

# LAB 1: Learning Basic Linux Commands

## OS Used: Ubuntu (22.04.3)

### 1.1 Command Name : ls

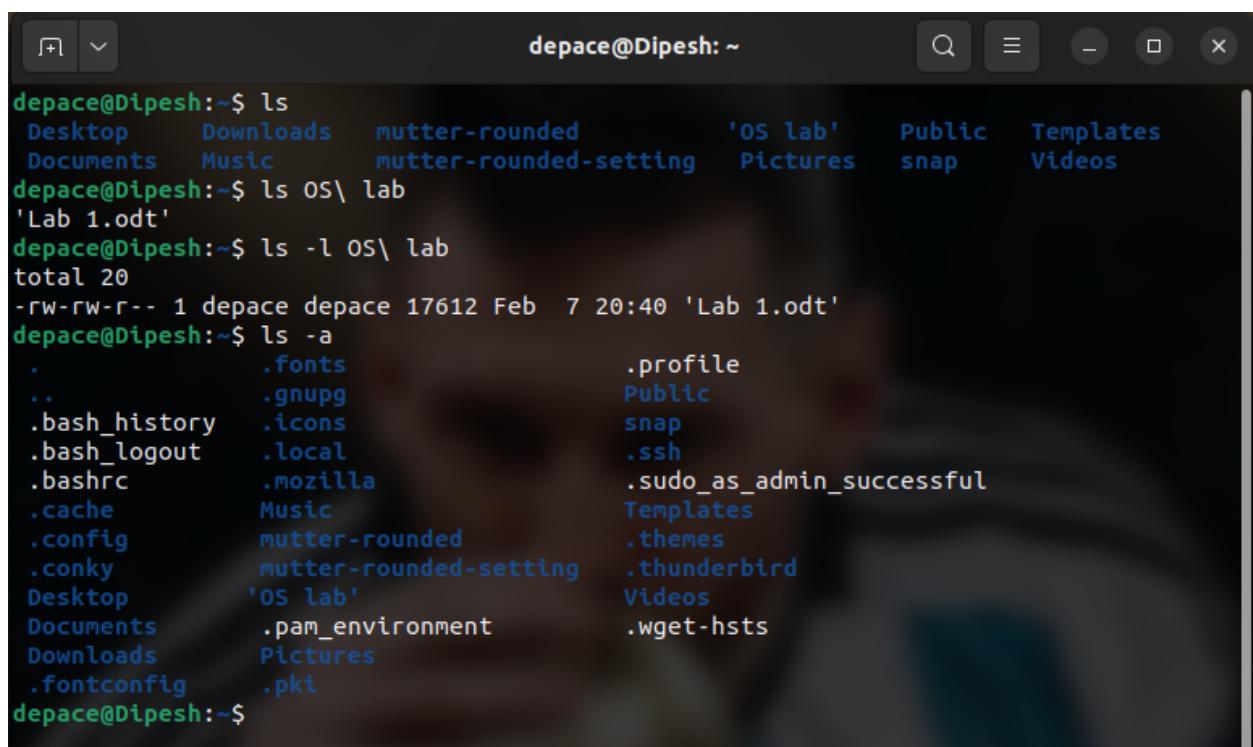
**Syntax :** ls [option] [file]

**Usage :** The ls command is used to list files and directories in the current working directory.

**Commands Used :**

- ◆ **ls** = It list all the unhidden files and directories within the current working directory
- ◆ **ls OS\ lab** = It list all the Files and directories of OS lab directory.
- ◆ **ls -l OS\ lab** = It provide detailed long listing format with details like owner, permissions, size, etc
- ◆ **ls -a** = It is used to show all the files, even the files starting with . (hidden files).

**Output :**



```
depace@Dipesh:~$ ls
Desktop      Downloads    mutter-rounded          'OS lab'      Public   Templates
Documents    Music        mutter-rounded-setting Pictures    snap     Videos
depace@Dipesh:~$ ls OS\ lab
'Lab 1.odt'
depace@Dipesh:~$ ls -l OS\ lab
total 20
-rw-rw-r-- 1 depace depace 17612 Feb  7 20:40 'Lab 1.odt'
depace@Dipesh:~$ ls -a
.                  .profile
..                 .gnupg
.bash_history     .icons
.bash_logout      .local
.bashrc           .mozilla
.cache            Music
.config           mutter-rounded
.conky            mutter-rounded-setting
Desktop          'OS lab'
Documents        .pam_environment
Downloads        Pictures
.fontconfig       .pki
depace@Dipesh:~$
```

### 1.2 Command Name : cd

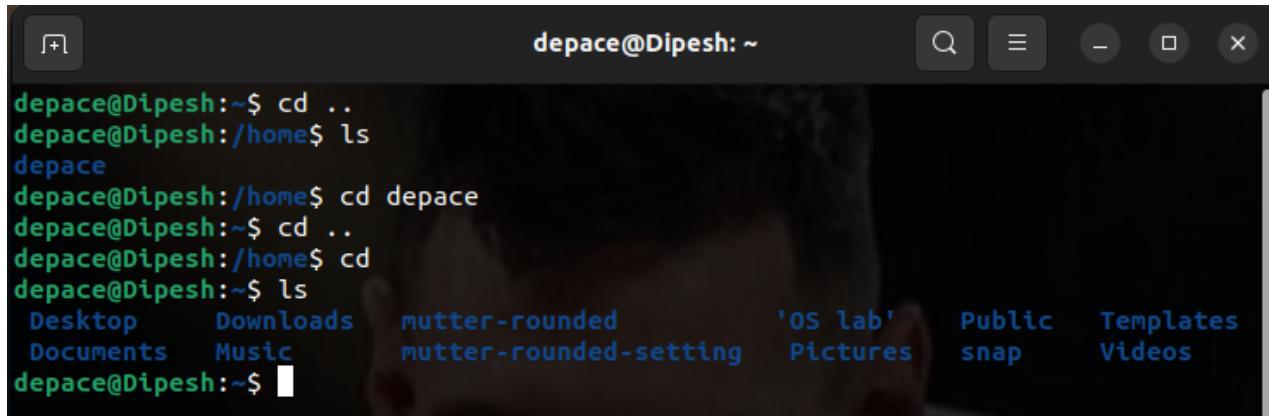
**Syntax :** cd <directory path>

**Usage :** It is used to navigate through Linux Files and directories.

### Commands Used :

- ◆ **cd ..** = It move one directory up.
- ◆ **cd depace** = It moves to depace directory.
- ◆ **cd** = It moves to home folder.

### Output :



```
depace@Dipesh:~$ cd ..
depace@Dipesh:/home$ ls
depace
depace@Dipesh:/home$ cd depace
depace@Dipesh:~$ cd ..
depace@Dipesh:/home$ cd
depace@Dipesh:~$ ls
Desktop Downloads mutter-rounded 'OS lab' Public Templates
Documents Music mutter-rounded-setting Pictures snap Videos
depace@Dipesh:~$
```

## 1.3 Command Name : grep

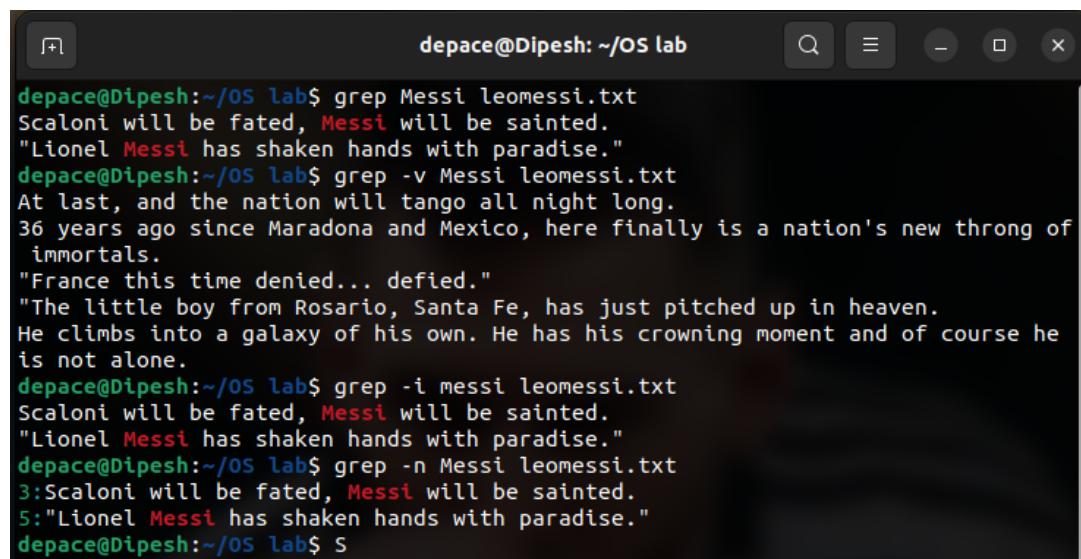
**Syntax :** grep <'string'> <filename>

**Usage :** It is used to perform text searches for a defined criteria of words or strings.

### Commands Used :

- ◆ **grep Messi leomessi.txt** = It prints the line which match the string Messi in leomessi.txt file.
- ◆ **grep -v Messi leomessi.txt** = It prints the line which does not match the string Messi in leomessi.txt file.
- ◆ **grep Messi leomessi.txt** = It prints the line which match the string messi in leomessi.txt file ignoring the casing.
- ◆ **grep -n Messi leomessi.txt** = It prints the line and line number which match the string Messi in leomessi.txt file.

### Output :



```
depace@Dipesh:~/OS lab$ grep Messi leomessi.txt
Scaloni will be fated, Messi will be sainted.
"Lionel Messi has shaken hands with paradise."
depace@Dipesh:~/OS lab$ grep -v Messi leomessi.txt
At last, and the nation will tango all night long.
36 years ago since Maradona and Mexico, here finally is a nation's new throng of
immortals.
"France this time denied... defied.."
"The little boy from Rosario, Santa Fe, has just pitched up in heaven.
He climbs into a galaxy of his own. He has his crowning moment and of course he
is not alone.
depace@Dipesh:~/OS lab$ grep -i messi leomessi.txt
Scaloni will be fated, Messi will be sainted.
"Lionel Messi has shaken hands with paradise."
depace@Dipesh:~/OS lab$ grep -n Messi leomessi.txt
3:Scaloni will be fated, Messi will be sainted.
5:"Lionel Messi has shaken hands with paradise."
depace@Dipesh:~/OS lab$ S
```

## 1.4 Command Name : su/sudo

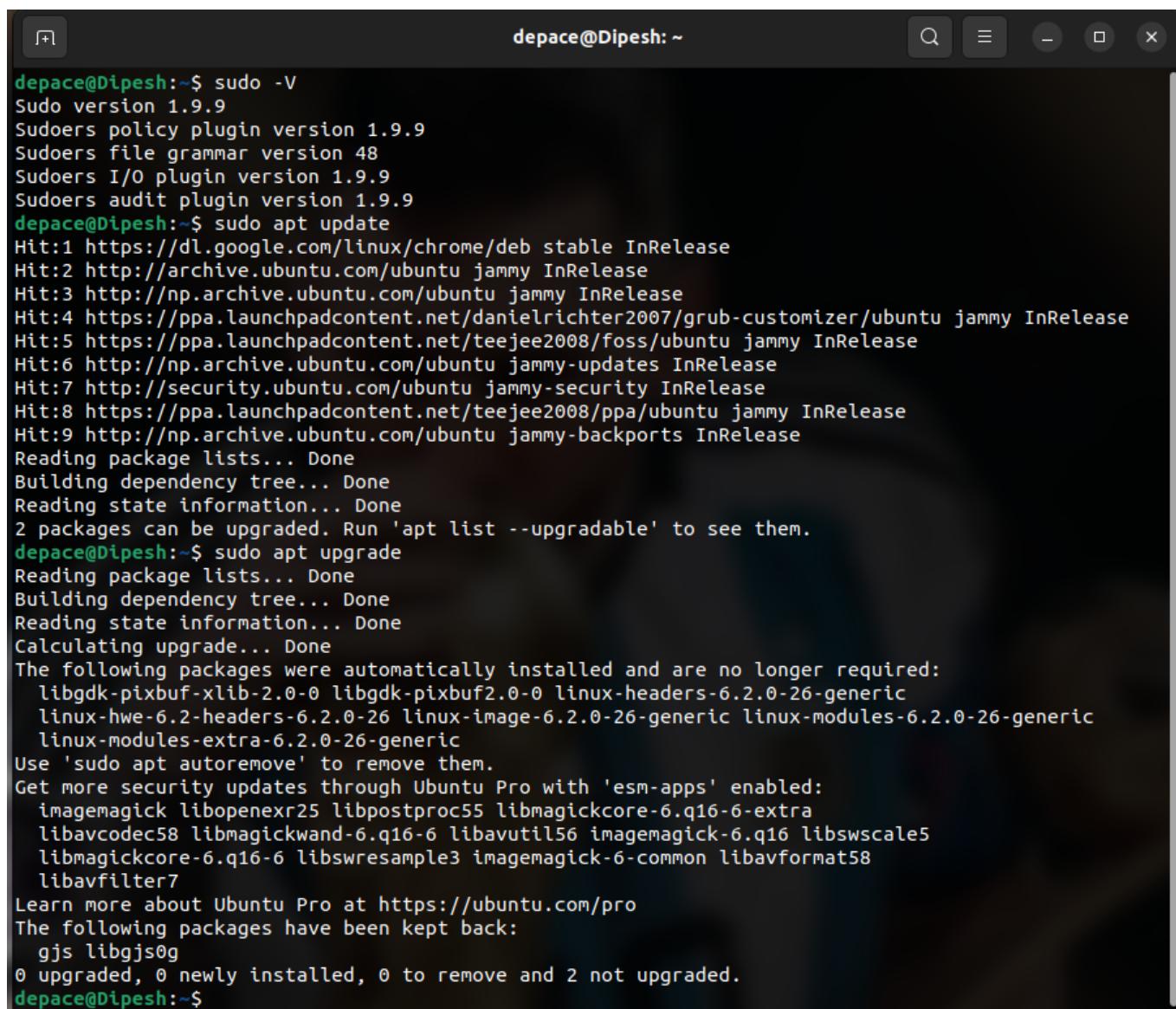
**Syntax :** sudo <command\_to\_execute>

**Usage :** It enables users to run some commands as a super user or System Administrator that normal users cannot do.

**Commands Used :**

- ◆ **sudo -V** = It causes sudo to print the version number.
- ◆ **sudo apt update**= It is used to download package information from all configured sources
- ◆ **sudo apt upgrade**= It upgrade the installed packages on your system to their latest versions.

**Output :**



```
depace@Dipesh:~$ sudo -V
Sudo version 1.9.9
Sudoers policy plugin version 1.9.9
Sudoers file grammar version 48
Sudoers I/O plugin version 1.9.9
Sudoers audit plugin version 1.9.9
depace@Dipesh:~$ sudo apt update
Hit:1 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:2 http://archive.ubuntu.com/ubuntu jammy InRelease
Hit:3 http://np.archive.ubuntu.com/ubuntu jammy InRelease
Hit:4 https://ppa.launchpadcontent.net/danielrichter2007/grub-customizer/ubuntu jammy InRelease
Hit:5 https://ppa.launchpadcontent.net/teejee2008/foss/ubuntu jammy InRelease
Hit:6 http://np.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:7 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:8 https://ppa.launchpadcontent.net/teejee2008/ppa/ubuntu jammy InRelease
Hit:9 http://np.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see them.
depace@Dipesh:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  libgdk-pixbuf-xlib-2.0-0 libgdk-pixbuf2.0-0 linux-headers-6.2.0-26-generic
  linux-hwe-6.2-headers-6.2.0-26 linux-image-6.2.0-26-generic linux-modules-6.2.0-26-generic
  linux-modules-extra-6.2.0-26-generic
Use 'sudo apt autoremove' to remove them.
Get more security updates through Ubuntu Pro with 'esm-apps' enabled:
  imagemagick libopenexr25 libpostproc55 libmagickcore-6.q16-6-extra
  libavcodec58 libmagickwand-6.q16-6 libavutil56 imagemagick-6.q16 libswscale5
  libmagickcore-6.q16-6 libswresample3 imagemagick-6-common libavformat58
  libavfilter7
Learn more about Ubuntu Pro at https://ubuntu.com/pro
The following packages have been kept back:
  gjs libgjs0g
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
depace@Dipesh:~$
```

## 1.5 Command Name : pwd

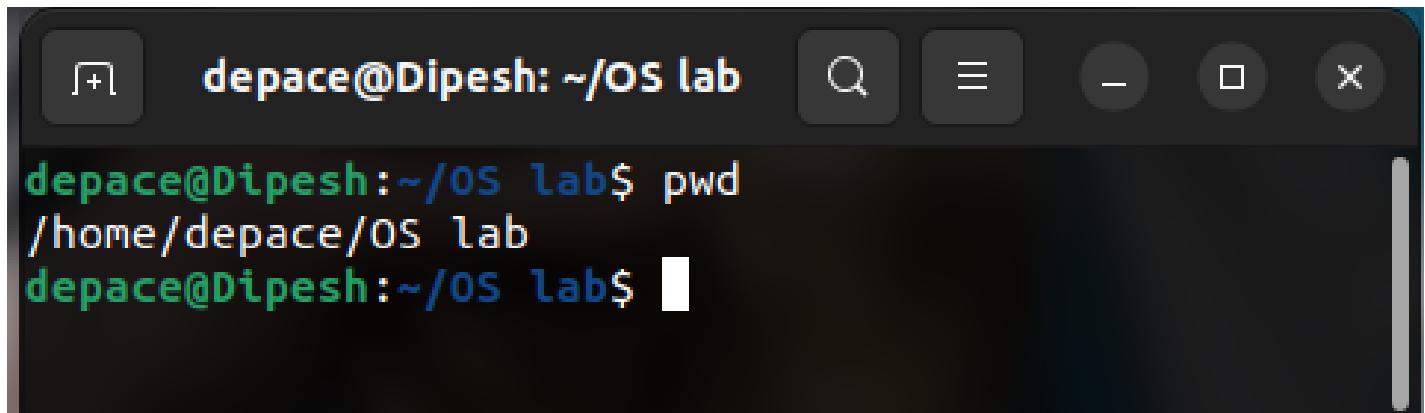
**Syntax :** pwd

**Usage :** It allows users to find the path of the current working directory or folder they are in.

**Commands Used :**

- ◆ **pwd** = It displayed the path of current workin directory i.e home/depace/OS lab

**Output :**



```
depace@Dipesh: ~/OS lab$ pwd
/home/depace/OS lab
depace@Dipesh:~/OS lab$
```

## 1.6 Command Name : mv

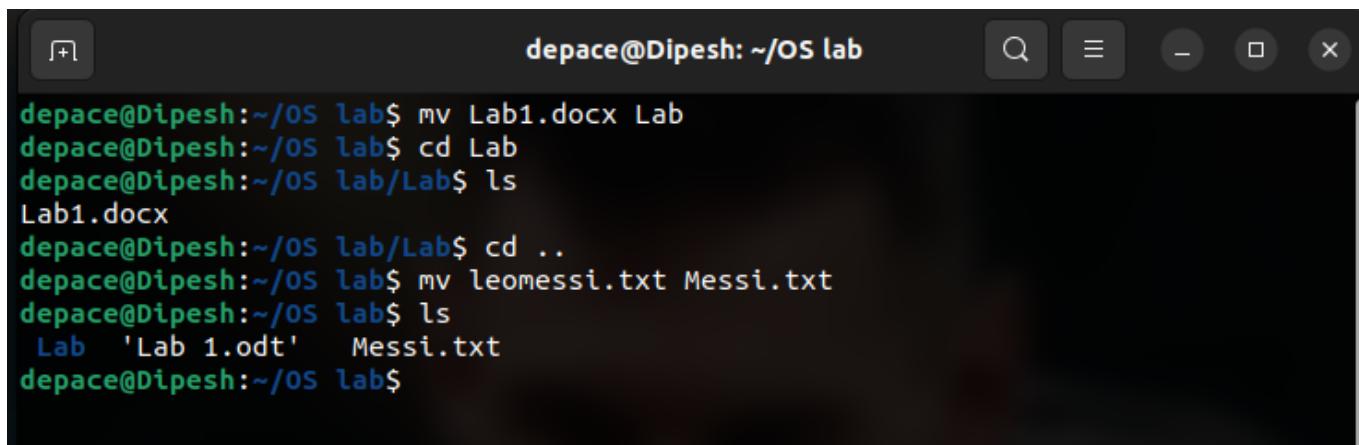
**Syntax :** mv <filename> <Destination>  
mv <oldfilename> <newfilename>

**Usage :** It is used to move a file from a given directory to a different directory. It helps programmers to organize data easily. You can also use this command to rename files.

