**LINUX COMMAND LINE**

**Ls command:** (list directory content)

* To list all the directories in pwd

ls

* To list content of the root directory

ls /

* To list content of a particular directory

ls Documents

* To know which directory we are working in

pwd

/home/Tina

* To print one step back directory

ls ..

Tina

* To print two step back directory

ls ../..

* To display lists in long format

ls –l

(dir) (u) (g) (o) (slrtf) (size)

D rwx r-x r-x 2 Tina Tina 4096 Sep 4 2022 dir

* To display hidden folders

ls -a

* To print hidden folder and long format files together

ls -al

* To display long lists files order by size

ls -lS

* To display files of a certain extension

ls Documents /\*.html

* To display all files with extension in directory in a dir.

ls Documents /\*.\*

* To create a file containing content of ls

ls –lS > out.txt

* To only display directories

ls –d \*/

* To display commands which can be used with ls

man ls

**cd command: (change directory)**

* To change to root directory

cd /

* To move to one step back directory

cd ..

* To change directory

cd Desktop

cd Documents/books

Now,

If we have a file name “My books” with space in b/w and we use

cd Documents/My books

it will give an error as it takes “my” in consideration. So,

cd Documents

cd “My Books”

**cat command:**

1. Displaying text files
2. Combining content of text files
3. Creating new text files

* cat (use ctrl+D to move out)

cat

Hello World -(echo input)

Hello World

* To display content of text file

cat list1.txt - to display content of a text file

cat list1.txt list2.txt – content of multiple files

cat –b list1.txt – add line no to the commands

(blank lines excluded)

cat –n list1.txt – add line no to blank lines

cat –S list1.txt – squeezes multiple blank lines to single one

cat –E list1.txt – adds a dollar sign at the end

**I/O Redirection:**

(Third application of cat command)

* Creating new files using cat

cat > test.txt

Line1

Line2

Line3 (ctrl+D)

* To add more content in test.txt (to append)

**cat >> test.txt**

Line4

Line5

If we don’t use “**>>**” it will overwrite “line4..” in place of “line1..”

* To append content of two files in one

cat list1.txt list2.txt> out.txt

cat out.txt

**mkdir: (to create directory)**

* cd Desktop

**mkdir image** - creates a dir. Image

* mkdir image/pics - creates pics folder inside image dir.
* mkdir names/tina- produces an error as names is not a dir.

So,

* **mkdir –p names/tina**

(parent flag)

* mkdir –p names/{tina,saurabh,dad}

curly brackets for creating multiple folders inside names

**Don’t give space b/w filename & comma**

**rmdir: (to remove directory)**

* **rm -r names** - removes parent as well as child dir.

(recursive flag)

* rmdir –p names/pics

**less command:** (use Q to quit)

* less <filename>

shift+ cap.G – coming to end of long file

small g- at the beginning

space-if we want to move page by page

* to search a word from top to bottom

/ word (press n for next same word)

* to search a word from bottom to up

? word

**touch command: (to create a new file)**

* touch <filename>

Use the same command to change the timestamp of the created file

**nano command:**

* nano <filename> - it creates a file &shows a terminal to write content of file.

ctrl+o - to save file

press enter and ctrl +x

* highlights code keywords

nano file.cpp – cpp file is created & you can write and save the code.

**sudo command: (super user do)**

* sudo mkdir newdir

password:\_\_\_\_\_

* sudo -s

**top command:** (Dynamic real time of a system)

(which process takes most computer memory)

PID(process id)

I is used to show running processes

Press Q to quit top command

By default refresh rate is 3sec, press S to change it.

**kill command:** (to kill a process)

* pidof <process\_name>

Note: pid changes every single time we closes it and then restart it .

* kill <pid>
* kill -KILL <pid> -alternative
* kill -9 <pid> - alternative
* **to find pid of program**

ps -ux

**ps -aux** - to see all running processes

ps -c <program name> - list pid of processes related to program

**echo command:**

* echo <word>

// word

* echo “word” -alternative

// word

* create variable:

Note: there should be no space between variable name ,comma and its value.

myvar=10

echo $myvar

x=10

Echo “the value of x is $x”

* To use special features

\n: moves to next line.

\t: tabs

\b: attaches words (sometext)

\a: alert (some text)

echo -e ‘some \n text’

(escape flag)

some

text

**chmod:**

* Change permission of the file

If it is in first position: - : normal text file c: char special file b: binary special file

**Chmod o+w file.txt**

(others)(to add permission)(write)

ls –l

**chmod ugo=rwx file.txt** – for all people

ls –ld dir

**octal and numerical permissions:**

u.users g.group o.other

r w x r w x r w x

1 1 1 1 1 1 1 1 1

4 2 1 4 0 1 0 2 1

(double) (value acc to user read)

4+2+1=7 4+1=5 2+1=3

* **chmod 753 file.txt**

**BASH SCRIPTING**

**Script Bash:**

* To create a script file

In script:

