CSCI 274 - Introduction to Linux OS

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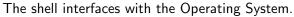
Overview

1 What is Linux?

2 Course Goals

3 Introduce - Choose an Editor Assignment

What is the Linux Operating System?
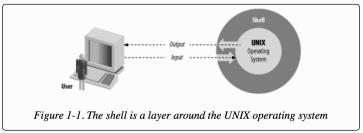
- An *operating system* is software providing the interface between the hardware and the user
- Linux grew out of the UNIX OS [1] first created at AT&T's Bell Labs [2] in the 1970s
- The UNIX Philosophy [3] : "Emphasizes building simple, short, clear, modular, and extensible code that can be easily maintained and repurposed by developers other than its creators. The Unix philosophy favors *composability* as opposed to *monolithic design*"

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[1] Other UNIX based operating systems include Solaris and Mac OS X
[2] Bell Labs is now LGS Innovations (a C-MAPP partner)
[3] Originated by Ken Thompson

What is a shell?

"The shell's job, then, is to translate the user's command lines into operating system instructions."
The shell interfaces with the Operating System.

Figure 1-1. The shell is a layer around the UNIX operating system

Excerpt and Figure From: Cameron Newham. "Learning the bash Shell, 3rd Edition."

What is bash?

- The "Bourne Again Shell" (a derivative of the popular Bourne Shell)
- A Shell developed by the GNU Project [4]
- Often the default shell for Linux and Mac OS X systems

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[4]GNU Project intended to create a free, openly distributable UNIX-compatible Operating System because Bell Labs' UNIX utilities were only commercially available

What is the Terminal?

- Think back to mainframe computers at a corporation - employees had terminals to allow them to share the mainframe.
- Now, we typically use terminal *emulators* on our personal computers
- Refers to the application which allows character based (textual) input (rather than mouse clicks, for instance) and usually produce textual output
- Your terminal can run many different shells, but we'll focus on the `bash` shell
- Other shells include: `zsh, sh,` and the Korn shell

Course Goals

Primary Goal

Make you comfortable using the command line and shell for everyday tasks

Secondary Goal

Appreciate the efficiency of using the shell and customizing your work environment to speed up common tasks

Choose an Editor Assignment

- Editing text is arguably the most common task when developing software (or making reports)
- There are two historically popular and opposing terminal based editors: `vim` and `emacs`
- You need to pick one to become familiar with!
- `vim` is a very "lightweight" editor
- `emacs` is a very "feature rich" editor