Assignment-1 Questions:

(Note: All answers should include an attached screenshot as proof of execution)

1. What does CLI stand for, and how does it differ from GUI?

Ans. CLI stands for “Command line interface”.
Command line interface and graphical user interface are 2 ways to interact with

Computer and software applications. Here are different points:

1. CLI use type command in terminals whereas GUI use visual elements buttons, icons, etc;

2. CLI need knowledge to run commands and is steep learning curve where as GUI is very user friendly and intuitive.

3. CLI is faster for experienced user and GUI is slower because of graphical elements.

2. Open a terminal and execute a simple command such as echo "Hello". Can you perform a similar action in a GUI? What are the advantages of using CII compared to a GUI?

Ans.

```
[root@localhost ~]# echo "hello"
hello
[root@localhost ~]#
```

- In GUI you could do in this way:
  1. Open text editor.
  2. Type “hello” in the editor
  3. Save the file or simply view the text on the screen.
- Advantage of using CLI compared to GUI:
  1. CLI allows exact control over task with detailed options and parameters.
  2. It allows automation through scripts which GUI cannot
  3. It is lightweight and consume low-power

3. **To convert a minimal CLI-based Linux interface into a GUI-based one, which packages are typically required? Find them**

Ans. To convert a minimal CLI-based Linux interface into a GUI-based one we need typically following packages:

1. X window system: For this we use “XORG”, it is foundation layer and provide basic framework for GUI environment.

2. Desktop Environment: Popular choice like “GNOME”, “KDE Plasma”, “XFCE” and “LXDE”.

3. Display Manager: “GDM”, “LightDM”, and “SDDM”.

4. What are terminals in Linux? How many virtual terminals are available on your system, and which key combination is used to access them?

Ans. 1. In linux, terminals are refers as interface that allow to interact with the system by inputting and executing text-based commands, this interaction is facilitated by the help of command line interface, enabling task like file manipulation, system administration, program execution etc.

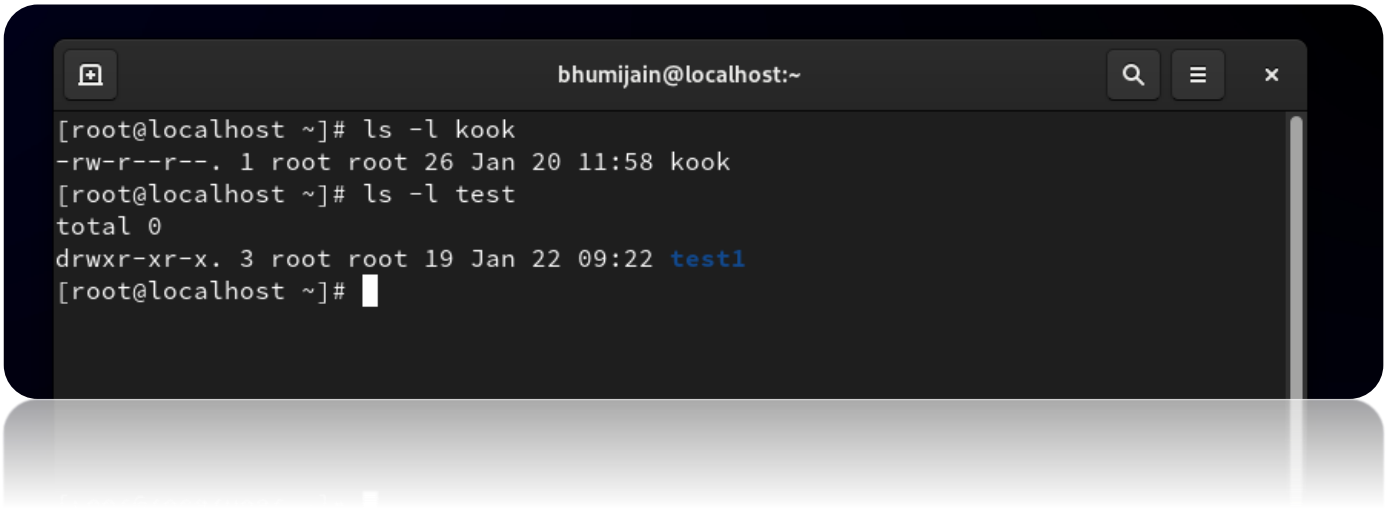
2. Virtual terminal are also known as virtual console. The no. of virtual terminals can vary on linux based on distribution and configuration. For eg. Many provide six Terminals by default, accessible using specific key combination.

