Chapter 5: Linux Usage

Labs: Common command

1. Go to your home directory, and display full path of your current directory.

2. Redirect the output of the `ls -l /etc` command to a file called `file.list`.

1. Determine the file type of `file.list`, and display the contents of the file.

2. Display the contents of the file `file.list` one screen at a time using the `more` command. Exit after displaying two screens.

3. Display only the first five lines of the file `file.list` on the screen.

4. Display only the last eight lines of the file `file.list` on the screen.

5. What command would you most likely use to read the contents of the binary file `/bin/cp` ?

6. Return to your home directory, and list the contents.

7. Create directories `dir1 dir2 dir3 dir4` by one command.

8. Create the `coffees` in `dir1` and move `file.list` into `coffees.`

9. Copy the `dir1/coffees/file.list` file into the `dir4` directory, and call it `filencal.list`.

10. Display a `calendar` and, append the output to `filencal.list`.

11. Create a directory called `vegetables` in `dir3`.

12. Move the `dir1/coffees/filencal.list` file into the `dir2/recipes` directory.

13. In your home directory, create a directory called `practice1/play/addresses` directory by one command only.

14. Create an empty file called `chairs` in the `addresses` directory. (use `touch` command)

15. Recursively list the contents of the `practice1` directory.

16. Using one command, create three directories called `letters`, `memos`, and `misc` in your home directory.

17. Using one command, delete the directories called `memos` and `misc` in your home directory.

18. Try to delete the directory called `practice1` with the `rmdir` , `rm` (no options) command. What happens?

19. Identify the command to delete a directory that is not empty.
Delete the directory `practice1` with option(s).

1. Log on a Linux machine or connect to one from a Windows machine (e.g. click on the Exceed icon and then use putty to connect to the server *chipchip*). Enter your login (user name) and password at relevant prompts.

2. Enter these commands at the UNIX prompt, and try to interpret the output. Ask questions and don't be afraid to experiment (as a normal user you cannot do much harm):
   - echo hello world ↵
   - passwd ↵
   - date ↵
   - hostname ↵
   - arch ↵
   - uname -a ↵
   - dmesg | more ↵(you may need to press q to quit)
   - uptime ↵
   - who am i ↵
   - who ↵
   - id ↵
   - last ↵
   - w ↵
   - top ↵ (you may need to press q to quit)
   - echo $SHELL ↵
   - man ls ↵ (you may need to press q to quit)
   - man who ↵ (you may need to press q to quit)
   - lost ↵
   - clear ↵
   - cal 2000 ↵
   - cal 9 1752 ↵(do you notice anything unusual?)
   - history ↵
3. Try the following command sequence:
   - cd
   - pwd
   - ls -al
   - cd .
   - pwd (where did that get you?)
   - cd ..
   - pwd
   - ls -al
   - cd ..
   - pwd
   - ls -al
   - cd ..
   - pwd (what happens now)
   - cd /etc
   - ls -al | more
   - cat passwd
   - cd -
   - pwd
4. Continue to explore the filesystem tree using cd, ls, pwd and cat. Look in /bin, /usr/bin, /sbin, /tmp and /boot. What do you see?

5. Explore /dev. Can you identify what devices are available? Which are character-oriented and which are block-oriented? Can you identify your tty (terminal) device (typing who am i might help); who is the owner of your tty (use ls -l)?
6. Explore /proc. Display the contents of the files interrupts, devices, cpuinfo, meminfo and uptime using cat. Can you see why we say /proc is a pseudo-filesystem which allows access to kernel data structures?
7. Change to the home directory of another user directly, using cd ~username.
8. Change back into your home directory.
9. Make subdirectories called work and play.
10. Delete the subdirectory called work.
11. Copy the file /etc/passwd into your home directory.
12. Move it into the subdirectory play.
13. Change into subdirectory play and create a symbolic link called terminal that points to your tty device. What happens if you try to make a hard link to the tty device?
14. What is the difference between listing the contents of directory play with ls -l and ls -L?
15. Create a file called hello.txt that contains the words "hello world". Can you use "cp" using "terminal" as the source file to achieve the same effect?
16. Copy hello.txt to terminal. What happens?
17. Imagine you were working on a system and someone accidentally deleted the ls command (/bin/ls). How could you get a list of the files in the current directory? Try it.
18. How would you create and then delete a file called "$SHELL"? Try it.
19. How would you create and then delete a file that begins with the symbol #? Try it.
20. How would you create and then delete a file that begins with the symbol -? Try it.
21. Still in your home directory, copy the entire directory play to a directory called work, preserving the symbolic link.
22. Delete the work directory and its contents with one command. Accept no complaints or queries.
23. Change into a directory that does not belong to you and try to delete all the files (avoid /proc or /dev, just in case!)
24. Experiment with the options on the ls command. What do the d, i, R and F options do?

