

Name - Shaan Alam

Roll no - 20/63027

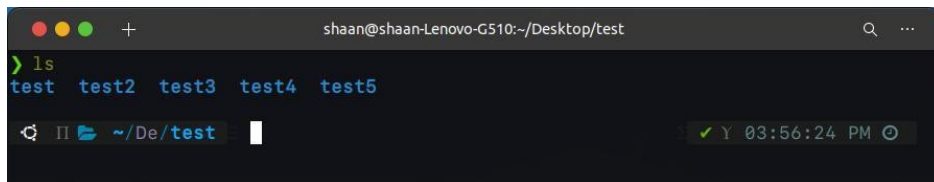
Subject - Operating System

Sem – III

Q1 - Usage of following commands: ls, pwd, tty, cat, who, whoami, rm, mkdir, rmdir, touch, cd.

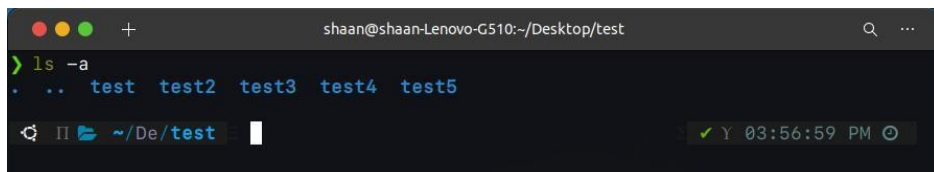
ls

This comand is used to list the files in a directory

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test' showing the command 'ls' being executed. The output lists five files: 'test', 'test2', 'test3', 'test4', and 'test5'. The terminal has a dark background with light blue text for the prompt and output. The status bar at the bottom shows a green checkmark, the letter 'Y', and the time '03:56:24 PM'.

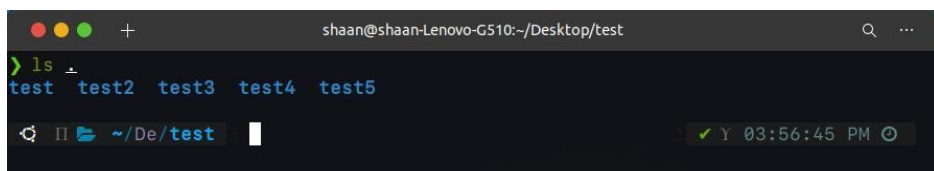
ls -a

This command is used to list all the files

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test' showing the command 'ls -a' being executed. The output lists all files and directories, including hidden ones: '.', '..', 'test', 'test2', 'test3', 'test4', and 'test5'. The terminal has a dark background with light blue text for the prompt and output. The status bar at the bottom shows a green checkmark, the letter 'Y', and the time '03:56:59 PM'.

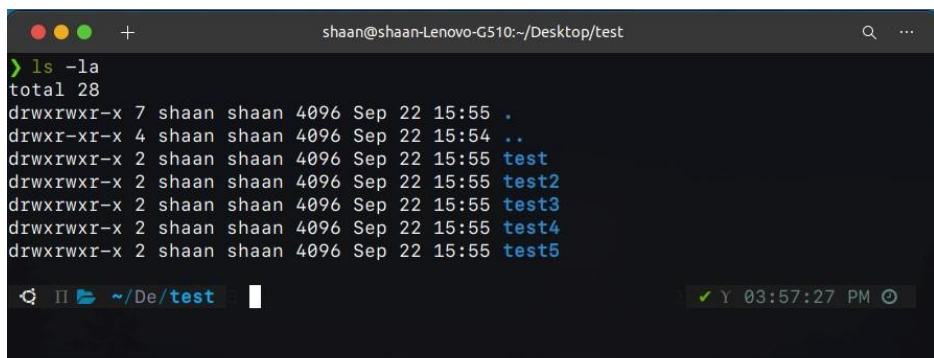
ls .

This command is used to list all the files in the current working directory

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test' showing the command 'ls .' being executed. The output lists five files: 'test', 'test2', 'test3', 'test4', and 'test5'. The terminal has a dark background with light blue text for the prompt and output. The status bar at the bottom shows a green checkmark, the letter 'Y', and the time '03:56:45 PM'.

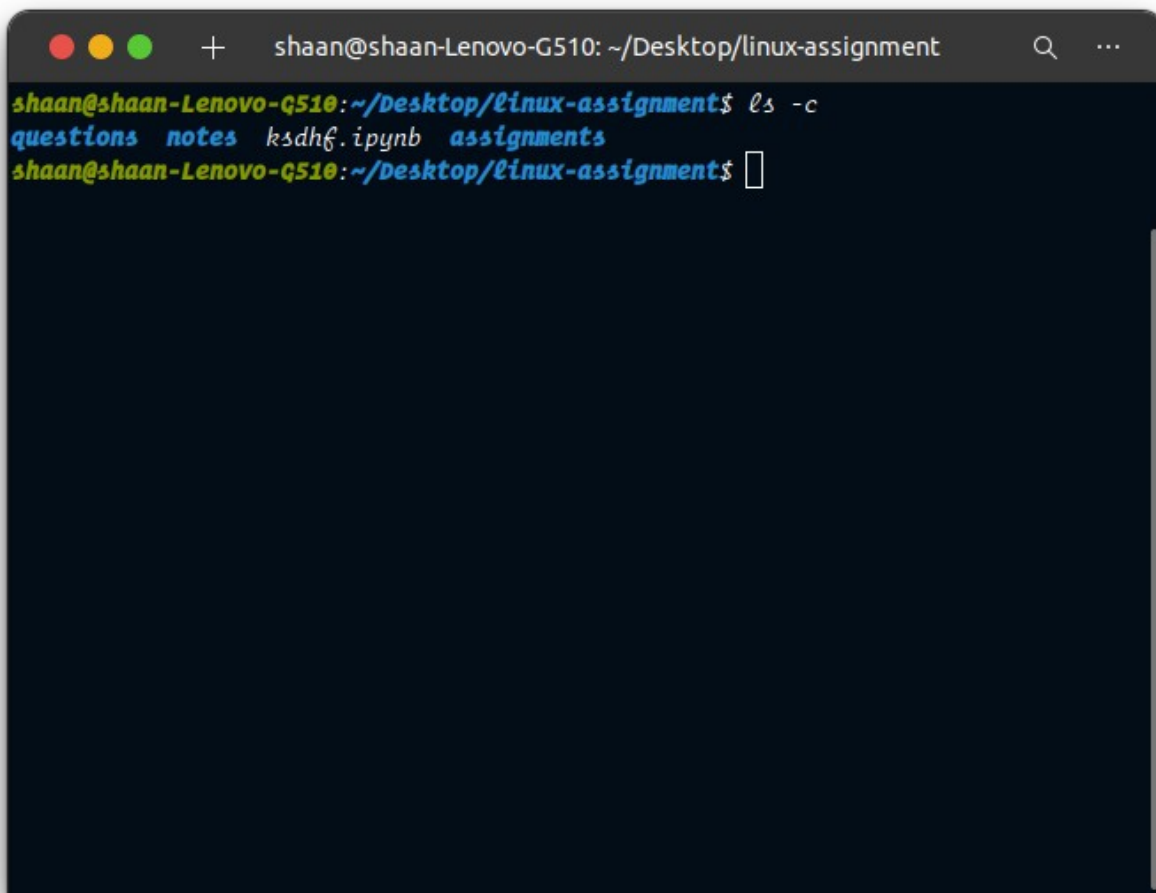
ls -la

This command is used to display the long listing directories

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test' showing the command 'ls -la' being executed. The output displays a long listing of files and directories, including permissions, owner, group, size, date, and filename. The files listed are '.', '..', 'test', 'test2', 'test3', 'test4', and 'test5'. The terminal has a dark background with light blue text for the prompt and output. The status bar at the bottom shows a green checkmark, the letter 'Y', and the time '03:57:27 PM'.

ls -c

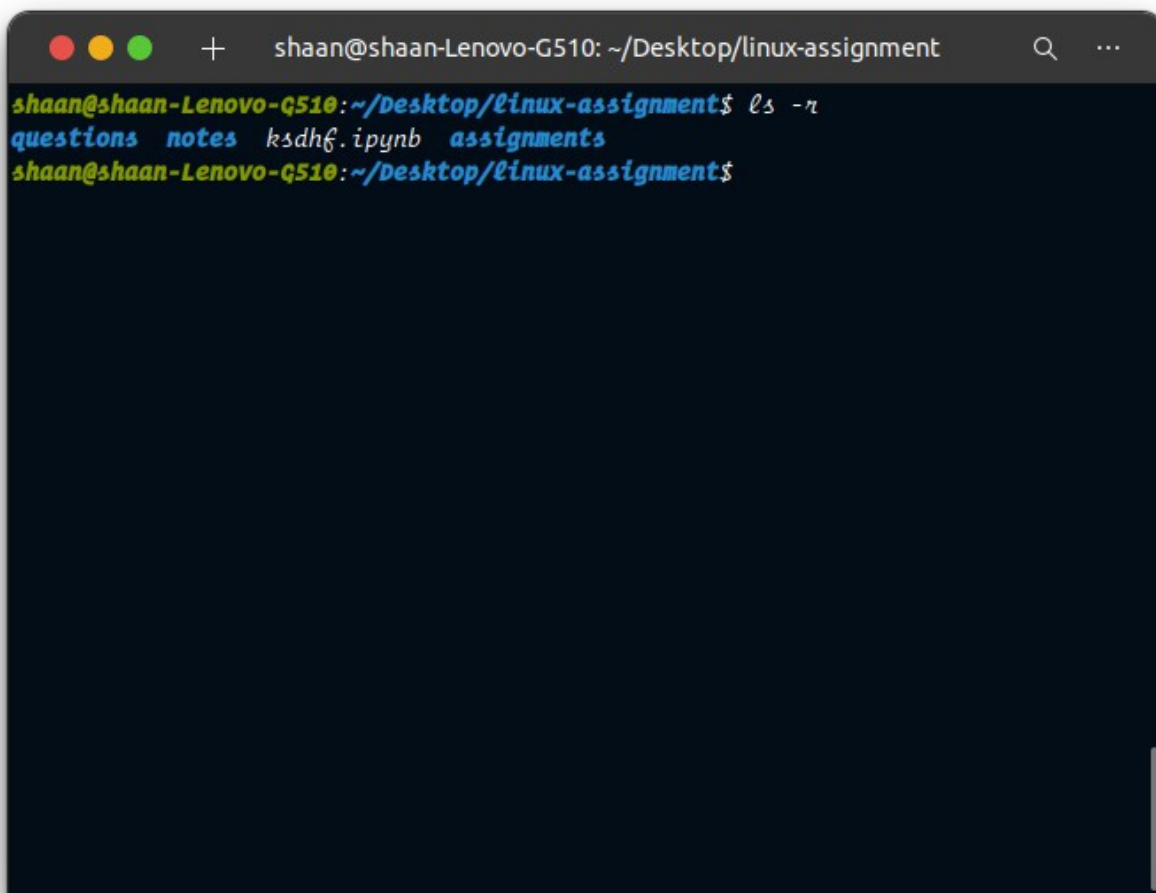
This command is used to display the entries in column view.

A terminal window with a dark blue background and light green text. The window title bar shows 'shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment'. The terminal content shows the command 'ls -c' being executed, resulting in the output 'questions notes ksdhf.ipynb assignments'. The prompt 'shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment\$' is visible at the end of the line.

