

# Command Line Basics

# Objectives

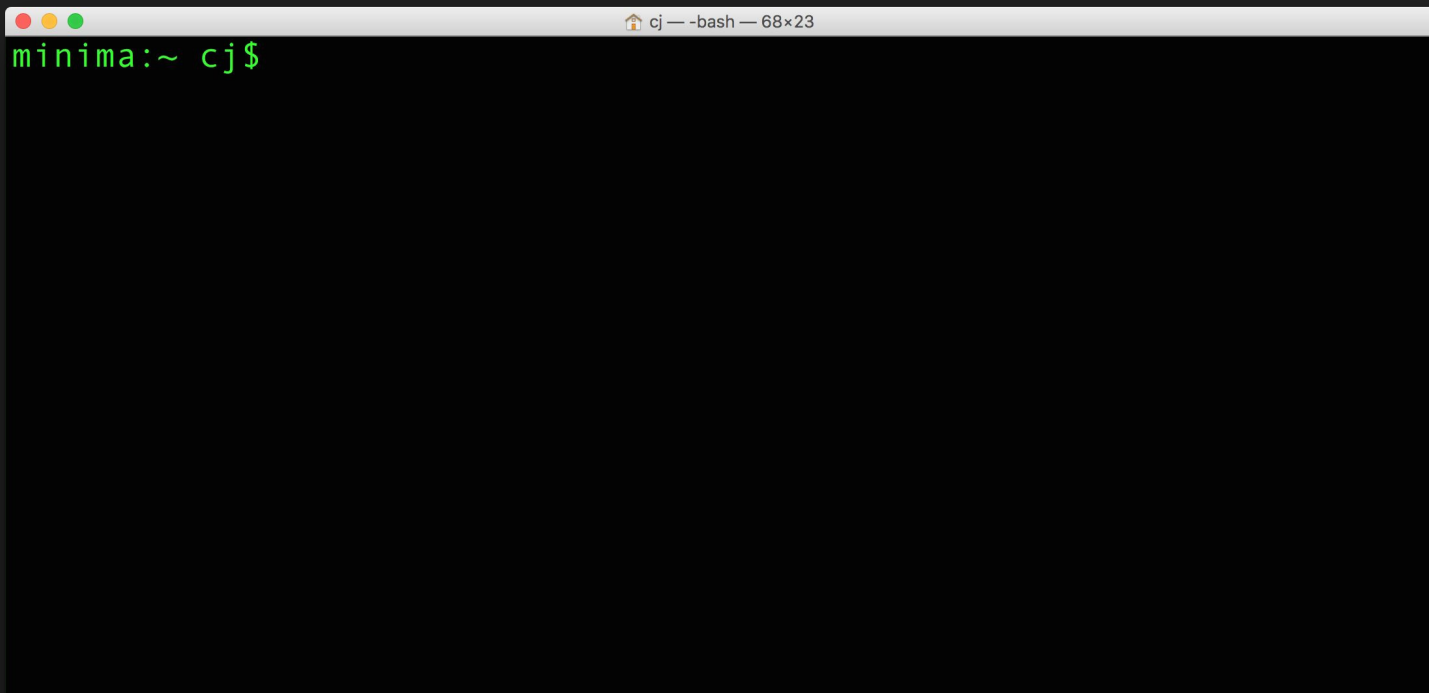
- Use man
- Describe the connection between the command line and the “Graphical User Interface”
- Perform basic file manipulation & navigation operations on the command line
  - pwd, ls, cd, touch, mkdir, rm, rmdir, cp, mv
- Chain commands and redirect output: |, >, >>
- Search your history with history, grep and ctrl+r
- Describe permissions and change them
  - sudo, chmod, chown

# What is the Terminal?

- Modern version of an 'original' User Interface for unix based computers.
  - [https://en.wikipedia.org/wiki/Computer\\_terminal#Text\\_terminals](https://en.wikipedia.org/wiki/Computer_terminal#Text_terminals)
  - [https://en.wikipedia.org/wiki/Unix\\_shell](https://en.wikipedia.org/wiki/Unix_shell)
- Although they technically mean slightly different things, the following terms are synonymous with the Terminal:
  - Shell
  - Bourne Shell
  - bash
  - zsh
  - Command Line
  - DOS Prompt (on windows machines)
  - SSH (on remote machines)
  - csh
  - ksh
  - sh
  - UNIX Shell

# Follow Along!

Type Command+Space (Spotlight Search) and type 'terminal'.



