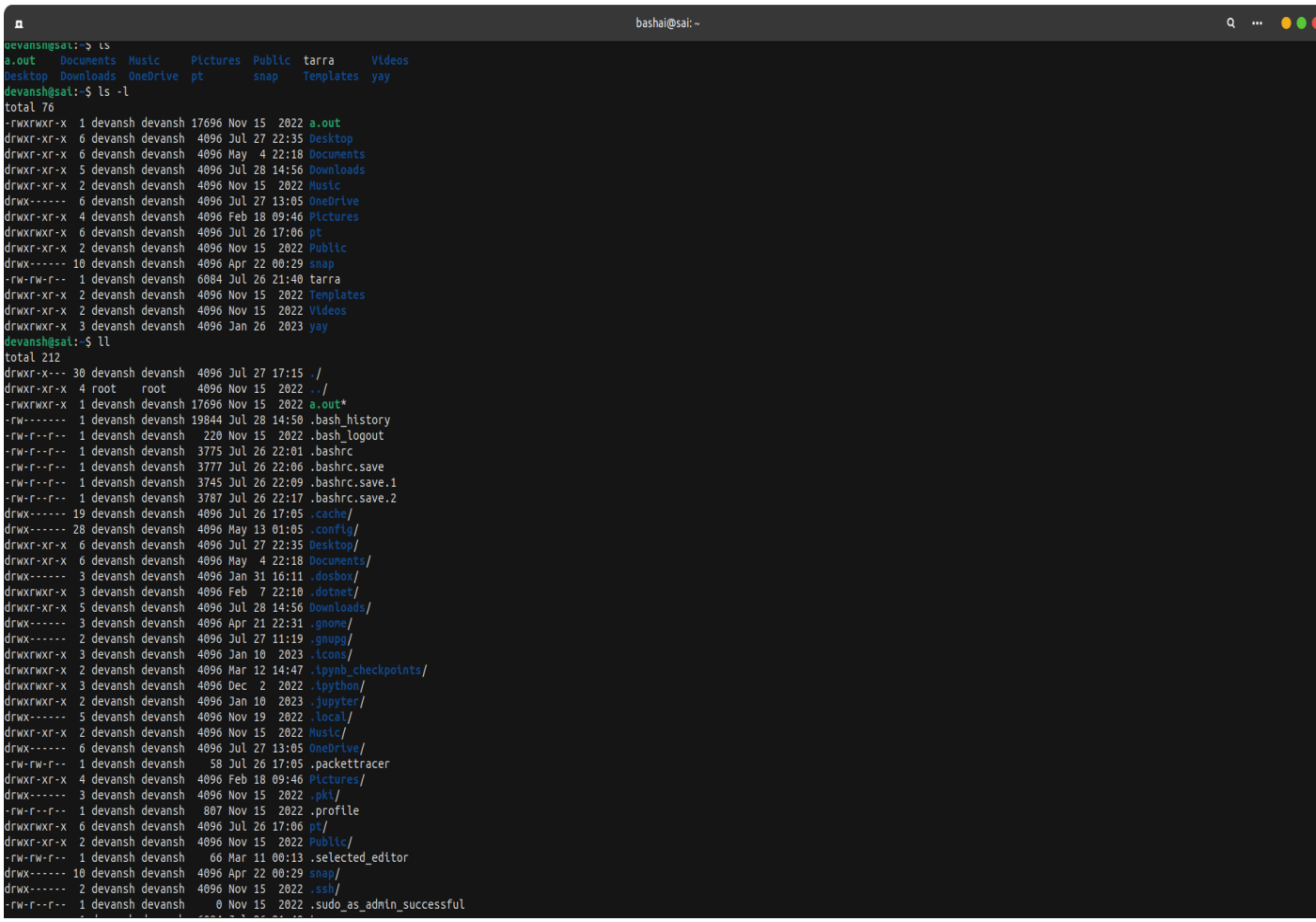
1) ls: - DEVANSH CS21B2023

The ‘ls’ command's default output simply lists, one item per line, the names of all the files and directories located in the current working directory. It provides a clear interface.

ls -l or ll:

All Linux distributions do not come with 'll' as the default command, but it is frequently used as an alias for ls -l. To make typing easier and more user-friendly, certain Linux systems, like Ubuntu, designate 'll' as an alias.