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment$ ls -c
questions  notes  ksdhf.ipynb  assignments
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment$
```

ls -r

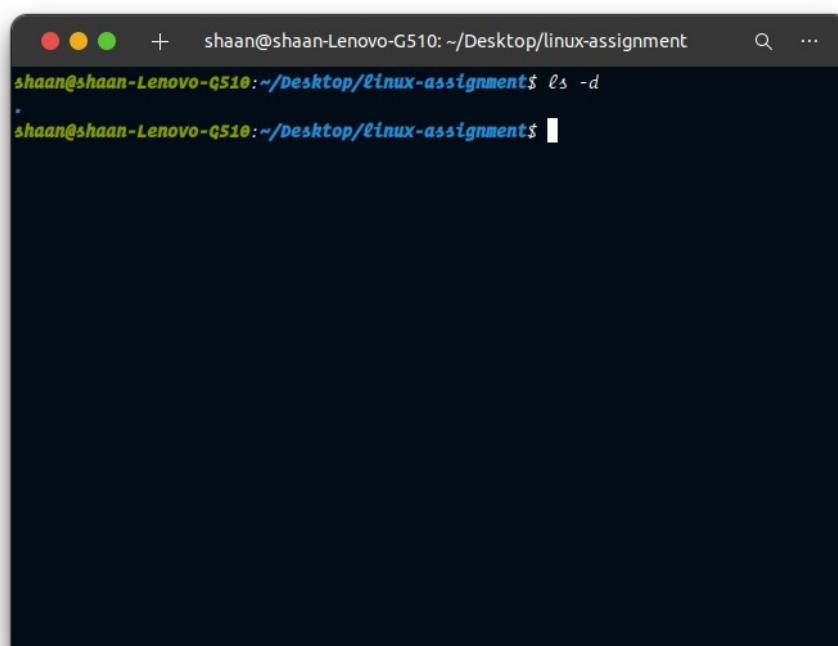
This command shows the list of directories in reverse order.



```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment$ ls -r
questions  notes  ksdhf.ipynb  assignments
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment$
```

ls -d

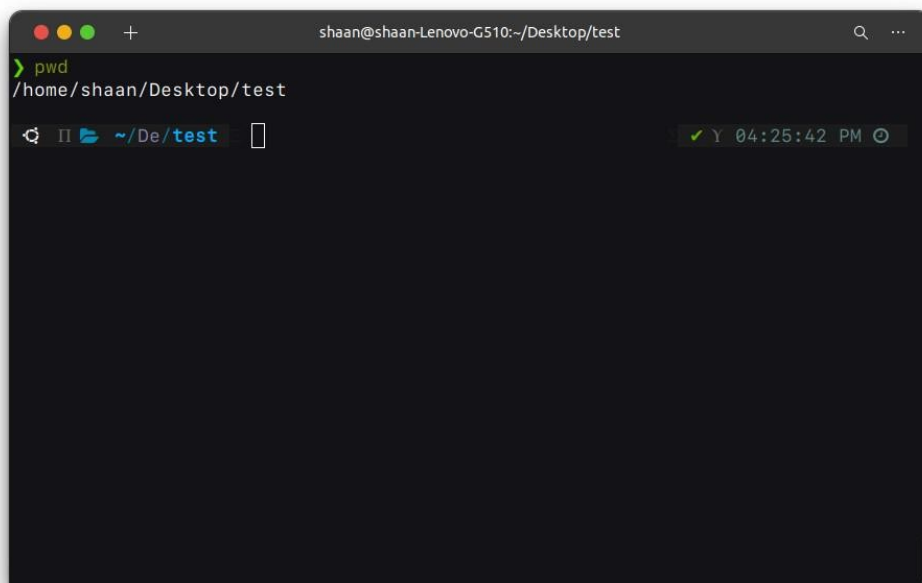
This command shows the list directory itself.



```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment$ ls -d
.
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment$
```

pwd

pwd stands for **print working directory**. When invoked the command prints the complete path of the current working directory

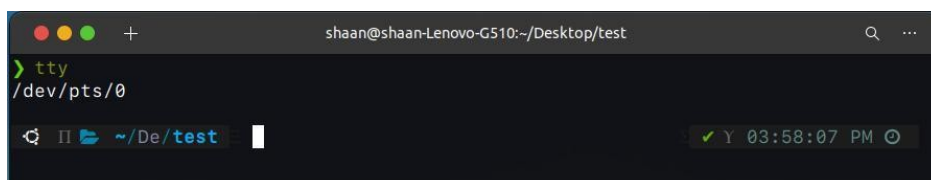
A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' showing the command 'pwd' being executed. The output is '/home/shaan/Desktop/test'. The terminal has a dark background with a light blue prompt character and a status bar at the bottom showing a green checkmark, the letter 'Y', and the time '04:25:42 PM'.

tty

tty stands for **Teletype** command. **tty** is a command to print the file name of the terminal connected to standard input.

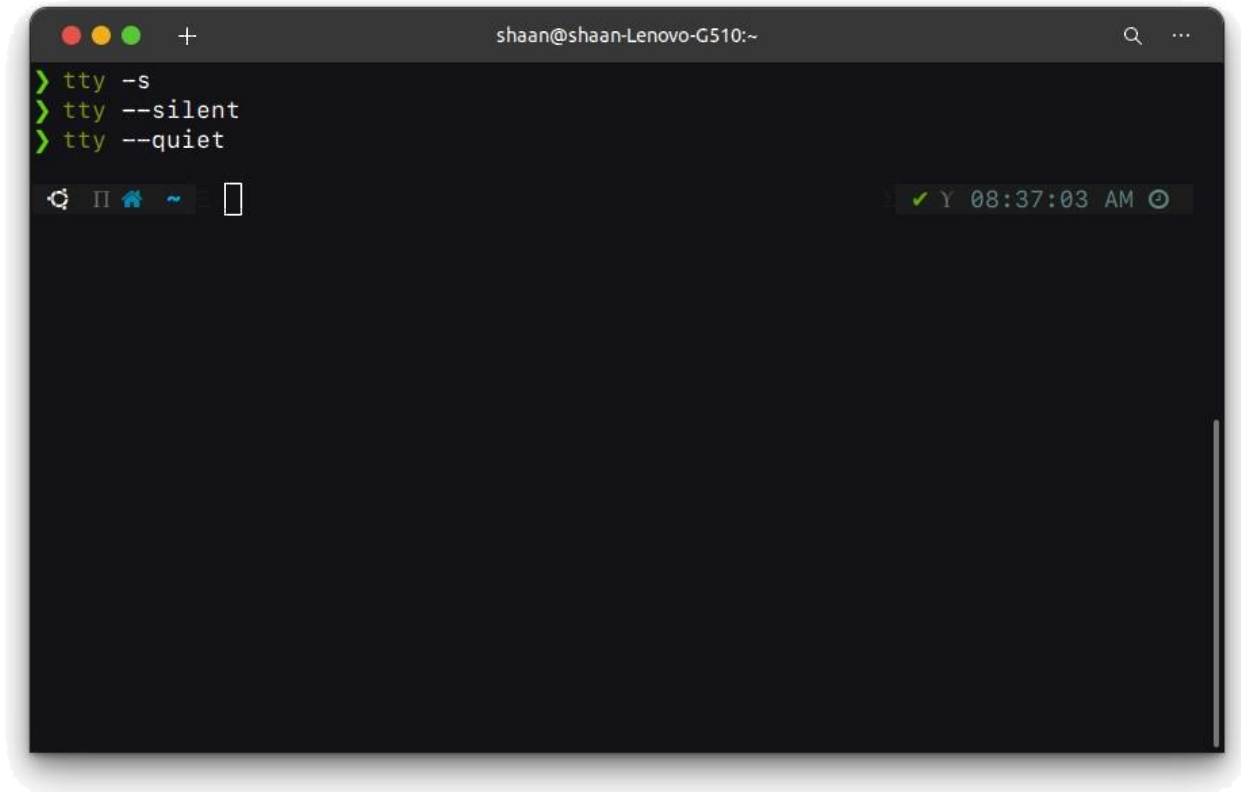
tty

This command prints the filename of the terminal connected to standard input teletype.

A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' showing the command 'tty' being executed. The output is '/dev/pts/0'. The terminal has a dark background with a light blue prompt character and a status bar at the bottom showing a green checkmark, the letter 'Y', and the time '03:58:07 PM'.

tty -s, tty --silent, tty --quiet

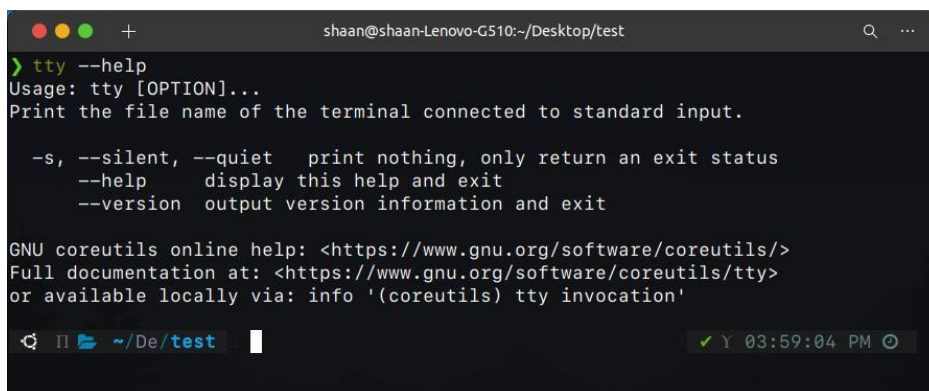
These command will print nothing but return only exit status.

A terminal window titled 'shaan@shaan-Lenovo-G510:~' with standard macOS window controls. The terminal shows three commands: 'tty -s', 'tty --silent', and 'tty --quiet'. The prompt is green. At the bottom, there is a status bar with icons for settings, window management, and a clock showing '08:37:03 AM' with a green checkmark and a refresh icon.

```
> tty -s
> tty --silent
> tty --quiet
```

tty --help

This command will print the help message for **tty** command.

A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' with standard macOS window controls. The terminal shows the output of 'tty --help'. The prompt is green. At the bottom, there is a status bar with icons for settings, window management, and a clock showing '03:59:04 PM' with a green checkmark and a refresh icon.

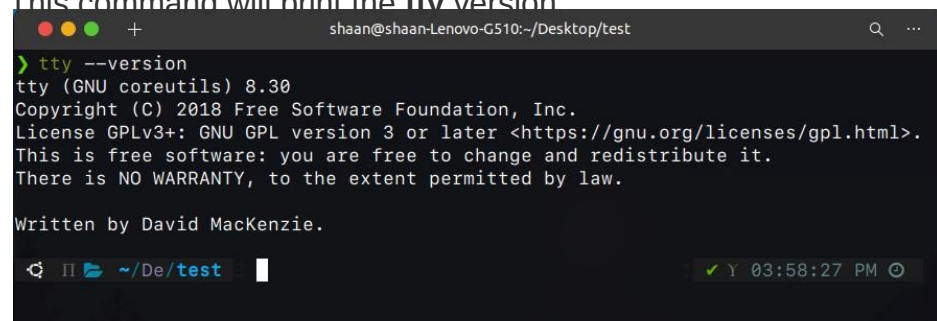
```
> tty --help
Usage: tty [OPTION]...
Print the file name of the terminal connected to standard input.

  -s, --silent, --quiet  print nothing, only return an exit status
  --help                display this help and exit
  --version              output version information and exit

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Full documentation at: <https://www.gnu.org/software/coreutils/tty>
or available locally via: info '(coreutils) tty invocation'
```

tty --version

This command will print the **tty** version

A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' with standard macOS window controls. The terminal shows the output of 'tty --version'. The prompt is green. At the bottom, there is a status bar with icons for settings, window management, and a clock showing '03:58:27 PM' with a green checkmark and a refresh icon.

```
> tty --version
tty (GNU coreutils) 8.30
Copyright (C) 2018 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.

