Evan Miller

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CS140U

Assignment 5

1. What is the difference between built-in (internal) and external shell commands? How does a UNIX shell execute built-in and external commands? Explain your answer with an example.

Internal shell commands are built-in to the shell, they do not create a new process to execute the command, therefore the execution speed is very fast. An external shell commands are executables stored in separate files. A new process needs to be created before the command can execute.

evan.miller@syccuxas01:~> type cd

cd is a shell builtin

evan.miller@syccuxas01:~> type cat

cat is /usr/bin/cat

2. What is the purpose of the ps command? Give an example use of the command.

The ps command is used to view information on the currently running processes and their process ID number.

evan.miller@syccuxas01:~> ps

PID TTY TIME CMD

16808 pts/25 00:00:00 bash

17147 pts/25 00:00:00 ps

3. What is the purpose of the nice command in UNIX?

The nice command is used to set the priority level of a process. The nice command has a range of -20 to 19, the lower the number the greater amount of cpu time alloted to the process.

4. Give the sequence of steps (with commands) for terminating a background process.

Start by identifying the process you want to kill, then use ps -A to find the process ID.

evan.miller@syccuxas01:~> ps -A

PID TTY TIME CMD

1 ? 00:03:13 systemd

2 ? 00:00:00 kthreadd

3 ? 00:00:40 ksoftirqd/0

5 ? 00:00:00 kworker/0:0H

1976 tty7 00:02:28 Xorg

Once you know the PID use the kill command followed by the PID

evan.miller@syccuxas01:~> kill 1976

5. Show the command for displaying the process tree on your system for

a. ALL the processes running on your system

$ pstree

b. all of YOUR processes running on the system

$ pstree evan.miller >>> pstree followed by username

6. Explain what are well-known ports (some googling on this one)? What well-known ports numbers are the following services offered: http, ftp, telnet, smtp, ssh?

A well-known port is a number from 0 to 1023 used to identify a network service on a private IP network or the public Internet. Http is 80, ftp is 20,21, telnet is 23, smtp is 25, ans ssh is 22.

7. What command(s) would you use to display information about the CPU and OS on your UNIX host?

For the cpu info:

$ lscpu

For OS info:

$ uname -a

8. How would you display information about the user chris at the host mit.edu using the finger command?

$ finger chris@mit.edu

9. What is anonymous ftp? How would you establish an anonymous ftp session with the host ftp.intel.com?

Anonymous ftp(File Transfer Protocol) is a method for giving users access to files so that they don't need to identify themselves to the server.

To establish use:

$ ftp ftp.intel.com

Set username as: anonymous

Password: usually your email address to help the host keep track of anonymous requests.

10. What is the purpose of ssh command?

The ssh command is used to start the ssh client program, enabling secure connection to the ssh server on a remote machine. The ssh command is used to log into a remote machine, transferring files between two machines, and execute commands on a remote machine.