



Green University of Bangladesh
Department of Computer Science and Engineering(CSE)
Faculty of Sciences and Engineering
Semester: (Spring , Year:2024), B.Sc. in CSE (Day)

LAB REPORT NO #01

Course Title: Operating System Lab

Course Code: CSE - 310 Section: 213_D5

Lab Experiment Name: Linux/Unix Commands for Beginners.

Student Details

Name	ID
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Lab Date : 03– 03 - 2024

Submission Date : 16– 03 - 2023

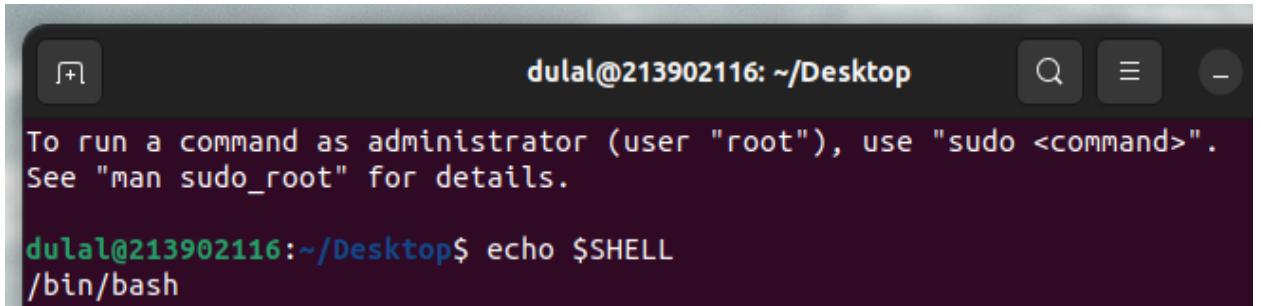
Course Teacher's Name : Md. Solaiman Mia

[For Teachers use only: Don't Write Anything inside this box]

<u>Lab Report Status</u>	
Marks:	Signature:
Comments:	Date:

1. echo \$SHELL :

"echo \$SHELL" displays the shell environment variable, revealing the current shell being used in Linux.

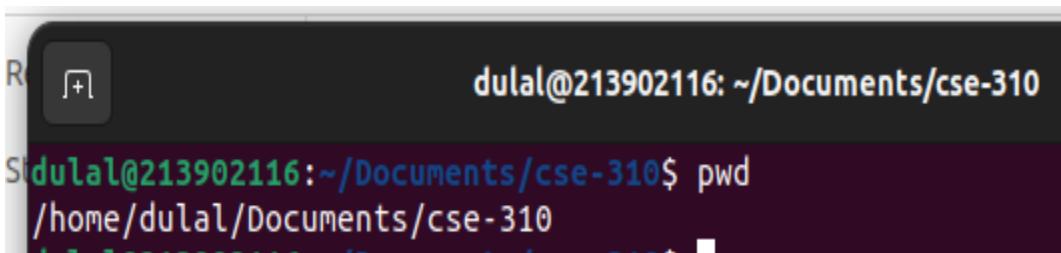


```
dulal@213902116: ~/Desktop
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dulal@213902116:~/Desktop$ echo $SHELL
/bin/bash
```

2. pwd :

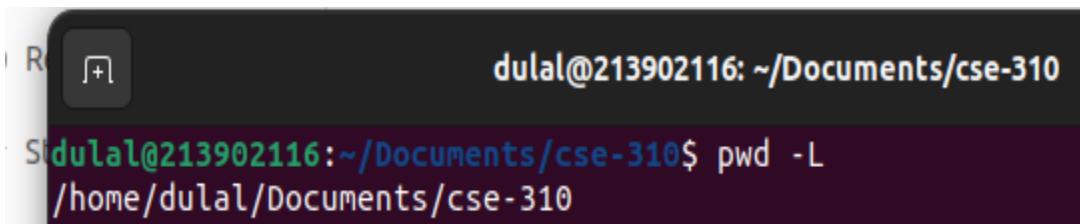
"pwd" prints the current working directory in Linux, showing the user's current location in the file system.



```
R  dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ pwd
/home/dulal/Documents/cse-310
```

3. Pwd - L :

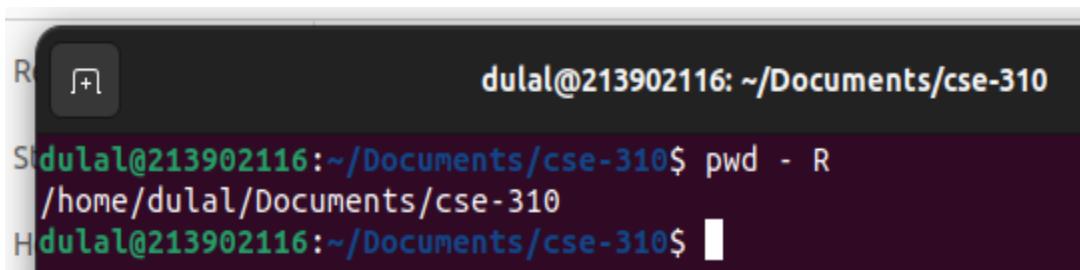
"pwd -L" prints the logical current working directory, following symbolic links if present in Linux.



```
R  dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ pwd -L
/home/dulal/Documents/cse-310
```

4. Pwd - R :

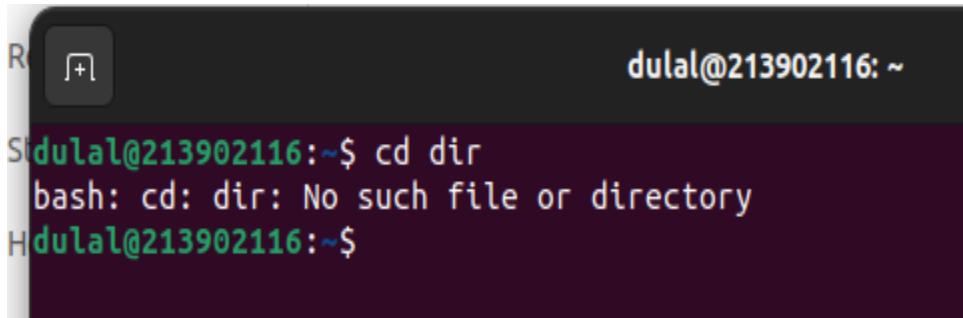
"pwd - R" prints the logical current working directory, following symbolic links if present in Linux.



```
R  dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ pwd - R
/home/dulal/Documents/cse-310
dulal@213902116:~/Documents/cse-310$
```

5. Cd dir :

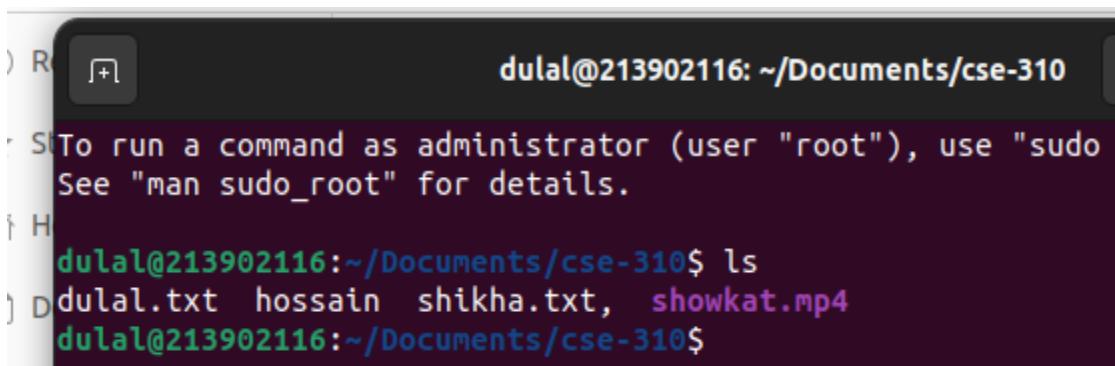
"cd dir" changes the current directory to "dir" in the Linux terminal, facilitating navigation.



```
dulal@213902116:~$ cd dir
bash: cd: dir: No such file or directory
dulal@213902116:~$
```

6. ls :

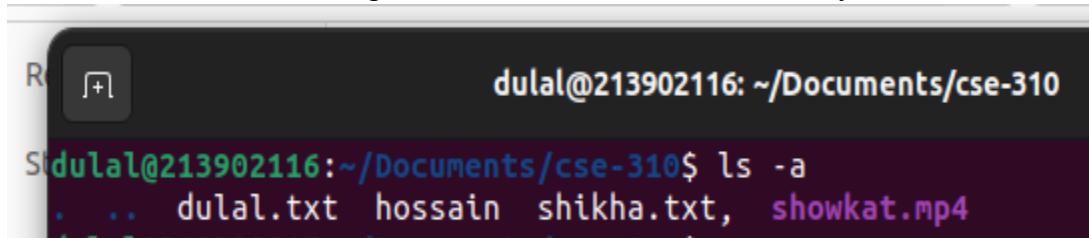
"ls" lists files and directories in the current location.



```
dulal@213902116:~/Documents/cse-310$ ls
dulal.txt hossain shikha.txt, showkat.mp4
dulal@213902116:~/Documents/cse-310$
```

7. Ls -a :

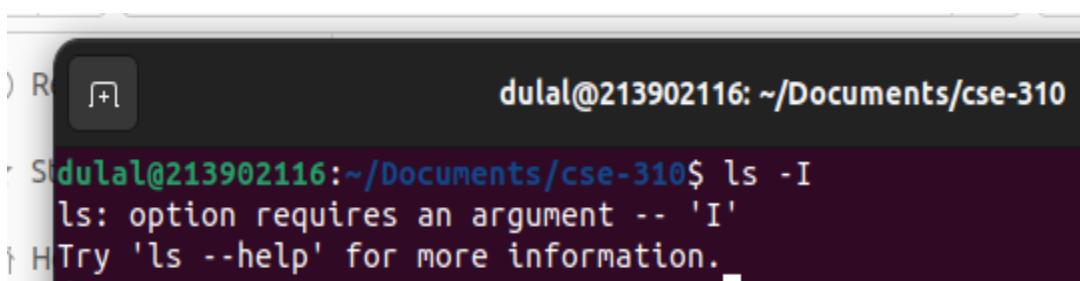
"ls -a" lists all files, including hidden ones, in the current directory in Linux.



```
dulal@213902116:~/Documents/cse-310$ ls -a
. .. dulal.txt hossain shikha.txt, showkat.mp4
```

8. Is -I :

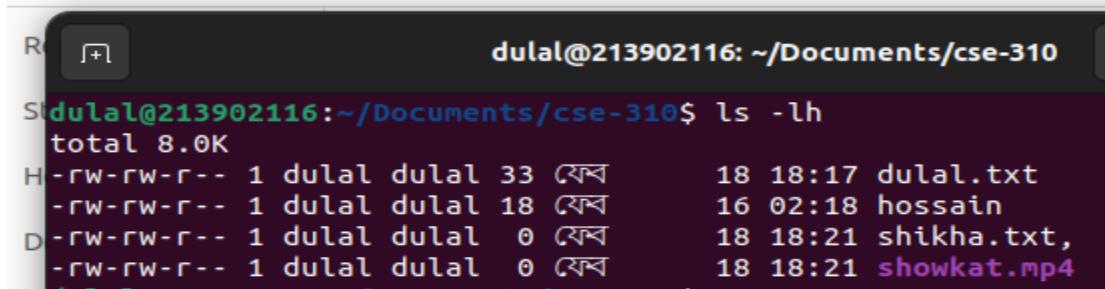
"ls -i" lists files with their respective inode numbers in Linux.



```
dulal@213902116:~/Documents/cse-310$ ls -I
ls: option requires an argument -- 'I'
Try 'ls --help' for more information.
```

9. Ls -lh :

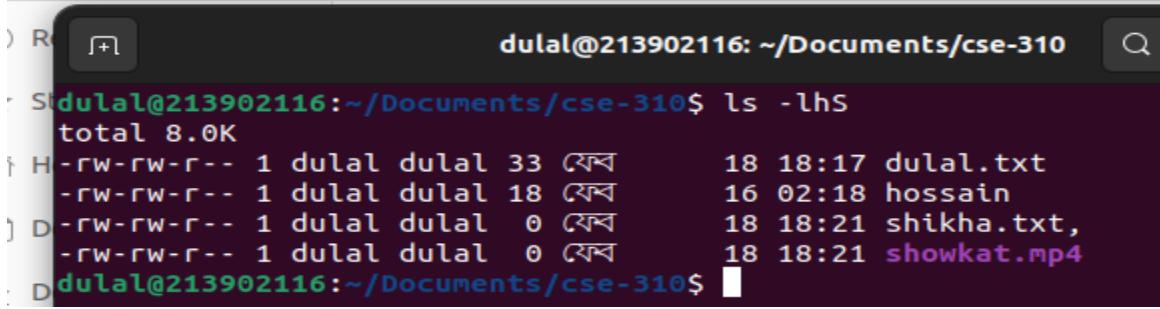
"ls -lh" lists files with human-readable sizes in long format in the current directory in Linux.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ ls -lh
total 8.0K
H-rw-rw-r-- 1 dulal dulal 33 ফেব্রুয়ারি 18 18:17 dulal.txt
-rw-rw-r-- 1 dulal dulal 18 ফেব্রুয়ারি 16 02:18 hossain
D-rw-rw-r-- 1 dulal dulal 0 ফেব্রুয়ারি 18 18:21 shikha.txt,
-rw-rw-r-- 1 dulal dulal 0 ফেব্রুয়ারি 18 18:21 showkat.mp4
```

10. Ls -lhS:

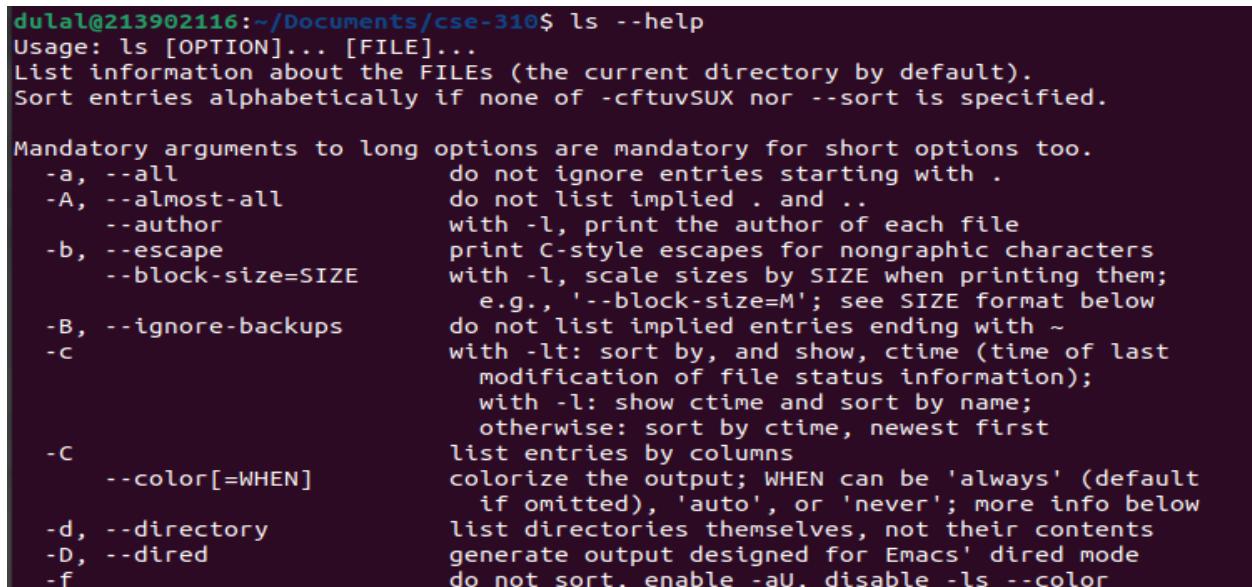
"ls -lhs" lists files with their respective inode numbers, human-readable sizes, and a summary.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ ls -lhs
total 8.0K
† H-rw-rw-r-- 1 dulal dulal 33 ফেব্রুয়ারি 18 18:17 dulal.txt
-rw-rw-r-- 1 dulal dulal 18 ফেব্রুয়ারি 16 02:18 hossain
] D-rw-rw-r-- 1 dulal dulal 0 ফেব্রুয়ারি 18 18:21 shikha.txt,
-rw-rw-r-- 1 dulal dulal 0 ফেব্রুয়ারি 18 18:21 showkat.mp4
dulal@213902116:~/Documents/cse-310$
```

11. Ls --help :

"ls --help" displays command usage and options documentation.

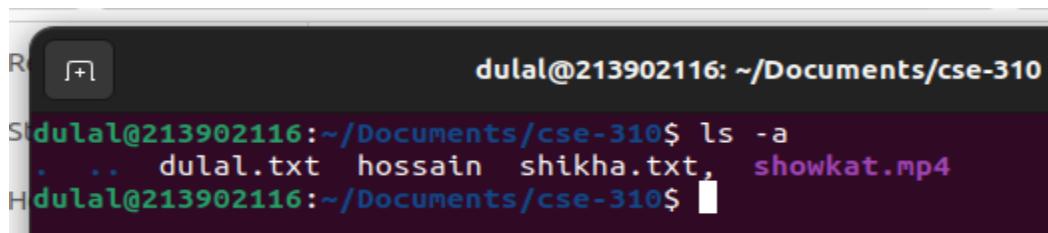


```
dulal@213902116:~/Documents/cse-310$ ls --help
Usage: ls [OPTION]... [FILE]...
List information about the FILEs (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.
  -a, --all                      do not ignore entries starting with .
  -A, --almost-all                do not list implied . and ..
  --author                        with -l, print the author of each file
  -b, --escape                     print C-style escapes for nongraphic characters
  --block-size=SIZE                with -l, scale sizes by SIZE when printing them;
                                   e.g., '--block-size=M'; see SIZE format below
  -B, --ignore-backups             do not list implied entries ending with ~
  -c                               with -lt: sort by, and show, ctime (time of last
                                   modification of file status information);
                                   with -l: show ctime and sort by name;
                                   otherwise: sort by ctime, newest first
  -C                               list entries by columns
  --color[=WHEN]                  colorize the output; WHEN can be 'always' (default
                                   if omitted), 'auto', or 'never'; more info below
  -d, --directory                 list directories themselves, not their contents
  -D, --dired                      generate output designed for Emacs' dired mode
  -f
```

12. Ls -a :

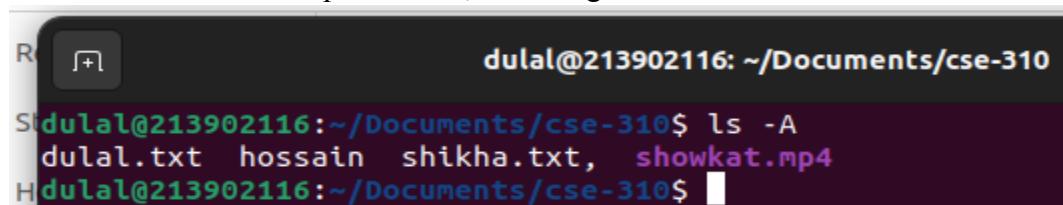
"ls -a" lists all files, including hidden ones, in the current directory.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ ls -a
. .. dulal.txt hossain shikha.txt, showkat.mp4
dulal@213902116:~/Documents/cse-310$
```

13. Ls -A :

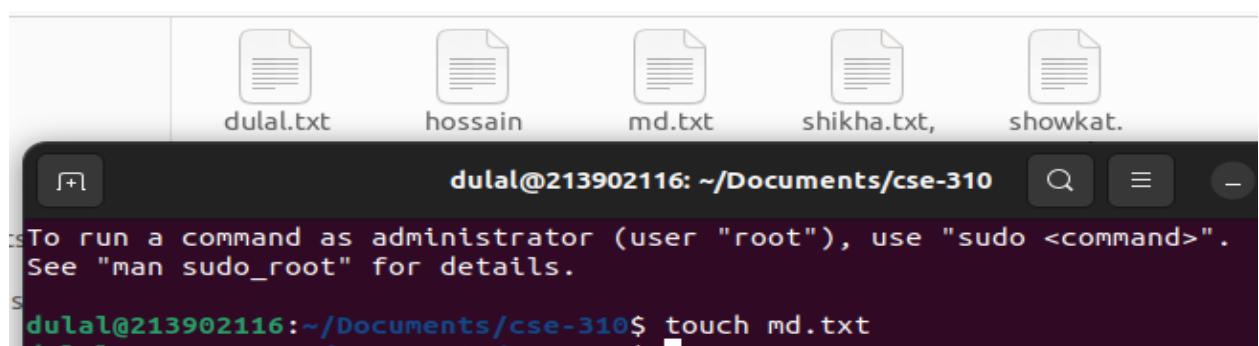
"ls -A" lists all files except '.' and '..', including hidden ones.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ ls -A
dulal.txt hossain shikha.txt, showkat.mp4
dulal@213902116:~/Documents/cse-310$
```

14. touch (file name) :

"touch" creates an empty file or updates the timestamp of an existing file in Linux.



The screenshot shows a file manager interface with several document icons labeled "dulal.txt", "hossain", "md.txt", "shikha.txt,", and "showkat.". Below it is a terminal window:

```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ touch md.txt
dulal@213902116:~/Documents/cse-310$
```

15. Gedit (file name) :

"Gedit" opens the Gnome text editor, allowing users to create and edit text files interactively.

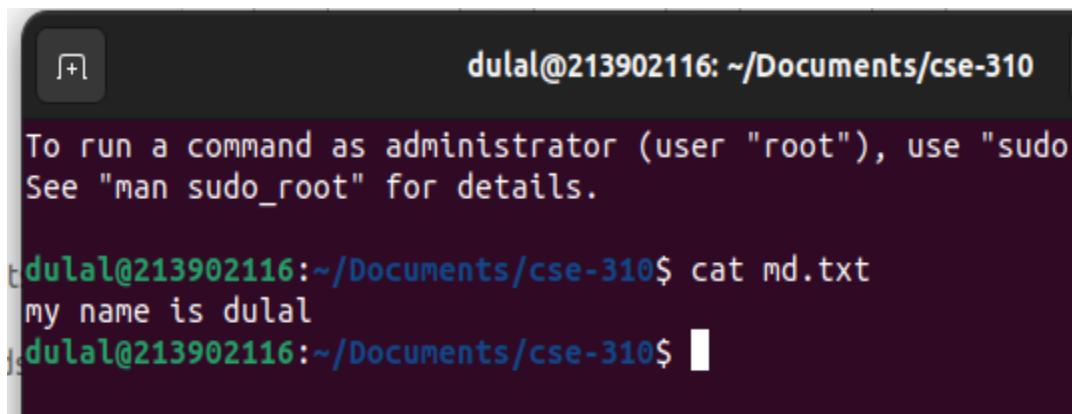


The screenshot shows the Gedit text editor interface. At the top, it says "dulal@213902116: ~/Documents/cse-310". The main window title is "md.txt" located at " ~/Documents/cse-310". The text area contains the following content:

```
1 my name is dulal
```

16. Cat (file name):

"cat" displays file contents in the terminal in Linux systems.



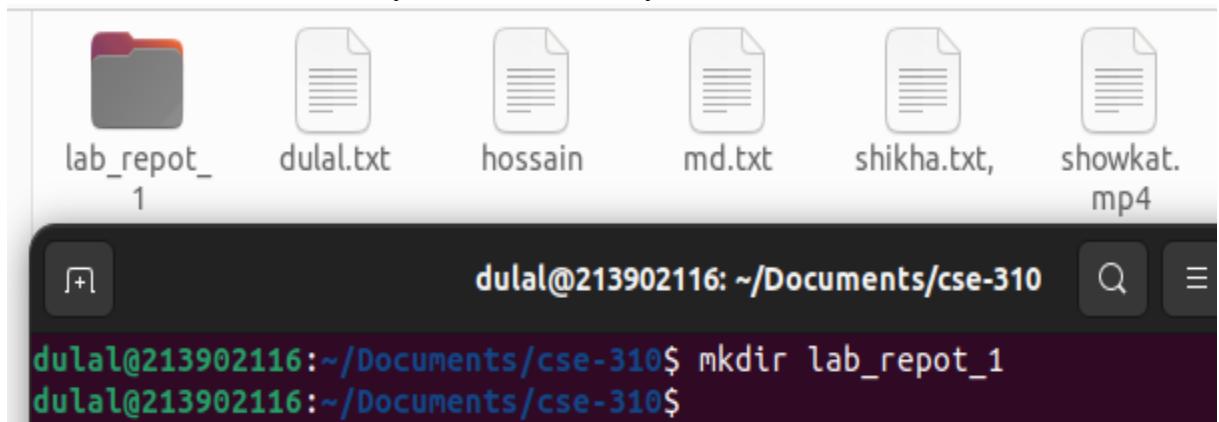
dulal@213902116: ~/Documents/cse-310

To run a command as administrator (user "root"), use "sudo".
See "man sudo_root" for details.

```
dulal@213902116:~/Documents/cse-310$ cat md.txt
my name is dulal
dulal@213902116:~/Documents/cse-310$
```

17. Mkdir (folder name) :

"mkdir" creates a new directory in the Linux file system.



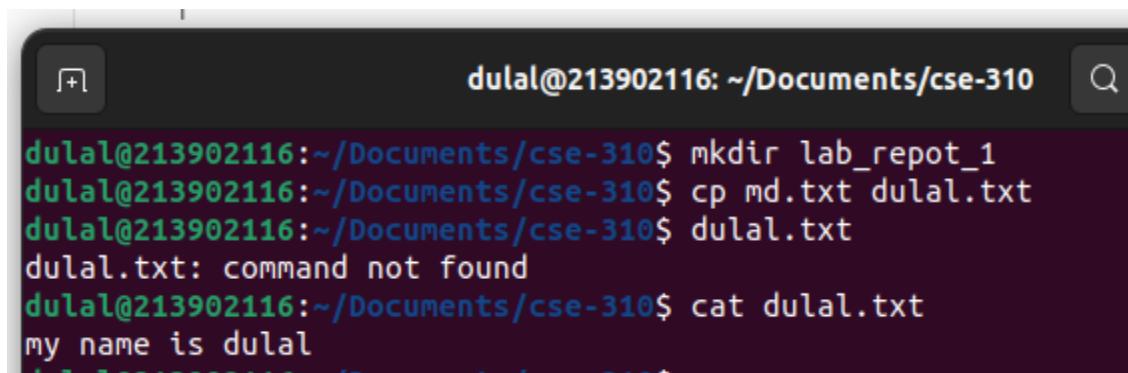
lab_repot_1 dulal.txt hossain md.txt shikha.txt, showkat.mp4

dulal@213902116: ~/Documents/cse-310

```
dulal@213902116:~/Documents/cse-310$ mkdir lab_repot_1
dulal@213902116:~/Documents/cse-310$
```

18. Cp (source Destination) :

"cp" copies files or directories in Linux, facilitating duplication and file management tasks.



```
dulal@213902116:~/Documents/cse-310$ mkdir lab_repot_1
dulal@213902116:~/Documents/cse-310$ cp md.txt dulal.txt
dulal@213902116:~/Documents/cse-310$ dulal.txt
dulal.txt: command not found
dulal@213902116:~/Documents/cse-310$ cat dulal.txt
my name is dulal
dulal@213902116:~/Documents/cse-310$
```

19. rm(file name) :

"rm" removes files or directories in Linux for file deletion.

The screenshot shows a desktop environment with a file manager window open. Inside the file manager, there is a folder named "lab_report_1" containing several files: "dulal.txt", "hossain", "shikha.txt", and "showkat.mp4". Below the file manager is a terminal window with the following session:

```
dulal@213902116: ~/Documents/cse-310$ rm md.txt
dulal@213902116: ~/Documents/cse-310$
```

20. mv(file old name new name) :

"mv" moves or renames files and directories in Linux systems.

The screenshot shows a desktop environment with a file manager window open. Inside the file manager, there is a folder named "lab_report_1" containing several files: "dulal.txt", "hossain", "hossain.txt", "shikha.txt", and "showkat.mp4". Below the file manager is a terminal window with the following session:

```
dulal@213902116: ~/Documents/cse-310$ mv hossain hossain.txt
dulal@213902116: ~/Documents/cse-310$
```

21. Cd (folder name):

"cd" changes the current directory in the Linux terminal.

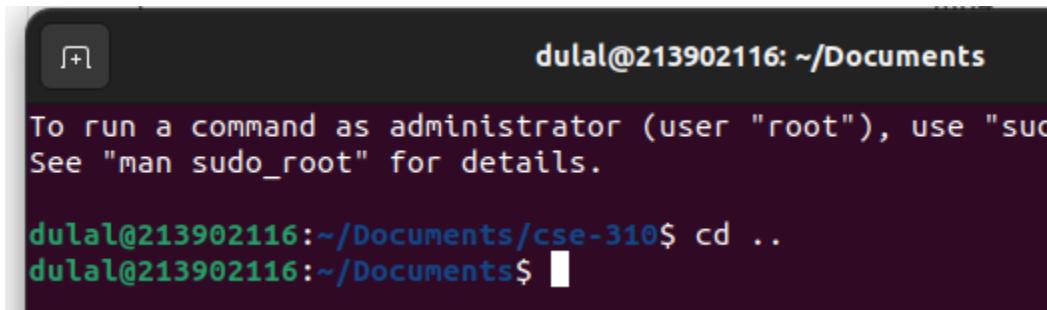
The screenshot shows a desktop environment with a file manager window open. Inside the file manager, there is a folder named "cse-310". Below the file manager is a terminal window with the following session:

```
dulal@213902116: ~/Documents/cse-310$ cd cse-310
To run a command as administrator (user "root"), use "sudo"
See "man sudo_root" for details.

dulal@213902116:~/Documents/cse-310$ cd lab_report_1
```

22. Cd .. :

"cd.." is an incorrect syntax. It should be "cd .." to move up one directory.

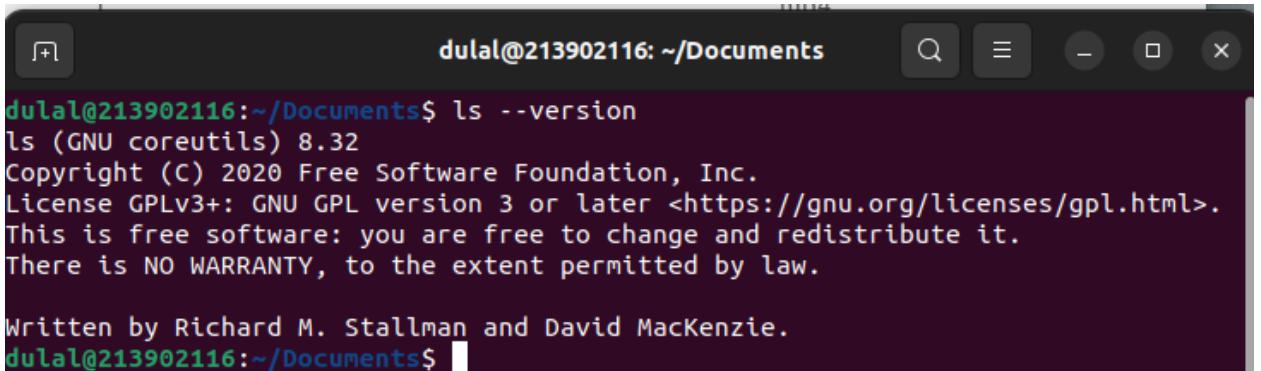


```
dulal@213902116: ~/Documents
To run a command as administrator (user "root"), use "sudo ".
See "man sudo_root" for details.

dulal@213902116:~/Documents/cse-310$ cd ..
dulal@213902116:~/Documents$
```

23. Ls –version :

"ls --version" displays version information for the "ls" command in Linux.

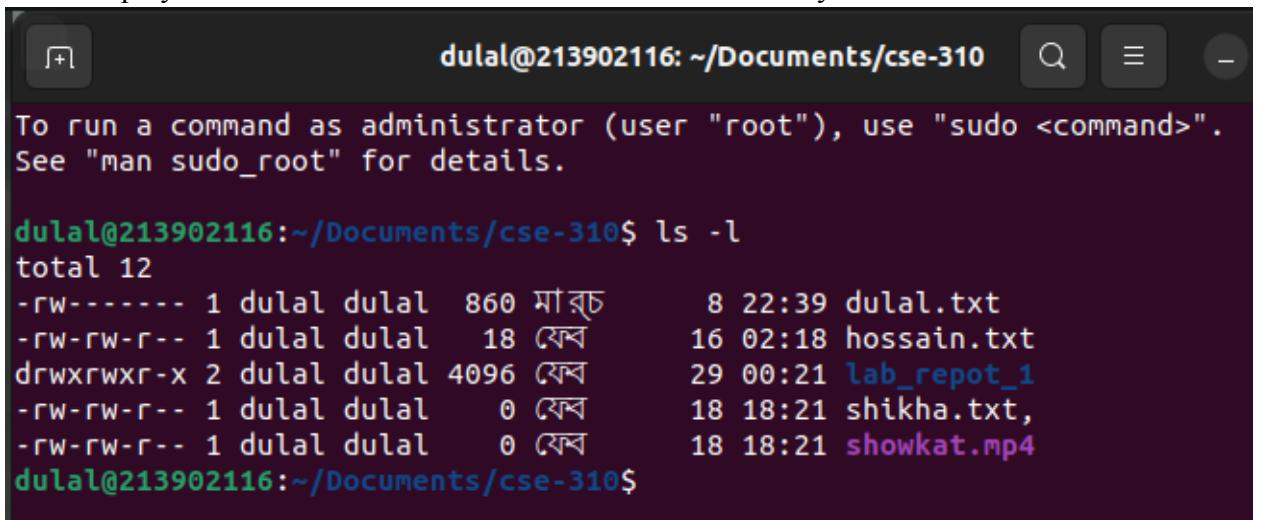


```
dulal@213902116:~/Documents$ ls --version
ls (GNU coreutils) 8.32
Copyright (C) 2020 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Richard M. Stallman and David MacKenzie.
dulal@213902116:~/Documents$
```

24. Ls -l :

"ls -i" displays the inode numbers of files in the current directory.

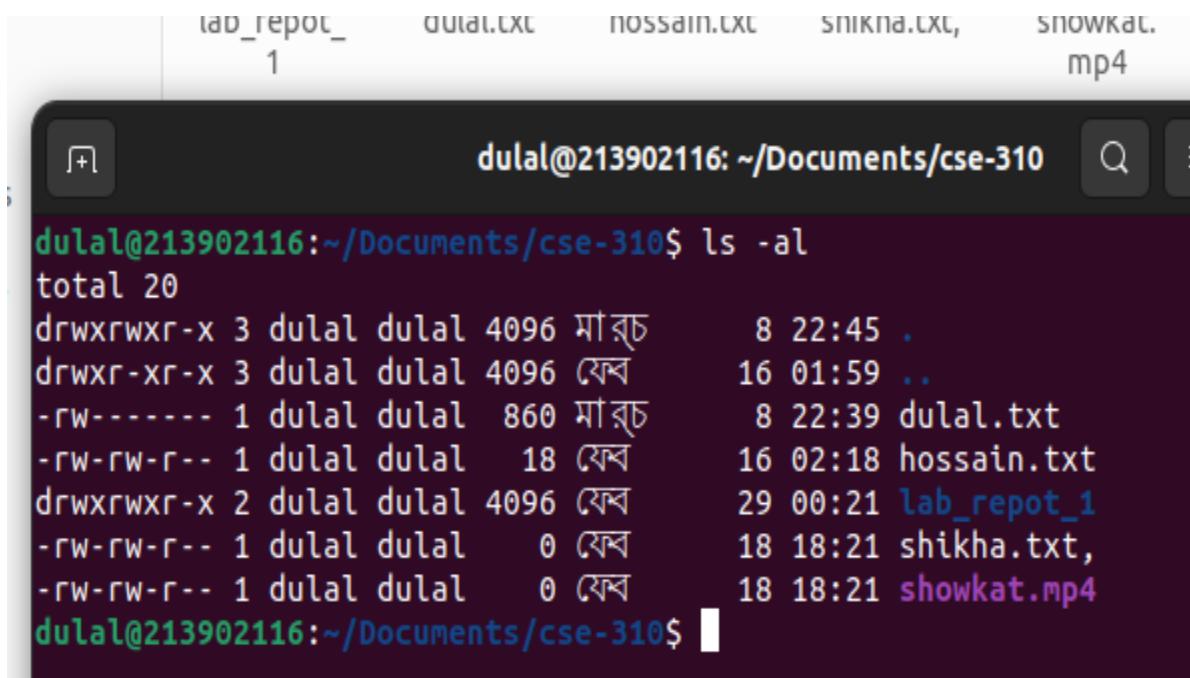


```
dulal@213902116: ~/Documents/cse-310
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dulal@213902116:~/Documents/cse-310$ ls -l
total 12
-rw----- 1 dulal dulal 860 মার্চ      8 22:39 dulal.txt
-rw-rw-r-- 1 dulal dulal   18 ফেব     16 02:18 hossain.txt
drwxrwxr-x 2 dulal dulal 4096 ফেব     29 00:21 lab_report_1
-rw-rw-r-- 1 dulal dulal     0 ফেব     18 18:21 shikha.txt,
-rw-rw-r-- 1 dulal dulal     0 ফেব     18 18:21 showkat.mp4
dulal@213902116:~/Documents/cse-310$
```

25. Ls -al :

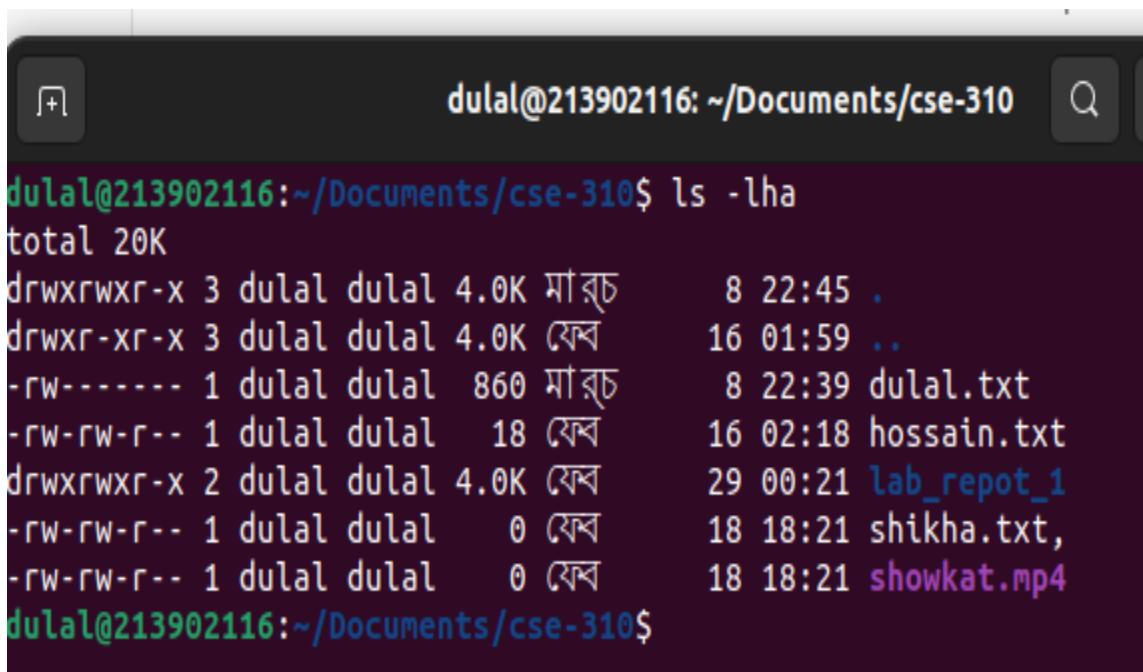
"ls -al" lists all files in long format, including hidden ones, in Linux.



```
dulal@213902116:~/Documents/cse-310$ ls -al
total 20
drwxrwxr-x 3 dulal dulal 4096 মার্চ  8 22:45 .
drwxr-xr-x 3 dulal dulal 4096 ফেব 16 01:59 ..
-rw----- 1 dulal dulal   860 মার্চ  8 22:39 dulal.txt
-rw-rw-r-- 1 dulal dulal    18 ফেব 16 02:18 hossain.txt
drwxrwxr-x 2 dulal dulal 4096 ফেব 29 00:21 lab_repot_1
-rw-rw-r-- 1 dulal dulal     0 ফেব 18 18:21 shikha.txt,
-rw-rw-r-- 1 dulal dulal     0 ফেব 18 18:21 showkat.mp4
dulal@213902116:~/Documents/cse-310$
```

26. Ls -lha :

"ls -lha" lists files with long format, including hidden ones.



```
dulal@213902116:~/Documents/cse-310$ ls -lha
total 20K
drwxrwxr-x 3 dulal dulal 4.0K মার্চ  8 22:45 .
drwxr-xr-x 3 dulal dulal 4.0K ফেব 16 01:59 ..
-rw----- 1 dulal dulal  860 মার্চ  8 22:39 dulal.txt
-rw-rw-r-- 1 dulal dulal   18 ফেব 16 02:18 hossain.txt
drwxrwxr-x 2 dulal dulal 4.0K ফেব 29 00:21 lab_repot_1
-rw-rw-r-- 1 dulal dulal     0 ফেব 18 18:21 shikha.txt,
-rw-rw-r-- 1 dulal dulal     0 ফেব 18 18:21 showkat.mp4
dulal@213902116:~/Documents/cse-310$
```

27. Man ls :

"man ls" opens the manual page for the "ls" command.

```
dulal@213902116: ~/Documents/cse-310
S(1)                               User Commands                         LS(1)

NAME
    ls - list directory contents

SYNOPSIS
    ls [OPTION]... [FILE]...

DESCRIPTION
    List information about the FILEs (the current directory by default).
    Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

    Mandatory arguments to long options are mandatory for short options too.

    -a, --all
        do not ignore entries starting with .

    -A, --almost-all
        do not list implied . and ..

    --author
```

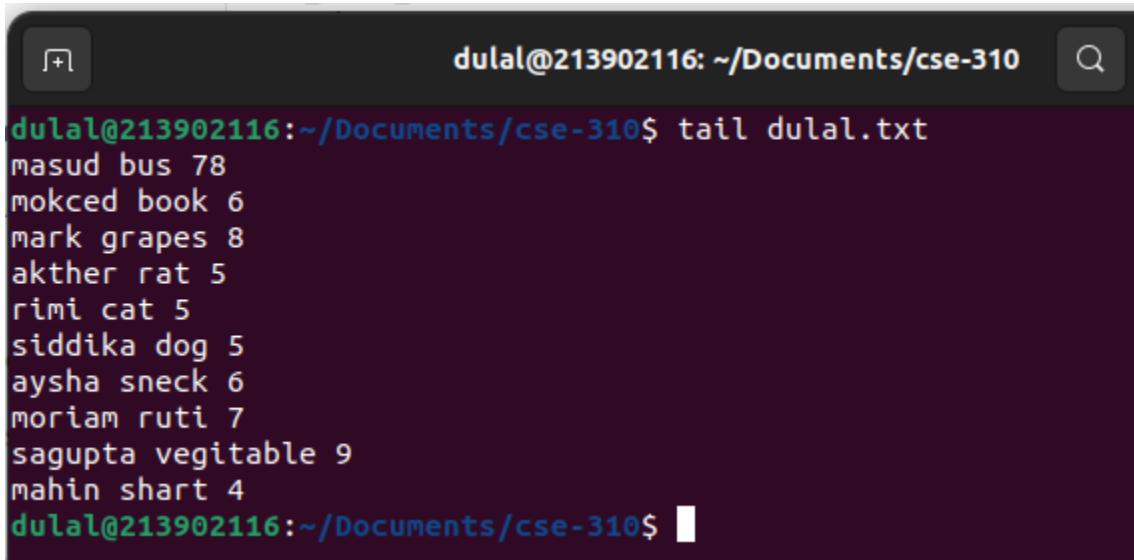
28. Head (file name) :

"head" displays the beginning of a file in the Linux terminal.

```
dulal@213902116:~/Documents/cse-310$ head dulal.txt
dulal mango 39
mossain banana 40
showkat jackfut 4
ali apple 58
lulali orange 49
hatun lemon 58
shikha painaple 68
arvin watermellon 5
jannatul fish 6
feruse rich 40
dulal@213902116:~/Documents/cse-310$
```

29. tail (file name) :

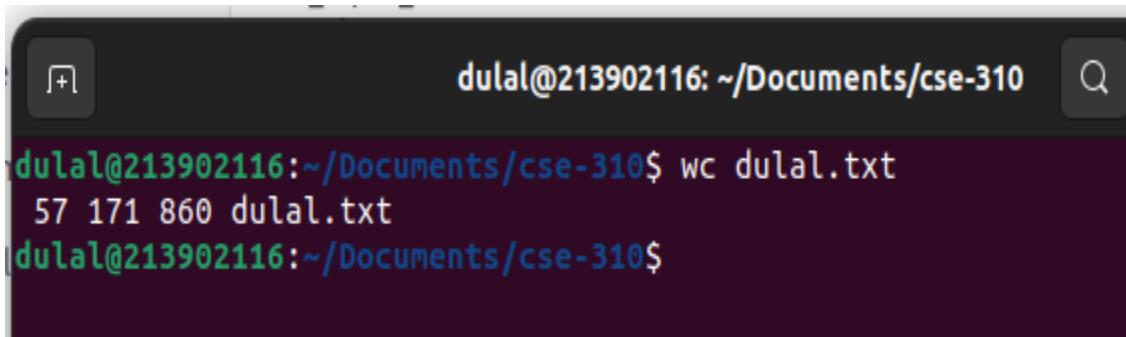
"tail" displays the end of a file in the Linux terminal.



```
dulal@213902116:~/Documents/cse-310$ tail dulal.txt
masud bus 78
mokced book 6
mark grapes 8
akther rat 5
rimi cat 5
siddika dog 5
aysha sneck 6
moriam ruti 7
sagupta vegitable 9
mahin shart 4
dulal@213902116:~/Documents/cse-310$
```

30. wc (file name) :

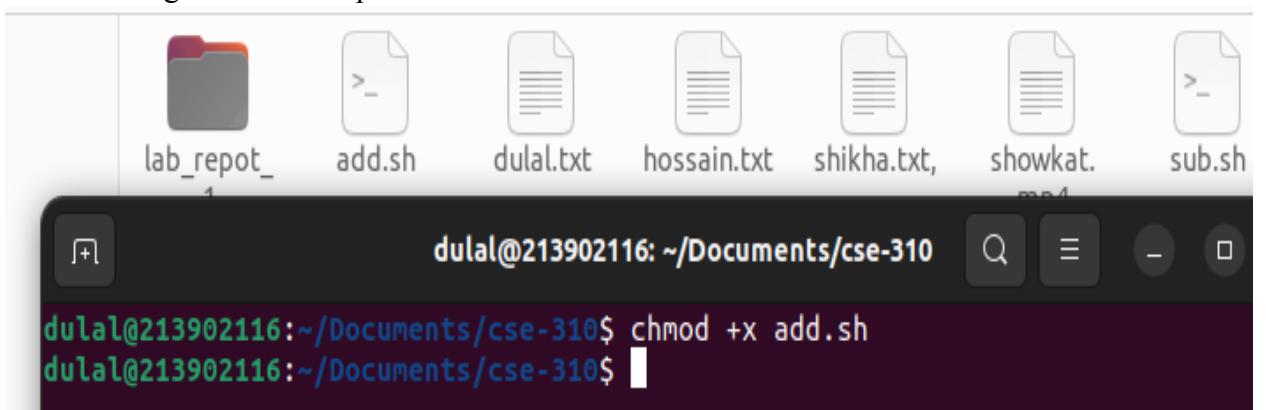
"wc" counts the number of lines, words, and characters in files.



```
dulal@213902116:~/Documents/cse-310$ wc dulal.txt
57 171 860 dulal.txt
dulal@213902116:~/Documents/cse-310$
```

31. Chmod +x (file name):

"chmod +x" grants execute permission to a file in Linux.

