15-123:
Effective Programming in C and Unix

With Hunter Pitelka

Carnegie Mellon
School of Computer Science

The
Computing at Carnegie Mellon
you wish they taught

Recitation 1
Wednesday August 27th, 2008

Outline

- Who am I?
- Who are you?
- Who is Unix?
- Who is Andrew?

Who am I?

- Hunter Pitelka
- Sophomore Computer Science
- hpitelka@andrew.cmu.edu
- Member of the Greg Kesden Fan Club

Who are You?

Introduction to Unix

- Unix is “ a computer operating system originally developed in 1969 by a group of AT&T employees at Bell Labs, including Ken Thompson, Dennis Ritchie, and Douglas McIlroy.”
  - The source of all that is perfect: Wikipedia

So, what is Unix really?

- A family of operating systems that is targeted more towards server applications and developers that has an emphasis on security.
- We are actually using a slightly modified version of Fedora Linux:

```
[19:51]hpitelka@unix33:~$ cat /etc/redhat-release
Fedora Core release 3 (Heidelberg)
```

But what do you need to know?

- For now: The basics:
  - Logging into and out of a system
  - Unix file system structure
  - Basic Commands
  - Customizing your shell to make it workable

Basic Commands

mv	cp	ls	rm
cd	pwd	ssh	scp
cat	more	ps	tail
head	grep	finger	ln

THE MOST IMPORTANT COMMAND EVER:

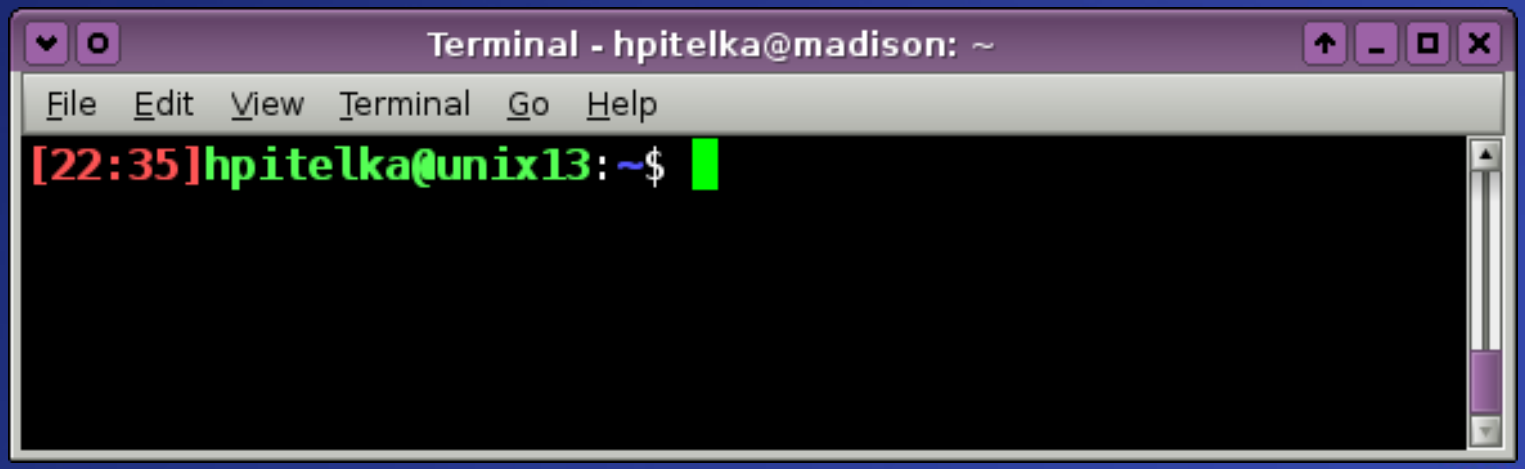
man

What is a Shell?

"A shell is a piece of software that provides an interface for users."

-The source of all perfect knowledge, Wikipedia

There are different shells you can choose from. By default *unix.andrew.cmu.edu* is a C-Shell.



The reason you came to class today

- **vi**: the best and only command-line text editor in *nix systems. (pronounced veye)
- The things you need to know:
  - Vi is mode based, the important ones are command mode and edit mode.
  - [esc] leaves the current mode (you might have to hit it a few times).
  - [:] enters command mode
  - [i] enters edit mode (one of many ways to get there)

More vi (get it? haha)

- Important commands from command mode:
  - :q <- quit (does not save, but won't let you quit if there are changes)
  - :q! <- quit and ignore changes
  - :w [filename] <- write changes
  - :d [# of lines] <- delete 1 or more lines starting from the cursor

Who is Andrew?

- Andrew is CMU's computer network, named after Andrew Carnegie and Andrew Mellon.
- We care about the AFS (Andrew File System)!
  - "The Andrew File System (AFS) is a distributed networked file system which uses a set of trusted servers to present a homogeneous, location-transparent file name space to all the client workstations."
    - Wikipedia...duh.

What you need to know about AFS

- /afs/andrew.cmu.edu/
  - usr*/
  - course/
- File Permissions:
  - the fs command

The *fs* command

- View permissions:
  - `fs la [directory name]`
- Set permissions:
  - `fs sa [directory] [userID] [rights]`

Right	Command	Meaning
Read	r	read any file in the directory
Lookup	l	list all files in the directory files
Insert	I	add new files to the directory
Delete	d	remove files
Write	w	create or edit files in the directory
Lock	k	locks files in the directory
Administrator	a	modify the access list and ownership of a directory

Extra Reading?

There are many documents on AFS on the internet that can teach you way more than I can.

- `http://www.cmu.edu/c-cm/networking/unix-protection.htm`
- `http://www.fnal.gov/docs/UNIX/unix_at_fermilab/htmldoc/rev1997/uatf-49.html`
- `http://www.openafs.org/pages/doc/UserGuide/auusg011.htm`

Insider Tips

- 15-123 is easy, Kesden is not.
  - But he is also the best 123 teacher, be glad you got him!
- Use Google!
- It might be scary to phone Kesden, but seriously, do it!
  - Heck, call me if you want to!
- **We can't say it enough: We're here to help!**

Questions?

Thanks for coming!

- Recitations: every Wednesday, 2:30-3:30 & 3:30-4:30
- Attendance will not be taken
- I'll be covering different things from Lecture as well as tips for the Lab Assignments.