

// FLATIRON SCHOOL

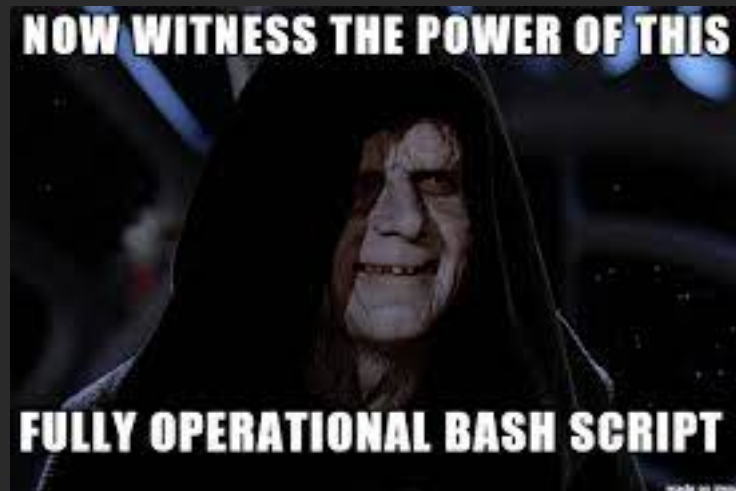
FEAR NOT THE TERMINAL

Data Science



Objectives

- / Use bash commands to perform common operations
- / Edit text files using vim



UNIX BASICS

UNIX -> family of multitasking, multiuser computer operating systems that derive from the original AT&T Unix, whose development started in 1969

- * Many versions, made by different teams and companies (including Apple since 2002)
- * Originally a commercial product
- * **Linux** and FreeBSD are *open-source* versions of Unix
- // * Small, simple commands (like Lego bricks)

THE SHELL

A **Unix shell** is a **command-line interpreter** or *shell* that provides a command line user interface for Unix-like operating systems

Command-line interface

- Runs Commands
- Outputs Results

Programming Language

- Runs *shell scripts*



SHELL VERSIONS

- * sh (Bourne Shell)
- * csh (C shell)
- * tcsh
- * ksh (Korn Shell)
- * **bash (Bourne-again shell)**

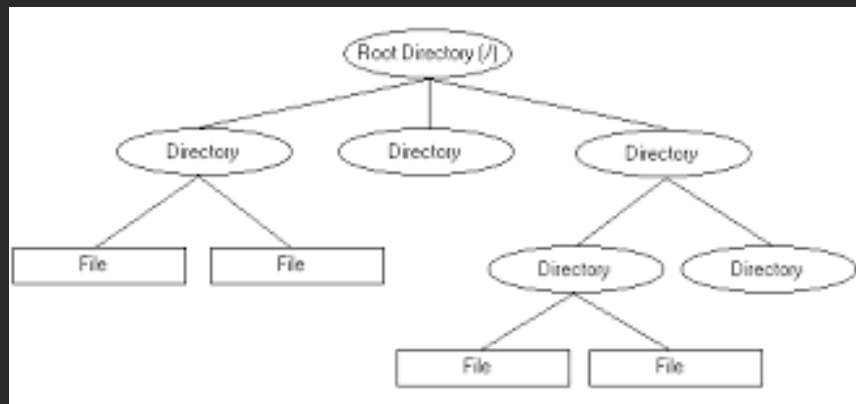
* zsh *(popular with web developers)*

Warning: complicates setup of DS tools!

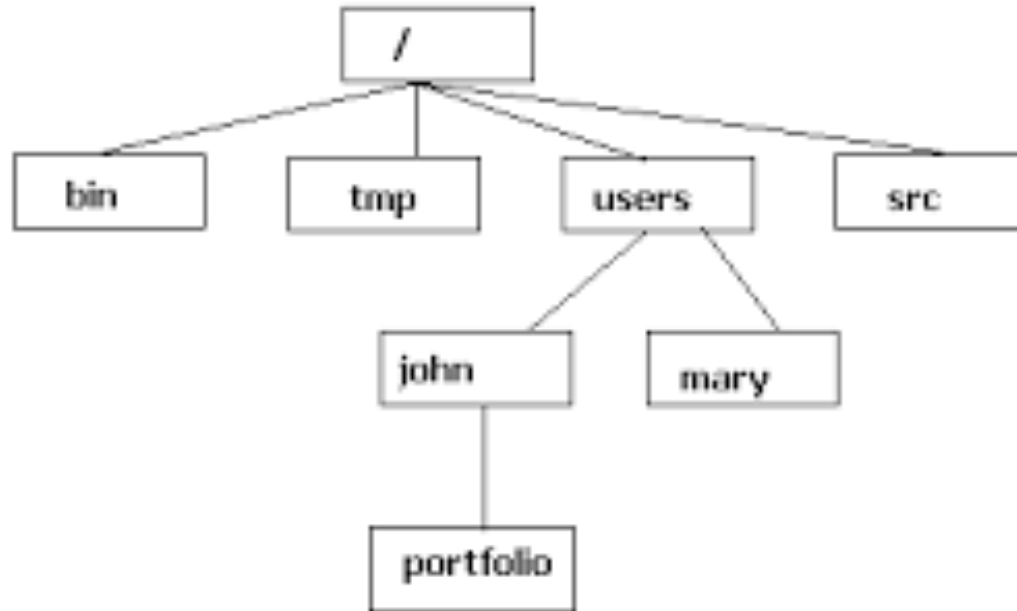
Run `chsh -s /bin/bash` and restart terminal to switch to bash



