

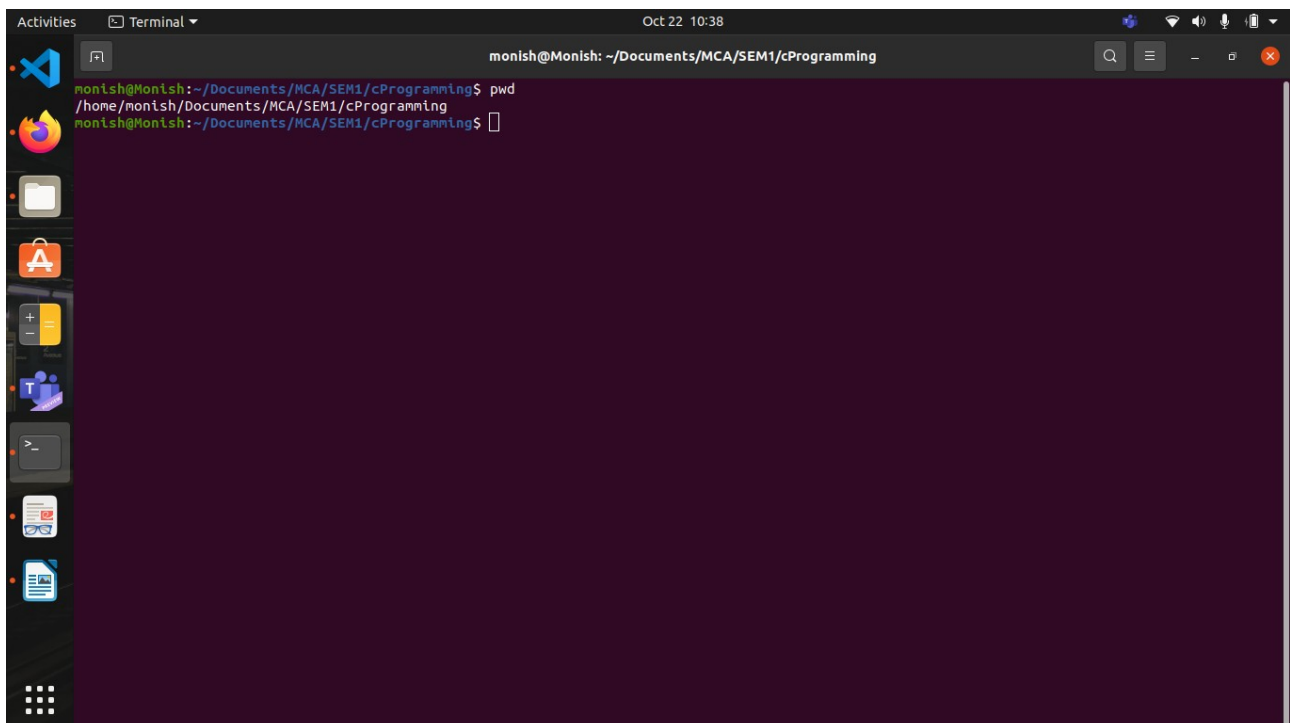
Computer Science and Engineering Department
Motilal Nehru National Institute of Technology Allahabad
MCA-1st Semester Session 2021-22
Programming and Problem Solving Lab (CS 31201)
Week 1– Assignment(Solution)

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Submission Date: 23 October 2021

1. pwd

DESCRIPTION

Print the full filename of the current working directory.



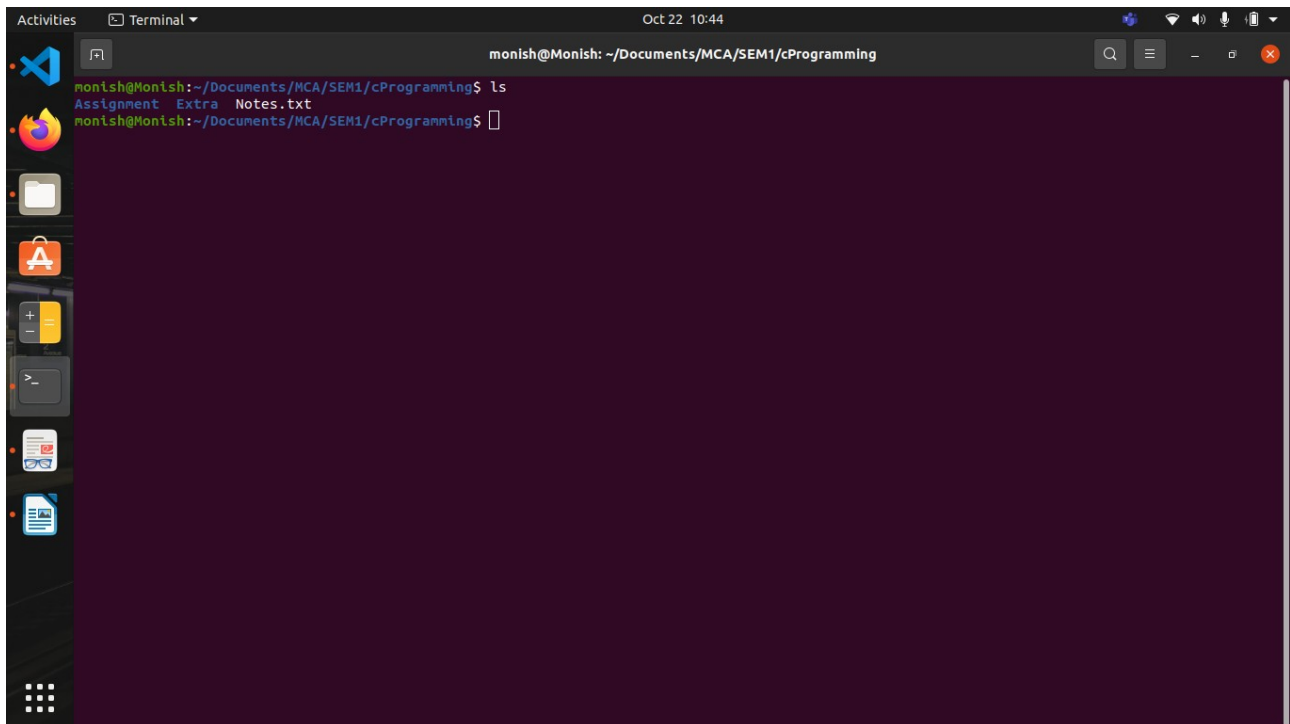
The screenshot shows a terminal window titled "Terminal" with a dark background. The window's title bar includes the date and time "Oct 22 10:38" and system icons on the right. The terminal's address bar shows the user "monish@Monish" and the current directory "~/Documents/MCA/SEM1/cProgramming". The terminal content shows the user typing the command "pwd" at the prompt "monish@Monish:~/Documents/MCA/SEM1/cProgramming\$". The output of the command is "/home/monish/Documents/MCA/SEM1/cProgramming", which is displayed on the line immediately following the command. The prompt "monish@Monish:~/Documents/MCA/SEM1/cProgramming\$" is shown again on the next line, ready for further input. On the left side of the terminal window, a vertical dock contains several application icons, including a file manager, a web browser, and a terminal icon.

```
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ pwd
/home/monish/Documents/MCA/SEM1/cProgramming
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

2.ls

DESCRIPTION

List information about the FILES (the current directory by default). Sort entries alphabetically if none of `-cftuvSUX` nor `-sor` is specified.



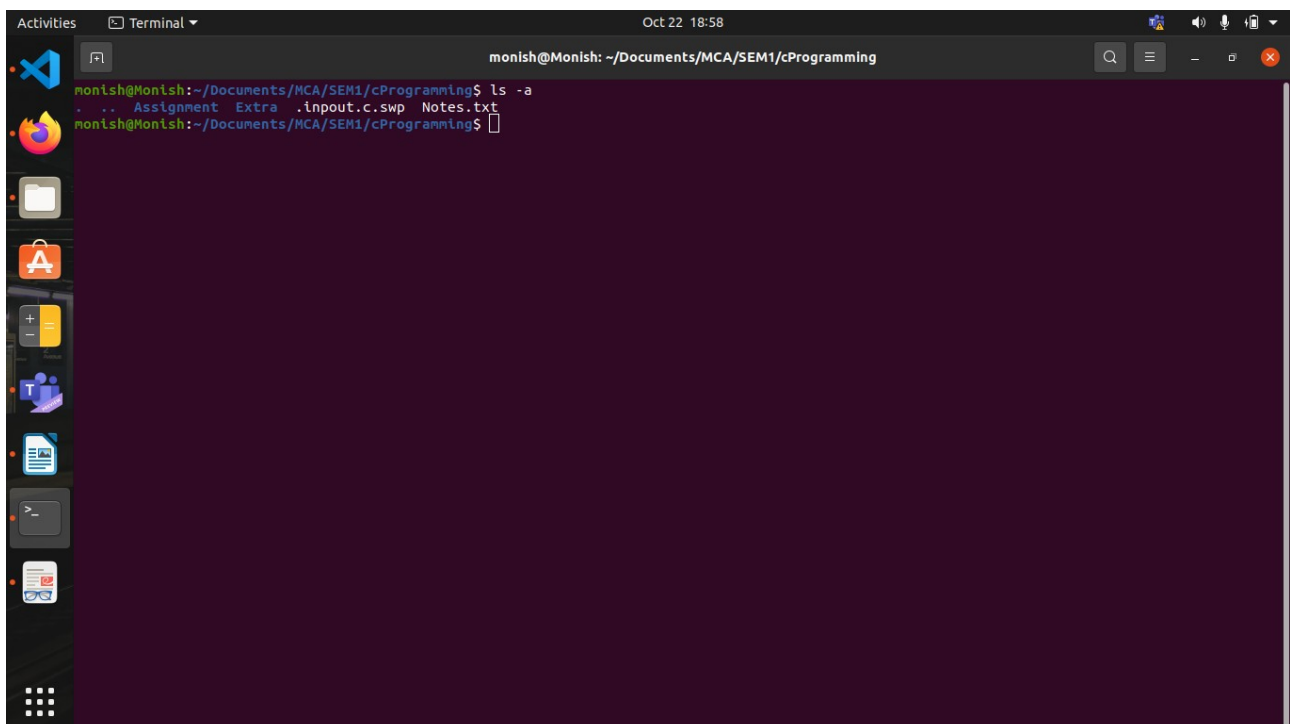
A terminal window titled "Terminal" with a dark background. The prompt is "monish@Monish: ~/Documents/MCA/SEM1/cProgramming". The command "ls" has been executed, and the output is "Assignment Extra Notes.txt". The terminal window is part of a desktop environment with a sidebar on the left containing various application icons.