**Commands Used :**

- ◆ **mv Lab1.docx Lab** = It moved the file Lab1.docx from current dir to Lab dir.
- ◆ **mv leomessi.txt Messi.txt** = It renamed the file leomessi.txt to Messi.txt
- ◆

**Output :**



```
depace@Dipesh:~/OS lab$ mv Lab1.docx Lab
depace@Dipesh:~/OS lab$ cd Lab
depace@Dipesh:~/OS lab/Lab$ ls
Lab1.docx
depace@Dipesh:~/OS lab/Lab$ cd ..
depace@Dipesh:~/OS lab$ mv leomessi.txt Messi.txt
depace@Dipesh:~/OS lab$ ls
Lab 'Lab 1.odt' Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.7 Command Name : cp

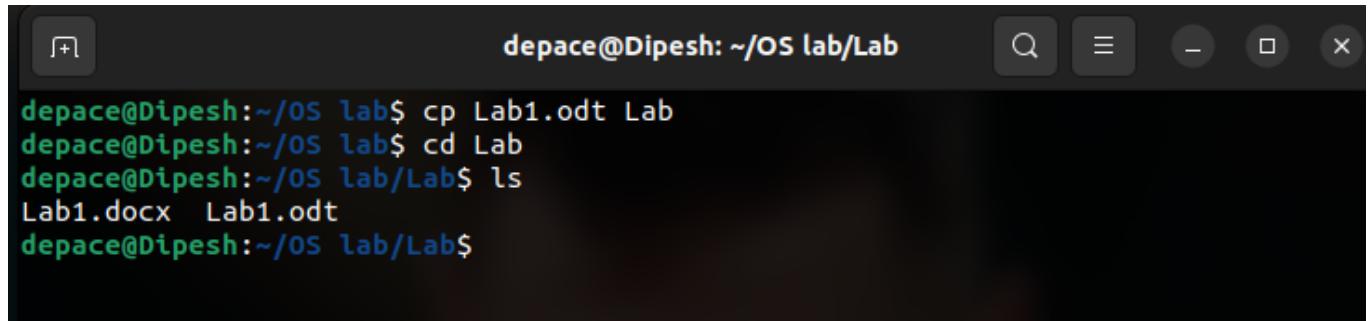
**Syntax :** mv <filename> <Destination>  
mv <oldfilename> <newfilename>

**Usage :** It is used to copy files from the current directory to a different directory.

**Commands Used :**

- ◆ **cp Lab1.odt Lab** = It copied the file Lab1.odt from current dir to Lab dir.

**Output :**



```
depace@Dipesh:~/OS lab$ cp Lab1.odt Lab
depace@Dipesh:~/OS lab$ cd Lab
depace@Dipesh:~/OS lab/Lab$ ls
Lab1.docx  Lab1.odt
depace@Dipesh:~/OS lab/Lab$
```

## 1.8 Command Name : rm

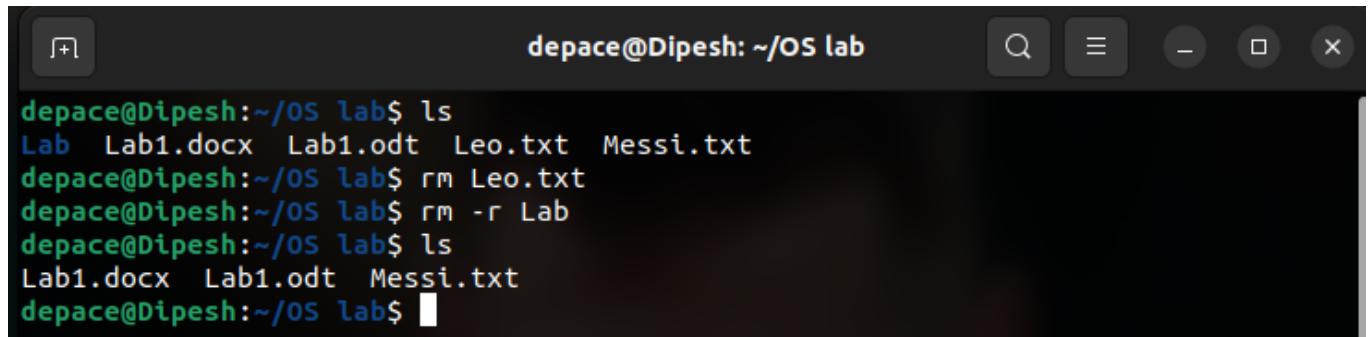
**Syntax :** rm <filename>  
rm -r <foldername>

**Usage :** It is used to delete files and folders as well as the contents within them.

**Commands Used :**

- ◆ **rm Leo.txt** = It deleted the file Leo.txt.
- ◆ **rm -r Lab** = It deleted the directories Lab and all the content within it.

**Output :**



```
depace@Dipesh:~/OS lab$ ls
Lab  Lab1.docx  Lab1.odt  Leo.txt  Messi.txt
depace@Dipesh:~/OS lab$ rm Leo.txt
depace@Dipesh:~/OS lab$ rm -r Lab
depace@Dipesh:~/OS lab$ ls
Lab1.docx  Lab1.odt  Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.9 Command Name : mkdir

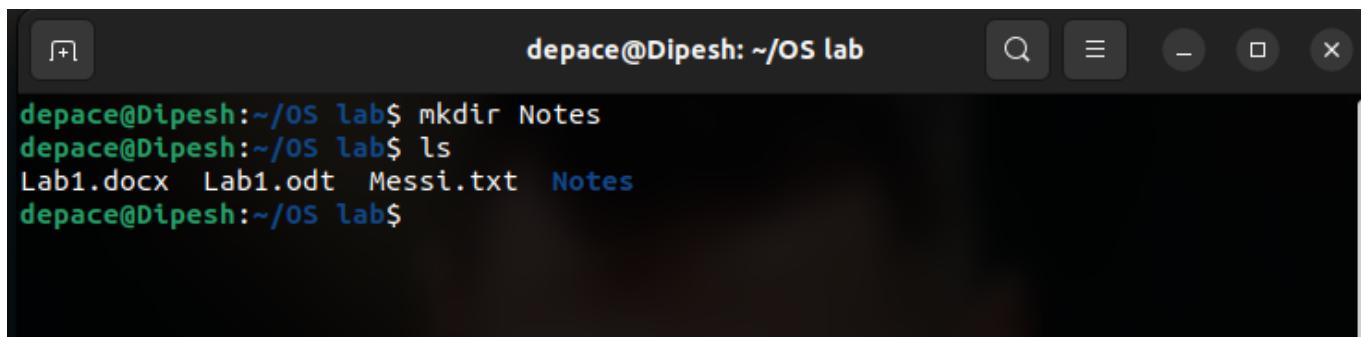
**Syntax :** mkdir <folder name>

**Usage :** It is used to create directories from within the terminal.

**Commands Used :**

- ◆ **mkdir Notes** = It created the new directories named Notes

**Output :**



```
depace@Dipesh:~/OS lab$ mkdir Notes
depace@Dipesh:~/OS lab$ ls
Lab1.docx Lab1.odt Messi.txt Notes
depace@Dipesh:~/OS lab$
```

## 1.10 Command Name : rmdir

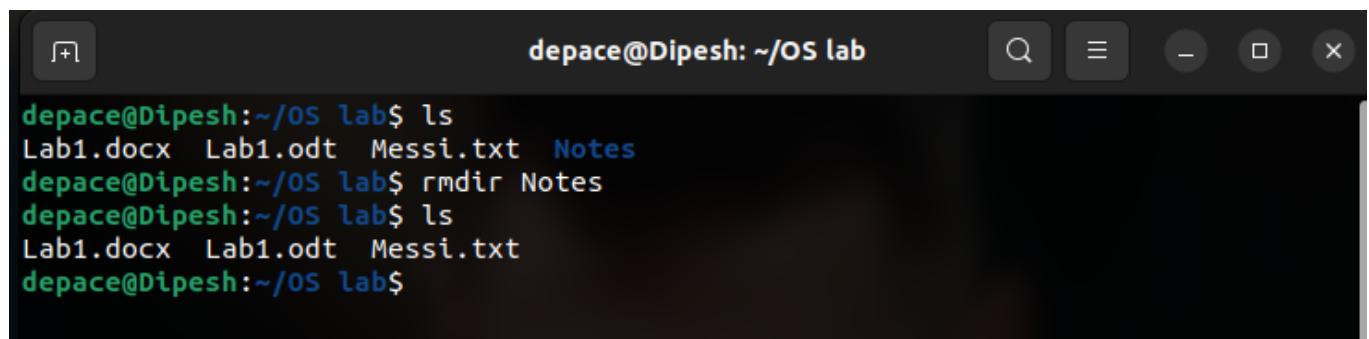
**Syntax :** rmdir <folder name>

**Usage :** It is used to delete a directory, provided that the directory is empty.

**Commands Used :**

- ◆ **rmdir Notes** = It deleted the directories named Notes since it was empty.

**Output :**



```
depace@Dipesh:~/OS lab$ ls
Lab1.docx Lab1.odt Messi.txt Notes
depace@Dipesh:~/OS lab$ rmdir Notes
depace@Dipesh:~/OS lab$ ls
Lab1.docx Lab1.odt Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.11 Command Name : chmod

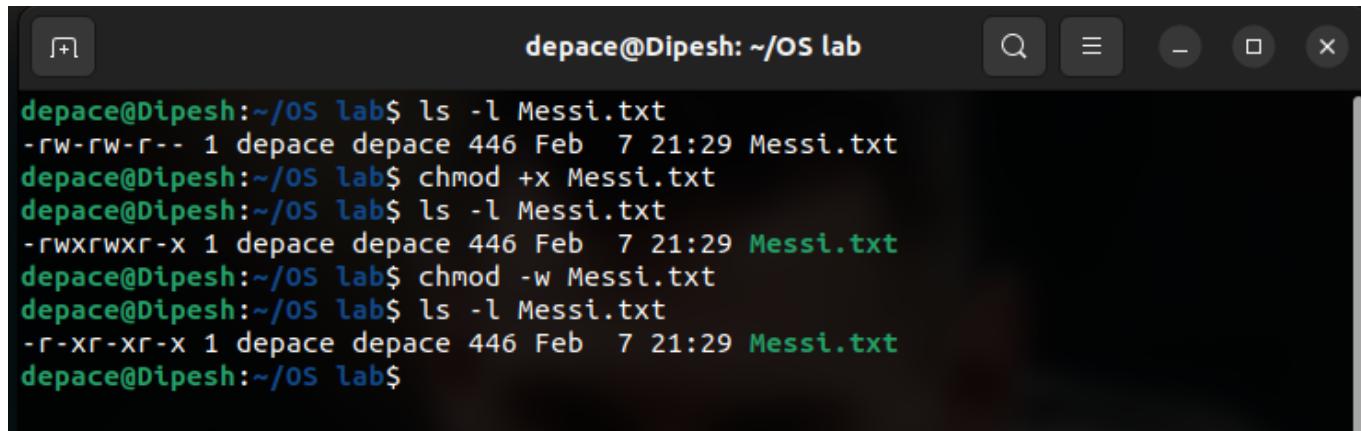
**Syntax :** chmod <parameter> <filename>

**Usage :** It give us the functionality to change the file permissions.

**Commands Used :**

- ◆ chmod +x Messi.txt = It added the executable permission to the file Messi.txt.
- ◆ chmod -w Messi.txt = It remove the writable permission to the file Messi.txt.

**Output :**



```
depace@Dipesh:~/OS lab$ ls -l Messi.txt
-rw-rw-r-- 1 depace depace 446 Feb  7 21:29 Messi.txt
depace@Dipesh:~/OS lab$ chmod +x Messi.txt
depace@Dipesh:~/OS lab$ ls -l Messi.txt
-rwxrwxr-x 1 depace depace 446 Feb  7 21:29 Messi.txt
depace@Dipesh:~/OS lab$ chmod -w Messi.txt
depace@Dipesh:~/OS lab$ ls -l Messi.txt
-r-xr-xr-x 1 depace depace 446 Feb  7 21:29 Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.12 Command Name : cat

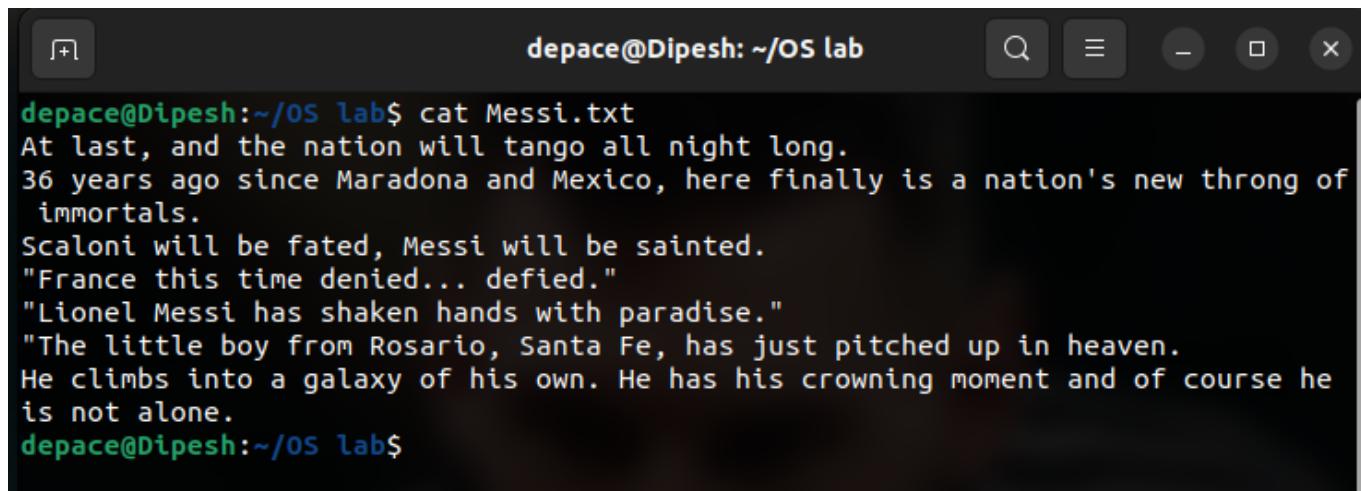
**Syntax :** cat<filename>

**Usage :** It is used to display the contents of a file.

**Commands Used :**

- ◆ cat Messi.txt = It displayed the content of the file Messi.txt.

**Output :**



```
depace@Dipesh:~/OS lab$ cat Messi.txt
At last, and the nation will tango all night long.
36 years ago since Maradona and Mexico, here finally is a nation's new throng of
immortals.
Scaloni will be fated, Messi will be sainted.
"France this time denied... defied."
"Lionel Messi has shaken hands with paradise."
"The little boy from Rosario, Santa Fe, has just pitched up in heaven.
He climbs into a galaxy of his own. He has his crowning moment and of course he
is not alone.
depace@Dipesh:~/OS lab$
```

## 1.13 Command Name : chown

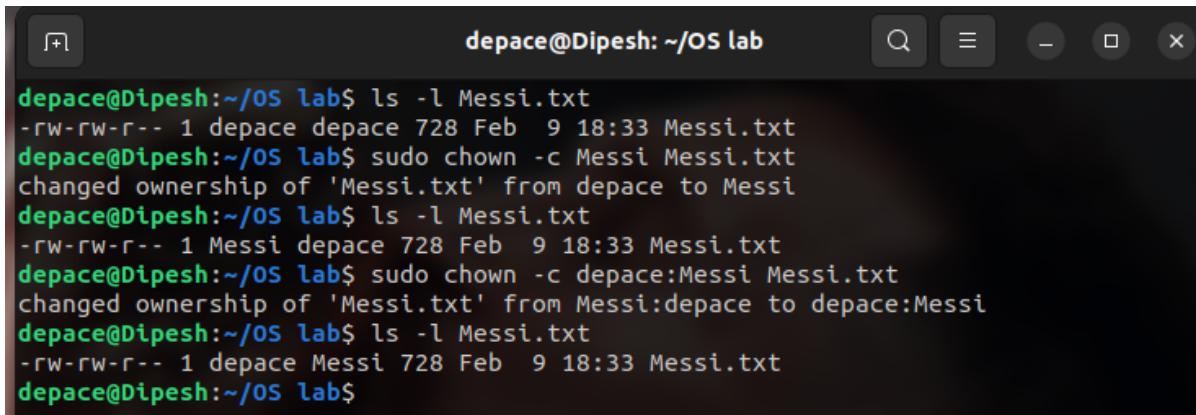
**Syntax :** chown <LinuxUser> <filename>

**Usage :** It is used to change the ownership of a file or folder to the specified username.

**Commands Used :**

- ◆ **sudo chown -c Messi Messi.txt** = It changed the ownership of file Messi.txt to Messi.
- ◆ **sudo chown -c depace:Messi Messi.txt** = It changed the file Messi.txt ownership to depace and group to Messi.