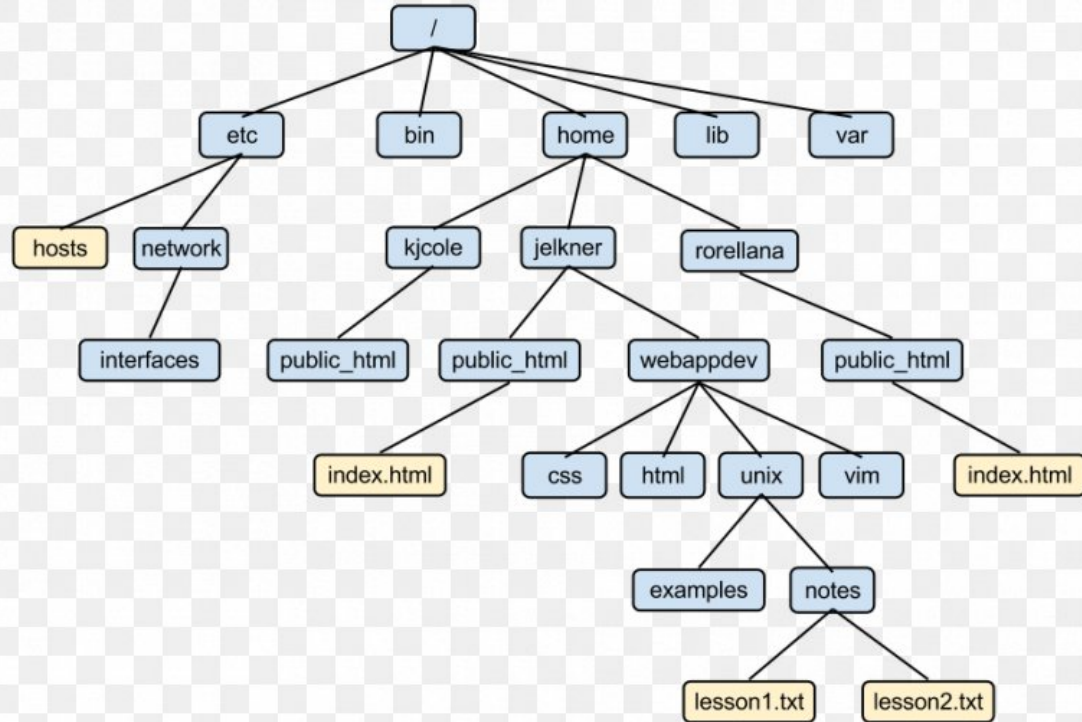
DIRECTORY STRUCTURE



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NAVIGATION COMMANDS

- * pwd (display working directory)
- * ls (list directory contents)
- * cd (change directory)
- * cp [file] (copy [file])
- * mv [file] (move [file])

Names are separated by "/" (not "\\")



NAVIGATION COMMANDS

```
bash-3.2$ pwd  
/Users/joecomeauxx
```

```
bash-3.2$ ls
```

Applications	Desktop	Library	NYC
CAIM	Documents	Movies	NYC.ipynb
DEN	Downloads	Music	Pictures

```
bash-3.2$ cd NYC
```

```
bash-3.2$ pwd  
/Users/joecomeauxx/NYC
```

```
bash-3.2$ ls -l  
total 440  
-rw-r--r--@ 1 joecomeauxx staff 23931 Mar 23 13:39 2022-03-23T1539_Grades  
-rwx-----@ 1 joecomeauxx staff 112577 Feb 22 06:37 Cool_Downs.pages  
drwxr-xr-x 11 joecomeauxx staff 352 Feb 28 15:22 Flatiron_PG_DS  
-rw-r--r-- 1 joecomeauxx staff 58860 Mar 28 12:18 Untitled.ipynb  
-rw-r--r-- 1 joecomeauxx staff 8111 Mar 28 09:45 Untitled1.ipynb  
-rw-r--r-- 1 joecomeauxx staff 10995 Mar 29 15:16 grades.ipynb  
-rw-r--r-- 1 joecomeauxx staff 352 Mar 28 09:07 test.py
```

SPECIAL DIRECTORIES

- * / root, the top-level directory
- * ~ your home directory
- * . the current directory
- * .. the parent directory

```
bash-3.2$ pwd  
/Users/joecomeaux
```



ABSOLUTE AND RELATIVE PATHS

- * Absolute: Starting from root (/) or home (~/)
- * Relative: Starting from where you are

Absolute

```
bash-3.2$ cd /Users/joecomeaux/NYC
```

```
Or bash-3.2$ pwd
```

```
bash-3.2$ pwd  
/Users/joecomeaux/NYC
```

```
bash-3.2$ pwd  
/Users/joecomeaux
```

Relative

```
bash-3.2$ cd NYC
```

//

COMMAND LINE OPTIONS

Most commands can take options. Usually.

Single-character options are preceded by ``-`` Full-word options are preceded by ``--``

- * ``python --version``
- * ``ls -l``
- * ``rm -rf``



TEXT EDITORS

Recommended GUI text editor:

- Visual Studio Code

Recommended CLI text editor:

- vim (recommended: vim-adventures.com)



OPEN GUI EDITOR FROM THE TERMINAL

- `code .`
- `atom .`



SURVIVING VIM

- Insert mode (you can type)
- Command mode (each key does something)

The **Esc** key brings you to command mode. Pressing **I** enters insert mode.



BASIC VIM COMMANDS

- * i (enter insert mode here)
- * A (enter insert mode at end of line)
- * dd (delete a line)
- * 10G (go to line 10)
- * :wq (save and exit)
- * :q! (exit without saving)



PROCESSES

Each process has:

- * One or more threads
- * Memory for stack and heap
- * Environment
- * Owner and privilege