```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment Extra Notes.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

3.ls -a

DESCRIPTION

List information about the FILES (the current directory by default)., does not ignore entries starting with `.`



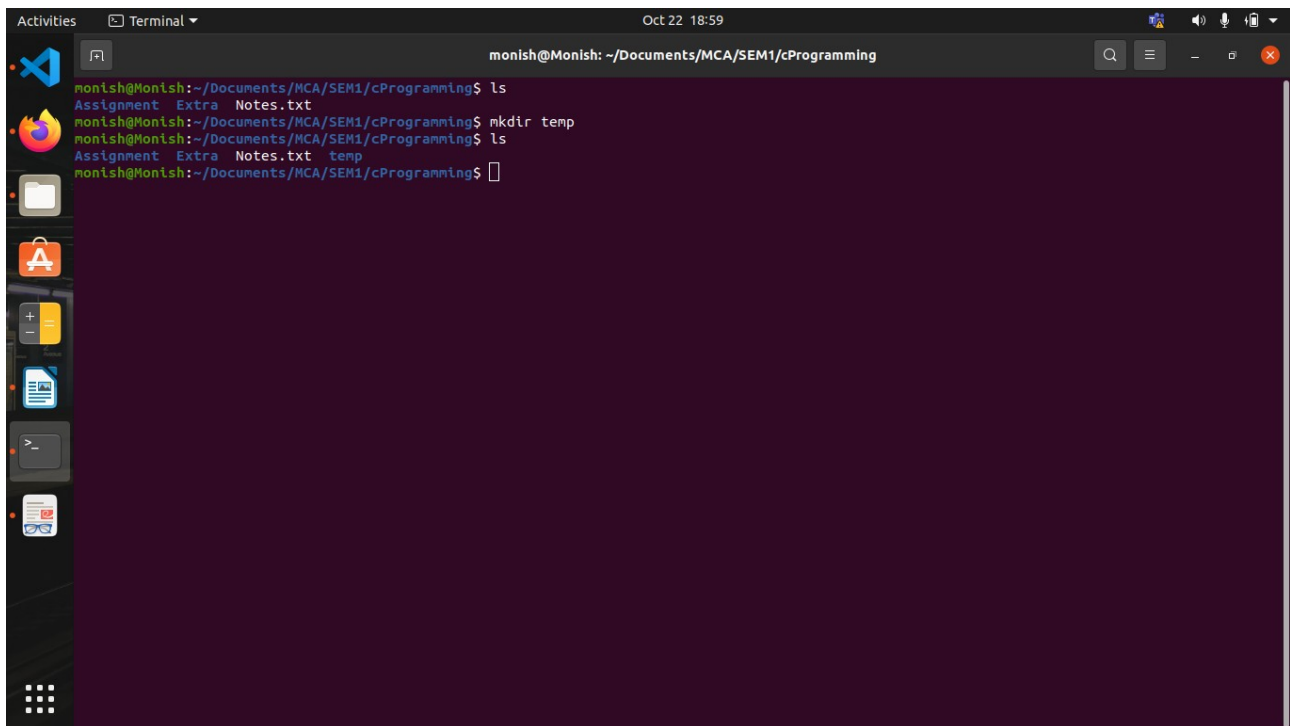
A terminal window titled "Terminal" with a dark background. The prompt is "monish@Monish: ~/Documents/MCA/SEM1/cProgramming". The command "ls -a" has been executed, and the output is ". . Assignment Extra .input.c.swp Notes.txt". The terminal window is part of a desktop environment with a sidebar on the left containing various application icons.

```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls -a
. . Assignment Extra .input.c.swp Notes.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

4.mkdir

DESCRIPTION

Create the DIRECTORY(ies), if they do not already exist.

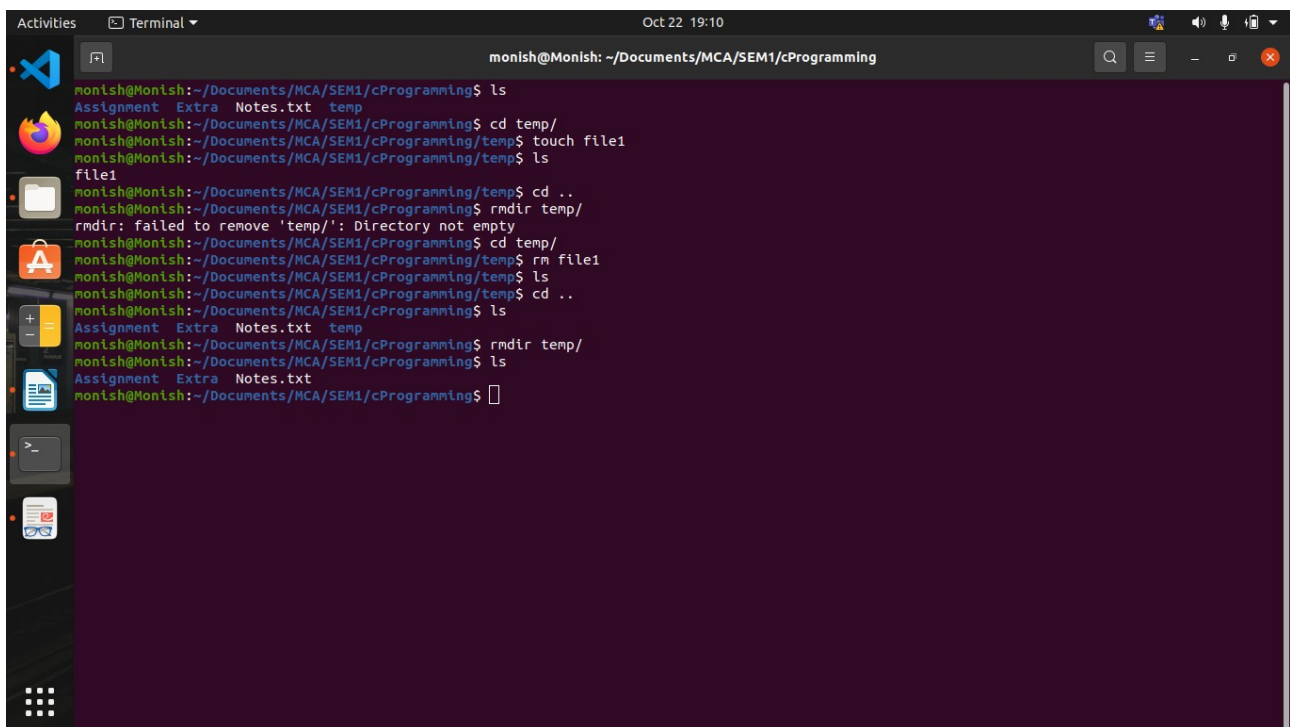
A terminal window titled 'Terminal' with a date and time of 'Oct 22 18:59'. The window shows a user named 'monish' at a prompt 'monish@Monish: ~/Documents/MCA/SEM1/cProgramming'. The user enters 'ls' and sees 'Assignment Extra Notes.txt'. Then they enter 'mkdir temp', followed by 'ls' again, which shows 'Assignment Extra Notes.txt temp'.

```
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment Extra Notes.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ mkdir temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment Extra Notes.txt temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

5.rmdir

DESCRIPTION

Remove the DIRECTORY(ies), if they are empty.