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2) Reading files in Linux - [cat, more, less]

→ **Cat: -** The main purpose of the cat command, which stands for "concatenate" is to show the whole contents of one or more files in the terminal. It produces the contents of the files without halting or paginating.

→ **More: -** One screen at a time file content is displayed using the more command. It paginates the output so you can use the keyboard to navigate the file (often using the spacebar to advance to the next page and the 'q' key to exit).

→ **Less: -** Less and more are similar in that they both display a file's contents one screen at a time. Less, on the other hand, has more functionality and supports both forward and backward scrolling. This indicates that you can move through the file by going forward and backward.

- To advance to the next page, use the spacebar.
- The 'b' key will advance you one page.
- Line by line scrolling is done with the arrow keys.
- Enter the search word, then type '/' to start a new search, to find text. To move to the next instance of the search word, press "n."

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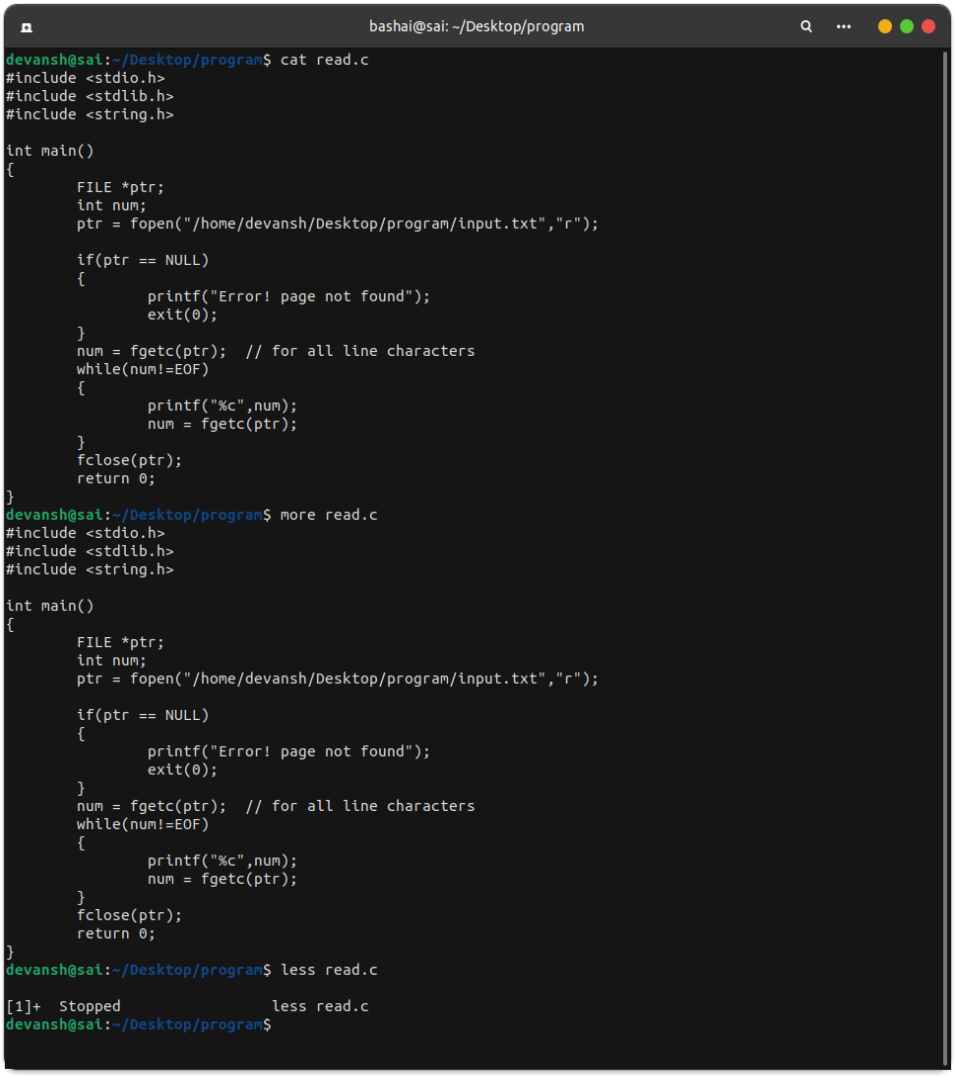
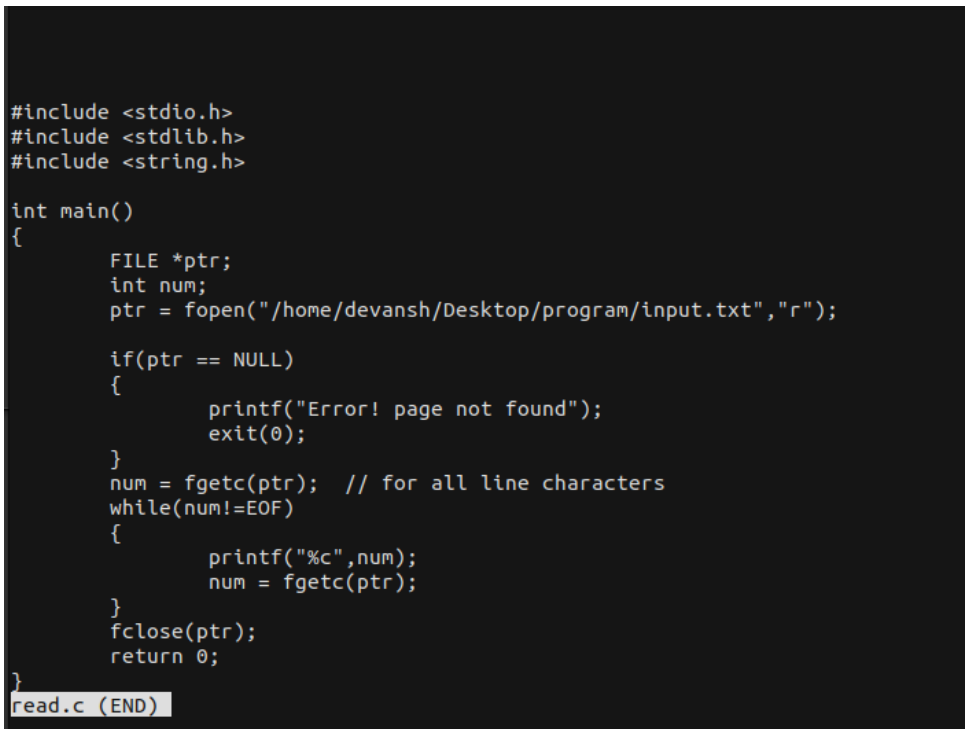