**Output :**



A screenshot of a terminal window titled "depace@Dipesh: ~/OS lab". The terminal shows the following session:

```
depace@Dipesh:~/OS lab$ ls -l Messi.txt
-rw-rw-r-- 1 depace depace 728 Feb  9 18:33 Messi.txt
depace@Dipesh:~/OS lab$ sudo chown -c Messi Messi.txt
changed ownership of 'Messi.txt' from depace to Messi
depace@Dipesh:~/OS lab$ ls -l Messi.txt
-rw-rw-r-- 1 Messi depace 728 Feb  9 18:33 Messi.txt
depace@Dipesh:~/OS lab$ sudo chown -c depace:Messi Messi.txt
changed ownership of 'Messi.txt' from Messi:depace to depace:Messi
depace@Dipesh:~/OS lab$ ls -l Messi.txt
-rw-rw-r-- 1 depace Messi 728 Feb  9 18:33 Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.14 Command Name : echo

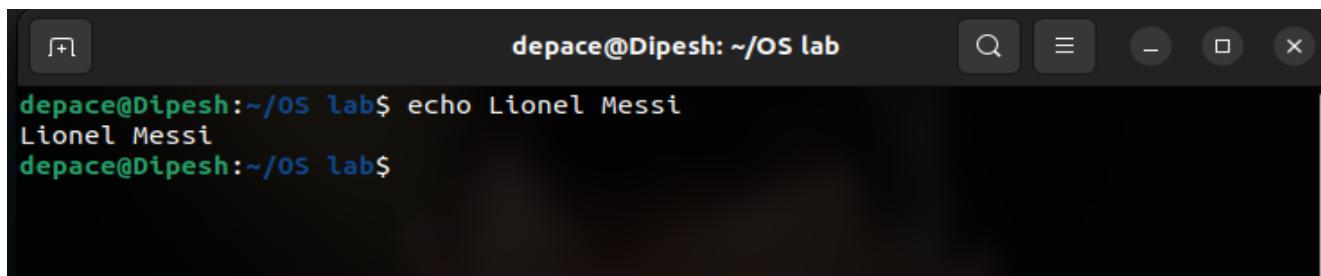
**Syntax :** echo <text to print>

**Usage :** It prints the string which is specified after the command.

**Commands Used :**

- ◆ **echo Lionel Messi** = It prints Lionel Messi in the terminal

**Output :**



A screenshot of a terminal window titled "depace@Dipesh: ~/OS lab". The terminal shows the following session:

```
depace@Dipesh:~/OS lab$ echo Lionel Messi
Lionel Messi
depace@Dipesh:~/OS lab$
```

## 1.15 Command Name : wc

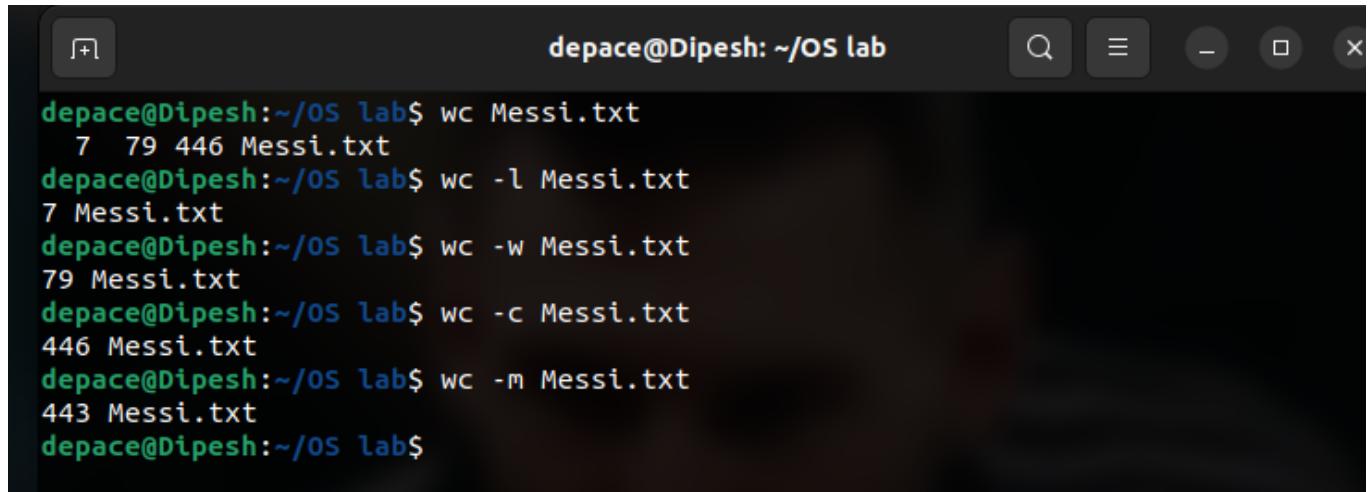
**Syntax :** wc <option> <file>

**Usage :** It finds out number of lines, word count, byte and characters count in the files specified in the file arguments.

### **Commands Used :**

- ◆ **wc Messi.txt** = It display the count of lines, words, bytesand name of file respectively.
- ◆ **wc -l Messi.txt** = It display he count of lines and name of file.
- ◆ **wc -w Messi.txt** = It display he count of words and name of file.
- ◆ **wc -c Messi.txt** = It display he count of bytes and name of file.
- ◆ **wc -m Messi.txt** = It display he count of characters and name of file.

### **Output :**



A terminal window titled "depace@Dipesh: ~/OS lab". The window contains the following text:

```
depace@Dipesh:~/OS lab$ wc Messi.txt
 7 79 446 Messi.txt
depace@Dipesh:~/OS lab$ wc -l Messi.txt
7 Messi.txt
depace@Dipesh:~/OS lab$ wc -w Messi.txt
79 Messi.txt
depace@Dipesh:~/OS lab$ wc -c Messi.txt
446 Messi.txt
depace@Dipesh:~/OS lab$ wc -m Messi.txt
443 Messi.txt
depace@Dipesh:~/OS lab$
```

## **1.16 Command Name : man**

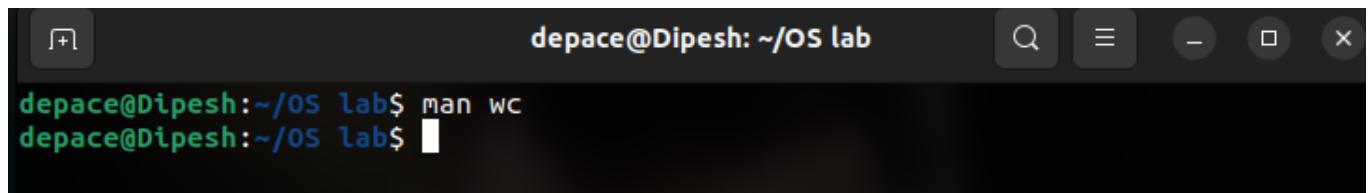
**Syntax :** man <command\_name>

**Usage :** It is used to check the reference manual pages for commands or programs.

### **Commands Used :**

- ◆ **man wc** = It display the count of lines, words, bytesand name of file respectively.

### **Output :**



A terminal window titled "depace@Dipesh: ~/OS lab". The window contains the following text:

```
depace@Dipesh:~/OS lab$ man wc
depace@Dipesh:~/OS lab$
```

depace@Dipesh: ~

WC(1)

User Commands

WC(1)

**NAME**

  wc - print newline, word, and byte counts for each file

**SYNOPSIS**

**wc [OPTION]... [FILE]...**  
  **wc [OPTION]... --files0-from=F**

**DESCRIPTION**

Print newline, word, and byte counts for each FILE, and a total line if more than one FILE is specified. A word is a non-zero-length sequence of characters delimited by white space.

With no FILE, or when FILE is -, read standard input.

The options below may be used to select which counts are printed, always in the following order: newline, word, character, byte, maximum line length.

**-c, --bytes**  
     print the byte counts  
  
**-m, --chars**  
     print the character counts  
  
**-l, --lines**  
     print the newline counts  
  
**--files0-from=F**  
     read input from the files specified by NUL-terminated names in file F; If F is - then read names from standard input  
  
**-L, --max-line-length**  
     print the maximum display width  
  
**-w, --words**  
     print the word counts  
  
**--help** display this help and exit  
  
**--version**  
     output version information and exit

**AUTHOR**

Written by Paul Rubin and David MacKenzie.

Manual page wc(1) line 1 (press h for help or q to quit)

## 1.17 Command Name : history

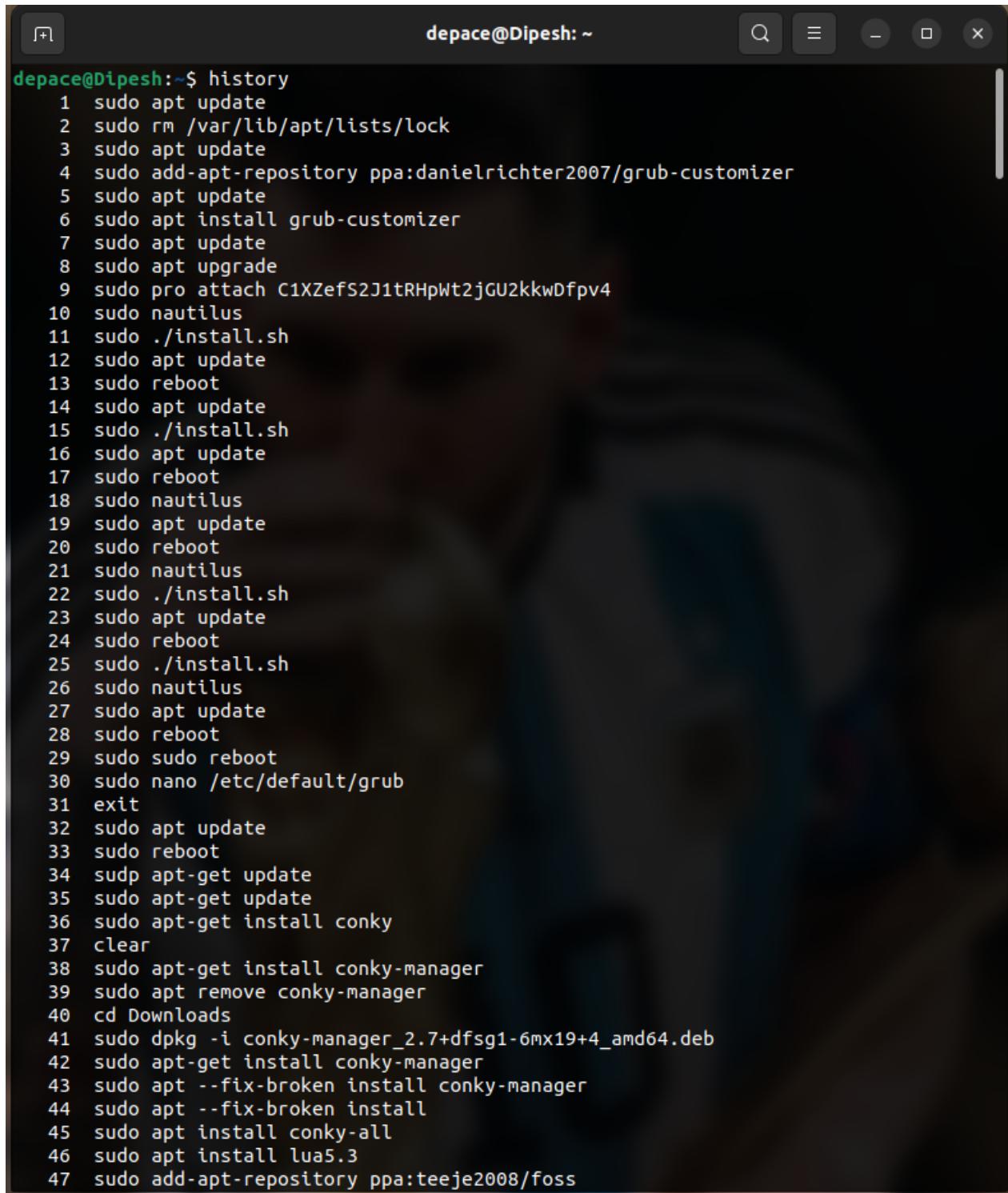
**Syntax :** history

**Usage :** It shows the previously used commands. It displays the information about the commands executed by a user.

**Commands Used :**

- ◆ **history** =It displays the information about the commands executed by a user previously.

**Output :**



The screenshot shows a terminal window titled "depace@Dipesh: ~". The window contains a list of command history entries, each preceded by a line number. The commands listed include various system updates, installations, and reboots, such as "sudo apt update", "sudo apt install grub-customizer", and "sudo reboot". The terminal has a dark background with light-colored text and standard window controls at the top.

```
depace@Dipesh:~$ history
 1 sudo apt update
 2 sudo rm /var/lib/apt/lists/lock
 3 sudo apt update
 4 sudo add-apt-repository ppa:danielrichter2007/grub-customizer
 5 sudo apt update
 6 sudo apt install grub-customizer
 7 sudo apt update
 8 sudo apt upgrade
 9 sudo pro attach C1XZefS2J1tRHpWt2jGU2kkwDfpv4
10 sudo nautilus
11 sudo ./install.sh
12 sudo apt update
13 sudo reboot
14 sudo apt update
15 sudo ./install.sh
16 sudo apt update
17 sudo reboot
18 sudo nautilus
19 sudo apt update
20 sudo reboot
21 sudo nautilus
22 sudo ./install.sh
23 sudo apt update
24 sudo reboot
25 sudo ./install.sh
26 sudo nautilus
27 sudo apt update
28 sudo reboot
29 sudo sudo reboot
30 sudo nano /etc/default/grub
31 exit
32 sudo apt update
33 sudo reboot
34 sudo apt-get update
35 sudo apt-get update
36 sudo apt-get install conky
37 clear
38 sudo apt-get install conky-manager
39 sudo apt remove conky-manager
40 cd Downloads
41 sudo dpkg -i conky-manager_2.7+dfsg1-6mx19+4_amd64.deb
42 sudo apt-get install conky-manager
43 sudo apt --fix-broken install conky-manager
44 sudo apt --fix-broken install
45 sudo apt install conky-all
46 sudo apt install lua5.3
47 sudo add-apt-repository ppa:teeje2008/foss
```

## 1.18 Command Name : clear

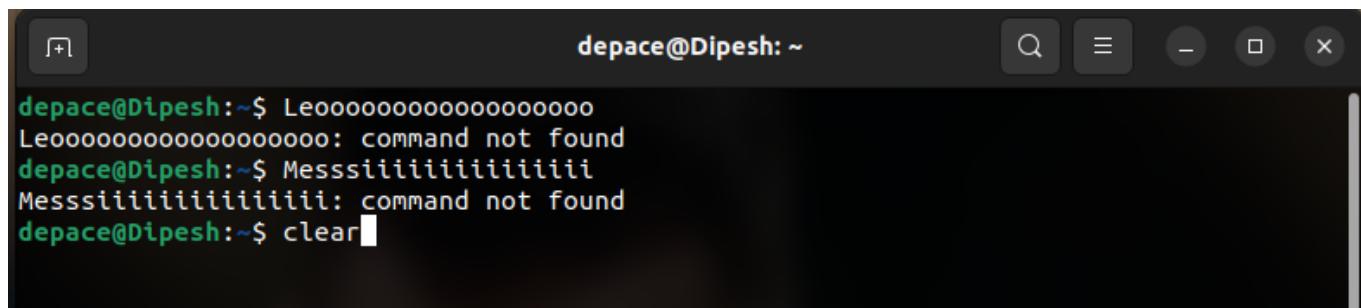
**Syntax :** clear

**Usage :** It clears the terminal screen

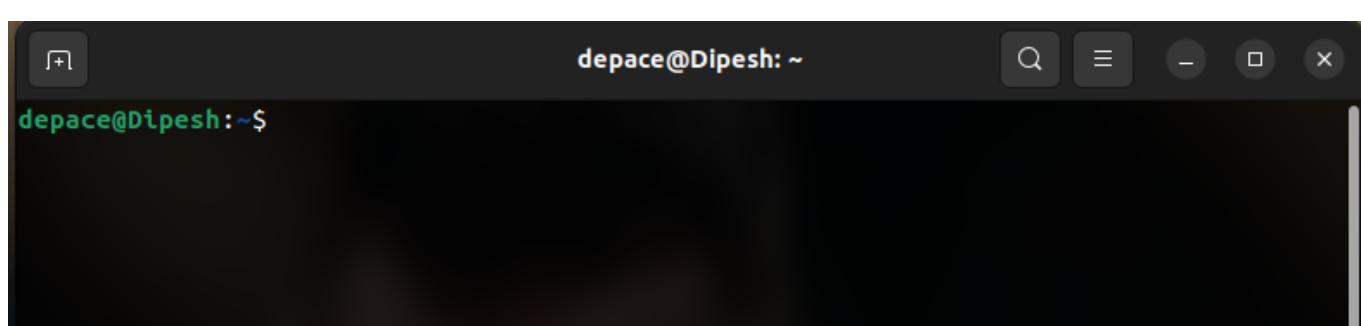
**Commands Used :**

- ◆ **clear** = It cleared the terminal screen.

**Output :**



```
depace@Dipesh:~$ Leooooooooooooooo
Leooooooooooooooo: command not found
depace@Dipesh:~$ Messiiiiiiiiiiii
Messiiiiiiiiiiii: command not found
depace@Dipesh:~$ clear
```



```
depace@Dipesh:~$
```

## 1.19 Command Name : touch

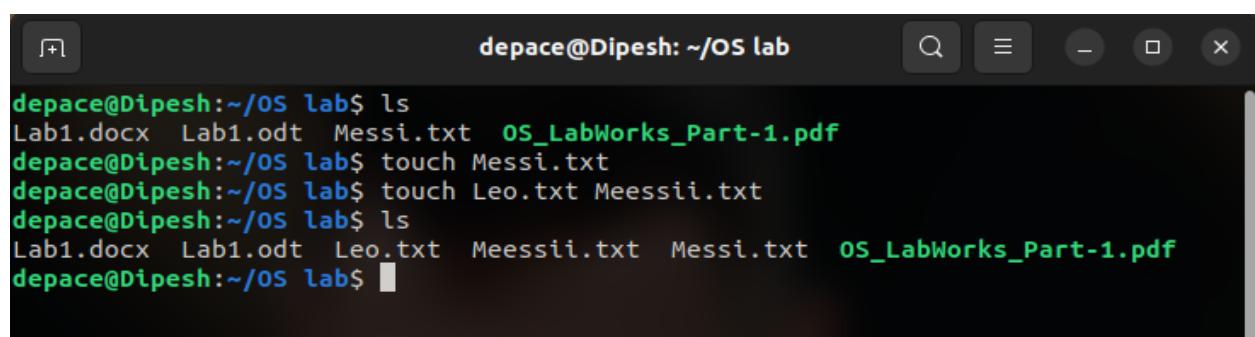
**Syntax :** touch <filename1><filename2>...<filename n>

**Usage :** It creates a new blank file with the given name.

**Commands Used :**

- ◆ **touch Messi.txt** = It create new blank file with name Messi.txt.
- ◆ **touch Leo.txt Meessii.txt** = It creates two new blank files with name Leo.txt and Meessii.txt.

**Output :**



```
depace@Dipesh:~/OS lab$ ls
Lab1.docx Lab1.odt Messi.txt OS_LabWorks_Part-1.pdf
depace@Dipesh:~/OS lab$ touch Messi.txt
depace@Dipesh:~/OS lab$ touch Leo.txt Meessii.txt
depace@Dipesh:~/OS lab$ ls
Lab1.docx Lab1.odt Leo.txt Meessii.txt Messi.txt OS_LabWorks_Part-1.pdf
depace@Dipesh:~/OS lab$
```

## 1.20 Command Name : locate

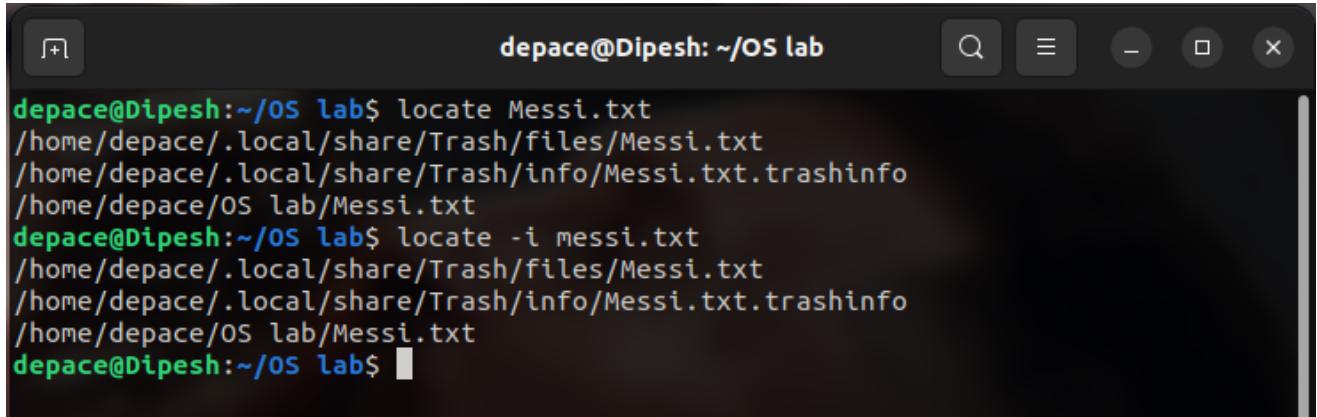
**Syntax :** locate <filename>

**Usage :** It enables users to locate a file.

**Commands Used :**

- ◆ **locate Messi.txt** = It locates a file with name Messi.txt.
- ◆ **locate -i messi.txt** = It locates a file with name messi.txt irrespective of the casing.

**Output :**



The screenshot shows a terminal window with the title bar "depace@Dipesh: ~/OS lab". The terminal displays two commands and their outputs:

```
depace@Dipesh:~/OS lab$ locate Messi.txt
/home/depace/.local/share/Trash/files/Messi.txt
/home/depace/.local/share/Trash/info/Messi.txt.trashinfo
/home/depace/OS lab/Messi.txt
depace@Dipesh:~/OS lab$ locate -i messi.txt
/home/depace/.local/share/Trash/files/Messi.txt
/home/depace/.local/share/Trash/info/Messi.txt.trashinfo
/home/depace/OS lab/Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.21 Command Name : netstat

**Syntax :** netstat <option>

**Usage :** It displays information about different interface statistics, including open sockets, routing tables, and connection information. Further, it can be used to displays all the socket connections (including TCP, UDP). Apart from connected sockets, it also displays the sockets that are pending for connections.