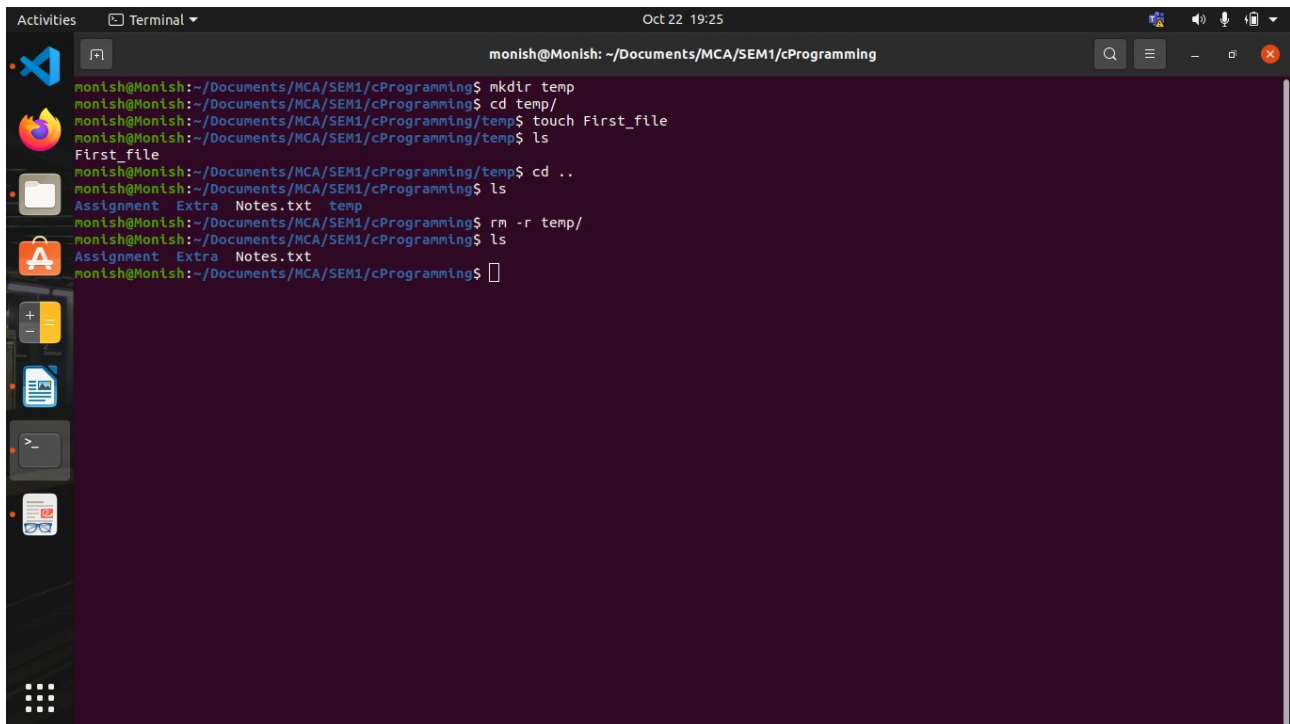
A terminal window titled 'Terminal' with a date and time of 'Oct 22 19:10'. The window shows a user named 'monish' at a prompt 'monish@Monish: ~/Documents/MCA/SEM1/cProgramming'. The user enters 'ls' and sees 'Assignment Extra Notes.txt temp'. Then they enter 'cd temp/', followed by 'touch file1', and 'ls' which shows 'file1'. Then they enter 'cd ..', 'rmdir temp/', which fails with the message 'rmdir: failed to remove 'temp/': Directory not empty'. Then they enter 'cd temp/', 'rm file1', 'ls' (showing nothing), 'cd ..', and 'ls' (showing 'Assignment Extra Notes.txt temp'). Finally, they enter 'rmdir temp/' and 'ls' (showing 'Assignment Extra Notes.txt').

```
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment Extra Notes.txt temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ cd temp/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ touch file1
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ ls
file1
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ cd ..
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ rmdir temp/
rmdir: failed to remove 'temp/': Directory not empty
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ cd temp/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ rm file1
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ ls
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ cd ..
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment Extra Notes.txt temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ rmdir temp/
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment Extra Notes.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

6.rm -r

DESCRIPTION

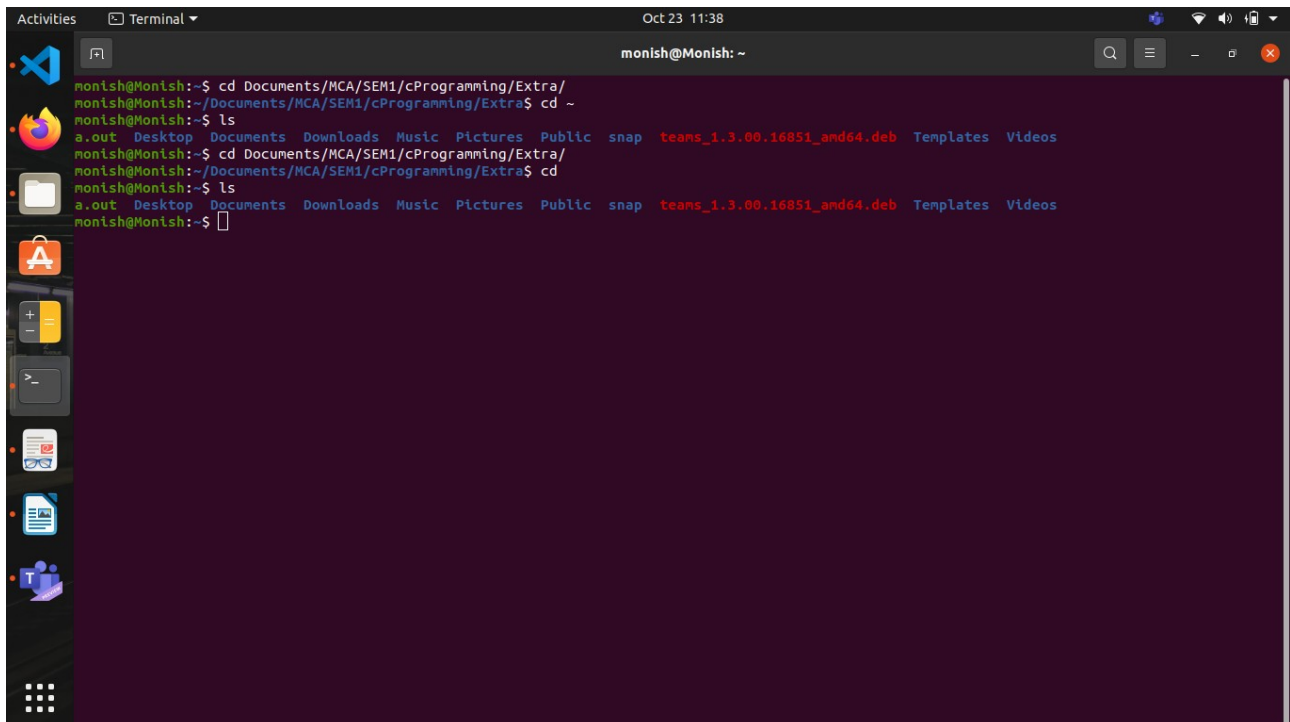
remove directories and their contents recursively.



```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ mkdir temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ cd temp/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ touch First_file
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ ls
First_file
monish@Monish:~/Documents/MCA/SEM1/cProgramming/temp$ cd ..
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment  Extra  Notes.txt  temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ rm -r temp/
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment  Extra  Notes.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

7. cd

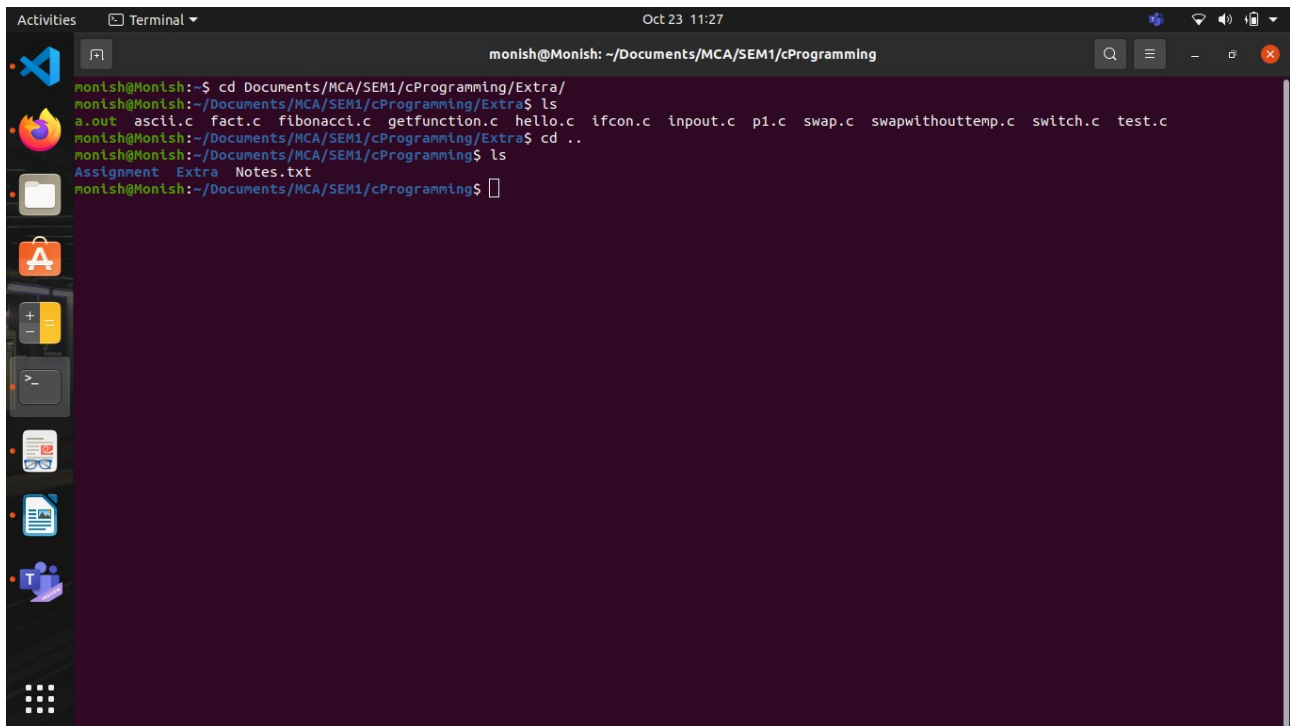
this command also work same as cd ~ command.



```
monish@Monish: ~
monish@Monish:~$ cd Documents/MCA/SEM1/cProgramming/Extra/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Extra$ cd ~
monish@Monish:~$ ls
a.out  Desktop  Documents  Downloads  Music  Pictures  Public  snap  teams_1.3.00.16851_amd64.deb  Templates  Videos
monish@Monish:~$ cd Documents/MCA/SEM1/cProgramming/Extra/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Extra$ cd
monish@Monish:~$ ls
a.out  Desktop  Documents  Downloads  Music  Pictures  Public  snap  teams_1.3.00.16851_amd64.deb  Templates  Videos
monish@Monish:~$
```

8. cd..

this command is used to move to the parent directory of current directory, or the directory one level up from the current directory. “..” represents parent directory.