bashai@sai: ~/Desktop/program
devansh@sat:~/Desktop/program$ cat read.c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int main()
{
FILE *ptr;
int num;
ptr = fopen("/home/devansh/Desktop/program/input.txt","r");
if(ptr == NULL)
{
printf("Error! page not found");
exit(0);
}
num = fgetc(ptr); // for all line characters
while(num!=EOF)
{
printf("%c",num);
num = fgetc(ptr);
}
fclose(ptr);
return 0;
}
devansh@sat:~/Desktop/program$ more read.c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int main()
{
FILE *ptr;
int num;
ptr = fopen("/home/devansh/Desktop/program/input.txt","r");
if(ptr == NULL)
{
printf("Error! page not found");
exit(0);
}
num = fgetc(ptr); // for all line characters
while(num!=EOF)
{
printf("%c",num);
num = fgetc(ptr);
}
fclose(ptr);
return 0;
}
devansh@sat:~/Desktop/program$ less read.c
[1]+ Stopped less read.c
devansh@sat:~/Desktop/program$


#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int main()
{
FILE *ptr;
int num;
ptr = fopen("/home/devansh/Desktop/program/input.txt","r");
if(ptr == NULL)
{
printf("Error! page not found");
exit(0);
}
num = fgetc(ptr); // for all line characters
while(num!=EOF)
{
printf("%c",num);
num = fgetc(ptr);
}
fclose(ptr);
return 0;
}
read.c (END)

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3) Manipulating files - [cp, mv, rm, mkdir]

→ Cp: - To move files and directories between two locations, use the cp command. It copies files just by default; directories are not copied.