**Commands Used :**

- ◆ **netstat -i** = It shows a table of every network interface.
- ◆ **netstat -r** = It Displays the information on kernel routing.
- ◆ **Netstat -ant** = It represents every TCP connection without DNS resolution.
- ◆ **Netstat -g** = It shows the information of multicast group membership for IPv6 and IPv4.

## Output:

```
depace@Dipesh:~/OS lab$ netstat -i
Kernel Interface table
Iface      MTU     RX-OK RX-ERR RX-DRP RX-OVR     TX-OK TX-ERR TX-DRP TX-OVR Flg
enp2s0    1500        0     0       0 0          0        0     0       0 BMU
lo        65536   11661     0       0 0         11661     0     0       0 LRU
wlp3s0    1500  283284     0       0 0         98045     0     0       0 BMRU
depace@Dipesh:~/OS lab$ netstat -r
Kernel IP routing table
Destination     Gateway     Genmask      Flags MSS Window irtt Iface
default        192.168.101.1 0.0.0.0     UG        0 0          0 wlp3s0
link-local     0.0.0.0     255.255.0.0  U          0 0          0 wlp3s0
192.168.101.0 0.0.0.0     255.255.255.0 U          0 0          0 wlp3s0
depace@Dipesh:~/OS lab$
```

```
depace@Dipesh:~/OS lab$ netstat -ant
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
tcp      0      0 127.0.0.1:631           0.0.0.0:*            LISTEN
tcp      0      0 127.0.0.1:3306          0.0.0.0:*            LISTEN
tcp      0      0 127.0.0.53:53           0.0.0.0:*            LISTEN
tcp      0      0 192.168.101.2:50466      34.149.66.130:443 ESTABLISHED
tcp      0      0 192.168.101.2:44324      35.186.202.217:443 ESTABLISHED
tcp      0      0 192.168.101.2:53246      142.250.195.206:443 ESTABLISHED
tcp      0      0 192.168.101.2:34780      54.151.166.244:443 ESTABLISHED
tcp      0      0 192.168.101.2:58636      23.212.254.50:443 ESTABLISHED
tcp      0      0 192.168.101.2:37136      142.250.182.98:443 ESTABLISHED
tcp     25      0 192.168.101.2:57990      185.83.69.58:443 CLOSE_WAIT
tcp      0      0 192.168.101.2:36180      142.250.183.226:443 ESTABLISHED
tcp      0      0 192.168.101.2:43378      172.217.31.195:443 ESTABLISHED
tcp      0      0 192.168.101.2:43498      142.250.182.67:443 ESTABLISHED
tcp     25      0 192.168.101.2:58006      185.83.69.58:443 CLOSE_WAIT
tcp     25      0 192.168.101.2:58002      185.83.69.58:443 CLOSE_WAIT
tcp      0      0 192.168.101.2:35232      142.250.183.195:443 ESTABLISHED
tcp      0      0 192.168.101.2:50308      207.65.33.78:443 ESTABLISHED
tcp      0      0 192.168.101.2:44216      203.195.121.141:443 ESTABLISHED
tcp      0      0 192.168.101.2:40822      108.159.13.178:443 ESTABLISHED
tcp      0      0 192.168.101.2:59172      89.187.162.143:443 ESTABLISHED
tcp      0      0 192.168.101.2:39744      142.250.183.226:443 ESTABLISHED
tcp6     0      0 ::1:631                  ::*:*
depace@Dipesh:~/OS lab$ netstat -g
IPv6/IPv4 Group Memberships
Interface   RefCnt Group
-----
lo          1      mdns.mcast.net
lo          1      1.0.0.224.in-addr.arpa
enp2s0      1      1.0.0.224.in-addr.arpa
wlp3s0      2      mdns.mcast.net
wlp3s0      1      1.0.0.224.in-addr.arpa
lo          1      ff02::fb
lo          1      ip6-allnodes
lo          1      ff01::1
enp2s0      1      ip6-allnodes
enp2s0      1      ff01::1
wlp3s0      1      ff02::1:ffc3:8b79
wlp3s0      1      ip6-allnodes
wlp3s0      1      ff01::1
depace@Dipesh:~/OS lab$
```

## 1.22 Command Name : df

**Syntax :** df <options> <filesystems>

**Usage :** It displays information about file system disk space usage on the mounted file system.

**Commands Used :**

- ◆ **df** = It display information about all the mounted file systems.
- ◆ **df -h** = It display information about all the mounted file systems in human readable format.
- ◆ **df Messi.txt** = It display information about Messi.txt.
- ◆ **df -h Messi.txt** = It display information about Messi.txt human readable format.

Information includes total size, used space, usage percentage, and the mount point.

**Output :**

```
depace@Dipesh:~/OS lab$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
tmpfs            798368     2172    796196   1% /run
/dev/sda6       69978336 19480152  46897752  30% /
tmpfs            3991828   109064   3882764   3% /dev/shm
tmpfs             5120        4      5116   1% /run/lock
efivarfs          384         83      297  22% /sys/firmware/efi/efivars
/dev/sda2        97280     33301     63979  35% /boot/efi
tmpfs            798364      144    798220   1% /run/user/1000
/dev/sdb6       409597948  5200172  404397776  2% /media/depacer/New Volume
depace@Dipesh:~/OS lab$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           780M  2.2M  778M   1% /run
/dev/sda6        67G   19G   45G  30% /
tmpfs            3.9G  102M  3.8G   3% /dev/shm
tmpfs            5.0M  4.0K  5.0M   1% /run/lock
efivarfs          384K   83K   297K  22% /sys/firmware/efi/efivars
/dev/sda2        95M   33M   63M  35% /boot/efi
tmpfs           780M  144K  780M   1% /run/user/1000
/dev/sdb6        391G  5.0G  386G  2% /media/depacer/New Volume
depace@Dipesh:~/OS lab$ df Messi.txt
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/sda6       69978336 19480152  46897752  30% /
depace@Dipesh:~/OS lab$ df -h Messi.txt
Filesystem      Size  Used Avail Use% Mounted on
/dev/sda6        67G   19G   45G  30% /
depace@Dipesh:~/OS lab$
```

## 1.23 Command Name : df

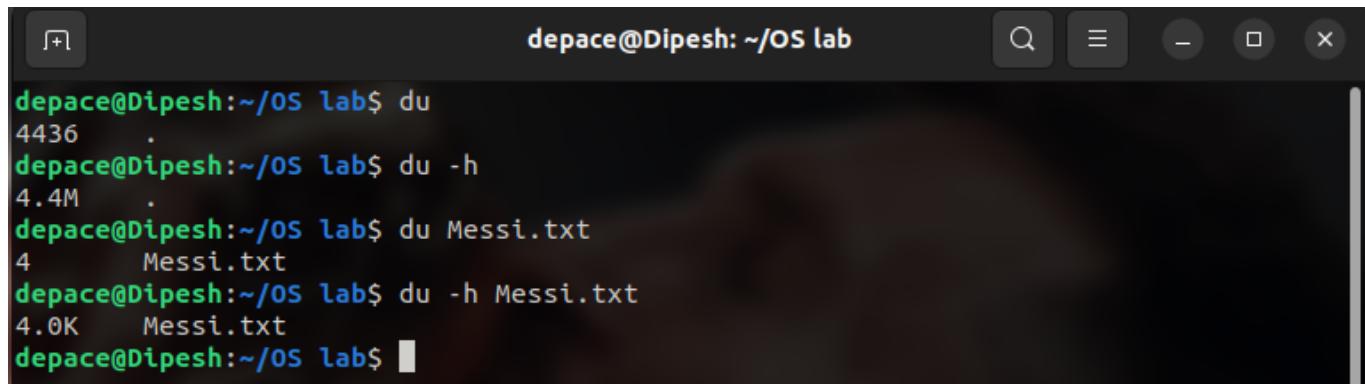
**Syntax :** du <options> <filesystems>

**Usage :** It shows how much space a file or a directory takes.

**Commands Used :**

- ◆ **du** = It display the space taken by the current directory.
- ◆ **du -h** =It display the space taken by the current directory in human readable format.
- ◆ **du Messi.txt**= It display the space taken by the file Messi.txt.
- ◆ **du -h Messi.txt**=t display the space taken by the file Messi.txt in human readable format.

**Output :**



A screenshot of a terminal window titled "depace@Dipesh: ~/OS lab". The window shows the following command-line session:

```
depace@Dipesh:~/OS lab$ du
4436 .
depace@Dipesh:~/OS lab$ du -h
4.4M .
depace@Dipesh:~/OS lab$ du Messi.txt
4      Messi.txt
depace@Dipesh:~/OS lab$ du -h Messi.txt
4.0K   Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.24 Command Name : uname

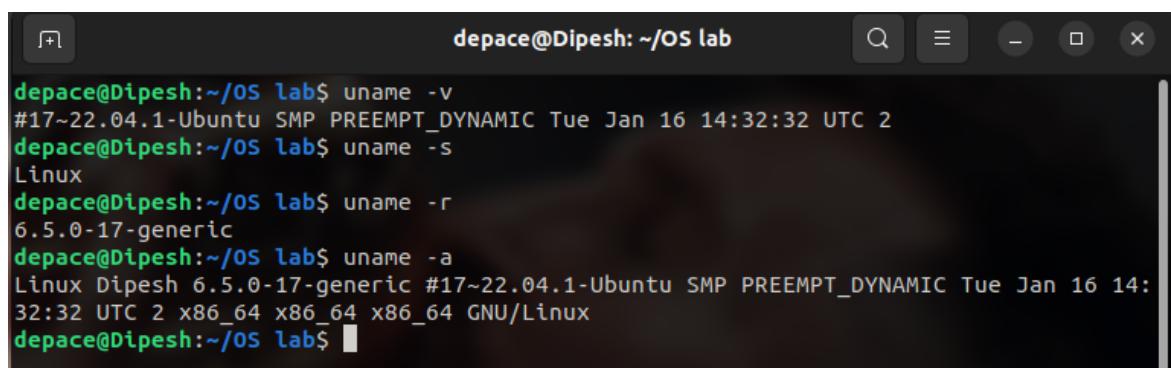
**Syntax :** uname <option>

**Usage :** It prints detailed information about your Linux system.

**Commands Used :**

- ◆ **uname -v** = It display the kernel information of the system.
- ◆ **uname -s** =It display the kernel name of the system.
- ◆ **uname -r** = It display the kernel version of the system.
- ◆ **uname -a** =t display all the system information.

**Output :**



A screenshot of a terminal window titled "depace@Dipesh: ~/OS lab". The window shows the following command-line session:

```
depace@Dipesh:~/OS lab$ uname -v
#17~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Jan 16 14:32:32 UTC 2
depace@Dipesh:~/OS lab$ uname -s
Linux
depace@Dipesh:~/OS lab$ uname -r
6.5.0-17-generic
depace@Dipesh:~/OS lab$ uname -a
Linux Dipesh 6.5.0-17-generic #17~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Jan 16 14:
32:32 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
depace@Dipesh:~/OS lab$
```

## 1.25 Command Name : passwd

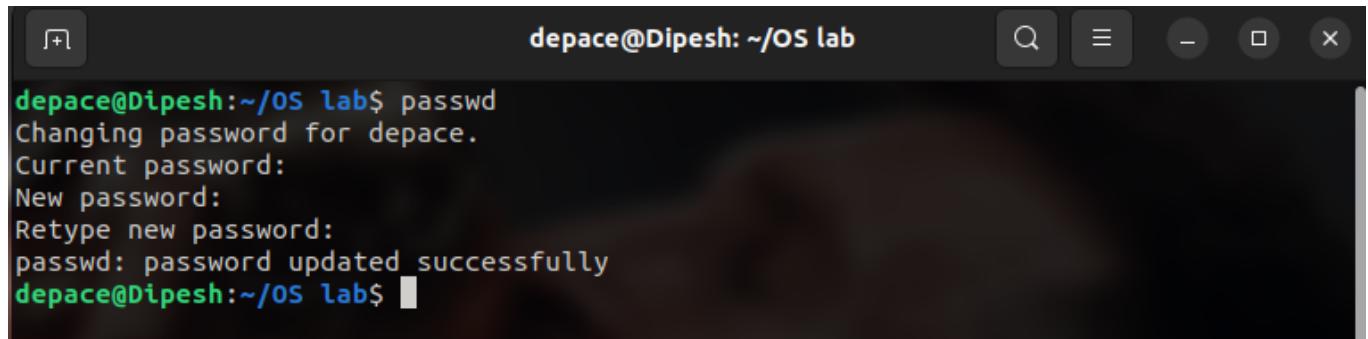
**Syntax :** passwd

**Usage :** It create or update passwords for existing users

**Commands Used :**

- ◆ **passwd** = It update the password for the existing current user.

**Output :**



```
depace@Dipesh:~/OS lab$ passwd
Changing password for depace.
Current password:
New password:
Retype new password:
passwd: password updated successfully
depace@Dipesh:~/OS lab$
```

## 1.26 Command Name : useradd

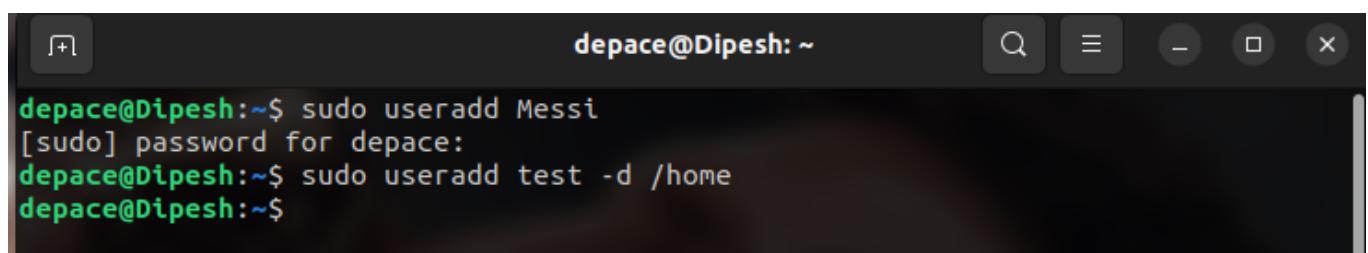
**Syntax :** useradd <options> <username>

**Usage :** It is used to add a user on a Linux server.

**Commands Used :**

- ◆ **sudo useradd Messi** = It creates a new user with username Messi
- ◆ **sudo useradd test -d /home** =It create a new user named test with the home directory as /home.

**Output :**



```
depace@Dipesh:~$ sudo useradd Messi
[sudo] password for depace:
depace@Dipesh:~$ sudo useradd test -d /home
depace@Dipesh:~$
```

## 1.27 Command Name : userdel

**Syntax :** userdel<options> <username>

**Usage :** It is used to remove a user on a Linux server.

**Commands Used :**

- ◆ **sudo userdel test1** = It removes the user account with username test1.
- ◆ **sudo userdel -r test2** = It remove the user's home directory along with the account test2.
- ◆ **sudo userdel -f test3** = It forces the removal of the user account with username test3 including home directory and mail spool, even if the user is logged in.

**Output :**



The screenshot shows a terminal window with a dark background and light-colored text. The title bar says "depace@Dipesh: ~". The terminal prompt is "depace@Dipesh:~\$". The user enters three commands:  
1. sudo userdel test1  
2. sudo userdel -r test2  
3. sudo userdel -f test3

```
depace@Dipesh:~$ sudo userdel test1
depace@Dipesh:~$ sudo userdel -r test2
userdel: test2 mail spool (/var/mail/test2) not found
userdel: /home not owned by test2, not removing
depace@Dipesh:~$ sudo userdel -f test3
depace@Dipesh:~$
```

## 1.28 Command Name : apt-get

**Syntax :** sudo apt-get <options> <command> <package(s)>

**Usage :** It retrieve the information and packages from the authenticated sources for installation, upgrade, and removal of packages along with their dependencies.

**Commands Used :**

- ◆ **sudo apt-get update** = It update the package lists for available software packages from the configured repositories.
- ◆ **sudo apt-get upgrade** = It install the latest versions of the packages currently installed on the user's system from the sources enumerated in /etc/apt/sources.list.
- ◆ **sudo apt-get autoremove** = It remove the packages which are automatically installed to satisfy the dependencies of other packages, are no longer needed.
- ◆ **sudo apt-get source Firefox** = It download the source code of the package in the current directory in tarball format
- ◆ **sudo apt-get download Firefox** = It download the given binary package in the current directory.

## Output:

```
depace@Dipesh:~$ sudo apt-get update
Hit:1 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:2 http://archive.ubuntu.com/ubuntu jammy InRelease