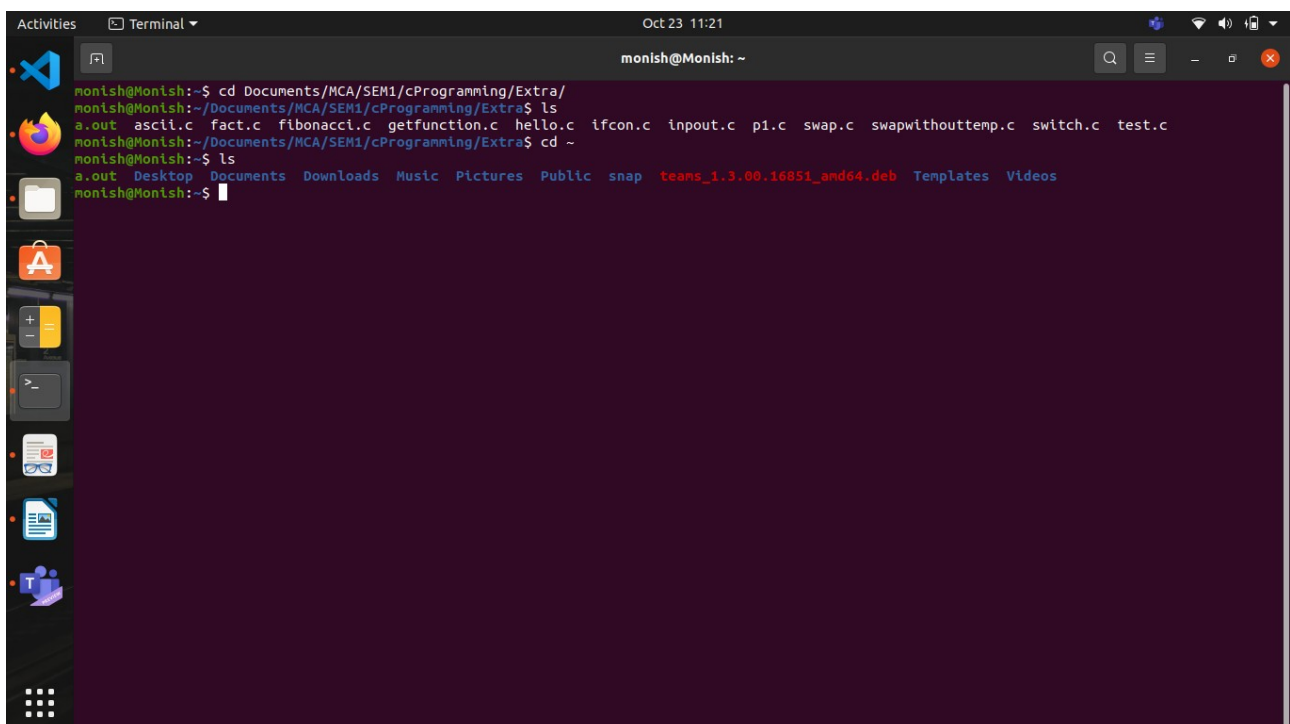


```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming
monish@Monish:~$ cd Documents/MCA/SEM1/cProgramming/Extra/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Extra$ ls
a.out  ascii.c  fact.c  fibonacci.c  getfunction.c  hello.c  ifcon.c  input.c  p1.c  swap.c  swapwithouttemp.c  switch.c  test.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Extra$ cd ..
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment  Extra  Notes.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

9.cd~

DESCRIPTION

this command is used to change directory to the home directory.

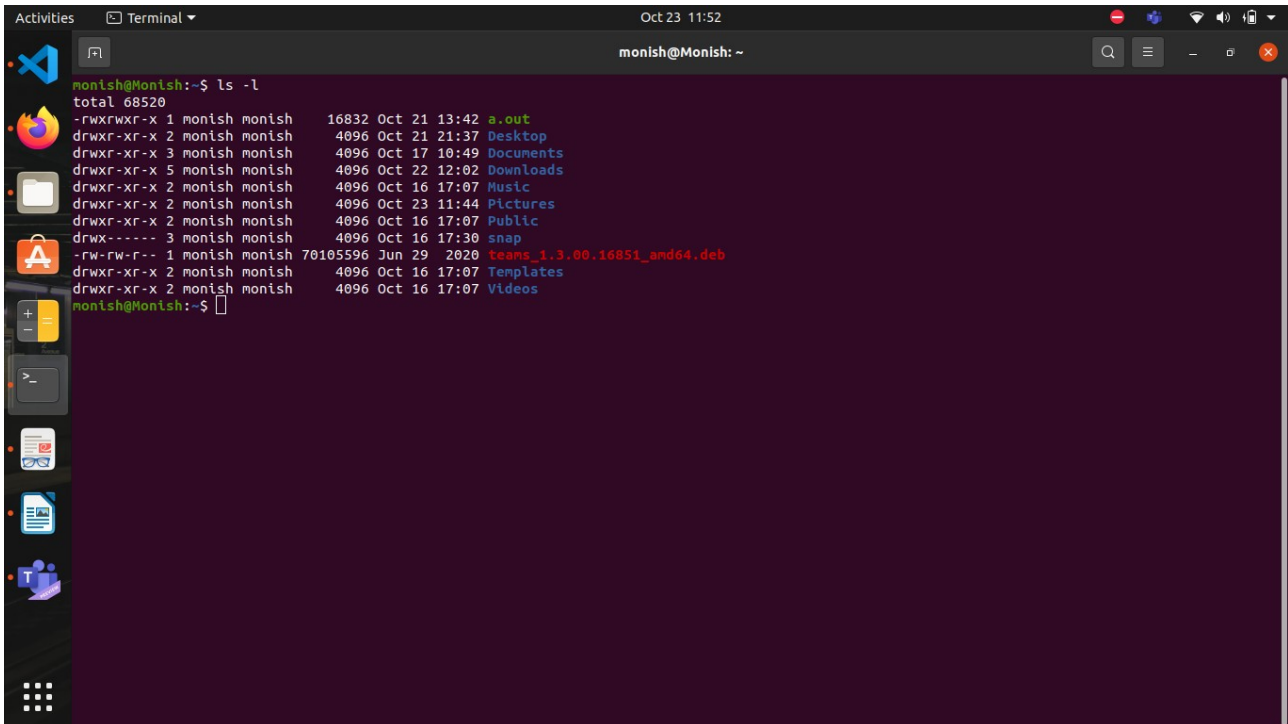