3. The key combination used to access them are:

- Cltr+alt+F1 through Cltr+alt+F6 : Switch to virtual terminal 1 to virtual terminal 6.
- Cltr+alt+F7: Typically switches back to GUI session.

5. Write the commands to check a file and a directory in a long listing format. How can you determine whether it is a file or a directory?

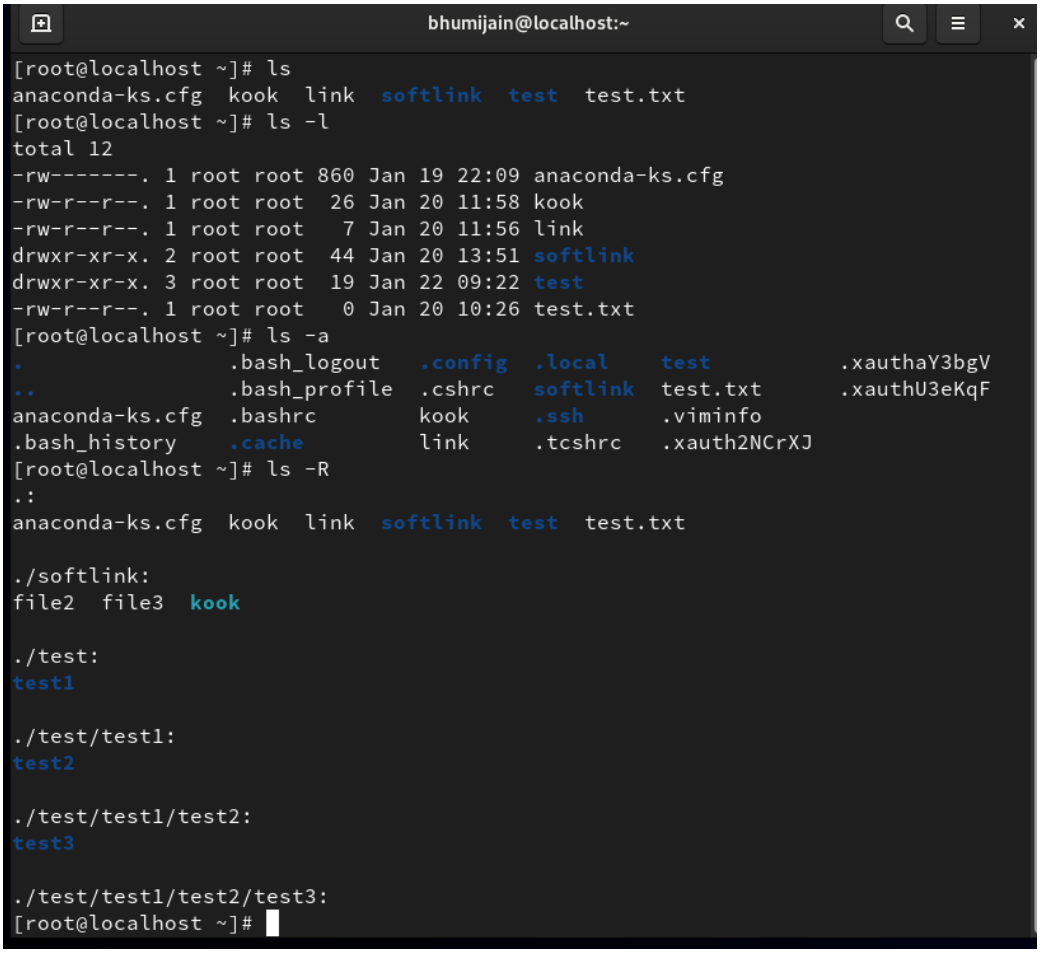
Ans.



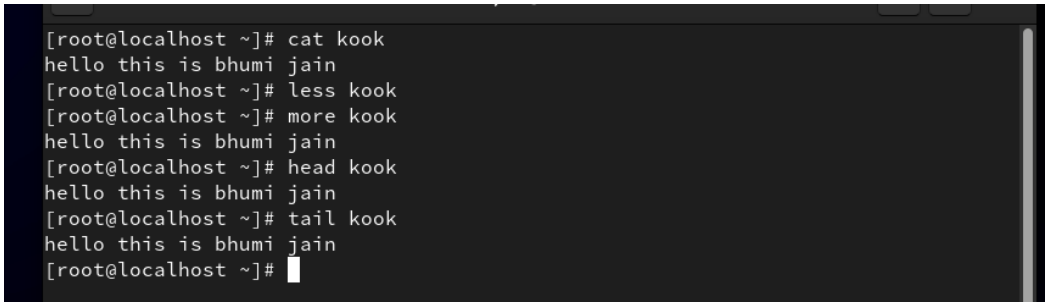
- drwxr-xr-x indicates a directory.
- -rw-r--r-- indicates file.