Hit:3 https://dl.google.com/linux/chrome/deb stable InRelease

Hit:4 http://np.archive.ubuntu.com/ubuntu jammy InRelease

Hit:5 https://ppa.launchpadcontent.net/danielrichter2007/grub-customizer/ubuntu jamm
y InRelease
Hit:6 https://ppa.launchpadcontent.net/teejee2008/foss/ubuntu jammy InRelease
Hit:7 http://np.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:8 https://ppa.launchpadcontent.net/teejee2008/ppa/ubuntu jammy InRelease
Hit:9 http://np.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
depace@Dipesh:~$ sudo apt-get upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  gjs libgjs0g
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
depace@Dipesh:~$ sudo apt-get autoremove
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
depace@Dipesh:~$ sudo apt-get source firefox
Reading package lists... Done
NOTICE: 'firefox' packaging is maintained in the 'Bzr' version control system at:
https://code.launchpad.net/~mozillateam/firefox/firefox.jammy
Please use:
bzr branch https://code.launchpad.net/~mozillateam/firefox/firefox.jammy
to retrieve the latest (possibly unreleased) updates to the package.
Skipping already downloaded file 'firefox_1snap1-0ubuntu2.dsc'
Skipping already downloaded file 'firefox_1snap1-0ubuntu2.tar.xz'
Need to get 0 B of source archives.
Skipping unpack of already unpacked source in firefox-1snap1
depace@Dipesh:~$ sudo apt-get download firefox
Get:1 http://np.archive.ubuntu.com/ubuntu jammy/main amd64 firefox amd64 1:1snap1-0u
buntu2 [72.3 kB]
Fetched 72.3 kB in 2s (36.8 kB/s)
W: Download is performed unsandboxed as root as file '/home/depance/firefox_1%3a1snap
1-0ubuntu2_amd64.deb' couldn't be accessed by user '_apt'. - pkgAcquire::Run (13: Pe
rmission denied)
depace@Dipesh:~$
```

## 1.29 Command Name : ping

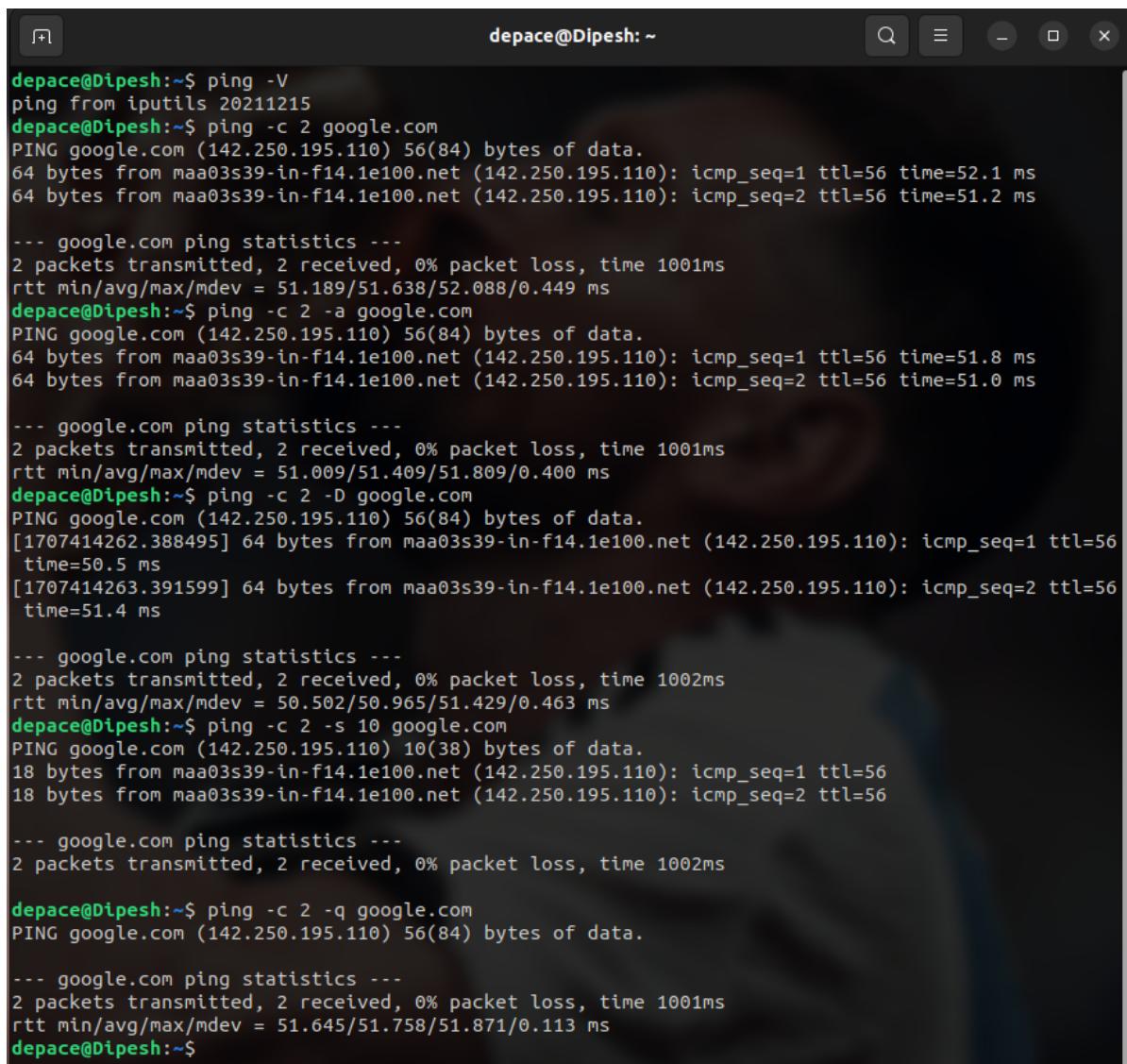
**Syntax :** ping <option> <destination>

**Usage :** It check your connection to a server. It checks the reachability of a host on an Internet Protocol (IP) network”.

**Commands Used :**

- ◆ **ping -V** = It checks the ping version.
- ◆ **ping -c 2 google.com** = It send 2 packets to google.com
- ◆ **ping -c 2 -a google.com** = It send 2 packets to google.com and plays a sound when destination responds.
- ◆ **ping -c 2 -D google.com** = It send 2 packets to google.com and starts each ping result with a UNIX timestamp.
- ◆ **ping -c 2 -s 10 google.com** = It send 2 packets to google.com and modifies the maximum transmission unit to 10.
- ◆ **ping -c 2 -q google.com** = It send 2 packets to google.com and summarizes all the ping results in one output.

**Output :**



```
depace@Dipesh:~$ ping -V
ping from iputils 20211215
depace@Dipesh:~$ ping -c 2 google.com
PING google.com (142.250.195.110) 56(84) bytes of data.
64 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=1 ttl=56 time=52.1 ms
64 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=2 ttl=56 time=51.2 ms

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 51.189/51.638/52.088/0.449 ms
depace@Dipesh:~$ ping -c 2 -a google.com
PING google.com (142.250.195.110) 56(84) bytes of data.
64 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=1 ttl=56 time=51.8 ms
64 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=2 ttl=56 time=51.0 ms

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 51.009/51.409/51.809/0.400 ms
depace@Dipesh:~$ ping -c 2 -D google.com
PING google.com (142.250.195.110) 56(84) bytes of data.
[1707414262.388495] 64 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=1 ttl=56
time=50.5 ms
[1707414263.391599] 64 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=2 ttl=56
time=51.4 ms

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 50.502/50.965/51.429/0.463 ms
depace@Dipesh:~$ ping -c 2 -s 10 google.com
PING google.com (142.250.195.110) 10(38) bytes of data.
18 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=1 ttl=56
18 bytes from maa03s39-in-f14.1e100.net (142.250.195.110): icmp_seq=2 ttl=56

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms

depace@Dipesh:~$ ping -c 2 -q google.com
PING google.com (142.250.195.110) 56(84) bytes of data.

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 51.645/51.758/51.871/0.113 ms
depace@Dipesh:~$
```

## 1.30 Command Name : find

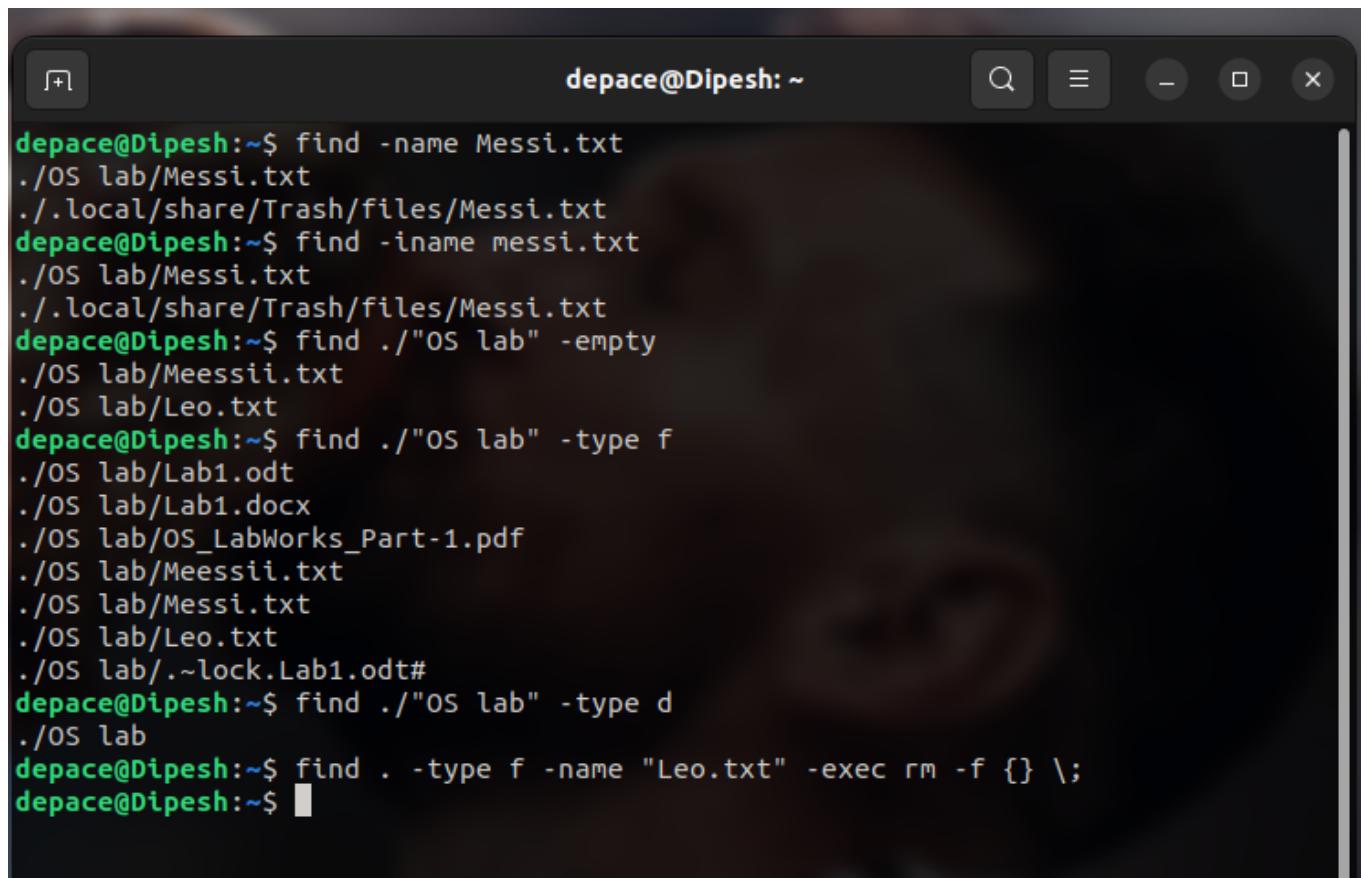
**Syntax :** find <path> <options> <expression>

**Usage :** It allows users to search by name, size, modification time, or content, providing a flexible and potent solution.

### Commands Used :

- ◆ **find -name Messi.txt** = It finds all the files with name Messi.txt
- ◆ **find -iname messi.txt** = It finds all the files with name messi.txt irrespective of the casing (case-insensitive).
- ◆ **find ./OS lab" -empty** = It finds all empty files under a path "OS lab".
- ◆ **find ./OS lab" -type f** = It finds all the directories under a path "Os lab".
- ◆ **find ./OS lab" -type d** = It finds all the files under a path "Os lab".
- ◆ **find . -type f -name "Leo.txt" -exec rm -f {} \;** = It finds the single file name Leo.txt and removes it.

### Output :



```
depace@Dipesh:~$ find -name Messi.txt
./OS lab/Messi.txt
./.local/share/Trash/files/Messi.txt
depace@Dipesh:~$ find -iname messi.txt
./OS lab/Messi.txt
./.local/share/Trash/files/Messi.txt
depace@Dipesh:~$ find ./OS lab" -empty
./OS lab/Meessii.txt
./OS lab/Leo.txt
depace@Dipesh:~$ find ./OS lab" -type f
./OS lab/Lab1.odt
./OS lab/Lab1.docx
./OS lab/OS_LabWorks_Part-1.pdf
./OS lab/Meessii.txt
./OS lab/Messi.txt
./OS lab/Leo.txt
./OS lab/.~lock.Lab1.odt#
depace@Dipesh:~$ find ./OS lab" -type d
./OS lab
depace@Dipesh:~$ find . -type f -name "Leo.txt" -exec rm -f {} \;
depace@Dipesh:~$
```

## 1.31 Command Name : head

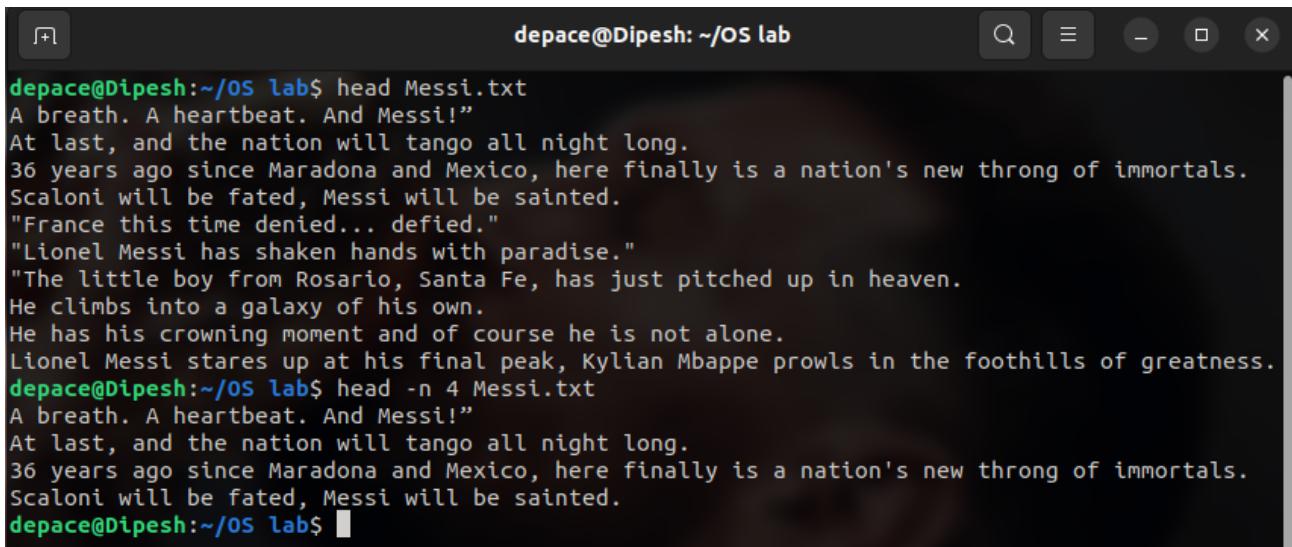
**Syntax :** head <-n number> <filename>

**Usage :** It allows users to view the first lines of any text file. It shows the first ten lines by default.

**Commands Used :**

- ◆ **head Messi.txt** = It prints first 10 lines from the file Messi.txt.
- ◆ **head -n 4 Messi.txt** = It prints first 4lines from the file Messi.txt.

**Output :**



```
depace@Dipesh:~/OS lab$ head Messi.txt
A breath. A heartbeat. And Messi!
At last, and the nation will tango all night long.
36 years ago since Maradona and Mexico, here finally is a nation's new throng of immortals.
Scaloni will be fated, Messi will be sainted.
"France this time denied... defied."
"Lionel Messi has shaken hands with paradise."
"The little boy from Rosario, Santa Fe, has just pitched up in heaven.
He climbs into a galaxy of his own.
He has his crowning moment and of course he is not alone.
Lionel Messi stares up at his final peak, Kylian Mbappe prowls in the foothills of greatness.
depace@Dipesh:~/OS lab$ head -n 4 Messi.txt
A breath. A heartbeat. And Messi!
At last, and the nation will tango all night long.
36 years ago since Maradona and Mexico, here finally is a nation's new throng of immortals.
Scaloni will be fated, Messi will be sainted.
depace@Dipesh:~/OS lab$
```

## 1.32 Command Name : rename

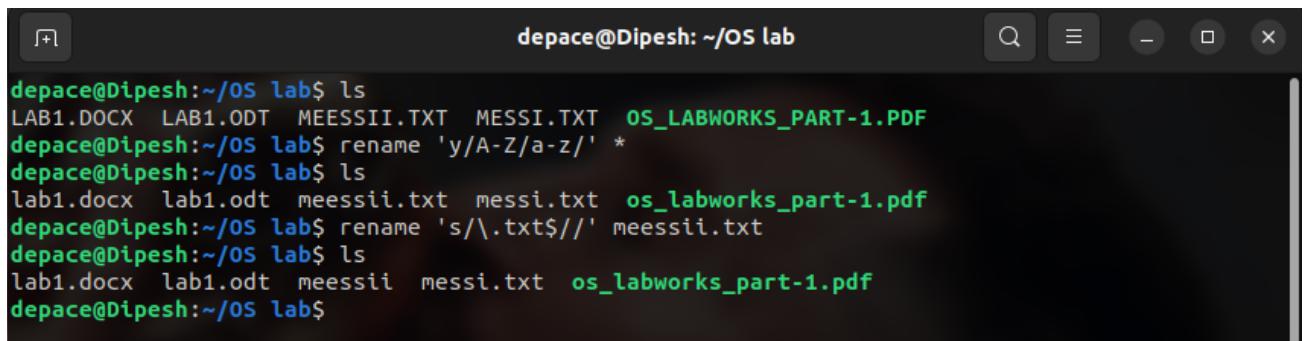
**Syntax :** rename <options> <perlexpr><filename>

**Usage :** It renames the filenames supplied according to the rule specified as the first argument.

**Commands Used :**

- ◆ **rename 'y/A-Z/a-z/' \*** = It translate the uppercase letter to lowercase letter to all filename.
- ◆ **rename 's/\.\txt\$/' meessii.txt** = It strips the extension .txt from filename meessii.txt.

**Output :**