```
monish@Monish: ~
monish@Monish:~$ cd Documents/MCA/SEM1/cProgramming/Extra/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Extra$ ls
a.out  ascii.c  fact.c  fibonacci.c  getfunction.c  hello.c  ifcon.c  input.c  p1.c  swap.c  swapwithouttemp.c  switch.c  test.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Extra$ cd ~
monish@Monish:~$ ls
a.out  Desktop  Documents  Downloads  Music  Pictures  Public  snap  teams_1.3.00.16851_amd64.deb  Templates  Videos
monish@Monish:~$
```

10.ls -l

DESCRIPTION

The UNIX `ls -l` command can provide you with detailed information about each file and subdirectory in the current folder.



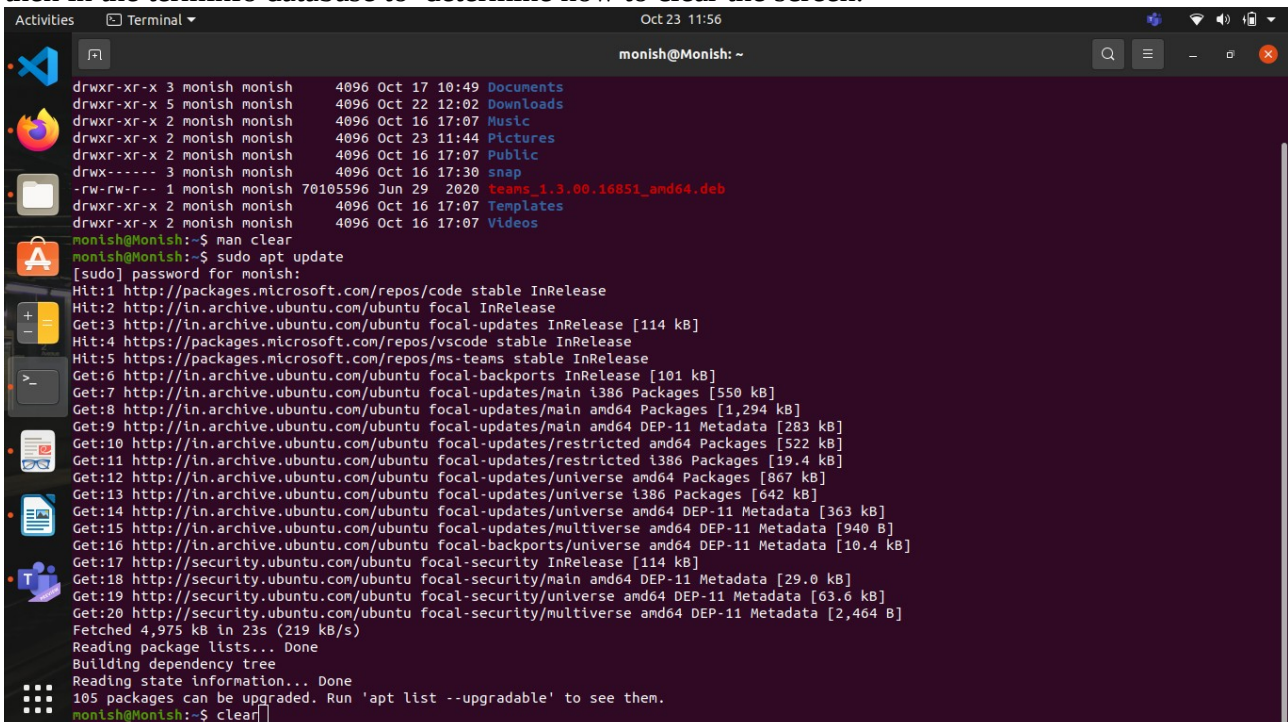
```
monish@Monish:~$ ls -l
total 68520
-rwxrwxr-x 1 monish monish 16832 Oct 21 13:42 a.out
drwxr-xr-x 2 monish monish 4096 Oct 21 21:37 Desktop
drwxr-xr-x 3 monish monish 4096 Oct 17 10:49 Documents
drwxr-xr-x 5 monish monish 4096 Oct 22 12:02 Downloads
drwxr-xr-x 2 monish monish 4096 Oct 16 17:07 Music
drwxr-xr-x 2 monish monish 4096 Oct 23 11:44 Pictures
drwxr-xr-x 2 monish monish 4096 Oct 16 17:07 Public
drwx----- 3 monish monish 4096 Oct 16 17:30 snap
-rw-rw-r-- 1 monish monish 70105596 Jun 29 2020 teams_1.3.00.16851_amd64.deb
drwxr-xr-x 2 monish monish 4096 Oct 16 17:07 Templates
drwxr-xr-x 2 monish monish 4096 Oct 16 17:07 Videos
monish@Monish:~$
```

11.clear

DESCRIPTION

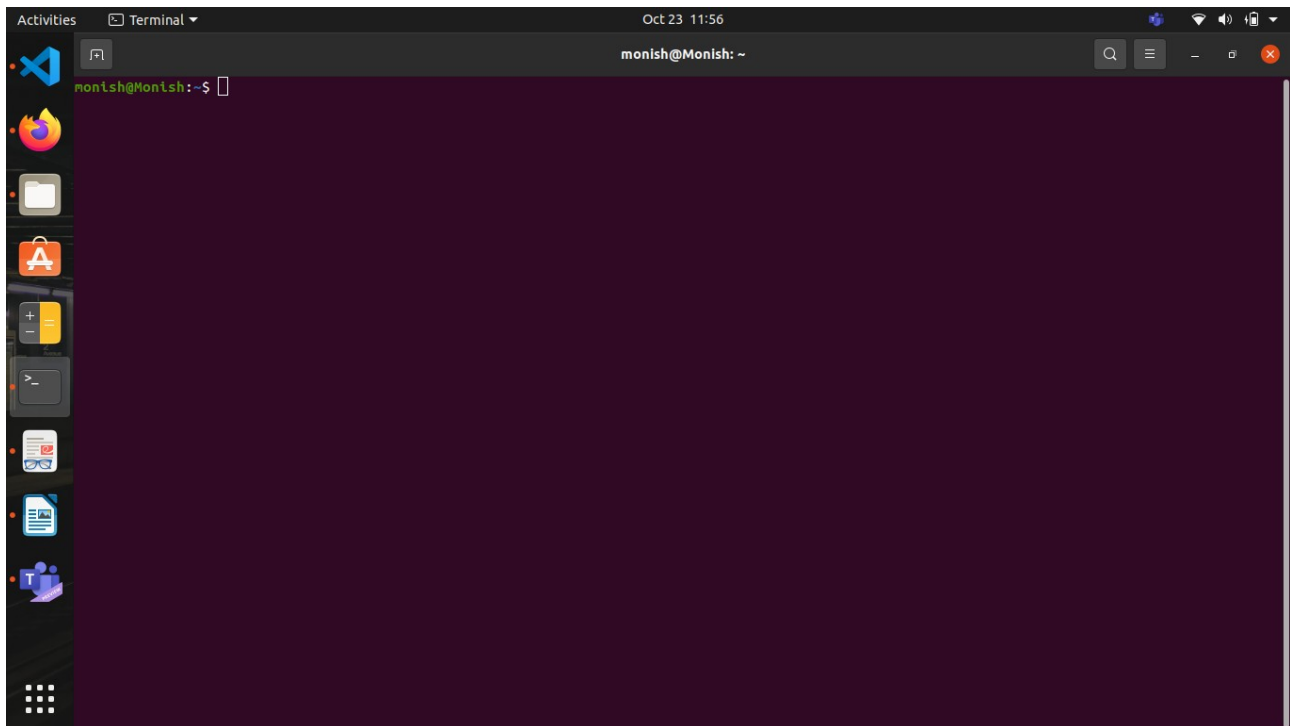
`clear` clears your screen if this is possible, including its scrollback buffer (if the extended “E3” capability is defined). `clear`

looks in the environment for the terminal type given by the environment variable `TERM`, and then in the terminfo database to determine how to clear the screen.



```
monish@Monish:~$ man clear
monish@Monish:~$ sudo apt update
[sudo] password for monish:
Hit:1 http://packages.microsoft.com/repos/code stable InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Hit:4 https://packages.microsoft.com/repos/vscode stable InRelease
Hit:5 https://packages.microsoft.com/repos/ms-teams stable InRelease
Get:6 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease [101 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [550 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [1,294 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [283 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [522 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu focal-updates/restricted i386 Packages [19.4 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [867 kB]
Get:13 http://in.archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages [642 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [363 kB]
Get:15 http://in.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 DEP-11 Metadata [940 B]
Get:16 http://in.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [10.4 kB]
Get:17 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:18 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11 Metadata [29.0 kB]
Get:19 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11 Metadata [63.6 kB]
Get:20 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 DEP-11 Metadata [2,464 B]
Fetched 4,975 kB in 23s (219 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
105 packages can be upgraded. Run 'apt list --upgradable' to see them.
monish@Monish:~$ clear
```


When we press enter then got clear screen

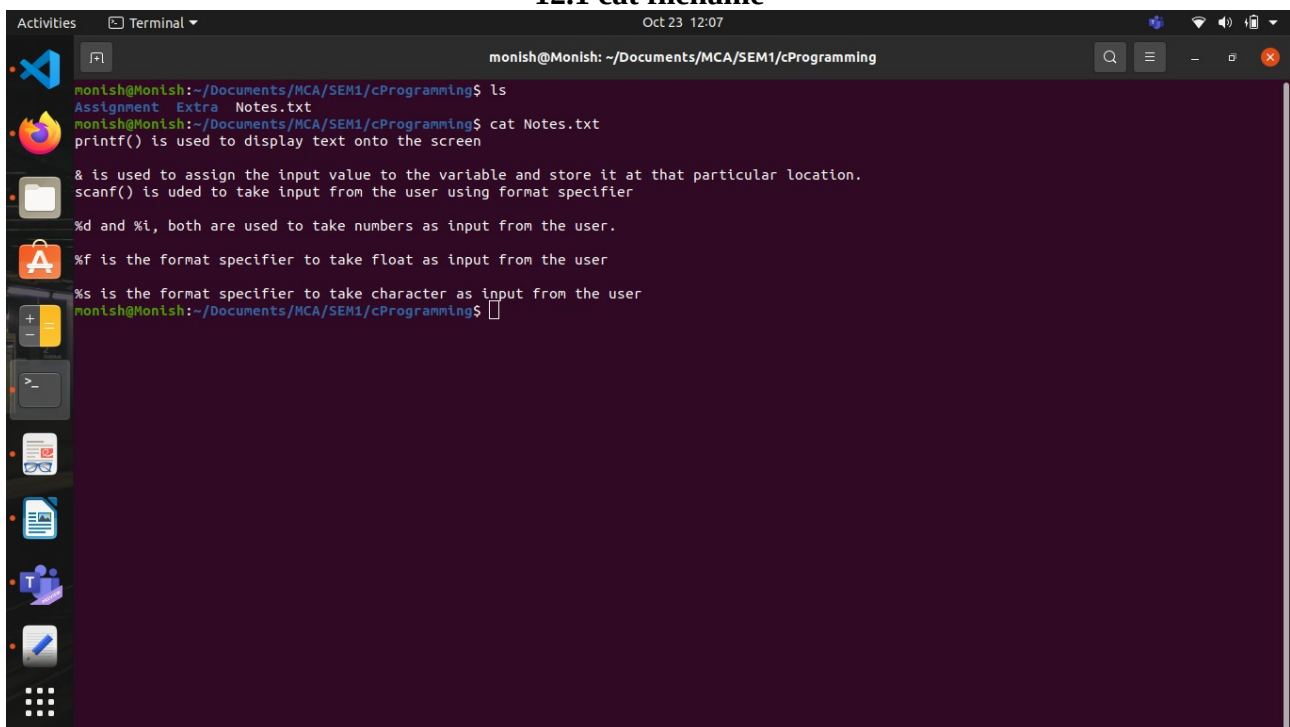


12.cat

DESCRIPTION

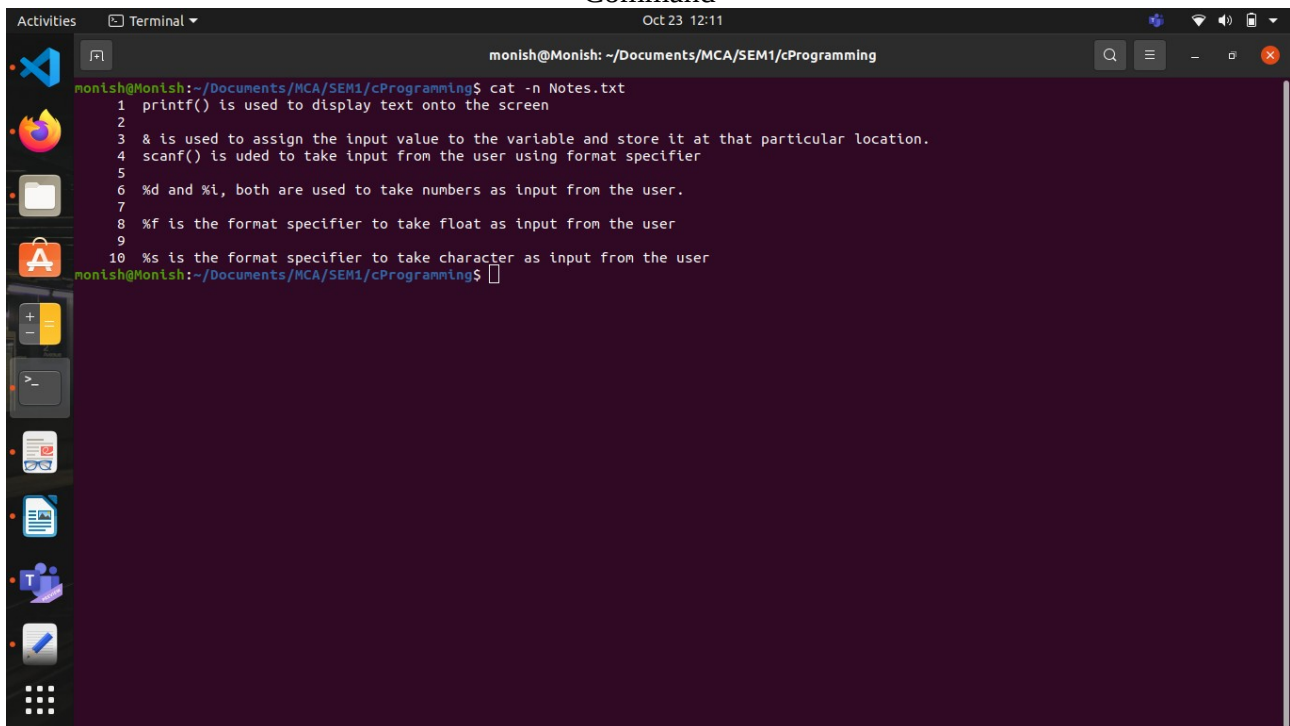
Cat(concatenate) command is very frequently used in Linux. It reads data from the file and gives their content as output. It helps us to create, view, concatenate files

12.1 cat filename



12.2 cat -n filename

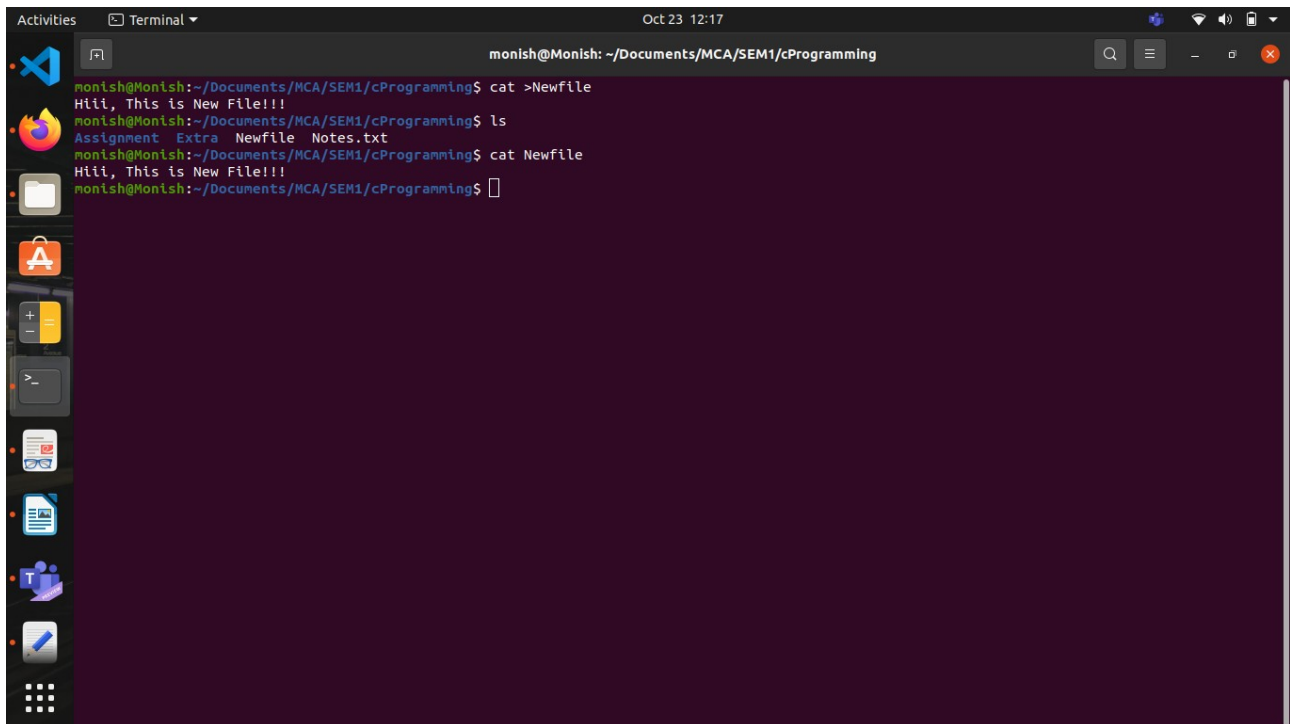
To view contents of a file preceding with line numbers.
Command



