Lab # 1

Objectives

- To Familiarize with the Linux command line interpreter
- To be able to execute and interpret Linux basic commands

Pre-Lab Theory:

There are 2 ways to use the command

1. Absolute mode
2. Symbolic mode

1. Absolute(Numeric) Mode in Linux

In this mode, file permissions are not represented as characters but a three-digit octal umber.

The table below gives numbers for all permissions types.

Number	Permission Type	Symbol
0	No Permission	—
1	Execute	–x
2	Write	-w-
3	Execute + Write	-wx
4	Read	r–
5	Read + Execute	r-x
6	Read +Write	rw-
7	Read + Write +Execute	rwx

2. Symbolic Mode in Linux

The categories of people's access:

- a all users
- u the owner user
- g the owner group

- o others (neither u, nor g)

The format for permissions is:

chmod {a,u,g,o} {+,-} {r,w,x} files
The plus ("+") sign indicates give permission. The minus ("-") sign indicates remove permission.

Permission examples:

- chmod a+r files are readable by all
- chmod a-r files cancels the ability for all to read the file
- chmod a-rwx cancels all access for all
- chmod g+rw files give the group read and write permission
- chmod u+rwx files give the owner all permissions
- chmod og+rw files give the world and the group read and write permission

1. PATH:
    a. Absolute Path
        i. From root directory
        /root/home/…

    b. Relative Path
        i. From current directory
        ./mydirectory
2. .(dot) and ..(dot dot)
    a. .(dot) refers to current directory
    b. ..(dot dot) refers to one level up directory

In-Lab Tasks

Linux Commands:

3. Present Working Directory:
    $pwd
    Task 1: write the output

4. List Files and Subdirectories:
    a. $ls
    b. $ls -l

    Task: Explain all the columns in the output Also interpret the first character of the first column values Possible characters (-, d, l, p, s, b, c)

    c. Display the Hidden files
    $ls -a
    Task 2: write the output

    d. Metacharacters/wild card
        i. $ls ch*.doc

        Task 3: First execute ls and then list some files through wild card and write output

5. Change Directory:
    a. $cd ../
    Change the directory to one level up

    Task 4: execute ‘pwd’ first then ‘cd ../’ and write the output

6. Creating Subdirectories:

   $mkdir <subdirectory path>

   Task 5: write the command to create subdirectory Lab1 in pwd

   $mkdir -p <subdirectory path with parent directories>

   Parent directories will be created if not exist

   Task 6: write the command to create directories with the following hierarchy

   /Linux_Commands/Lab_Tasks

7. Removing Subdirectories

   $rmdir

   Task 7: write the command to create a subdirectory Temp in the current directory and then write the command to remove it

8. Copy Files

   $cp <source file path> <destination file path>

   Task 8: create and edit a file temp.dat using gedit with some text and save the file in the Lab1 directory.

   Write the command to copy temp.dat to subdirectory Lab_Tasks created in the previous task

9. Renaming the file

   $mv <file to rename> <renamed file>

   Task 9: write a command to rename a file ‘temp.dat’ to ‘myfile.dat’ and execute ‘ls’ to verify it.

10. Removing/Deleting the file

    $rm <filename>

    Task 10: write a command to remove the file temp.dat from the Lab_Tasks subdirectory

11. Display the Contents of the file on the screen

    $cat <file path>

    Task 11: create a file using $gedit xyz.dat type something, save the file, and exit

    Write a command to display the xyz.dat file contents

12. Changing the permissions of the file

    $chmod <nnn> <filename>

    $chmod 777 xyz.txt

    Task 12a: execute ls -l and write the permissions column value for xyz.txt file.

    Task 12b: write the command ***chmod 640 xyz.txt*** using symbolic mode

13. Display the word count of the file
    $wc <filename>
    Task 13 write the command to display the word count of any file and Interpret the output values

14. Display the PATH environment variable
    $echo $PATH

    Task 14: write the output

15. Redirection Operator (>)
    Task15a: Execute $ls -l > xyz.dat and explain the behavior

    Task 15b: Append some contents in the existing file ‘xyz.dat’
    Write the command string used to achieve the above task

16. Top Command:

$top

Task 16: Execute top command and interpret the output. Explain all the columns

17. Listing the processes

$ps

Task 17: write and interpret the output

18. $gedit myfile.dat &

Task 18: Execute the above command and explain the behavior and importance of &