```
depace@Dipesh:~/OS lab$ ls
LAB1.DOCX LAB1.ODT MEESSII.TXT MESSI.TXT OS_LABWORKS_PART-1.PDF
depace@Dipesh:~/OS lab$ rename 'y/A-Z/a-z/' *
depace@Dipesh:~/OS lab$ ls
lab1.docx lab1.odt meessii.txt messi.txt os_labworks_part-1.pdf
depace@Dipesh:~/OS lab$ rename 's/\.\txt$/'' meessii.txt
depace@Dipesh:~/OS lab$ ls
lab1.docx lab1.odt meessii messi.txt os_labworks_part-1.pdf
depace@Dipesh:~/OS lab$
```

## 1.33 Command Name : tail

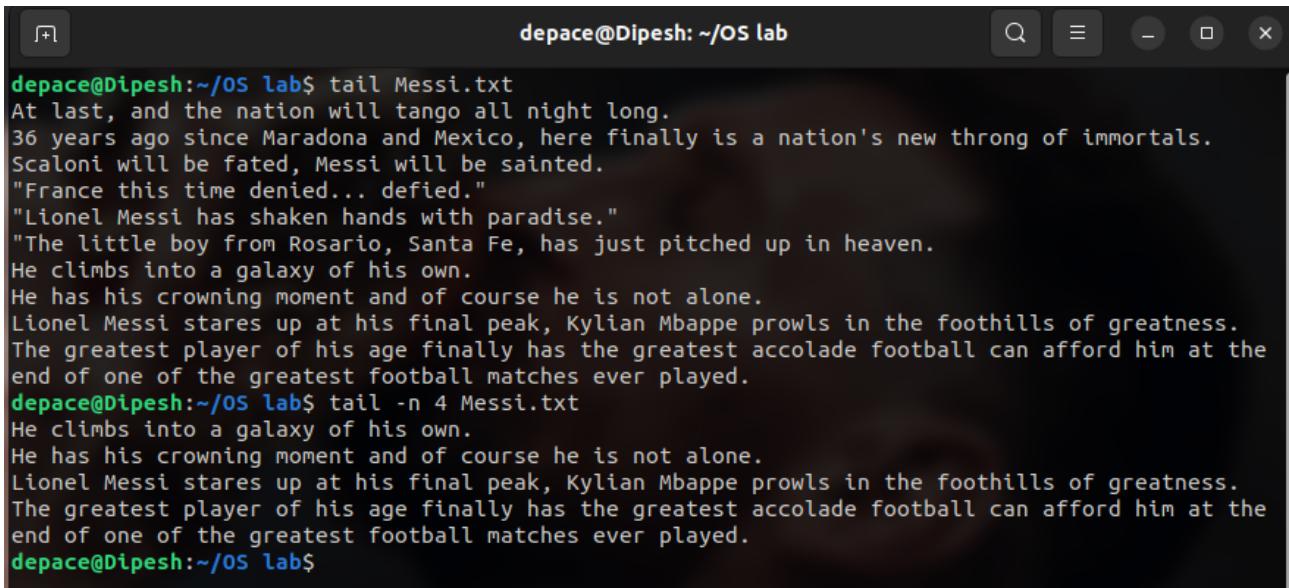
**Syntax :** head <-n number> <filename>

**Usage :** It allows users to view the lines of any text file. from bottom. It shows the last ten lines by default.

**Commands Used :**

- ◆ **tail Messi.txt** = It prints last 10 lines from the file Messi.txt.
- ◆ **tail -n 4 Messi.txt** = It prints last 4 lines from the file Messi.txt.

**Output :**



```
depace@Dipesh:~/OS lab$ tail Messi.txt
At last, and the nation will tango all night long.
36 years ago since Maradona and Mexico, here finally is a nation's new throng of immortals.
Scaloni will be fated, Messi will be sainted.
"France this time denied... defied."
"Lionel Messi has shaken hands with paradise."
"The little boy from Rosario, Santa Fe, has just pitched up in heaven.
He climbs into a galaxy of his own.
He has his crowning moment and of course he is not alone.
Lionel Messi stares up at his final peak, Kylian Mbappe prowls in the foothills of greatness.
The greatest player of his age finally has the greatest accolade football can afford him at the
end of one of the greatest football matches ever played.
depace@Dipesh:~/OS lab$ tail -n 4 Messi.txt
He climbs into a galaxy of his own.
He has his crowning moment and of course he is not alone.
Lionel Messi stares up at his final peak, Kylian Mbappe prowls in the foothills of greatness.
The greatest player of his age finally has the greatest accolade football can afford him at the
end of one of the greatest football matches ever played.
depace@Dipesh:~/OS lab$
```

## 1.34 Command Name : tac

**Syntax :** tac <options> <filename>

**Usage :** It is used to concatenate and print files in reverse.

**Commands Used :**

- ◆ **tac Meessii.txt** = It will print the files in reverse. from the file Messi.txt.
- ◆ **tac -b Lionel.txt Meessii.txt** = It concatenate the two files ,attach the separator before instead of after and print the files in reverse.
- ◆ **tac -r Lionel.txt Meessii.txt** = t concatenate the two files ,interpret the separator as a regular expression and print the files in reverse.

## Output :

```
depace@Dipesh:~/OS lab$ tac Meessii.txt
Lionel Scaloni
Luis Enrique
Pep Guardiola
Xavi Hernandez
depace@Dipesh:~/OS lab$ tac -b Lionel.txt Meessii.txt

Andres Iniesta
Antoine Griezmann
Frenkie De Jong
Pedri GonzalezLeo Messi

Lionel Scaloni
Luis Enrique
Pep GuardiolaXavi Hernandezdepace@Dipesh:~/OS lab$ tac -r Lionel.txt Meessii.txt

Andres Iniesta
Antoine Griezmann
Frenkie De Jong
Pedri Gonzalez
Leo Messi
Lionel Scaloni
Luis Enrique
Pep Guardiola
Xavi Hernandez
depace@Dipesh:~/OS lab$
```

## 1.35 Command Name : comm

**Syntax :** comm <options><file1><file2>

**Usage :** It compare two sorted files line by line and write to standard output; the lines that are common and the lines that are unique.

### Commands Used :

- ◆ **comm Barcelona.txt Spain.txt=** It contains 3 columns. First column contains line unique to first file Barcelona.txt. Second column contain lines unique to second file Spain.txt. Third column contain lines common to both file.
- ◆ **comm -1 Barcelona.txt Spain.txt=** It suppress first column(lines unique to first file Barcelona.txt).
- ◆ **comm -2 Barcelona.txt Spain.txt=** It suppress second column(lines unique to second file Spain.txt).
- ◆ **comm -3 Barcelona.txt Spain.txt=** It suppress third column(lines common to both file).

## Output:

```
depace@Dipesh:~/OS lab$ comm Barcelona.txt Spain.txt
Araujo
    Asensio
        Balde
    Carvajal
DeJong
Felix
    Gavi
Gundogan
    Kepa
    Laporte
Lewandowski
    Morata
        Pedri
    Rodri
TerStegen
    Yamal
depace@Dipesh:~/OS lab$ comm -1 Barcelona.txt Spain.txt
Asensio
    Balde
Carvajal
    Gavi
Kepa
Laporte
Morata
    Pedri
Rodri
    Yamal
depace@Dipesh:~/OS lab$ comm -2 Barcelona.txt Spain.txt
Araujo
    Balde
DeJong
Felix
    Gavi
Gundogan
Lewandowski
    Pedri
TerStegen
    Yamal
depace@Dipesh:~/OS lab$ comm -3 Barcelona.txt Spain.txt
Araujo
    Asensio
    Carvajal
DeJong
Felix
Gundogan
    Kepa
    Laporte
Lewandowski
    Morata
    Rodri
TerStegen
depace@Dipesh:~/OS lab$
```

## 1.36 Command Name : cut

**Syntax :** cut <options>\* <files>

**Usage :** It cutout the sections from each line of files and writing the result to standard output.

**Commands Used :**

- ◆ **cut -b 1,2,3 Lionel.txt** = It cut the line from first second and third byte starting from beginning byte.
- ◆ **cut -b 1-3,5-7 Lionel.txt** = It cut the line from first to third byte and fifth to seventh byte starting from beginning byte.
- ◆ **cut -b -4 Lionel.txt** = It cut the line from beginning byte to fourth byte.
- ◆ **cut -c 1-7 Lionel.txt** = It cut the line from first to seventh character.
- ◆ **cut -c 2,4,6 Lionel.txt** = It cut second,fourth, sixth character.

**Output :**

```
depace@Dipesh: ~/OS lab$ cut -b 1,2,3 Lionel.txt
Leo
Ped
Fre
Ant
And

depace@Dipesh:~/OS lab$ cut -b 1-3,5-7 Lionel.txt
LeoMes
Pedi G
Frekie
Antine
Andes

depace@Dipesh:~/OS lab$ cut -b -4 Lionel.txt
Leo
Pedr
Fren
Anto
Andr

depace@Dipesh:~/OS lab$ cut -c 1-7 Lionel.txt
Leo Mes
Pedri G
Frenkie
Antoine
Andres

depace@Dipesh:~/OS lab$ cut -c 2,4,6 Lionel.txt
e e
er
rni
non
nrs

depace@Dipesh:~/OS lab$
```

## 1.37 Command Name : sort

**Syntax :** sort <option> <file>

**Usage :** It provide a sorted output of the contents of a file.

**Commands Used :**

- ◆ **sort Lionel.txt** = It sort the contents of the file Lionel.txt and prints it.
- ◆ **sort -r Lionel.txt** = It sort the contents of the file Lionel.txt and prints it in reverse order.
- ◆ **sort -k2 Lionel.txt** = It sort the contents of the file Lionel.txt from second field and prints it.
- ◆ **sort -u Lionel.txt** = It sort the contents of the file Lionel.txt and prints it ensuring that only unique lines are retained in sorted output.

**Output :**

The screenshot shows a terminal window with a dark background. The title bar reads "depace@Dipesh: ~/OS lab". The terminal content is as follows:

```
depace@Dipesh:~/OS lab$ sort Lionel.txt
Andres Iniesta
Antoine Griezmann
Frenkie De Jong
Leo Messi
Leo Messi
Pedri Gonzalez
depace@Dipesh:~/OS lab$ sort -r Lionel.txt
Pedri Gonzalez
Leo Messi
Leo Messi
Frenkie De Jong
Antoine Griezmann
Andres Iniesta
depace@Dipesh:~/OS lab$ sort -k2 Lionel.txt
Frenkie De Jong
Pedri Gonzalez
Antoine Griezmann
Andres Iniesta
Leo Messi
Leo Messi
depace@Dipesh:~/OS lab$ sort -u Lionel.txt
Andres Iniesta
Antoine Griezmann
Frenkie De Jong
Leo Messi
Pedri Gonzalez
depace@Dipesh:~/OS lab$
```

## 1.38 Command Name : date

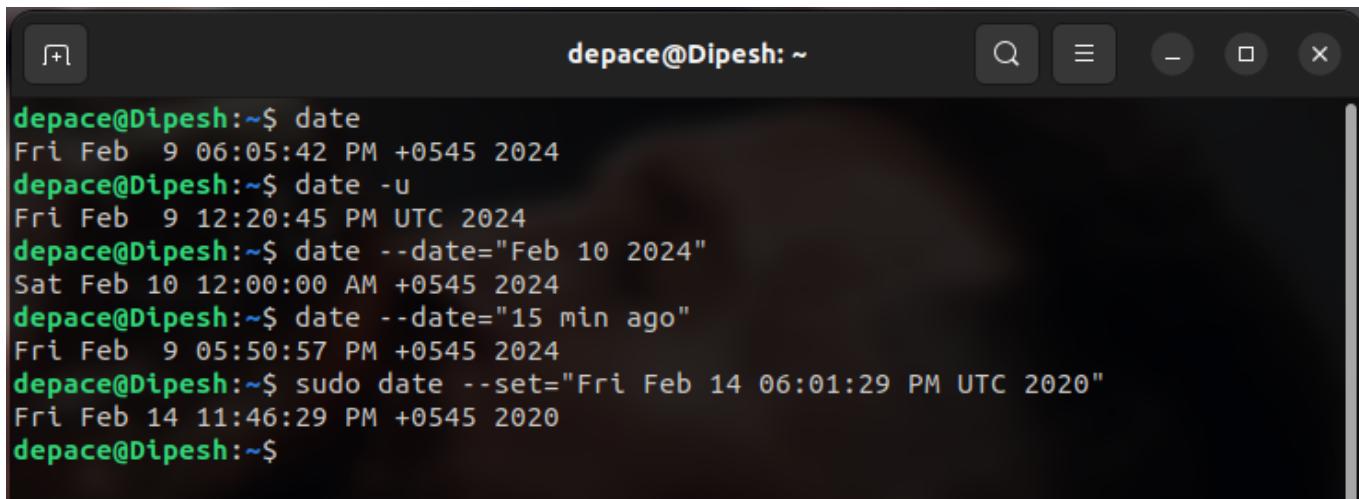
**Syntax :** date <option>.. <+format>

**Usage :** It is used to display the system date and time. date command is also used to set date and time of the system.

**Commands Used :**

- ◆ **date** = It displays the current date and time, including the abbreviated day name, abbreviated month name, day of the month, the time separated by colons, the time zone name, and the year.
- ◆ **date -u** = It display the current time in GMT or UTC.
- ◆ **date --date="Feb 10 2024"** = It display the given date string in format of date.
- ◆ **date --date="15 min ago** =It display the date of 15 minutes ago in format of date.
- ◆ **sudo date --set="Fri Feb 14 06:01:29 PM UTC 2020"** = It sets system date and time to specified value.

**Output :**



The screenshot shows a terminal window with a dark theme. The title bar reads "depace@Dipesh: ~". The terminal window contains the following text:

```
depace@Dipesh:~$ date
Fri Feb  9 06:05:42 PM +0545 2024
depace@Dipesh:~$ date -u
Fri Feb  9 12:20:45 PM UTC 2024
depace@Dipesh:~$ date --date="Feb 10 2024"
Sat Feb 10 12:00:00 AM +0545 2024
depace@Dipesh:~$ date --date="15 min ago"
Fri Feb  9 05:50:57 PM +0545 2024
depace@Dipesh:~$ sudo date --set="Fri Feb 14 06:01:29 PM UTC 2020"
Fri Feb 14 11:46:29 PM +0545 2020
depace@Dipesh:~$
```

## 1.39 Command Name : cal

**Syntax :** cal [ [month] year]

**Usage :** It is used to see the calendar of a specific month or a whole year.

**Commands Used :**

- ◆ **cal** = It display a calendar of the current month and year.
- ◆ **cal July 2024** = It display a calendar of the specified month and year.
- ◆ **cal 2024**= It display the calendar of the whole month of specified year.

## Output :

```
depace@Dipesh:~$ cal
February 2024
Su Mo Tu We Th Fr Sa
      1  2  3
 4  5  6  7  8  9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29

depace@Dipesh:~$ cal July 2024
July 2024
Su Mo Tu We Th Fr Sa
  1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

depace@Dipesh:~$ cal 2024
2024
January          February          March
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
  1  2  3  4  5  6      1  2  3           1  2
 7  8  9 10 11 12 13   4  5  6  7  8  9 10   3  4  5  6  7  8  9
14 15 16 17 18 19 20   11 12 13 14 15 16 17  10 11 12 13 14 15 16
21 22 23 24 25 26 27   18 19 20 21 22 23 24  17 18 19 20 21 22 23
28 29 30 31           25 26 27 28 29           24 25 26 27 28 29 30
                           31

April            May            June
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
  1  2  3  4  5  6      1  2  3  4           1
 7  8  9 10 11 12 13   5  6  7  8  9 10 11   2  3  4  5  6  7  8
14 15 16 17 18 19 20   12 13 14 15 16 17 18   9 10 11 12 13 14 15
21 22 23 24 25 26 27   19 20 21 22 23 24 25   16 17 18 19 20 21 22
28 29 30               26 27 28 29 30 31           23 24 25 26 27 28 29
                           30

July            August          September
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
  1  2  3  4  5  6      1  2  3           1  2  3  4  5  6  7
 7  8  9 10 11 12 13   4  5  6  7  8  9 10   8  9 10 11 12 13 14
14 15 16 17 18 19 20   11 12 13 14 15 16 17  15 16 17 18 19 20 21
21 22 23 24 25 26 27   18 19 20 21 22 23 24  22 23 24 25 26 27 28
28 29 30 31           25 26 27 28 29 30 31   29 30

October          November         December
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
  1  2  3  4  5           1  2           1  2  3  4  5  6  7
 6  7  8  9 10 11 12     3  4  5  6  7  8  9   8  9 10 11 12 13 14
13 14 15 16 17 18 19     10 11 12 13 14 15 16  15 16 17 18 19 20 21
20 21 22 23 24 25 26    17 18 19 20 21 22 23  22 23 24 25 26 27 28
27 28 29 30 31         24 25 26 27 28 29 30  29 30 31
```

## 1.40 Command Name : time

**Syntax :** time <option> <command>

**Usage :** It displays how long it takes to execute a command. It helps in checking the performance of the scripts and commands.

**Commands Used :**

- ◆ **time ls** = It display a time for ls command.
- ◆ **time mkdir Test** = It displays a time to create new empty directory Test.

The following time information are available:

- => **Real-time (real)** =The real-life time it takes for the process to run from start to finish. This includes any time taken by other processes and the time spent waiting for them to be complete.
- =>**User time (user)** = The amount of CPU time spent in user mode during the process. Other processes and blocked time are not included.
- =>**System time (sys)** = The total CPU time spent in kernel mode during the process.

**Output :**

A screenshot of a terminal window titled "depace@Dipesh: ~/OS lab". The terminal shows two executions of the "time" command. In the first execution, "time ls", the output shows times for real, user, and sys CPU usage. In the second execution, "time mkdir Test", the output again shows times for real, user, and sys CPU usage. The terminal window has a dark background with light-colored text and standard window controls at the top.