→ Cp –R: - Recursive directory and content copying is done with the help of the cp -R command. This indicates that in addition to copying the directory itself, all its files and subdirectories will also be copied.

→ Mv: - Files and folders can be moved or renamed with the mv command. It will transfer

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The object from the source place to the destination location when used to move a file or directory. The mv command will really rename the file or directory if the destination is in the same directory.

→ Rm: - The rm command is used to remove (delete) files and directories. By default, it only works for files. To remove directories and their contents, you need to use the -R (or -r) option, just like with the cp command.

→ Mkdir: - The mkdir command is used to create folders.

```
devansh@sai:~/Desktop/program$ cp alog.cpp algo7.cpp
cp: cannot stat 'alog.cpp': No such file or directory
devansh@sai:~/Desktop/program$ cp algo.cpp algo7.cpp
devansh@sai:~/Desktop/program$ ls
 algo7.cpp    append.c              deque.cpp                          list.cpp     write.c
 algo.cpp     array.cpp             input.txt                          output.txt
 a.out        cs21b1065_lab1.docx   'Linux Networking Commands1.docx'   read.c
```

```
devansh@sai:~/Desktop/program$ cp -R read.c read1.c
devansh@sai:~/Desktop/program$ ls
 algo7.cpp    append.c              deque.cpp                          list.cpp     read.c
 algo.cpp     array.cpp             input.txt                          output.txt   write.c
 a.out        cs21b1065_lab1.docx   'Linux Networking Commands1.docx'   read1.c
devansh@sai:~/Desktop/program$
```

```
devansh@sai:~/Desktop/program$ mv list.cpp list1
devansh@sai:~/Desktop/program$ ls
 algo7.cpp    a.out                 deque.cpp   'Linux Networking Commands1.docx'   output.txt   read.c
 algo.cpp     cs21b1065_lab1.docx   input.txt    list1                              read1.c      write.c
devansh@sai:~/Desktop/program$
```

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```
Try 'rm --help' for more information.
devansh@sai:~/Desktop/program$ rm algo.cpp
devansh@sai:~/Desktop/program$ ls
 algo7.cpp    cs21b1065_lab1.docx   input.txt                          list1        read1.c   write.c
 a.out        deque.cpp             'Linux Networking Commands1.docx'   output.txt   read.c
devansh@sai:~/Desktop/program$
```