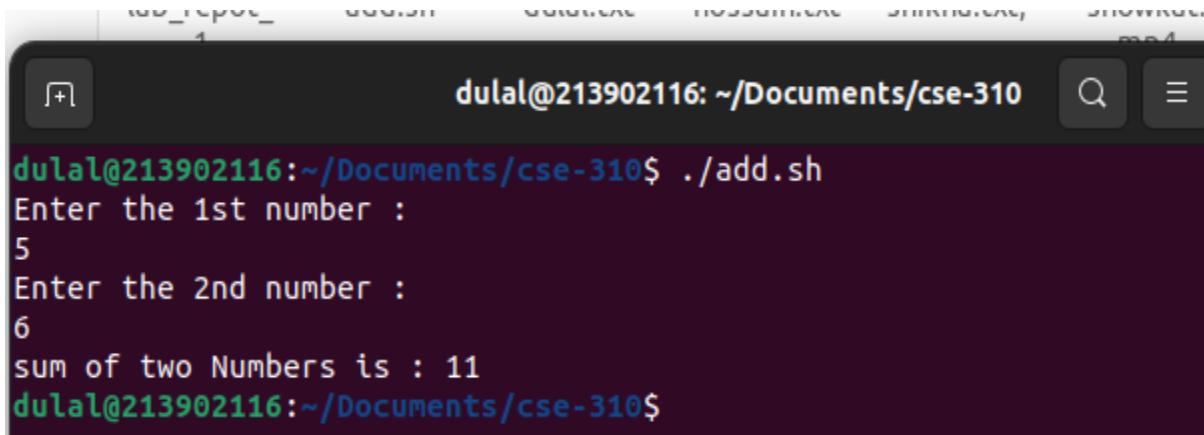


The screenshot shows a file manager window above the terminal. In the file manager, there is a folder named "lab_repot_" and several files: "add.sh", "dulal.txt", "hossain.txt", "shikha.txt", "showkat.mp4", and "sub.sh". Below the file manager is a terminal window with the following content:

```
dulal@213902116:~/Documents/cse-310$ chmod +x add.sh
dulal@213902116:~/Documents/cse-310$
```

32. ./(file name) :

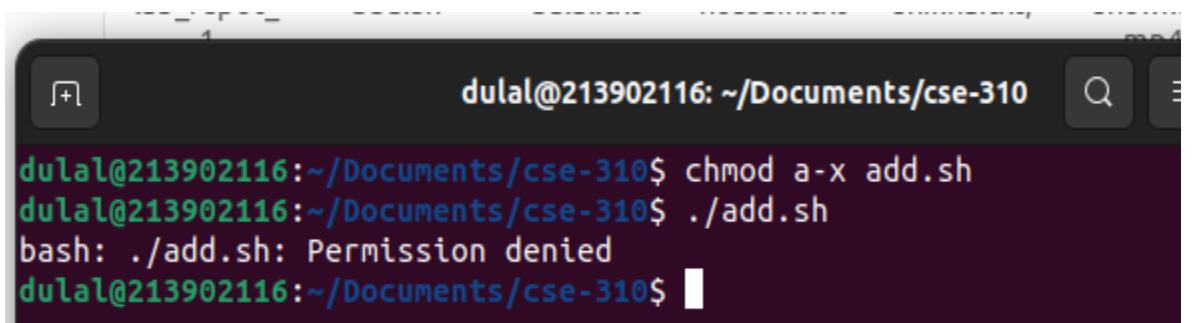
"./" executes programs or scripts located in the current directory.



```
dulal@213902116:~/Documents/cse-310$ ./add.sh
Enter the 1st number :
5
Enter the 2nd number :
6
sum of two Numbers is : 11
dulal@213902116:~/Documents/cse-310$
```

33. chmod a-x filename:

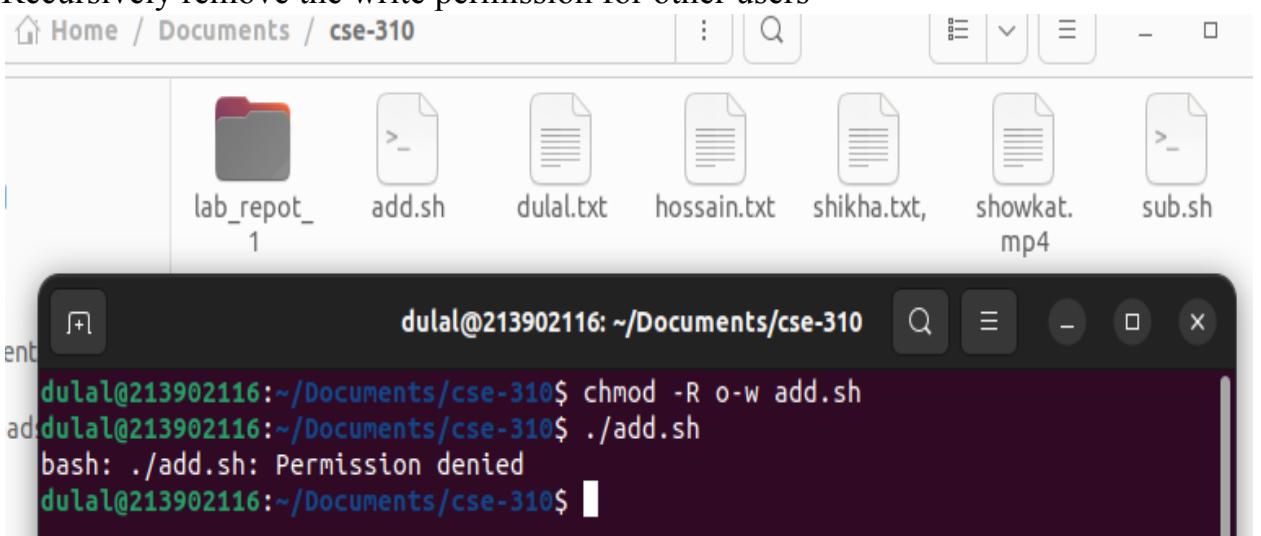
"chmod a-x" removes execute permission for all users from a file.



```
dulal@213902116:~/Documents/cse-310$ chmod a-x add.sh
dulal@213902116:~/Documents/cse-310$ ./add.sh
bash: ./add.sh: Permission denied
dulal@213902116:~/Documents/cse-310$
```

34. chmod -R o-w dirname :

Recursively remove the write permission for other users



Home / Documents / cse-310

lab_report_1	add.sh	dulal.txt	hossain.txt	shikha.txt,	showkat.mp4	sub.sh
--------------	--------	-----------	-------------	-------------	-------------	--------

```
dulal@213902116:~/Documents/cse-310$ chmod -R o-w add.sh
dulal@213902116:~/Documents/cse-310$ ./add.sh
bash: ./add.sh: Permission denied
dulal@213902116:~/Documents/cse-310$
```

35. **chmod og-rwx filename :**

Remove the read, write, and execute permission for all users except the file's owner

The screenshot shows a desktop environment with a file manager window open at 'Home / Documents / cse-310'. Inside the folder are several files: 'lab_report_1' (a folder), 'add.sh', 'dulal.txt', 'hossain.txt', 'shikha.txt', 'showkat.mp4', and 'sub.sh'. Below the file manager is a terminal window with the following session:

```
dulal@213902116: ~/Documents/cse-310$ chmod og-rwx add.sh
dulal@213902116: ~/Documents/cse-310$ ./add.sh
bash: ./add.sh: No such file or directory
dulal@213902116: ~/Documents/cse-310$
```

36. **chmod g=r filename :**

Give the members of the group permission to read the file, but not to write and execute it

The screenshot shows a terminal window with the following session:

```
dulal@213902116: ~/Documents/cse-310$ chmod g=r add.sh
dulal@213902116: ~/Documents/cse-310$
```

37. **chmod og= filename :**

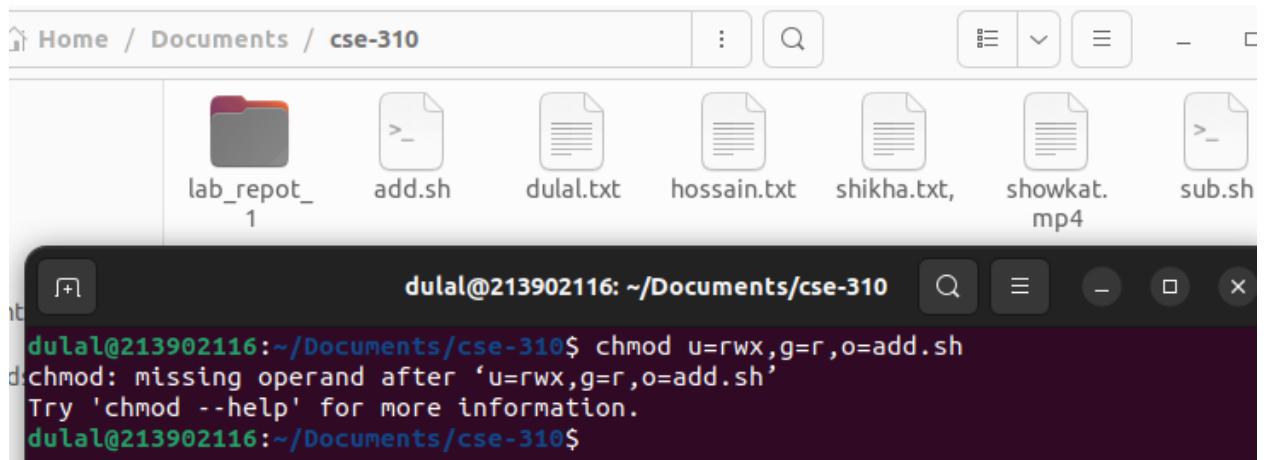
The same thing can be also accomplished by using the following form:

The screenshot shows a terminal window with the following session:

```
dulal@213902116: ~/Documents/cse-310$ chmod og=add.sh
dulal@213902116: ~/Documents/cse-310$ chmod: missing operand after 'og=add.sh'
Try 'chmod --help' for more information.
dulal@213902116: ~/Documents/cse-310$
```

38. **chmod u=rwx,g=r,o= filename:**

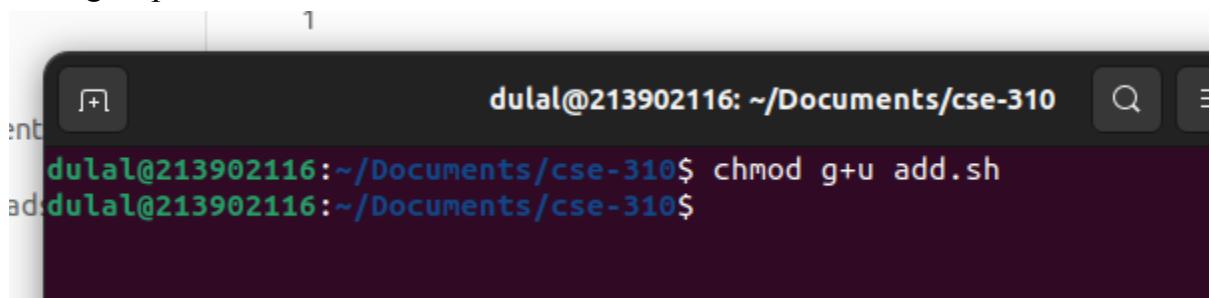
Give read, write and execute permission to the file's owner, read permissions to the file's group and no permissions to all other users



The screenshot shows a desktop environment with a file manager window open at `Home / Documents / cse-310`. Inside the folder are several files: `lab_repot_1`, `add.sh`, `dulal.txt`, `hossain.txt`, `shikha.txt`, `showkat.mp4`, and `sub.sh`. Below the file manager is a terminal window titled `dulal@213902116: ~/Documents/cse-310`. The terminal displays the command `chmod u=rwx,g=r,o=add.sh` followed by an error message: `chmod: missing operand after 'u=rwx,g=r,o=add.sh'`, `Try 'chmod --help' for more information.`, and the prompt `dulal@213902116:~/Documents/cse-310$`.

39. **chmod g+u filename :**

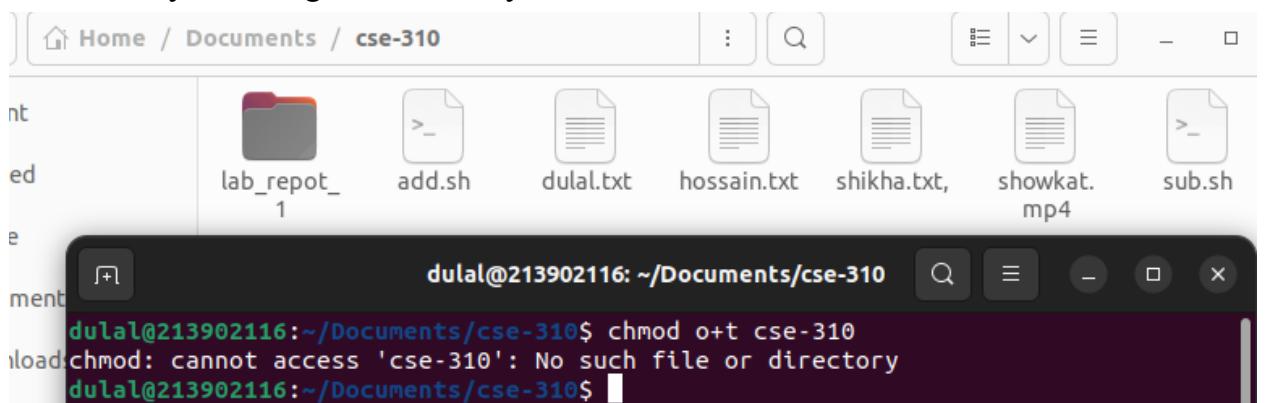
Add the file's owner permissions to the permissions that the members of the file's group have:



The screenshot shows a terminal window titled `dulal@213902116: ~/Documents/cse-310`. The user runs the command `chmod g+u add.sh`, which changes the permissions of the `add.sh` script. The terminal then prompts the user again with `dulal@213902116:~/Documents/cse-310$`.

40. **chmod o+t dirname :**

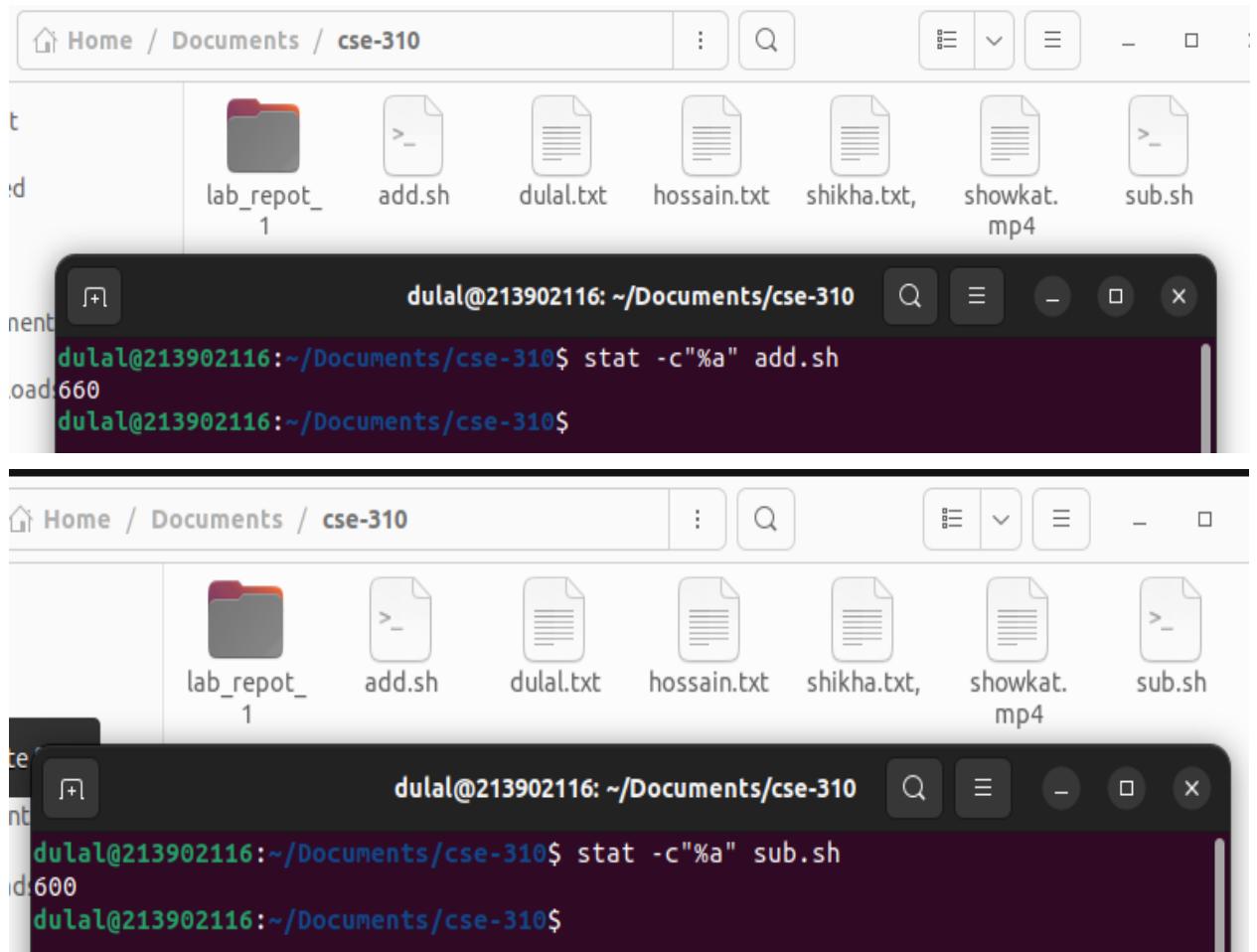
Add a sticky bit to a given directory.



The screenshot shows a desktop environment with a file manager window open at `Home / Documents / cse-310`. Inside the folder are several files: `lab_repot_1`, `add.sh`, `dulal.txt`, `hossain.txt`, `shikha.txt`, `showkat.mp4`, and `sub.sh`. Below the file manager is a terminal window titled `dulal@213902116: ~/Documents/cse-310`. The user attempts to run the command `chmod o+t cse-310`, but receives an error message: `chmod: cannot access 'cse-310': No such file or directory`, and the prompt `dulal@213902116:~/Documents/cse-310$`.

41. stat -c "%a" filename :

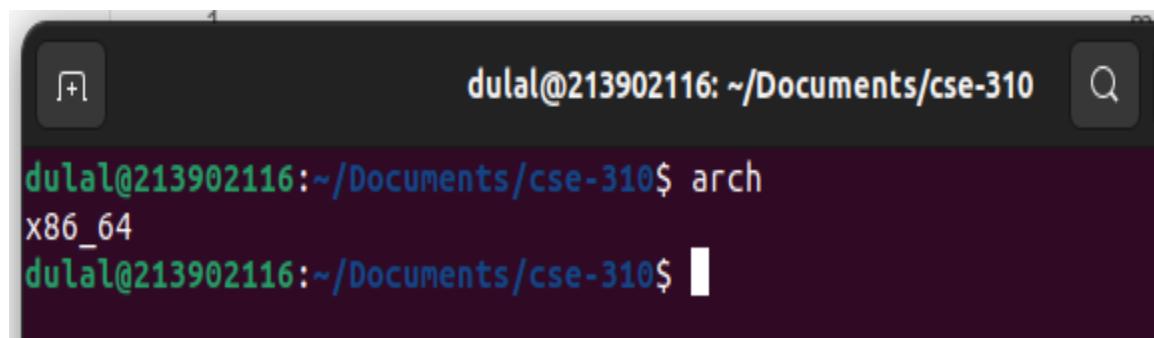
You can check the file's permissions in the numeric notation using the stat command



```
dulal@213902116: ~/Documents/cse-310$ stat -c "%a" add.sh
660
dulal@213902116: ~/Documents/cse-310$ stat -c "%a" sub.sh
660
```

42. arch :

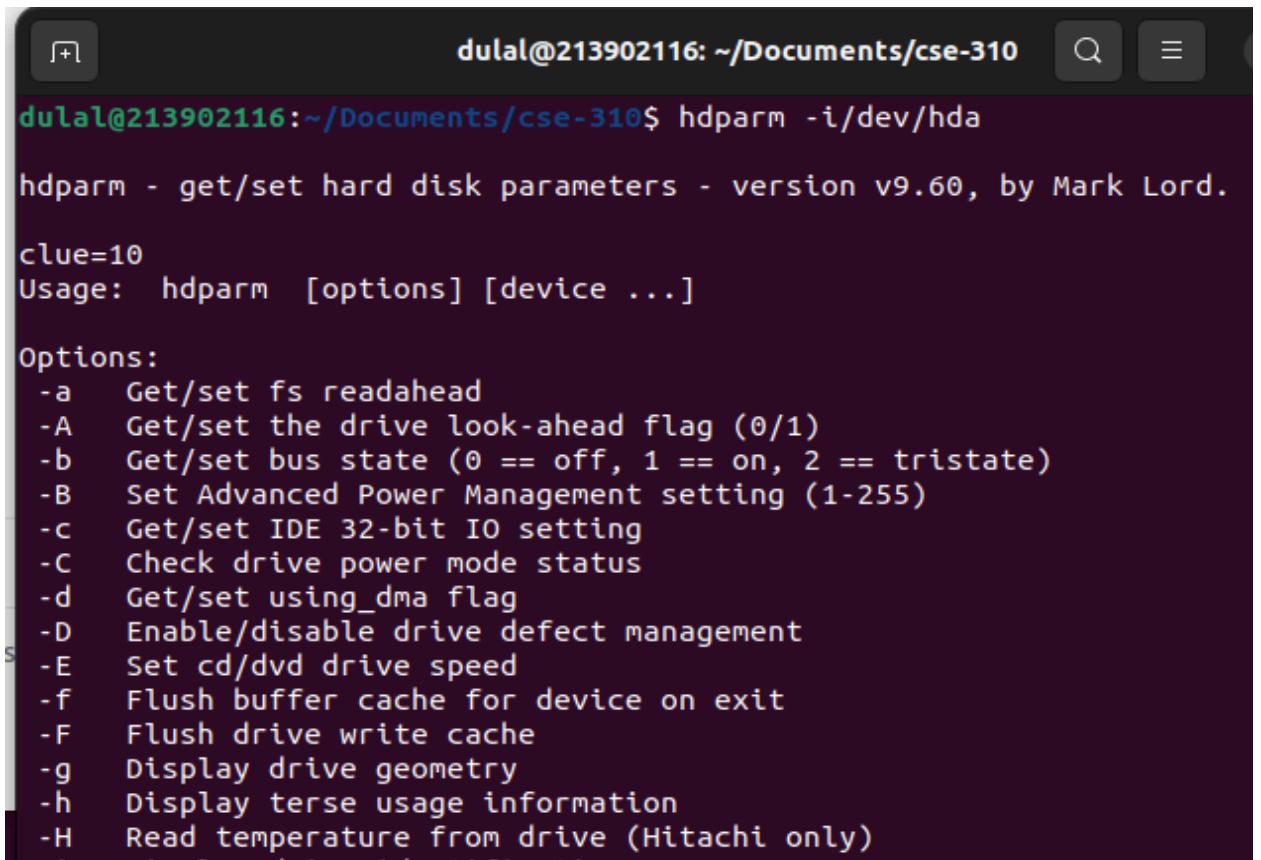
show your system hardware architecture.



```
dulal@213902116: ~/Documents/cse-310$ arch
x86_64
dulal@213902116: ~/Documents/cse-310$
```

43. **hdparm -i /dev/hda :**

show the features of the selected hard disk.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ hdparm -i/dev/hda

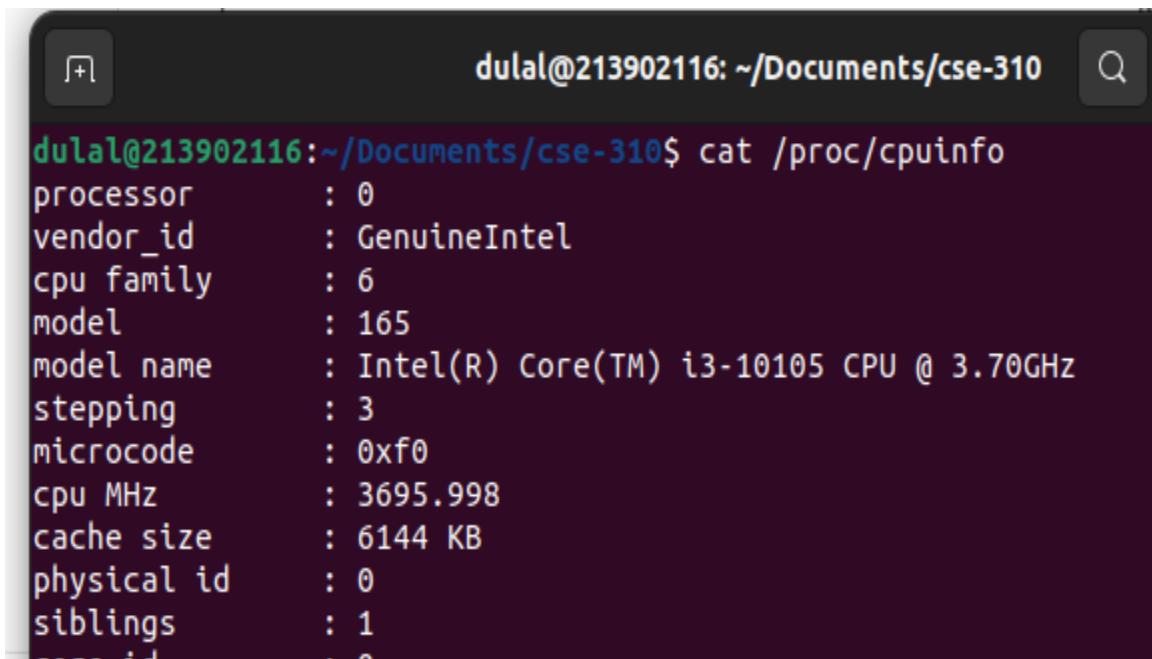
hdparm - get/set hard disk parameters - version v9.60, by Mark Lord.

clue=10
Usage: hdparm [options] [device ...]

Options:
-a Get/set fs readahead
-A Get/set the drive look-ahead flag (0/1)
-b Get/set bus state (0 == off, 1 == on, 2 == tristate)
-B Set Advanced Power Management setting (1-255)
-c Get/set IDE 32-bit IO setting
-C Check drive power mode status
-d Get/set using_dma flag
-D Enable/disable drive defect management
-E Set cd/dvd drive speed
-f Flush buffer cache for device on exit
-F Flush drive write cache
-g Display drive geometry
-h Display terse usage information
-H Read temperature from drive (Hitachi only)
```

44. **cat /proc/cpuinfo :**

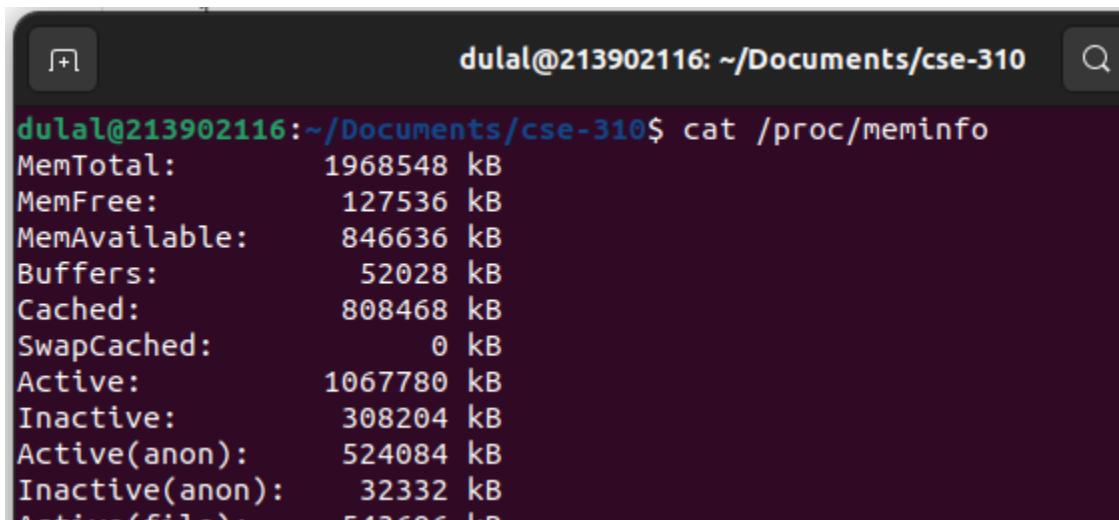
show information about your CPU.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ cat /proc/cpuinfo
processor       : 0
vendor_id      : GenuineIntel
cpu family     : 6
model          : 165
model name     : Intel(R) Core(TM) i3-10105 CPU @ 3.70GHz
stepping        : 3
microcode      : 0xf0
cpu MHz        : 3695.998
cache size     : 6144 KB
physical id    : 0
siblings        : 1
core id        : 0
```

45. cat /proc/meminfo :

verify the RAM memory consumption in your system.

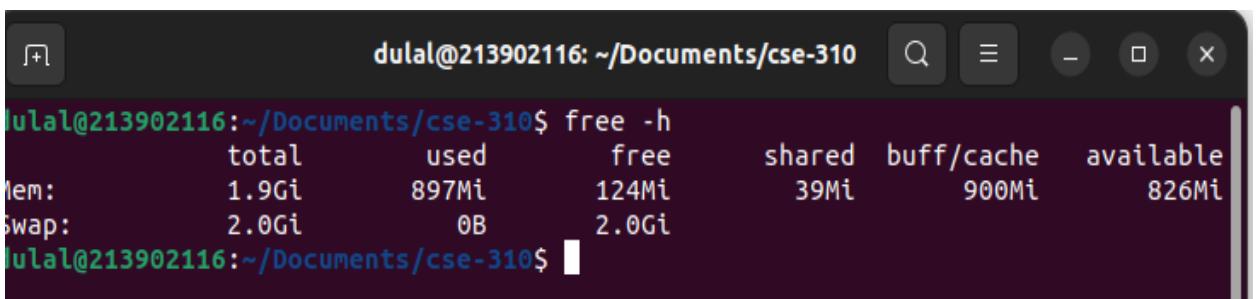


```
dulal@213902116:~/Documents/cse-310$ cat /proc/meminfo
MemTotal:       1968548 kB
MemFree:        127536 kB
MemAvailable:   846636 kB
Buffers:         52028 kB
Cached:          808468 kB
SwapCached:      0 kB
Active:          1067780 kB
Inactive:        308204 kB
Active(anon):    524084 kB
Inactive(anon):  32332 kB

```

46. free -h :

show the current status and the use of Memory in your sistem using a human-friendly format.



```
dulal@213902116:~/Documents/cse-310$ free -h
total        used        free      shared  buff/cache   available
Mem:      1.9Gi     897Mi     124Mi      39Mi     900Mi     826Mi
Swap:      2.0Gi      0B     2.0Gi
dulal@213902116:~/Documents/cse-310$
```

47. cat /proc/net/dev :

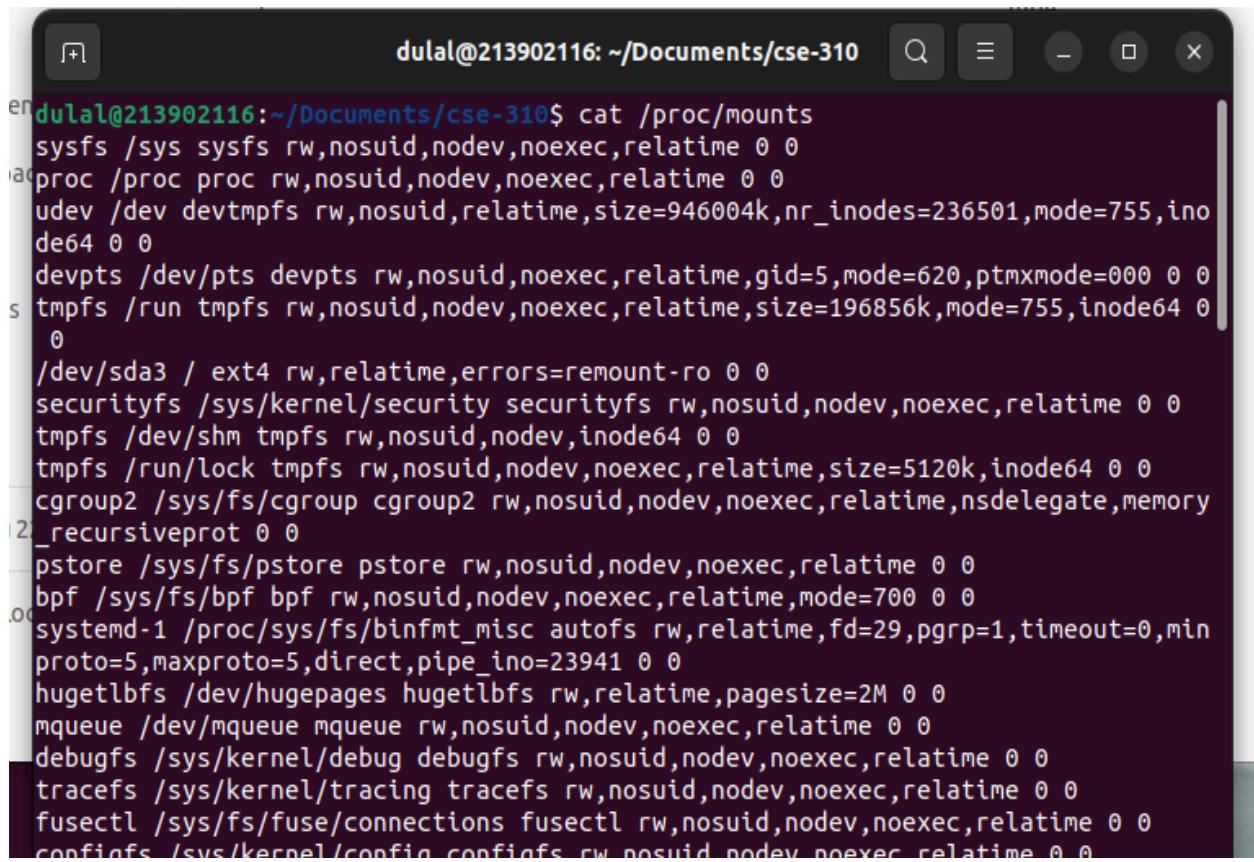
show the network adapters and its statistics



```
dulal@213902116:~/Documents/cse-310$ cat /proc/net/dev
Inter- | Receive                                         | Transmit
face |bytes    packets errs drop fifo frame compressed multicast|bytes    packets
ts errs drop fifo colls carrier compressed
lo:  14531      165    0    0      0      0          0        0  14531      1
ens33: 235807     885    0    0      0      0          0        0  62435      4
dulal@213902116:~/Documents/cse-310$
```

48. cat /proc/mounts :

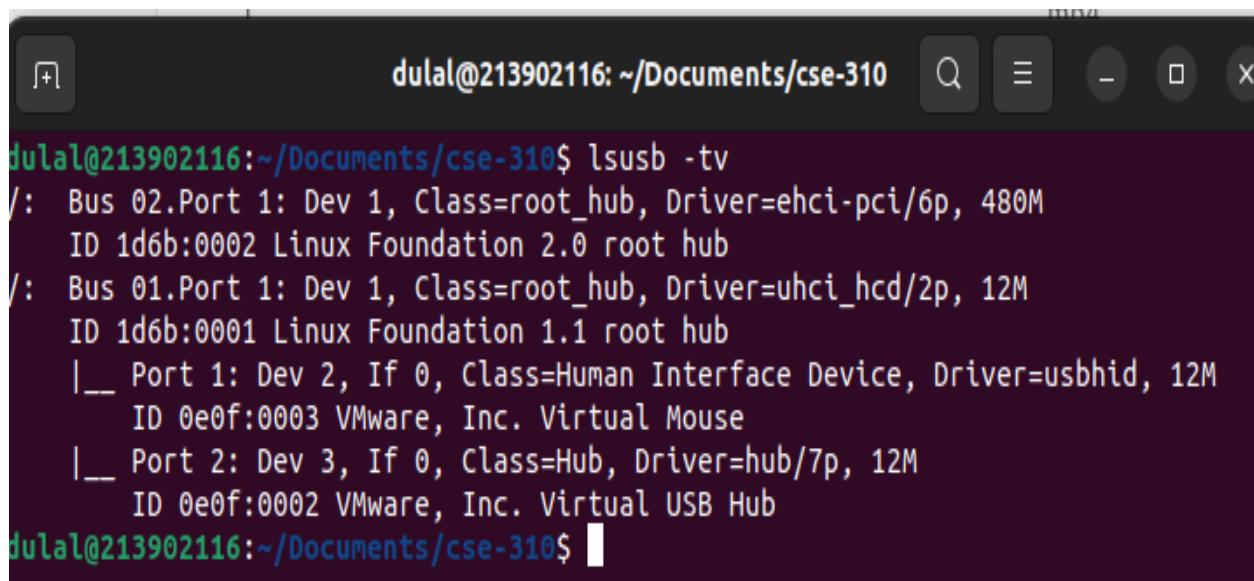
show the mounted filesystem in your system.



```
dulal@213902116:~/Documents/cse-310$ cat /proc/mounts
sysfs /sys sysfs rw,nosuid,nodev,noexec,relatime 0 0
proc /proc proc rw,nosuid,nodev,noexec,relatime 0 0
udev /dev devtmpfs rw,nosuid,relatime,size=946004k,nr_inodes=236501,mode=755,inode64 0 0
devpts /dev/pts devpts rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000 0 0
tmpfs /run tmpfs rw,nosuid,nodev,noexec,relatime,size=196856k,mode=755,inode64 0 0
/dev/sda3 / ext4 rw,relatime,errors=remount-ro 0 0
securityfs /sys/kernel/security securityfs rw,nosuid,nodev,noexec,relatime 0 0
tmpfs /dev/shm tmpfs rw,nosuid,nodev,inode64 0 0
tmpfs /run/lock tmpfs rw,nosuid,nodev,noexec,relatime,size=5120k,inode64 0 0
cgroup2 /sys/fs/cgroup cgroup2 rw,nosuid,nodev,noexec,relatime,nsdelegate,memory_recursiveprot 0 0
pstore /sys/fs/pstore pstore rw,nosuid,nodev,noexec,relatime 0 0
bpf /sys/fs/bpf bpf rw,nosuid,nodev,noexec,relatime,mode=700 0 0
/systemd-1 /proc/sys/fs/binfmt_misc autofs rw,relatime,fd=29,pgrp=1,timeout=0,minproto=5,maxproto=5,direct,pipe_ino=23941 0 0
hugetlbfs /dev/hugepages hugetlbfs rw,relatime,pagesize=2M 0 0
mqueue /dev/mqueue mqueue rw,nosuid,nodev,noexec,relatime 0 0
debugfs /sys/kernel/debug debugfs rw,nosuid,nodev,noexec,relatime 0 0
tracefs /sys/kernel/tracing tracefs rw,nosuid,nodev,noexec,relatime 0 0
fusectl /sys/fs/fuse/connections fusectl rw,nosuid,nodev,noexec,relatime 0 0
configfs /sys/kernel/config configfs rw,nosuid,nodev,noexec,relatime 0 0
```

49. Lsusb -tv:

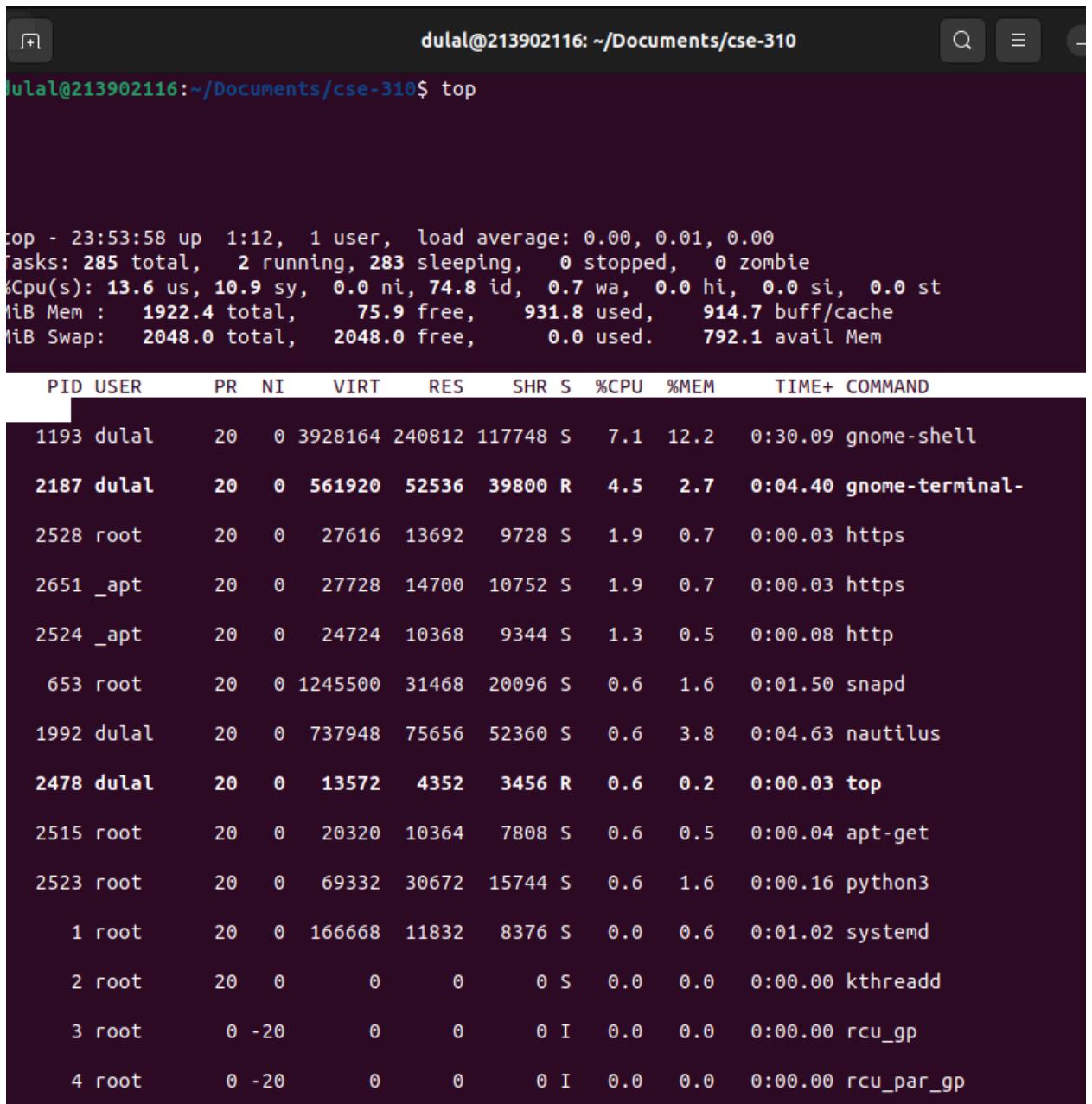
show all the connected USB devices to your system.



```
dulal@213902116:~/Documents/cse-310$ lsusb -tv
/: Bus 02.Port 1: Dev 1, Class=root_hub, Driver=ehci-pci/6p, 480M
  ID 1d6b:0002 Linux Foundation 2.0 root hub
/: Bus 01.Port 1: Dev 1, Class=root_hub, Driver=uhci_hcd/2p, 12M
  ID 1d6b:0001 Linux Foundation 1.1 root hub
    |__ Port 1: Dev 2, If 0, Class=Human Interface Device, Driver=usbhid, 12M
      ID 0e0f:0003 VMware, Inc. Virtual Mouse
    |__ Port 2: Dev 3, If 0, Class=Hub, Driver=hub/7p, 12M
      ID 0e0f:0002 VMware, Inc. Virtual USB Hub
dulal@213902116:~/Documents/cse-310$
```

50. top :

show the Linux Task using the max value of CPU.



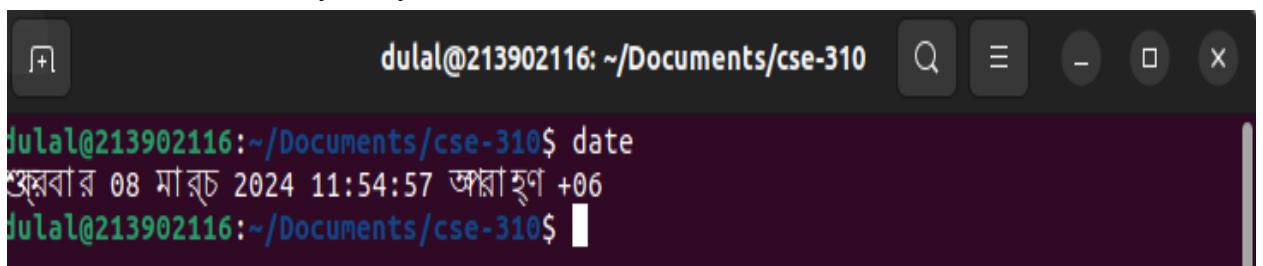
The screenshot shows a terminal window with the following details:

- Terminal title: dulal@213902116: ~/Documents/cse-310
- Command run: `lulal@213902116:~/Documents/cse-310$ top`
- System status:
 - top - 23:53:58 up 1:12, 1 user, load average: 0.00, 0.01, 0.00
 - Tasks: 285 total, 2 running, 283 sleeping, 0 stopped, 0 zombie
 - Cpu(s): 13.6 us, 10.9 sy, 0.0 ni, 74.8 id, 0.7 wa, 0.0 hi, 0.0 si, 0.0 st
 - Mem: 1922.4 total, 75.9 free, 931.8 used, 914.7 buff/cache
 - Swap: 2048.0 total, 2048.0 free, 0.0 used. 792.1 avail Mem
- Process list:

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1193	dulal	20	0	3928164	240812	117748	S	7.1	12.2	0:30.09	gnome-shell
2187	dulal	20	0	561920	52536	39800	R	4.5	2.7	0:04.40	gnome-terminal-
2528	root	20	0	27616	13692	9728	S	1.9	0.7	0:00.03	https
2651	_apt	20	0	27728	14700	10752	S	1.9	0.7	0:00.03	https
2524	_apt	20	0	24724	10368	9344	S	1.3	0.5	0:00.08	http
653	root	20	0	1245500	31468	20096	S	0.6	1.6	0:01.50	snapd
1992	dulal	20	0	737948	75656	52360	S	0.6	3.8	0:04.63	nautilus
2478	dulal	20	0	13572	4352	3456	R	0.6	0.2	0:00.03	top
2515	root	20	0	20320	10364	7808	S	0.6	0.5	0:00.04	apt-get
2523	root	20	0	69332	30672	15744	S	0.6	1.6	0:00.16	python3
1	root	20	0	166668	11832	8376	S	0.0	0.6	0:01.02	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	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_gp

51. date:

show the current date in your system.



