



FEAR NOT THE TERMINAL

Data Science

UNIX BASICS

- * 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)
- * *Everything* is a file



THE SHELL

Command-line interface

- Runs Commands
- Outputs Results

Programming Language

- Runs *shell scripts*



SHELL OPTIONS

- * 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

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 "\\")



SPECIAL DIRECTORIES

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



NAVIGATING DIRECTORIES

- * Names are paths (addresses)

 - So if you're changing your name, you're moving!

- * `mv` for both moving and renaming



ABSOLUTE AND RELATIVE PATHS

- * Absolute: Starting from root (/) or home (~/)

- * Relative: Starting from where you are

- * Suppose:
 - home
 - |-projects
 - |-proj1.ipynb
 - |-code

To move from proj1.ipynb to code/:

EITHER `cd ~/code` (absolute) OR `cd ../../code` (relative)



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``

- * ``ls -la``



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.

Shift-`A` appends to the end of the line.



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)

DEMO!



PROCESSES

Each process has:

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

