Unix & Linux Operating Systems

All computer systems require an operating system to control the computer hardware, to schedule important routine tasks, and to allow the user to interact with the computer system.

The Unix & Linux operating systems are well suited for students at this college due to their many features. Unix accomodates multiple users, provides for user communication,

allows for sharing of files, and provides easy access to the Internet.

Unix is a family of operating systems, (unofficially) including Linux. You will find slight differences but many similarities between the various versions of Unix and Linux.

Shells

One method to communicate with the UNIX and LINUX operating systems is to enter commands (or program names) at a 'shell prompt'.

The shell is an interface between the Unix/Linux operating system and the user. When the shell is in operation, it provides a prompt and waits for the user to type in a command

and press the <ENTER> key.

The shell will not run or "execute" a command that the user types until the <ENTER> key is pressed.

This allows the user to edit or make corrections to their commands in case they make a mistake before they press <ENTER>.

You can backspace at a shell prompt by pressing one of these keys:

<Backspace>

<Ctrl>-<Backspace>

<Ctrl>-h

Try to remember all three key combinations because different ones will work on different computers. (Sometime <Delete> or <Ctrl>-<Delete> might also work.)

Type the following text: 'I made a mistike' then correct the text using the keys above. Press <ENTER> when you're ready to continue.

If you notice strange characters such as "]" or "^?", simply try another key combination from the list above!

Types of Arguments

There are three types of arguments:

- Positional Arguments

- Simple Options

- Options with a Value

Additional Keystrokes

<Ctrl>-c Cancel a running command

<Ctrl>-l CLear the screen and continue editing

<Ctrl>-u Undo the command being entered (erase it and start over).

Note: These keystrokes will work at the command prompt, but may not work within these Assignments. DO NOT use <Ctrl>-c while this Assignment is running, or the Assignment will stop.

'ls' option will 'list directory entries instead of contents'

cat cars  
more file1  
head -2 cars  
tail -3 cars

The sort command is used to sort contents of a file ex) sort cars  
The uniq command is used to display only one occurence of identical adjacent lines. If you want to prevent duplication of identical lines that are NOT adjacent, the file should

be sorted prior to using this command (or use sort -u) ex) uniq cars

The grep command is used to display matching patterns within a file. Command structure:

grep [options] [pattern] [filename]  
ex) grep ‘chevy’ cars

Now use the 'ls' command with an ambiguous pathname to verify that the directories have been made. Ex) ls -ld d?

You can also issue a Linux command to create directories even if their 'parent' directories do NOT exist. To do this, add the '-p' (parent) argument to the mkdir command.

Let's create a child directory with its parents. Ex) mkdir -p testing/1/2/3

You can change your current directory using the 'cd' command.

Change to the '/tmp' directory. Ex) cd /tmp

Create the empty file called 'file1' in the directory called '3' that you just created. You may use any of the types of pathnames.

You entered: touch file1 /testing/3. Ex) touch testing/1/2/3/file1

Now verify that this directory has been moved using the '-R' argument to the 'ls' command.

EX) ls -R testing/1

Directories may be removed with the command 'rmdir', but:

- You cannot be in the directory that you're trying to remove (or one of its child directories).

- The directory must be empty.

Try removing directory 3 using the 'rmdir' command. EX) rmdir testing/1/3

You probably noted an error message.

The directory '3' contains a file, so it is not empty. This means that you cannot remove this file using just the 'rmdir' command.

There is a more powerful command available to remove entire directory paths. The command 'rm -r' will remove non-empty directories which contain files or child directories,

grandchild directories, etc.

Use the option -i to prompt whether each directory or file is to be removed.

In this case, verify that each directory or file should be removed by typing 'y' at each prompt.

Let's remove the empty directories 'd1', 'd2', and 'd3' using the 'rmdir' command, using the question-mark wildcard. EX) rmdir d?

Assume that you are NOT currently in your home directory.

Enter a command to copy all files in your home directory beginning with the letter 'a' to the current directory. EX) cp ~/a\* .

Enter a command to delete all files that have filenames starting with 'labtest', except 'labtest' itself, from the current directory (Delete all files starting with 'labtest'

followed by one or more characters). EX ) rm labtest?\*