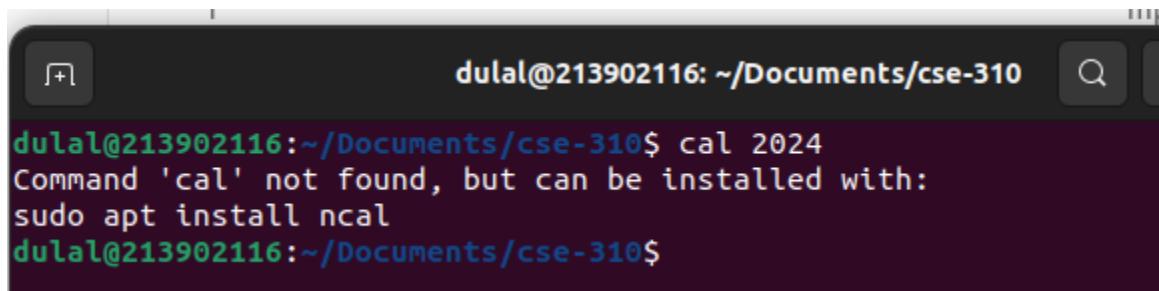
The screenshot shows a terminal window with the following details:

- Terminal title: dulal@213902116: ~/Documents/cse-310
- Command run: `lulal@213902116:~/Documents/cse-310$ date`
- Output:

ওক্টোবর 08 মার্চ 2024 11:54:57 জগন্নাথ +06

52. cal 2024 :

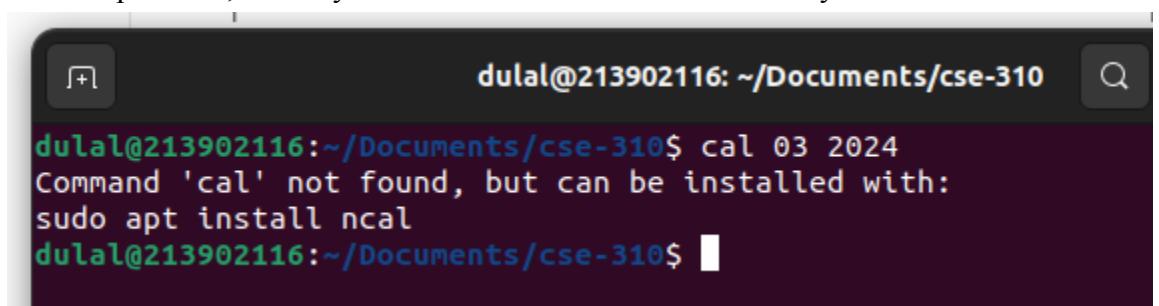
show the whole calendar for the introduced year.



```
dulal@213902116: ~/Documents/cse-310$ cal 2024
Command 'cal' not found, but can be installed with:
sudo apt install ncal
dulal@213902116: ~/Documents/cse-310$
```

53. cal 03 2024 :

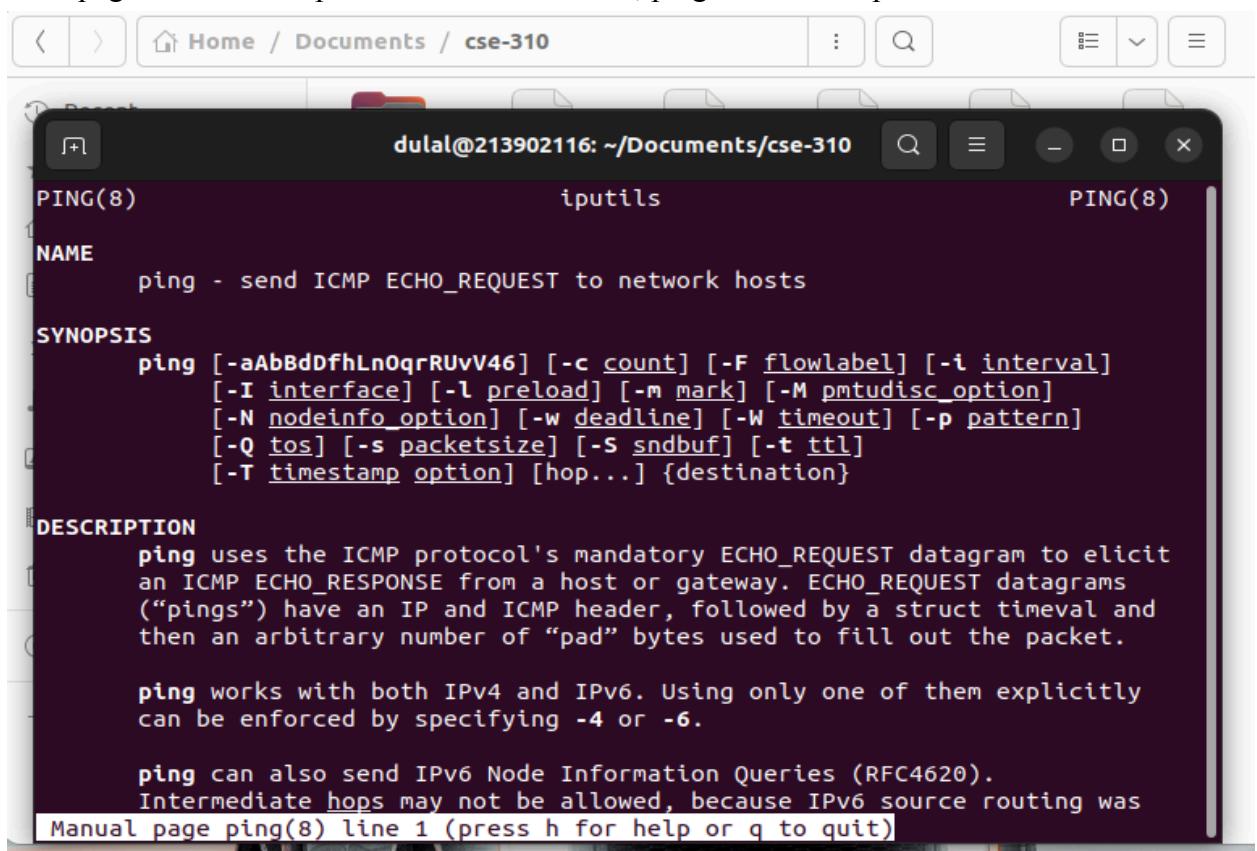
Like the previous, but only will show the month of the selected year.



```
dulal@213902116: ~/Documents/cse-310$ cal 03 2024
Command 'cal' not found, but can be installed with:
sudo apt install ncal
dulal@213902116: ~/Documents/cse-310$
```

54. man ping :

show pages from the help manual for a command, ping in this example.



```
PING(8) iputils PING(8)

NAME
ping - send ICMP ECHO_REQUEST to network hosts

SYNOPSIS
ping [-aAbBdDfhLn0qrRUvV46] [-c count] [-F flowlabel] [-i interval]
[-I interface] [-l preload] [-m mark] [-M pmtdisc_option]
[-N nodeinfo_option] [-w deadline] [-W timeout] [-p pattern]
[-Q tos] [-s packetsize] [-S sndbuf] [-t ttl]
[-T timestamp_option] [hop...] {destination}

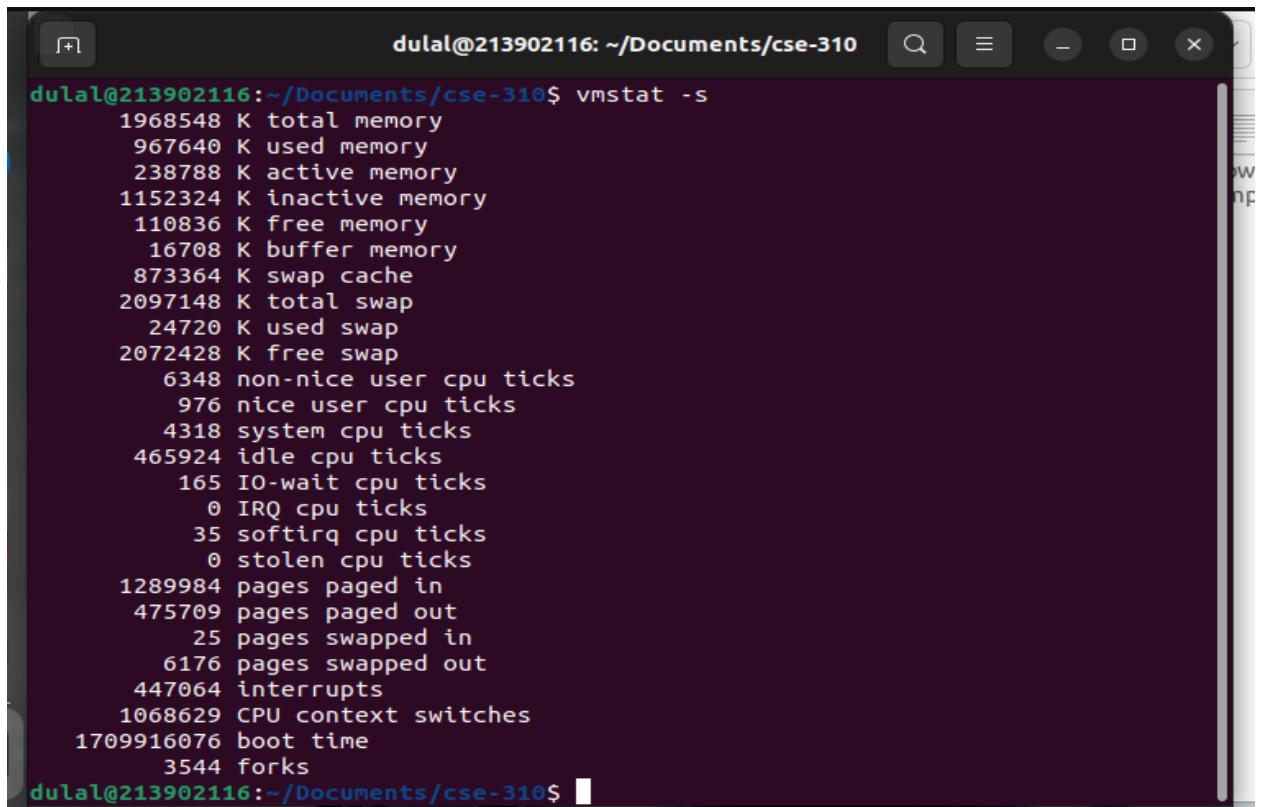
DESCRIPTION
ping uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit
an ICMP ECHO_RESPONSE from a host or gateway. ECHO_REQUEST datagrams
("pings") have an IP and ICMP header, followed by a struct timeval and
then an arbitrary number of "pad" bytes used to fill out the packet.

ping works with both IPv4 and IPv6. Using only one of them explicitly
can be enforced by specifying -4 or -6.

ping can also send IPv6 Node Information Queries (RFC4620).
Intermediate hops may not be allowed, because IPv6 source routing was
Manual page ping(8) line 1 (press h for help or q to quit)
```

55. vmstat -s :

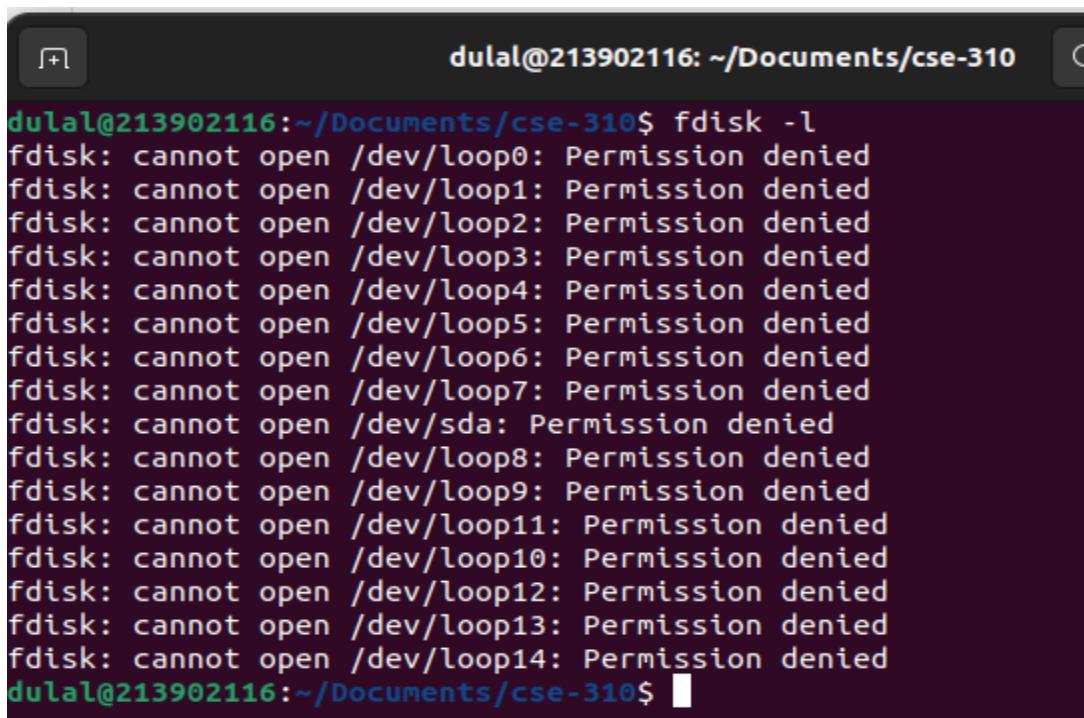
Get a report about the memory consumption in your system.



```
dulal@213902116:~/Documents/cse-310$ vmstat -s
      1968548 K total memory
      967640 K used memory
     238788 K active memory
    1152324 K inactive memory
     110836 K free memory
     16708 K buffer memory
     873364 K swap cache
    2097148 K total swap
     24720 K used swap
    2072428 K free swap
        6348 non-nice user cpu ticks
        976 nice user cpu ticks
       4318 system cpu ticks
      465924 idle cpu ticks
        165 IO-wait cpu ticks
         0 IRQ cpu ticks
        35 softirq cpu ticks
         0 stolen cpu ticks
    1289984 pages paged in
    475709 pages paged out
        25 pages swapped in
       6176 pages swapped out
    447064 interrupts
   1068629 CPU context switches
 1709916076 boot time
     3544 forks
dulal@213902116:~/Documents/cse-310$
```

56. fdisk -l :

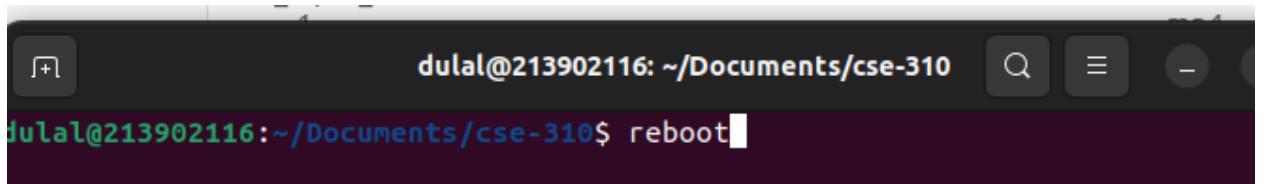
Returns a view with basic details with all available partition in your system.



```
dulal@213902116:~/Documents/cse-310$ fdisk -l
fdisk: cannot open /dev/loop0: Permission denied
fdisk: cannot open /dev/loop1: Permission denied
fdisk: cannot open /dev/loop2: Permission denied
fdisk: cannot open /dev/loop3: Permission denied
fdisk: cannot open /dev/loop4: Permission denied
fdisk: cannot open /dev/loop5: Permission denied
fdisk: cannot open /dev/loop6: Permission denied
fdisk: cannot open /dev/loop7: Permission denied
fdisk: cannot open /dev/sda: Permission denied
fdisk: cannot open /dev/loop8: Permission denied
fdisk: cannot open /dev/loop9: Permission denied
fdisk: cannot open /dev/loop11: Permission denied
fdisk: cannot open /dev/loop10: Permission denied
fdisk: cannot open /dev/loop12: Permission denied
fdisk: cannot open /dev/loop13: Permission denied
fdisk: cannot open /dev/loop14: Permission denied
dulal@213902116:~/Documents/cse-310$
```

57. reboot :

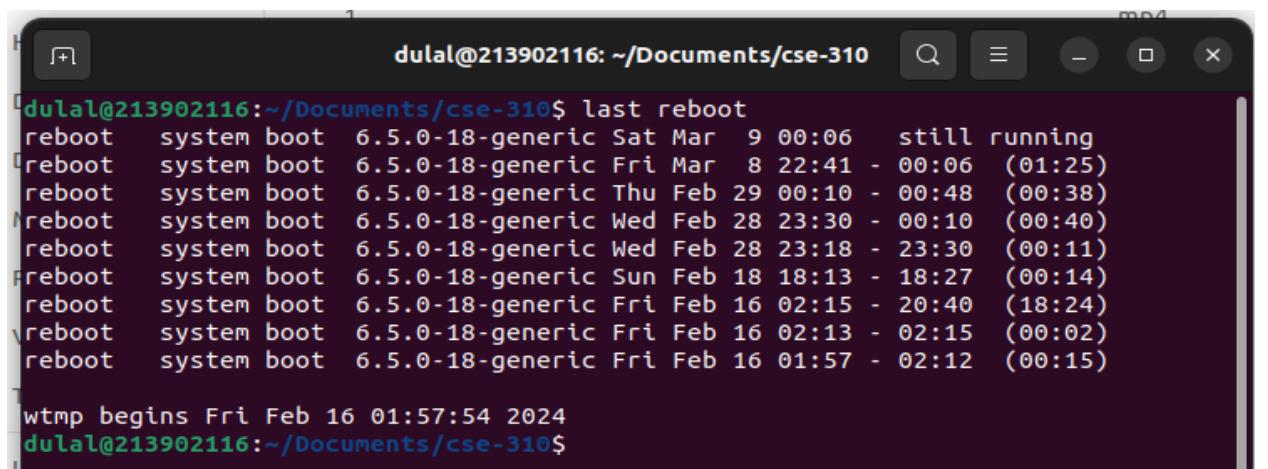
Just another command to restart your system by prompt.



A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The user has typed the command "reboot" at the prompt. The window has standard OS X-style window controls (minimize, maximize, close) and a dark theme.

58. last reboot :

Show a list with the last restarts.



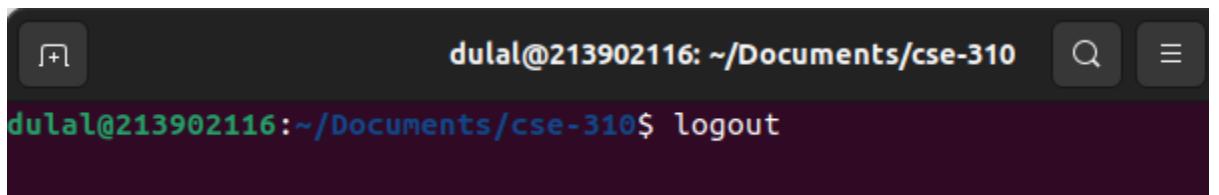
A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The user has run the command "last reboot". The output shows a list of system boots from February 16, 2024, to March 9, 2024. The window has standard OS X-style window controls (minimize, maximize, close) and a dark theme.

```
dulal@213902116:~/Documents/cse-310$ last reboot
reboot    system boot  6.5.0-18-generic Sat Mar  9 00:06      still running
reboot    system boot  6.5.0-18-generic Fri Mar  8 22:41 - 00:06  (01:25)
reboot    system boot  6.5.0-18-generic Thu Feb 29 00:10 - 00:48  (00:38)
reboot    system boot  6.5.0-18-generic Wed Feb 28 23:30 - 00:10  (00:40)
reboot    system boot  6.5.0-18-generic Wed Feb 28 23:18 - 23:30  (00:11)
reboot    system boot  6.5.0-18-generic Sun Feb 18 18:13 - 18:27  (00:14)
reboot    system boot  6.5.0-18-generic Fri Feb 16 02:15 - 20:40  (18:24)
reboot    system boot  6.5.0-18-generic Fri Feb 16 02:13 - 02:15  (00:02)
reboot    system boot  6.5.0-18-generic Fri Feb 16 01:57 - 02:12  (00:15)

wtmp begins Fri Feb 16 01:57:54 2024
dulal@213902116:~/Documents/cse-310$
```

59. logout :

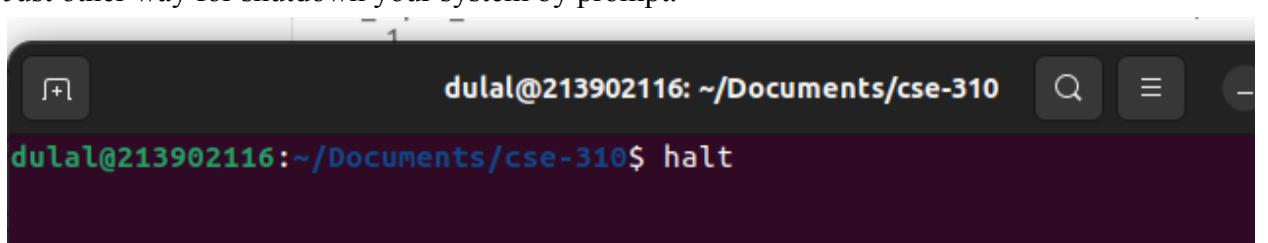
It will close your current session.



A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The user has typed the command "logout" at the prompt. The window has standard OS X-style window controls (minimize, maximize, close) and a dark theme.

60. halt :

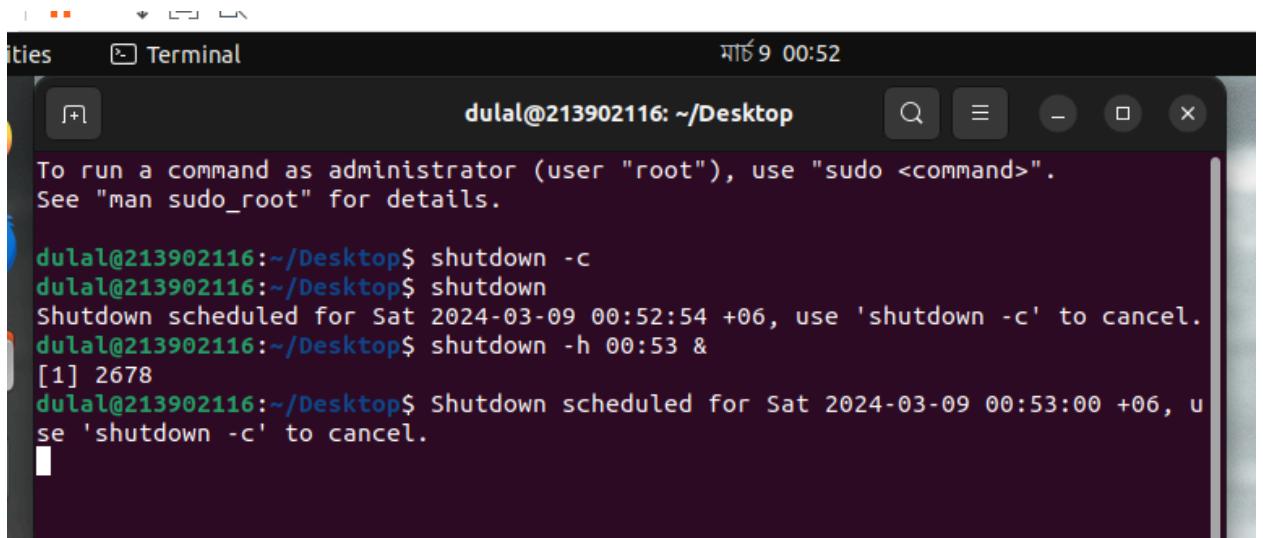
Just other way for shutdown your system by prompt.



A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The user has typed the command "halt" at the prompt. The window has standard OS X-style window controls (minimize, maximize, close) and a dark theme.

61. shutdown -h 18:55 & :

It will planificate the shutdown in the marked time.



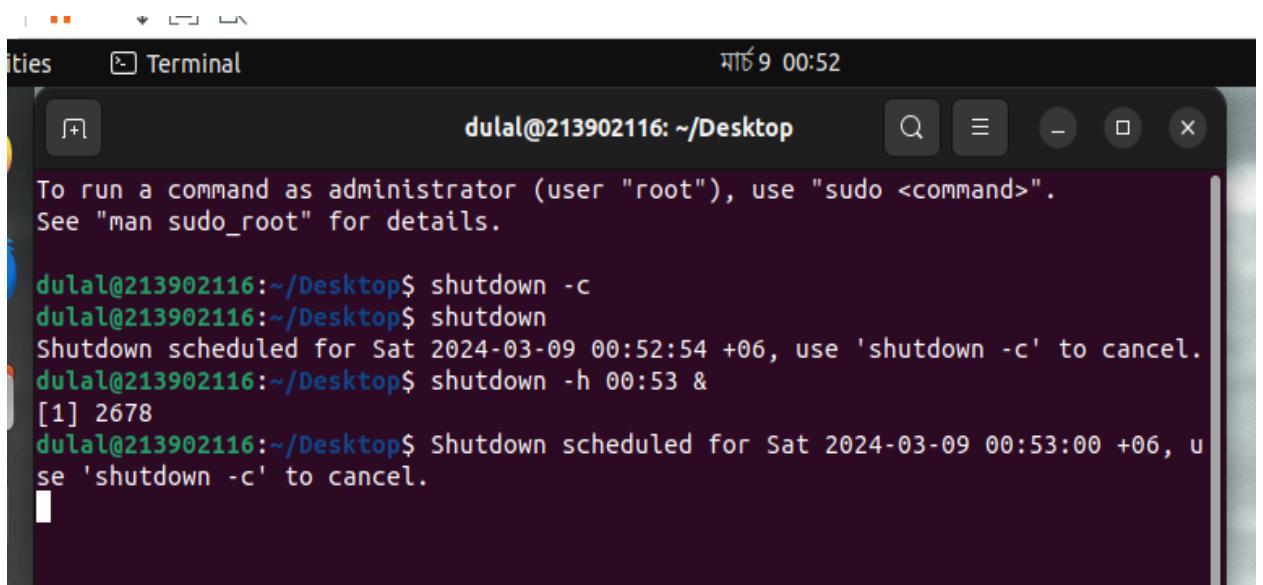
The screenshot shows a terminal window titled "Terminal" with the command line interface. The terminal window has a dark background with light-colored text. At the top, it says "dulal@213902116: ~/Desktop". The date and time "मार्च 9 00:52" are displayed at the top right. The terminal output shows:

```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dulal@213902116:~/Desktop$ shutdown -c
dulal@213902116:~/Desktop$ shutdown
Shutdown scheduled for Sat 2024-03-09 00:52:54 +06, use 'shutdown -c' to cancel.
dulal@213902116:~/Desktop$ shutdown -h 00:53 &
[1] 2678
dulal@213902116:~/Desktop$ Shutdown scheduled for Sat 2024-03-09 00:53:00 +06, u
se 'shutdown -c' to cancel.
```

62. shutdown -c :

Stops a planified shutdown of the system.



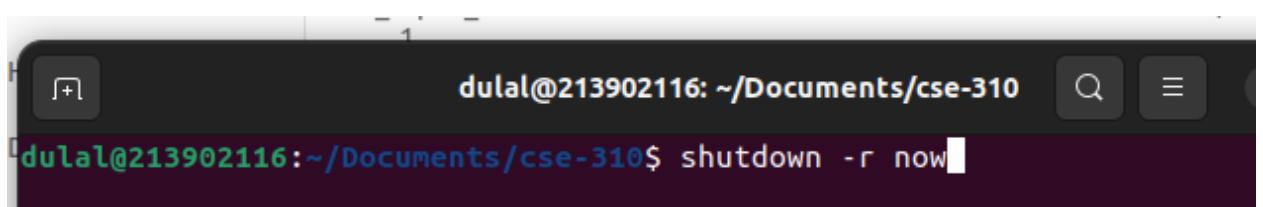
The screenshot shows a terminal window titled "Terminal" with the command line interface. The terminal window has a dark background with light-colored text. At the top, it says "dulal@213902116: ~/Desktop". The date and time "मार्च 9 00:52" are displayed at the top right. The terminal output shows:

```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dulal@213902116:~/Desktop$ shutdown -c
dulal@213902116:~/Desktop$ shutdown
Shutdown scheduled for Sat 2024-03-09 00:52:54 +06, use 'shutdown -c' to cancel.
dulal@213902116:~/Desktop$ shutdown -h 00:53 &
[1] 2678
dulal@213902116:~/Desktop$ Shutdown scheduled for Sat 2024-03-09 00:53:00 +06, u
se 'shutdown -c' to cancel.
```

63. shutdown -r now:

It will restart your system just now.las

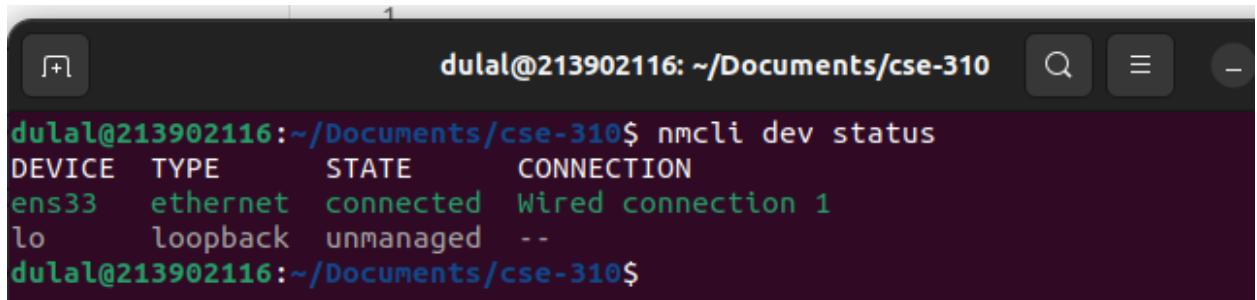


The screenshot shows a terminal window titled "Terminal" with the command line interface. The terminal window has a dark background with light-colored text. At the top, it says "dulal@213902116: ~/Documents/cse-310". The date and time "मार्च 9 00:52" are displayed at the top right. The terminal output shows:

```
dulal@213902116:~/Documents/cse-310$ shutdown -r now
```

64. nmcli dev status :

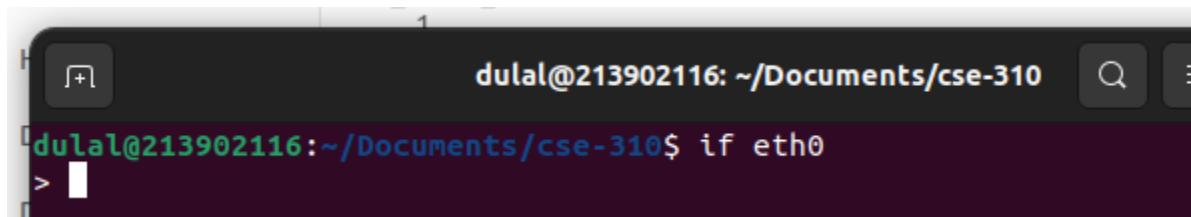
Checks all your network devices



```
dulal@213902116: ~/Documents/cse-310$ nmcli dev status
DEVICE  TYPE      STATE      CONNECTION
ens33   ethernet  connected  Wired connection 1
lo      loopback  unmanaged  --
dulal@213902116: ~/Documents/cse-310$
```

65. ifup eth0 :

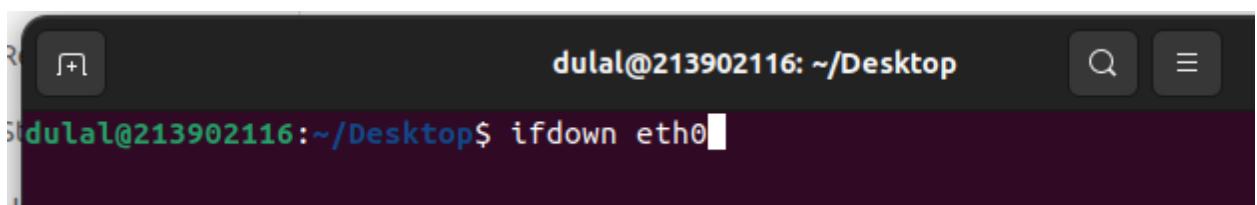
enable an eth0 interface.



```
dulal@213902116: ~/Documents/cse-310$ ifup eth0
> █
```

66. ifdown eth0 :

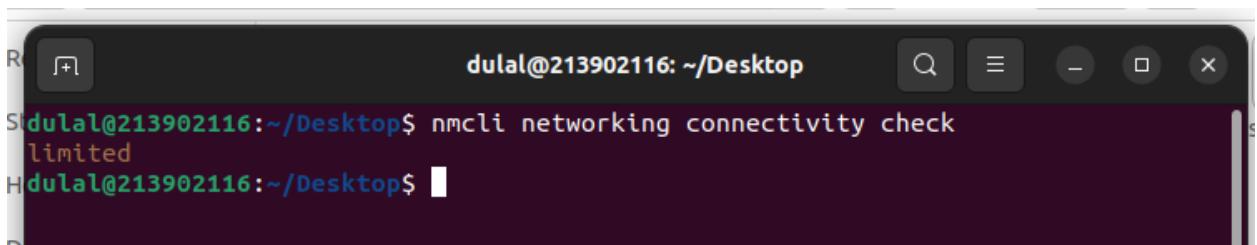
disable an eth0 interface.



```
dulal@213902116: ~/Desktop$ ifdown eth0
dulal@213902116: ~/Desktop$ █
```

67. nmcli networking connectivity check :

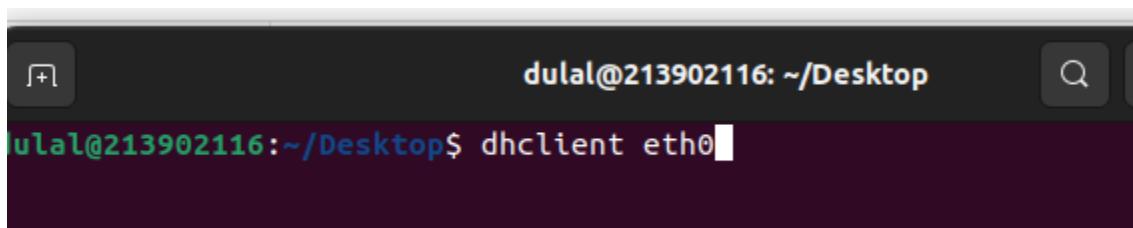
Checks the network connectivity state.



```
dulal@213902116: ~/Desktop$ nmcli networking connectivity check
limited
dulal@213902116: ~/Desktop$ █
```

68. dhclient eth0 :

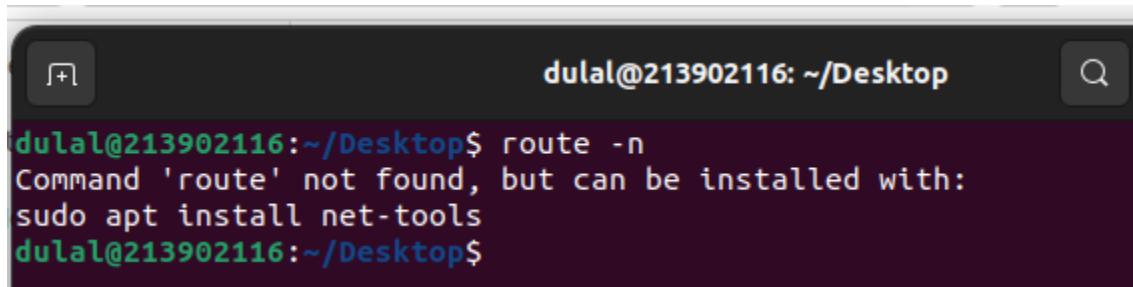
enable an eth0 interface with dhcp mode.



```
dulal@213902116: ~/Desktop$ dhclient eth0
dulal@213902116: ~/Desktop$ █
```

69. route -n :

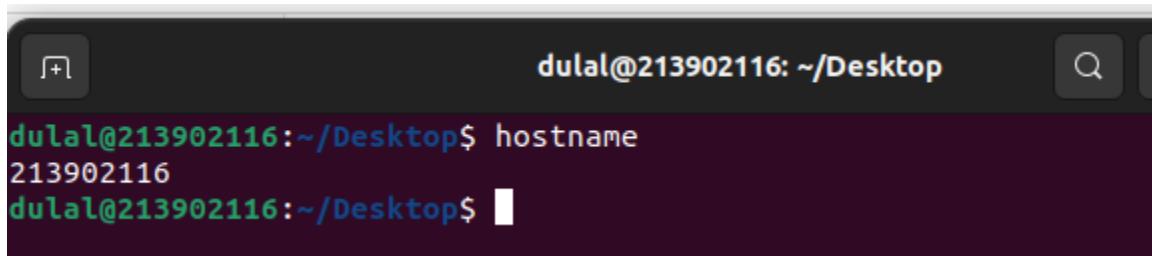
show a route table.



```
dulal@213902116:~/Desktop$ route -n
Command 'route' not found, but can be installed with:
sudo apt install net-tools
dulal@213902116:~/Desktop$
```

A screenshot of a terminal window titled "dulal@213902116: ~/Desktop". The window shows a command-line interface with a dark background and light-colored text. The user has run the "route -n" command, which is not found on the system. A message suggests installing "net-tools" via "sudo apt install net-tools". The prompt "dulal@213902116:~/Desktop\$" is visible at the bottom.**70. hostname :**

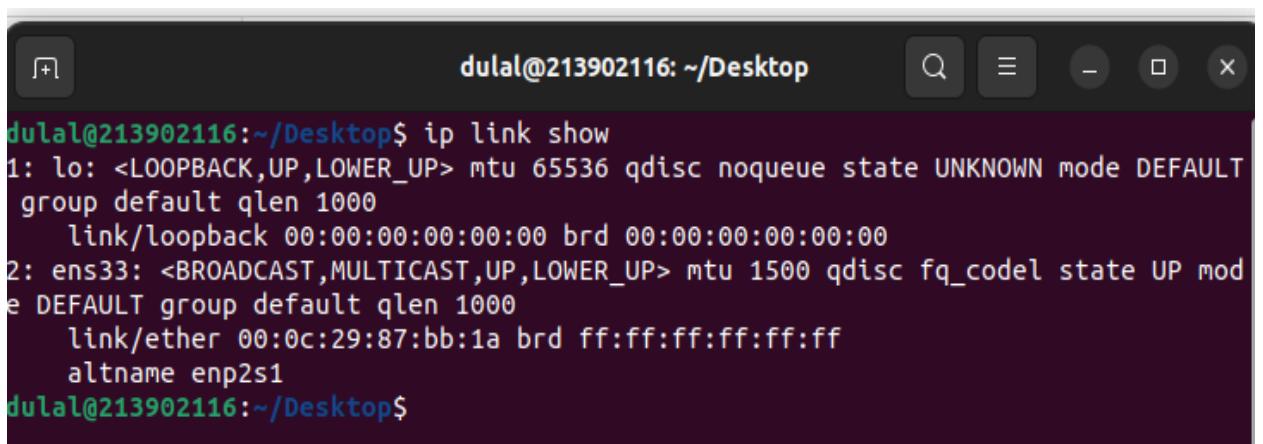
show the system hostname.



```
dulal@213902116:~/Desktop$ hostname
213902116
dulal@213902116:~/Desktop$
```

A screenshot of a terminal window titled "dulal@213902116: ~/Desktop". The user has run the "hostname" command, which outputs the system's name, "213902116". The prompt "dulal@213902116:~/Desktop\$" is visible at the bottom.**71. ip link show :**

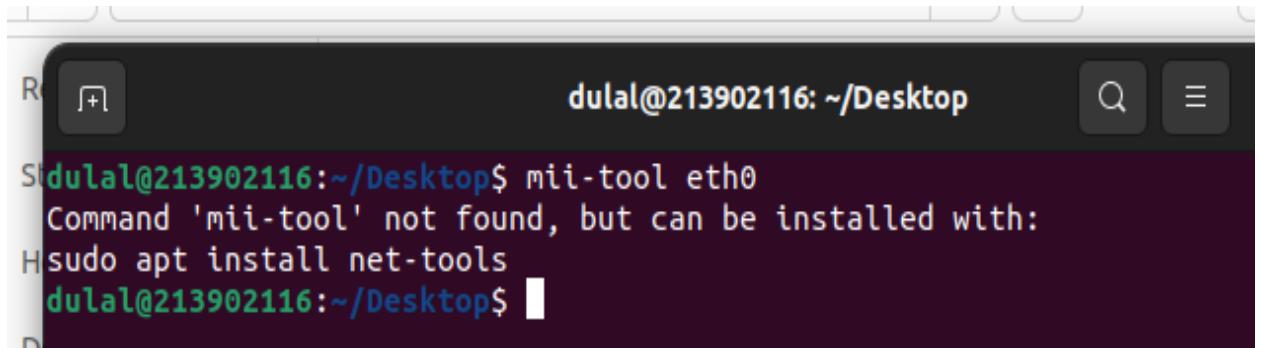
show the current status of the interfaces.



```
dulal@213902116:~/Desktop$ ip link show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
    group default qlen 1000
        link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT
    group default qlen 1000
        link/ether 00:0c:29:87:bb:1a brd ff:ff:ff:ff:ff:ff
        altname enp2s1
dulal@213902116:~/Desktop$
```

A screenshot of a terminal window titled "dulal@213902116: ~/Desktop". The user has run the "ip link show" command, displaying information about network interfaces. It lists two interfaces: "lo" (loopback) and "ens33" (ethernet). The "lo" interface is up and has a MTU of 65536. The "ens33" interface is also up and has a MTU of 1500. The prompt "dulal@213902116:~/Desktop\$" is visible at the bottom.**72. mii-tool eth0 :**

show the link status of 'eth0'.

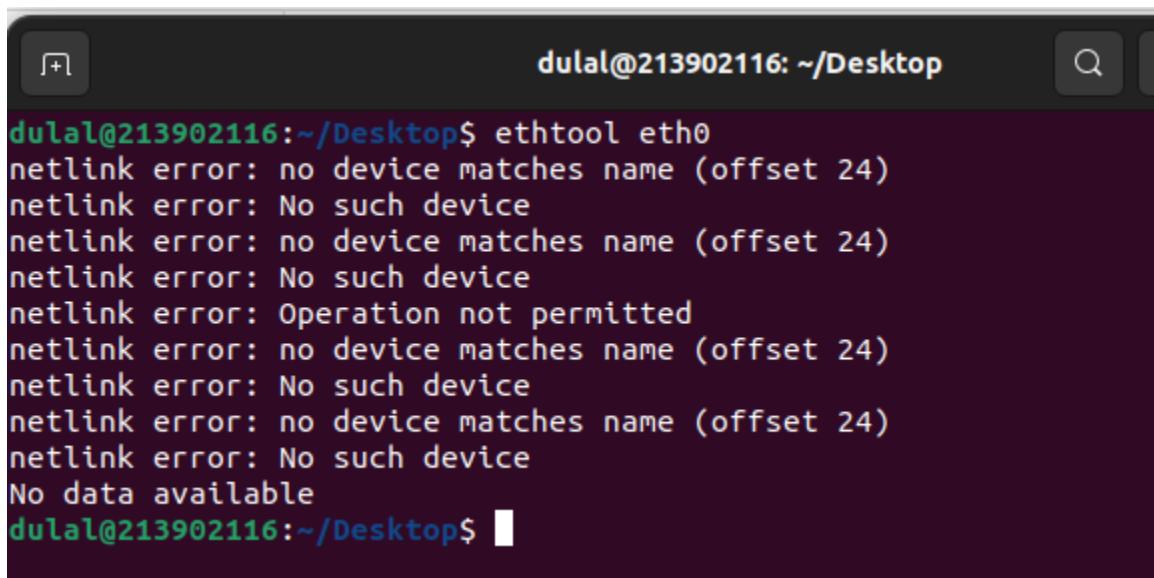


```
dulal@213902116:~/Desktop$ mii-tool eth0
Command 'mii-tool' not found, but can be installed with:
sudo apt install net-tools
dulal@213902116:~/Desktop$
```

A screenshot of a terminal window titled "dulal@213902116: ~/Desktop". The user has run the "mii-tool eth0" command, which is not found on the system. A message suggests installing "net-tools" via "sudo apt install net-tools". The prompt "dulal@213902116:~/Desktop\$" is visible at the bottom.

73. ethtool eth0 :

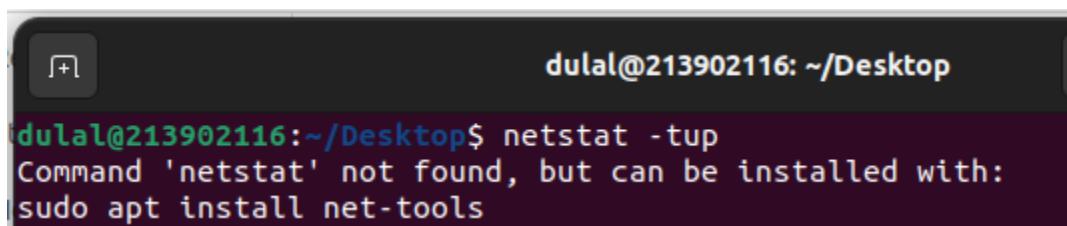
show statistics from the eth0 network card.



```
dulal@213902116:~/Desktop$ ethtool eth0
netlink error: no device matches name (offset 24)
netlink error: No such device
netlink error: no device matches name (offset 24)
netlink error: No such device
netlink error: Operation not permitted
netlink error: no device matches name (offset 24)
netlink error: No such device
netlink error: no device matches name (offset 24)
netlink error: No such device
No data available
dulal@213902116:~/Desktop$
```

74. netstat -tup :

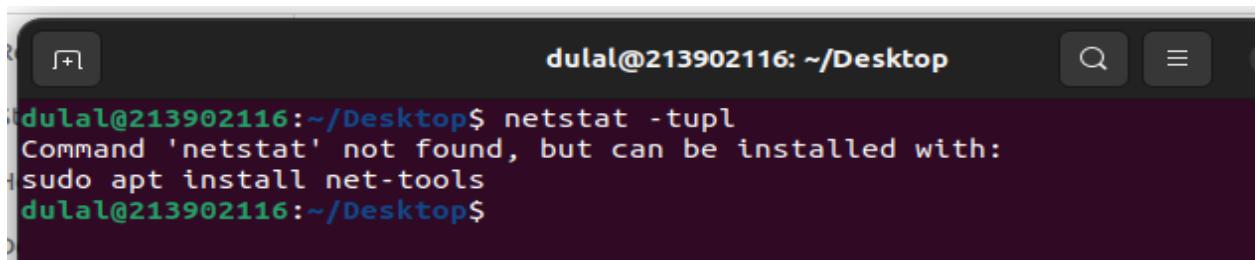
show all active network connections.



```
dulal@213902116:~/Desktop$ netstat -tup
Command 'netstat' not found, but can be installed with:
sudo apt install net-tools
```

75. netstat -tupl :

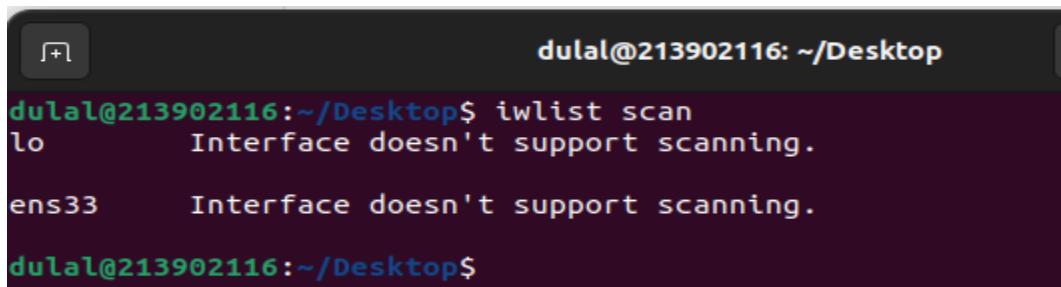
show all the listening services in networking and their PIDs.



```
dulal@213902116:~/Desktop$ netstat -tupl
Command 'netstat' not found, but can be installed with:
sudo apt install net-tools
dulal@213902116:~/Desktop$
```

76. iwlist scan :

show all the wireless networks.



