeem  staff  832 Aug 24  2023 Calendar
drwxr-xr-x@  2 jeem  staff   64 Jan 19  2024 MATLAB
drwxr-xr-x@  6 jeem  staff  192 Jan 27  2024 Wolfram Mathematica
drwxr-xr-x@  4 jeem  staff  128 Jul 10  2021 Zoom
drwxr-xr-x@ 11 jeem  staff  352 Jan 31  2023 first-app
drwxr-xr-x  13 jeem  staff  416 Feb  5  2023 mockCon
drwxr-xr-x@  5 jeem  staff  160 Sep  8 21:54 newDirectory
drwxr-xr-x   5 jeem  staff  160 Jan 26  2023 newGitTest
(END)
```

Shortcuts

- In a terminal, what does TAB do?

=> Gives you a way to enter commands with less typing and less memorization

- In a terminal, what do the up and down arrow keys do?

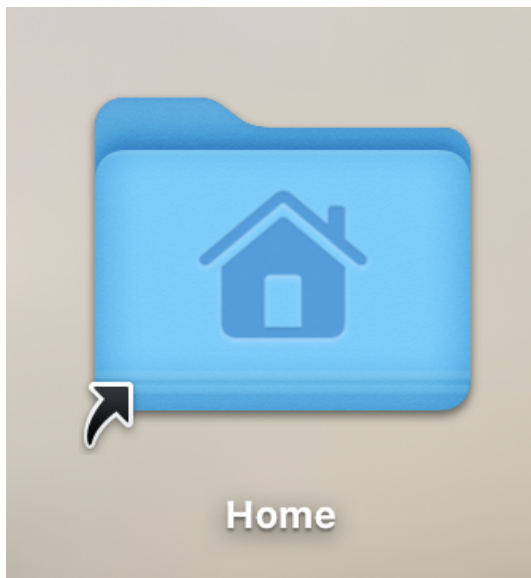*=> Quick access to past commands*

Part-2

- What is the path to your home directory? In your file manager GUI, make a shortcut to your home directory. (I believe Windows has that shortcut by default, but IOS doesn't.)

   => path to home directory:

   ```
   jeem at Abid's MacBook Air in /home using <ruby-2.7.6> 24-09-08 - 22:10:51
   o pwd
   /home
   ```

   => Command to make a shortcut to home directory on mac

   ```
   jeem at Abid's MacBook Air in /home using <ruby-2.7.6> 24-09-08 - 22:08:16
   o ln -s ~/ ~/Desktop/Home
   ```


   Home

- Where are you going to put your files for this class? (What is the path?)

   ```
   jeem at Abid's MacBook Air in ~/Desktop/SWE_files using <ruby-2.7.6> 24-09-08 - 22:13:44
   o pwd
   /Users/jeem/Desktop/SWE_files
   ```

■ How do you open a terminal? (There will be a variety of different ways to do this because there are various "terminals"--some that came with the OS, some that didn't. I just want you to play a bit and learn your computer.)

=> Command+space (spotlight search) and then write "Terminal"

■ Which version of Python are you running (i.e., what is the "x" in Python 3.x)? Describe how you determined that. (There are a variety of ways to do this.)

=> installed pyenv using homebrew

```
jeem at Abid's MacBook Air in ~/Desktop using <ruby-2.7.6> 24-09-08 - 22:45:48
o pyenv install 3.12.0
python-build: use openssl@3 from homebrew
python-build: use readline from homebrew
Downloading Python-3.12.0.tar.xz...
-> https://www.python.org/ftp/python/3.12.0/Python-3.12.0.tar.xz
Installing Python-3.12.0...
python-build: use readline from homebrew
python-build: use ncurses from homebrew
python-build: use zlib from xcode sdk
Installed Python-3.12.0 to /Users/jeem/.pyenv/versions/3.12.0
jeem at Abid's MacBook Air in ~/Desktop using <ruby-2.7.6> 24-09-08 - 22:48:03
o python --version
zsh: command not found: python
jeem at Abid's MacBook Air in ~/Desktop using <ruby-2.7.6> 24-09-08 - 22:48:11
o pyenv versions
* system (set by /Users/jeem/.pyenv/version)
  3.12.0
```

Optional SSH

```
┌─jeem at Abid's MacBook Air in ~ using <ruby-2.7.6> 24-09-08 - 23:04:25
└─o ssh -XY ajeem@python.cs.wlu.edu
ssh: connect to host python.cs.wlu.edu port 22: Operation timed out
```