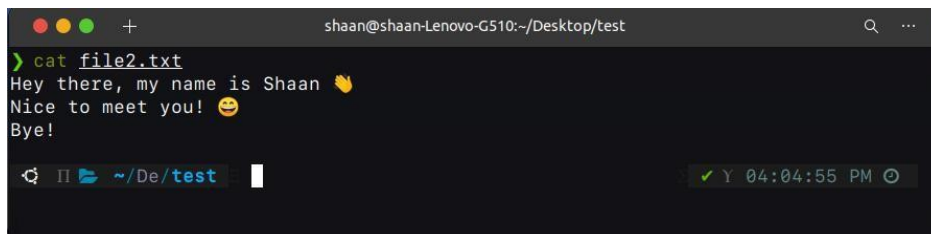
Written by David MacKenzie.
```

cat

cat command reads the data from the file and gives their content as output.

cat file_name

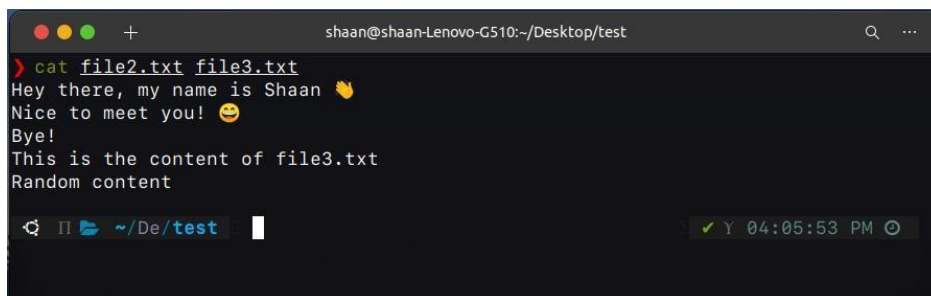
This command will print the content of a single file in the terminal.

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test' showing the command 'cat file2.txt' and its output. The output consists of three lines: 'Hey there, my name is Shaan 🙋', 'Nice to meet you! 😊', and 'Bye!'. The terminal has a dark background with light-colored text. The prompt is a green '>'. The command is in green. The output is in white. The status bar at the bottom shows a green checkmark, a yellow 'Y', the time '04:04:55 PM', and a refresh icon.

```
> cat file2.txt
Hey there, my name is Shaan 🙋
Nice to meet you! 😊
Bye!
```

cat file_name_1 file_name_2

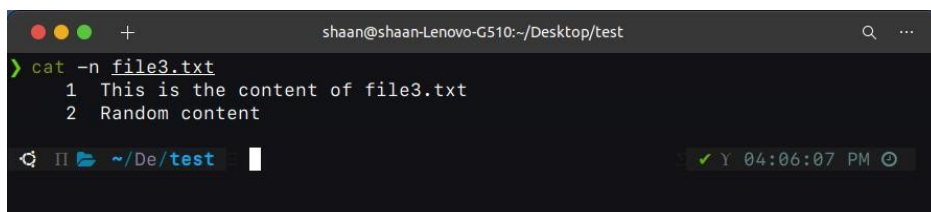
This command will print the content of multiple files in the terminal

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test' showing the command 'cat file2.txt file3.txt' and its output. The output consists of five lines: 'Hey there, my name is Shaan 🙋', 'Nice to meet you! 😊', 'Bye!', 'This is the content of file3.txt', and 'Random content'. The terminal has a dark background with light-colored text. The prompt is a green '>'. The command is in green. The output is in white. The status bar at the bottom shows a green checkmark, a yellow 'Y', the time '04:05:53 PM', and a refresh icon.

```
> cat file2.txt file3.txt
Hey there, my name is Shaan 🙋
Nice to meet you! 😊
Bye!
This is the content of file3.txt
Random content
```

cat -n file_name

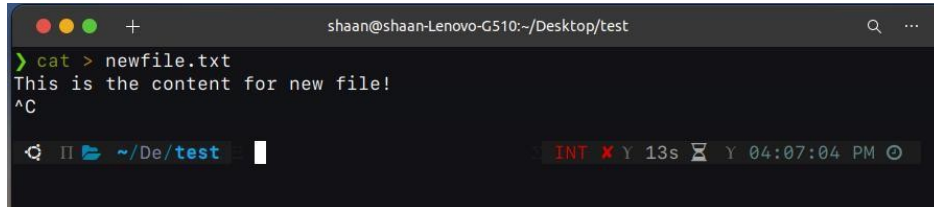
This command will print the content of a file along with line numbers.

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test' showing the command 'cat -n file3.txt' and its output. The output consists of two lines: '1 This is the content of file3.txt' and '2 Random content'. The terminal has a dark background with light-colored text. The prompt is a green '>'. The command is in green. The output is in white. The status bar at the bottom shows a green checkmark, a yellow 'Y', the time '04:06:07 PM', and a refresh icon.

```
> cat -n file3.txt
1 This is the content of file3.txt
2 Random content
```

cat > file_name

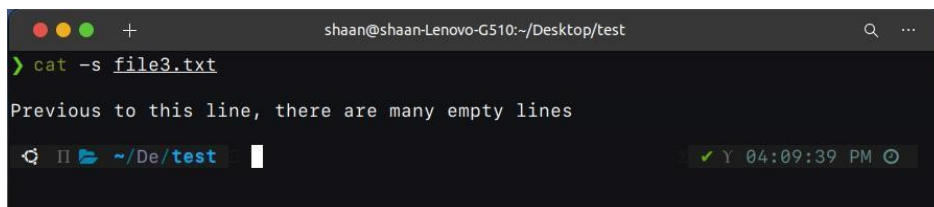
This command will create a new file.

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test'. The command 'cat > newfile.txt' is entered, followed by the text 'This is the content for new file!' and a carriage return '^C'. The prompt shows the current directory as ~/De/test.

```
shaan@shaan-Lenovo-G510: ~/Desktop/test
> cat > newfile.txt
This is the content for new file!
^C
```

cat -s file_name

This command will suppress repeated empty lines in the output

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test'. The command 'cat -s file3.txt' is entered, and the output 'Previous to this line, there are many empty lines' is displayed. The prompt shows the current directory as ~/De/test.

```
shaan@shaan-Lenovo-G510: ~/Desktop/test
> cat -s file3.txt
Previous to this line, there are many empty lines
```

cat file1 >> file2

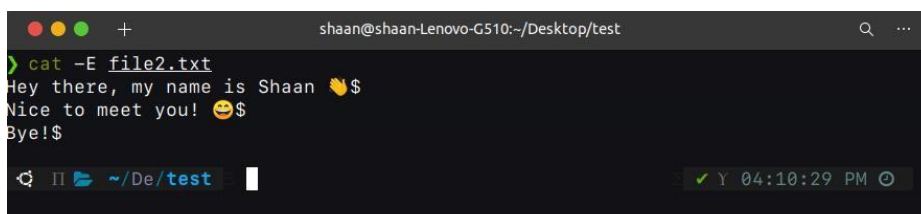
This command will append the content of one file to another

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test'. The command 'cat file.txt >> file2.txt' is entered. The prompt shows the current directory as ~/De/test.

```
shaan@shaan-Lenovo-G510: ~/Desktop/test
> cat file.txt >> file2.txt
```

cat -E file_name

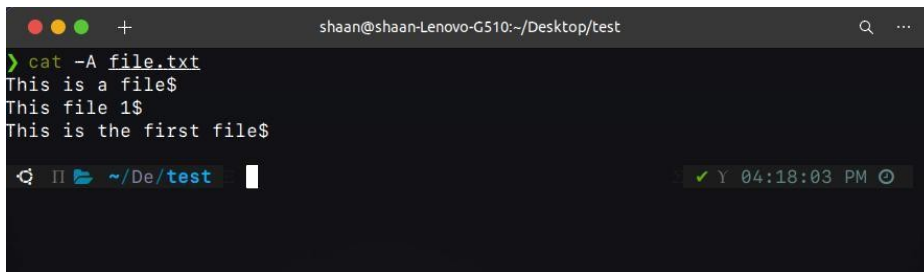
This command will highlight the end of line

A terminal window titled 'shaan@shaan-Lenovo-G510: ~/Desktop/test'. The command 'cat -E file2.txt' is entered, and the output shows three lines of text, each ending with a '\$' symbol to indicate the end of the line. The prompt shows the current directory as ~/De/test.

```
shaan@shaan-Lenovo-G510: ~/Desktop/test
> cat -E file2.txt
Hey there, my name is Shaan 🙋$
Nice to meet you! 😊$
Bye!$
```

cat -A file_name

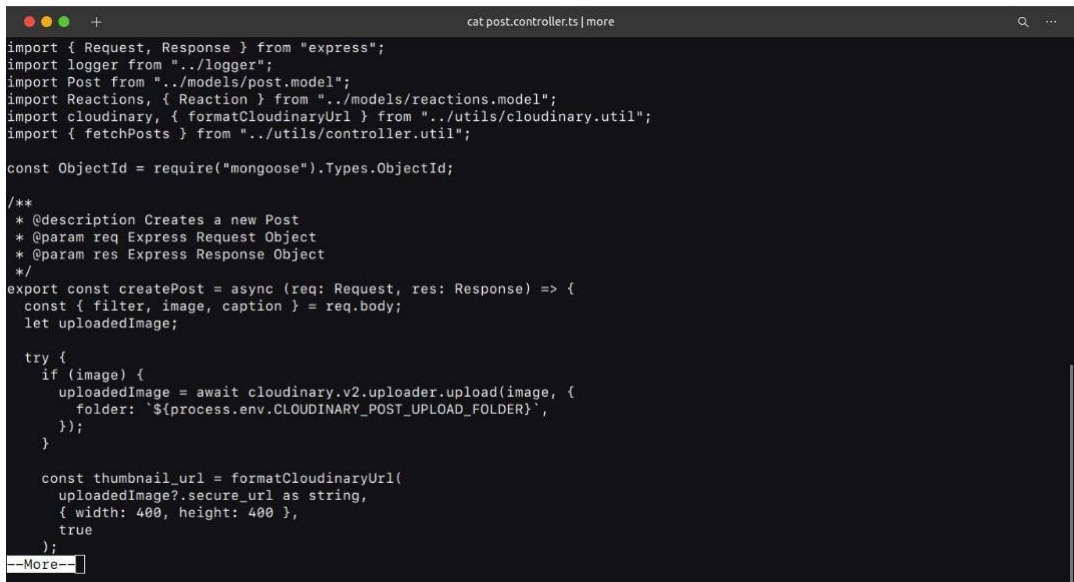
Instead of using -vET command, we can use -A command.



```
shaan@shaan-Lenovo-G510: ~/Desktop/test
> cat -A file.txt
This is a file$
This file 1$
This is the first file$
```

cat file_name | more

If the file has a lot of content and it can't fit in the terminal window, you can use | more parameter along with the cat command.



```
cat post.controller.ts | more
import { Request, Response } from "express";
import logger from "../logger";
import Post from "../models/post.model";
import Reactions, { Reaction } from "../models/reactions.model";
import cloudinary, { formatCloudinaryUrl } from "../utils/cloudinary.util";
import { fetchPosts } from "../utils/controller.util";

const ObjectId = require("mongoose").Types.ObjectId;

/**
 * @description Creates a new Post
 * @param req Express Request Object
 * @param res Express Response Object
 */
export const createPost = async (req: Request, res: Response) => {
  const { filter, image, caption } = req.body;
  let uploadedImage;

  try {
    if (image) {
      uploadedImage = await cloudinary.v2.uploader.upload(image, {
        folder: `${process.env.CLOUDINARY_POST_UPLOAD_FOLDER}`,
      });
    }

    const thumbnail_url = formatCloudinaryUrl(
      uploadedImage?.secure_url as string,
      { width: 400, height: 400 },
      true
    );
  }
  --More--
```

cat file_name_1 file_name_2 file_name_3 > merged_file_name This command will merge the mentioned files into a single file.

```
shaan@shaan-Lenovo-G510: ~/Desktop/test
> cat file.txt file2.txt file3.txt > merged_file.txt
> cat merged_file.txt
This is a file
This file 1
This is the first file
Hey there, my name is Shaan 🙋
Nice to meet you! 😊
Bye!
This is file3
this is the third file
```

cat *.txt

This command will print all the .txt files present in the current folder.