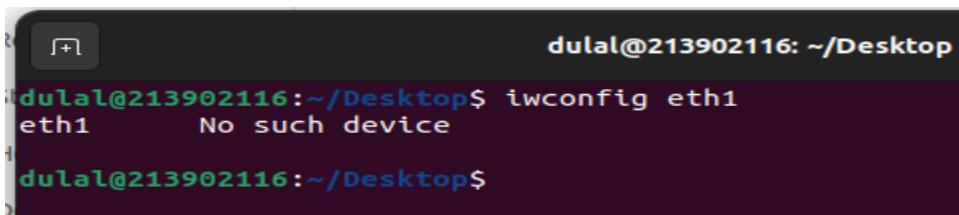
```
dulal@213902116:~/Desktop$ iwlist scan
lo      Interface doesn't support scanning.

ens33    Interface doesn't support scanning.

dulal@213902116:~/Desktop$
```

77. iwconfig eth1:

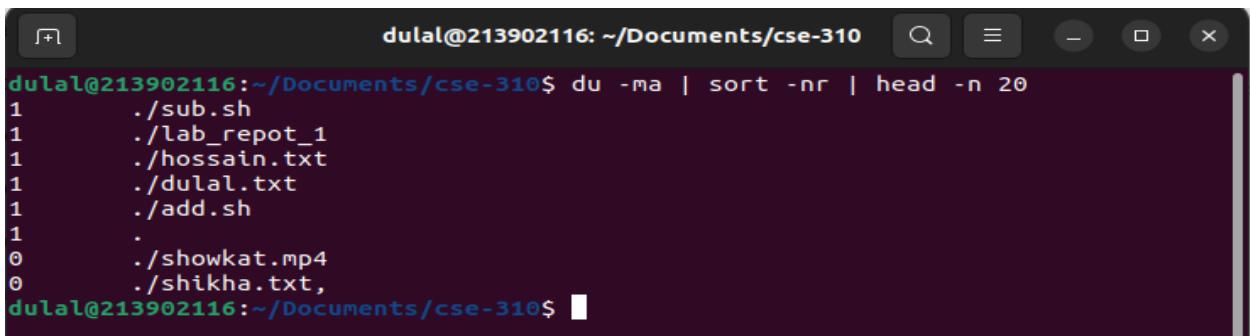
show the configuration of a wireless network card.



```
dulal@213902116: ~/Desktop
dulal@213902116:~/Desktop$ iwconfig eth1
eth1      No such device
dulal@213902116:~/Desktop$
```

78. du -ma | sort -nr | head -n 20 :

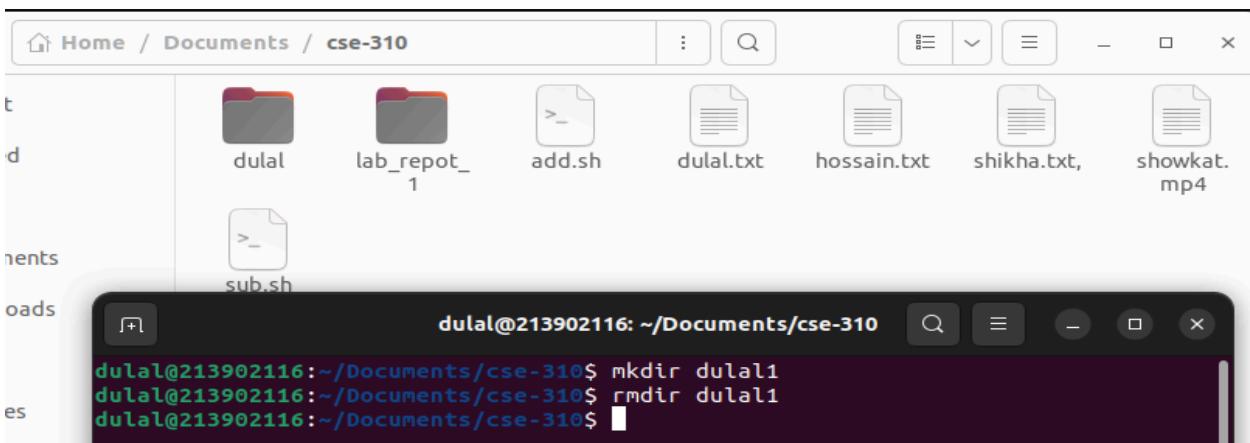
List 20 largest files and folders in current directory.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ du -ma | sort -nr | head -n 20
1      ./sub.sh
1      ./lab_repot_1
1      ./hossain.txt
1      ./dulal.txt
1      ./add.sh
1      .
0      ./showkat.mp4
0      ./shikha.txt,
dulal@213902116:~/Documents/cse-310$
```

79. rmdir (folder name) :

It will delete the my_folder directory, only if empty.

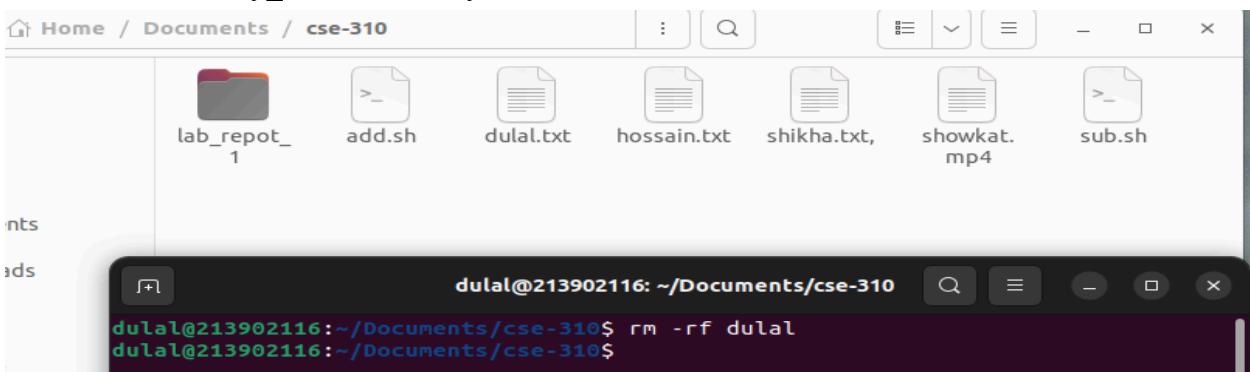


The file manager shows a folder named 'dulal' in the 'cse-310' directory. The terminal window shows the following commands:

```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ mkdir dulal1
dulal@213902116:~/Documents/cse-310$ rmdir dulal1
dulal@213902116:~/Documents/cse-310$
```

80. rm -rf (folder name) :

It will delete the my_folder directory and all its content.

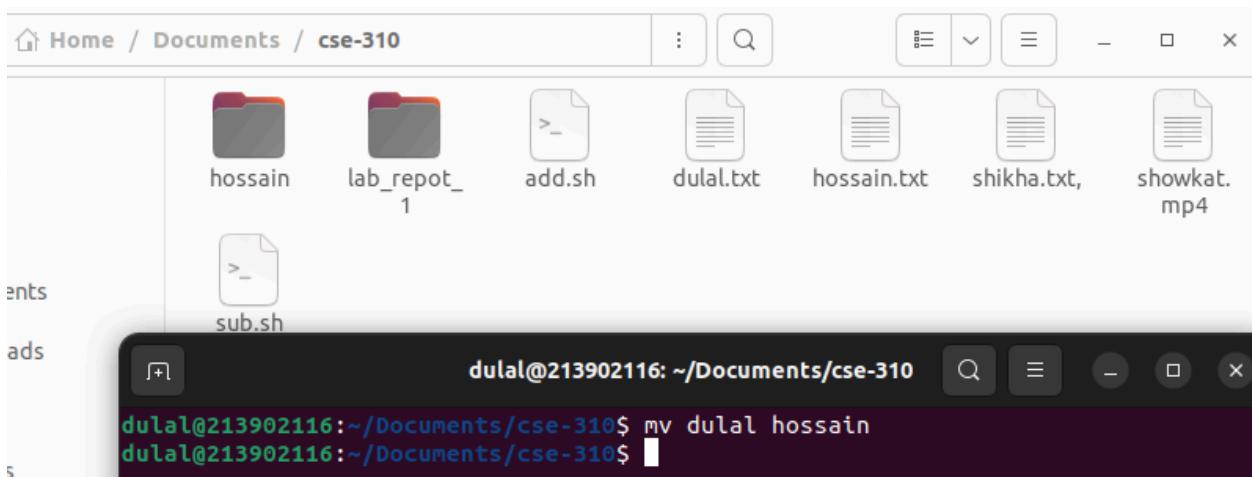


The file manager shows a folder named 'lab_repot_1' in the 'cse-310' directory. The terminal window shows the following commands:

```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ rm -rf dulal
dulal@213902116:~/Documents/cse-310$
```

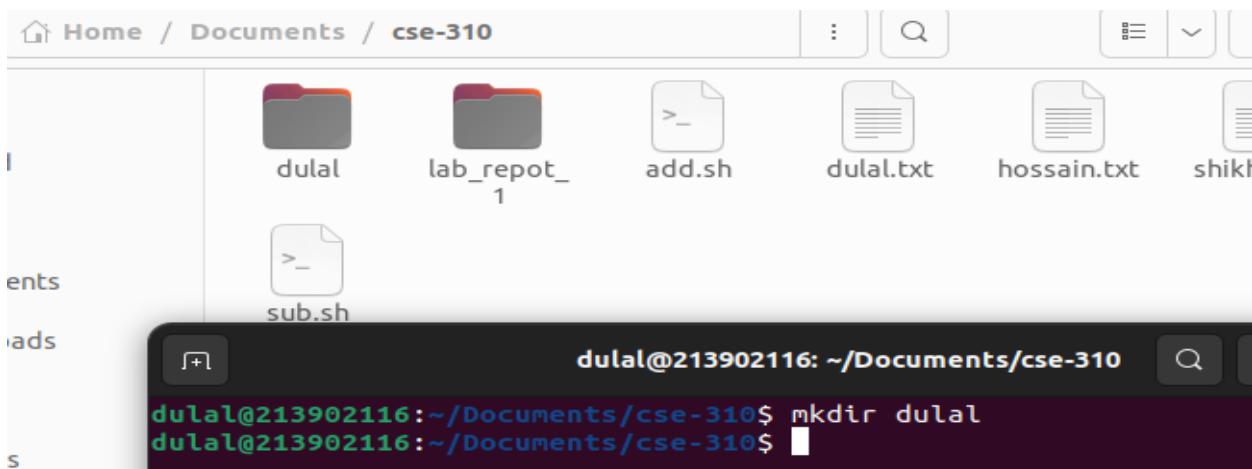
81. mv old_folder_name new_folder_name :

It will move or rename a folder with another.



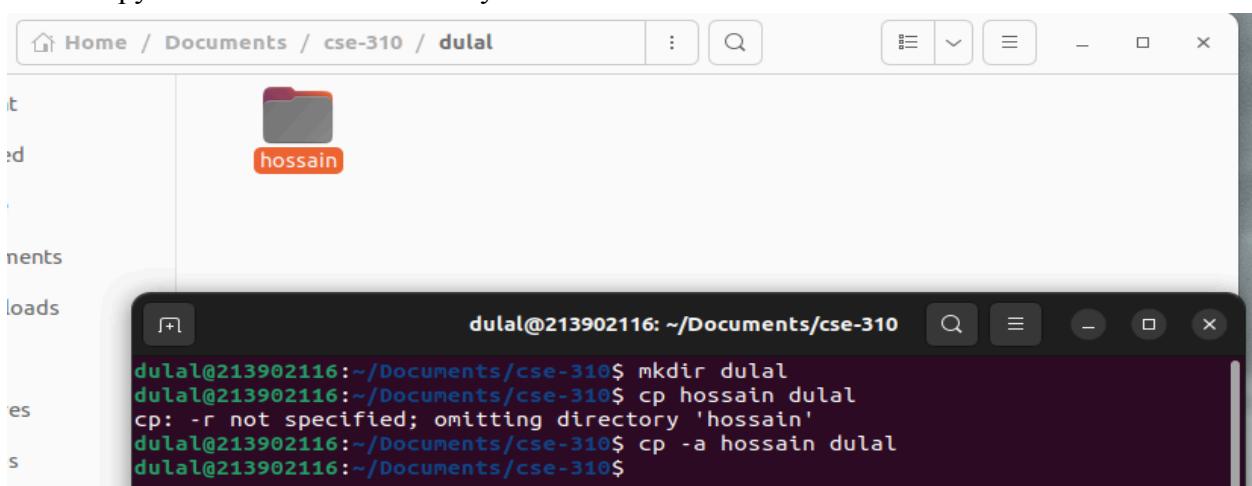
82. mkdir (folder name) :

create a new folder with name.



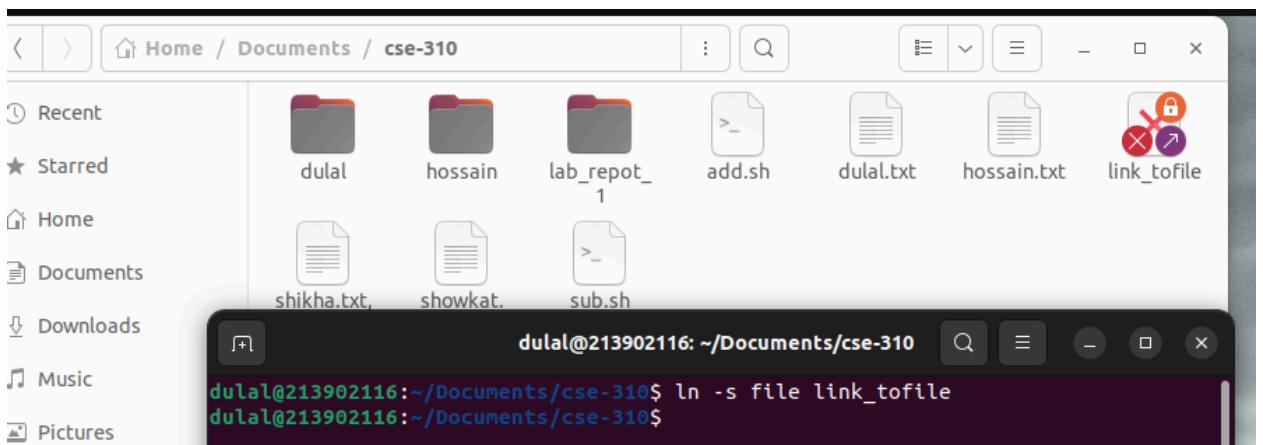
83. cp -a source-folder_name destination-folder-name :

It will copy the folders simultaneously.



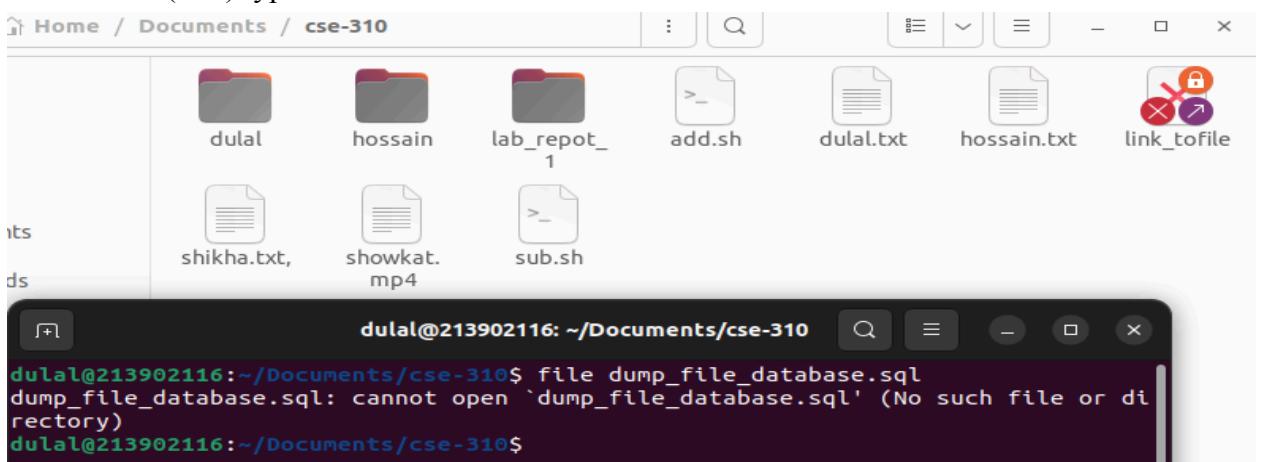
84. In file link_tofile :

It will create a fisical link origin/destiny.



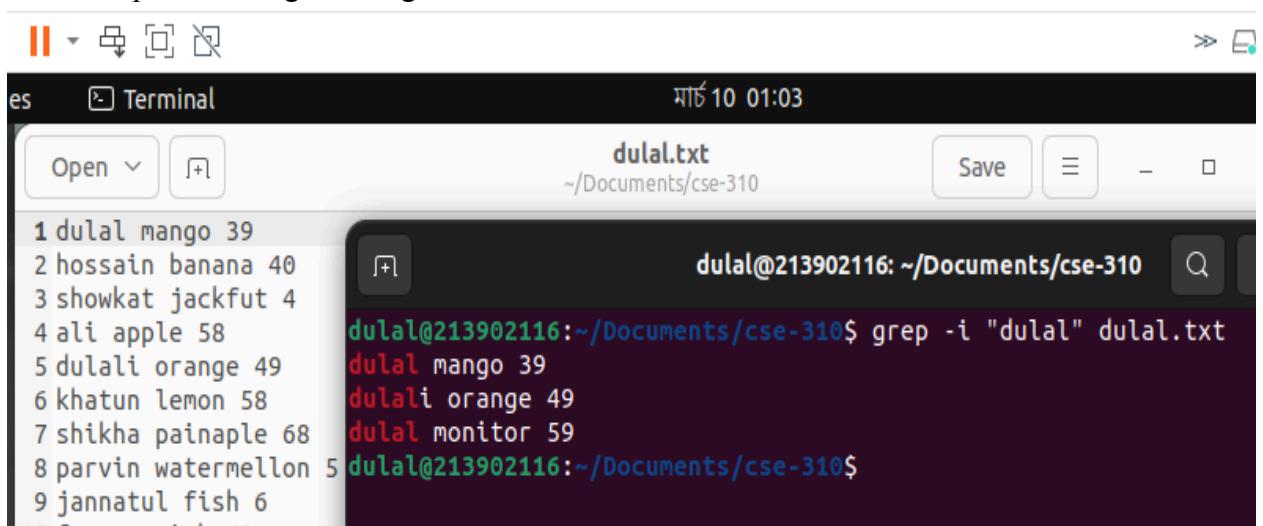
85. file dump_file_database.sql :

Returns the (true) type of file.



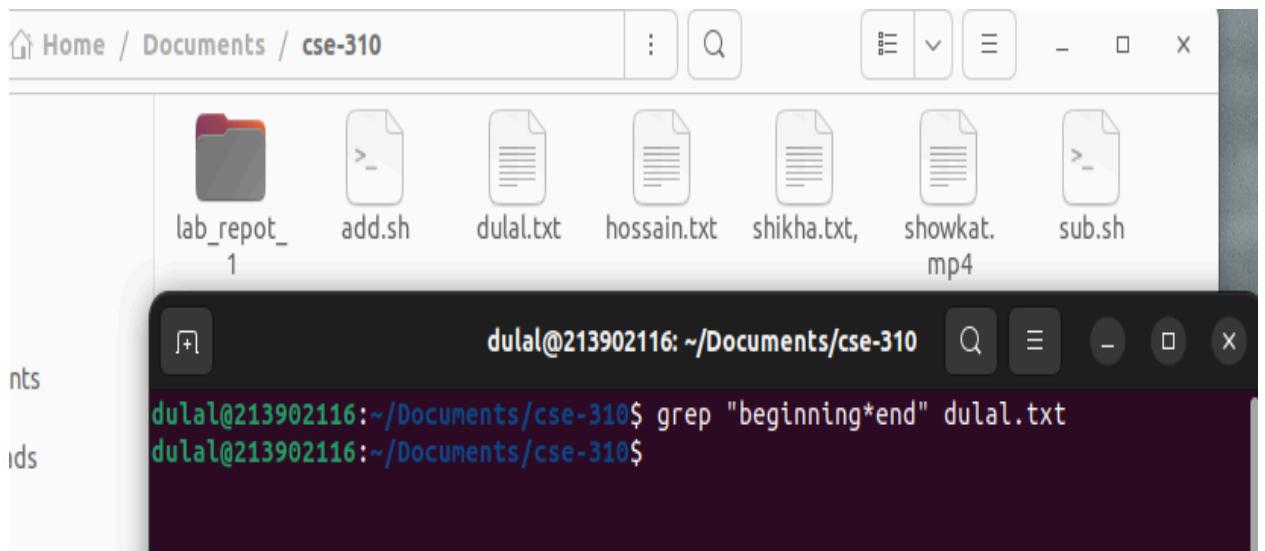
86. grep -i "string_to_search" filename :

Search a specific string in a single file in case insensitive.



87. grep “beginning*end” filename :

Search string with RegExp over a single file.

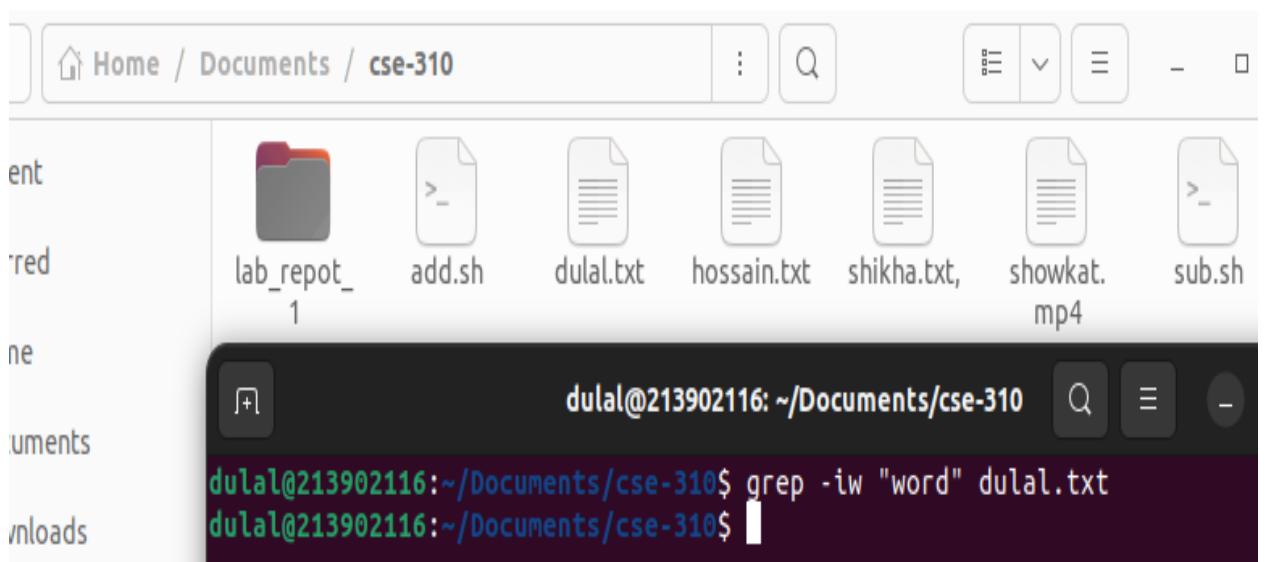


The screenshot shows a terminal window with the following details:

- Path: Home / Documents / cse-310
- File list:
 - lab_repot_1
 - add.sh
 - dulal.txt
 - hossain.txt
 - shikha.txt,
 - showkat.mp4
 - sub.sh
- Terminal prompt: dulal@213902116: ~/Documents/cse-310\$
- Command entered: grep "beginning*end" dulal.txt
- Output: (empty)

88. grep -iw “word” filename :

Now we're looking for a word in case insensitive.

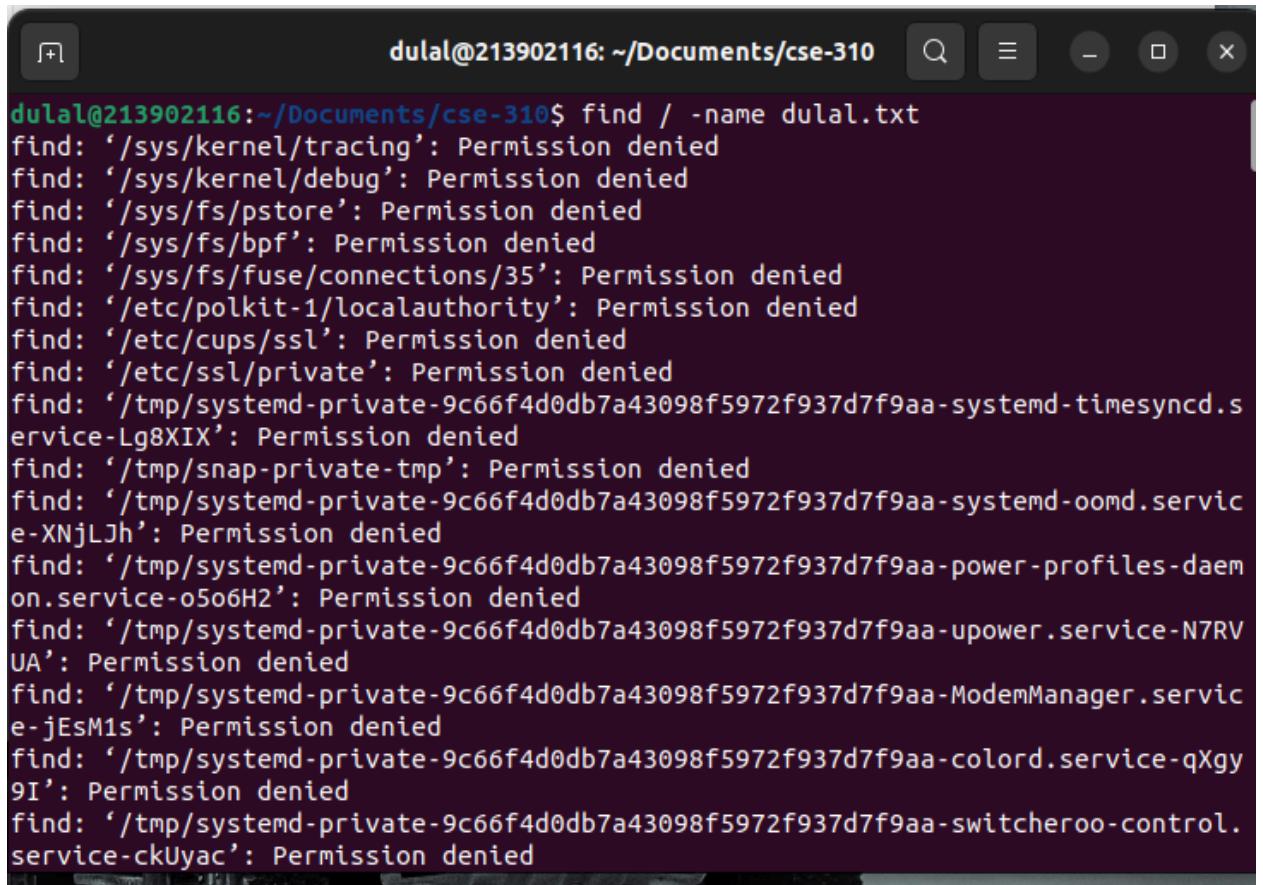


The screenshot shows a terminal window with the following details:

- Path: Home / Documents / cse-310
- File list:
 - lab_repot_1
 - add.sh
 - dulal.txt
 - hossain.txt
 - shikha.txt,
 - showkat.mp4
 - sub.sh
- Terminal prompt: dulal@213902116: ~/Documents/cse-310\$
- Command entered: grep -iw "word" dulal.txt
- Output: (empty)

89. find / -name filename :

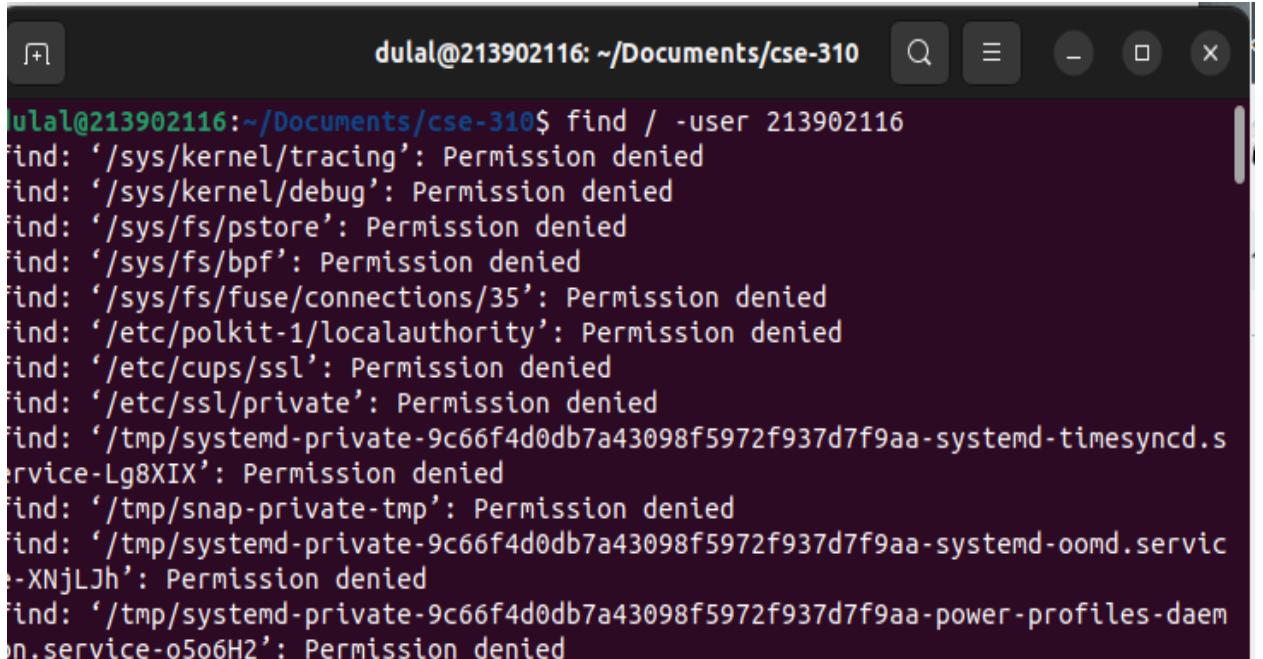
Will search the file or folder starting by the root of system.



```
dulal@213902116: ~/Documents/cse-310$ find / -name dulal.txt
find: '/sys/kernel/tracing': Permission denied
find: '/sys/kernel/debug': Permission denied
find: '/sys/fs/pstore': Permission denied
find: '/sys/fs/bpf': Permission denied
find: '/sys/fs/fuse/connections/35': Permission denied
find: '/etc/polkit-1/localauthority': Permission denied
find: '/etc/cups/ssl': Permission denied
find: '/etc/ssl/private': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-systemd-timesyncd.service-Lg8XIX': Permission denied
find: '/tmp/snap-private-tmp': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-systemd-oomd.service-XNjLJh': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-power-profiles-daemon.service-o5o6H2': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-upower.service-N7RVUA': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-ModemManager.service-jEsM1s': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-colord.service-qXgy9I': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-switcheroo-control.service-ckUyac': Permission denied
```

90. find / -user username:

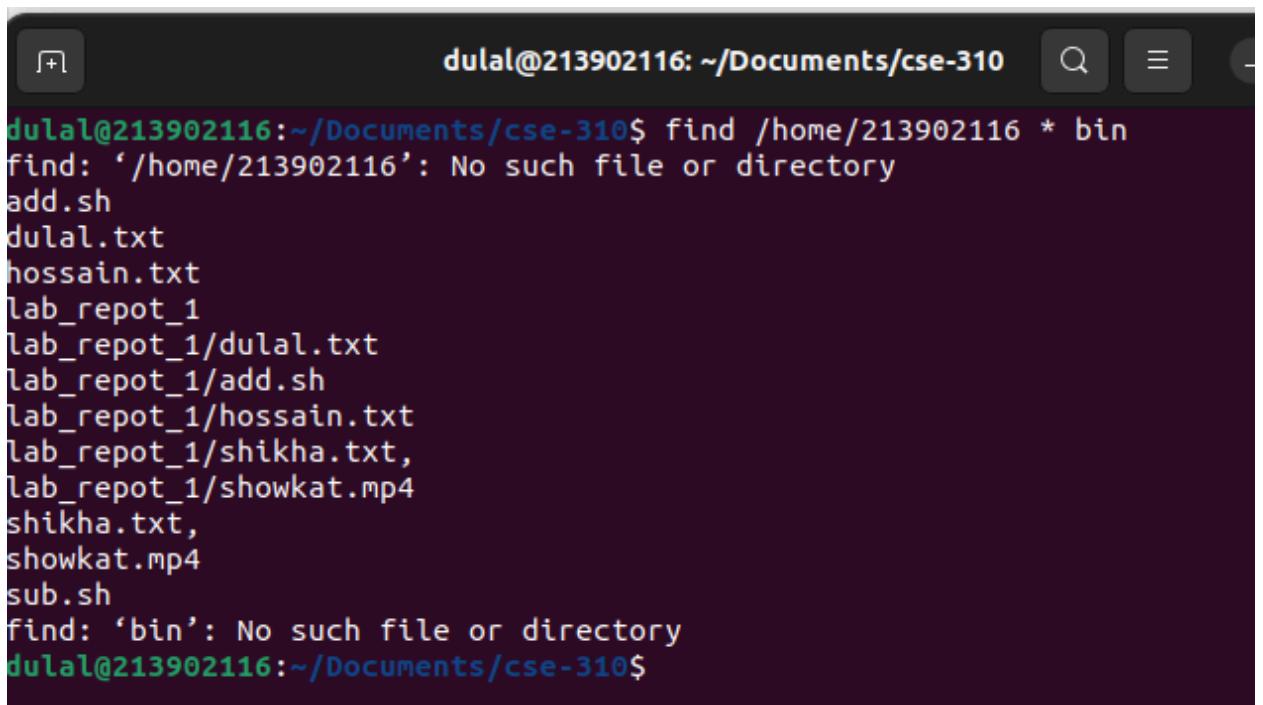
Will look for files and folders owned by the username.



```
dulal@213902116: ~/Documents/cse-310$ find / -user 213902116
find: '/sys/kernel/tracing': Permission denied
find: '/sys/kernel/debug': Permission denied
find: '/sys/fs/pstore': Permission denied
find: '/sys/fs/bpf': Permission denied
find: '/sys/fs/fuse/connections/35': Permission denied
find: '/etc/polkit-1/localauthority': Permission denied
find: '/etc/cups/ssl': Permission denied
find: '/etc/ssl/private': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-systemd-timesyncd.service-Lg8XIX': Permission denied
find: '/tmp/snap-private-tmp': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-systemd-oomd.service-XNjLJh': Permission denied
find: '/tmp/systemd-private-9c66f4d0db7a43098f5972f937d7f9aa-power-profiles-daemon.service-o5o6H2': Permission denied
```

91. find /home/user -name *.bin :

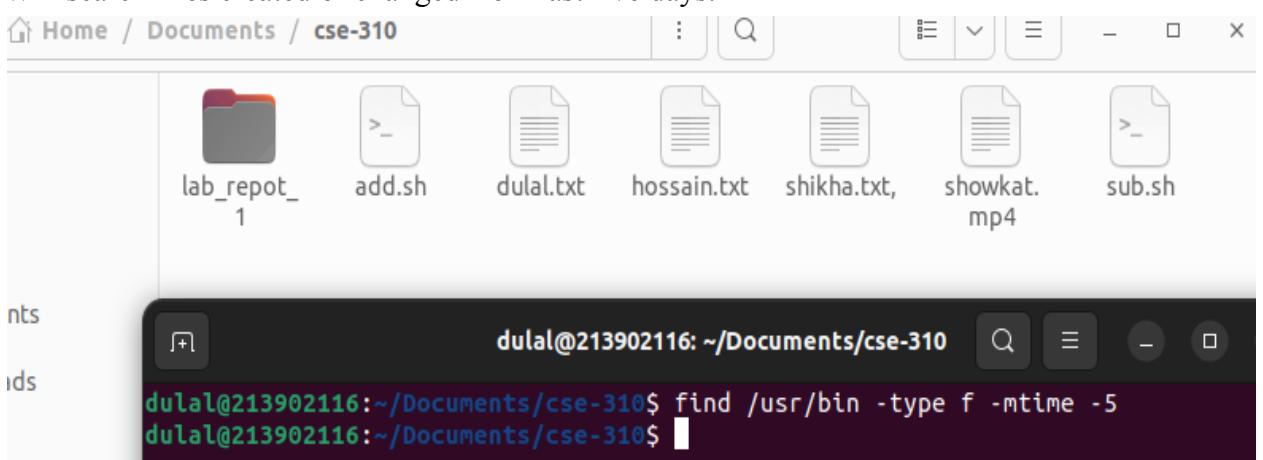
Will search all files with .bin extension in the folder.



```
dulal@213902116:~/Documents/cse-310$ find /home/213902116 * bin
find: '/home/213902116': No such file or directory
add.sh
dulal.txt
hossain.txt
lab_repot_1
lab_repot_1/dulal.txt
lab_repot_1/add.sh
lab_repot_1/hossain.txt
lab_repot_1/shikha.txt,
lab_repot_1/showkat.mp4
shikha.txt,
showkat.mp4
sub.sh
find: 'bin': No such file or directory
dulal@213902116:~/Documents/cse-310$
```

92. find /usr/bin -type f -mtime -5 :

Will search files created or changed from last five days.

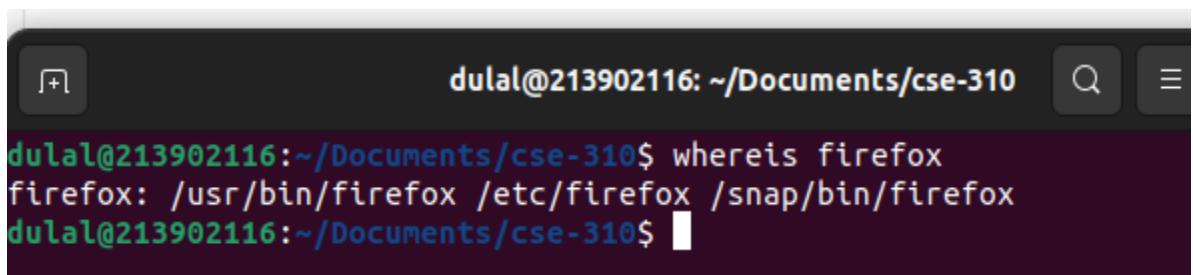


The file manager shows a folder named 'lab_repot_1' containing several files: add.sh, dulal.txt, hossain.txt, shikha.txt, showkat.mp4, and sub.sh.

```
dulal@213902116:~/Documents/cse-310$ find /usr/bin -type f -mtime -5
dulal@213902116:~/Documents/cse-310$
```

93. whereis firefox :

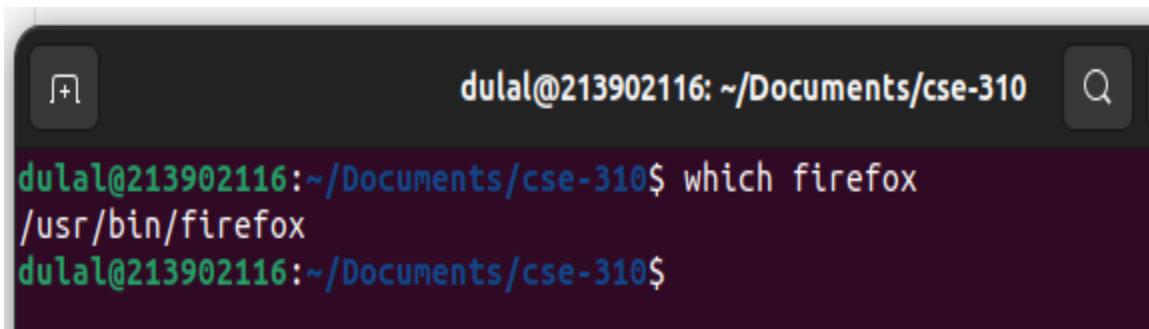
Will show the location of the binary file of firefox.



```
dulal@213902116:~/Documents/cse-310$ whereis firefox
firefox: /usr/bin/firefox /etc/firefox /snap/bin/firefox
dulal@213902116:~/Documents/cse-310$
```

94. which firefox :

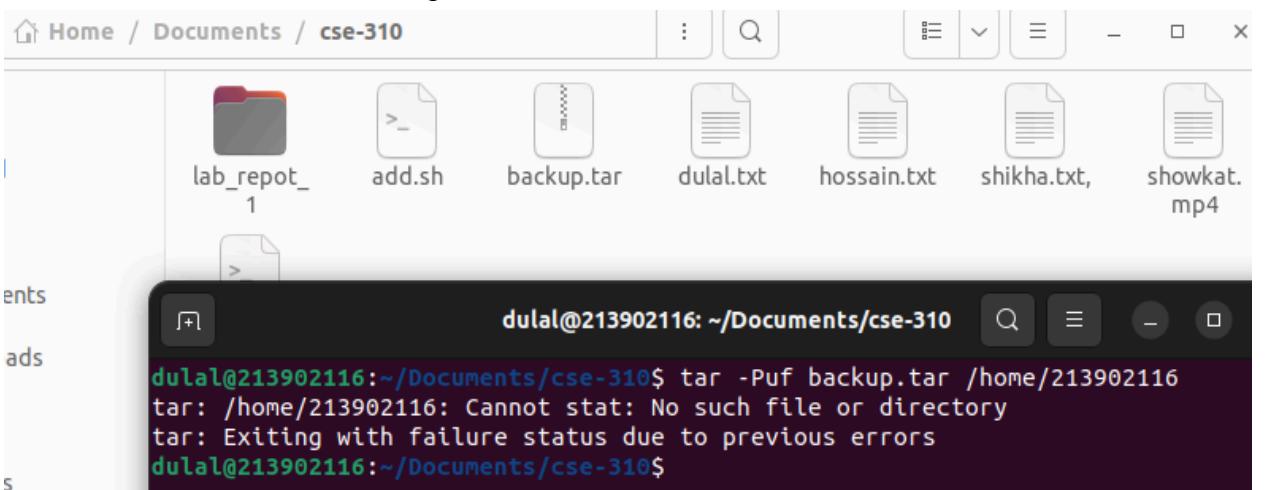
Will show the whole path to the marked binary / executable file.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ which firefox
/usr/bin/firefox
dulal@213902116:~/Documents/cse-310$
```

95. tar -Puf backup.tar /home/user :

Will create an incremental backup.

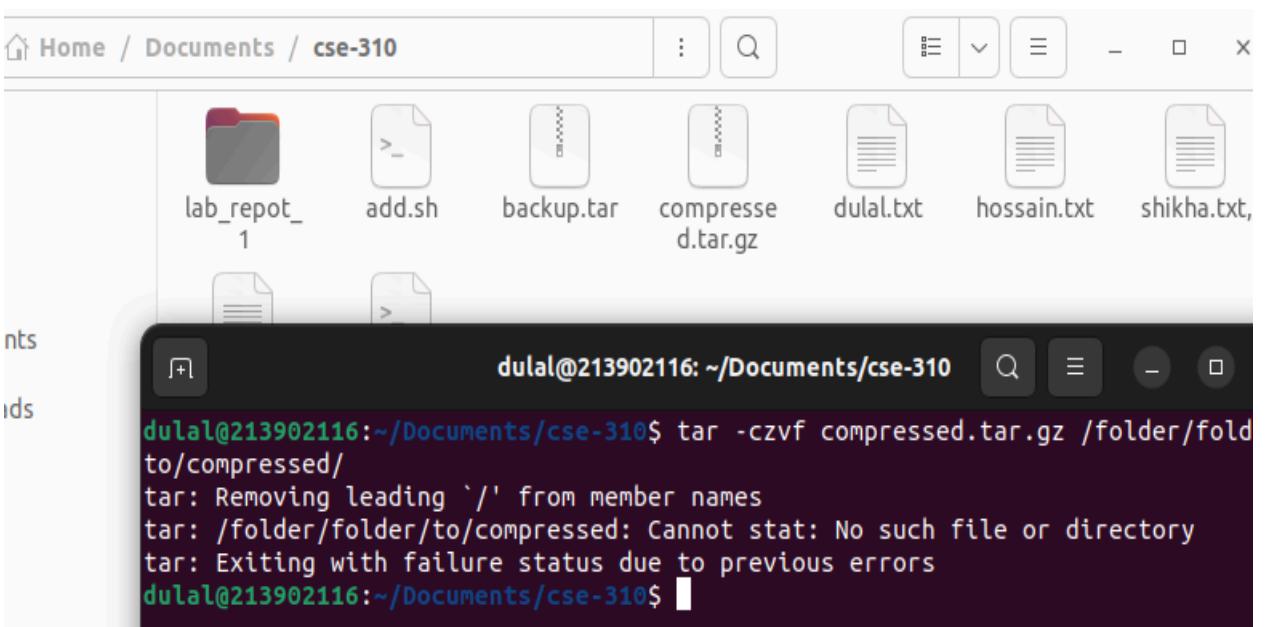


```
Home / Documents / cse-310
lab_repot_1 add.sh backup.tar dulal.txt hossain.txt shikha.txt, showkat.mp4

dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ tar -Puf backup.tar /home/213902116
tar: /home/213902116: Cannot stat: No such file or directory
tar: Exiting with failure status due to previous errors
dulal@213902116:~/Documents/cse-310$
```

96. tar -czvf compressed.tar.gz /folder/to/compress/ :

Will compress a folder tar.gz format.

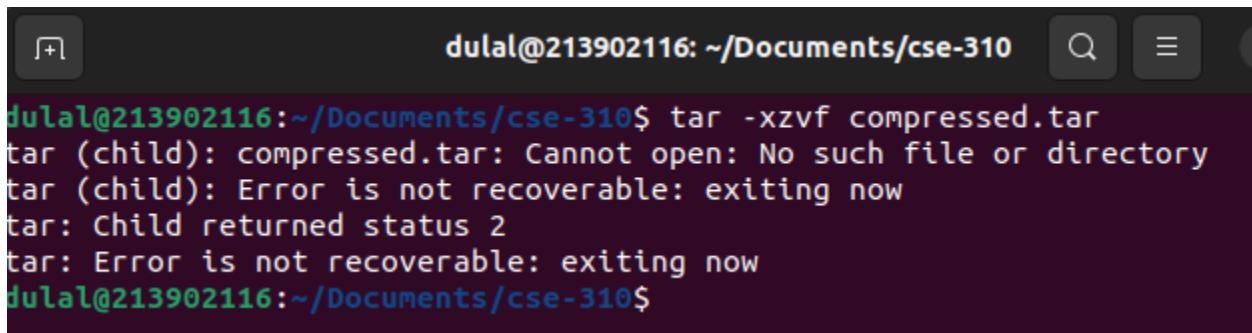


```
Home / Documents / cse-310
lab_repot_1 add.sh backup.tar compressed.tar.gz dulal.txt hossain.txt, shikha.txt, showkat.mp4

dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ tar -czvf compressed.tar.gz /folder/fold
to/compressed/
tar: Removing leading '/' from member names
tar: /folder/folder/to/compressed: Cannot stat: No such file or directory
tar: Exiting with failure status due to previous errors
dulal@213902116:~/Documents/cse-310$
```

97. tar -xvf compressed.tar :

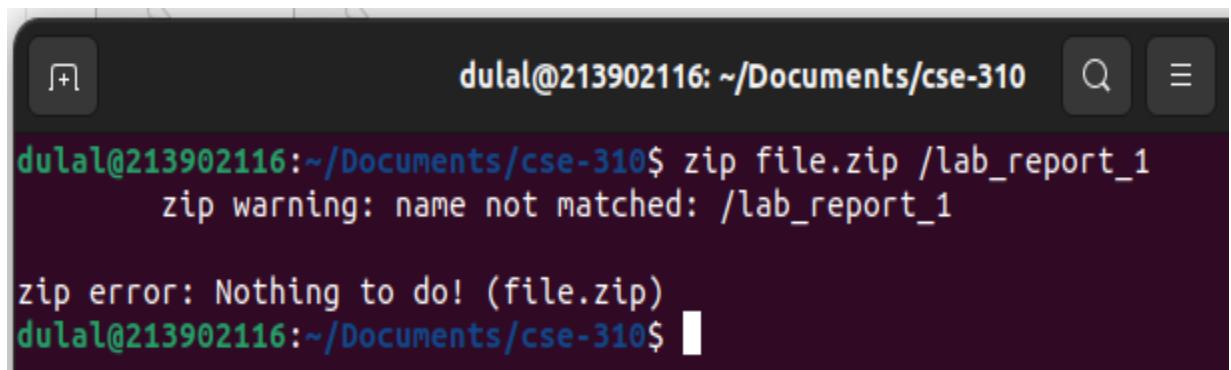
Decompress (or untar) a compressed file with tar format.



```
dulal@213902116:~/Documents/cse-310$ tar -xzvf compressed.tar
tar (child): compressed.tar: Cannot open: No such file or directory
tar (child): Error is not recoverable: exiting now
tar: Child returned status 2
tar: Error is not recoverable: exiting now
dulal@213902116:~/Documents/cse-310$
```

98. zip file.zip /folder :

Will compress a folder using zip format.