```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ cat -n Notes.txt
1 printf() is used to display text onto the screen
2
3 & is used to assign the input value to the variable and store it at that particular location.
4 scanf() is used to take input from the user using format specifier
5
6 %d and %i, both are used to take numbers as input from the user.
7
8 %f is the format specifier to take float as input from the user
9
10 %s is the format specifier to take character as input from the user
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

12.3 cat >newfile

Will create and a file named newfile

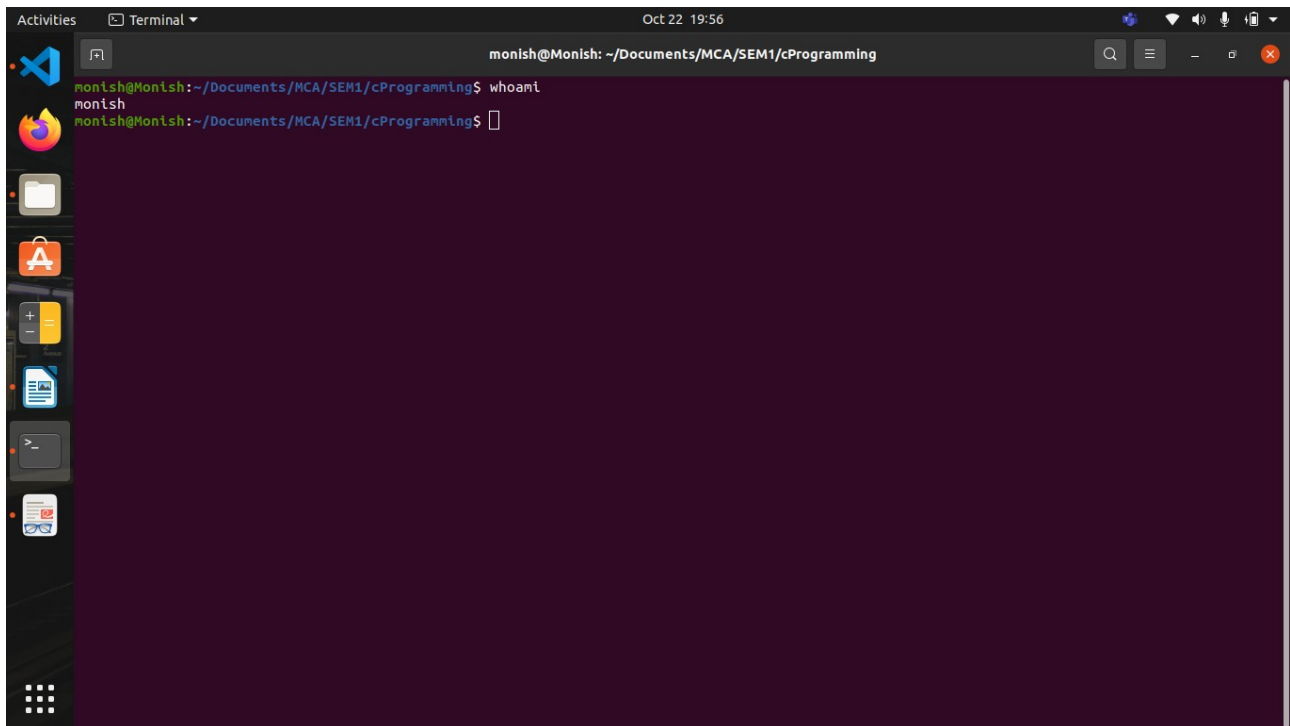


```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ cat >Newfile
Hiii, This is New File!!!
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ ls
Assignment Extra Newfile Notes.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ cat Newfile
Hiii, This is New File!!!
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```


13.whoami

DESCRIPTION

Print the user name associated with the current effective user ID. Same as `id -un`.



A screenshot of a Linux terminal window. The window title is "Terminal" and the date/time is "Oct 22 19:56". The terminal shows the user "monish" at the prompt "monish@Monish: ~/Documents/MCA/SEM1/cProgramming". The user has entered the command "whoami", and the output is "monish". The terminal has a dark purple background and a light blue prompt. The window has a standard Linux desktop environment with a sidebar on the left containing icons for various applications.