```
shaan@shaan-Lenovo-G510: ~/Desktop/test
> cat *.txt
This is the source file
Hey there, my name is Shaan 🙋
Nice to meet you! 😊
Bye!
This is a file
This file 1
This is the first file
This is file3
this is the third file
This is a file
This file 1
This is the first file
This is a file
This file 1
This is the first file
Hey there, my name is Shaan 🙋
Nice to meet you! 😊
Bye!
This is file3
this is the third file
This is the content for new file!
This is the source file
```

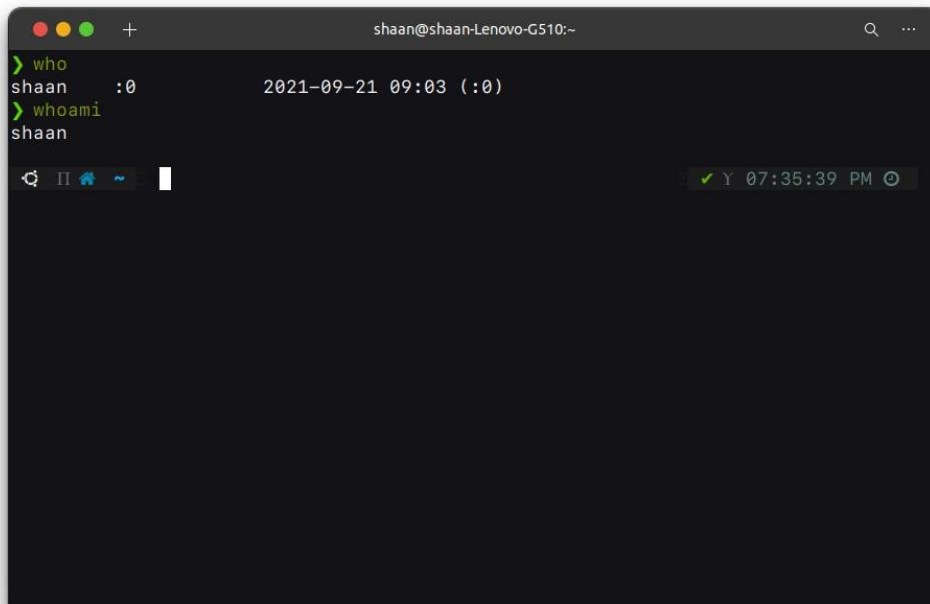
who and whoami

who

who command will print the name of currently logged in user along with some other informations.

whoami

whoami command prints the user name.

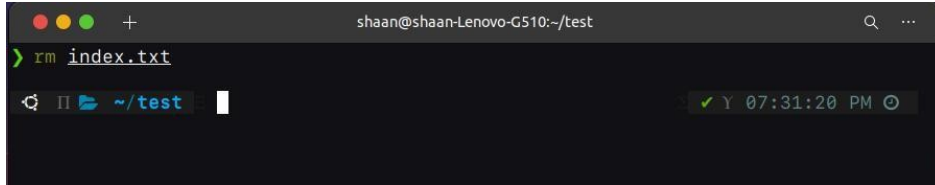


```
shaan@shaan-Lenovo-G510:~  
> who  
shaan      :0                2021-09-21 09:03 (:0)  
> whoami  
shaan
```

The image shows a terminal window with a dark background. The title bar at the top reads 'shaan@shaan-Lenovo-G510:~'. The terminal content shows the execution of the 'who' command, which outputs 'shaan :0 2021-09-21 09:03 (:0)', followed by the 'whoami' command, which outputs 'shaan'. The bottom status bar of the terminal shows a green checkmark, the text 'Y 07:35:39 PM', and a circular icon.

`rm [filename]`

rm command will delete the file specified (by renaming it).

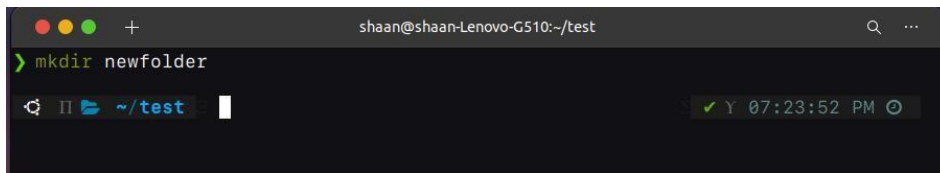
A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/test'. The command prompt is '>'. The user has entered 'rm index.txt'. Below the command, there is a status bar showing a green checkmark, a yellow 'Y', the time '07:31:20 PM', and a circular icon. The terminal also shows the current directory as '~/test'.

`mkdir`

This command is used to create a new directories in the current working directory.

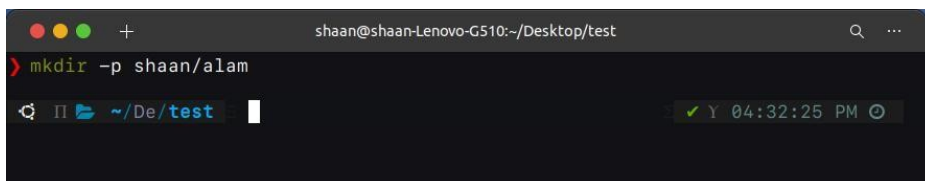
`mkdir [dirname]`

This command is used to create a new directory.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/test'. The command prompt is '>'. The user has entered 'mkdir newfolder'. Below the command, there is a status bar showing a green checkmark, a yellow 'Y', the time '07:23:52 PM', and a circular icon. The terminal also shows the current directory as '~/test'.

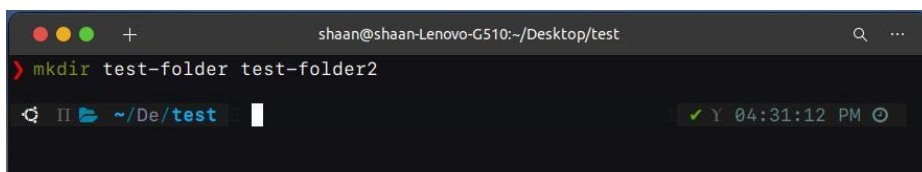
`mkdir -p /shaan/alam`

This command will create all required parent directories

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/Desktop/test'. The command prompt is '>'. The user has entered 'mkdir -p shaan/alam'. Below the command, there is a status bar showing a green checkmark, a yellow 'Y', the time '04:32:25 PM', and a circular icon. The terminal also shows the current directory as '~/De/test'.

`mkdir [dirname1] [dirname2]`

This command will create multiple directories at the same time.

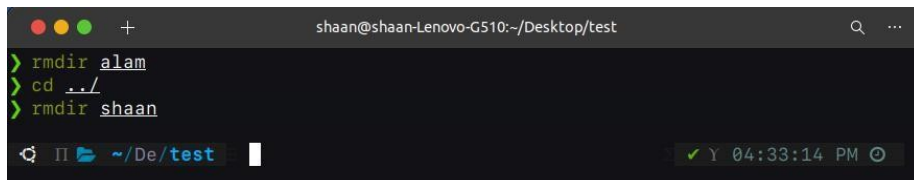
A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/Desktop/test'. The command prompt is '>'. The user has entered 'mkdir test-folder test-folder2'. Below the command, there is a status bar showing a green checkmark, a yellow 'Y', the time '04:31:12 PM', and a circular icon. The terminal also shows the current directory as '~/De/test'.

rmdir

This command is used to delete directories specified.

rmdir *[dirname]*

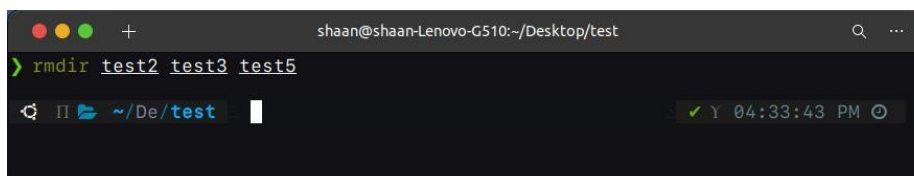
This comand will delete a single directory specified.

A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' showing the execution of the 'rmdir' command. The user enters 'rmdir alam', then 'cd ../', and finally 'rmdir shaan'. The prompt changes to '~ / Desktop / test'. The status bar at the bottom shows a green checkmark, 'Y', and the time '04:33:14 PM'.

```
shaan@shaan-Lenovo-G510:~/Desktop/test
> rmdir alam
> cd ../
> rmdir shaan
~ / Desktop / test
```

rmdir *[dirname]* *[dirname]* ...

This command will delete multiple directories specified.

A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' showing the execution of the 'rmdir' command with multiple arguments. The user enters 'rmdir test2 test3 test5'. The prompt changes to '~ / Desktop / test'. The status bar at the bottom shows a green checkmark, 'Y', and the time '04:33:43 PM'.

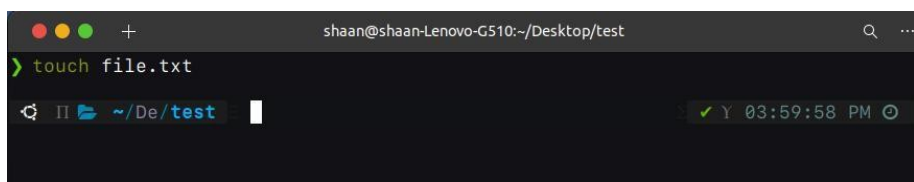
```
shaan@shaan-Lenovo-G510:~/Desktop/test
> rmdir test2 test3 test5
~ / Desktop / test
```

touch

touch command is used to create new files.

touch *[filename]*

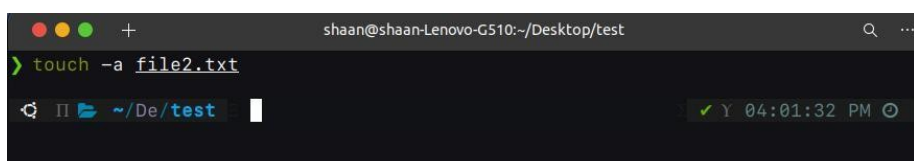
This command will create a new file.

A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' showing the execution of the 'touch' command. The user enters 'touch file.txt'. The prompt changes to '~ / Desktop / test'. The status bar at the bottom shows a green checkmark, 'Y', and the time '03:59:58 PM'.

```
shaan@shaan-Lenovo-G510:~/Desktop/test
> touch file.txt
~ / Desktop / test
```

touch -a *[filename]*

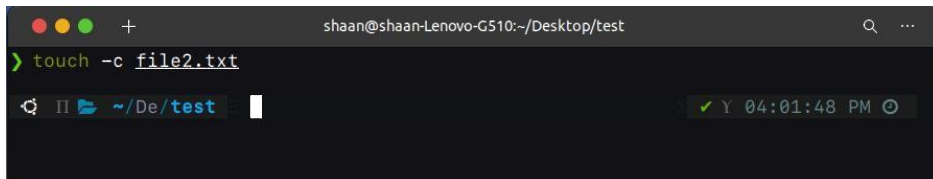
This command is used to change access time only.

A terminal window titled 'shaan@shaan-Lenovo-G510:~/Desktop/test' showing the execution of the 'touch -a' command. The user enters 'touch -a file2.txt'. The prompt changes to '~ / Desktop / test'. The status bar at the bottom shows a green checkmark, 'Y', and the time '04:01:32 PM'.