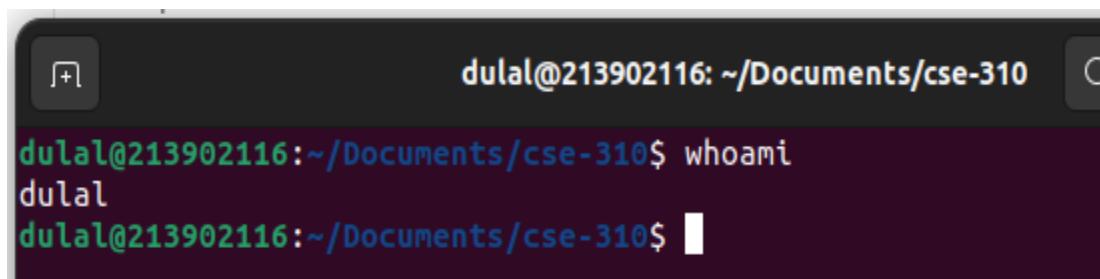


```
dulal@213902116:~/Documents/cse-310$ zip file.zip /lab_report_1
      zip warning: name not matched: /lab_report_1

      zip error: Nothing to do! (file.zip)
dulal@213902116:~/Documents/cse-310$
```

99. whoami :

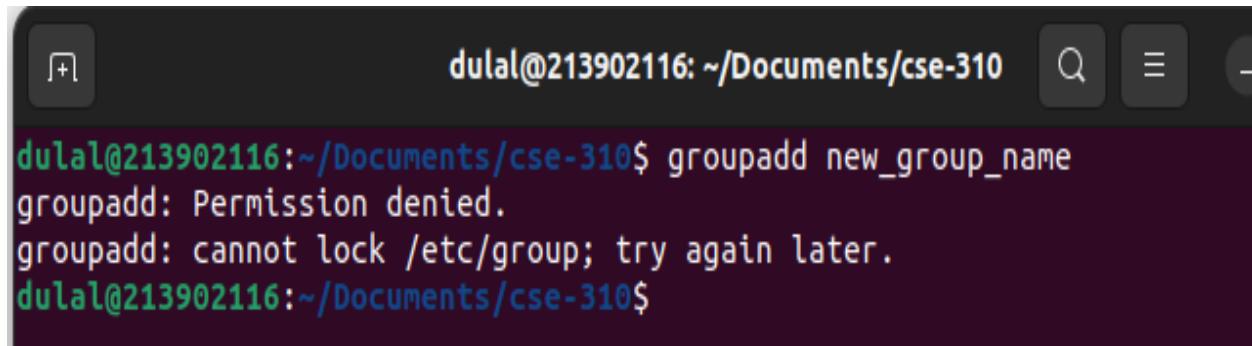
Return what is your current user.



```
dulal@213902116:~/Documents/cse-310$ whoami
dulal
dulal@213902116:~/Documents/cse-310$
```

100. groupadd new_group_name :

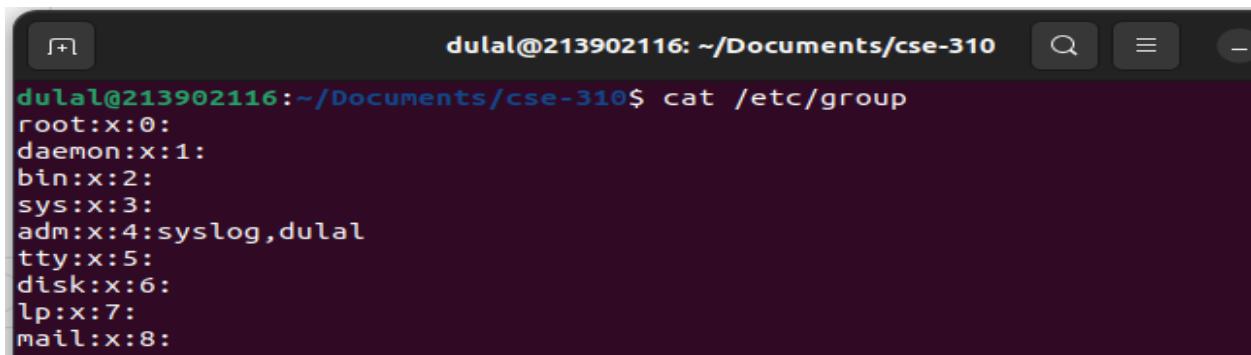
Creates a new user group in the system.



```
dulal@213902116:~/Documents/cse-310$ groupadd new_group_name
groupadd: Permission denied.
groupadd: cannot lock /etc/group; try again later.
dulal@213902116:~/Documents/cse-310$
```

101. cat /etc/group :

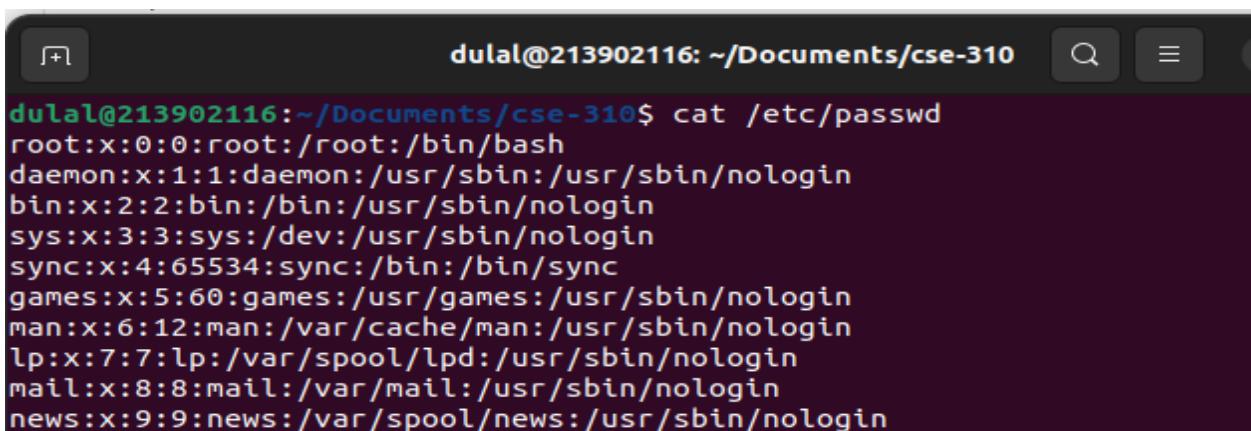
Show all the groups from the system.



```
dulal@213902116: ~/Documents/cse-310$ cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,dulal
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
```

102. cat /etc/passwd :

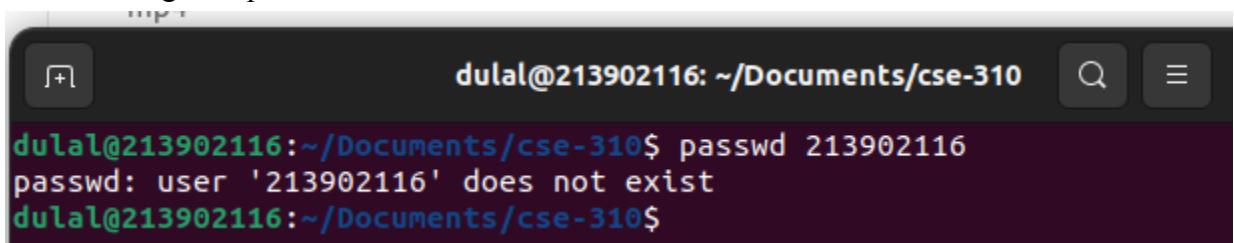
Show all the users created in the system.



```
dulal@213902116: ~/Documents/cse-310$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
```

103. passwd user_name :

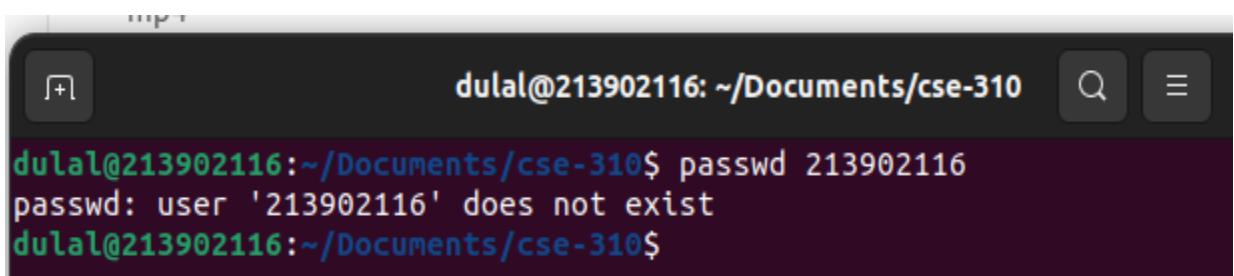
Allows change the password for the user.



```
dulal@213902116: ~/Documents/cse-310$ passwd 213902116
passwd: user '213902116' does not exist
dulal@213902116: ~/Documents/cse-310$
```

104. ls -la / || chown user dulal.txt :

Shows a list with all the content in a location, with permissions.change the owner of the file.



```
dulal@213902116: ~/Documents/cse-310$ passwd 213902116
passwd: user '213902116' does not exist
dulal@213902116: ~/Documents/cse-310$
```

105. lsattr :

Will show all the special attributes of the content.

```
dulal@213902116: ~/Documents/cse-310$ lsattr
-----e----- ./backup.tar
-----e----- ./lab_repot_1
-----e----- ./dulal.txt
-----e----- ./sub.sh
-----e----- ./add.sh
-----e----- ./hossain.txt
-----e----- ./shikha.txt,
-----e----- ./showkat.mp4
-----e----- ./compressed.tar.gz
dulal@213902116: ~/Documents/cse-310$
```

106. chattr +i filename :

Convert the file as immutable. Can't be deleted or altered.

```
dulal@213902116: ~/Documents/cse-310$ chattr +i dulal.txt
chattr: Operation not permitted while setting flags on dulal.txt
dulal@213902116: ~/Documents/cse-310$
```

107. chattr +s filename :

Allows a file can be deleted in a safe way.

```
dulal@213902116: ~/Documents/cse-310$ chattr +s dulal.txt
dulal@213902116: ~/Documents/cse-310$
```

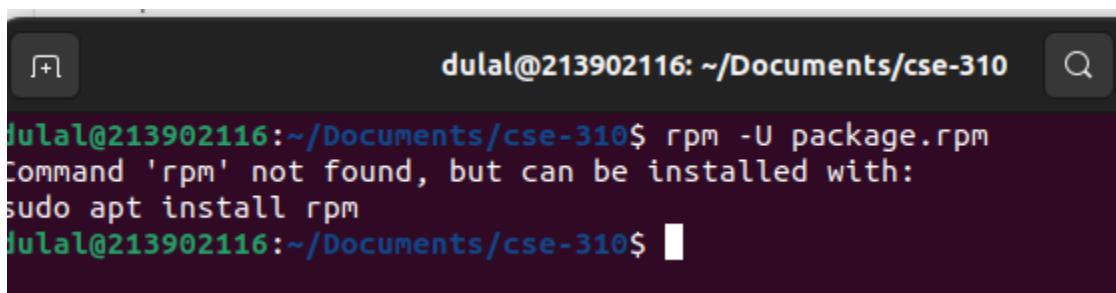
108. rpm -ivh package.rpm :

Will install a rpm package.

```
dulal@213902116: ~/Documents/cse-310$ rpm -ivh package.rpm
Command 'rpm' not found, but can be installed with:
sudo apt install rpm
dulal@213902116: ~/Documents/cse-310$
```

109. rpm -U package.rpm:

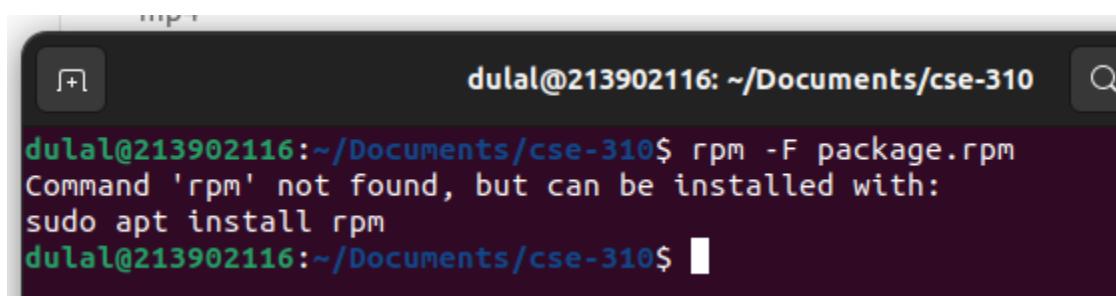
Will update a rpm package without change configurations in files.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ rpm -U package.rpm
Command 'rpm' not found, but can be installed with:
sudo apt install rpm
dulal@213902116:~/Documents/cse-310$
```

110. rpm -F package.rpm :

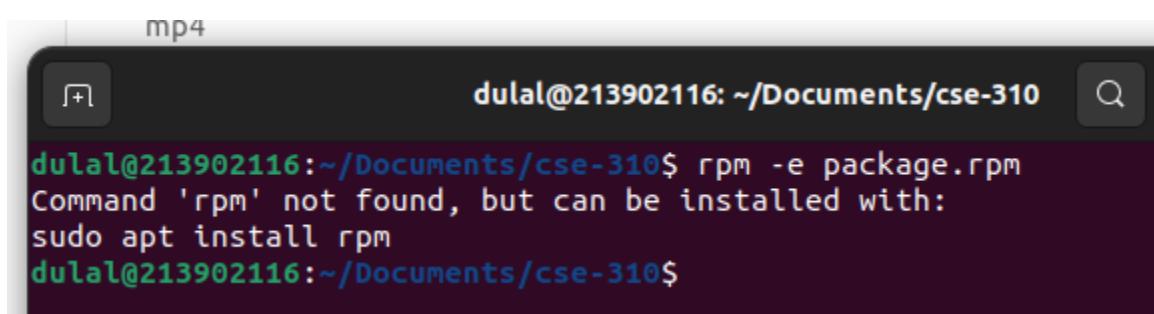
Will update a certain rpm package if is installed.



```
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ rpm -F package.rpm
Command 'rpm' not found, but can be installed with:
sudo apt install rpm
dulal@213902116:~/Documents/cse-310$
```

111. rpm -e package.rpm :

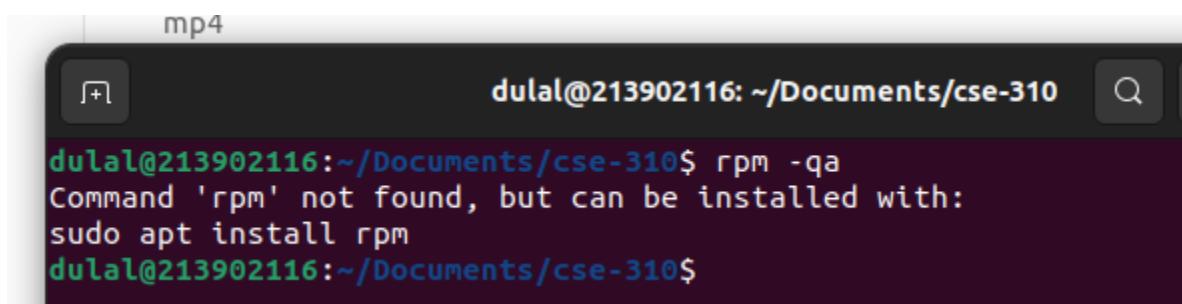
Will delete the marked rpm package.



```
mp4
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ rpm -e package.rpm
Command 'rpm' not found, but can be installed with:
sudo apt install rpm
dulal@213902116:~/Documents/cse-310$
```

112. rpm -qa :

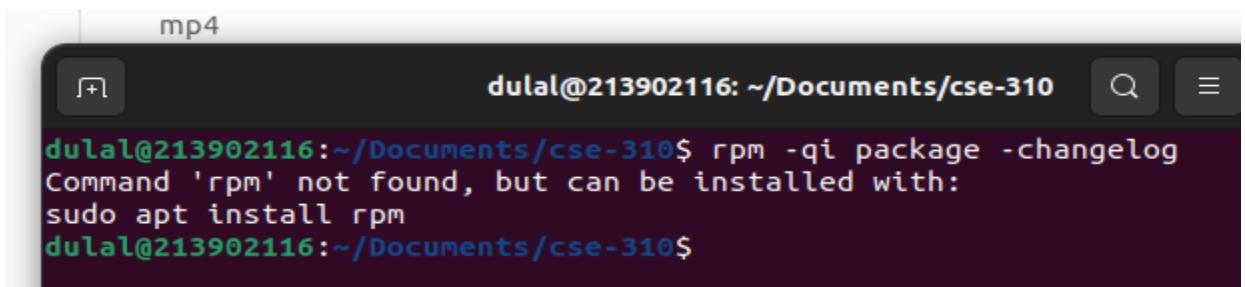
Will show all the rpm packages installed in the system.



```
mp4
dulal@213902116: ~/Documents/cse-310
dulal@213902116:~/Documents/cse-310$ rpm -qa
Command 'rpm' not found, but can be installed with:
sudo apt install rpm
dulal@213902116:~/Documents/cse-310$
```

113. rpm -qi package :

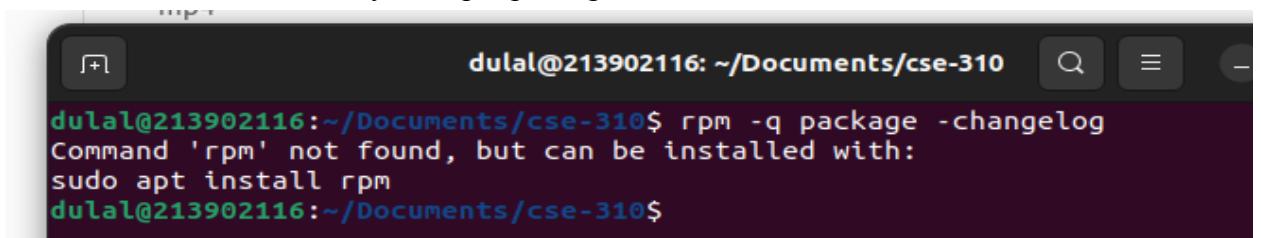
Will show info about a specific package.



```
dulal@213902116:~/Documents/cse-310$ rpm -qi package -changelog
Command 'rpm' not found, but can be installed with:
sudo apt install rpm
dulal@213902116:~/Documents/cse-310$
```

114. rpm -q package --changelog :

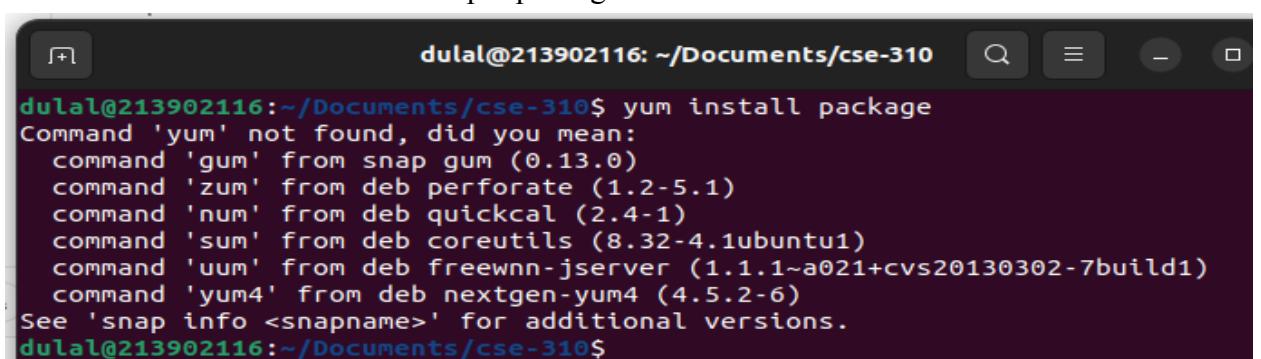
Will show the revision history of a rpm package.



```
dulal@213902116:~/Documents/cse-310$ rpm -q package --changelog
Command 'rpm' not found, but can be installed with:
sudo apt install rpm
dulal@213902116:~/Documents/cse-310$
```

115. yum install package :

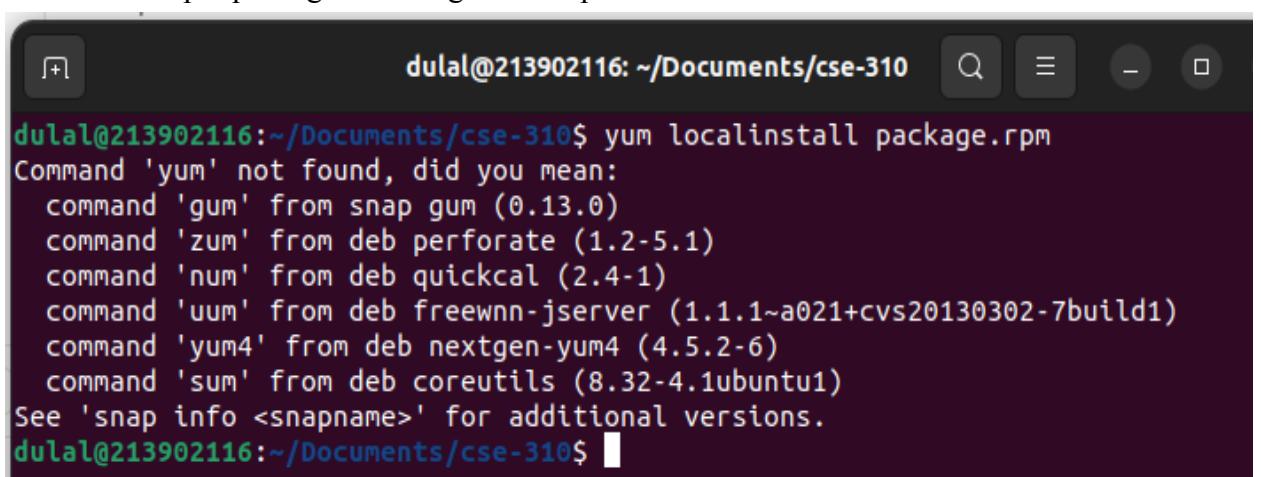
Will download and install a certain rpm package.



```
dulal@213902116:~/Documents/cse-310$ yum install package
Command 'yum' not found, did you mean:
  command 'gum' from snap gum (0.13.0)
  command 'zum' from deb perforate (1.2-5.1)
  command 'num' from deb quickcal (2.4-1)
  command 'sum' from deb coreutils (8.32-4.1ubuntu1)
  command 'uum' from deb freewnn-jserver (1.1.1~a021+cvs20130302-7build1)
  command 'yum4' from deb nextgen-yum4 (4.5.2-6)
See 'snap info <snapname>' for additional versions.
dulal@213902116:~/Documents/cse-310$
```

116. yum localinstall package.rpm :

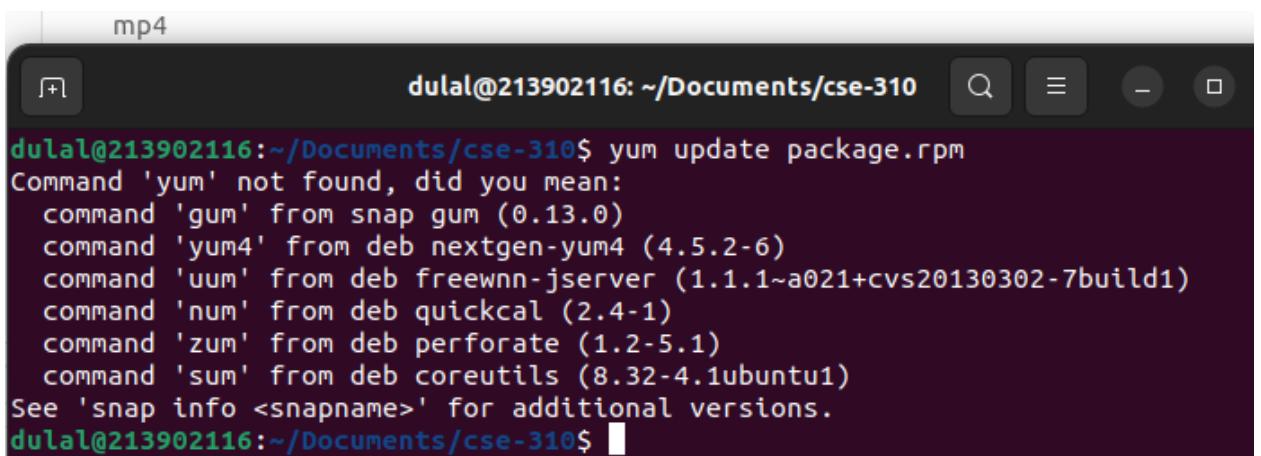
Will install a rpm package resolving all its dependencies.



```
dulal@213902116:~/Documents/cse-310$ yum localinstall package.rpm
Command 'yum' not found, did you mean:
  command 'gum' from snap gum (0.13.0)
  command 'zum' from deb perforate (1.2-5.1)
  command 'num' from deb quickcal (2.4-1)
  command 'sum' from deb coreutils (8.32-4.1ubuntu1)
  command 'uum' from deb freewnn-jserver (1.1.1~a021+cvs20130302-7build1)
  command 'yum4' from deb nextgen-yum4 (4.5.2-6)
See 'snap info <snapname>' for additional versions.
dulal@213902116:~/Documents/cse-310$
```

117. yum update package.rpm :

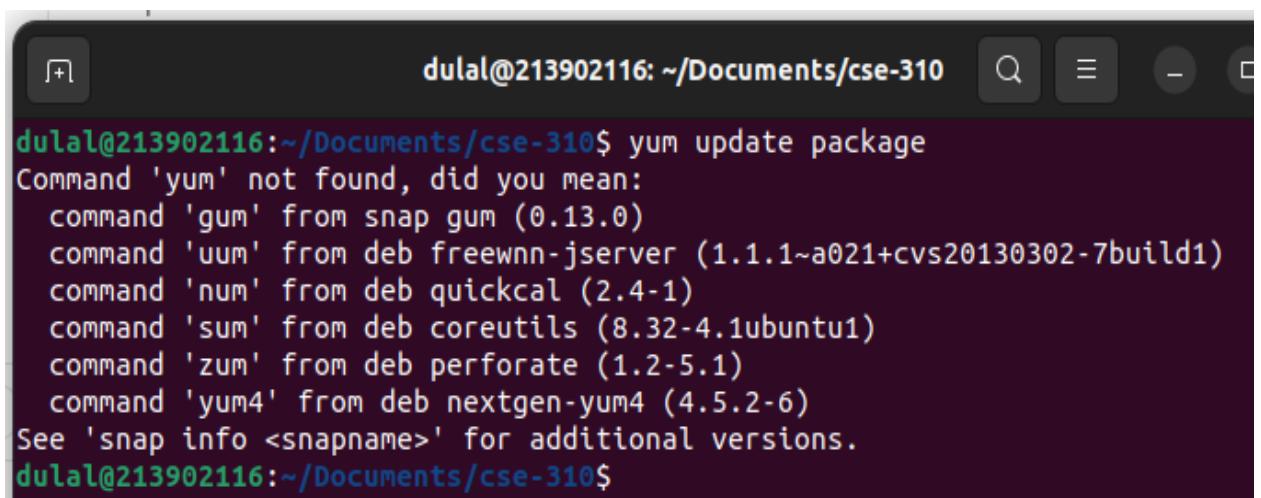
Will update all the rpm packages in the system.



```
dulal@213902116:~/Documents/cse-310$ yum update package.rpm
Command 'yum' not found, did you mean:
  command 'gum' from snap gum (0.13.0)
  command 'yum4' from deb nextgen-yum4 (4.5.2-6)
  command 'uum' from deb freewnn-jserver (1.1.1~a021+cvs20130302-7build1)
  command 'num' from deb quickcal (2.4-1)
  command 'zum' from deb perforate (1.2-5.1)
  command 'sum' from deb coreutils (8.32-4.1ubuntu1)
See 'snap info <snapname>' for additional versions.
dulal@213902116:~/Documents/cse-310$
```

118. yum update package:

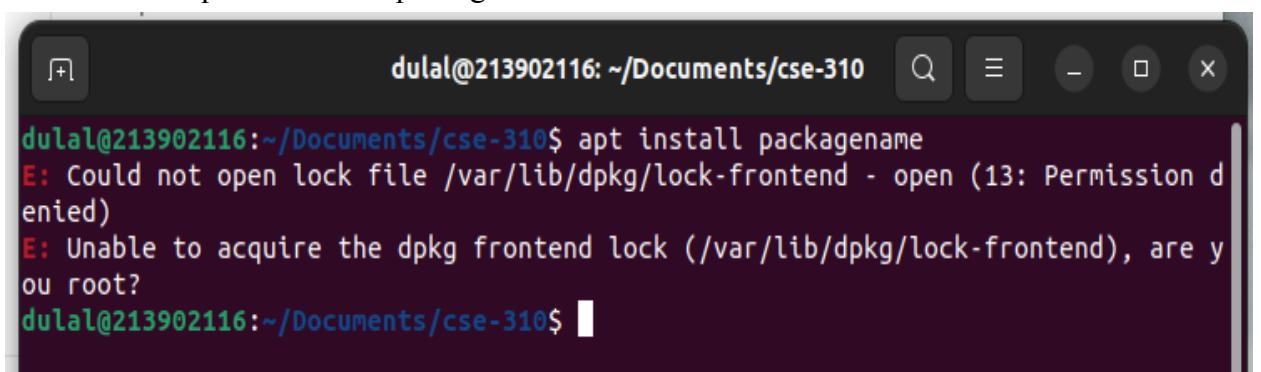
Will update a certain rpm package.



```
dulal@213902116:~/Documents/cse-310$ yum update package
Command 'yum' not found, did you mean:
  command 'gum' from snap gum (0.13.0)
  command 'uum' from deb freewnn-jserver (1.1.1~a021+cvs20130302-7build1)
  command 'num' from deb quickcal (2.4-1)
  command 'sum' from deb coreutils (8.32-4.1ubuntu1)
  command 'zum' from deb perforate (1.2-5.1)
  command 'yum4' from deb nextgen-yum4 (4.5.2-6)
See 'snap info <snapname>' for additional versions.
dulal@213902116:~/Documents/cse-310$
```

119. apt install packagename :

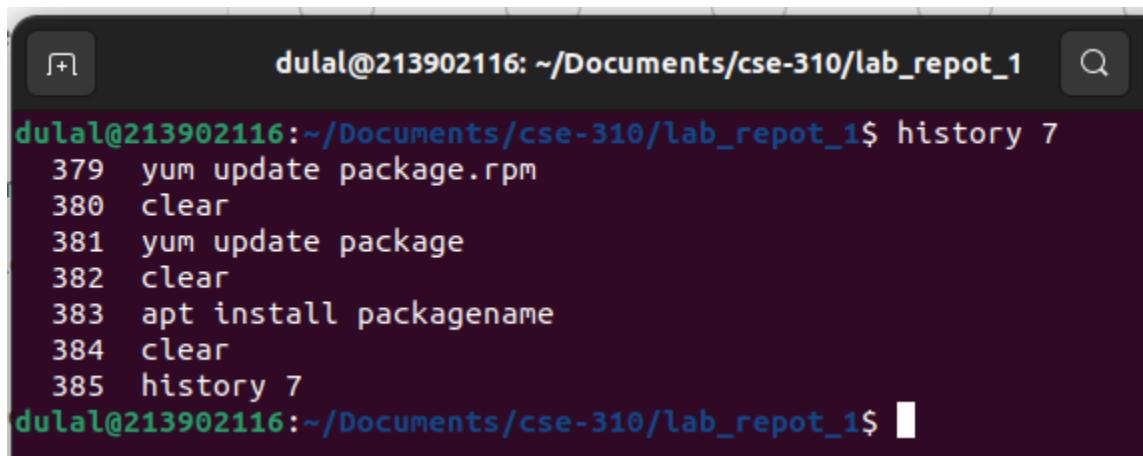
Will install or update a certain package .deb.



```
dulal@213902116:~/Documents/cse-310$ apt install packagename
E: Could not open lock file /var/lib/dpkg/lock-frontend - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontend), are you root?
dulal@213902116:~/Documents/cse-310$
```

120. History 7 :

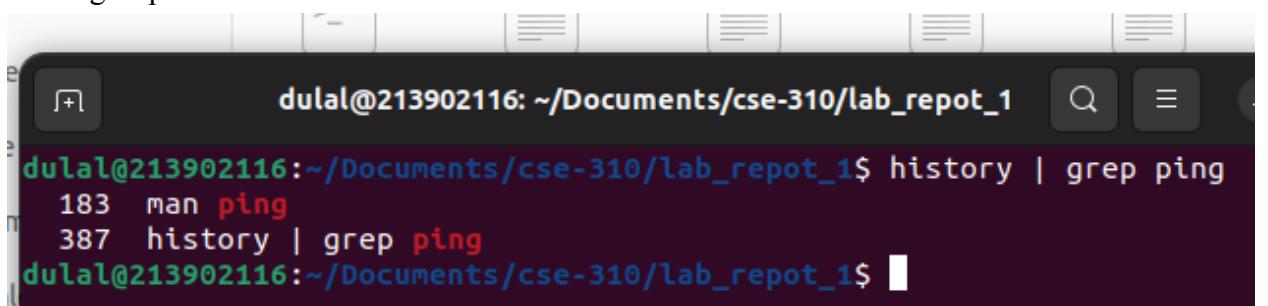
Will show the marked amount of the most recent commands.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ history 7
379 yum update package.rpm
380 clear
381 yum update package
382 clear
383 apt install packagename
384 clear
385 history 7
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

121. history |grep ping :

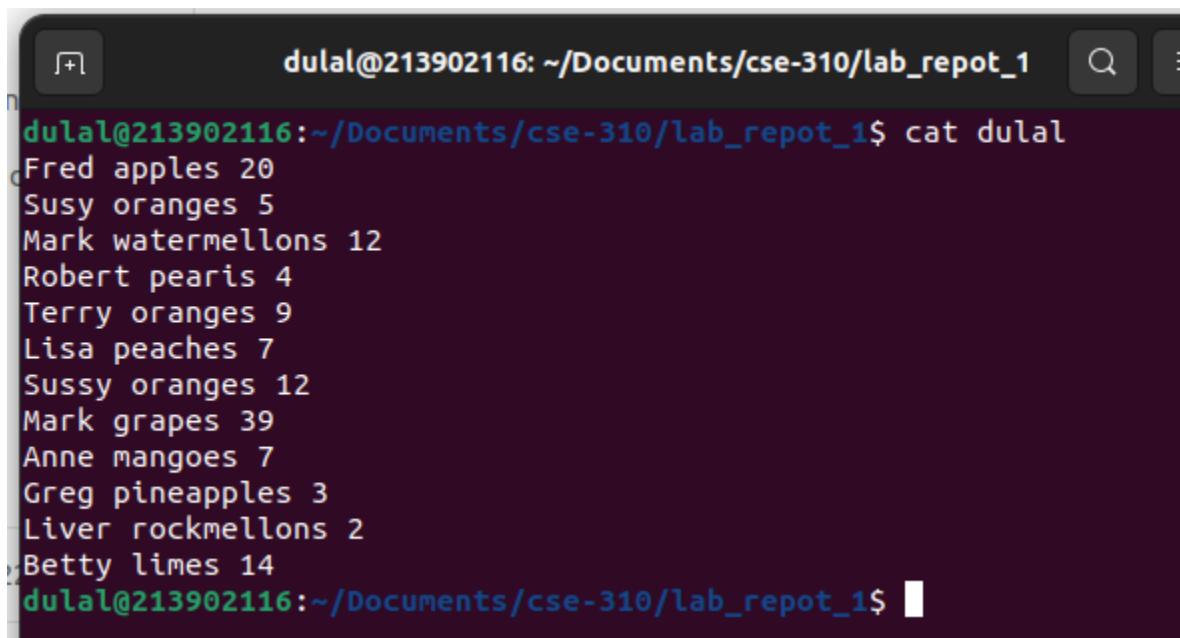
Get the output from history command and piping it as an input to grep command for locating a specific command.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ history | grep ping
183 man ping
387 history | grep ping
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

122. Cat file name :

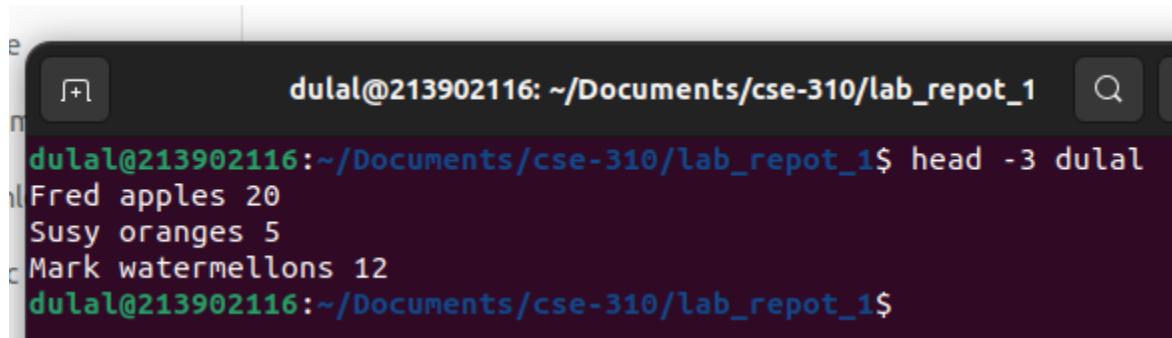
"cat" is a command to display file contents in Linux.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cat dulal
Fred apples 20
Susy oranges 5
Mark watermellons 12
Robert pearis 4
Terry oranges 9
Lisa peaches 7
Sussy oranges 12
Mark grapes 39
Anne mangoes 7
Greg pineapples 3
Liver rockmellons 2
Betty limes 14
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

123. Head -3 filename:

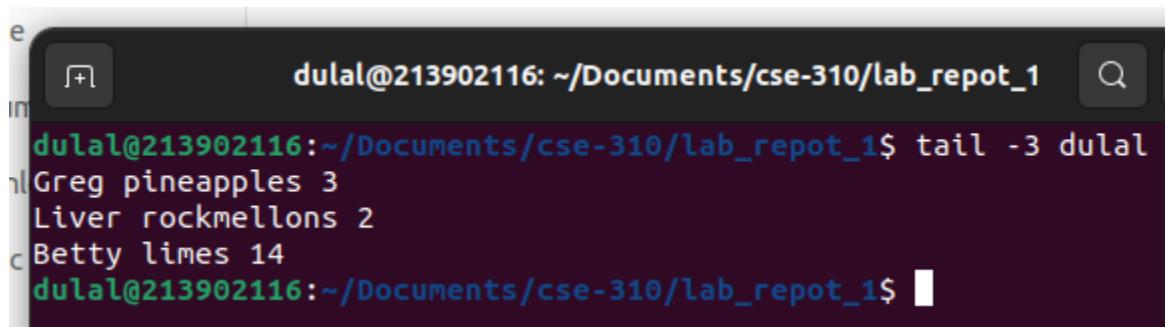
"head -3" displays the first three lines of a file.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ head -3 dulal
nl Fred apples 20
  Susy oranges 5
  Mark watermellons 12
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

124. tail -3 filename :

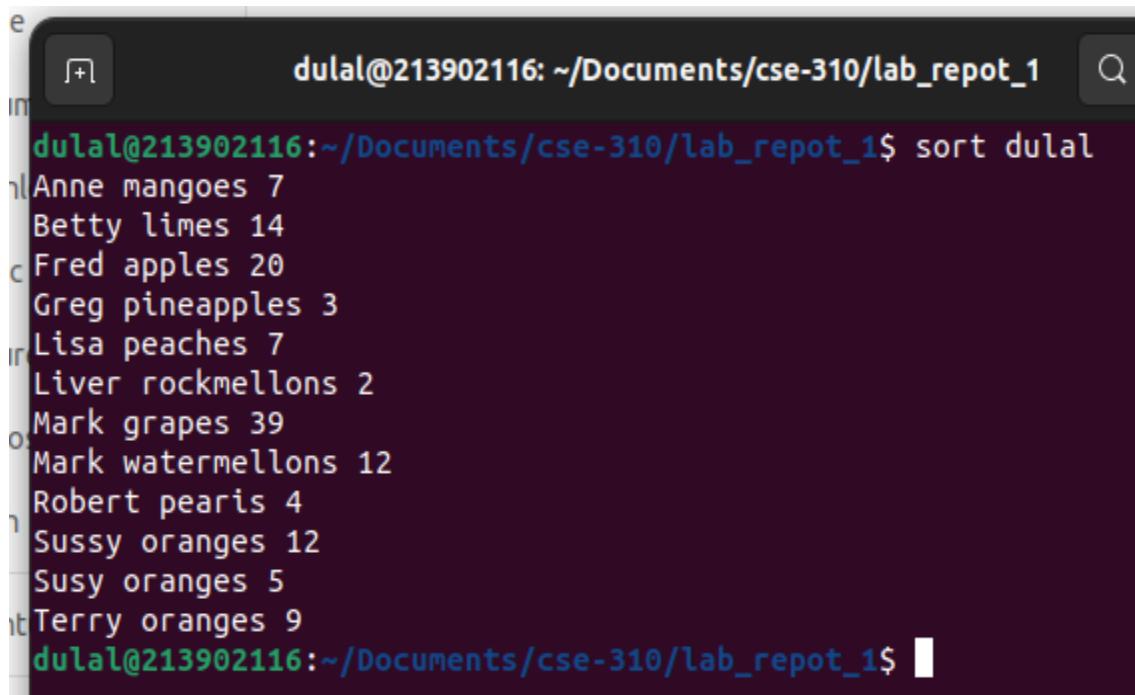
"tail -3" displays the last three lines of a file.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ tail -3 dulal
nl Greg pineapples 3
  Liver rockmellons 2
  Betty limes 14
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

125. Sort filename :

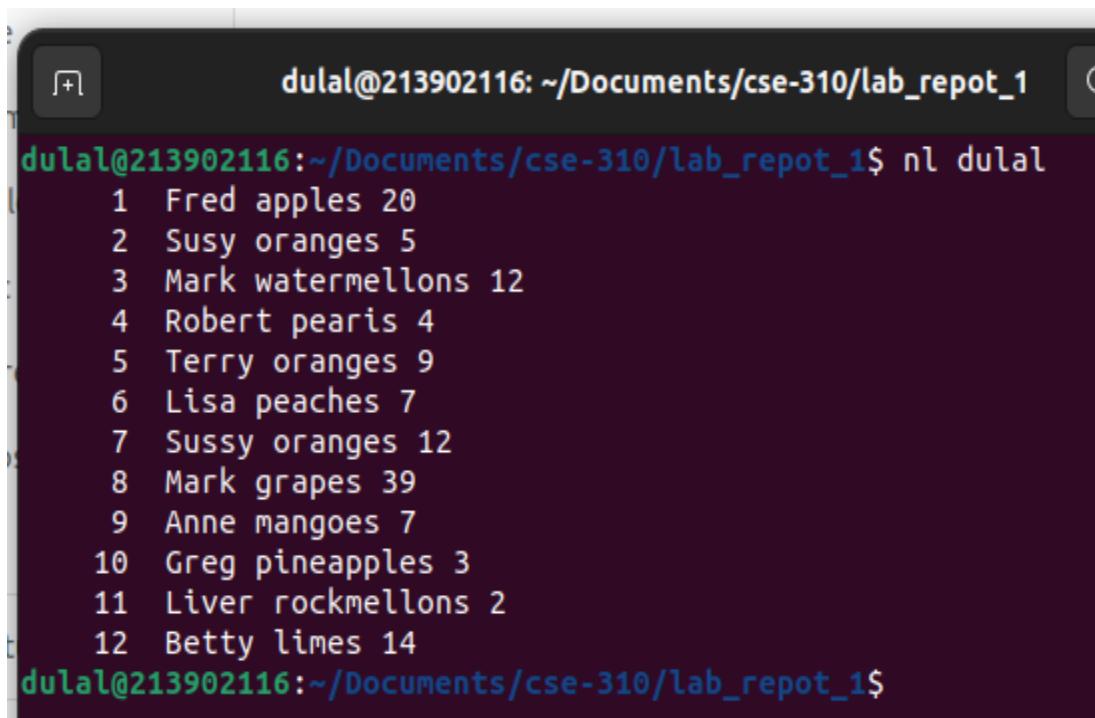
"sort" arranges lines of text files alphabetically or numerically in Linux.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ sort dulal
nl Anne mangoes 7
  Betty limes 14
  Fred apples 20
  Greg pineapples 3
  Lisa peaches 7
  Liver rockmellons 2
  Mark grapes 39
  Mark watermellons 12
  Robert pears 4
  Sussy oranges 12
  Susy oranges 5
  Terry oranges 9
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

126. Nl filename :

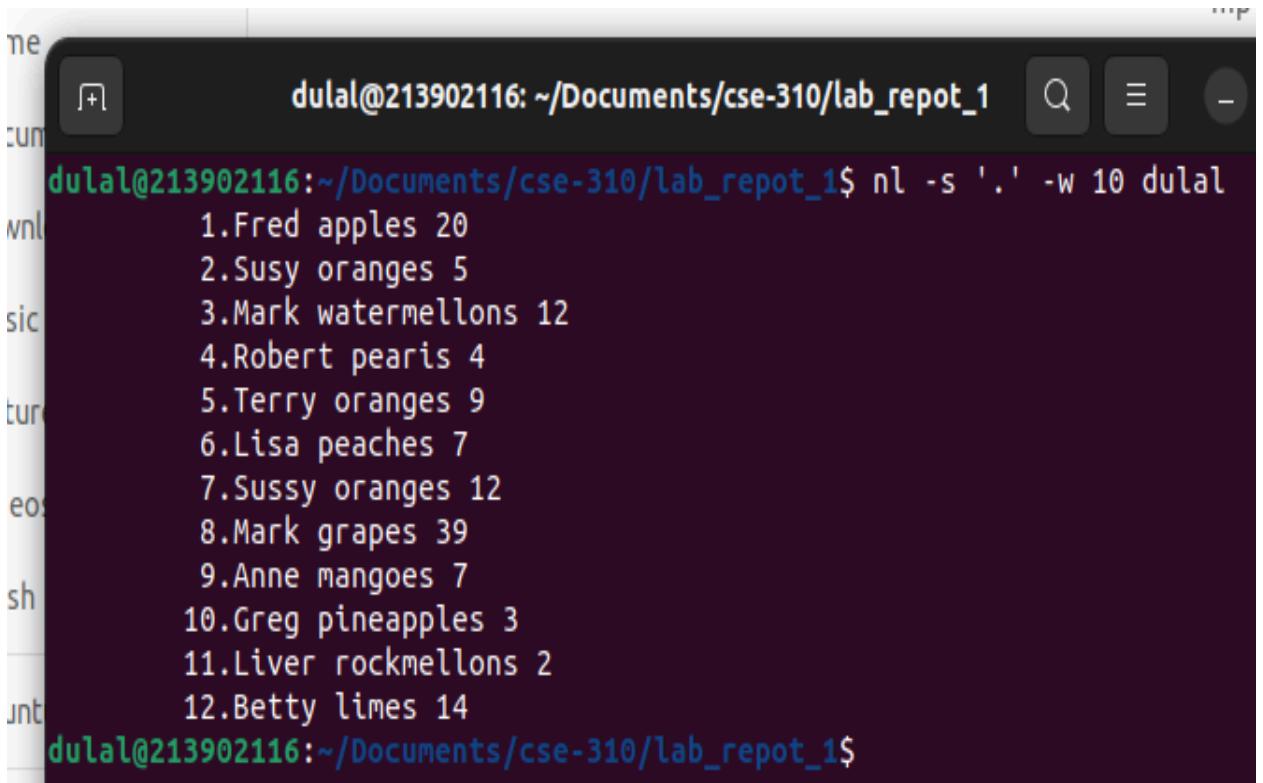
"nl" adds line numbers to files in Linux, aiding readability.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ nl dulal
 1  Fred apples 20
 2  Susy oranges 5
 3  Mark watermellons 12
 4  Robert pearis 4
 5  Terry oranges 9
 6  Lisa peaches 7
 7  Sussy oranges 12
 8  Mark grapes 39
 9  Anne mangoes 7
10  Greg pineapples 3
11  Liver rockmellons 2
12  Betty limes 14
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

127. nl -s '.' -w 10 filename :

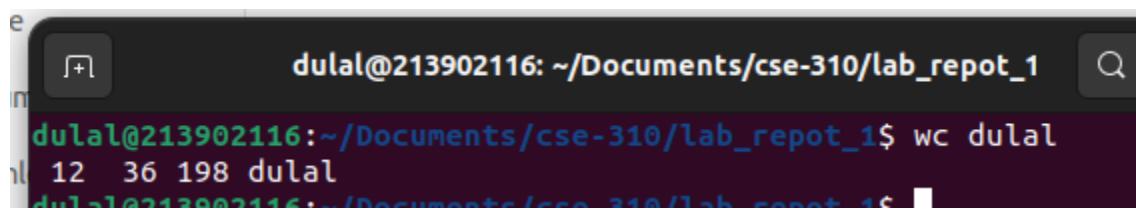
"nl -s '.' -w 10" numbers lines, separates by '.', with width 10.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ nl -s '.' -w 10 dulal
 1.Fred apples 20
 2.Susy oranges 5
 3.Mark watermellons 12
 4.Robert pearis 4
 5.Terry oranges 9
 6.Lisa peaches 7
 7.Sussy oranges 12
 8.Mark grapes 39
 9.Anne mangoes 7
10.Greg pineapples 3
11.Liver rockmellons 2
12.Betty limes 14
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

128. wc filename :

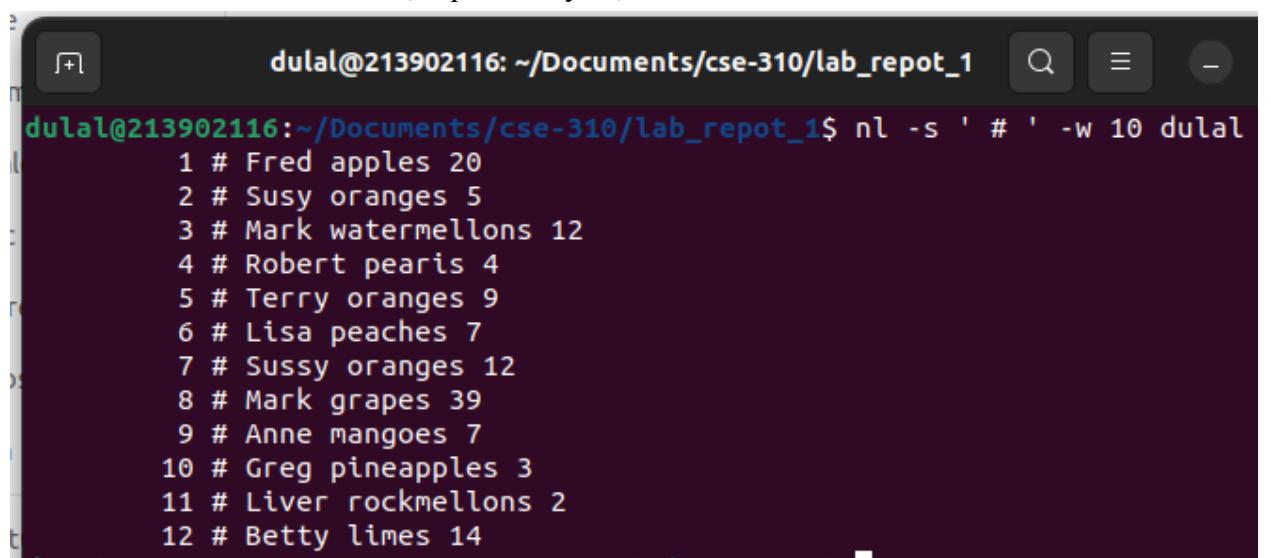
"wc" counts lines, words, and characters in files in Linux.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ wc dulal
dulal 12 36 198 dulal
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

129. nl -s '#' -w 10 filename :

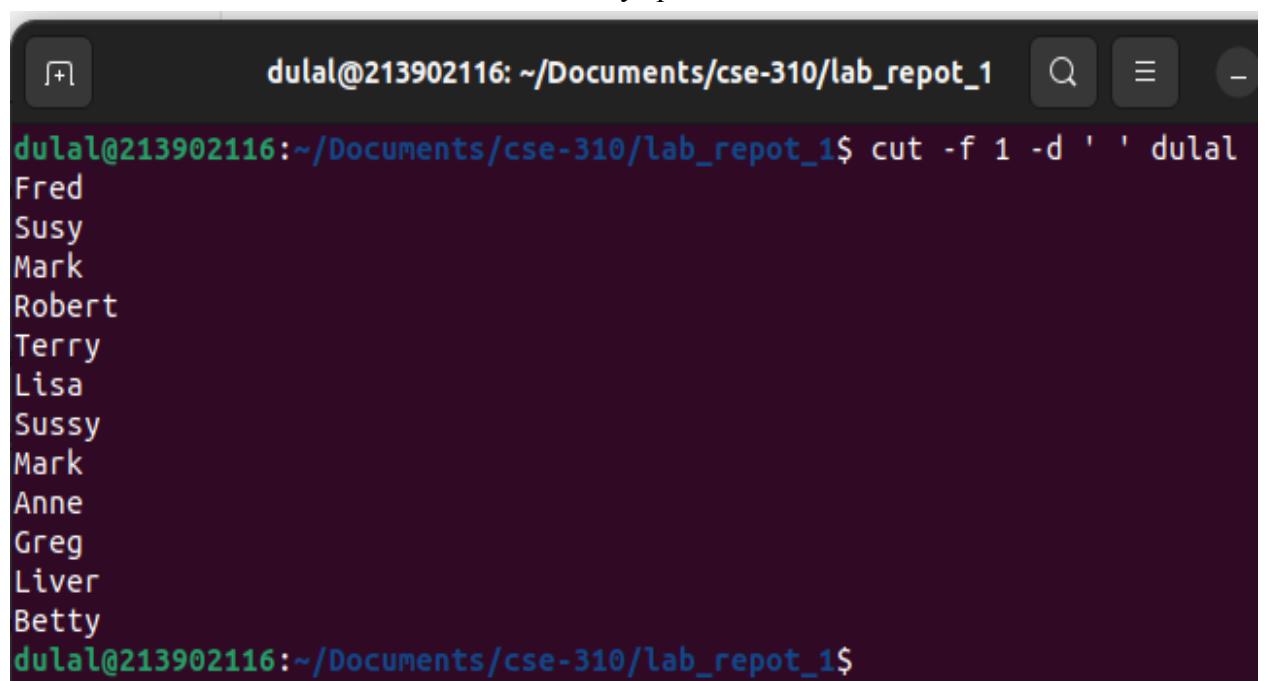
"nl -s '#' -w 10" numbers lines, separates by '#', with width 10.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ nl -s '# ' -w 10 dulal
1 # Fred apples 20
2 # Susy oranges 5
3 # Mark watermellons 12
4 # Robert pearis 4
5 # Terry oranges 9
6 # Lisa peaches 7
7 # Sussy oranges 12
8 # Mark grapes 39
9 # Anne mangoes 7
10 # Greg pineapples 3
11 # Liver rockmellons 2
12 # Betty limes 14
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

130. cut -f 1 -d ' ' filename :

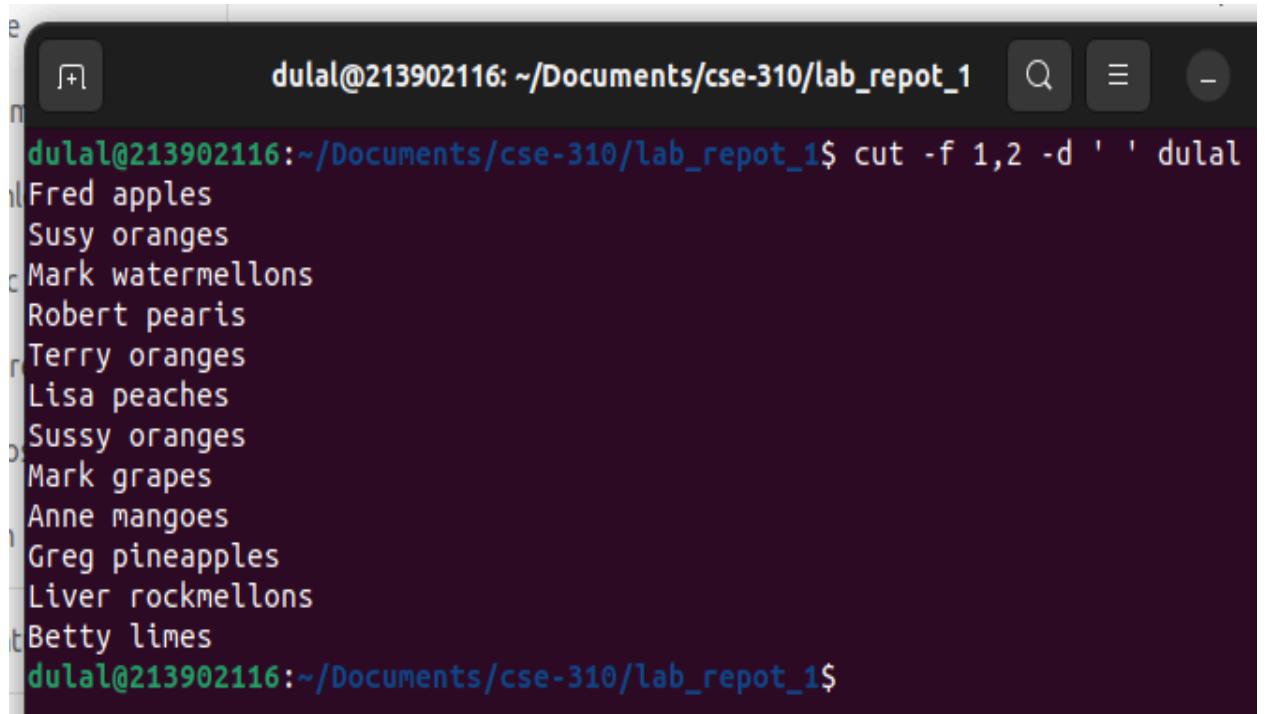
"cut -f 1 -d ' '" extracts the first field delimited by space.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ cut -f 1 -d ' ' dulal
Fred
Susy
Mark
Robert
Terry
Lisa
Sussy
Mark
Anne
Greg
Liver
Betty
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

131. `cut -f 1,2 -d '' filename :`

"`cut -f 1,2 -d ''` extracts the first and second fields delimited by space.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cut -f 1,2 -d '' dulal
Fred apples
Susy oranges
Mark watermellons
Robert pearis
Terry oranges
Lisa peaches
Sussy oranges
Mark grapes
Anne mangoes
Greg pineapples
Liver rockmellons
Betty limes
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

132. `cut -f 1,2,3 -d '' filename :`

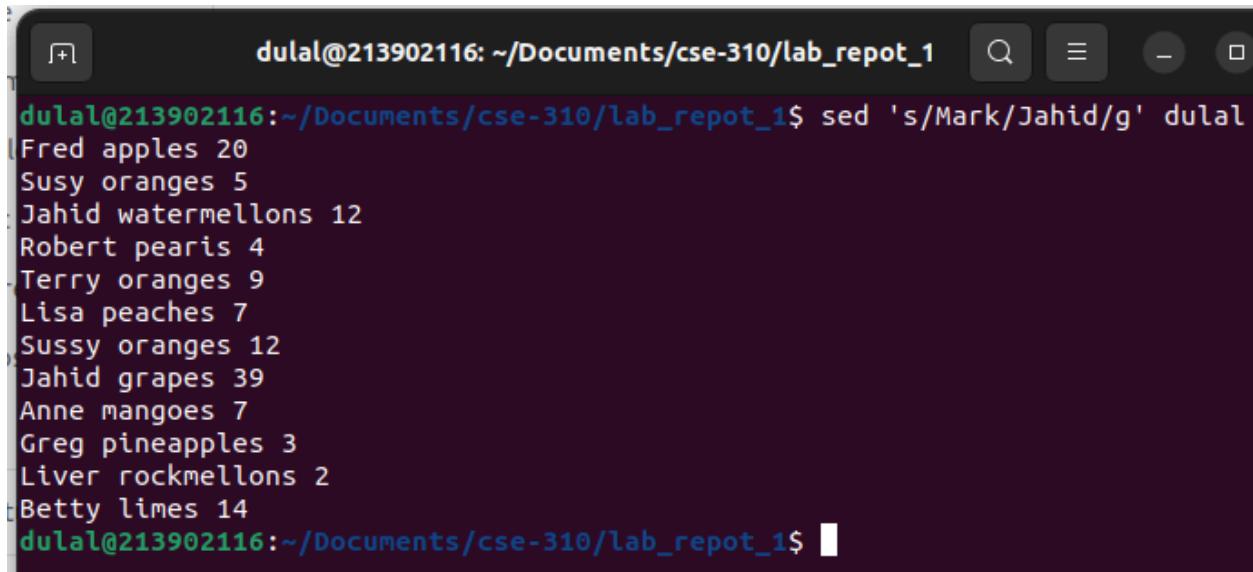
"`cut -f 1,2,3 -d ''` extracts the first three fields delimited by space.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cut -f 1,2,3 -d '' dulal
Fred apples 20
Susy oranges 5
Mark watermellons 12
Robert pearis 4
Terry oranges 9
Lisa peaches 7
Sussy oranges 12
Mark grapes 39
Anne mangoes 7
Greg pineapples 3
Liver rockmellons 2
Betty limes 14
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

133. sed 's/Mark/Jahid/g' filename :

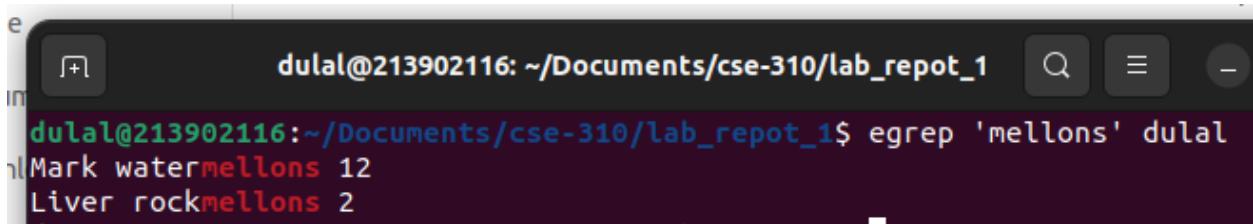
"sed 's/Mark/Jahid/g'" replaces all occurrences of "Mark" with "Jahid".



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ sed 's/Mark/Jahid/g' dulal
Fred apples 20
Susy oranges 5
Jahid watermellons 12
Robert pearis 4
Terry oranges 9
Lisa peaches 7
Sussy oranges 12
Jahid grapes 39
Anne mangoes 7
Greg pineapples 3
Liver rockmellons 2
Betty limes 14
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

134. egrep 'mellons' filename :

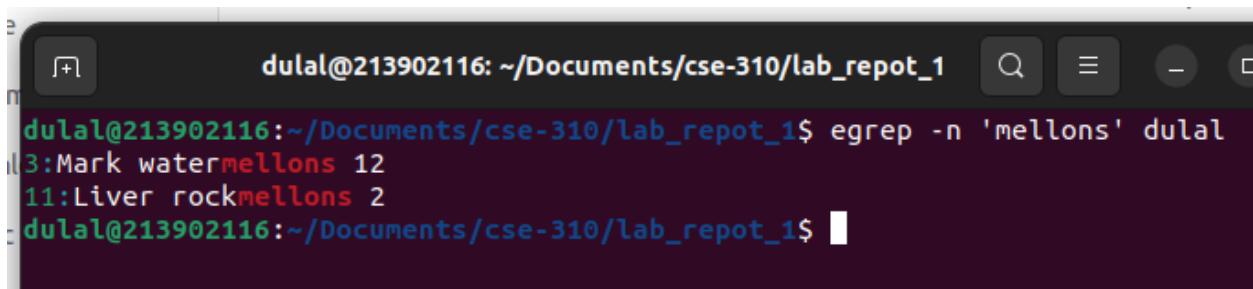
"egrep 'mellons'" searches for the term "mellons" in files using extended regular expressions.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ egrep 'mellons' dulal
Mark watermellons 12
Liver rockmellons 2
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

135. egrep -n 'mellons' filename :

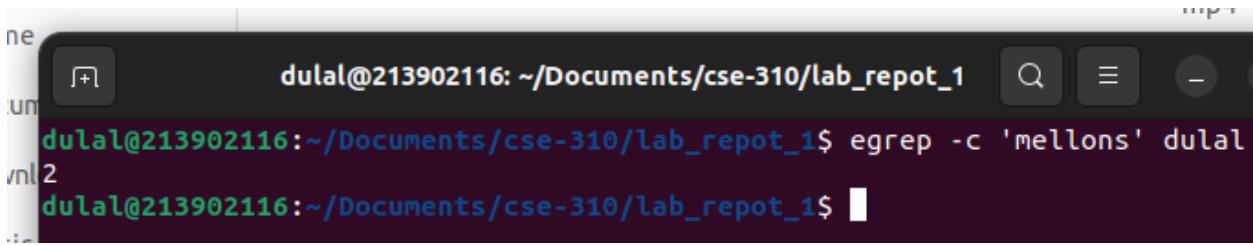
"egrep -n 'mellons'" searches for "mellons" with line numbers.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ egrep -n 'mellons' dulal
3:Mark watermellons 12
11:Liver rockmellons 2
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

136. egrep -c 'mellons' filename :

"egrep -c 'mellons'" counts the occurrences of "mellons" in files.

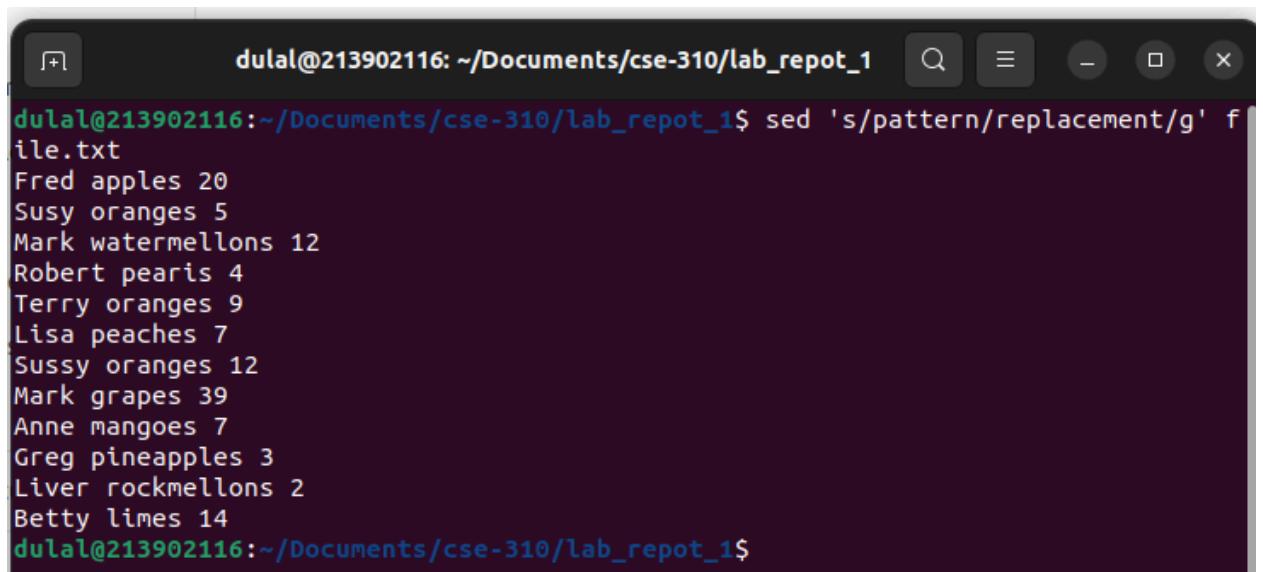