```
depace@Dipesh:~/OS lab$ time ls
Barcelona.txt  Lionel.txt  Messi.txt          Spain.txt
Lab1.odt        Meessii.txt  OS_labworks_part-1.pdf  test

real    0m0.006s
user    0m0.006s
sys     0m0.000s
depace@Dipesh:~/OS lab$ time mkdir Test

real    0m0.006s
user    0m0.001s
sys     0m0.005s
depace@Dipesh:~/OS lab$
```

## 1.41 Command Name : host

**Syntax :** host <options> <domain hostname IP address>

**Usage :** It is used for DNS (Domain Name System) lookup operations i.e to find the IP address of a particular domain name or to find out the domain name of a particular IP address

**Commands Used :**

- ◆ **host Dipesh** = It find the IP address and related details of the [host](#) machine Dipesh.
- ◆ **host espncricinfo.com** = It find the [IP address](#) and related details of the certain internet domains..
- ◆ **host 157.240.16.35** = display the domain details of the specified IP Address.

- ◆ **host -v youtube.com** = It prints detailed information about the DNS query, response, status, flags, and results.

## Output:

```
depace@Dipesh:~$ host Dipesh
Dipesh has address 127.0.1.1
depace@Dipesh:~$ host espncricinfo.com
espncricinfo.com has address 52.76.100.211
espncricinfo.com has address 18.136.117.181
espncricinfo.com mail is handled by 20 mail2.cricinfo.com.
espncricinfo.com mail is handled by 10 mail.cricinfo.com.
depace@Dipesh:~$ host 157.240.16.35
35.16.240.157.in-addr.arpa domain name pointer edge-star-mini-shv-01-bom1.facebook.com.
depace@Dipesh:~$ host -v youtube.com
Trying "youtube.com"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 20499
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0
;; QUESTION SECTION:
;youtube.com.           IN      A
;; ANSWER SECTION:
youtube.com.          54      IN      A      142.250.195.142
Received 45 bytes from 127.0.0.53#53 in 8 ms
Trying "youtube.com"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 31408
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0
;; QUESTION SECTION:
;youtube.com.           IN      AAAAA
;; ANSWER SECTION:
youtube.com.          103     IN      AAAAA   2404:6800:4007:825::200e
Received 57 bytes from 127.0.0.53#53 in 4 ms
Trying "youtube.com"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 34816
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0
;; QUESTION SECTION:
;youtube.com.           IN      MX
;; ANSWER SECTION:
youtube.com.          300     IN      MX      0 smtp.google.com.
Received 57 bytes from 127.0.0.53#53 in 268 ms
depace@Dipesh:~$
```

## 1.42 Command Name : wget

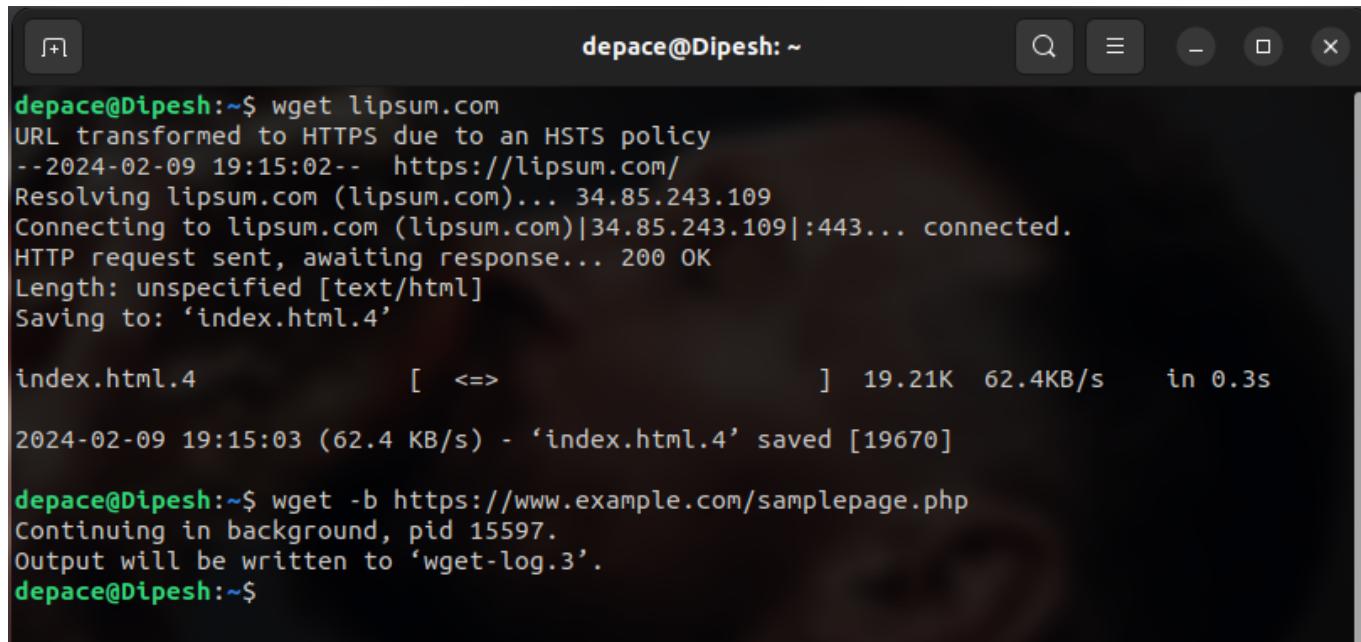
**Syntax :** wget <option> <URL>

**Usage :** It is displays used to download files from the server even when the user has not logged on to the system and it can work in the background without hindering the current process.

**Commands Used :**

- ◆ **wget lipsum.com** = It simply download a webpage.
- ◆ **wget -b https://www.example.com/samplepage.php** = It simply download a webpage in background.

**Output :**



```
depace@Dipesh:~$ wget lipsum.com
URL transformed to HTTPS due to an HSTS policy
--2024-02-09 19:15:02--  https://lipsum.com/
Resolving lipsum.com (lipsum.com)... 34.85.243.109
Connecting to lipsum.com (lipsum.com)|34.85.243.109|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html.4'

index.html.4          [ =>                               ]  19.21K  62.4KB/s   in 0.3s

2024-02-09 19:15:03 (62.4 KB/s) - 'index.html.4' saved [19670]

depace@Dipesh:~$ wget -b https://www.example.com/samplepage.php
Continuing in background, pid 15597.
Output will be written to 'wget-log.3'.
depace@Dipesh:~$
```

## 1.43 Command Name : id

**Syntax :** id <option>... <USER>

**Usage :** It is used to find out user and group names and numeric ID's (UID or group ID) of the current user or any other user in the server. This command is useful to find out the following information as listed below:

- User name and real user id.
- Find out the specific Users UID.
- Show the UID and all groups associated with a user.
- List out all the groups a user belongs to.
- Display security context of the current user.

### **Commands Used :**

- ◆ **id** = It shows current user UID,GID and all groups associated with it.
- ◆ **id -u depace** = It shows the UID of the user named depace.
- ◆ **id -g depace** = It shows the GID of the user named depace.
- ◆ **id Messi** = It shows the UID,GID and all groups associated with user Messi.
- ◆ **Id -G depace** = It shows all

### **Output :**



```
depace@Dipesh:~$ id
uid=1000(depace) gid=1000(depace) groups=1000(depace),4(adm),24(cdrom),27(sudo),30(dip),
46(plugdev),122(lpadmin),135(lxd),136(sambashare)
depace@Dipesh:~$ id -u depace
1000
depace@Dipesh:~$ id -g depace
1000
depace@Dipesh:~$ id Messi
uid=1001(Messi) gid=1002(Messi) groups=1002(Messi)
depace@Dipesh:~$ id -G depace
1000 4 24 27 30 46 122 135 136
depace@Dipesh:~$
```

## **1.44 Command Name : ps**

**Syntax :** ps <options>

**Usage :** It displays information about the processes associated with the current terminal session.

### **Commands Used :**

- ◆ **ps** = It shows the processes for the current shell.
- ◆ **ps -a** = It shows all processes except both session leaders and processes not associated with a terminal.
- ◆ **ps -t** = It List All Processes Associated with this Terminal in Linux.
- ◆ **ps -C systemd** = It selects the processes whose executable name is given in cmdlist.

Result contains four columns of information.Where,

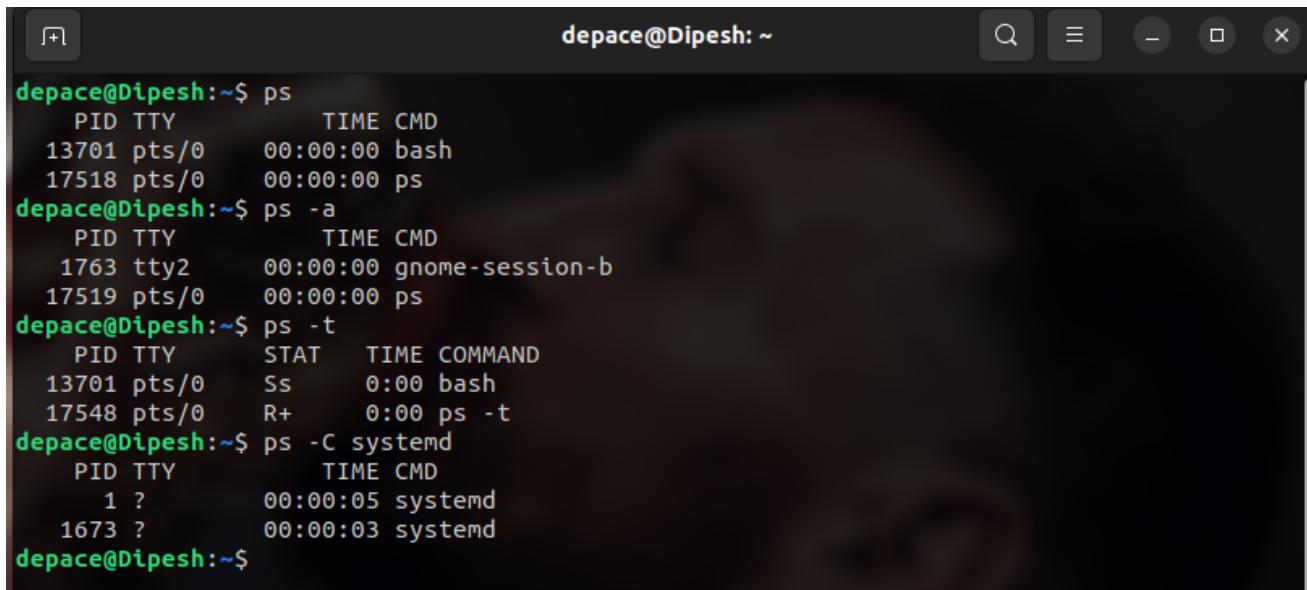
**PID** – the unique process ID

**TTY** – terminal type that the user is logged into.

**TIME** – amount of CPU in minutes and seconds that the process has been running.

**CMD** – name of the command that launched the process.

## Output :



```
depace@Dipesh:~$ ps
  PID TTY      TIME CMD
13701 pts/0    00:00:00 bash
 17518 pts/0    00:00:00 ps
depace@Dipesh:~$ ps -a
  PID TTY      TIME CMD
 1763 tty2    00:00:00 gnome-session-b
 17519 pts/0    00:00:00 ps
depace@Dipesh:~$ ps -t
  PID TTY      STAT   TIME COMMAND
13701 pts/0    Ss     0:00 bash
 17548 pts/0    R+     0:00 ps -t
depace@Dipesh:~$ ps -C systemd
  PID TTY      TIME CMD
    1 ?        00:00:05 systemd
  1673 ?        00:00:03 systemd
depace@Dipesh:~$
```

## 1.45 Command Name : top

**Syntax :** top <options>

**Usage :** It displays information about CPU usage, memory usage, running processes, and more, allowing users to monitor and analyze system activity effectively.

### Commands Used :

- ◆ **top** = It display a continuously updating screen showing various system metrics.
- ◆ **ps -u depace** = It Display Specific User Process named depace.
- ◆ **ps -n 5** = It automatically exit top command after 10 number of repetition.
- ◆ **ps -h** = It shows top command syntax
- ◆ **top -b** = It send output from top to file or any other programs.

Here,

=> **PID**: Shows task's unique process id.

=> **PR**: The process's priority. The lower the number, the higher the priority.

=>**VIRT**: Total virtual memory used by the task.

=>**USER**: User name of owner of task.

=>**%CPU**: Represents the CPU usage.

=>**TIME+**: CPU Time, the same as 'TIME', but reflecting more granularity through hundredths of a second.

=>**SHR**: Represents the Shared Memory size (kb) used by a task.

=>**NI**: Represents a Nice Value of task. A Negative nice value implies higher priority, and positive Nice value means lower priority.

=>**%MEM**: Shows the Memory usage of task.

=>**RES**: How much physical RAM the process is using, measured in kilobytes.

=>**COMMAND**: The name of the command that started the process.

## Output :

```
depace@Dipesh:~$ top
```

top - 20:20:15 up 5:27, 1 user, load average: 0.85, 0.94, 0.83  
Tasks: 306 total, 2 running, 304 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 4.8 us, 1.2 sy, 0.0 ni, 94.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st  
MiB Mem : 7739.5 total, 1781.0 free, 2409.1 used, 3549.5 buff/cache  
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used. 4428.1 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1854	depace	20	0	6215848	359436	164696	R	25.4	4.5	26:34.06	gnome-s+
13683	depace	20	0	567168	62960	44620	S	8.3	0.8	0:36.75	gnome-t+
17410	depace	20	0	1131.3g	203768	127192	S	3.6	2.6	0:29.33	chrome
3540	depace	20	0	898396	89060	61104	S	1.3	1.1	2:32.42	Xwayland
15626	depace	20	0	32.8g	313148	220728	S	1.3	4.0	2:03.19	chrome
198	root	-51	0	0	0	0	S	1.0	0.0	1:53.12	irq/51+-
2140	depace	20	0	315476	11556	6912	S	1.0	0.1	1:42.55	ibus-da+
15671	depace	20	0	32.8g	196808	134136	S	1.0	2.5	1:46.15	chrome
17715	depace	20	0	13692	4224	3328	S	0.7	0.1	0:01.57	top
<b>17815</b>	<b>depace</b>	<b>20</b>	<b>0</b>	<b>13568</b>	<b>4096</b>	<b>3328</b>	<b>R</b>	<b>0.7</b>	<b>0.1</b>	<b>0:00.13</b>	<b>top</b>
53	root	20	0	0	0	0	S	0.3	0.0	0:24.24	ksoftir+
2107	depace	20	0	663568	28872	20968	S	0.3	0.4	0:04.66	xdg-des+
2267	depace	20	0	349996	29096	18308	S	0.3	0.4	0:20.62	ibus-ex+
9534	depace	20	0	3047796	60204	43136	S	0.3	0.8	0:06.23	gjs
11591	root	20	0	0	0	0	I	0.3	0.0	0:01.90	kworker+

```
depace@Dipesh:~$ top -u depace
```

top - 20:19:01 up 5:26, 1 user, load average: 1.00, 1.00, 0.84  
Tasks: 304 total, 1 running, 303 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 1.1 us, 0.8 sy, 0.0 ni, 98.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st  
MiB Mem : 7739.5 total, 1795.9 free, 2397.1 used, 3546.5 buff/cache  
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used. 4441.9 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1854	depace	20	0	6217412	359028	164724	S	9.5	4.5	26:21.10	gnome-s+
13683	depace	20	0	567168	62792	44580	S	2.0	0.8	0:35.25	gnome-t+
17715	depace	20	0	13692	4224	3328	S	0.7	0.1	0:00.89	top
<b>17773</b>	<b>depace</b>	<b>20</b>	<b>0</b>	<b>13572</b>	<b>4224</b>	<b>3328</b>	<b>R</b>	<b>0.7</b>	<b>0.1</b>	<b>0:00.35</b>	<b>top</b>
1705	depace	20	0	10336	5888	4096	S	0.3	0.1	0:05.99	dbus-da+
2140	depace	20	0	315476	11556	6912	S	0.3	0.1	1:42.26	ibus-da+
2267	depace	20	0	349996	29096	18308	S	0.3	0.4	0:20.49	ibus-ex+
3526	depace	20	0	1660992	610252	145776	S	0.3	7.7	24:35.57	soffice+
3540	depace	20	0	898396	89060	61104	S	0.3	1.1	2:31.02	Xwayland
15626	depace	20	0	32.8g	313524	220724	S	0.3	4.0	2:00.47	chrome
1673	depace	20	0	18156	10496	8064	S	0.0	0.1	0:03.93	systemd
1674	depace	20	0	170240	6000	1664	S	0.0	0.1	0:00.00	(sd-pam)
1680	depace	9	-11	40224	6656	5632	S	0.0	0.1	0:00.21	pipewire
1681	depace	20	0	23976	6528	5504	S	0.0	0.1	0:00.13	pipewir+
1682	depace	9	-11	2472456	28732	22588	S	0.0	0.4	0:04.21	pulseau+

```
depace@Dipesh:~$ top -n 5

top - 20:21:11 up 5:28, 1 user, load average: 0.75, 0.89, 0.82
Tasks: 305 total, 2 running, 303 sleeping, 0 stopped, 0 zombie
%Cpu(s): 6.2 us, 1.2 sy, 0.0 ni, 92.4 id, 0.1 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7739.5 total, 1769.7 free, 2418.0 used, 3551.8 buff/cache
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used. 4417.8 avail Mem


```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1854	depace	20	0	6218356	360040	164504	S	29.2	4.5	26:44.05	gnome-s+...
3526	depace	20	0	1660992	610252	145776	S	20.0	7.7	24:45.91	soffice+...
13683	depace	20	0	567168	63216	44748	S	3.6	0.8	0:38.09	gnome-t+...
2140	depace	20	0	315476	11556	6912	S	2.3	0.1	1:42.87	ibus-da+...
198	root	-51	0	0	0	0	S	1.0	0.0	1:53.66	irq/51+-...
2267	depace	20	0	349996	29096	18308	S	1.0	0.4	0:20.74	ibus-ex+...
15626	depace	20	0	32.8g	312852	220544	S	1.0	3.9	2:04.01	chrome
<b>17715</b>	<b>depace</b>	<b>20</b>	<b>0</b>	<b>13692</b>	<b>4224</b>	<b>3328</b>	<b>R</b>	<b>1.0</b>	<b>0.1</b>	<b>0:02.10</b>	<b>top</b>
17062	root	0	-20	0	0	0	I	0.7	0.0	0:03.09	kworker+...
<b>17851</b>	<b>depace</b>	<b>20</b>	<b>0</b>	<b>13568</b>	<b>4224</b>	<b>3328</b>	<b>R</b>	<b>0.7</b>	<b>0.1</b>	<b>0:00.15</b>	<b>top</b>
53	root	20	0	0	0	0	S	0.3	0.0	0:24.35	ksoftir+...
99	root	0	-20	0	0	0	I	0.3	0.0	0:02.63	kworker+...
611	systemd+	20	0	14832	6784	6016	S	0.3	0.1	0:46.94	systemd+...
739	root	20	0	240372	7268	6756	S	0.3	0.1	0:00.95	account+...
823	root	0	-20	0	0	0	I	0.3	0.0	0:01.41	kworker+...