```
shaan@shaan-Lenovo-G510:~/Desktop/test
> touch -a file2.txt
~ / Desktop / test
```

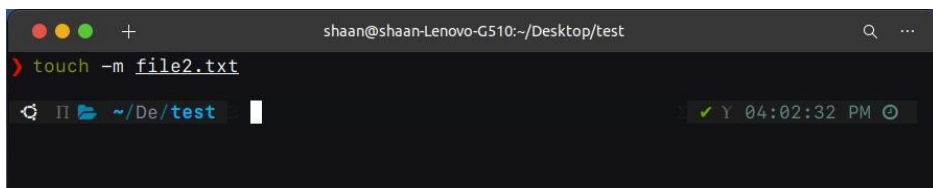
touch -c *[filename]*

This command is used to check whether a file is created or not. If not created then don't create it.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/Desktop/test'. The command prompt is '> touch -c file2.txt'. Below the command, the prompt is '~ /De /test' followed by a cursor. A status bar at the bottom right shows a green checkmark, 'Y', and the time '04:01:48 PM'.

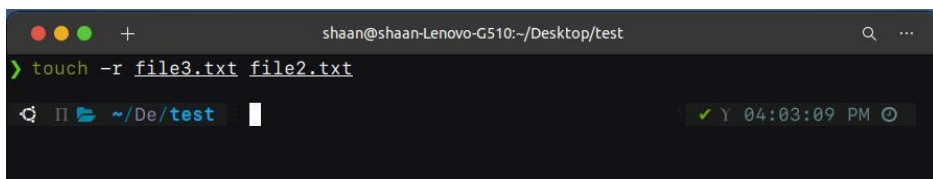
`touch -m [filename]`

This is used to change the modification time only. It only updates last modification time.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/Desktop/test'. The command prompt is '> touch -m file2.txt'. Below the command, the prompt is '~ /De /test' followed by a cursor. A status bar at the bottom right shows a green checkmark, 'Y', and the time '04:02:32 PM'.

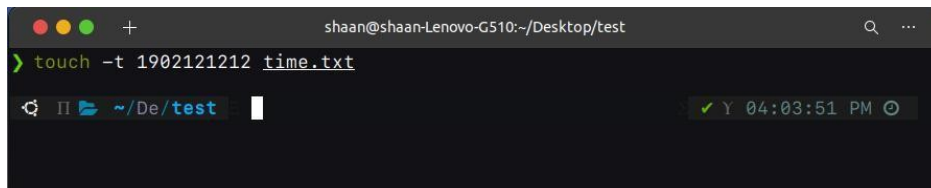
`touch -r [filename]`

This command is used to use the timestamp of another file.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/Desktop/test'. The command prompt is '> touch -r file3.txt file2.txt'. Below the command, the prompt is '~ /De /test' followed by a cursor. A status bar at the bottom right shows a green checkmark, 'Y', and the time '04:03:09 PM'.

touch -t [filename]

This is used to create a file using a specified time.



```
shaan@shaan-Lenovo-G510:~/Desktop/test
> touch -t 1902121212 time.txt
```

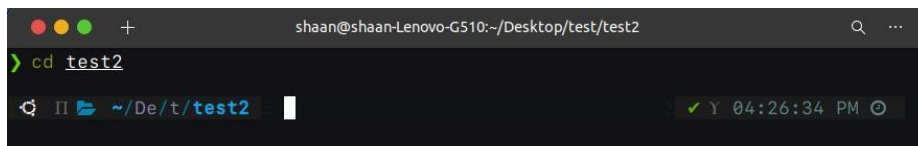
The terminal window shows the command `touch -t 1902121212 time.txt` being executed. The prompt is `shaan@shaan-Lenovo-G510:~/Desktop/test`. The status bar at the bottom indicates the time is 04:03:51 PM.

cd

cd command stands for **Change Directory**. As the name specifies, it is used to change the directory from the current working directory.

cd [dirname]

This command will change the current working directory to [dirname] directory.

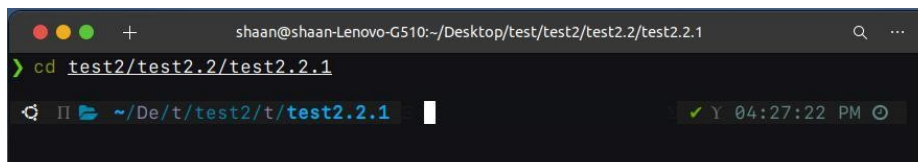


```
shaan@shaan-Lenovo-G510:~/Desktop/test/test2
> cd test2
```

The terminal window shows the command `cd test2` being executed. The prompt is `shaan@shaan-Lenovo-G510:~/Desktop/test/test2`. The status bar at the bottom indicates the time is 04:26:34 PM.

cd [dir1]/[dir2]/[dir3]

This command will change the current working directory to *dir1/dir2/dir3* directory.

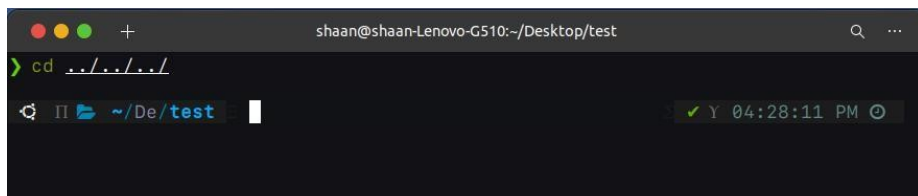


```
shaan@shaan-Lenovo-G510:~/Desktop/test/test2/test2.2/test2.2.1
> cd test2/test2.2/test2.2.1
```

The terminal window shows the command `cd test2/test2.2/test2.2.1` being executed. The prompt is `shaan@shaan-Lenovo-G510:~/Desktop/test/test2/test2.2/test2.2.1`. The status bar at the bottom indicates the time is 04:27:22 PM.

cd ../

This command will change the current working directory to the parent directory or previous folder.



```
shaan@shaan-Lenovo-G510:~/Desktop/test
> cd ../../../../
```

The terminal window shows the command `cd ../../../../` being executed. The prompt is `shaan@shaan-Lenovo-G510:~/Desktop/test`. The status bar at the bottom indicates the time is 04:28:11 PM.

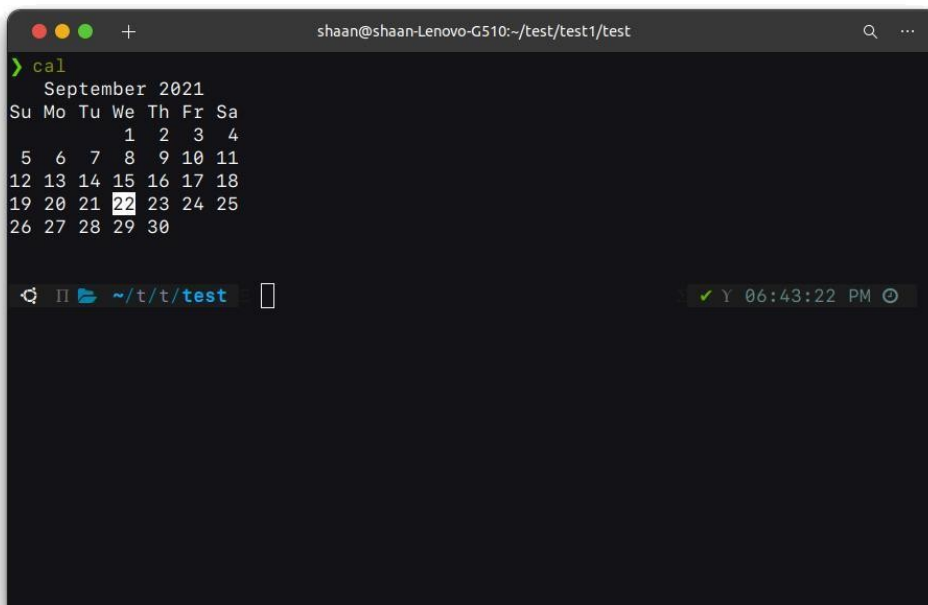
Q2 – Usage of following commands: cal, cat (append), cat(concatenate), mv, cp, man, date.

cal

cal command will print the calendar in terminal window. By default, cal command will show the current month as output.

cal

This command will by default show the calendar of current month.



```
shaan@shaan-Lenovo-G510:~/test/test1/test
> cal
September 2021
Su Mo Tu We Th Fr Sa
      1  2  3  4
 5  6  7  8  9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30
```

The screenshot shows a terminal window with the title bar 'shaan@shaan-Lenovo-G510:~/test/test1/test'. The user has entered the command 'cal', which outputs the calendar for September 2021. The calendar is displayed in a grid format with days of the week as headers. The date 22 is highlighted. The terminal status bar at the bottom shows the current directory as '~/t/t/test' and the time as 06:43:22 PM.

This command will show the entire year's calendar as output.

```

shaan@shaan-Lenovo-G510:~/test/test1/test
> cal 2022

      2022
    January      February      March
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
      1              1 2 3 4 5      1 2 3 4 5
 2  3  4  5  6  7  8    6  7  8  9 10 11 12    6  7  8  9 10 11 12
 9 10 11 12 13 14 15   13 14 15 16 17 18 19   13 14 15 16 17 18 19
16 17 18 19 20 21 22   20 21 22 23 24 25 26   20 21 22 23 24 25 26
23 24 25 26 27 28 29   27 28                27 28 29 30 31
30 31

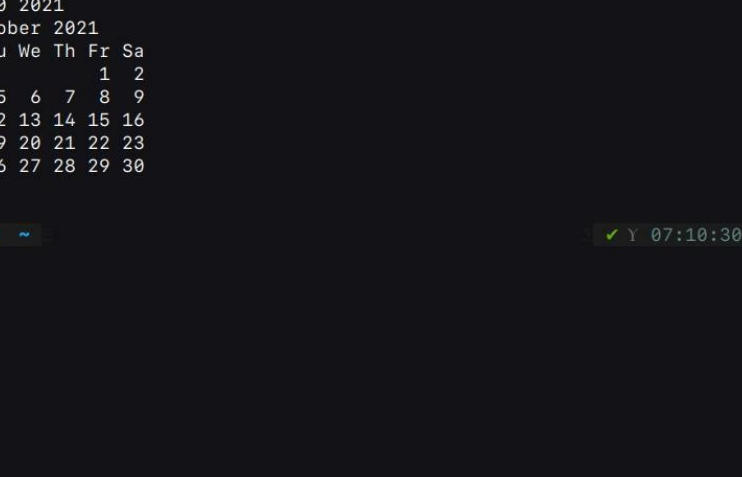
    April      May      June
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
      1 2      1 2 3 4 5 6 7      1 2 3 4
 3  4  5  6  7  8  9    8  9 10 11 12 13 14    5  6  7  8  9 10 11
10 11 12 13 14 15 16   15 16 17 18 19 20 21   12 13 14 15 16 17 18
17 18 19 20 21 22 23   22 23 24 25 26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

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

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

```

This command will print the calendar for the specified month of the year.

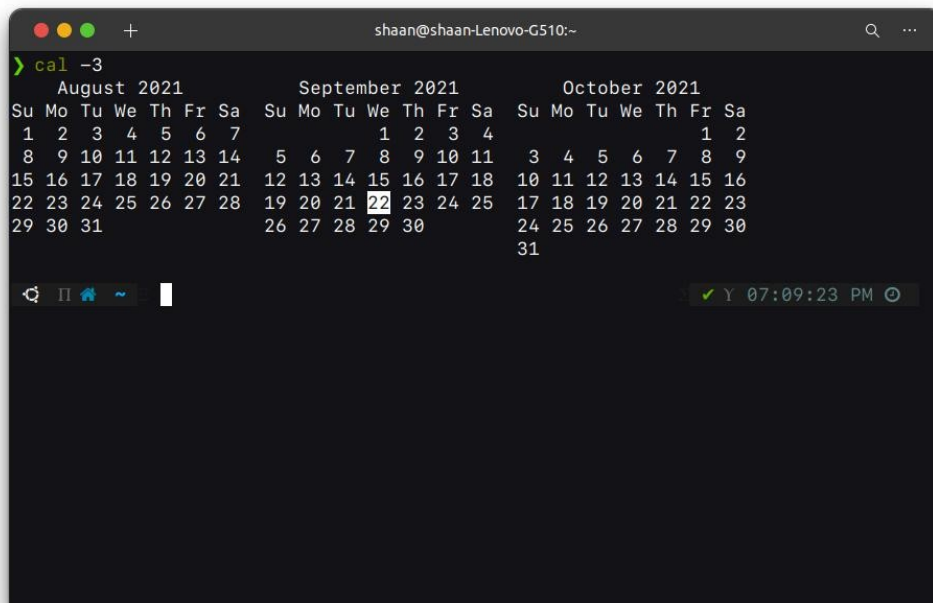