```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ egrep -c 'mellons' dulal
2
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

137. sed 's/pattern/replacement/g' file.txt :

Stream editor for filtering and transforming text.

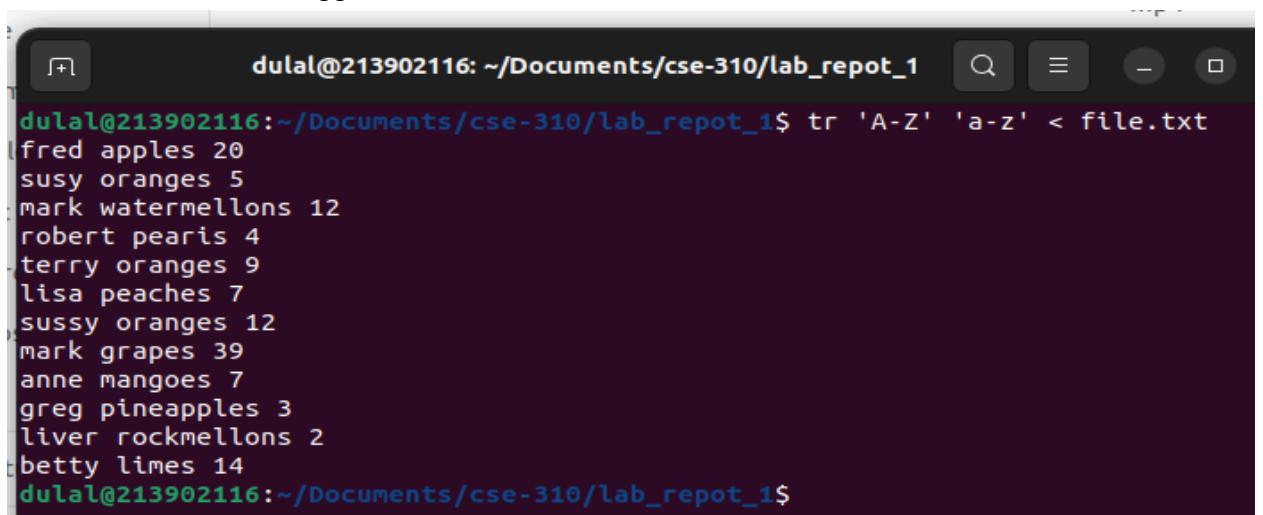
"sed 's/pattern/replacement/g'" substitutes "pattern" with "replacement" globally



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ sed 's/pattern/replacement/g' file.txt
Fred apples 20
Susy oranges 5
Mark watermellons 12
Robert pearis 4
Terry oranges 9
Lisa peaches 7
Sussy oranges 12
Mark grapes 39
Anne mangoes 7
Greg pineapples 3
Liver rockmellons 2
Betty limes 14
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

138. tr 'A-Z' 'a-z' < file.txt :

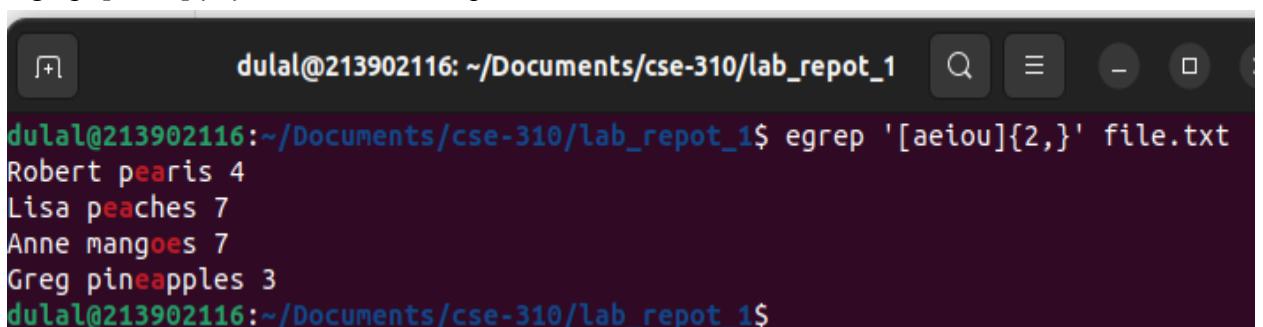
"tr 'A-Z' 'a-z'" converts uppercase letters to lowercase in Linux.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ tr 'A-Z' 'a-z' < file.txt
fred apples 20
susy oranges 5
mark watermellons 12
robert pearis 4
terry oranges 9
lisa peaches 7
sussy oranges 12
mark grapes 39
anne mangoes 7
greg pineapples 3
liver rockmellons 2
betty limes 14
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

139. egrep '[aeiou]{2,}' file.txt :

"egrep '[aeiou]{2,}'" searches for sequences of two or more vowels.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ egrep '[aeiou]{2,}' file.txt
Robert pearis 4
Lisa peaches 7
Anne mangoes 7
Greg pineapples 3
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

140. egrep '2.+' file.txt :

"egrep '2.+'" searches for lines containing '2' followed by one or more characters.

```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ egrep '2.+' file.txt
Fred apples 20
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

141. egrep '2\$' file.txt :

"egrep '2\$'" searches for lines ending with the character '2'.

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ egrep '2$' file.txt
Mark watermellons 12
Sussy oranges 12
Liver rockmellons 2
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

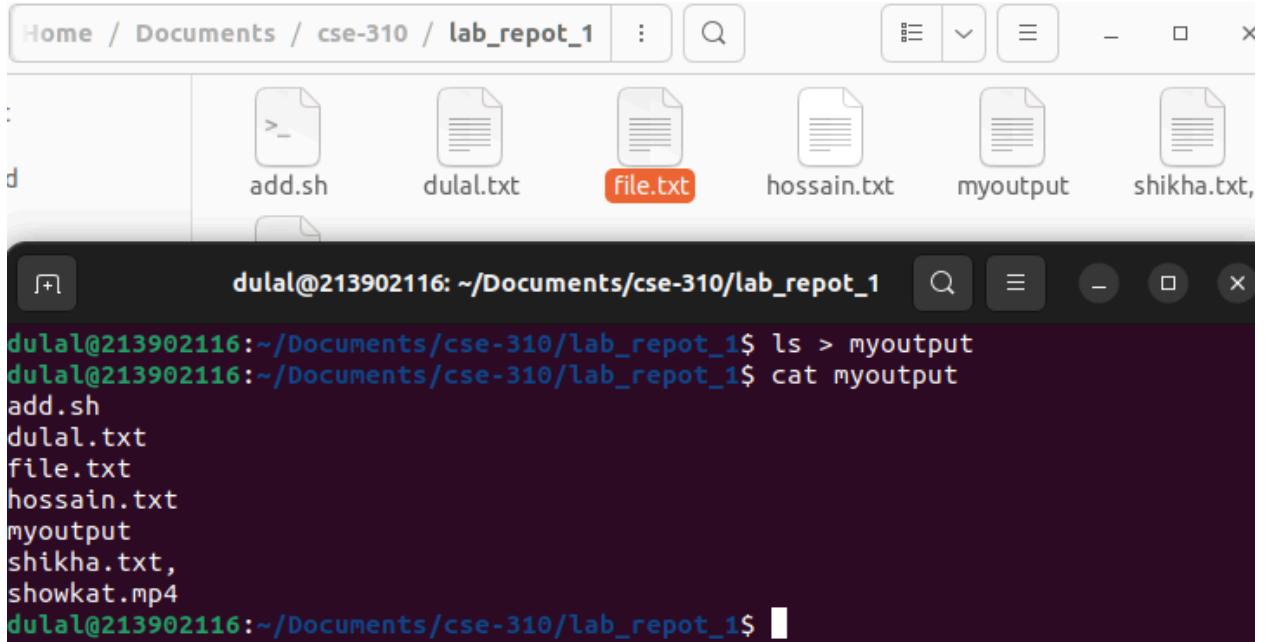
142. egrep 'or|is|go' file.txt :

"egrep 'or|is|go'" searches for lines containing "or", "is", or "go".

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ egrep 'or|is|go' file.txt
Susy oranges 5
Robert pears 4
Terry oranges 9
Lisa peaches 7
Sussy oranges 12
Anne mangoes 7
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

143. ls > myoutput & cat myoutput :

The command "ls > myoutput & cat myoutput" lists files in the directory, redirects the output to "myoutput", then displays the contents of "myoutput".

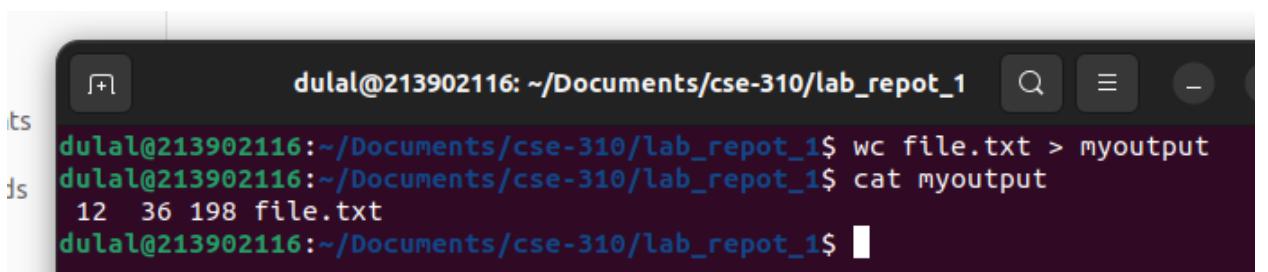


A screenshot of a macOS desktop environment. At the top, there's a file browser window titled 'Home / Documents / cse-310 / lab_repot_1'. Inside the browser, several files are listed: add.sh, dulal.txt, file.txt (which is highlighted in red), hossain.txt, myoutput, and shikha.txt. Below the browser is a terminal window with a dark background and light-colored text. The terminal shows the following command sequence:

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ ls > myoutput
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cat myoutput
add.sh
dulal.txt
file.txt
hossain.txt
myoutput
shikha.txt,
showkat.mp4
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

144. wc file.txt > myoutput & :

The command "wc file.txt > myoutput" counts the lines, words, and characters in "file.txt" and saves the output to "myoutput".

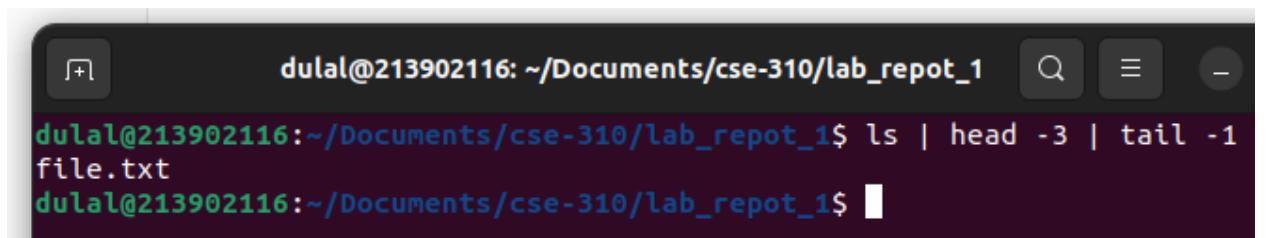


A screenshot of a macOS desktop environment showing a terminal window. The terminal has a dark background and light-colored text. It displays the following command sequence:

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ wc file.txt > myoutput
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cat myoutput
12 36 198 file.txt
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

145. ls | head -3 | tail -1 :

The command "ls | head -3 | tail -1" lists files, takes the first three, and extracts the third.

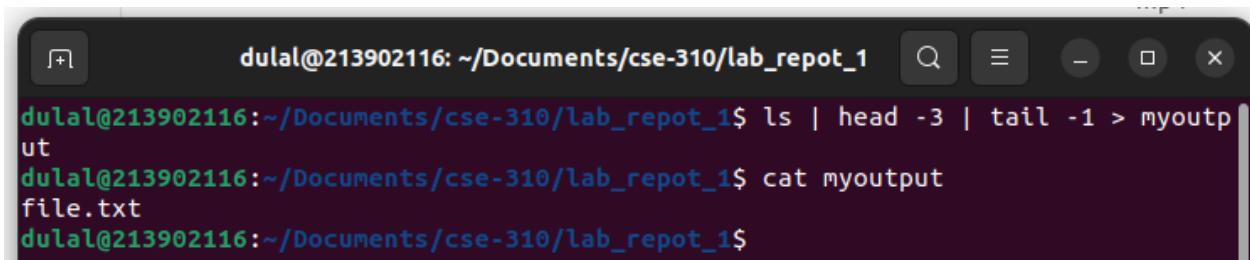


A screenshot of a macOS desktop environment showing a terminal window. The terminal has a dark background and light-colored text. It displays the following command sequence:

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ ls | head -3 | tail -1
file.txt
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

146. ls | head -3 | tail -1 > myoutput :

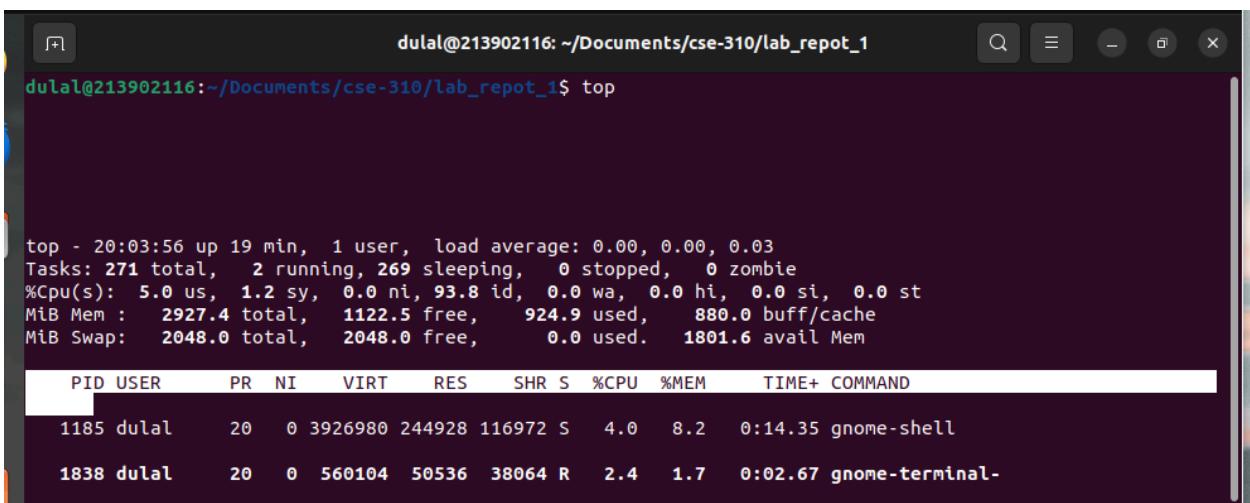
The command "ls | head -3 | tail -1 > myoutput" lists files, takes the first three, extracts the third, and saves it to "myoutput".



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1
dulal@213902116:~/Documents/cse-310/lab_repot_1$ ls | head -3 | tail -1 > myoutput
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cat myoutput
file.txt
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

147. top :

"top" displays real-time system information, including processes and resource usage, in Linux.



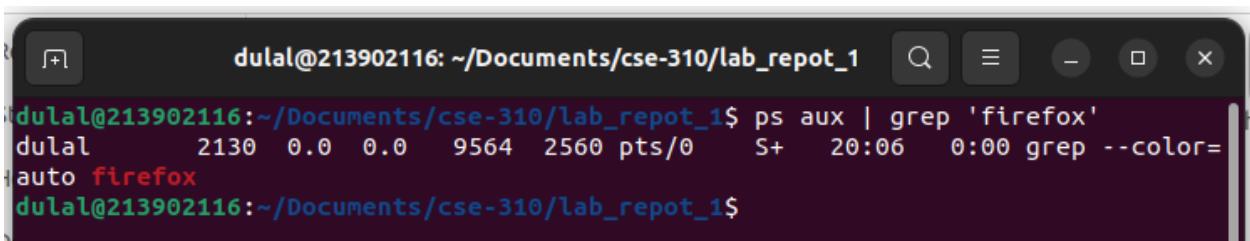
```
dulal@213902116: ~/Documents/cse-310/lab_repot_1
dulal@213902116:~/Documents/cse-310/lab_repot_1$ top

top - 20:03:56 up 19 min,  1 user,  load average: 0.00, 0.00, 0.03
Tasks: 271 total,   2 running, 269 sleeping,   0 stopped,   0 zombie
%CPU(s):  5.0 us,  1.2 sy,  0.0 ni, 93.8 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
Mib Mem :  2927.4 total,   1122.5 free,    924.9 used,    880.0 buff/cache
Mib Swap:  2048.0 total,   2048.0 free,      0.0 used.  1801.6 avail Mem

      PID USER      PR  NI      VIRT      RES      SHR S %CPU %MEM     TIME+ COMMAND
  1185 dulal      20   0 3926980  244928 116972 S    4.0   8.2    0:14.35 gnome-shell
  1838 dulal      20   0  560104   50536  38064 R    2.4   1.7    0:02.67 gnome-terminal-
```

148. ps aux | grep 'firefox' :

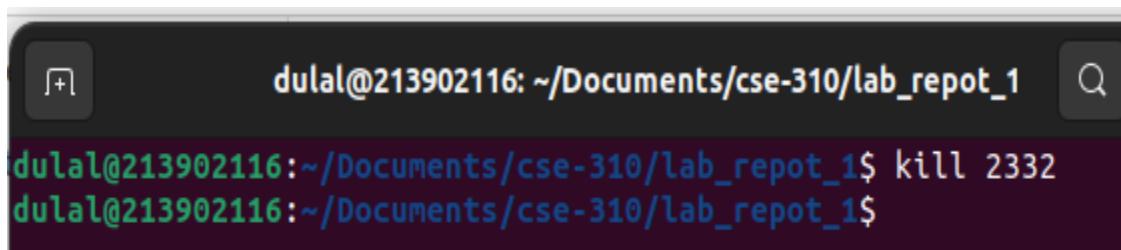
"ps aux | grep 'firefox'" lists processes related to Firefox using the 'grep' command.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1
dulal@213902116:~/Documents/cse-310/lab_repot_1$ ps aux | grep 'firefox'
dulal      2130  0.0  0.0    9564   2560 pts/0    S+   20:06    0:00 grep --color=auto firefox
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

149. kill :

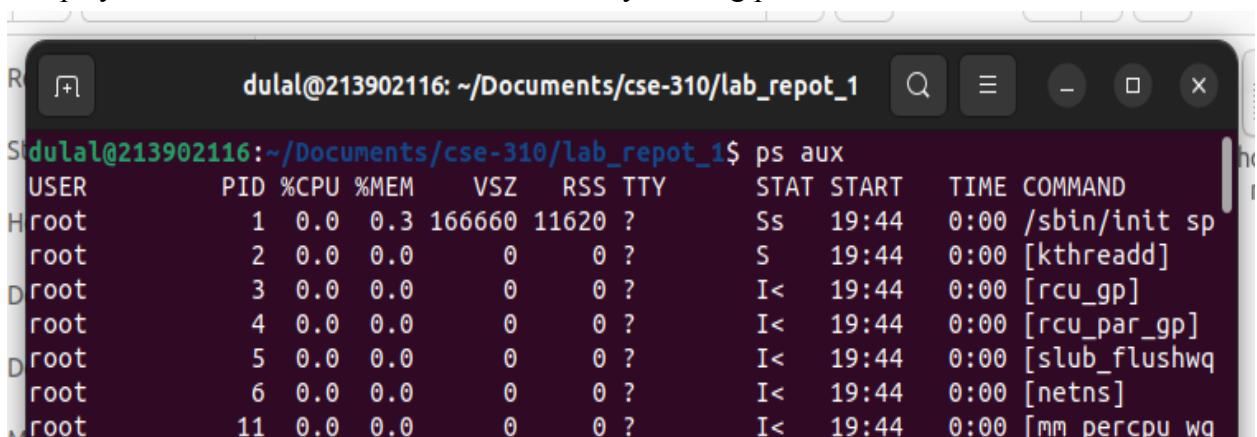
"kill" terminates processes in Linux, allowing users to end running programs or commands.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ kill 2332
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

150. Ps aux :

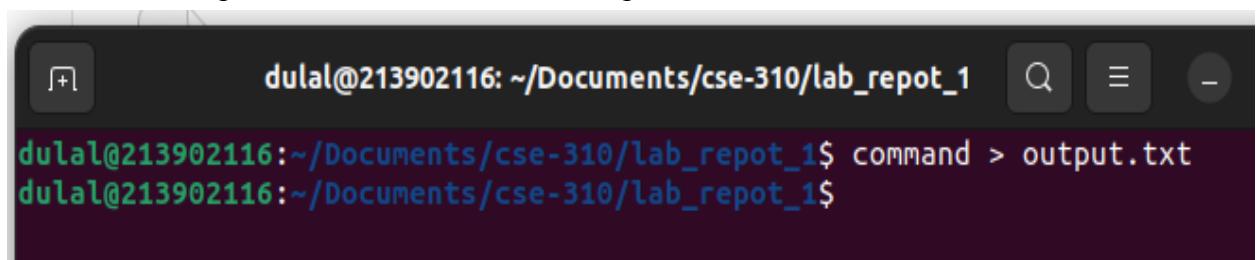
"Displays detailed information about all currently running processes."



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ ps aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START  TIME COMMAND
root        1  0.0  0.3 166660 11620 ?        Ss   19:44  0:00 /sbin/init sp
root        2  0.0  0.0      0     0 ?        S    19:44  0:00 [kthreadd]
root        3  0.0  0.0      0     0 ?        I<  19:44  0:00 [rcu_gp]
root        4  0.0  0.0      0     0 ?        I<  19:44  0:00 [rcu_par_gp]
root        5  0.0  0.0      0     0 ?        I<  19:44  0:00 [slub_flushwq]
root        6  0.0  0.0      0     0 ?        I<  19:44  0:00 [netns]
root       11  0.0  0.0      0     0 ?        I<  19:44  0:00 [mm_percpu_wq]
```

151. command > output.txt :

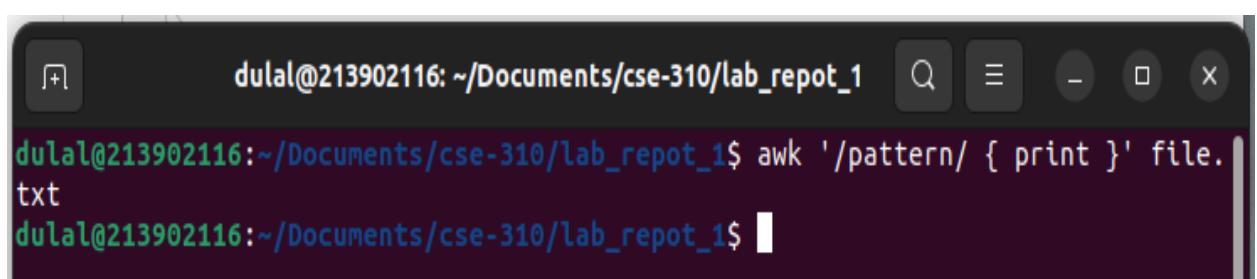
Redirects the output of "command" to a file "output.txt".



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ command > output.txt
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

152. Awk '/pattern/ { print }' :

Substitutes "pattern" with "replacement" globally in "file.txt"



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ awk '/pattern/ { print }' file.txt
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

153. lscpu :

See CPU information.

```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ lscpu
Architecture:           x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         45 bits physical, 48 bits virtual
Byte Order:            Little Endian
CPU(s):                1
On-line CPU(s) list:  0
Vendor ID:             GenuineIntel
Model name:            Intel(R) Core(TM) i3-10105 CPU @ 3.70GHz
CPU family:            6
Model:                 165
Thread(s) per core:   1
Core(s) per socket:   1
Socket(s):            1
Stepping:              3
```

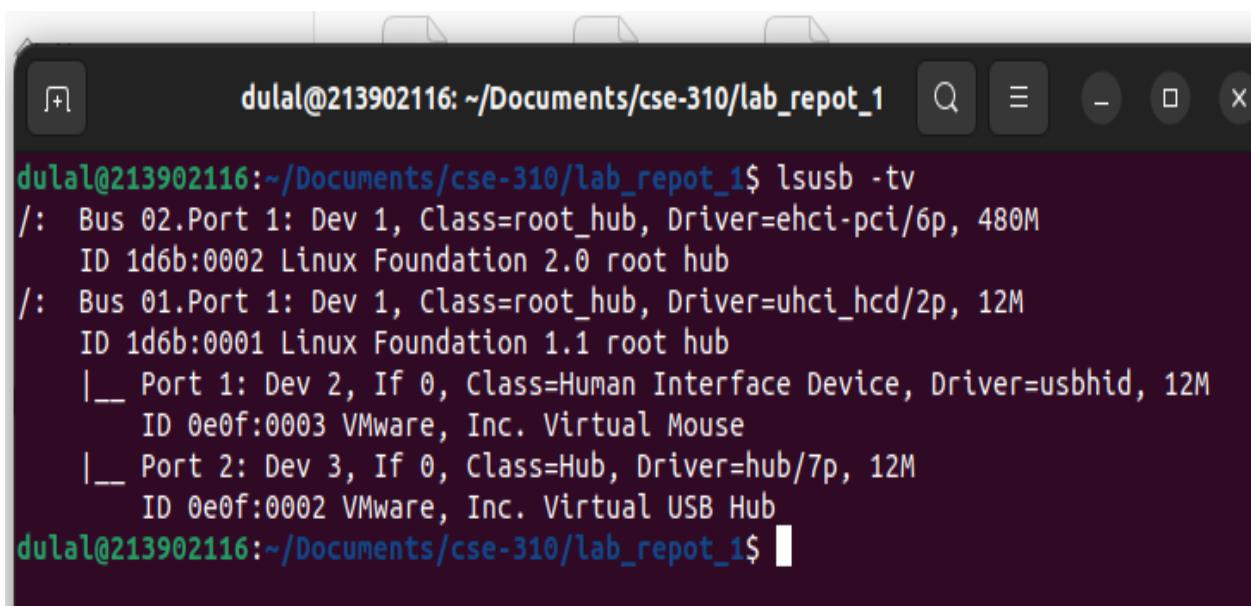
154. lsblk :

See information about block devices.

```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ lsblk
NAME   MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
loop0    7:0    0     4K  1 loop /snap/bare/5
loop1    7:1    0   62M  1 loop /snap/core20/1587
loop2    7:2    0  63.9M  1 loop /snap/core20/2182
loop3    7:3    0 267.5M  1 loop /snap/firefox/3941
loop4    7:4    0 266.6M  1 loop /snap/firefox/3836
loop5    7:5    0  74.2M  1 loop /snap/core22/1122
loop6    7:6    0 349.7M  1 loop /snap/gnome-3-38-2004/143
loop7    7:7    0 400.8M  1 loop /snap/gnome-3-38-2004/112
loop8    7:8    0  497M  1 loop /snap/gnome-42-2204/141
loop9    7:9    0  91.7M  1 loop /snap/gtk-common-themes/1535
loop10   7:10   0 45.9M  1 loop /snap/snap-store/582
loop11   7:11   0 12.3M  1 loop /snap/snap-store/959
loop12   7:12   0 40.4M  1 loop /snap/snapd/20671
loop13   7:13   0 39.1M  1 loop /snap/snapd/21184
loop14   7:14   0   284K  1 loop /snap/snapd-desktop-integration/14
loop15   7:15   0   452K  1 loop /snap/snapd-desktop-integration/83
sda      8:0    0   100G  0 disk 
└─sda1   8:1    0     1M  0 part 
└─sda2   8:2    0   513M  0 part /boot/efi
└─sda3   8:3    0  99.5G  0 part /var/snap/firefox/common/host-hunspell
                           /
sr0     11:0   1   3.6G  0 rom  /media/dulal/Ubuntu 22.04.1 LTS amd64
```

155. lsusb -tv :

Display USB devices in a tree-like diagram.

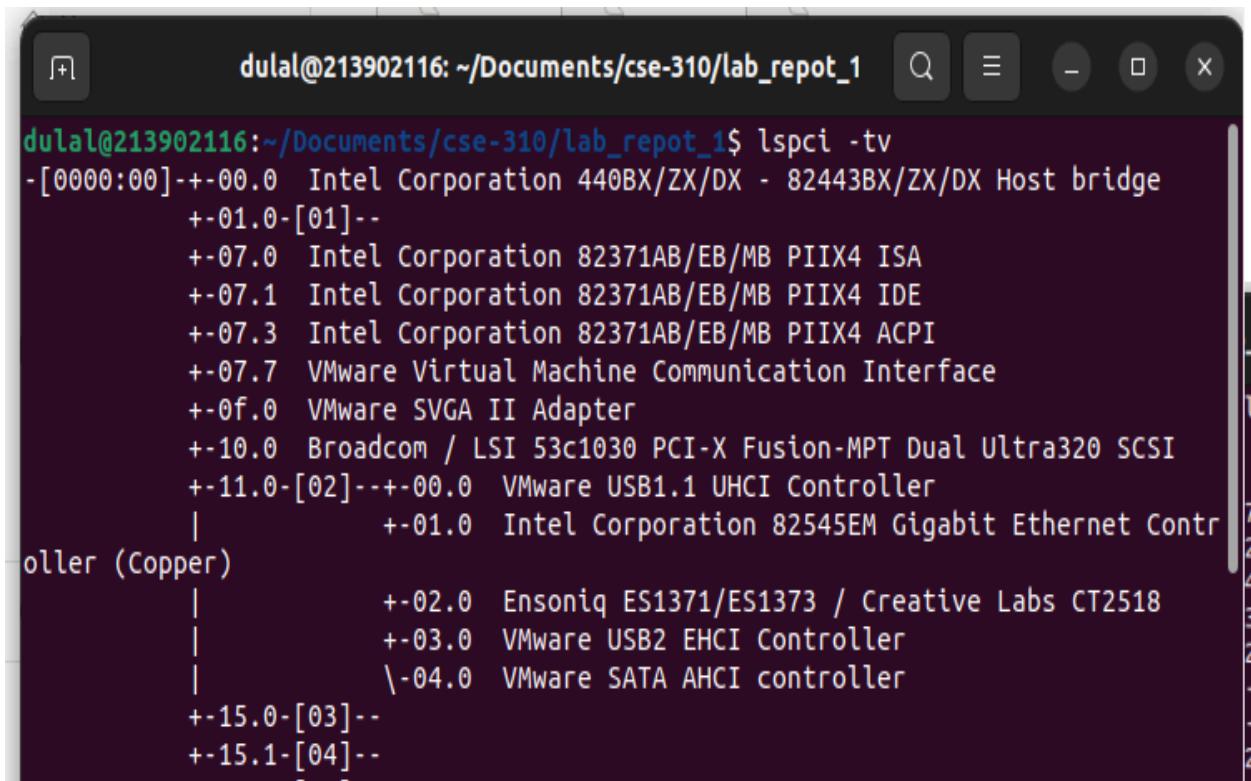


A terminal window titled "dulal@213902116: ~/Documents/cse-310/lab_repot_1". The command "lsusb -tv" is run, displaying a tree structure of USB devices. The root hub is a Linux Foundation 2.0 root hub (ID 1d6b:0002) under Bus 02. Port 1. It has two child hubs: a Linux Foundation 1.1 root hub (ID 1d6b:0001) under Bus 01, Port 1, and a VMware, Inc. Virtual Mouse (ID 0e0f:0003) under Bus 01, Port 2. The VMware mouse is a Human Interface Device (ID 0e0f:0003). The VMware USB Hub (ID 0e0f:0002) under Bus 01, Port 2, is a Hub (ID 0e0f:0002).

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ lsusb -tv
/: Bus 02.Port 1: Dev 1, Class=root_hub, Driver=ehci-pci/6p, 480M
  ID 1d6b:0002 Linux Foundation 2.0 root hub
/: Bus 01.Port 1: Dev 1, Class=root_hub, Driver=uhci_hcd/2p, 12M
  ID 1d6b:0001 Linux Foundation 1.1 root hub
    |__ Port 1: Dev 2, If 0, Class=Human Interface Device, Driver=usbhid, 12M
      ID 0e0f:0003 VMware, Inc. Virtual Mouse
    |__ Port 2: Dev 3, If 0, Class=Hub, Driver=hub/7p, 12M
      ID 0e0f:0002 VMware, Inc. Virtual USB Hub
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

156. lspci -tv :

Show PCI devices (graphics card, network card, etc.) in a tree-like diagram.

