

Unix

Intro to the filesystem and command line

Objectives, part 1

- + Explain what Unix operating systems are, and why they are important.
- + Explain what a file system is.
- + Draw a tree-like structure of a file system.
- + Open a command line in OS X and list the files in your home directory.



What is an operating system?

- + Provides the foundational software that runs a laptop, smartphone, etc.
- + Gives access to files
- + Starts programs and apps
- + Runs the display
- + Microsoft Windows is one Unix is another.



What is Unix? (part 1)

- + There are many types of Unix, and two of the most popular are macOS and Linux.
- + Linux comes in distributions:
 - + Ubuntu, Fedora, Red Hat, Suse, Debian
- + There is only one macOS and it comes from Apple.
- + Windows comes from a different lineage of code.
It is not Unix.

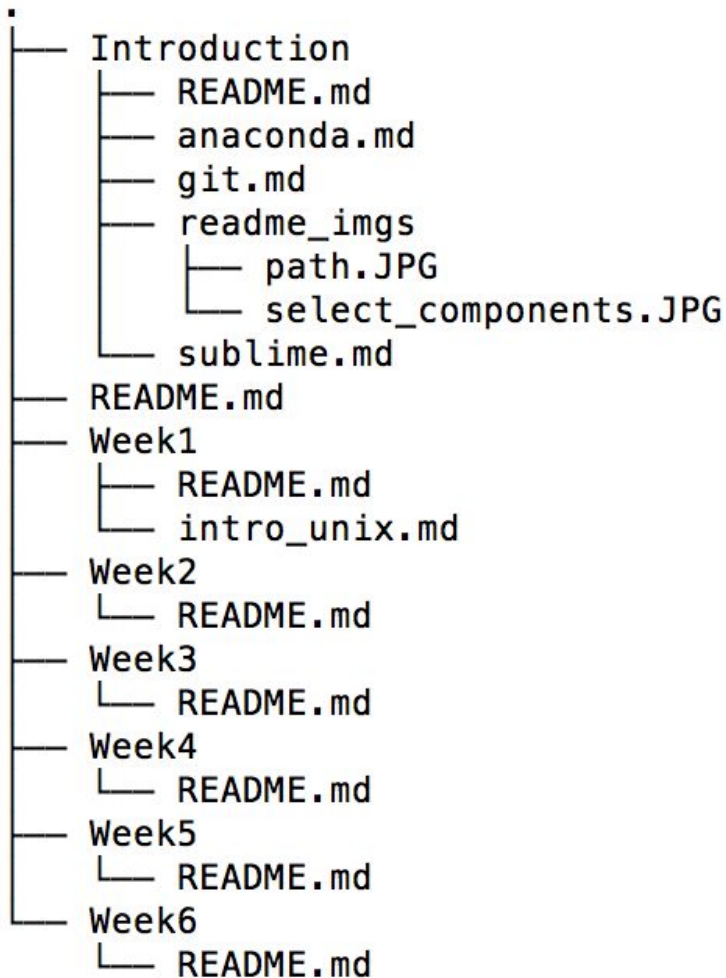


What is Unix? (part 2)

- + Unix is popular for many software development sectors because it has a long history of *open source*.
- + Open source means that you can extend software for your own purposes, which makes it easier to develop more powerful software.
- + Linux and macOS are what we focus on this evening.

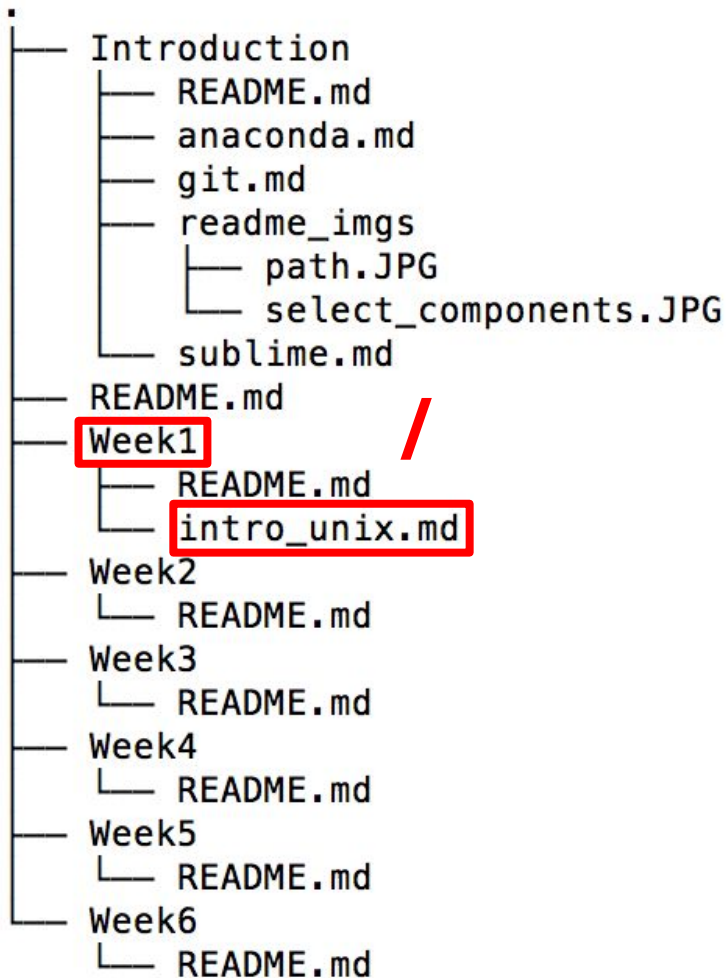


Filesystems



Filesystem Names 1

- + Files are organized into a tree-like structure to organize files
- + Folder \Leftrightarrow directory
- + Subfolder \Leftrightarrow subdirectory
- + When you execute a command or run a program you run it in a *working directory*.



Filesystem Names 2

- + `Week1/intro_unix.md`
- + `Intro_unix.md` is the filename
- + `Week1` is the directory
- + `/` is the path separator
- + The characters after the `.` give a hint on how to treat the file

Filesystems Names (part 3)

- + A *relative* pathname is specified relative to the current working directory

Week1/intro_unix.md

- + An *absolute* pathname is from the root of the filesystem.

/Users/alicia/Week1/intro_unix.md



Command Line Fun!

Your first 11 terminal commands

Navigation

- + `pwd`
- + `cd`
- + `ls`

Creating and Removing Files

- + `touch`
- + `rm`

Creating and Removing Directories

- + `mkdir`
- + `rmdir`
- + `rm -r`

Copying and Moving

- + `cp`
- + `mv`
- + `cp -r`

Warning!

- + The command line is a powerful tool. But be sure you know what you are doing
- + When you run a command, often there is no turning back.
- + That said, do try this at home ;)



Navigation Commands

pwd

Displays your current working directory.

p resent **w** orking **d** irectory

cd

Changes your working directory.

c hange **d** irectory

ls

List files in your working directory.

l i s t

Creating and Removing Files

touch

Creates an empty files
(or updates the access time on an existing file)

rm

r e m ove (erase) a file



Creating and Removing Directories

mkdir

Makes a new directory

m a k e d i r ectory

rm dir

r e m ove **dir** ectory

The directory must be completely empty

`rm -r`



Remove files *recursively*. This removes directories as well empty or not. Use caution!



Moving and Copying Files and Directories

cp

c o p y

Copy a file

mv

m o v e

Move a file

cp -r

Copy files and directories recursively.



The 1s trick!

`ls -r`



List directories and files recursively. Useful to find what files will be affected by **`cp -r`** or **`rm -r`**