```
shaan@shaan-Lenovo-G510:~  
> cal 10 2021  
      October 2021  
Su Mo Tu We Th Fr Sa  
          1  2  
 3  4  5  6  7  8  9  
10 11 12 13 14 15 16  
17 18 19 20 21 22 23  
24 25 26 27 28 29 30  
31
```

The terminal window shows the output of the 'cal' command for October 2021. The calendar is displayed in a grid format with days of the week as headers. The date 31 is shown at the bottom of the grid. The terminal window has a dark background and a light-colored text. The window title bar shows the user 'shaan' and the host 'shaan-Lenovo-G510'.

cal -3

This command will show the calendar of *previous*, *current*, & *next* month.



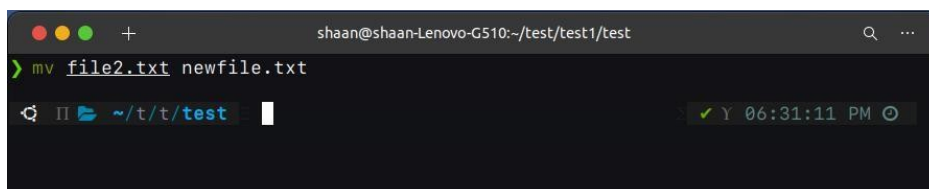
```
shaan@shaan-Lenovo-G510:~  
> cal -3  
      August 2021      September 2021      October 2021  
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa  
 1  2  3  4  5  6  7      1  2  3  4      1  2  
 8  9 10 11 12 13 14    5  6  7  8  9 10 11    3  4  5  6  7  8  9  
15 16 17 18 19 20 21  12 13 14 15 16 17 18  10 11 12 13 14 15 16  
22 23 24 25 26 27 28  19 20 21 22 23 24 25  17 18 19 20 21 22 23  
29 30 31      26 27 28 29 30      24 25 26 27 28 29 30  
                               31
```

mv

This command is used to rename a file or a directory.

mv

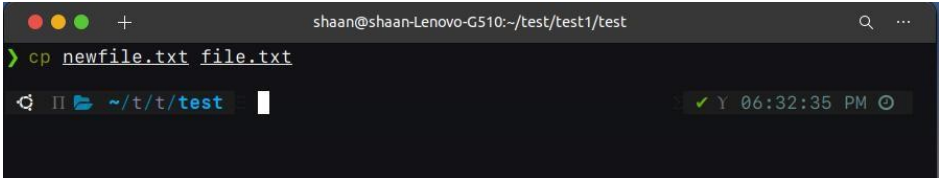
This command can be used to rename a file. The syntax is *mv file_to_be_renamed new_file_name*



```
shaan@shaan-Lenovo-G510:~/test/test1/test  
> mv file2.txt newfile.txt
```

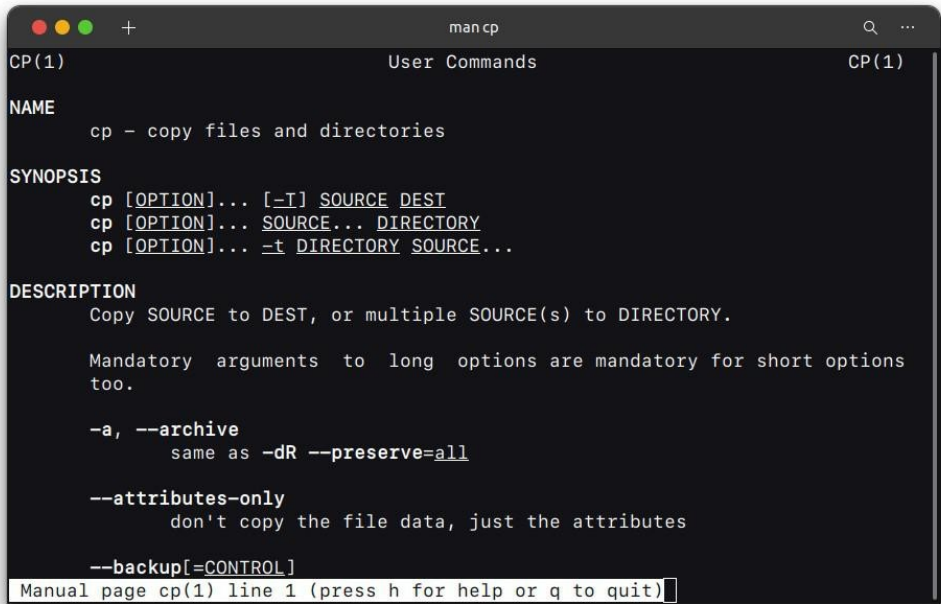
cp

This command is used to copy a file. The syntax is *cp file_to_be_copied new_file_name*

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/test/test1/test'. The prompt is '>'. The command 'cp newfile.txt file.txt' has been entered. The status bar at the bottom shows 'Y 06:32:35 PM'.

man

This command is used to display a manual for any other shell command. For example, `man date` will print the **man** `cp` will print the manual for `cp` command.

A terminal window showing the output of the 'man cp' command. The title bar is 'man cp'. The output is as follows:
CP(1) User Commands CP(1)

NAME
cp - copy files and directories

SYNOPSIS
cp [OPTION]... [-I] SOURCE DEST
cp [OPTION]... SOURCE... DIRECTORY
cp [OPTION]... -t DIRECTORY SOURCE...

DESCRIPTION
Copy SOURCE to DEST, or multiple SOURCE(s) to DIRECTORY.

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

-a, --archive
same as -dR --preserve=all

--attributes-only
don't copy the file data, just the attributes

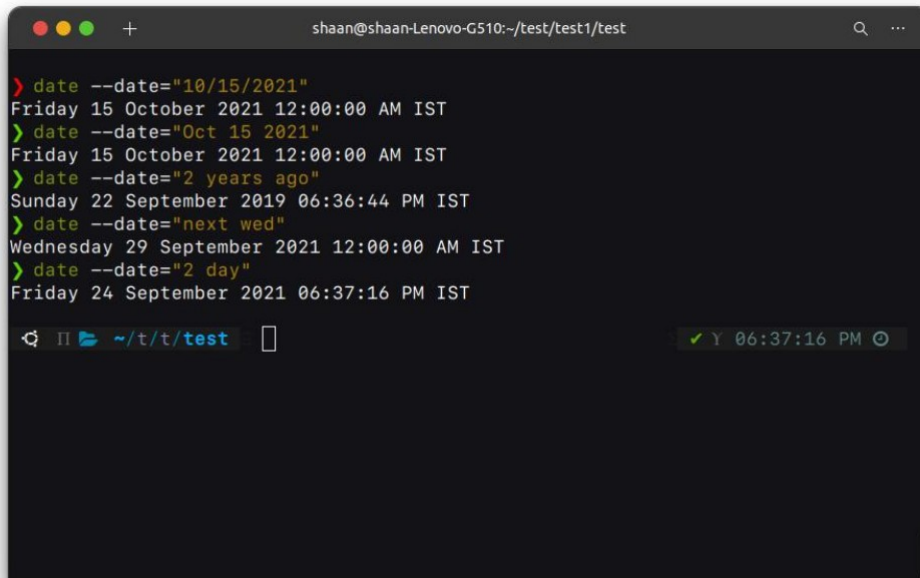
--backup[=CONTROL]
Manual page cp(1) line 1 (press h for help or q to quit)

date

Date command is used to display the system date and time.

date commands

--date - Displays the given date string date format.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/test/test1/test'. The terminal contains several lines of commands and their outputs. The commands are: 'date --date="10/15/2021"', 'date --date="Oct 15 2021"', 'date --date="2 years ago"', 'date --date="next wed"', and 'date --date="2 day"'. The outputs are: 'Friday 15 October 2021 12:00:00 AM IST', 'Friday 15 October 2021 12:00:00 AM IST', 'Sunday 22 September 2019 06:36:44 PM IST', 'Wednesday 29 September 2021 12:00:00 AM IST', and 'Friday 24 September 2021 06:37:16 PM IST'. At the bottom, there is a prompt '~ /t/t/test' and a status bar showing '✓ Y 06:37:16 PM'.

- . % D - Display date as mm/dd/yy.
- . %d - Display the day of the month (01 to 31).
- . %a - Displays the abbreviated name for weekdays (Sun to Sat).
- . %A - Displays full weekdays (Sunday to Saturday).
- . %h - Displays abbreviated month name (Jan to Dec).
- . %b - Displays abbreviated month name (Jan to Dec).
- . %B - Displays full month name(January to December).
- . %m - Displays the month of year (01 to 12).
- . %y - Displays last two digits of the year(00 to 99).
- . %Y - Display four-digit year.
- . %T - Display the time in 24 hour format as - HH:MM:SS.

- %H - Display the hour.
- %M - Display the minute.
- %S - Display the seconds.

```
shaan@shaan-Lenovo-G510:~/test/test1/test
> date +%D
09/22/21
> date +%d
22
> date +%a
Wed
> date +%A
Wednesday
> date +%h
Sep
> date +%b
Sep
> date +%B
September
> date +%m
09
> date +%y
21
> date +%Y
2021
> date +%H
18
```

```
shaan@shaan-Lenovo-G510:~
> date +%M
04
> date +%S
10
```

Q3 – Usage of following commands: chmod, grep, bc.

chmod

chmod command stands for **change mode** command. There are 3 modes - - +w (write) - +r (read) - +x (execute)

chmod [u/g/o]+[r/w/x]

This command will change the modes for either user, group, others or all as either read, write, execute or all.

Category	Operation	Permission
u (User)	+ (assign)	r (read)
g (Groups)	- (remove)	w (write)
o (Others)	= (Absolute permission)	x (execute)
a (all)		

```

shaan@shaan-Lenovo-G510:~/test/test1/test
> chmod +x file.txt
> ls -la file.txt
-rwxrwxr-x 1 shaan shaan 12 Sep 16 19:07 file.txt

shaan@shaan-Lenovo-G510:~/test/test1/test
> chmod g+x file.txt
> ls -la file.txt
-rwxrwxr-x 1 shaan shaan 12 Sep 16 19:07 file.txt

shaan@shaan-Lenovo-G510:~/test/test1/test
> chmod o+x file.txt
> ls -la file.txt
-rwxrwxr-x 1 shaan shaan 12 Sep 16 19:07 file.txt

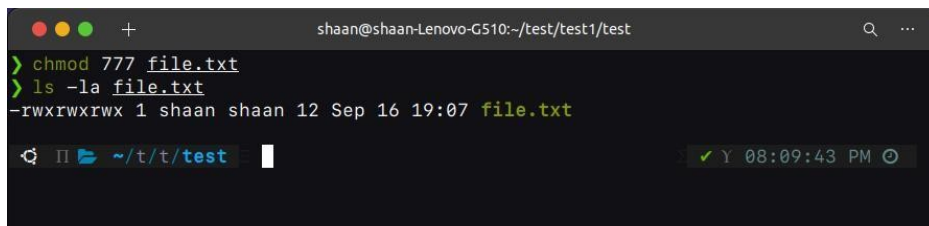
shaan@shaan-Lenovo-G510:~/test/test1/test
> chmod +r file.txt
> ls -la file.txt
-rw-rw-r-- 1 shaan shaan 12 Sep 16 19:07 file.txt

shaan@shaan-Lenovo-G510:~/test/test1/test
> chmod u+x file.txt
> ls -la file.txt
-rwxrwxr-x 1 shaan shaan 12 Sep 16 19:07 file.txt