```
devansh@sai:~/Desktop/program$ mkdir oslab
devansh@sai:~/Desktop/program$ mkdir
mkdir: missing operand
Try 'mkdir --help' for more information.
devansh@sai:~/Desktop/program$ ls
 algo7.cpp    cs21b1065_lab1.docx   input.txt                          list1   output.txt   read.c
 a.out        deque.cpp             'Linux Networking Commands1.docx'   oslab   read1.c      write.c
devansh@sai:~/Desktop/program$
```

4) tar, grep, find, ssh, diff, sort, pwd, gzip, ps, free, kill: -

Tar: - Using the tar command, files and directories can be archived and compressed into a single file, sometimes known as a "tarball." It is a typical technique for transferring several files or making backups.

Grep: - Use the grep command to look for text or pattern within files. It is an effective tool for pattern matching and text processing.

Find: - Using different criteria, such as name, size, or modification time, the locate command can be used to search for files and directories within a directory hierarchy.

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Ssh: - The ssh command is used to connect to remote servers securely using the SSH (Secure Shell) protocol. It allows you to access and manage remote systems from the command line.

Diff: - The diff command is used to compare the lines-by-lines contents of two text files and show the differences.

Sort: - Text file lines can be sorted alphabetically or numerically using the sort of command.

Pwd: - The pwd command is used to print the current working directory, which is the directory you are currently in. [present working directory]

Gzip: - To compress files, use the gzip command. A file is compressed and given a new name ending in ".gz." and the present file will be deleted.

ps: - The ps command can be used to view details about the active processes on the system.

Free: - To view details on the system's memory usage, use the free command.

Kill: - Processes can be killed by giving them signals using the kill command. The most typical signal, SIGTERM (signal 15), kindly requests that a process end. When a process ignores SIGTERM, you can use SIGKILL (signal 9) to end it abruptly.

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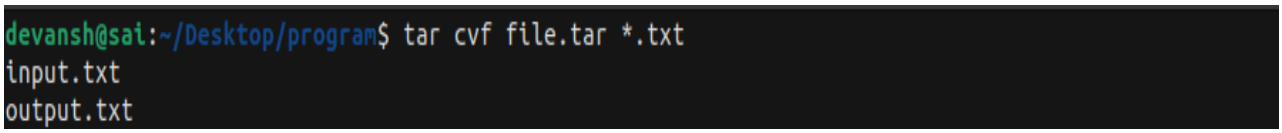

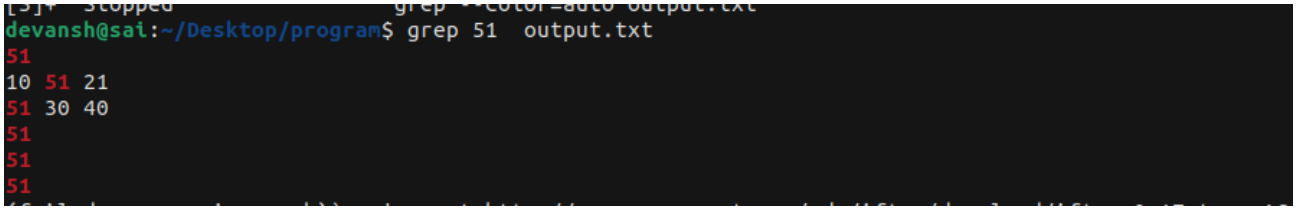

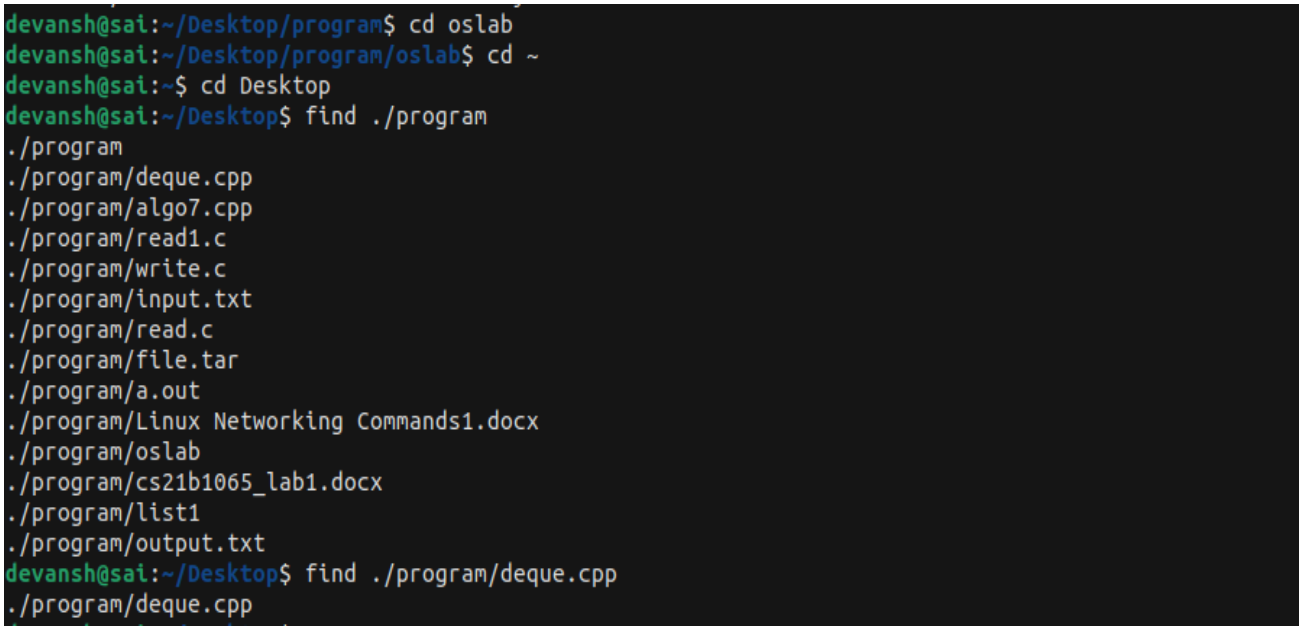

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```
devansh@sai:~/Desktop$ ssh devansh@192.168.218.12
The authenticity of host '192.168.218.12 (192.168.218.12)' can't be established.
ED25519 key fingerprint is SHA256:ylIgSQ3bL5pHI0K3QDEa6fCmljLiVNfUgc5uzaqGQW4.
This host key is known by the following other names/addresses:
    ~/.ssh/known_hosts:1: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.218.12' (ED25519) to the list of known hosts.
devansh@192.168.218.12's password:
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-41-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

Expanded Security Maintenance for Applications is not enabled.

244 updates can be applied immediately.
157 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

22 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