Review of vi Commands

Opening a File With "vi"

```
Step #1 Move into your "tmp" directory (the "tmp" directory within your home
directory).  Copy the "/etc/passwd" file to your "tmp" directory.

Step #2 Open the file with vi by typing "vi passwd".

Step #3 Type a ":".  Notice this puts the cursor on the bottom-left of the
screen.

Step #4 Next, type the letter "q", and hit the "<Enter>" key.
```

Inserting Text With "vi"

The following exercise shows you how to open a file, enter text, and then save the changes to the file.

```
Step #1 At the command line, type "vi doc1".

Step #2 Type the letter "i".  This puts you into insert mode.

Step #3 Enter the following text into your document:

  This is my first vi document.
  This is the second line of the document.

Step #4 Hit the "<Esc>" key.  This takes you back into command mode.

Step #5 Now enter ":wq" to save the changes to the file.  This stands for
"write and quit".  You are returned to the LINUX command line.
```

<Esc>	Return to command mode.	**x**	Delete one character.
		dd	Delete line.
h, <Backspace>	Move cursor left.		
j, <Enter>	Move cursor down.	**o**	Open (insert) below current line.
K	Move cursor up.	**O**	Open (insert) above current line.
l, <Space>	Move cursor right.		
		u	Undo most recent change.
I	Insert left of cursor.	**U**	Undo changes to current line.
A	Insert right of cursor.		
I	Insert at beginning of line.	**:wq, ZZ**	Write buffer and quit.
A	Append at end of line.	**:q!**	Quit without saving changes.

Labs: vi

***Note:** Do **not** login as **root** user when take this labs*

0.)
Copy the file **/etc/passwd** to your home directory, and rename to **newpasswd**

1.)
Edit the file **newpasswd** by typing **vi newpasswd**. Note the position of the cursor. Move the cursor to the end of the line and then back to the beginning. Do the cursor motion three different ways.

2.)
Edit **newpasswd**. Delete the **third** line. Type **:q!**
Back at your shell prompt now, type **more newpasswd**.
Is the third line gone? Why not? Repeat the exercise, but this time exit **vi** such that the file **newpasswd** is changed on disk.

3.)
Copy **/etc/passwd** to **newpasswd** as Step 0. This will restore the original **newpasswd** file after the edit in Step 2.

Edit **newpasswd** and position the cursor on a line in the middle of a paragraph. Delete two characters on the line with **xx**, then press **u** for undo. Press **u** again. What happened? What about pressing **u** once more? Try this exercise with **dd** now. Delete several lines, then bring them back one at a time with repeated undo commands.
Experiment with **<Ctrl>r** after undoing a command. The **r** means "redo."

4.)
Delete the first word on a line. Then move the cursor several words to the right and insert a word. Remember to press **<Esc>** to leave insert mode. Now type capital **U**.
What happened? Repeat the exercise, but after inserting the new word and pressing **<Esc>**, move the cursor off the line (up or down) then back to the line. Now press **U**. What happened?

5.)
Practice inserting text with **i**, **a**, **o**, and **O**. Remember to press **<Esc>** to leave insert mode and return to command mode each time.

6.)
Repeat the above with **I** and **A**.
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1. Copy the file mole.txt into your home directory (press shift and the left mouse button to download the file using Netscape).
2. Edit your copy of the document using vi.
3. Go to the end of the document and type in the following paragraph:

Joined the library. Got Care of the Skin, Origin of the Species, and a book by a woman my mother is always going on about. It is called Pride and Prejudice, by a woman called Jane Austen. I could tell the librarian was impressed. Perhaps she is an intellectual like me. She didn't look at my spot, so perhaps it is getting smaller.

4. Correct the three spelling errors in the first three lines of the first paragraph (one error per line) and remove the extra "Geography" in the 3rd line of the first paragraph.
5. Add the words "About time!" to the end of the second paragraph.
6. Delete the sentence "Time flies like an arrow but fruit flies like a banana" and re-form the paragraph.
7. Replace all occurrences of "is" with "was".
8. Swap the two paragraphs.
9. Save the file and quit.