shaan@shaan-Lenovo-G510:~/test/test1/test
> chmod +w file.txt
> ls -la file.txt
-rw-rw-r-- 1 shaan shaan 12 Sep 16 19:07 file.txt

```

Using chmod with Absolute permission

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/test/test1/test'. The prompt is '>'. The user enters 'chmod 777 file.txt'. The prompt changes to '>'. The user enters 'ls -la file.txt'. The output is '-rwxrwxrwx 1 shaan shaan 12 Sep 16 19:07 file.txt'. The terminal status bar at the bottom shows a search icon, a window icon, the path '~/t/t/test', and a green checkmark with the time '08:09:43 PM' and a refresh icon.

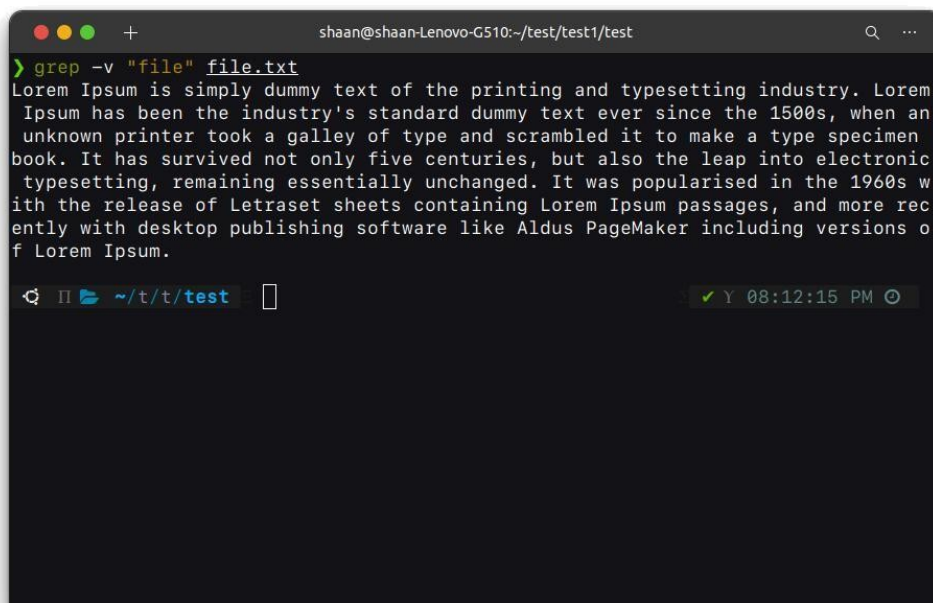
```
> chmod 777 file.txt
> ls -la file.txt
-rwxrwxrwx 1 shaan shaan 12 Sep 16 19:07 file.txt
```

grep

The grep command searched file(s) for lines that match a specified pattern.

grep -v [pattern] [filename]

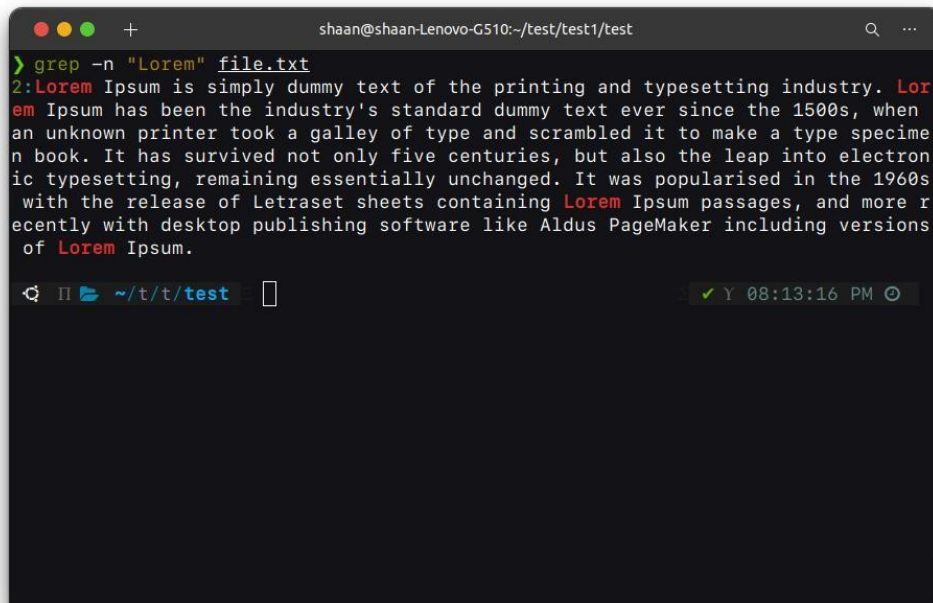
Print all lines that do not match pattern.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/test/test1/test'. The prompt is '>'. The user enters 'grep -v "file" file.txt'. The output is a block of Lorem Ipsum text. The terminal status bar at the bottom shows a search icon, a window icon, the path '~/t/t/test', and a green checkmark with the time '08:12:15 PM' and a refresh icon.

```
> grep -v "file" file.txt
Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem
Ipsum has been the industry's standard dummy text ever since the 1500s, when an
unknown printer took a galley of type and scrambled it to make a type specimen
book. It has survived not only five centuries, but also the leap into electronic
typesetting, remaining essentially unchanged. It was popularised in the 1960s w
ith the release of Letraset sheets containing Lorem Ipsum passages, and more rec
ently with desktop publishing software like Aldus PageMaker including versions o
f Lorem Ipsum.
```


grep -n [pattern] [filename]

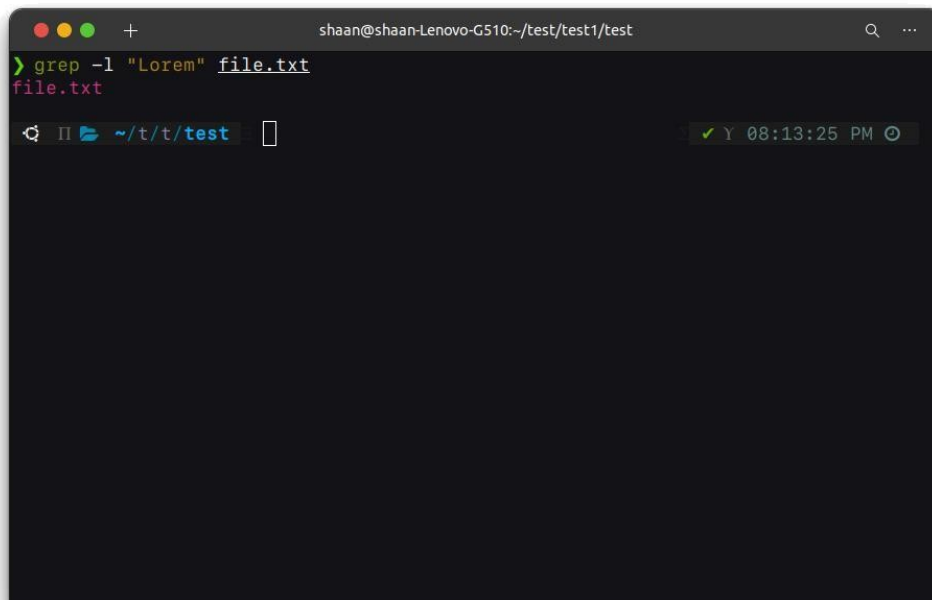
Print the matched line and its line number.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/test/test1/test'. The command prompt is '>'. The user has entered 'grep -n "Lorem" file.txt'. The output shows line 2 with the text 'Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.'

```
> grep -n "Lorem" file.txt
2:Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.
```

grep -l [pattern] [filename]

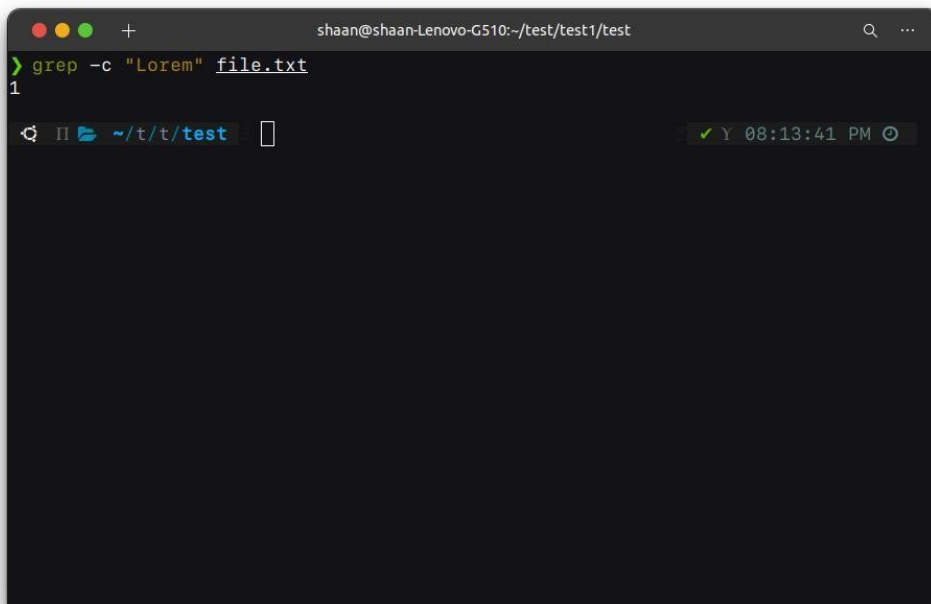
Print only the names of files with matching lines.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510:~/test/test1/test'. The command prompt is '>'. The user has entered 'grep -l "Lorem" file.txt'. The output shows 'file.txt' in red text.

```
> grep -l "Lorem" file.txt
file.txt
```

grep -c [pattern] [filename]

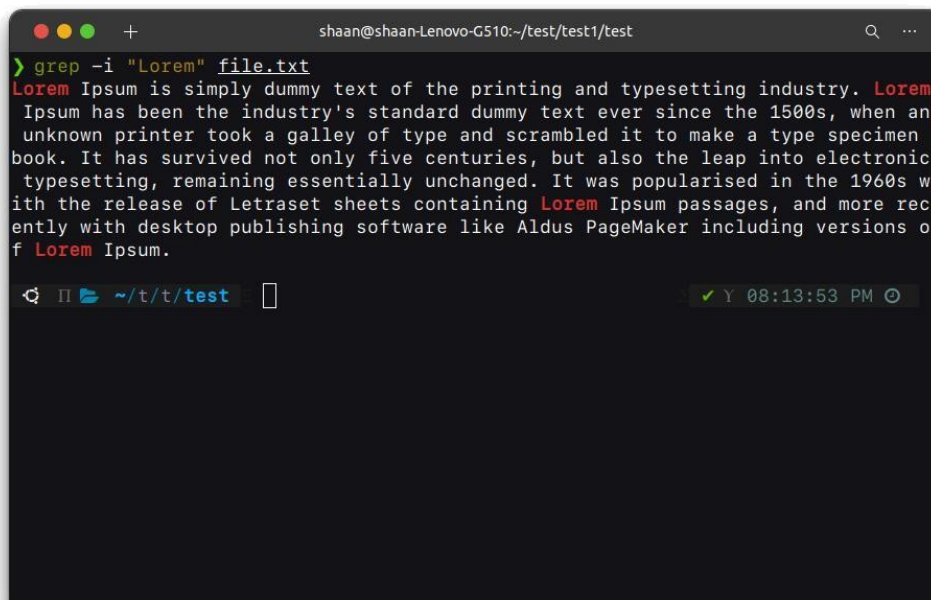
Print only the count of matching lines.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/test/test1/test'. The command 'grep -c "Lorem" file.txt' is entered and executed. The output '1' is displayed on the next line. The terminal status bar at the bottom shows '~/t/t/test' and a green checkmark with the time '08:13:41 PM'.