```
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ whoami
monish
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

14.mv

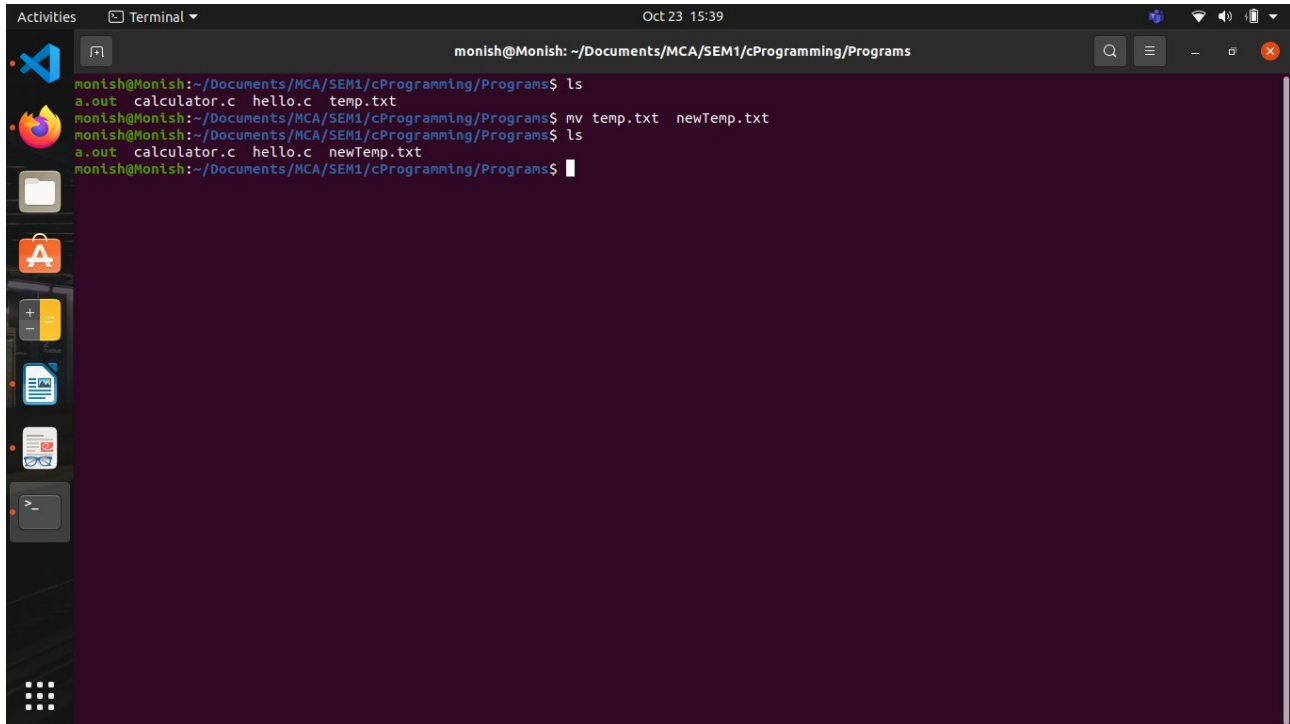
DESCRIPTION

Rename SOURCE to DEST, or move SOURCE(s) to DIRECTORY.

mv stands for **move**. mv is used to move one or more files or directories from one place to another in a file system like UNIX. It has two distinct functions:

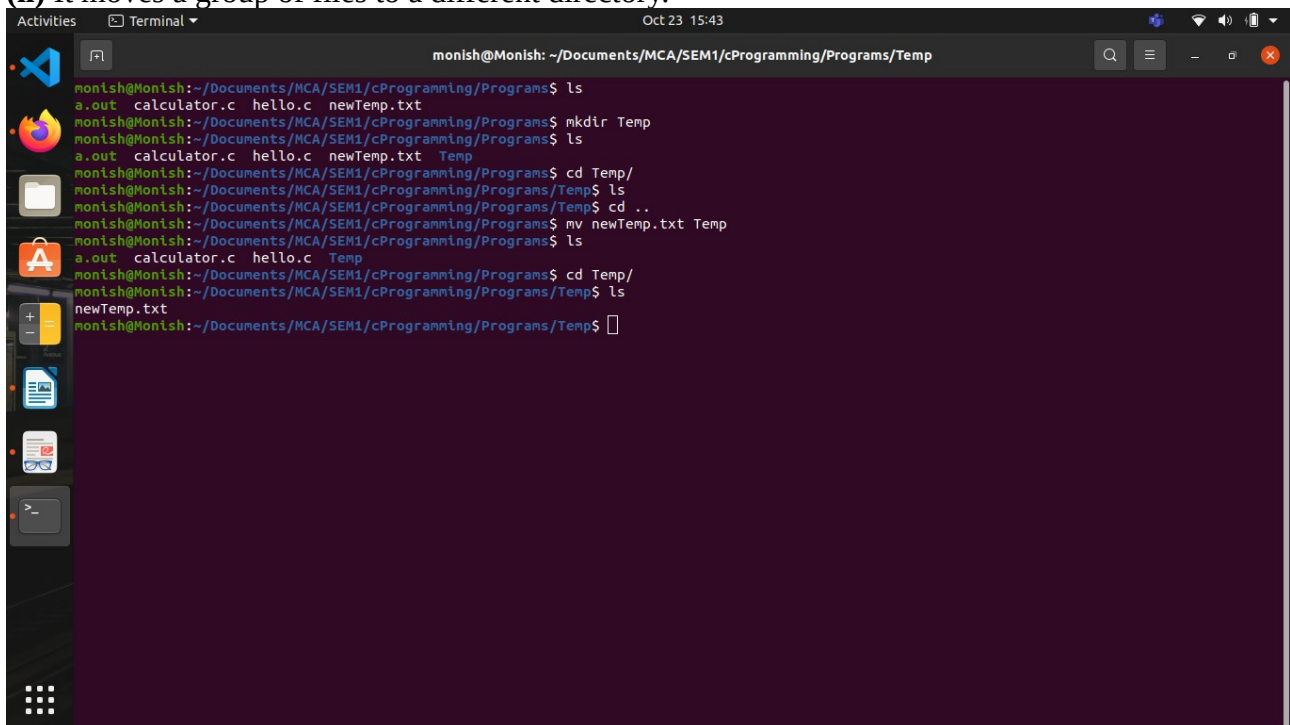
(i) It renames a file or folder.

If the destination file **doesn't exist**, it will be created. In the above command **mv** simply replaces the source filename in the directory with the destination filename(new name)



```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming/Programs
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
a.out  calculator.c  hello.c  temp.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ mv temp.txt newTemp.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
a.out  calculator.c  hello.c  newTemp.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$
```

(ii) It moves a group of files to a different directory.

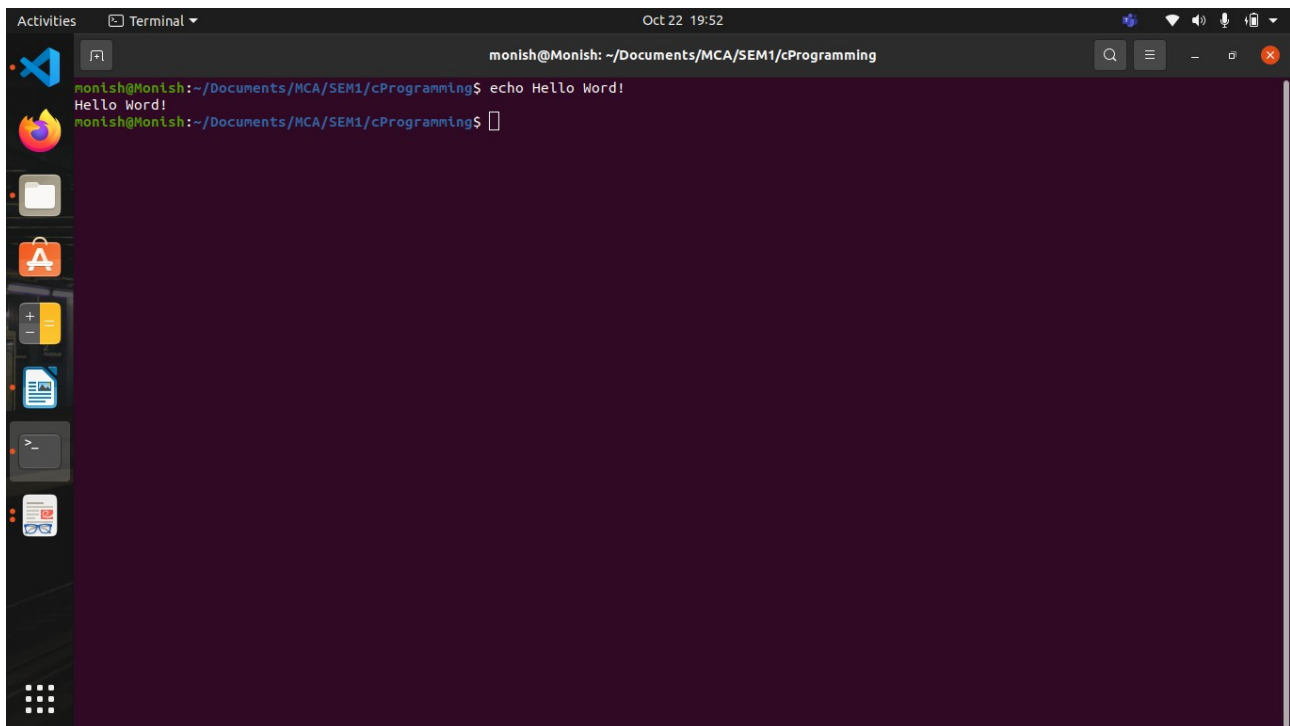


```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming/Programs/Temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
a.out  calculator.c  hello.c  newTemp.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ mkdir Temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
a.out  calculator.c  hello.c  newTemp.txt  Temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ cd Temp/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs/Temp$ ls
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs/Temp$ cd ..
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ mv newTemp.txt Temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
a.out  calculator.c  hello.c  Temp
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ cd Temp/
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs/Temp$ ls
newTemp.txt
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs/Temp$
```

