DAY #3

TODO:

- Talk about the cumulative projects
- Explore powerful web apps
- Work on the projects
- Install some software
- **Lesson 5:** The Black Screen with the Green Text

CUMULATIVES

- Spend this week on brainstorming ideas
- Talk to a TA or the teacher about your ideas
- Start writing your ideas down somewhere
- On Thursday, July 28th, everyone will have personal time with the teacher and TAs to pitch their idea.
- While creating your web apps, prepare a short presentation for the last day of class.
- Each student can speak up to 10 mins about their app (i.e. a pair has up to 20 mins)
- Everyone must speak for a minimum of 5 mins

POPULAR WEB APPS

NETFLIX

- Majority of netflix users use the web-based version
- Supports all platforms due to web
- CSS is what styles all the pretty things (i.e. full screen videos, controls, etc.)
- JavaScript is what gives it functionality (i.e. the link between the controls and the video)

FACEBOOK

- Started in 2004 and still up to date
- Used so much JavaScript at one point that the size of the JS on their page was 1 MB
- Web app is available on all platforms, regardless of Facebook mobile app
- Large CSS base that themes all pages with the iconic Facebook blue
- JavaScript powers actions such as language change dialog, chat, posts, etc.

AMAZON & EBAY

- Handle several billions of dollars of shopping every year
- Handle more online shopping revenue than all of the U.S. handles for in-store revenue
- Entirely web-based (until the recent mobile apps)
- Dynamic CSS base that modifies the website to adjust to every platform
- JavaScript powers features such as sort (by price, relevance, etc.) and filtering (by Prime)

PAYPAL

- Known as the most trustworthy and secure payment platform
- Entirely web-based business infrastructure
- Recently moved their entire back-end to Node.js (the back-end language of choice for this class)
- Very impressive and beautiful CSS base (constantly kept up to date - even with animations)
- JavaScript handles connectivity between PayPal and other websites, fetching your credit card information, and more

INSTALLATIONS

WHAT YOU NEED TO DOWNLOAD

- For Windows users:
  - Download Git for Windows
  - **Choose** `Checkout Windows-style, commit Unix-style endings`
  - **Choose** `Use Git and optional tools from command prompt`
- For Mac OS X users:
  - Install Homebrew
  - After installation, open terminal and run `brew install git`
  - Provide your password as required

LESSON 5: THE BLACK SCREEN WITH THE GREEN TEXT

WHAT IS A TERMINAL?

- A terminal is essentially a window into something
- All computer terminals are windows into a `shell`
- A shell is a little bit like an interpreter: it provides virtual higher-level access to you
- All instructions given to a shell are called commands

NOTES ON THE TERMINAL & SHELL

- The program that is acting as a 'terminal' is not particularly important
- Shells are always operating out of a particular directory and all commands are executed relative to that directory

THE SYNTAX OF A COMMAND

- Everything written within one line is executed together
- Everything within this one line is separated using a single whitespace
- The command is only the first word that you write (i.e. `a b c` => the command is `a`)
- Flags are how you pass options to the command
  - The full form of a flag is with two dashes: `--myoption myvalue`
  - The short form of a flag is with one dash: `-o myvalue`
  - The value following your flag becomes the option's value.
  - Not all options need explicit values, some options are booleans.

THE `ECHO` COMMAND

- Prints exactly what you tell it to, and then a newline
- To avoid printing the newline, use the flag `n` (i.e. `echo -n "hello"`)
- To use escape sequence, use the flag `e` (i.e. `echo -e "\n"`)
- That's all.

LET'S DO SOME GROUP WORK

- We will split into two halves (one for each TA)
- Each half will be taught half the commands
- You will all be assigned a random partner and given 30 mins to teach each other
- After this, choose a command to play with further and teach something new to the class (you can use Google)

COMMANDS FOR GROUP #1

- `cat` : print a file to the command-line.
- `grep` : search for something within a file.
- `rm` : delete a file or directory.
- `less` : provides a scrollable version of cat.
- `alias` : sets a command-line alias for a command.
- `unalias` : unsets a command-line alias.

COMMANDS FOR GROUP #2

- `pwd` : show current directory.
- `cd` : change directory.
- `mkdir` : make a directory.
- `ls` : list all files and directories in the current directory.
- `cp` : copy a file/directory.
- `mv` : move a file/directory.