# Read The Manual

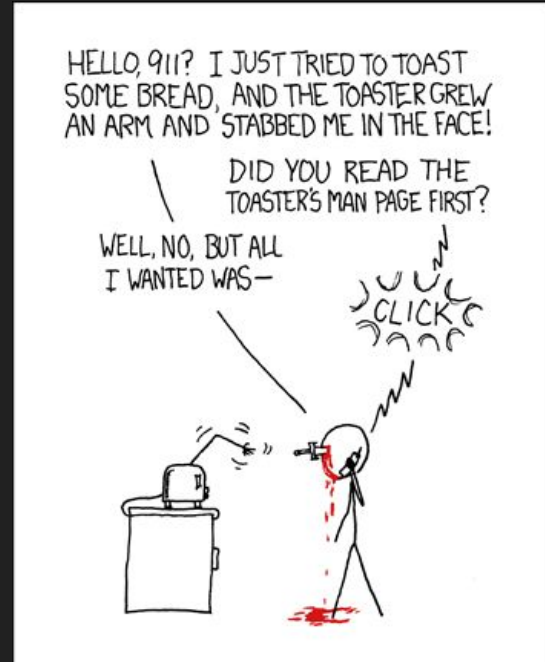
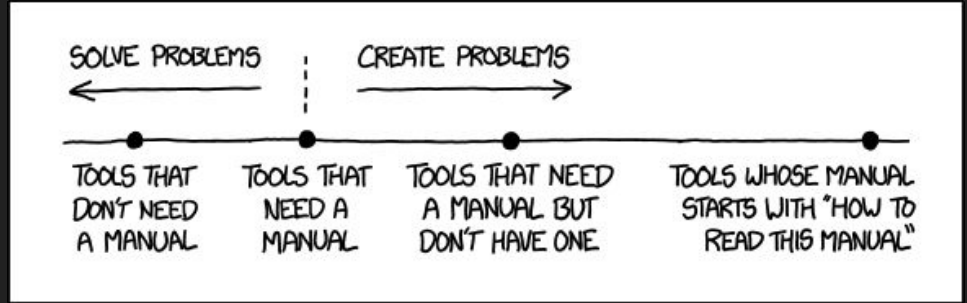
Type the following into your terminal:

```
$ man man
```

The “man pages” are very helpful.

[www.explainshell.com](http://www.explainshell.com) helps too!

Sometimes it's easier to find examples on the net. Even old material is good for these commands, because they *rarely* change.



# Basic Navigation

- Where am I?
  - `$ pwd`
- Who am I?
  - `$ whoami`
- Open current location in Finder:
  - `$ open .`
- Open current location in Atom:
  - `$ atom .`
- List directory contents:
  - `$ ls`, `$ ls -l`, `$ ls -la`
  - (things with a - are called “options”)
- Change Directory:
  - `cd [new path]`

```
minima:~ cj$ pwd
/Users/cj
minima:~ cj$ whoami
cj
minima:~ cj$ ls -l
total 0
drwx----- 4 cj  staff   136 Oct 16 13:14 Applications
drwx-----+ 5 cj  staff   170 Oct 20 08:15 Desktop
drwx-----+ 7 cj  staff   238 Oct 20 08:11 Documents
drwx-----+ 10 cj  staff   340 Oct 20 08:11 Downloads
drwx-----@ 9 cj  staff   306 Oct 17 01:45 Dropbox
drwx-----@ 59 cj  staff  2006 Oct 18 13:02 Library
drwx-----+ 3 cj  staff   102 Oct 12 11:10 Movies
drwx-----+ 5 cj  staff   170 Oct 15 07:07 Music
drwx-----+ 8 cj  staff   272 Oct 16 15:33 Pictures
drwxr-xr-x+ 5 cj  staff   170 Oct 12 11:10 Public
drwxr-xr-x 3 cj  staff   102 Oct 13 00:26 bin
drwxr-xr-x 5 cj  staff   170 Oct 20 08:11 dev
minima:~ cj$ ls -la
total 184
drwxr-xr-x+ 50 cj  staff   1700 Oct 20 08:22 .
drwxr-xr-x 6 root  admin    204 Oct 13 04:58 ..
-r----- 1 cj  staff     7 Oct 12 11:10 .CFUserTextEncoding
-rw-r--r--@ 1 cj  staff  24580 Oct 20 08:11 .DS_Store
drwx----- 2 cj  staff    68 Oct 20 08:12 .Trash
drwxr-xr-x 12 cj  staff   408 Oct 13 06:00 .atom
-rw----- 1 cj  staff   6724 Oct 20 08:22 .bash_history
-rw-r--r-- 1 cj  staff   1450 Oct 14 14:41 .bash_profile.old
-rw-r--r-- 1 cj  staff    60 Oct 13 00:22 .bash_rc
drwxr-xr-x 27 cj  staff   918 Oct 20 08:26 .bash_sessions
-rw-r--r-- 1 cj  staff    68 Oct 14 14:31 .bashrc
drwxr-xr-x 4 cj  staff   136 Oct 14 14:18 .bundler
drwx----- 4 cj  staff   136 Oct 19 08:31 .cache
drwx----- 6 cj  staff   204 Oct 19 08:53 .config
drwx----- 3 cj  staff   102 Oct 16 12:01 .cups
drwxr-xr-x 5 cj  staff   170 Oct 13 06:28 .dnx
drwx----- 9 cj  staff   306 Oct 15 06:54 .dropbox
drwxr-xr-x 2 cj  staff   102 Oct 18 12:41 .electron
```