15.echo

DESCRIPTION

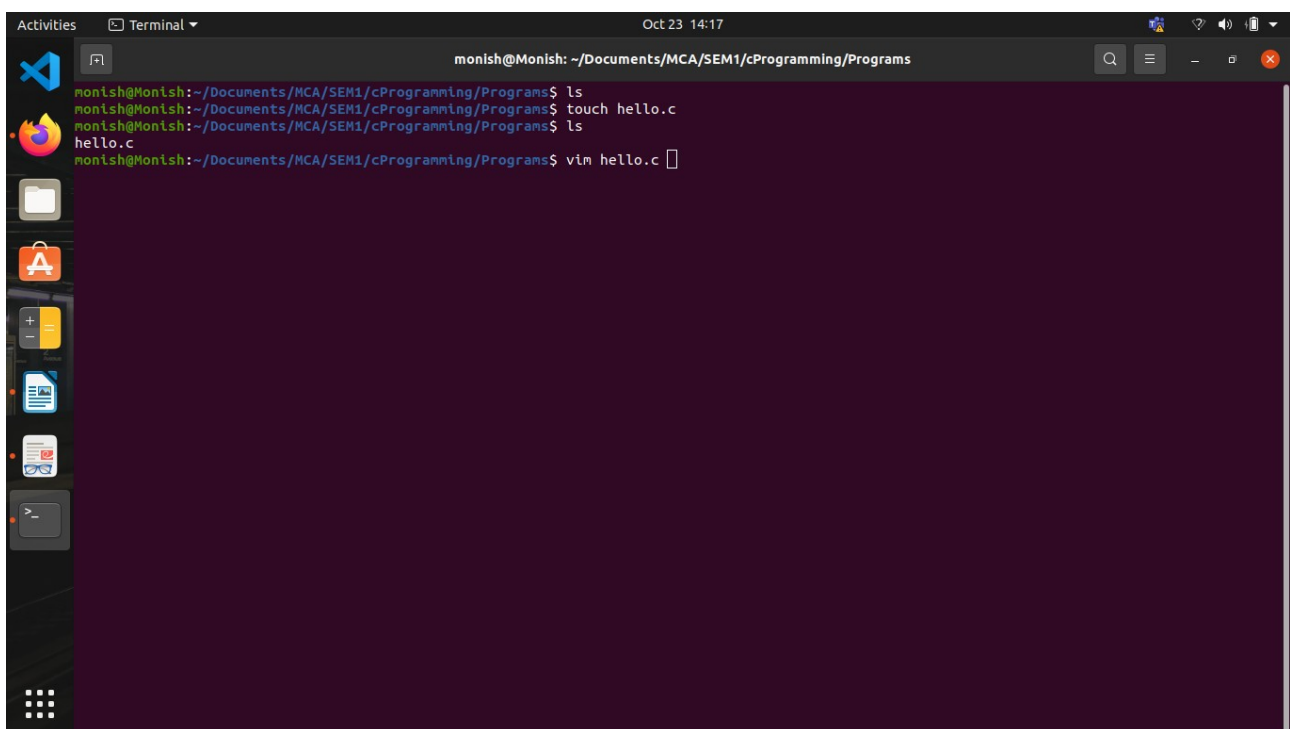
Echo the STRING(s) to standard output or display a line of text.



```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming
monish@Monish:~/Documents/MCA/SEM1/cProgramming$ echo Hello Word!
Hello Word!
monish@Monish:~/Documents/MCA/SEM1/cProgramming$
```

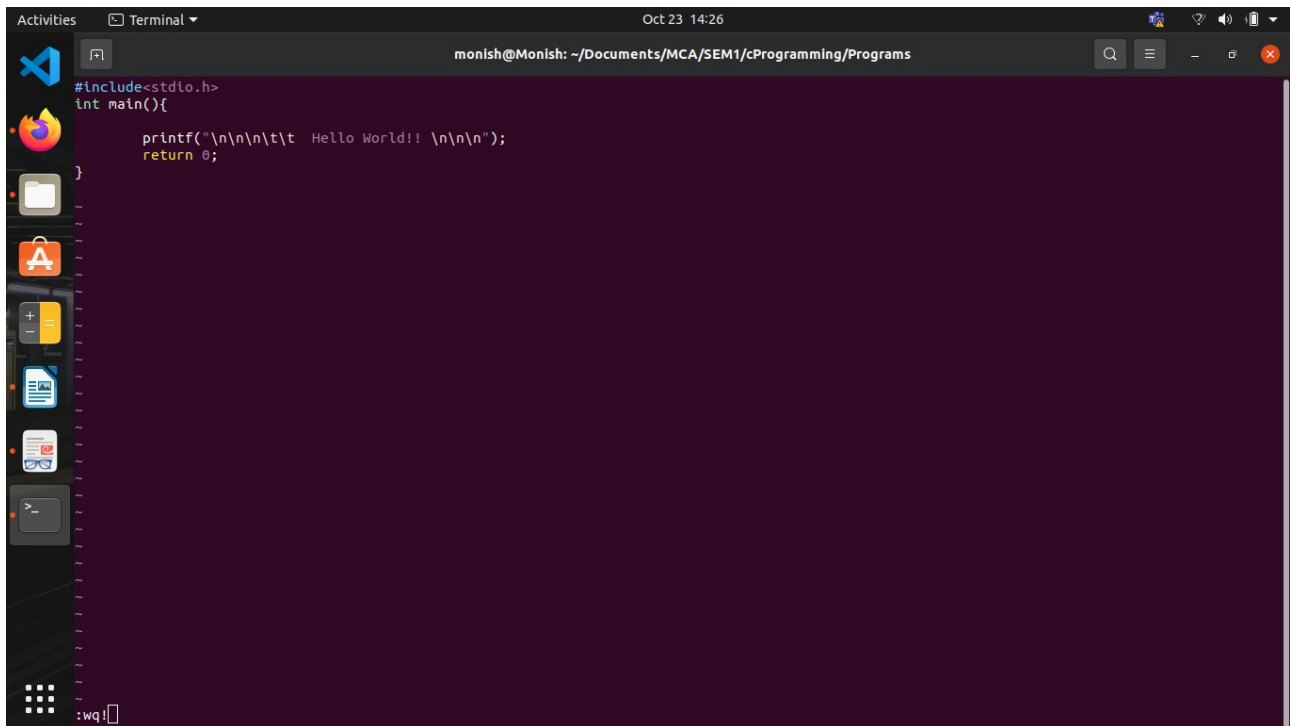
Program 1

Here we crate a c file hello.c



```
monish@Monish: ~/Documents/MCA/SEM1/cProgramming/Programs
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ touch hello.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
hello.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ vim hello.c
```

CODE SECTION

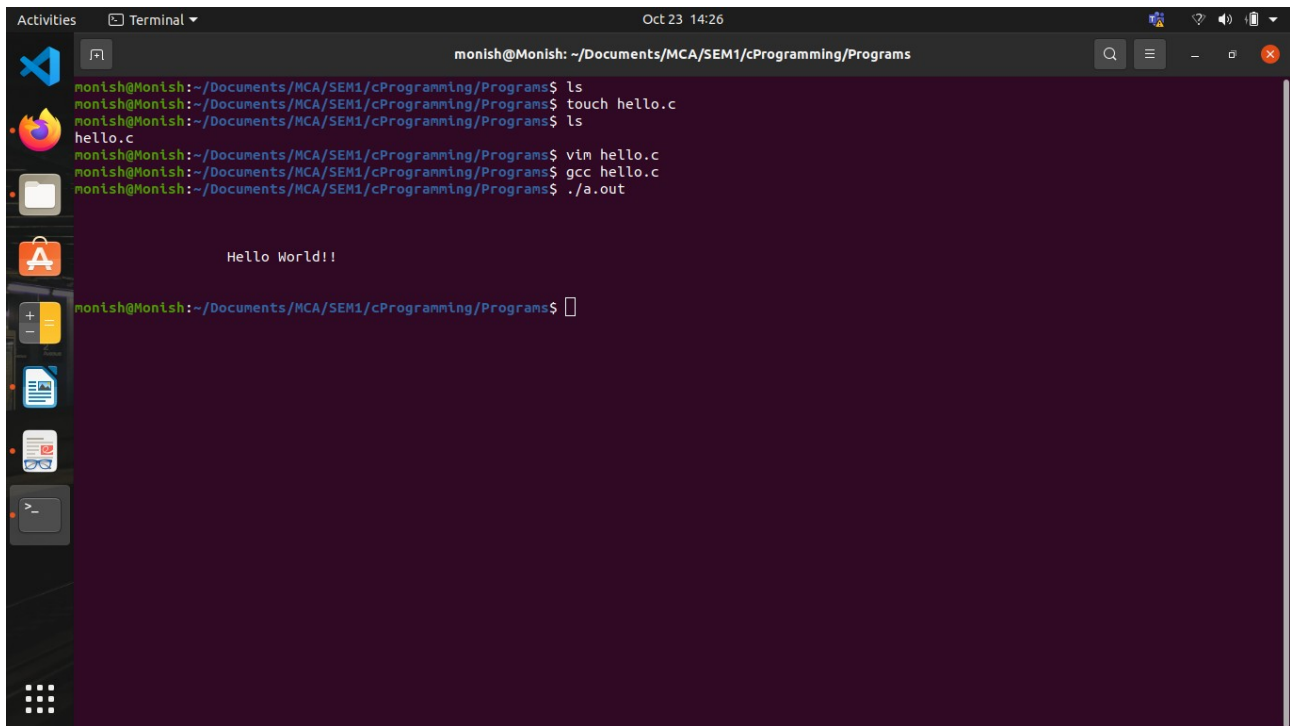


A screenshot of a Linux terminal window. The title bar shows 'Terminal' and the date 'Oct 23 14:26'. The terminal prompt is 'monish@Monish: ~/Documents/MCA/SEM1/cProgramming/Programs'. The code being entered is a C program that includes `<stdio.h>`, defines `int main()`, and uses `printf` to print 'Hello World!!' followed by a newline. The code is as follows:

```
#include<stdio.h>
int main(){
    printf("\n\n\t\t Hello World!! \n\n\n");
    return 0;
}
```

The terminal shows the code being entered line by line, with the cursor at the end of the last line. The prompt is ':wq!'.

OUT PUT SECTION



A screenshot of a Linux terminal window showing the execution of a C program. The title bar shows 'Terminal' and the date 'Oct 23 14:26'. The terminal prompt is 'monish@Monish: ~/Documents/MCA/SEM1/cProgramming/Programs'. The commands being entered are:

```
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ touch hello.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ls
hello.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ vim hello.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ gcc hello.c
monish@Monish:~/Documents/MCA/SEM1/cProgramming/Programs$ ./a.out
```

The output of the program is 'Hello World!!'.