RECAPPING LAST CLASS

- Talked about:
  - Linux filesystem (home, root directories)
  - Absolute and relative paths
- Commands for:
  - navigating file system
  - viewing files
  - transferring files to remote machines
  - accessing manpages

RECALL MANPAGES (CH02)

- Access manpages using `man` for details on each call
  - Example `man man`
  - Example `man ls`
  - Pay attention to manpage section (example: `printf`)
- `apropos` for searching manpages
  - Example `apropos "remove file"`
  - Example `apropos "remote"`

COMMAND OPTIONS (CH05)

- Most commands have options
  - Modifies effect of command
  - Example `ls -al`
    - Equivalent to `ls -a -l`
    - `-a` and `-l` are options
- How do we know available options?
- Most have a --help option too
- So what, who cares? - You'll need them for the mini-lab

RSYNC (CH16)

- different alg for transfer
  - checks for changes and differences
  - only transfers differences
- Command format (like `scp`):

  ```
  rsync [[user@src_host:]srcpath
  [[user@dest_host:]destpath
  ```
- Example:

  ```
  rsync filename username@hostname:~
  ```
- Many options: recursive, delete, ...

COMPRESSING FILES

- Multiple different options
  - `bzip2` - better compression
  - `gzip` - faster compression
- Decompress
  - `bunzip2`
  - `gunzip`
- Work on files (can work recursively on directories)
- How to get 1 single file for whole directory?

ARCHIVING

- Creating single file from multiple files
- `tar` command
- Examples:
  - pack (create)

    ```
    tar -cvf all.tar file1 file2 ...
    ```
  - unpack `tar -xvf all.tar`
  - view table with contents

    ```
    tar -tvf all.tar
    ```

Mini-lab

1. Use `ssh` to access one of the eos machines
2. Make a directory for this mini-lab (you can call it whatever you want)
3. Change into that directory

Mini-lab(cont.)

4. Run

   `wget https://raw.githubusercontent.com/fivethirtyeight/data/master/avengers/avengers.csv`

   and

   `wget https://raw.githubusercontent.com/fivethirtyeight/data/master/college-majors/recent-grads.csv`
5. Use `ls` to verify that you have 2 data files in this directory
6. Use `exit` to disconnect (now you'll be back on your local machine)

Mini-lab (cont.)

7. Use `scp` with the `-p` option to transfer the directory from eos to your local machine. Hint: we used `scp` in lecture to transfer a file, where might you look to see how you can transfer a directory? How would you find out what the `-p` option does?
8. Use `rsync` to perform a dry-run of transferring the files back to the eos machine and verify that it would not transfer either of the files.
   Hint: you'll need to find and pass the correct 2 options (specify dry-run and to have rsync show info about what it is doing)

Mini-lab (cont.)

9. Edit 1 of the 2 data files (any change is fine)
10. Repeat the previous commands to verify that rsync will transfer the edited file.
11. Use `rsync` to transfer both files without the dry-run option
12. `ssh` back into eos and use `ls` to verify just the edited file was transferred by looking at time stamps. Hint: what option would you pass to `ls` to get more info about the files?