Step1: #! <path> -(which bash 4 path)

Step2: content ...

nano myscript.sh

ctrl+O Enter ctrl+X

(to save) (to exit)

By default script doesn’t have permission to execute. So,

chmod +x myscript.sh

* To display the content of myscript.sh

./myscript.sh

**which and whatis command:**

* To find location of a file/folder

which bash

which firefox

* To define a command in simple words

whatsis ls

whatis cat

whatis firefox

**useradd command: (creating users)**

* To create a user (default home dir.) (shell) (default gp)

sudo useradd <username> -m -s/bin/bash -g users –c ”my comment”

(comment)

ls home - (to check if user is added)

* To give password access to new user

sudo passwd <username>

**userdel command: (removing users)**

sudo userdel <username> - doesn’t del from home dir.

sudo userdel –r <username> - it will del info from home dir.

sudo rm –r home/tina - not recommended

**Basic group command:**

* To see groups working with user

groups

* To see all working groups

cat/etc/group

* To create a new group

sudo groupadd java

* To delete a group

sudo groupdel java

* To add a group in users group

sudo gpasswd -a tina java

(add) (gp to be added)

* To remove a group from user group

sudo gpasswd –d tina java

(delete)

**.bashrc file:**

It is the file which is executed when we open the terminal.

ls –a

nano .bashrc

Move to end of file and write

Echo “this is a test”

Save & exit

Ctrl+ shift+ T- “this is a test” will be written at the top.

**Viewing resources:**

* To report the amt. Available disk space used by file system.

df –h

(human readable form)

* To estimate & display the disk space used by files

du –sh

(summary)

In case of permission denied ; use sudo in front.

* Total amount of free,used,physical & swap memory in the system

-b: byte, -m: megabyte, -g: gigabyte, - t:terabyte

free -b/-m/-g/-t

**Watch command:**

* watch free –m
* watch –n1 free –m - to change refresh rate

**By default it refreshes at every 2sec.**

Ctrl+C to exit watch command

**Head and tail command:**

* head<filename>
* tail<filename>
* head –n3 <filename> - to change no of lines

(3lines)

**By default, it displays first 10 or last 10 lines of text file.**

* head –f <filename>

(follow)

**find command:** (search files in dir. Hierarchy)

* find (home/tina) **-name** <filename>

(location search path)

In case of permission denied ; use sudo in front.

**wc command: word count**

* wc file.txt

2 6 24 file.txt

(no of lines) (no of words) (no of characters)

-c: count bytes , -w: count words , -l: counts no. of lines , -L: counts the longest line char.

**cal command: (calendar)**

* cal - shows cal of the current month
* ncal –shows cal of current month in formatted form
* cal 2022- shows cal of whole year
* cal 9 2022- shows cal of particular month

(month no.)

* cal -3 – shows pr., previous and future month calendar

**By default it is set at -1 that is cal command itself**

**Date command:**

* date -s “DD/MM/YYYY HH:MM:SS”- format time using this command

**How to run multiple terminals com. :**

* Use of semicolon (;)

ls ; pwd

**It will run the output for all commands even if any one gives an error.**

* Use of ampersand (&)

ls && pwd

**It will not execute the next command if the running command gives an error.**

Eg: ls && CAL&& pwd

* Use of or(||)

ls ||pwd

**It will execute another command only if the first one produces an error**.

**apt -get command: (to install packages)**

**(Advanced packaging tool)**

Debian based OS uses this command- ubuntu

* sudo apt-get update
* To install a software

apt-get install <software\_name>

* To remove a software

apt-get remove <software\_name>

* To remove all configuration files related to software

apt-get remove -purge <software\_name>

sudo apt-get autoremove - remove unreq. Packages

**ifconfig command:** **(Interface configuration)**

( to view & change network conf. of our system)

* ifconfig
* sudo ifconfig <nameofinternet> down - it disconnects the internet
* sudo ifconfig <name of internet> up - it reconnects to internet

**tar command: (zip file)**

* tar -cvf test.tar <name of file>

(create)

* tar –xvf <filename>.tar (extract file)
* tar –czvf <tar\_filename>.tar.gz <filename>

**grep command:** (used to find pattern in a file)

**(Global regular expression print)**

* man tar> file.txt - creates a man tar detail text.file
* grep “search\_word” <filename>

**netstat command:** It is used to display network connection ,routing tables & network interfaces.

* netstat -a - shows all connections along with their status
* netstat -a | less -shows in a more flexible way
* netstat -at | less - to see tcp connections
* netstat -au| less - to see udp connections
* netstat -l | less - listening ports are showed
* netstat -s | less - for statistics
* netstat -p | less- to see pid of related interfaces
* netstat -n | less-numeric nodes
* netstat -c | less-shows status continuously
* **netstat -ie - shows same output as ifconfig**
* netstat -an |grep ‘:80’

**(the pipe sign implements the command written next to it like grep,less)**