```
[2]+  Stopped                 gedit input1.txt
devansh@sai:~/Desktop/program$ diff input.txt input1.txt
0a1,2
> EOF
>
53d54
< EOF
devansh@sai:~/Desktop/program$
```

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```
devansh@sai:~/Desktop/program$ gedit name.txt&
[3] 8894
[2]   Killed                  gedit input1.txt
devansh@sai:~/Desktop/program$ sort name.txt




157 of these updates are standard security updates.
22 additional security updates can be applied with ESM Apps.
244 updates can be applied immediately.
Expanded Security Maintenance for Applications is not enabled.
individual files in /usr/share/doc/*/copyright.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm
the exact distribution terms for each program are described in the
The programs included with the Ubuntu system are free software;
To see these additional updates run: apt list --upgradable
devansh@sai:~/Desktop/program$
```

```
devansh@sai:~/Desktop/program$ pwd
/home/devansh/Desktop/program
[3]-  Done                    gedit name.txt
devansh@sai:~/Desktop/program$
```

```
devansh@sai:~/Desktop/program$ ps
    PID TTY          TIME CMD
   7778 pts/1    00:00:00 bash
   8276 pts/1    00:00:00 less
   9409 pts/1    00:00:00 ps
devansh@sai:~/Desktop/program$
```

```
devansh@sai:~/Desktop/program$ free
               total        used        free      shared  buff/cache   available
Mem:         3796104     1987020      323560      384024     1485524     1135648
Swap:              0           0           0
[2]-  Done                    gedit name.txt
devansh@sai:~/Desktop/program$
```