# \$ brew install tree

## \$ tree

To view the “tree” at your current directory, use the tree command.

```
students.galvanize.com — -bash — 71x40
minima:students.galvanize.com cj$ tree
.
├── Gemfile
├── Gemfile.lock
├── LICENSE
├── README.md
├── Rakefile
├── app
│   ├── actions
│   │   └── find_and_update_user_from_github_info.rb
│   ├── assets
│   │   ├── images
│   │   │   ├── GitHub-Mark-120px-plus.png
│   │   │   ├── GitHub-Mark-32px.png
│   │   │   ├── Twitter_logo_blue.png
│   │   │   ├── classroom.jpg
│   │   │   ├── classroom2.jpg
│   │   │   ├── creative_commons.png
│   │   │   ├── favicon.ico
│   │   │   ├── galvanize-logo.svg
│   │   │   ├── gschool-logo.svg
│   │   │   ├── gschool_logo-large.png
│   │   │   ├── gschool_logo.png
│   │   │   ├── linked_in.png
│   │   │   └── spinner.gif
│   │   └── javascripts
│   │       ├── ace-editor.js
│   │       ├── application.js
│   │       ├── assessments.js
│   │       ├── components
│   │       │   ├── learning_experience_objectives_table.js.jsx
│   │       │   ├── performance_queue_table.js.jsx
│   │       │   ├── performance_table.js.jsx
│   │       │   ├── student_performance_table.js.jsx
│   │       │   ├── video.js.jsx
│   │       │   └── video_list.js.jsx
│   │       ├── components.js
│   │       └── pair_rotation.js
└── config
```

# Practice Time!

[https://students.galvanize.com/cohorts/32/pair\\_rotations/random](https://students.galvanize.com/cohorts/32/pair_rotations/random)

## **Exercise: 5 minutes in Pairs**

1. Using Finder: Pick a directory somewhere under the /Users directory on your partner's computer
2. Your Task: Navigate to that directory in a single command from your home directory using a relative or absolute path
3. Help your partner if they are having trouble and use Tab Completion



# Mini Review

- root directory /
- ../
- Absolute and Relative Paths
- Tab Completion

# File Manipulation

# Piping

# History

# Permissions

# Permissions: Who can do What?

The diagram illustrates the components of a file's permissions and metadata for the file `books.txt`. The file's details are shown as a string of text: `-rwxrw-r-- 1 CJ staff 413 Oct 20 11:00 books.txt`. Colored lines connect specific parts of this string to labels below. A purple line connects the first character `-` to the label `File Type`. A green line connects the first three characters `rwx` to the label `Owner`. An orange line connects the next three characters `rw-r` to the label `Group`. A cyan line connects the last two characters `--` to the label `Everyone Else`. A green line connects the number `1` to the label `Owner`. An orange line connects the letters `CJ` to the label `Group`. An orange line connects the word `staff` to the label `Group`. A yellow line connects the number `413` to the label `Size In Bytes`. A cyan line connects the date and time `Oct 20 11:00` to the label `Date Last Modified`.

File Type

Owner

Group

Everyone Else

Date Last Modified

Size In Bytes

`-rwxrw-r-- 1 CJ staff 413 Oct 20 11:00 books.txt`

# Change Permissions

- [Unix Permissions Calculator](#)
- **chmod**
  - change the permissions
  - `$ chmod 750 bookshelf.txt`
- **chown**
  - change the ownership
  - `$ chown bigBird:wheel bookshelf.txt`
- **sudo**
  - Makes you 'root' user
  - root has ALL POWERS

sudo responsibly

# Review

- Describe the connection between the command line and the “Graphical User Interface”
- Use man
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# You got this!

- [Terminal Cheatsheet for Mac](#)
- [Explain Shell](#)
- [Command Line Crash Course Online Book](#)
- [Command Line Murder Mystery](#)
- Search! duckduckgo, google, bing, yahoo, dogpile