```
shaan@shaan-Lenovo-G510: ~/test/test1/test
> grep -c "Lorem" file.txt
1
```

grep -i [pattern] [filename]

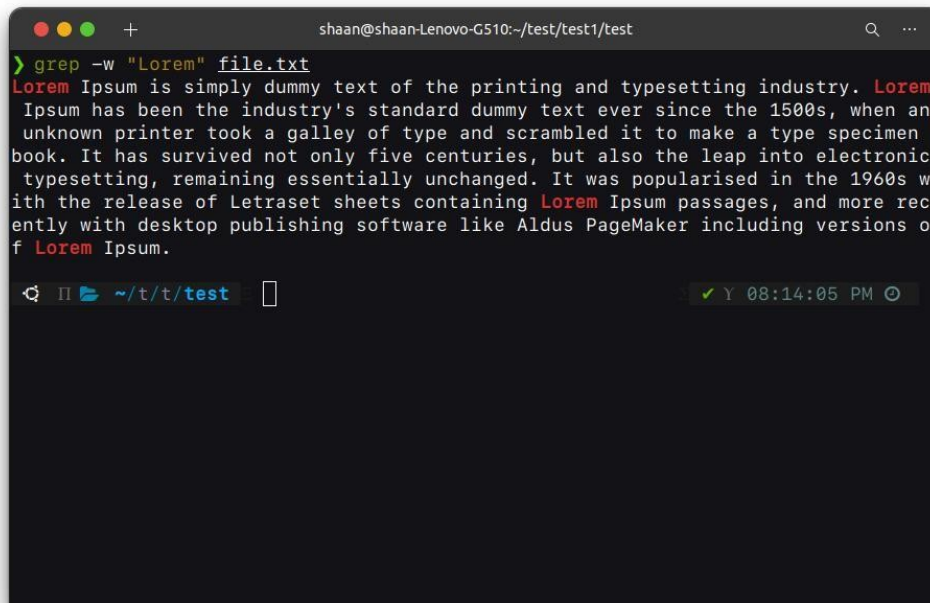
Match either upper- or lowercase.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/test/test1/test'. The command 'grep -i "Lorem" file.txt' is entered and executed. The output shows a paragraph of Lorem Ipsum text with the word 'Lorem' highlighted in red. The terminal status bar at the bottom shows '~/t/t/test' and a green checkmark with the time '08:13:53 PM'.

```
shaan@shaan-Lenovo-G510: ~/test/test1/test
> grep -i "Lorem" file.txt
Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem
Ipsum has been the industry's standard dummy text ever since the 1500s, when an
unknown printer took a galley of type and scrambled it to make a type specimen
book. It has survived not only five centuries, but also the leap into electronic
typesetting, remaining essentially unchanged. It was popularised in the 1960s w
ith the release of Letraset sheets containing Lorem Ipsum passages, and more rec
ently with desktop publishing software like Aldus PageMaker including versions o
f Lorem Ipsum.
```

grep -w [pattern] [filename]

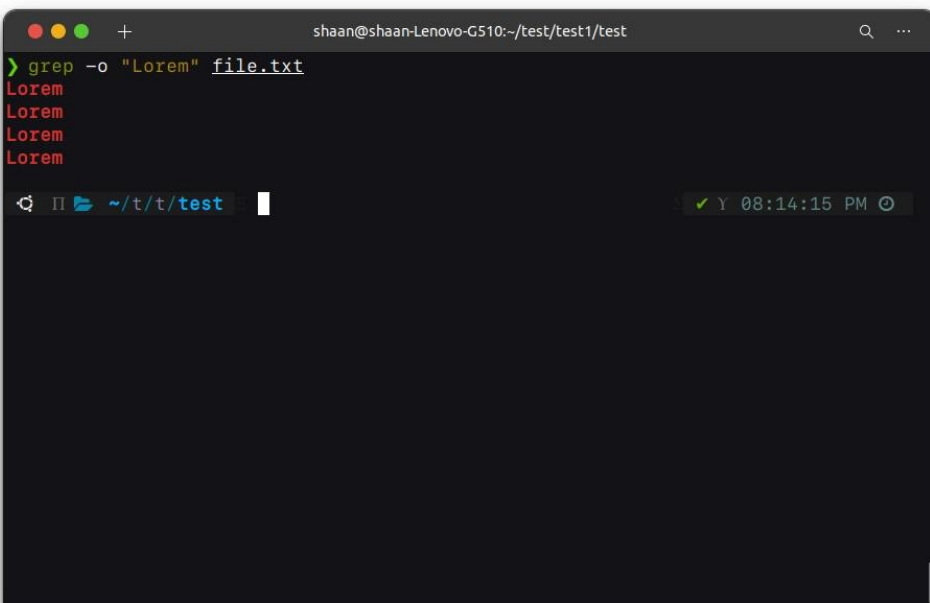
Match whole word

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/test/test1/test'. The command prompt is '>'. The user has entered 'grep -w "Lorem" file.txt'. The output shows a single line of text from 'file.txt' where the word 'Lorem' is highlighted in red. The text reads: 'Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.' The terminal status bar at the bottom shows a green checkmark, 'Y', the time '08:14:05 PM', and a refresh icon.

```
> grep -w "Lorem" file.txt
Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem
Ipsum has been the industry's standard dummy text ever since the 1500s, when an
unknown printer took a galley of type and scrambled it to make a type specimen
book. It has survived not only five centuries, but also the leap into electronic
typesetting, remaining essentially unchanged. It was popularised in the 1960s w
ith the release of Letraset sheets containing Lorem Ipsum passages, and more rec
ently with desktop publishing software like Aldus PageMaker including versions o
f Lorem Ipsum.
```

grep -o [pattern] [filename]

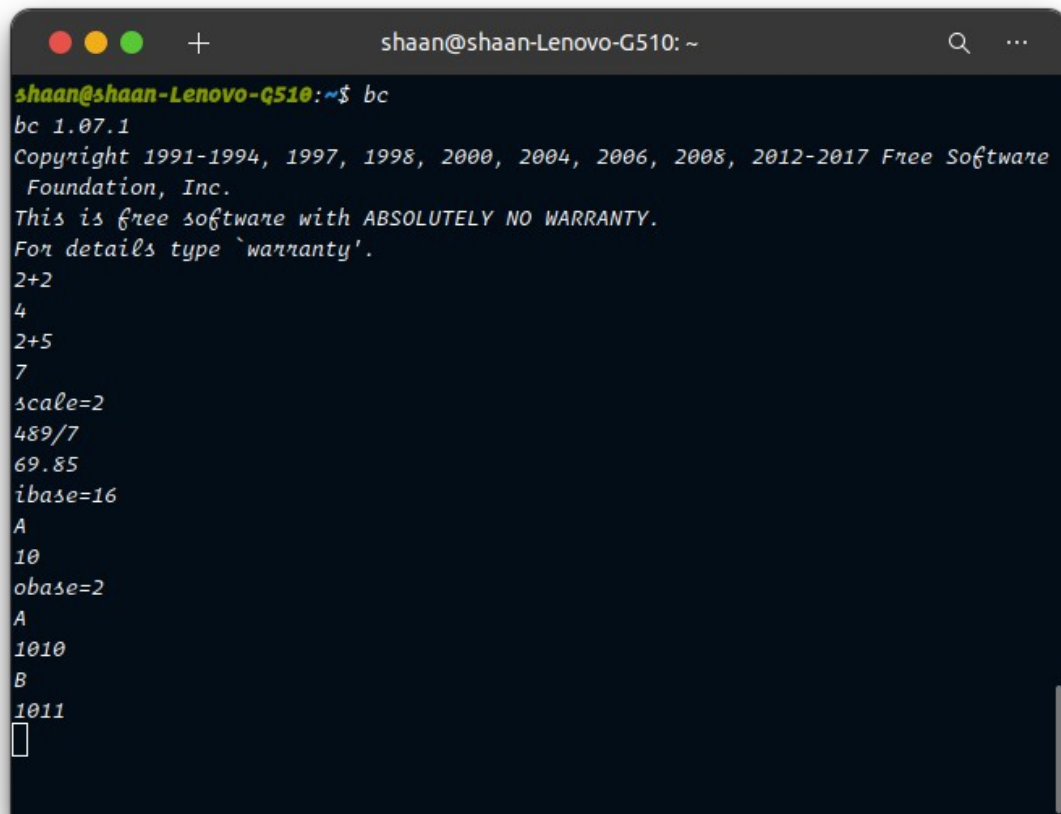
Print only the matched parts of a matching line, with each such part on a separate output line.

A terminal window with a dark background. The title bar shows 'shaan@shaan-Lenovo-G510: ~/test/test1/test'. The command prompt is '>'. The user has entered 'grep -o "Lorem" file.txt'. The output shows four separate lines, each containing the word 'Lorem' in red. The terminal status bar at the bottom shows a green checkmark, 'Y', the time '08:14:15 PM', and a refresh icon.

```
> grep -o "Lorem" file.txt
Lorem
Lorem
Lorem
Lorem
```

bc

bc stands for *basic calculator* . It is a simple calculator using which we can perform basic arithmetic operations.

A terminal window titled 'shaan@shaan-Lenovo-G510: ~' with standard window controls. The terminal shows the execution of the 'bc' command. It displays the version 'bc 1.07.1', copyright information for the Free Software Foundation, Inc. (1991-1994, 1997, 1998, 2000, 2004, 2006, 2008, 2012-2017), and a disclaimer: 'This is free software with ABSOLUTELY NO WARRANTY. For details type `warranty`.' Below this, several arithmetic operations are performed: '2+2' yields '4', '2+5' yields '7', 'scale=2' followed by '489/7' yields '69.85', 'ibase=16' followed by 'A' yields '10', 'obase=2' followed by 'A' yields '1010', and '1011' yields 'B'. The prompt '1011' is followed by a cursor.

```
shaan@shaan-Lenovo-G510:~$ bc
bc 1.07.1
Copyright 1991-1994, 1997, 1998, 2000, 2004, 2006, 2008, 2012-2017 Free Software
Foundation, Inc.
This is free software with ABSOLUTELY NO WARRANTY.
For details type `warranty'.
2+2
4
2+5
7
scale=2
489/7
69.85
ibase=16
A
10
obase=2
A
1010
B
1011
█
```

Q4. Write a shell script to display the date in the mm/dd/yy format.

Code -

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/...
echo "Enter day: "
read day

echo "Enter month: "
read month

echo "Enter year: "
read year

if [ $month -gt 12 -o $month -lt 0 -o $day -lt 0 -o $day -gt 31 -o $year -lt 0 ]
then
    echo "Invalid date"
else
    echo "$month/$year/$day"
fi
```

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/...
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ vi q4.sh
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q4.sh
Enter day:
15
Enter month:
10
Enter year:
2021
10/2021/15
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q4.sh
Enter day:
13
Enter month:
32
Enter year:
0123
Invalid date
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$
```

Q5. Write a shell script to display the multiplication table of any number.

Code -

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/...
echo "Enter any number: "
read number

if [ $number -lt 0 ]
then
    echo "Enter a positive number.."
else
    for num in {1..10}
    do
        echo "$number * $num = $((number*num))"
    done
fi
```



```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/...
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ vi q6.sh
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q6.sh
Enter any number:
6
Factorial of 6 = 720
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q6.sh
Enter any number:
5
Factorial of 5 = 120
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q6.sh
Enter any number:
0
Factorial of 0 = 1
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$
```


Q10. Write a shell script to find the power of a given number.

Code -

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/...  
echo "Enter a number: "  
read number  
  
echo "Enter the power: "  
read power  
  
answer=1  
i=1  
while (($i <= $power))  
do  
    answer=$((answer*number))  
    ((i++))  
done  
  
echo "Answer = $answer"  
~  
~  
~  
~  
~  
~  
~  
~  
~
```

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/...  
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q10.sh  
Enter a number:  
5  
Enter the power:  
2  
Answer = 25  
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q10.sh  
Enter a number:  
3  
Enter the power:  
4  
Answer = 81  
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$ ./q10.sh  
Enter a number:  
2  
Enter the power:  
5  
Answer = 32  
shaan@shaan-Lenovo-G510:~/Desktop/linux-assignment/questions$
```

Q13. Write a shell script to number entered at the command line is prime or not.

Code -

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/...
echo "Enter the number: "
read number

count=0
i=1

while (($i<=$number))
do
    if [[ $number%i -eq 0 ]]
    then
        count=$((count+1))
    fi
    ((i++))
done

if [ $count -eq 2 ]
then
    echo "Prime number"
else
    echo "Not a prime number"
fi
~
~
:█
```

```
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/questions$ ./q13.sh
Enter the number:
12
Not a prime number
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/questions$ ./q13.sh
Enter the number:
5
Prime number
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/questions$ ./q13.sh
Enter the number:
19
Prime number
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/questions$ ./q13.sh
Enter the number:
91
Not a prime number
shaan@shaan-Lenovo-G510: ~/Desktop/linux-assignment/questions$ █
```