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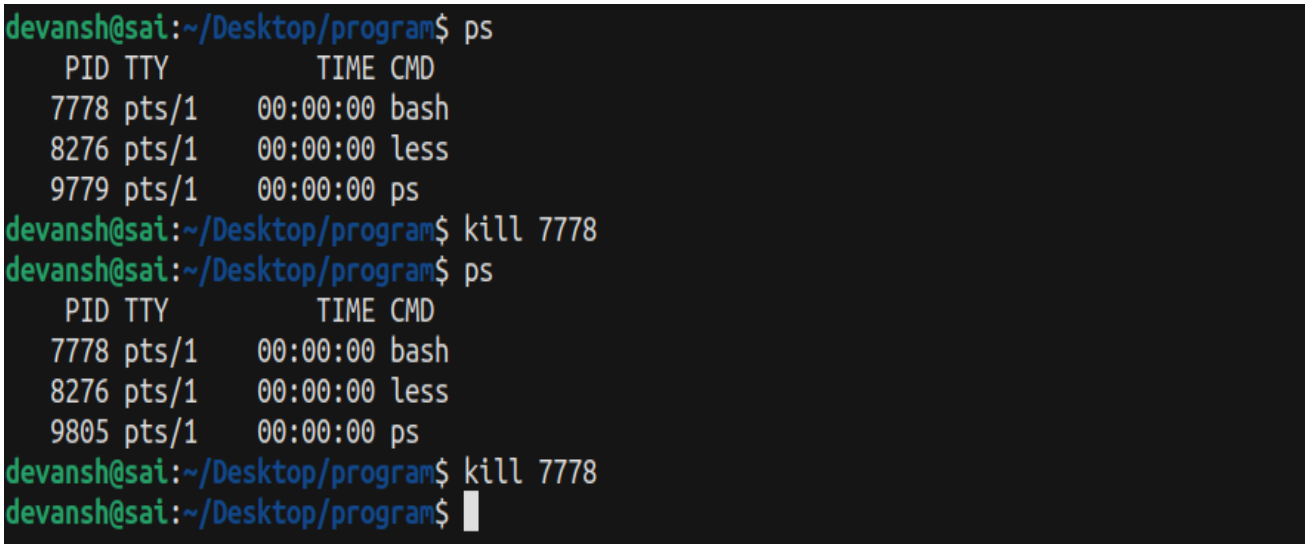

5) chmod (Changing Permissions): -

Chmod: - The chmod command in Linux is used to modify a file or directory's permissions. "Chmod" is an acronym meaning "change mode." Who may read, write, and execute a file or directory is determined by the file permissions. You can alter these permissions to limit who can access your files using the chmod programme.

```
devansh@sai:~/Desktop/program$ ls
 algo7.cpp             file.tar                          list1          read1.c
 a.out                 input1.txt                        name.txt       read.c
 cs21b1065_lab1.docx   input.txt                         oslab          write.c
 deque.cpp            'Linux Networking Commands1.docx'  output.txt.gz
devansh@sai:~/Desktop/program$ ls -l input1.txt
-rw-rw-r-- 1 devansh devansh 452 Jul 28 15:59 input1.txt
devansh@sai:~/Desktop/program$ chmod  u=rw,og=r input1.txt
devansh@sai:~/Desktop/program$ ls -l input1.txt
-rw-r--r-- 1 devansh devansh 452 Jul 28 15:59 input1.txt
devansh@sai:~/Desktop/program$ ll
total 1552
drwxrwxr-x 3 devansh devansh    4096 Jul 28 16:09  ./
drwxr-xr-x 6 devansh devansh    4096 Jul 27 22:35  ../
-rw-rw-r-- 1 devansh devansh     921 Jul 28 15:09  algo7.cpp
-rwxrwxr-x 1 devansh devansh   16208 Jul 27 08:15  a.out*
-rw-rw-r-- 1 devansh devansh 1483901 Jul 26 23:18  cs21b1065_lab1.docx
-rw-rw-r-- 1 devansh devansh    1745 May 12 17:23  deque.cpp
-rw-rw-r-- 1 devansh devansh   10240 Jul 28 15:35  file.tar
-rw-r--r-- 1 devansh devansh     452 Jul 28 15:59  input1.txt
-rw-rw-r-- 1 devansh devansh     451 Jul 26 10:05  input.txt
-rw-rw-r-- 1 devansh devansh   18549 Jul 26 20:05 'Linux Networking Commands1.docx'
-rw-rw-r-- 1 devansh devansh    1097 May 12 17:29  list1
-rw-rw-r-- 1 devansh devansh     528 Jul 28 16:05  name.txt
drwxrwxr-x 2 devansh devansh    4096 Jul 28 15:28  oslab/
-rw-rw-r-- 1 devansh devansh     286 Jul 27 08:15  output.txt.gz
-rw-rw-r-- 1 devansh devansh     365 Jul 28 15:17  read1.c
-rw-rw-r-- 1 devansh devansh     365 Jul 26 10:13  read.c
-rw-rw-r-- 1 devansh devansh     435 Jul 26 10:18  write.c
devansh@sai:~/Desktop/program$
```