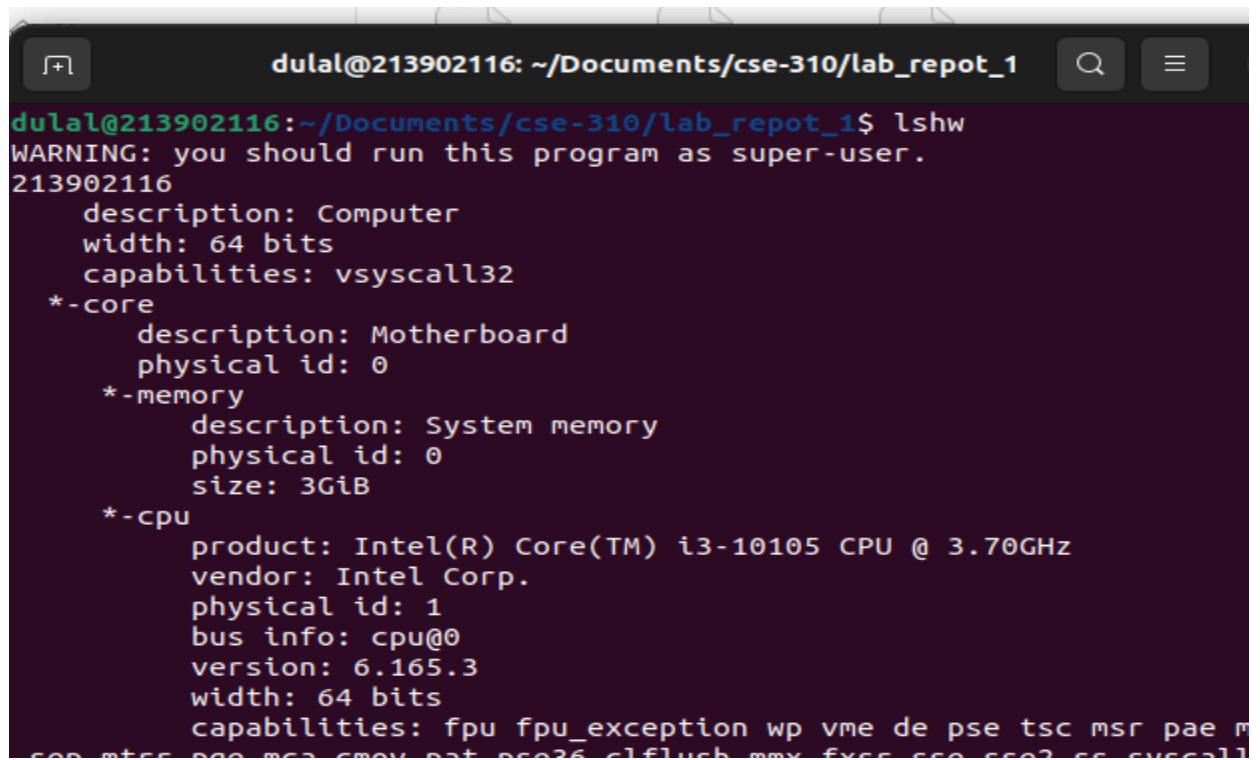


A terminal window titled "dulal@213902116: ~/Documents/cse-310/lab_repot_1". The command "lspci -tv" is run, displaying a tree structure of PCI devices. The root bridge is an Intel Corporation 440BX/ZX/DX - 82443BX/ZX/DX Host bridge (ID 0000:00). It has several child cards, including an Intel Corporation 82371AB/EB/MB PIIX4 ISA (ID 010.0), an Intel Corporation 82371AB/EB/MB PIIX4 IDE (ID 07.1), an Intel Corporation 82371AB/EB/MB PIIX4 ACPI (ID 07.3), a VMware Virtual Machine Communication Interface (ID 07.7), a VMware SVGA II Adapter (ID 0f.0), a Broadcom / LSI 53c1030 PCI-X Fusion-MPT Dual Ultra320 SCSI (ID 10.0), a VMware USB1.1 UHCI Controller (ID 11.0), and an Intel Corporation 82545EM Gigabit Ethernet Controller (ID 01.0). The VMware USB1.1 UHCI Controller (ID 11.0) has three child controllers: an Ensoniq ES1371/ES1373 / Creative Labs CT2518 (ID 02.0), a VMware USB2 EHCI Controller (ID 03.0), and a VMware SATA AHCI controller (ID 04.0). There are also entries for Intel Corporation 82545EM Gigabit Ethernet Controller (ID 15.0) and VMware SATA AHCI controller (ID 15.1).

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ lspci -tv
-[0000:00]-+00.0 Intel Corporation 440BX/ZX/DX - 82443BX/ZX/DX Host bridge
  +-01.0-[01]--
    +-07.0 Intel Corporation 82371AB/EB/MB PIIX4 ISA
    +-07.1 Intel Corporation 82371AB/EB/MB PIIX4 IDE
    +-07.3 Intel Corporation 82371AB/EB/MB PIIX4 ACPI
    +-07.7 VMware Virtual Machine Communication Interface
    +-0f.0 VMware SVGA II Adapter
    +-10.0 Broadcom / LSI 53c1030 PCI-X Fusion-MPT Dual Ultra320 SCSI
    +-11.0-[02]---+00.0 VMware USB1.1 UHCI Controller
      |           +-01.0 Intel Corporation 82545EM Gigabit Ethernet Contr
      |           oller (Copper)
      |           |
      |           +-02.0 Ensoniq ES1371/ES1373 / Creative Labs CT2518
      |           |
      |           +-03.0 VMware USB2 EHCI Controller
      |           |
      |           \-04.0 VMware SATA AHCI controller
    +-15.0-[03]--
    +-15.1-[04]--
```

157. lshw :

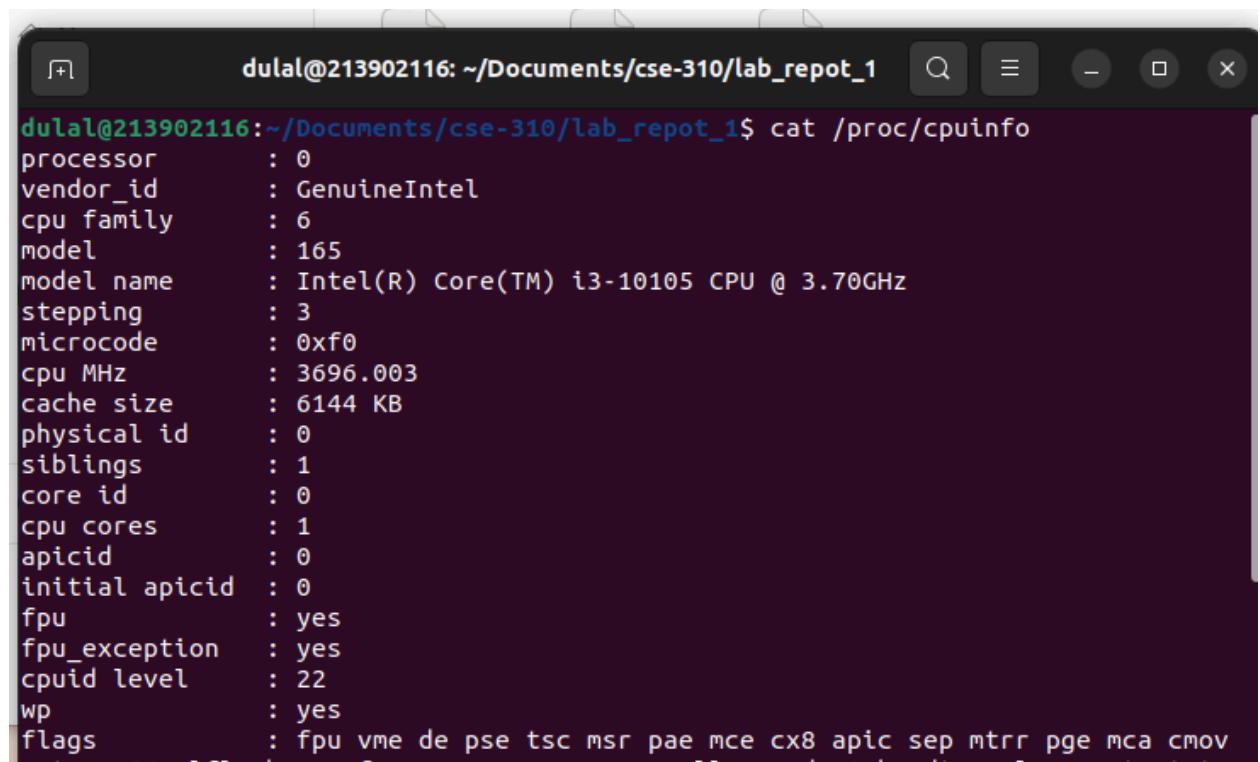
List hardware configuration information.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ lshw
WARNING: you should run this program as super-user.
213902116
      description: Computer
      width: 64 bits
      capabilities: vsyscall32
*-core
      description: Motherboard
      physical id: 0
      *-memory
          description: System memory
          physical id: 0
          size: 3GiB
      *-cpu
          product: Intel(R) Core(TM) i3-10105 CPU @ 3.70GHz
          vendor: Intel Corp.
          physical id: 1
          bus info: cpu@0
          version: 6.165.3
          width: 64 bits
          capabilities: fpu fpu_exception wp vme de pse tsc msr pae m
          flags: acpi cpufreq mca cmov pat pge36 clflush mmx fxsr sse sse2 ss sse3 sse41
```

158. cat /proc/cpuinfo :

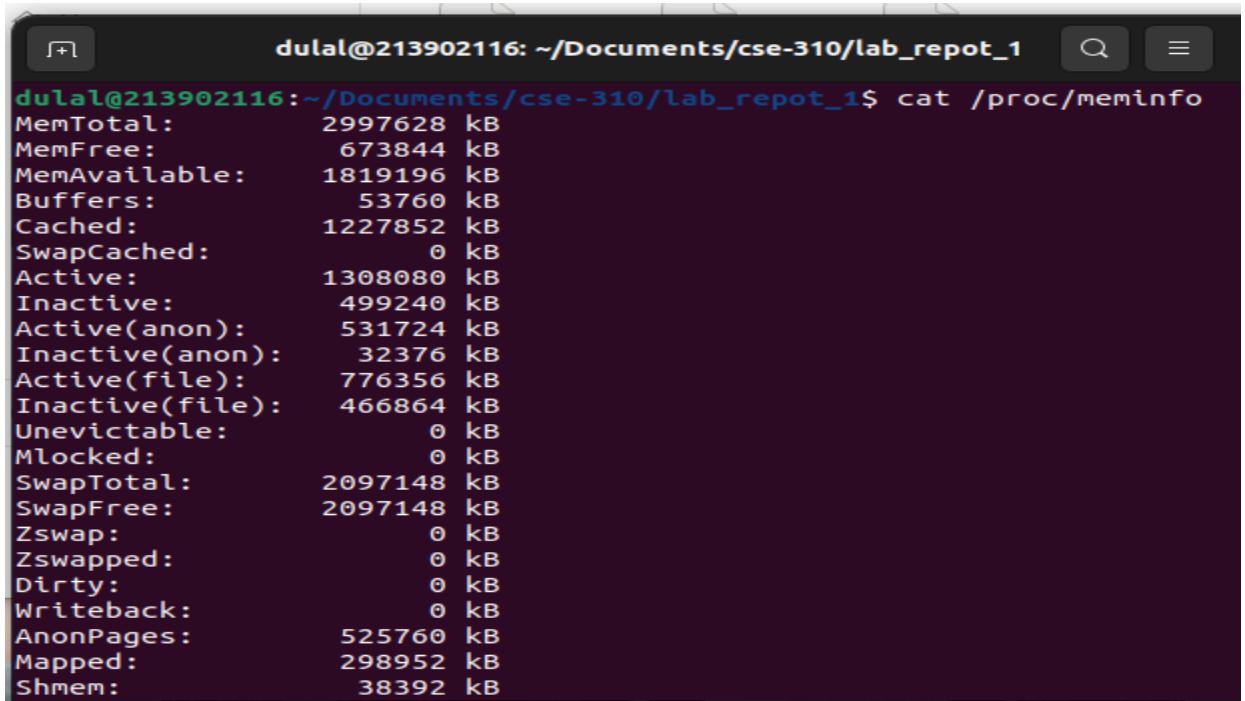
Show detailed CPU information.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ cat /proc/cpuinfo
processor       : 0
vendor_id      : GenuineIntel
cpu family     : 6
model          : 165
model name     : Intel(R) Core(TM) i3-10105 CPU @ 3.70GHz
stepping        : 3
microcode      : 0xf0
cpu MHz        : 3696.003
cache size     : 6144 KB
physical id    : 0
siblings        : 1
core id         : 0
cpu cores      : 1
apicid          : 0
initial apicid : 0
fpu             : yes
fpu_exception   : yes
cpuid level    : 22
wp              : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
```

159. cat /proc/meminfo :

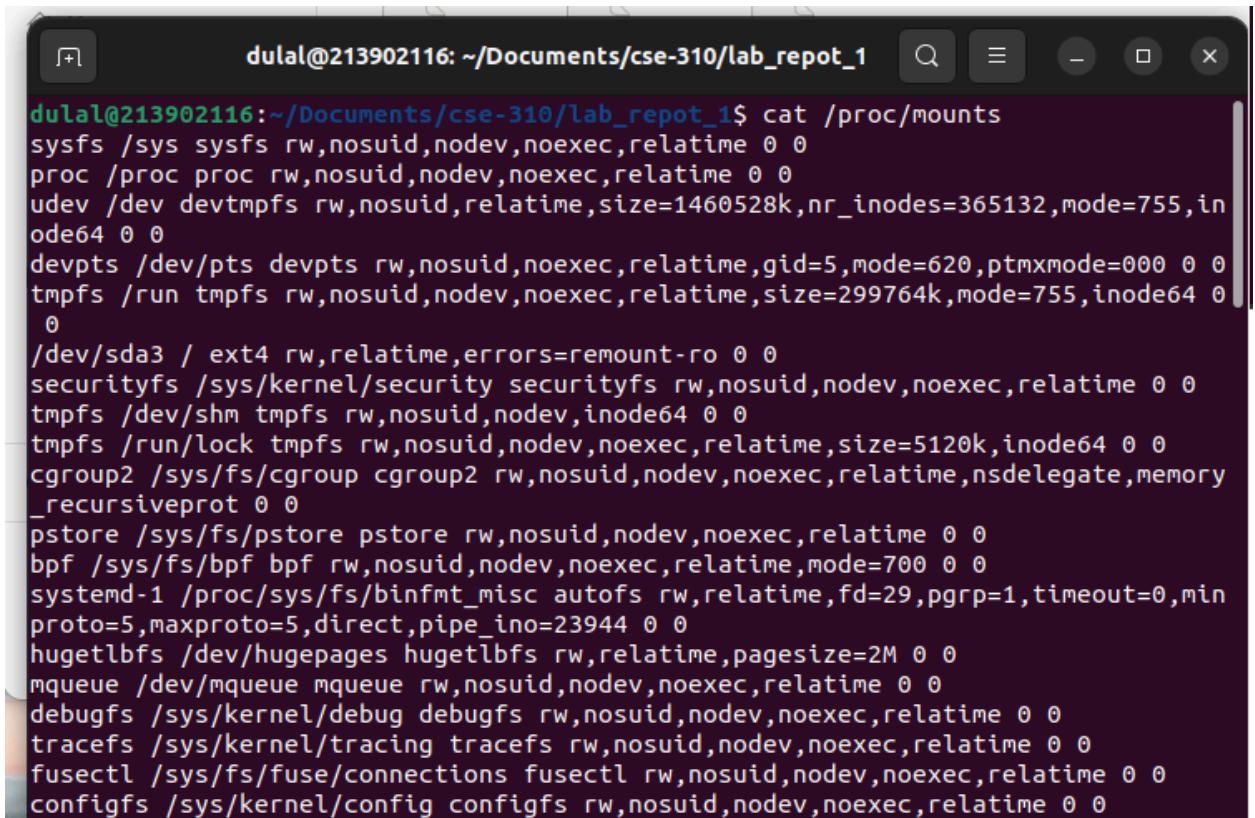
View detailed system memory information.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cat /proc/meminfo
MemTotal:       2997628 kB
MemFree:        673844 kB
MemAvailable:   1819196 kB
Buffers:         53760 kB
Cached:          1227852 kB
SwapCached:      0 kB
Active:          1308080 kB
Inactive:        499240 kB
Active(anon):    531724 kB
Inactive(anon):  32376 kB
Active(file):    776356 kB
Inactive(file):  466864 kB
Unevictable:     0 kB
Mlocked:         0 kB
SwapTotal:      2097148 kB
SwapFree:        2097148 kB
Zswap:           0 kB
Zswapped:        0 kB
Dirty:            0 kB
Writeback:        0 kB
AnonPages:      525760 kB
Mapped:          298952 kB
Shmem:           38392 kB
```

160. cat /proc/mounts :

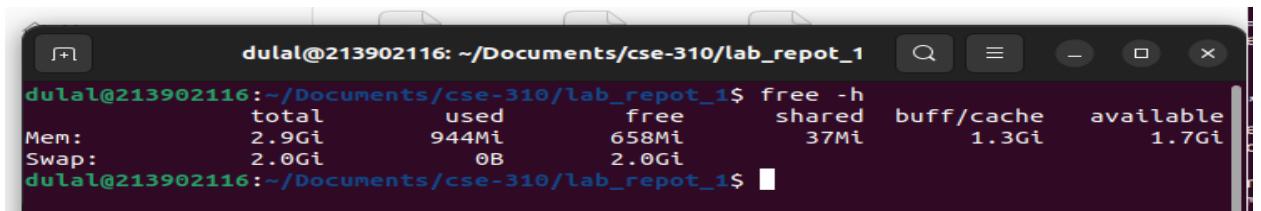
See mounted file systems.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ cat /proc/mounts
sysfs /sys sysfs rw,nosuid,nodev,noexec,relatime 0 0
proc /proc proc rw,nosuid,nodev,noexec,relatime 0 0
udev /dev devtmpfs rw,nosuid,relatime,size=1460528k,nr_inodes=365132,mode=755,inode64 0 0
devpts /dev/pts devpts rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000 0 0
tmpfs /run tmpfs rw,nosuid,nodev,noexec,relatime,size=299764k,mode=755,inode64 0
/dev/sda3 / ext4 rw,relatime,errors=remount-ro 0 0
securityfs /sys/kernel/security securityfs rw,nosuid,nodev,noexec,relatime 0 0
tmpfs /dev/shm tmpfs rw,nosuid,nodev,inode64 0 0
tmpfs /run/lock tmpfs rw,nosuid,nodev,noexec,relatime,size=5120k,inode64 0 0
cgroup2 /sys/fs/cgroup cgroup2 rw,nosuid,nodev,noexec,relatime,nsdelegate,memory_recursiveprot 0 0
pstore /sys/fs/pstore pstore rw,nosuid,nodev,noexec,relatime 0 0
bpf /sys/fs/bpf bpf rw,nosuid,nodev,noexec,relatime,mode=700 0 0
systemd-1 /proc/sys/fs/binfmt_misc autofs rw,relatime,fd=29,pgrp=1,timeout=0,minproto=5,maxproto=5,direct,pipe_ino=23944 0 0
hugetlbfs /dev/hugepages hugetlbfs rw,relatime,pagesize=2M 0 0
mqueue /dev/mqueue mqueue rw,nosuid,nodev,noexec,relatime 0 0
debugfs /sys/kernel/debug debugfs rw,nosuid,nodev,noexec,relatime 0 0
tracefs /sys/kernel/tracing tracefs rw,nosuid,nodev,noexec,relatime 0 0
fusectl /sys/fs/fuse/connections fusectl rw,nosuid,nodev,noexec,relatime 0 0
configfs /sys/kernel/config configfs rw,nosuid,nodev,noexec,relatime 0 0
```

161. free -h :

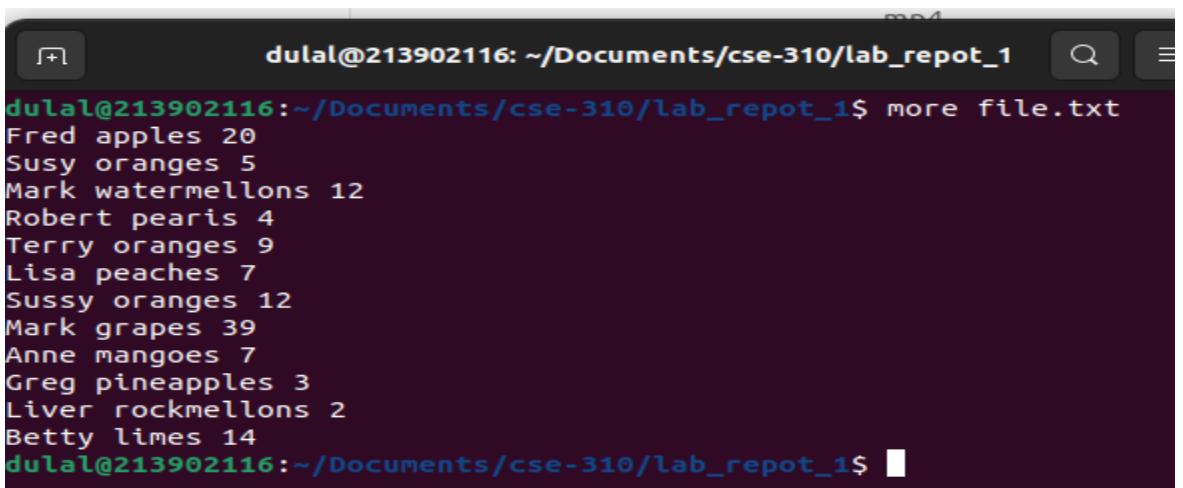
Display free and used memory.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ free -h
total        used        free      shared  buff/cache   available
Mem:    2.9Gi     944Mi     658Mi     37Mi     1.3Gi     1.7Gi
Swap:   2.0Gi          0B     2.0Gi
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

162. more [file_name] :

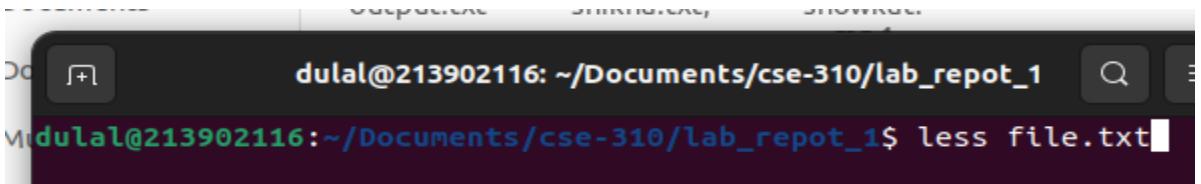
Display contents of a file page by page.



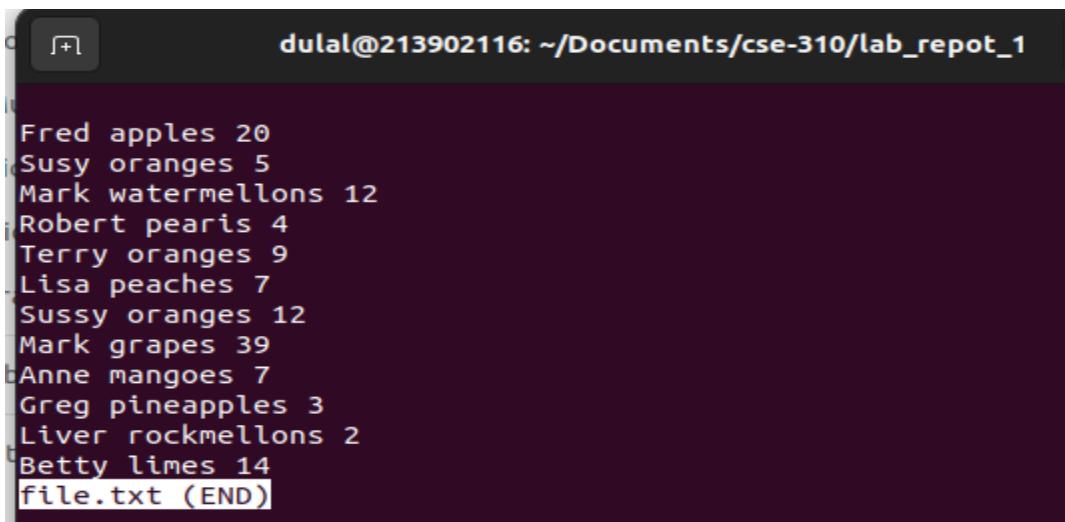
```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ more file.txt
Fred apples 20
Susy oranges 5
Mark watermellons 12
Robert pearis 4
Terry oranges 9
Lisa peaches 7
Sussy oranges 12
Mark grapes 39
Anne mangoes 7
Greg pineapples 3
Liver rockmellons 2
Betty limes 14
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

163. less [file_name] :

Show the contents of a file with navigation using the less command.



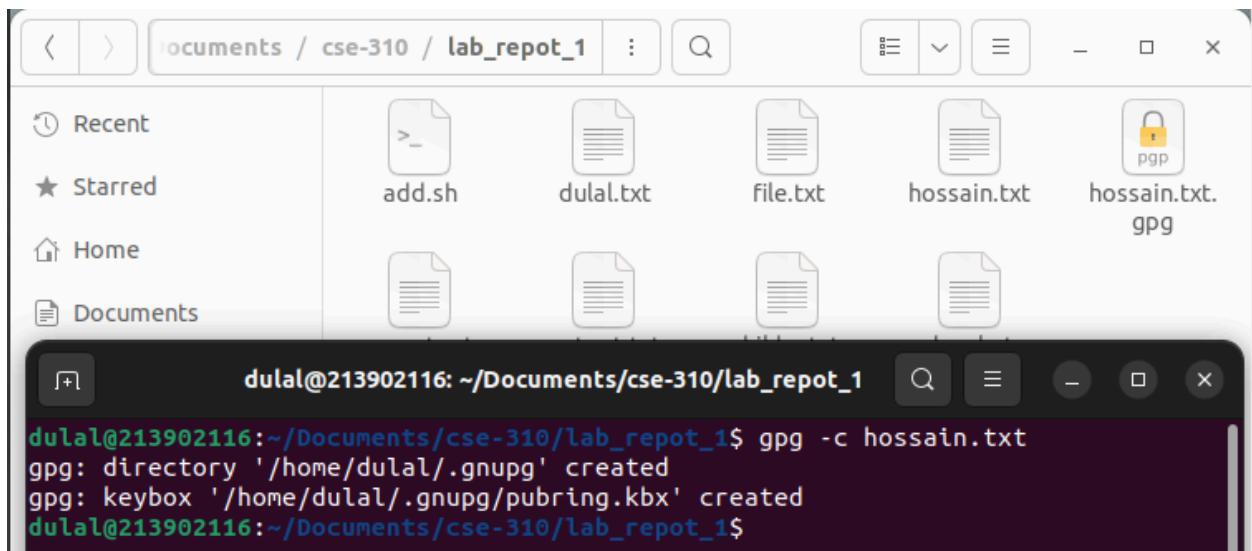
```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ less file.txt
```



```
Fred apples 20
Susy oranges 5
Mark watermellons 12
Robert pearis 4
Terry oranges 9
Lisa peaches 7
Sussy oranges 12
Mark grapes 39
Anne mangoes 7
Greg pineapples 3
Liver rockmellons 2
Betty limes 14
file.txt (END)
```

164. gpg -c [file_name]:

Encrypt a file.



The screenshot shows a desktop environment with a file manager window open in the background, displaying files like add.sh, dulal.txt, file.txt, hossain.txt, and hossain.txt.gpg. In the foreground, a terminal window is active with the command:

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ gpg -c hossain.txt
```

The terminal output shows the creation of a directory and keybox:

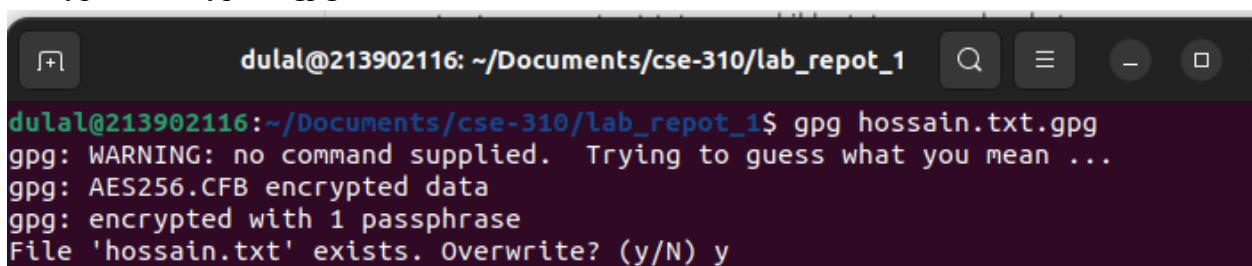
```
gpg: directory '/home/dulal/.gnupg' created  
gpg: keybox '/home/dulal/.gnupg/pubring.kbx' created
```

Then it lists the contents of the directory again:

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

165. gpg [file_name].gpg :

Decrypt an encrypted .gpg file.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ gpg hossain.txt.gpg
```

The terminal output shows the decryption process:

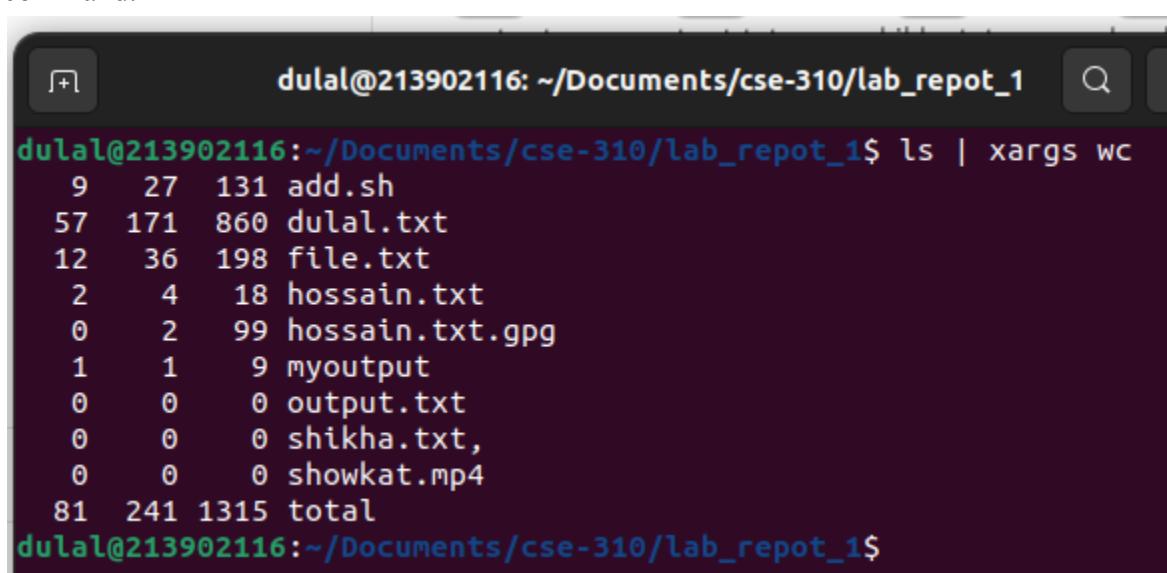
```
gpg: WARNING: no command supplied. Trying to guess what you mean ...  
gpg: AES256.CFB encrypted data  
gpg: encrypted with 1 passphrase
```

It then asks for confirmation to overwrite the existing file:

```
File 'hossain.txt' exists. Overwrite? (y/N) y
```

166. ls | xargs wc :

List the number of lines/words/characters in each file in a directory with the xargs command.



```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ ls | xargs wc
```

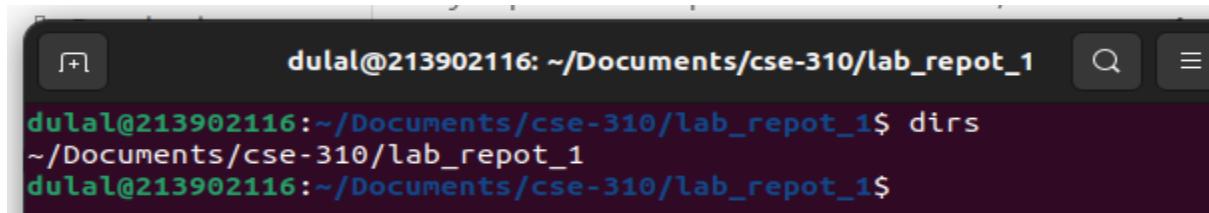
The terminal output shows the line counts for each file in the directory:

```
9 27 131 add.sh  
57 171 860 dulal.txt  
12 36 198 file.txt  
2 4 18 hossain.txt  
0 2 99 hossain.txt.gpg  
1 1 9 myoutput  
0 0 0 output.txt  
0 0 0 shikha.txt,  
0 0 0 showkat.mp4  
81 241 1315 total
```

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

167. dirs :

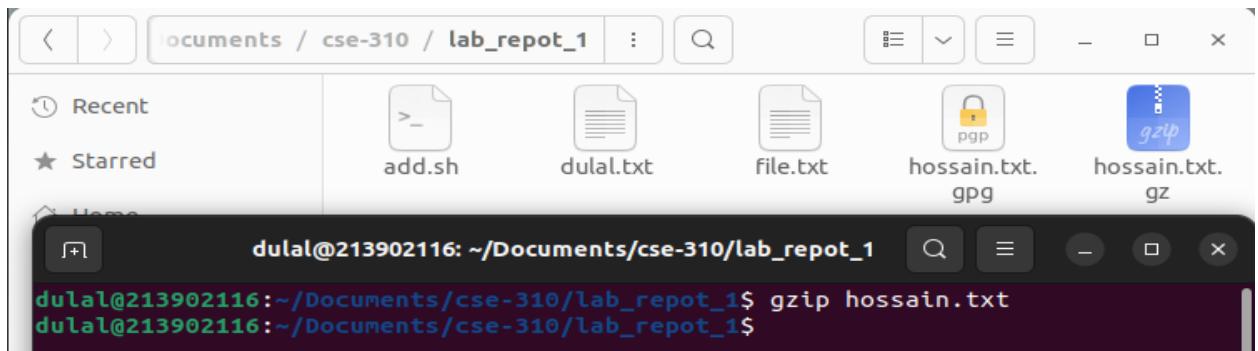
Show current directory stack.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ dirs  
~/Documents/cse-310/lab_repot_1  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

168. gzip [file_name] :

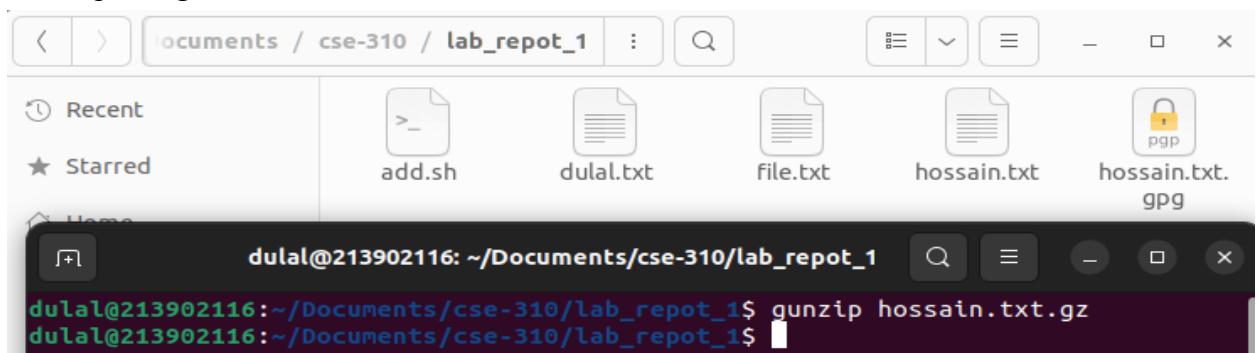
Compress .gz files.



```
< > documents / cse-310 / lab_repot_1 : ... : Q E V E - X  
Recent add.sh dulal.txt file.txt hossain.txt.gpg hossain.txt.gz  
Starred Home  
  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ gzip hossain.txt  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

169. gunzip [file_name.gz] :

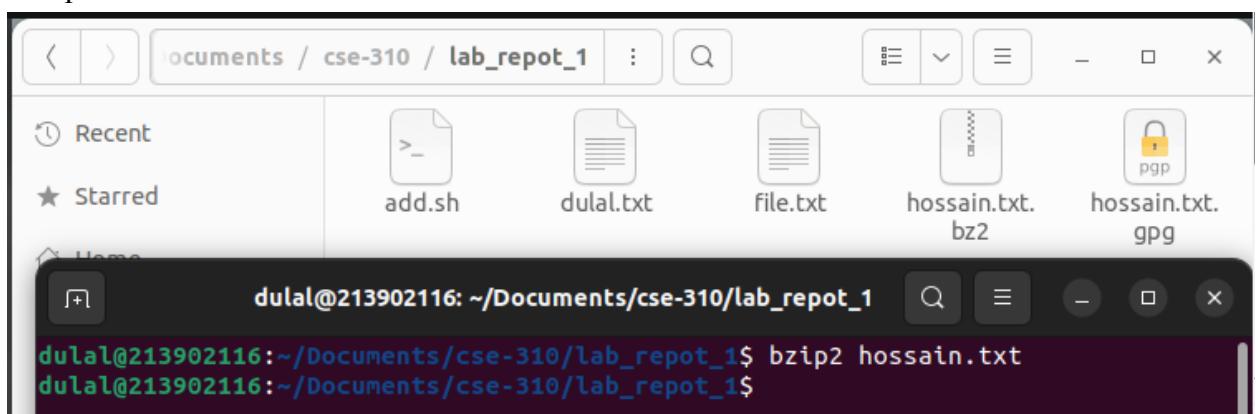
Decompress .gz files.



```
< > documents / cse-310 / lab_repot_1 : ... : Q E V E - X  
Recent add.sh dulal.txt file.txt hossain.txt hossain.txt.gz  
Starred Home  
  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ gunzip hossain.txt.gz  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

170. bzip2 [file_name] :

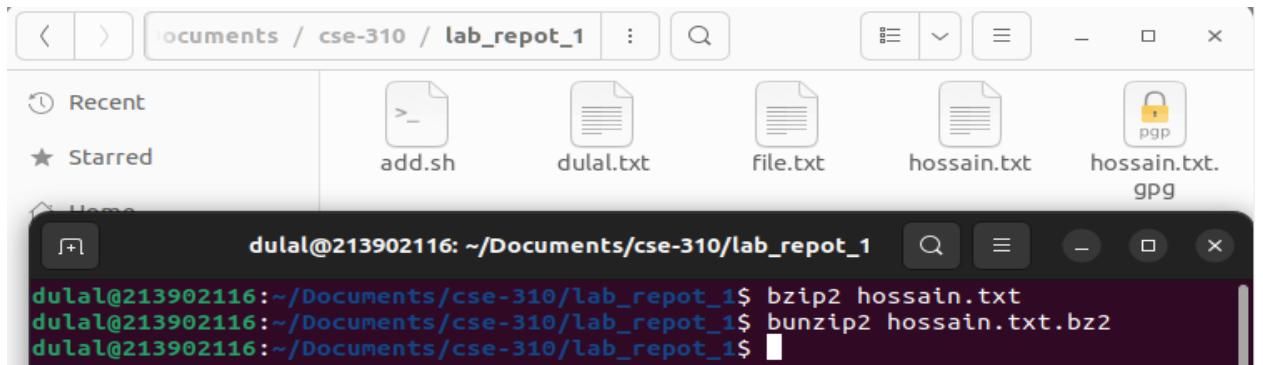
Compress .bz2 files.



```
< > documents / cse-310 / lab_repot_1 : ... : Q E V E - X  
Recent add.sh dulal.txt file.txt hossain.txt.bz2 hossain.txt.gpg  
Starred Home  
  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ bzip2 hossain.txt  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

171. bunzip2 [file_name.bz2] :

Decompress .bz2 files.

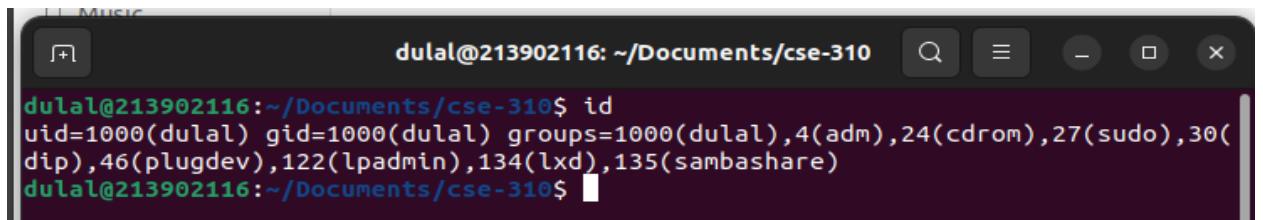


A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310/lab_repot_1". The terminal shows the command "bunzip2 hossain.txt" being run, followed by its output. Below the terminal window is a file manager interface showing several text files and a GPG key file.

```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ bunzip2 hossain.txt
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

172. id :

See details about the active users.

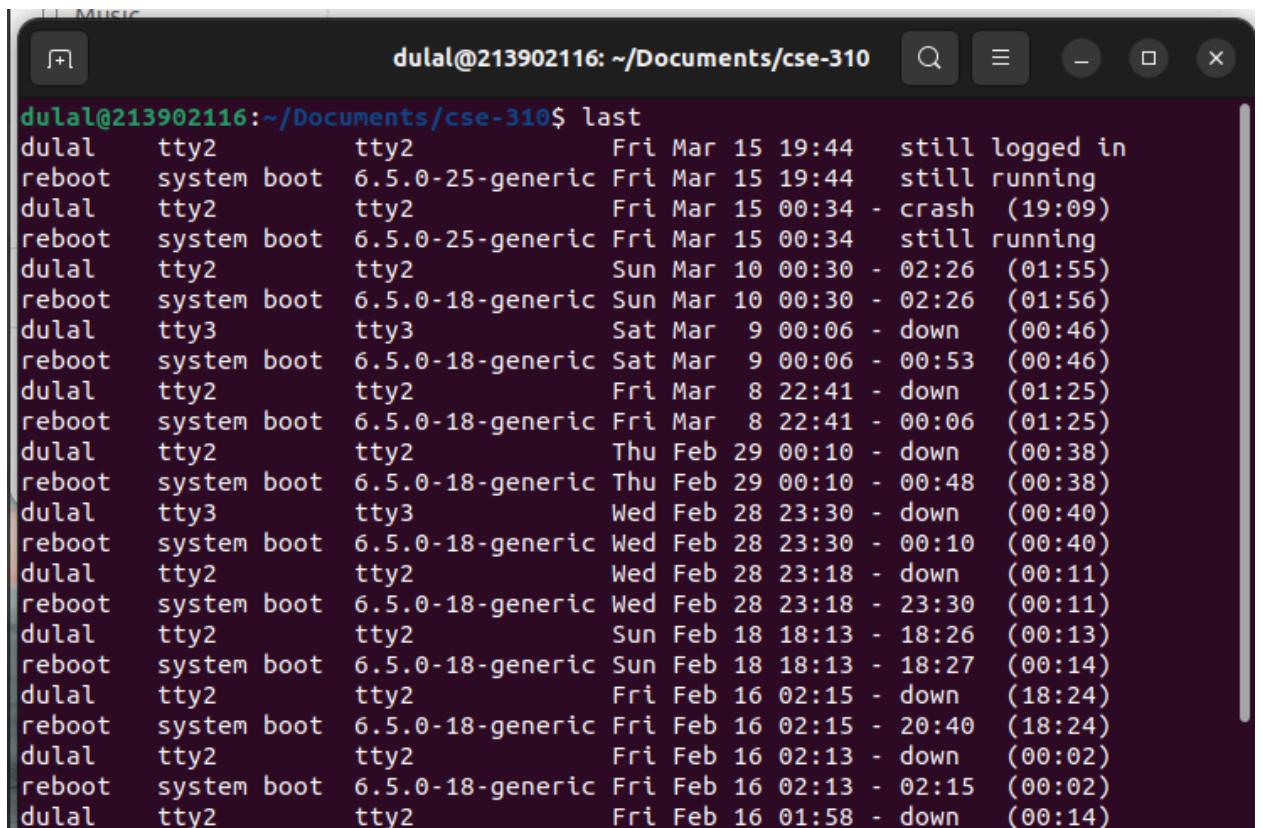


A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The terminal shows the command "id" being run, followed by its output. Below the terminal window is a file manager interface showing several text files.

```
dulal@213902116: ~/Documents/cse-310$ id
uid=1000(dulal) gid=1000(dulal) groups=1000(dulal),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),122(lpadmin),134(lxd),135(sambashare)
dulal@213902116: ~/Documents/cse-310$
```

173. last :

Show the last system logins

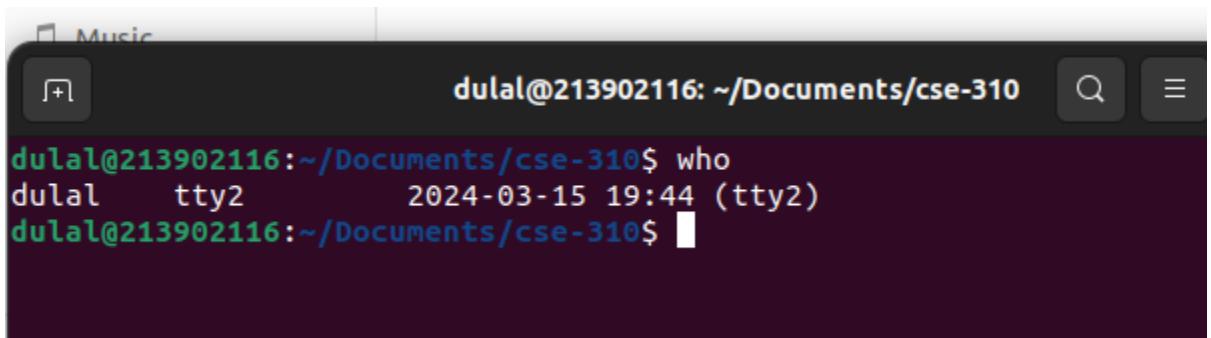


A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The terminal shows the command "last" being run, followed by a long list of system logins. Below the terminal window is a file manager interface showing several text files.

```
dulal@213902116: ~/Documents/cse-310$ last
dulal    tty2          tty2          Fri Mar 15 19:44  still logged in
reboot  system boot   6.5.0-25-generic Fri Mar 15 19:44  still running
dulal    tty2          tty2          Fri Mar 15 00:34  - crash  (19:09)
reboot  system boot   6.5.0-25-generic Fri Mar 15 00:34  still running
dulal    tty2          tty2          Sun Mar 10 00:30  - 02:26  (01:55)
reboot  system boot   6.5.0-18-generic Sun Mar 10 00:30  - 02:26  (01:56)
dulal    tty3          tty3          Sat Mar  9 00:06  - down  (00:46)
reboot  system boot   6.5.0-18-generic Sat Mar  9 00:06  - 00:53  (00:46)
dulal    tty2          tty2          Fri Mar  8 22:41  - down  (01:25)
reboot  system boot   6.5.0-18-generic Fri Mar  8 22:41  - 00:06  (01:25)
dulal    tty2          tty2          Thu Feb 29 00:10  - down  (00:38)
reboot  system boot   6.5.0-18-generic Thu Feb 29 00:10  - 00:48  (00:38)
dulal    tty3          tty3          Wed Feb 28 23:30  - down  (00:40)
reboot  system boot   6.5.0-18-generic Wed Feb 28 23:30  - 00:10  (00:40)
dulal    tty2          tty2          Wed Feb 28 23:18  - down  (00:11)
reboot  system boot   6.5.0-18-generic Wed Feb 28 23:18  - 23:30  (00:11)
dulal    tty2          tty2          Sun Feb 18 18:13  - 18:26  (00:13)
reboot  system boot   6.5.0-18-generic Sun Feb 18 18:13  - 18:27  (00:14)
dulal    tty2          tty2          Fri Feb 16 02:15  - down  (18:24)
reboot  system boot   6.5.0-18-generic Fri Feb 16 02:15  - 20:40  (18:24)
dulal    tty2          tty2          Fri Feb 16 02:13  - down  (00:02)
reboot  system boot   6.5.0-18-generic Fri Feb 16 02:13  - 02:15  (00:02)
dulal    tty2          tty2          Fri Feb 16 01:58  - down  (00:14)
```

174. who :