```
depace@Dipesh:~$ top -h
procps-ng 3.3.17
Usage:
  top -hv | -bcEeHi0Ss1 -d secs -n max -u|U user -p pid(s) -o field -w [cols]
depace@Dipesh:~$ top -b

top - 20:22:12 up 5:29, 1 user, load average: 0.47, 0.79, 0.79
Tasks: 306 total, 1 running, 305 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.2 us, 3.1 sy, 0.0 ni, 95.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7739.5 total, 1775.8 free, 2408.7 used, 3555.0 buff/cache
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used. 4425.2 avail Mem


```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
17892	depace	20	0	13572	4096	3328	R	11.1	0.1	0:00.05	top
1854	depace	20	0	6219932	360108	164360	S	5.6	4.5	26:53.05	gnome-s+...
16889	root	20	0	0	0	0	I	5.6	0.0	0:01.09	kworker+...
1	root	20	0	168228	12428	7820	S	0.0	0.2	0:05.62	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.02	kthreadd
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_gp
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_par+
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	slub_fl+
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns

## 1.46 Command Name : kill

**Syntax :** kill <signal> PID

**Usage :** It sends a signal to a process that terminates the process. If the user doesn't specify any signal that is to be sent along with the kill command, then a default TERM signal is sent that terminates the process.

**Commands Used :**

- ◆ **kill -l** = It display all the available signals, we can use.
- ◆ **kill -9 21264** = It send SIGKILL signal to kill the PID 21264.
- ◆ **kill -SIGTERM 21291** = It sends SIGTERM signal to terminate the PID 21291.

**Output :**

The screenshot shows a terminal window with the title bar "depace@Dipesh: ~". The terminal displays the following commands and their outputs:

```
depace@Dipesh:~$ kill -l
 1) SIGHUP      2) SIGINT      3) SIGQUIT     4) SIGILL      5) SIGTRAP
 6) SIGABRT    7) SIGBUS      8) SIGFPE      9) SIGKILL    10) SIGUSR1
11) SIGSEGV    12) SIGUSR2    13) SIGPIPE     14) SIGALRM    15) SIGTERM
16) SIGSTKFLT  17) SIGCHLD    18) SIGCONT     19) SIGSTOP    20) SIGTSTP
21) SIGTTIN    22) SIGTTOU    23) SIGURG      24) SIGXCPU    25) SIGXFSZ
26) SIGVTALRM  27) SIGPROF    28) SIGWINCH   29) SIGIO      30) SIGPWR
31) SIGSYS     34) SIGRTMIN   35) SIGRTMIN+1 36) SIGRTMIN+2 37) SIGRTMIN+3
38) SIGRTMIN+4 39) SIGRTMIN+5 40) SIGRTMIN+6 41) SIGRTMIN+7 42) SIGRTMIN+8
43) SIGRTMIN+9 44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9 56) SIGRTMAX-8 57) SIGRTMAX-7
58) SIGRTMAX-6 59) SIGRTMAX-5 60) SIGRTMAX-4 61) SIGRTMAX-3 62) SIGRTMAX-2
63) SIGRTMAX-1 64) SIGRTMAX
depace@Dipesh:~$ kill -9 21264
depace@Dipesh:~$ kill -15 21291
depace@Dipesh:~$
```

## 1.47 Command Name : pkill

**Syntax :** pkill <option> <signal> Process\_name

**Usage :** It is used to send signals to processes based on their name, providing a more convenient way to terminate processes. It differs from the kill command by allowing users to specify processes by name rather than PID..

**Commands Used :**

- ◆ **pkill -l** = It display all the available signals, we can use.
- ◆ **pkill firefox** = It kill the firefox process.

## Output :

```
depace@Dipesh:~$ pkill -l
pkill: invalid option -- 'l'

Usage:
  pkill [options] <pattern>

Options:
  -<sig>, --signal <sig>      signal to send (either number or name)
  -q, --queue <value>          integer value to be sent with the signal
  -e, --echo                  display what is killed
  -c, --count                 count of matching processes
  -f, --full                  use full process name to match
  -g, --pgroup <PGID,...>    match listed process group IDs
  -G, --group <GID,...>      match real group IDs
  -i, --ignore-case           match case insensitively
  -n, --newest                select most recently started
  -o, --oldest                select least recently started
  -O, --older <seconds>       select where older than seconds
  -P, --parent <PPID,...>    match only child processes of the given parent
  -s, --session <SID,...>    match session IDs
  -t, --terminal <tty,...>   match by controlling terminal
  -u, --euid <ID,...>        match by effective IDs
  -U, --uid <ID,...>         match by real IDs
  -x, --exact                 match exactly with the command name
  -F, --pidfile <file>       read PIDs from file
  -L, --logpidfile           fail if PID file is not locked
  -r, --runstates <state>    match runstates [D,S,Z,...]
  --ns <PID>                 match the processes that belong to the same
                               namespace as <pid>
  --nslist <ns,...>          list which namespaces will be considered for
                               the --ns option.
                               Available namespaces: ipc, mnt, net, pid, user, uts

  -h, --help      display this help and exit
  -V, --version   output version information and exit

For more details see pgrep(1).
depace@Dipesh:~$ pkill firefox
depace@Dipesh:~$
```

## 1.48 Command Name : killall

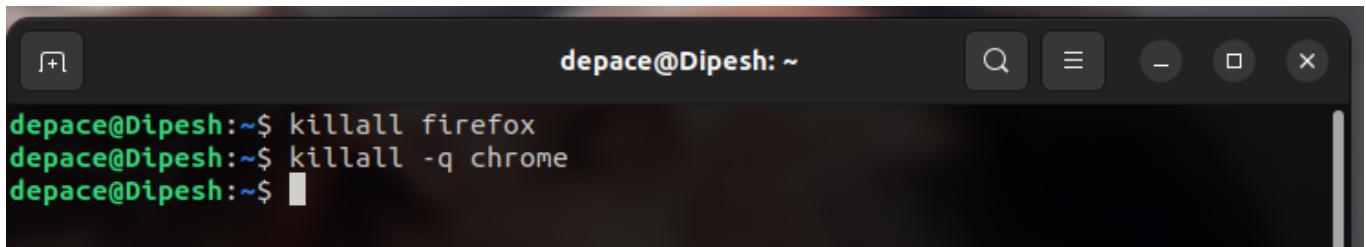
**Syntax :** killall <options> <Name>

**Usage :** It terminates processes that no longer function properly and thus prevents a restart.

### **Commands Used :**

- ◆ **killall firefox** = It kills all the process with name firefox.
- ◆ **Killall -q chrome** = It kills all the process with name “chrome” and doesn’t receive any complaint if no any process is terminated.

### **Output :**



```
depace@Dipesh:~$ killall firefox
depace@Dipesh:~$ killall -q chrome
depace@Dipesh:~$
```

A screenshot of a terminal window titled "depace@Dipesh: ~". The window has standard OS X-style controls at the top right. The terminal displays three commands: "killall firefox", "killall -q chrome", and an empty line. The text is in white on a dark background.

### **1.49 Command Name : bg**

**Syntax :** bg <job\_spec>

**Usage :** It is used to place foreground jobs in background.

### **Commands Used :**

- ◆ **bg %2** = It resumes the job ID 2 by placing it in background.
- ◆ **bg %3** = It resumes the job ID 3 by placing it in background.

sleep is used to create dummy foreground job. CTRL Z stopped the jobs. Then bg is used to resume the sleep by placin it in background.

### **Output :**



```
depace@Dipesh:~$ sleep 500
^Z
[2]+  Stopped                  sleep 500
depace@Dipesh:~$ sleep 600
^Z
[3]+  Stopped                  sleep 600
depace@Dipesh:~$ jobs
[1]  Stopped                  sleep 500
[2]-  Stopped                  sleep 500
[3]+  Stopped                  sleep 600
depace@Dipesh:~$ bg %2
[2]- sleep 500 &
depace@Dipesh:~$ bg %3
[3]+ sleep 600 &
depace@Dipesh:~$ jobs
[1]+  Stopped                  sleep 500
[2]  Running                  sleep 500 &
[3]-  Running                  sleep 600 &
depace@Dipesh:~$
```

A screenshot of a terminal window titled "depace@Dipesh: ~". The terminal shows several steps: running "sleep 500", pressing Ctrl-Z to stop it and create job [2], running "sleep 600", pressing Ctrl-Z to stop it and create job [3], listing jobs with "jobs", resuming job [2] with "bg %2", resuming job [3] with "bg %3", and finally listing the running processes again with "jobs". The text is in white on a dark background.

## 1.50 Command Name : fg

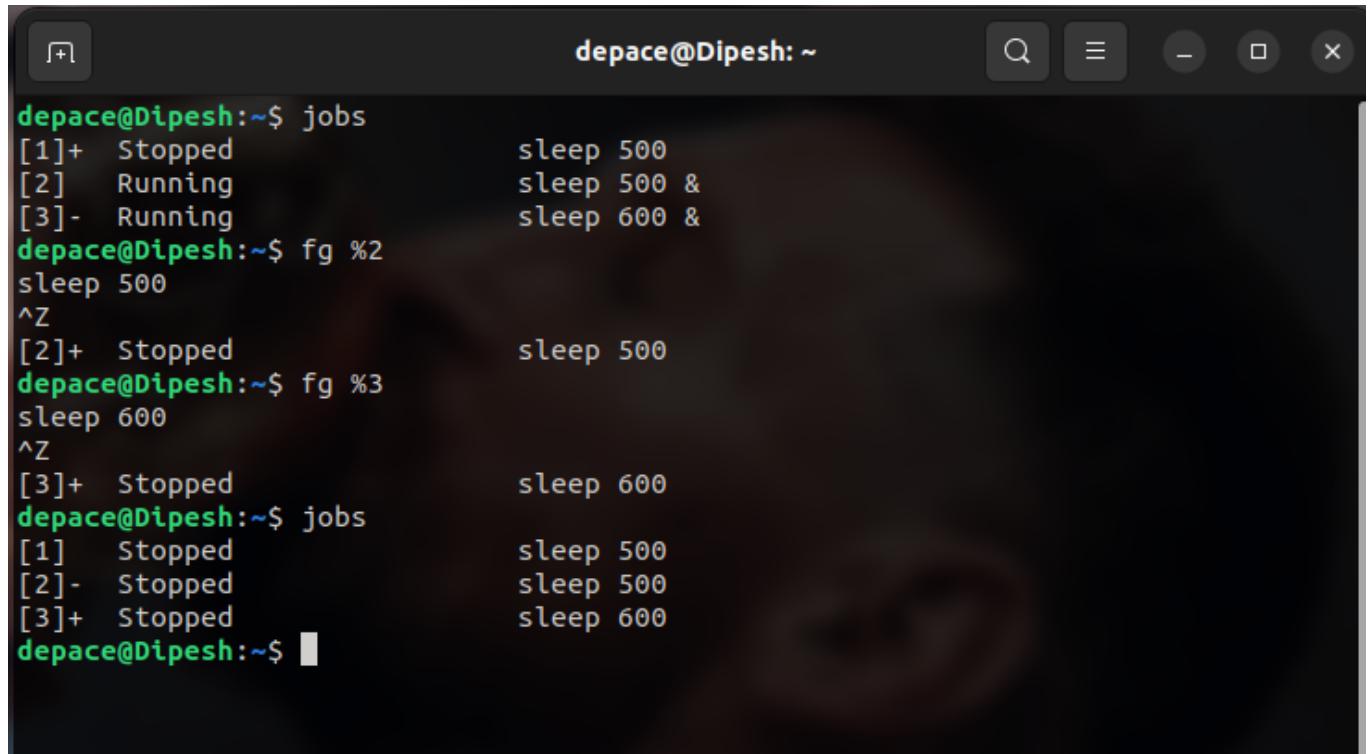
**Syntax :** bg <job\_spec>

**Usage :** It is used to bring the background job to the foreground.

**Commands Used :**

- ◆ **fg %2** = It brings the job ID 2 running in background to foreground.
- ◆ **fg %3** = It brings the job ID 2 running in background to foreground.

**Output :**



The screenshot shows a terminal window with the title bar "depace@Dipesh: ~". The terminal displays the following session:

```
depace@Dipesh:~$ jobs
[1]+  Stopped                  sleep 500
[2]+  Running                  sleep 500 &
[3]-  Running                  sleep 600 &
depace@Dipesh:~$ fg %2
sleep 500
^Z
[2]+  Stopped                  sleep 500
depace@Dipesh:~$ fg %3
sleep 600
^Z
[3]+  Stopped                  sleep 600
depace@Dipesh:~$ jobs
[1]  Stopped                  sleep 500
[2]  Stopped                  sleep 500
[3]+  Stopped                  sleep 600
depace@Dipesh:~$
```

## 1.51 Command Name : tar

**Syntax :** tar <options><archive-file> <file or dir to be archived>

**Usage :** It used to create Archive and extract the Archive files and also maintain and modify them.

**Commands Used :**

- ◆ **tar cvf TxtFile.tar \*.c** = It creates a tar file called TxtFile.tar which is the Archive of all .txt files in the current directory.
- ◆ **tar xvf TxtFile.tar** = It extracts the file from archived Txtfile.tar files.
- ◆ **tar cvzf TxtFile.tar.gz \*.c** = It creates a tar file called TxtFile.tar.gz which is the Archive of all .txt files in the current directory.
- ◆ **tar xvzf TxtFile.tar .gz** = It extracts the file from archived Txtfile.tar.gz files.
- ◆ **tar xvf TxtFile.tar "Barcelona.txt" "Messi.txt"** = It extract "barcelona.txt" "Messi.txt" from the archived files TxtFile.tar.
- ◆ **tar rvf TxtTxtFile.tar Lab1.odt** = It adds the file Lab1.odt int the archived files TxtFile.tar.
- ◆ **Tar tf TxtTxtFile.tar** = It display all the files from the archived files TxtFile.tar.

- ◆ **tar tvf TxtTxtFile.tar | grep "Messi"** = It display only file for the mentioned text or in grep from archived file TxtFile.tar.
- ◆ **tar tvf TxtTxtFile.tar Messi.txt** = It views the archived files along with their details.

### Output :

```
depace@Dipesh:~/OS lab$ tar cvf TxtFile.tar *.txt
Barcelona.txt
Lionel.txt
Meessii.txt
Messi.txt
Spain.txt
depace@Dipesh:~/OS lab$ tar xvf TxtFile.tar
Barcelona.txt
Lionel.txt
Meessii.txt
Messi.txt
Spain.txt
depace@Dipesh:~/OS lab$ tar cvzf gzTxtFile.tar.gz *.txt
Barcelona.txt
Lionel.txt
Meessii.txt
Messi.txt
Spain.txt
depace@Dipesh:~/OS lab$ tar xvzf gzTxtFile.tar.gz
Barcelona.txt
Lionel.txt
Meessii.txt
Messi.txt
Spain.txt
```

```
depace@Dipesh:~/OS lab$ tar xvf TxtFile.tar "Barcelona.txt" "Messi.txt"
Barcelona.txt
Messi.txt
depace@Dipesh:~/OS lab$ tar rvf TxtFile.tar Lab1.odt
Lab1.odt
depace@Dipesh:~/OS lab$ tar tf TxtFile.tar
Barcelona.txt
Lionel.txt
Meessii.txt
Messi.txt
Spain.txt
Lab1.odt
depace@Dipesh:~/OS lab$ tar tvf TxtFile.tar | grep "Messi"
-rw-rw-r-- depace/depace 728 2024-02-09 18:33 Messi.txt
depace@Dipesh:~/OS lab$ tar tvf TxtFile.tar Messi.txt
-rw-rw-r-- depace/depace 728 2024-02-09 18:33 Messi.txt
depace@Dipesh:~/OS lab$
```

## 1.52 Command Name : tar

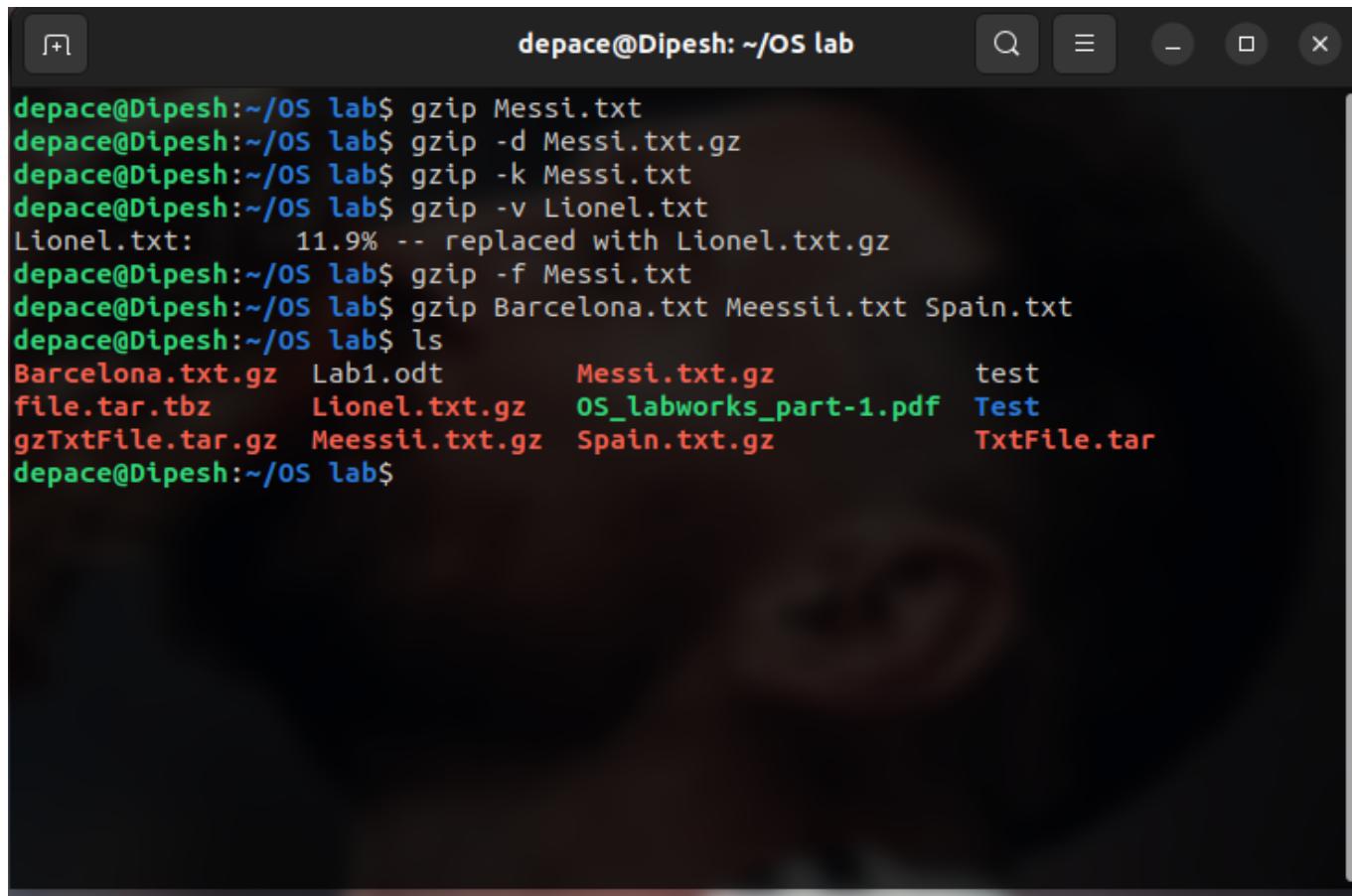
**Syntax :** tar <options><file or dir to be archived>

**Usage :** It used to create Archive and extract the Archive files and also maintain and modify them.

**Commands Used :**

- ◆ **gzip Messi.txt** = It create a compressed file of Messi.txt named as Messi.txt.gz and delete the original file.
- ◆ **gzip -d Messi.txt.gz** = It decompresses the specified gzip file i.e Messi.txt.gz, leaving the original uncompressed file intact.
- ◆ **gzip -k Messi.txt** = It compresses "Messi.txt" and keeps the original file intact.
- ◆ **gzip -v Lionel.txt** = It provides information such as file sizes and progress during the compression process.
- ◆ **gzip -f Messi.txt** = It compresses "Messi.txt" and overwrites any existing "Messi.txt.gz" file.
- ◆ **gzip Barcelona.txt Meessii.txt Spain.txt** = It compresses "Barcelona.txt" "Meessii.txt" "Spain.txt" individually.

**Output:**



The screenshot shows a terminal window with a dark background and light-colored text. The title bar reads "depace@Dipesh: ~/OS lab". The terminal content is as follows:

```
depace@Dipesh:~/OS lab$ gzip Messi.txt
depace@Dipesh:~/OS lab$ gzip -d Messi.txt.gz
depace@Dipesh:~/OS lab$ gzip -k Messi.txt
depace@Dipesh:~/OS lab$ gzip -v Lionel.txt
Lionel.txt:      11.9% -- replaced with Lionel.txt.gz
depace@Dipesh:~/OS lab$ gzip -f Messi.txt
depace@Dipesh:~/OS lab$ gzip Barcelona.txt Meessii.txt Spain.txt
depace@Dipesh:~/OS lab$ ls
Barcelona.txt.gz  Lab1.odt      Messi.txt.gz        test
file.tar.tbz       Lionel.txt.gz  OS_labworks_part-1.pdf  Test
gzTxtFile.tar.gz  Meessii.txt.gz Spain.txt.gz      TxtFile.tar
depace@Dipesh:~/OS lab$
```