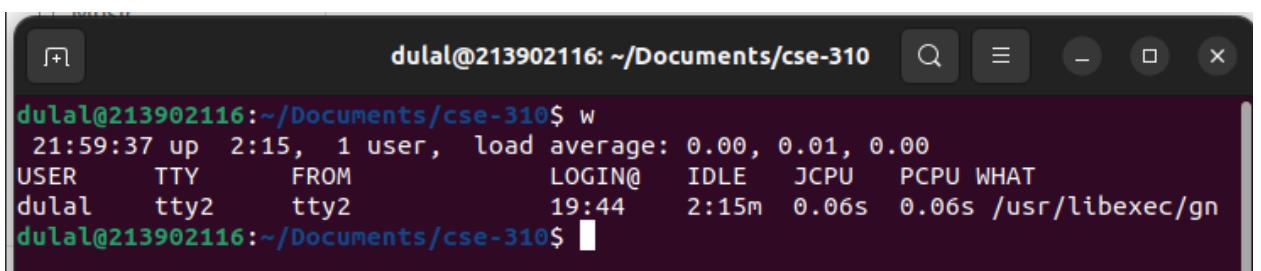
Display who is currently logged into the system with the who command.



```
dulal@213902116: ~/Documents/cse-310$ who
dulal    tty2          2024-03-15 19:44 (tty2)
dulal@213902116: ~/Documents/cse-310$
```

175. w :

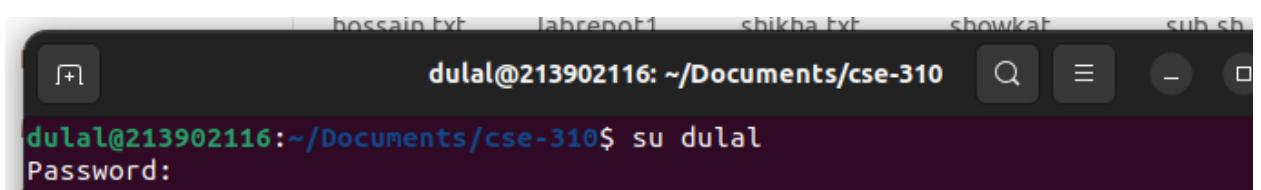
Show which users are logged in and their activity with the w command.



```
dulal@213902116: ~/Documents/cse-310$ w
21:59:37 up 2:15, 1 user,  load average: 0.00, 0.01, 0.00
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
dulal    tty2    tty2            19:44    2:15m  0.06s  0.06s /usr/libexec/gn
dulal@213902116: ~/Documents/cse-310$
```

176. su - [user_name] :

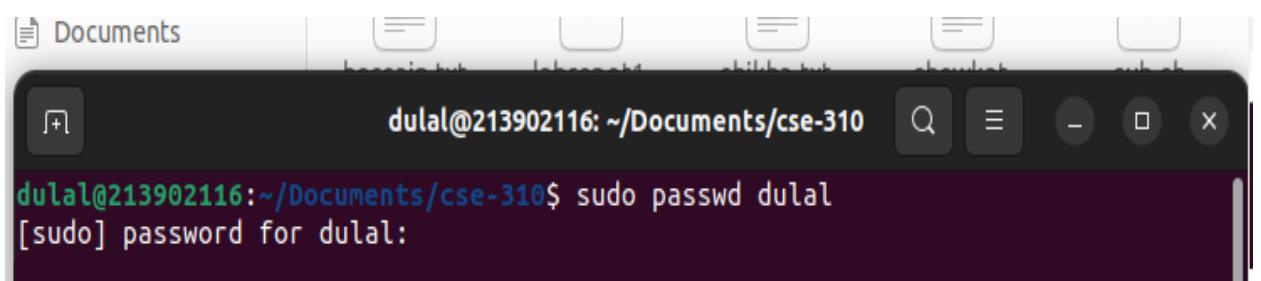
Switch the user account or become a superuser.



```
dulal@213902116: ~/Documents/cse-310$ su dulal
Password:
```

177. Passwd sudo passwd [user_name] :

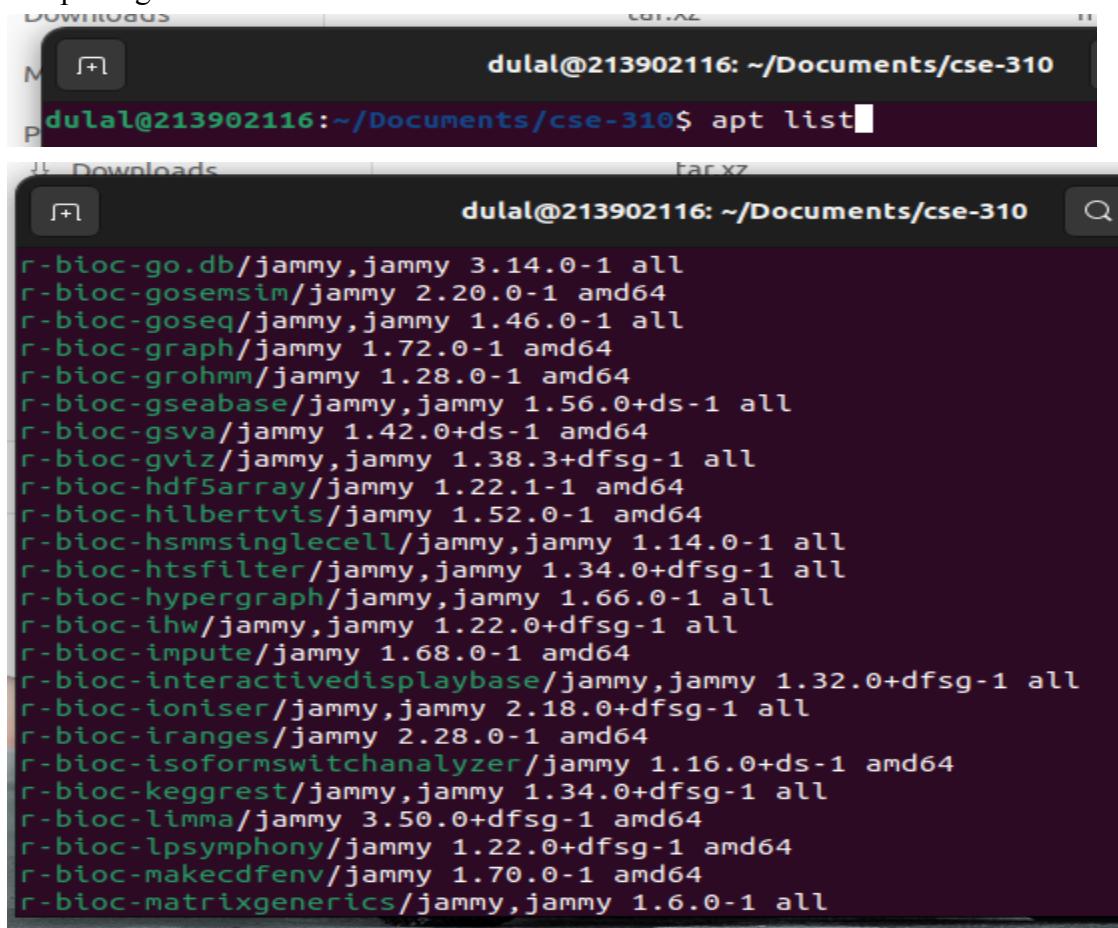
Change the current user's password or another user's password with the passwd command.



```
dulal@213902116: ~/Documents/cse-310$ sudo passwd dulal
[sudo] password for dulal:
```

178. apt list :

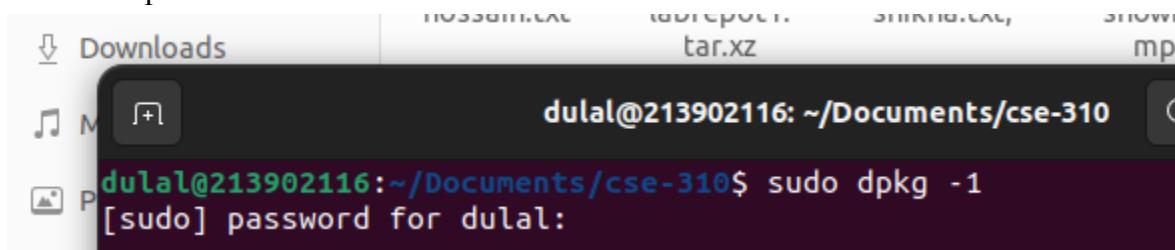
List packages installed with APT.



```
dulal@213902116: ~/Documents/cse-310$ apt list
r-bioc-go.db/jammy,jammy 3.14.0-1 all
r-bioc-gosemsim/jammy 2.20.0-1 amd64
r-bioc-goseq/jammy,jammy 1.46.0-1 all
r-bioc-graph/jammy 1.72.0-1 amd64
r-bioc-grohmm/jammy 1.28.0-1 amd64
r-bioc-gseabase/jammy,jammy 1.56.0+ds-1 all
r-bioc-gsva/jammy 1.42.0+ds-1 amd64
r-bioc-gviz/jammy,jammy 1.38.3+dfsg-1 all
r-bioc-hdf5array/jammy 1.22.1-1 amd64
r-bioc-hilbertvis/jammy 1.52.0-1 amd64
r-bioc-hsmmsinglecell/jammy,jammy 1.14.0-1 all
r-bioc-htsfilter/jammy,jammy 1.34.0+dfsg-1 all
r-bioc-hypergraph/jammy,jammy 1.66.0-1 all
r-bioc-ihw/jammy,jammy 1.22.0+dfsg-1 all
r-bioc-impute/jammy 1.68.0-1 amd64
r-bioc-interactiveisplaybase/jammy,jammy 1.32.0+dfsg-1 all
r-bioc-ioniser/jammy,jammy 2.18.0+dfsg-1 all
r-bioc-iranges/jammy 2.28.0-1 amd64
r-bioc-isoformswitchalyzer/jammy 1.16.0+ds-1 amd64
r-bioc-keggrest/jammy,jammy 1.34.0+dfsg-1 all
r-bioc-limma/jammy 3.50.0+dfsg-1 amd64
r-bioc-lpsymphony/jammy 1.22.0+dfsg-1 amd64
r-bioc-makecdfenv/jammy 1.70.0-1 amd64
r-bioc-matrixgenerics/jammy,jammy 1.6.0-1 all
```

179. ps :

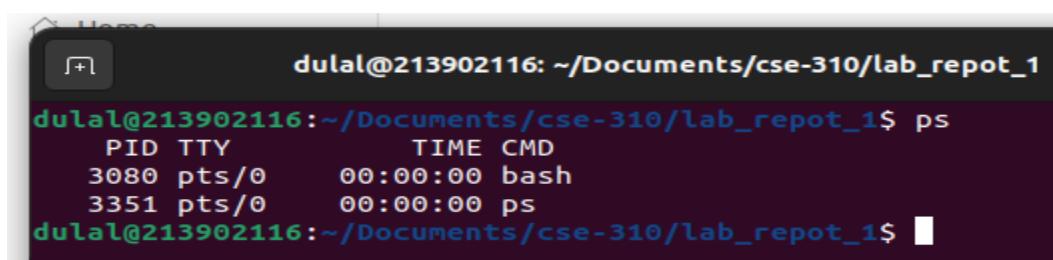
List active processes.



```
dulal@213902116: ~/Documents/cse-310$ sudo dpkg -1
[sudo] password for dulal:
```

180. For code 1 :

This



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ ps
  PID TTY      TIME CMD
 3080 pts/0    00:00:00 bash
 3351 pts/0    00:00:00 ps
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

181. pstree :

Show processes in a tree-like diagram.

```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ pstree
systemd─ModemManager─2*[{ModemManager}]
systemd─NetworkManager─2*[{NetworkManager}]
systemd─VGAAuthService
systemd─accounts-daemon─2*[{accounts-daemon}]
systemd─acpid
systemd─avahi-daemon─avahi-daemon
systemd─colord─2*[{colord}]
systemd─cron
systemd─cups-browsed─2*[{cups-browsed}]
systemd─cupsd─dbus
systemd─dbus-daemon
systemd─gdm3─gdm-session-wor─gdm-wayland-ses─gnome-session-b─2*[{gnome-session-b}]
systemd─2*[{gdm3}]
systemd─gnome-keyring-d─3*[{gnome-keyring-d}]
systemd─2*[{kerneloops}]
systemd─networkd-dispat
systemd─packagekitd─2*[{packagekitd}]
systemd─polkitd─2*[{polkitd}]
systemd─power-profiles─2*[{power-profiles-}]
systemd─rsyslogd─3*[{rsyslogd}]
systemd─rtkit-daemon─2*[{rtkit-daemon}]
```

182. pmap :

Display a memory usage map of processes.

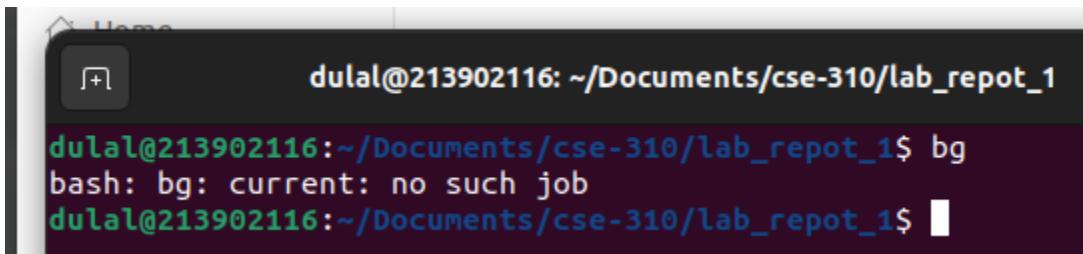
```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ pmap

Usage:
pmap [options] PID [PID ...]

Options:
-x, --extended           show details
-X                      show even more details
-XX                     WARNING: format changes according to /proc/PID/smaps
-c, --read-rc            read the default rc
-C, --read-rc-from=<file> read the rc from file
-n, --create-rc           create new default rc
-N, --create-rc-to=<file> create new rc to file
                           NOTE: pid arguments are not allowed with -n, -N
-d, --device              show the device format
-q, --quiet               do not display header and footer
-p, --show-path            show path in the mapping
-A, --range=<low>[,<high>] limit results to the given range
-h, --help                display this help and exit
-V, --version              output version information and exit
```

183. bg :

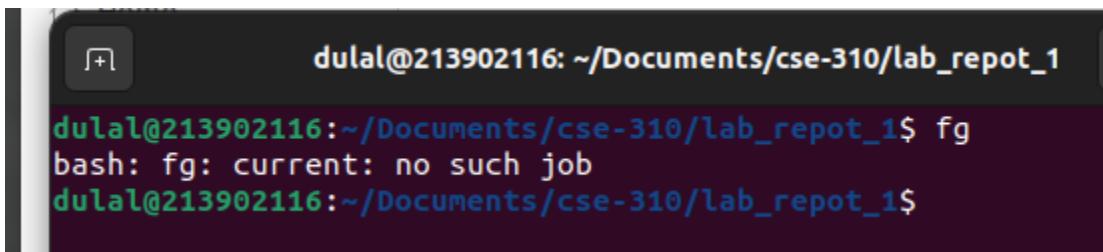
List and resume stopped jobs in the background.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ bg  
bash: bg: current: no such job  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

184. fg:

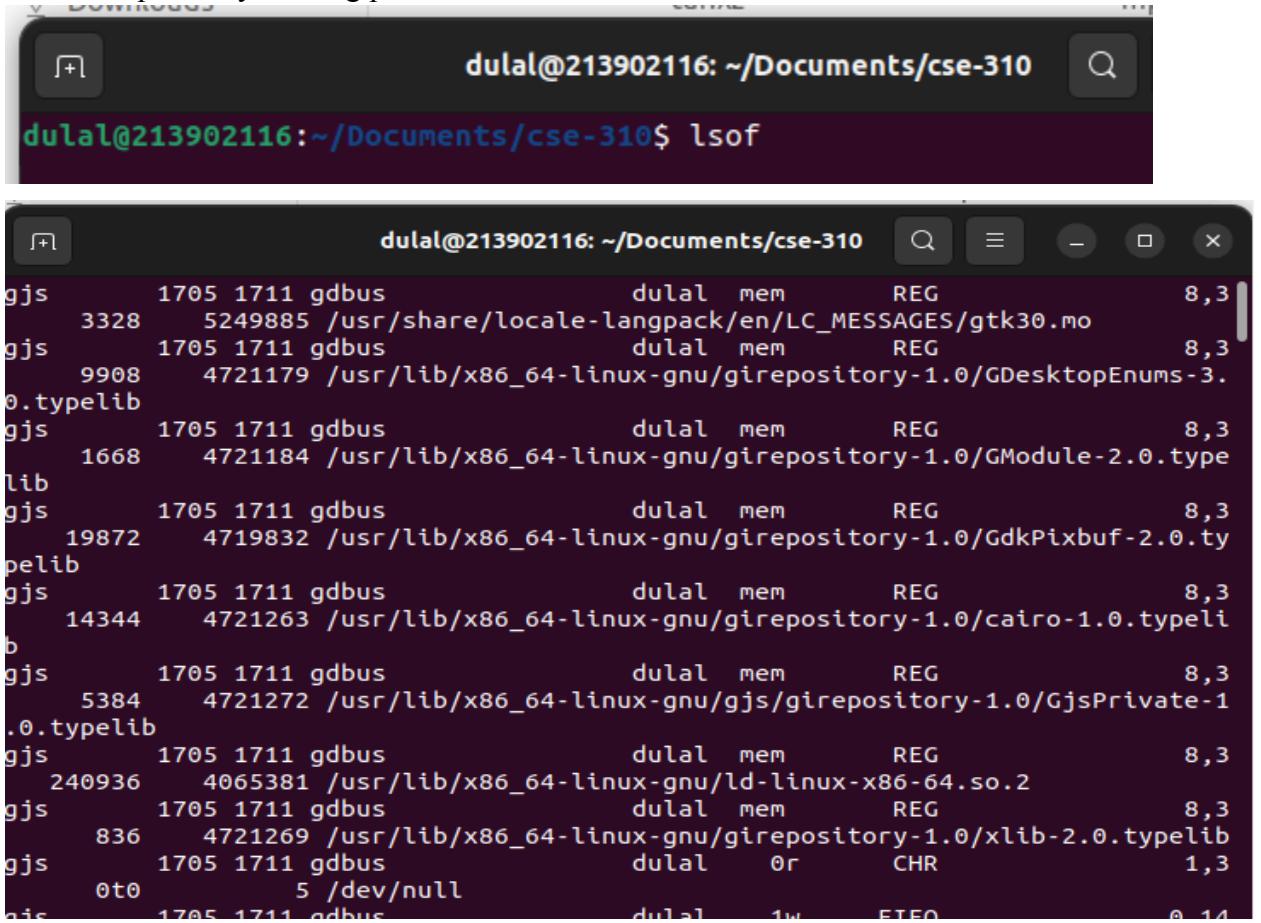
Bring the most recently suspended job to the foreground.



```
dulal@213902116: ~/Documents/cse-310/lab_repot_1$ fg  
bash: fg: current: no such job  
dulal@213902116: ~/Documents/cse-310/lab_repot_1$
```

185. lsof :

List files opened by running processes with lsof command.

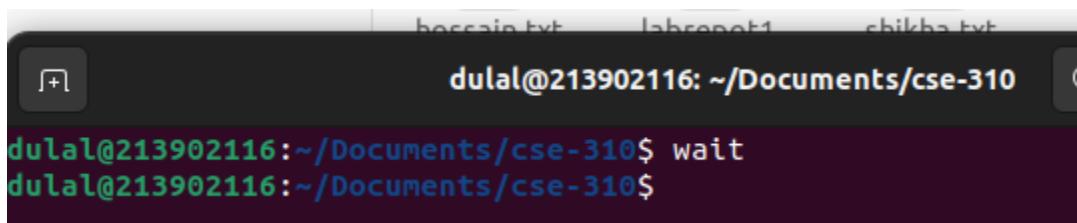


```
dulal@213902116: ~/Documents/cse-310$ lsof
```

Process ID	Process Name	File Path	User	Type	Access	Size
gjs 3328	gjs	/usr/share/locale-langpack/en/LC_MESSAGES/gtk30.mo	dulal	mem	REG	8,3
gjs 9908	gjs	/usr/lib/x86_64-linux-gnu/girepository-1.0/GDesktopEnums-3.0.typelib	dulal	mem	REG	8,3
gjs 1668	gjs	/usr/lib/x86_64-linux-gnu/girepository-1.0/GModule-2.0.type	dulal	mem	REG	8,3
gjs 19872	gjs	/usr/lib/x86_64-linux-gnu/girepository-1.0/GdkPixbuf-2.0.typelib	dulal	mem	REG	8,3
gjs 14344	gjs	/usr/lib/x86_64-linux-gnu/girepository-1.0/cairo-1.0.typelib	dulal	mem	REG	8,3
gjs 5384	gjs	/usr/lib/x86_64-linux-gnu/gjs/girepository-1.0/GjsPrivate-1.0.typelib	dulal	mem	REG	8,3
gjs 240936	gjs	/usr/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2	dulal	mem	REG	8,3
gjs 836	gjs	/usr/lib/x86_64-linux-gnu/girepository-1.0/xlib-2.0.typelib	dulal	mem	REG	1,3
ot0		/dev/null	root	chr	CHR	0,14
uis		/dev/null	dulal	1w	ETCE	0,14

186. wait :

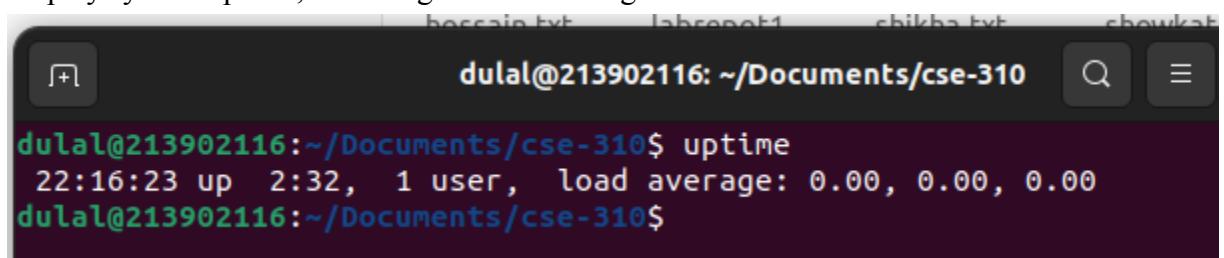
Pause the terminal or a Bash script until a running process is completed



```
dulal@213902116: ~/Documents/cse-310$ wait
dulal@213902116: ~/Documents/cse-310$
```

187. uptime :

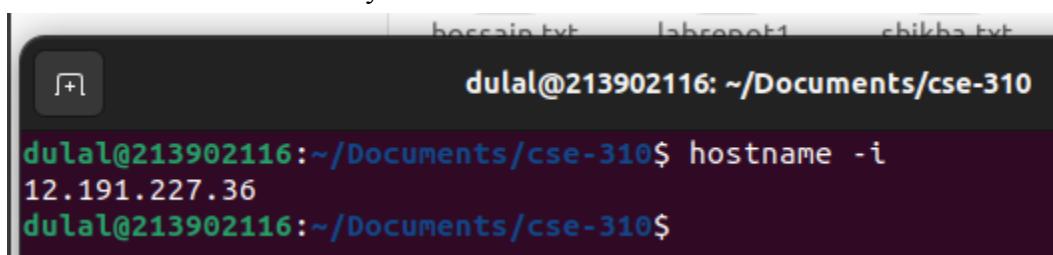
Display system uptime, including the load average.



```
dulal@213902116: ~/Documents/cse-310$ uptime
 22:16:23 up 2:32, 1 user, load average: 0.00, 0.00, 0.00
dulal@213902116: ~/Documents/cse-310$
```

188. hostname -i :

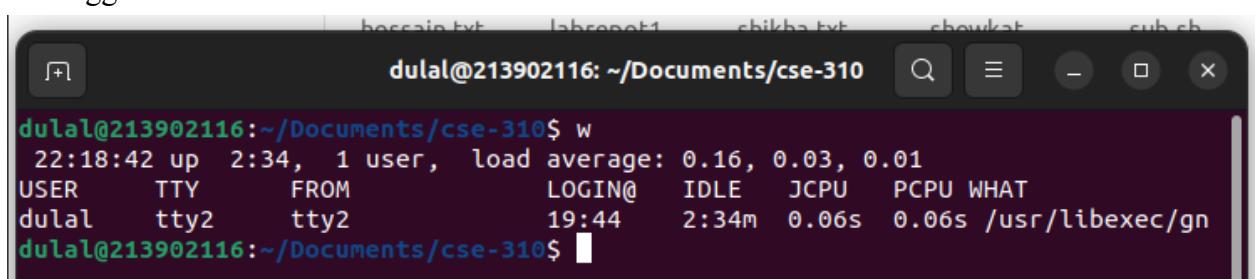
Show the IP address of the system.



```
dulal@213902116: ~/Documents/cse-310$ hostname -i
12.191.227.36
dulal@213902116: ~/Documents/cse-310$
```

189. w :

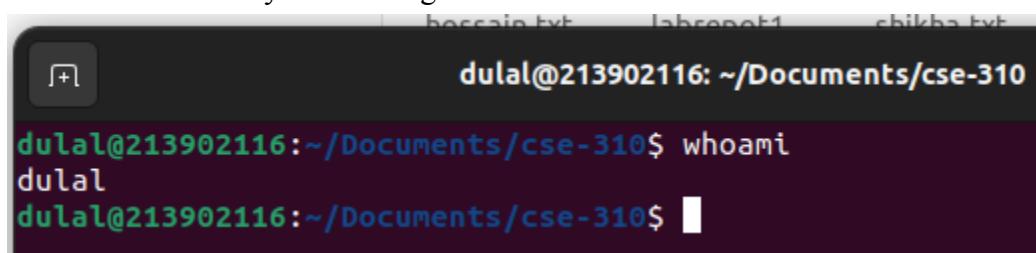
List logged-in users



```
dulal@213902116: ~/Documents/cse-310$ w
22:18:42 up 2:34, 1 user, load average: 0.16, 0.03, 0.01
USER     TTY      FROM          LOGIN@    IDLE      JCPU      PCPU WHAT
dulal    tty2     tty2        19:44   2:34m   0.06s  0.06s /usr/libexec/gn
dulal@213902116: ~/Documents/cse-310$
```

190. whoami :

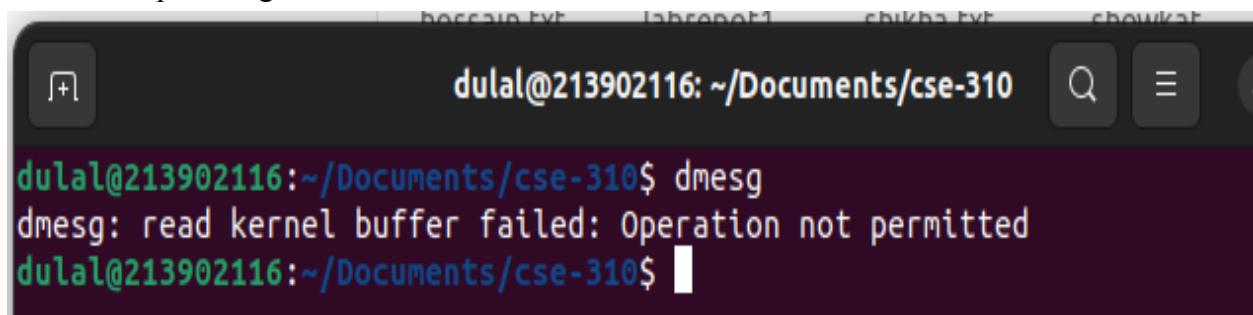
This see which user you are using.



```
dulal@213902116: ~/Documents/cse-310$ whoami
dulal
dulal@213902116: ~/Documents/cse-310$
```

191. dmesg :

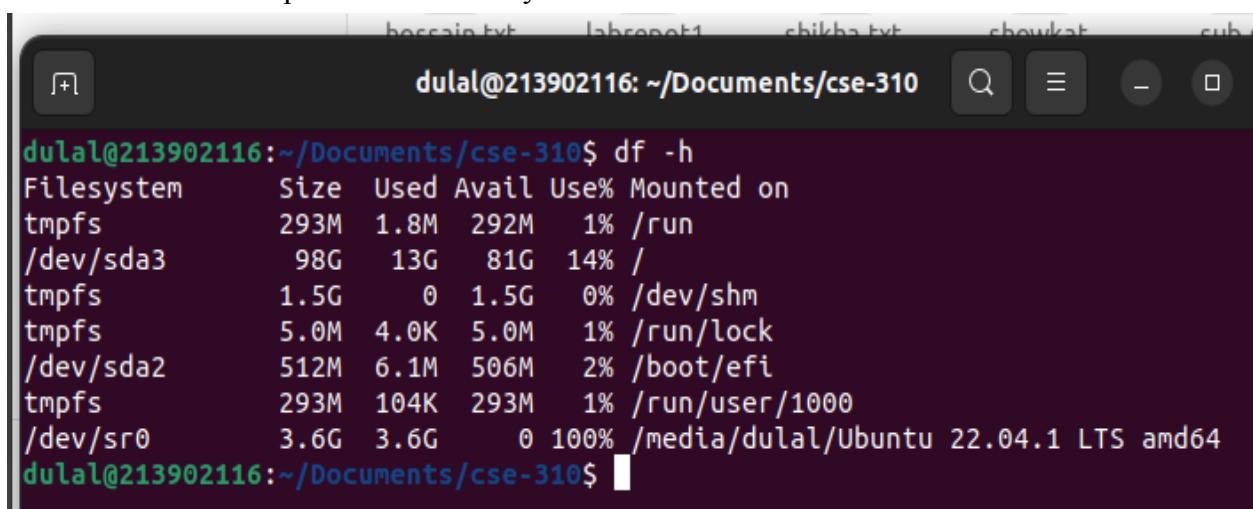
Show bootup messages



```
dulal@213902116:~/Documents/cse-310$ dmesg
dmesg: read kernel buffer failed: Operation not permitted
dulal@213902116:~/Documents/cse-310$
```

192. df -h :

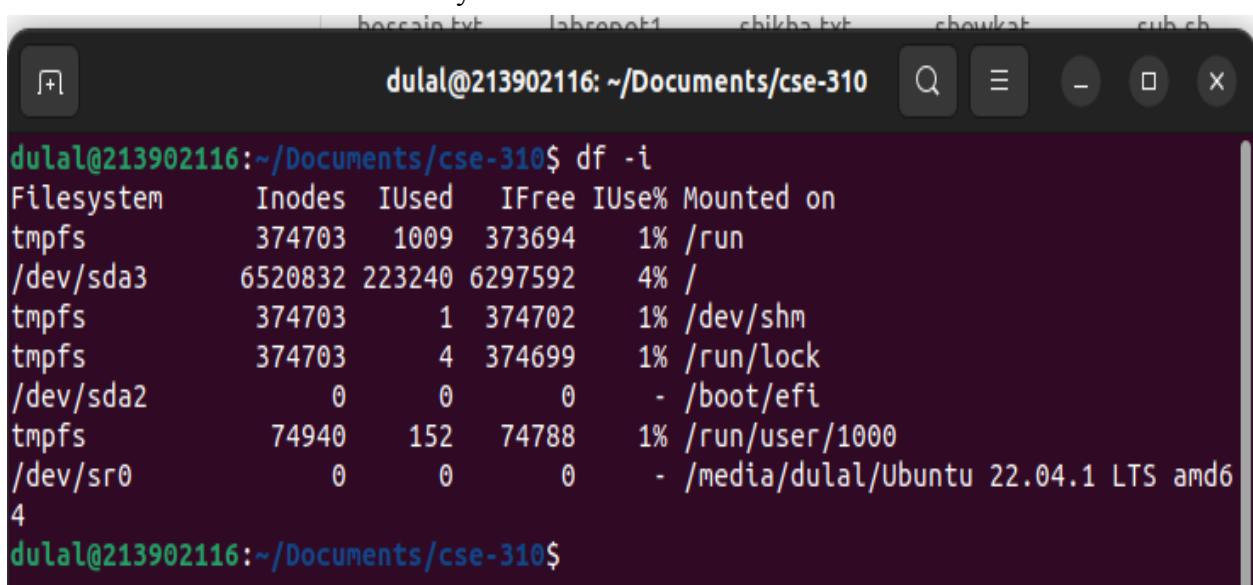
Check free and used space on mounted systems.



```
dulal@213902116:~/Documents/cse-310$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs          293M  1.8M  292M   1% /run
/dev/sda3        98G   13G   81G  14% /
tmpfs           1.5G     0   1.5G   0% /dev/shm
tmpfs           5.0M   4.0K   5.0M   1% /run/lock
/dev/sda2       512M   6.1M   506M   2% /boot/efi
tmpfs          293M  104K  293M   1% /run/user/1000
/dev/sr0         3.6G   3.6G     0 100% /media/dulal/Ubuntu 22.04.1 LTS amd64
dulal@213902116:~/Documents/cse-310$
```

193. df -i :

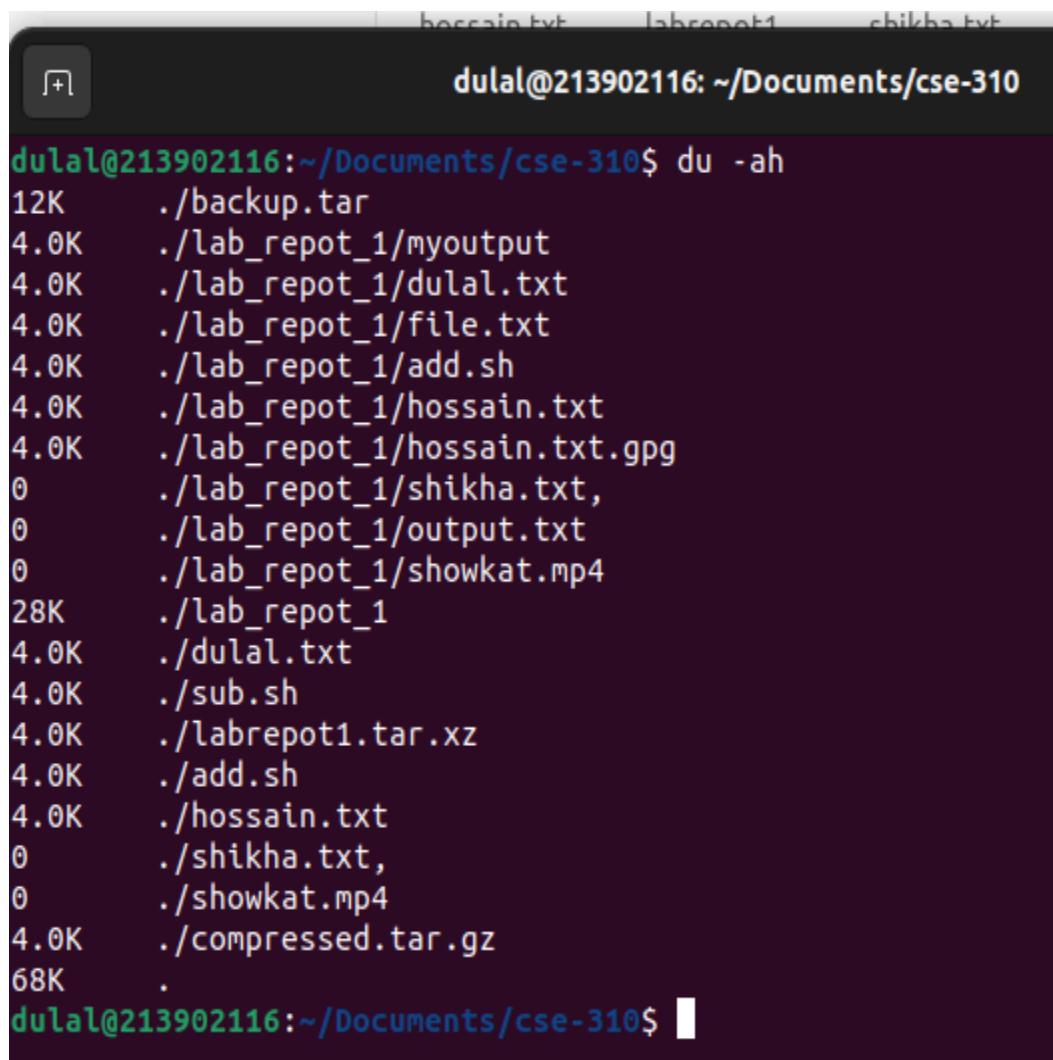
Show free inodes on mounted file systems.



```
dulal@213902116:~/Documents/cse-310$ df -i
Filesystem    Inodes  IUsed  IFree  IUse% Mounted on
tmpfs        374703   1009  373694    1% /run
/dev/sda3    6520832 223240 6297592    4% /
tmpfs        374703     1   374702    1% /dev/shm
tmpfs        374703     4   374699    1% /run/lock
/dev/sda2        0     0       0    - /boot/efi
tmpfs        74940    152   74788    1% /run/user/1000
/dev/sr0        0     0       0    - /media/dulal/Ubuntu 22.04.1 LTS amd64
4
dulal@213902116:~/Documents/cse-310$
```

194. du -ah :

See disk usage for all files and directories.

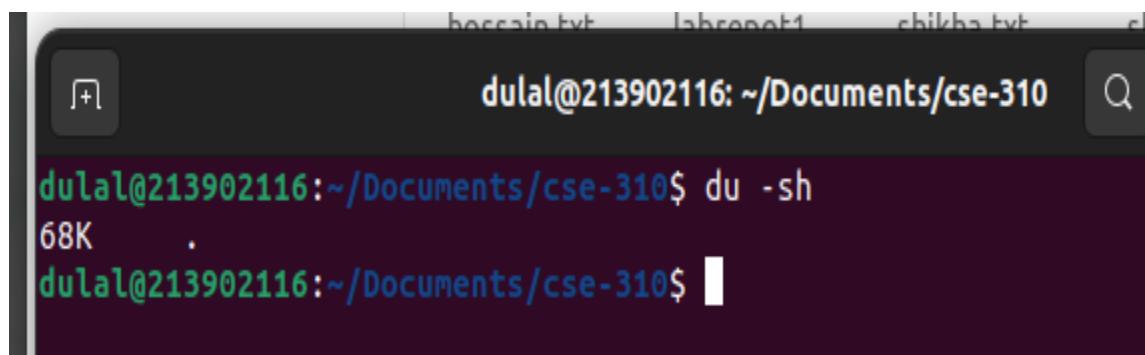


A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The window shows the output of the command "du -ah" which lists the disk usage for various files and directories. The output includes file names, sizes, and file paths. The terminal has a dark background with light-colored text. The title bar at the top shows the user name, host name, and current directory. The command prompt is at the bottom of the window.

```
dulal@213902116:~/Documents/cse-310$ du -ah
12K      ./backup.tar
4.0K     ./lab_repot_1/myoutput
4.0K     ./lab_repot_1/dulal.txt
4.0K     ./lab_repot_1/file.txt
4.0K     ./lab_repot_1/add.sh
4.0K     ./lab_repot_1/hossain.txt
4.0K     ./lab_repot_1/hossain.txt.gpg
0       ./lab_repot_1/shikha.txt,
0       ./lab_repot_1/output.txt
0       ./lab_repot_1/showkat.mp4
28K     ./lab_repot_1
4.0K     ./dulal.txt
4.0K     ./sub.sh
4.0K     ./labrepot1.tar.xz
4.0K     ./add.sh
4.0K     ./hossain.txt
0       ./shikha.txt,
0       ./showkat.mp4
4.0K     ./compressed.tar.gz
68K    .
dulal@213902116:~/Documents/cse-310$
```

195. du -sh :

Show disk usage of the current directory.



A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310". The window shows the output of the command "du -sh" which lists the disk usage for the current directory. The output includes the size and file path. The terminal has a dark background with light-colored text. The title bar at the top shows the user name, host name, and current directory. The command prompt is at the bottom of the window.

```
dulal@213902116:~/Documents/cse-310$ du -sh
68K .
dulal@213902116:~/Documents/cse-310$
```

196. mount :

Show currently mounted file systems.

```
dulal@213902116:~/Documents/cse-310$ mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=1460528k,nr_inodes=365132,mode=755,inode64)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
tmpfs on /run type tmpfs (rw,nosuid,nodev,noexec,relatime,size=299764k,mode=755,inode64)
/dev/sda3 on / type ext4 (rw,relatime,errors=remount-ro)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,inode64)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k,inode64)
cgroup2 on /sys/fs/cgroup type cgroup2 (rw,nosuid,nodev,noexec,relatime,nsdelegate,memory_recursiveprot)
pstree on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime)
bpf on /sys/fs/bpf type bpf (rw,nosuid,nodev,noexec,relatime,mode=700)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=29,pgrp=1,time_out=0,minproto=5,maxproto=5,direct,pipe_ino=23944)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime,pagesize=2M)
mqueue on /dev/mqueue type mqueue (rw,nosuid,nodev,noexec,relatime)
debugfs on /sys/kernel/debug type debugfs (rw,nosuid,nodev,noexec,relatime)
```

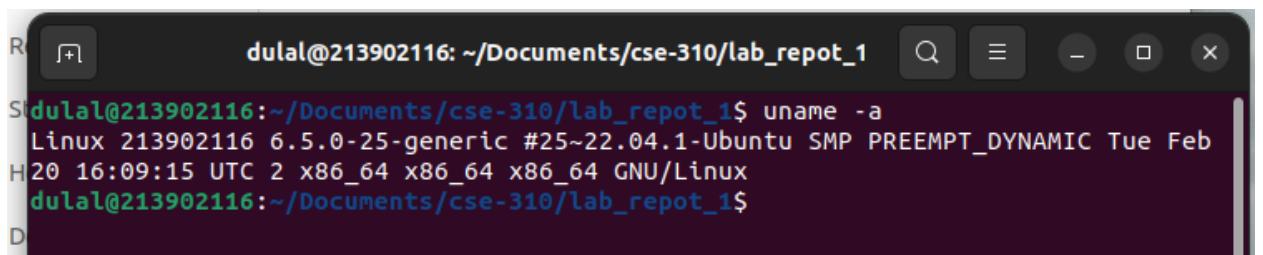
197. findmnt :

Display target mount point for all file systems.

TARGET	SOURCE	FSTYPE	OPTIONS
/	/dev/sda3	ext4	rw,relatime,error
/sys	sysfs	sysfs	rw,nosuid,node
/sys/kernel/security	securityfs	securityfs	rw,nosuid,node
/sys/fs/cgroup	cgroup2	cgroup2	rw,nosuid,node
/sys/fs/pstore	pstore	pstore	rw,nosuid,node
/sys/fs/bpf	bpf	bpf	rw,nosuid,node
/sys/kernel/debug	debugfs	debugfs	rw,nosuid,node
/sys/kernel/tracing	tracefs	tracefs	rw,nosuid,node
/sys/fs/fuse/connections	fusectl	fusectl	rw,nosuid,node
/sys/kernel/config	configfs	configf	rw,nosuid,node
/proc	proc	proc	rw,nosuid,node
/proc/sys/fs/binfmt_misc	systemd-1	autofs	rw,relatime,fd
/proc/sys/fs/binfmt_misc	binfmt_misc	binfmt_	rw,nosuid,node
/dev	udev	devtmpf	rw,nosuid,rela
/dev/pts	devpts	devpts	rw,nosuid,noex
/dev/shm	tmpfs	tmpfs	rw,nosuid,node
/dev/hugepages	hugetlbfs	hugetlb	rw,relatime,pa
/dev/mqueue	mqueue	mqueue	rw,nosuid,node
/run	tmpfs	tmpfs	rw,nosuid,node
/run/lock	tmpfs	tmpfs	rw,nosuid,node
/run/vmblock-fuse	vmware-vmblock	fuse.vm	rw,relatime,us
/run/credentials/systemd-sysusers.service			

198. uname -a :

See kernel release information.

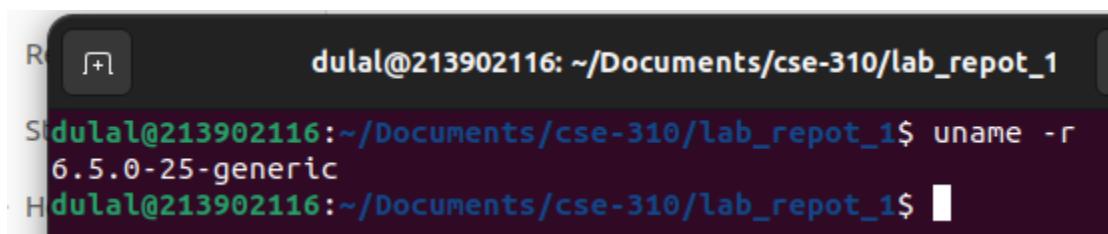


A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310/lab_repot_1". The terminal displays the command "uname -a" followed by its output: "Linux 213902116 6.5.0-25-generic #25~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Feb 20 16:09:15 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux". The window has standard OS X-style controls at the top.

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ uname -a
Linux 213902116 6.5.0-25-generic #25~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Tue Feb
20 16:09:15 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

199. Uname -r :

Show system information via uname command.

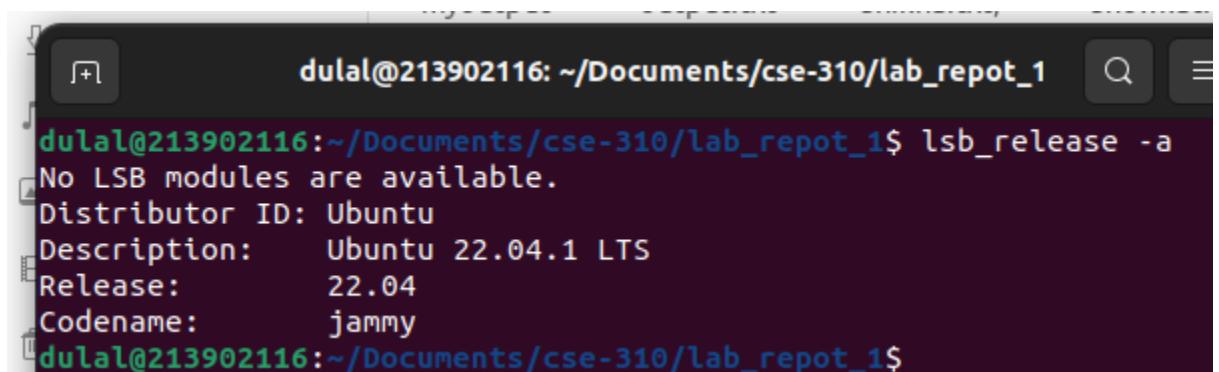


A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310/lab_repot_1". The terminal displays the command "uname -r" followed by its output: "6.5.0-25-generic". The window has standard OS X-style controls at the top.

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ uname -r
6.5.0-25-generic
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

200. lsb_release -a :

Show which version of ubuntu installed

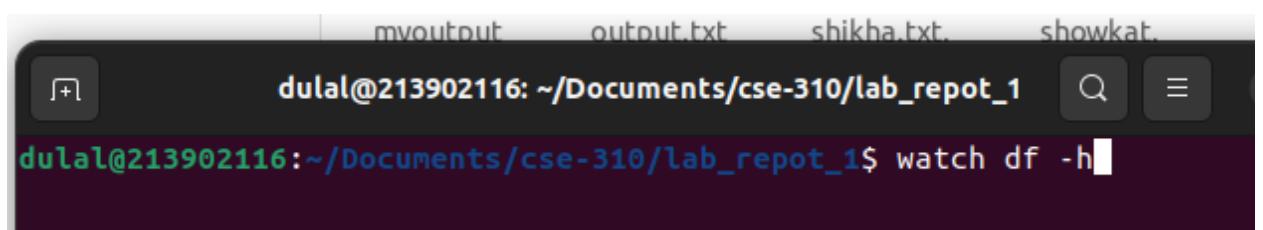


A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310/lab_repot_1". The terminal displays the command "lsb_release -a" followed by its output, which includes the distributor ID, description, release, and codename. The window has standard OS X-style controls at the top.

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 22.04.1 LTS
Release:        22.04
Codename:       jammy
dulal@213902116:~/Documents/cse-310/lab_repot_1$
```

201. watch df -h :

Execute "df -h", showing periodic updates



A screenshot of a terminal window titled "dulal@213902116: ~/Documents/cse-310/lab_repot_1". The terminal displays the command "watch df -h". The window has standard OS X-style controls at the top.

```
dulal@213902116:~/Documents/cse-310/lab_repot_1$ watch df -h
```

```
myoutput      output.txt      shikha.txt,      showkat.
dulal@213902116: ~/Documents/cse-310/lab_repot_1
Every 2.0s: df -h                                         213902116: Fri Mar 15 23:57:50 2024
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           293M  1.7M  292M   1% /run
/dev/sda3        98G   13G   81G  14% /
tmpfs           1.5G     0  1.5G   0% /dev/shm
tmpfs           5.0M  4.0K  5.0M   1% /run/lock
/dev/sda2       512M  6.1M  506M   2% /boot/efi
tmpfs           293M 100K  293M   1% /run/user/1000
/dev/sr0          3.6G  3.6G     0 100% /media/dulal/Ubuntu 22.04.1 LTS amd64
```