6. Which Linux commands are used to view the content of files and directories? Write the commands.

Ans. For Directory:

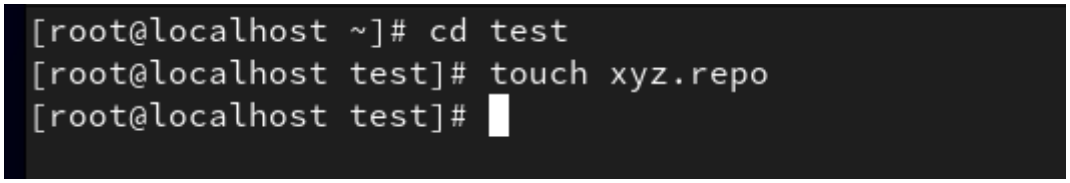


For File:

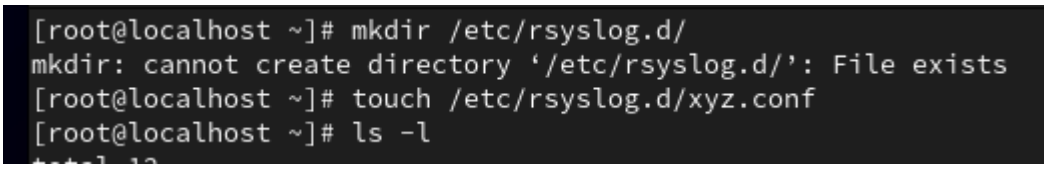


7. Change your current location to the /etc/yum.repos.d directory.

Ans. A. Create xyz.repo in /etc/yum.repos.d/ using a relative path:



B. Create xyz.conf in /etc/rsyslog.d/ using an absolute path:



C. What differences did you observe between using a relative path and an absolute path

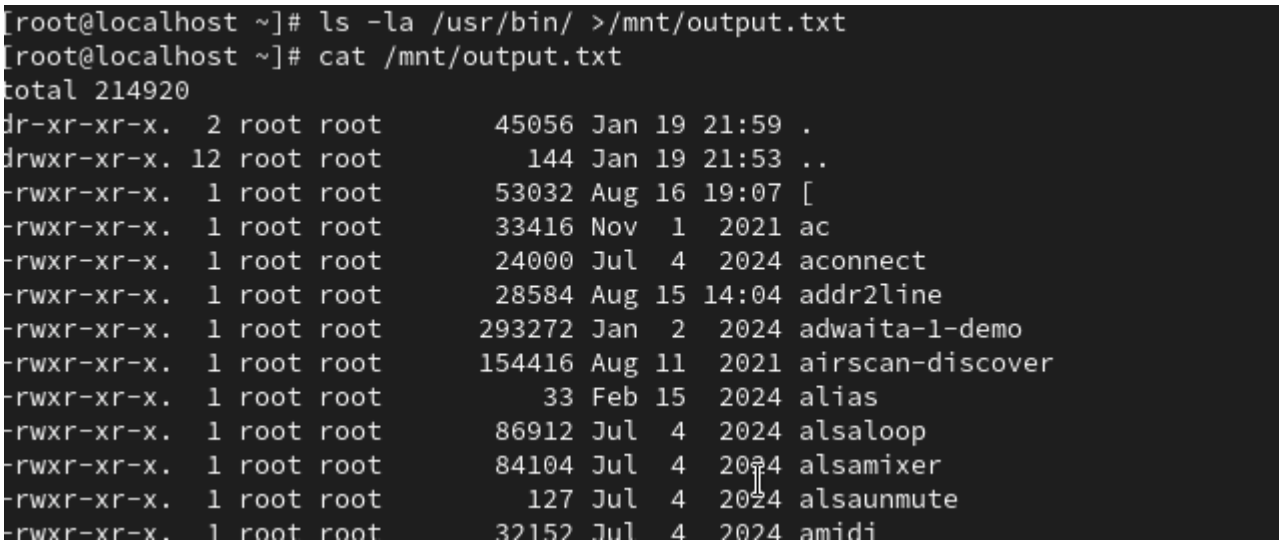
Absolute Path: Starts from the root directory (/), e.g., /home/user/file.txt. **Absolute Path:** Always points to the same location, regardless of the current directory.

Relative Path: Starts from the current working directory, e.g., docs/file.txt. **Relative Path:** Depends on the current working directory and may break if the directory Changes.

8. List all files, including hidden ones, in the /usr/bin/ directory with details like file permissions. Save the

output to a file named output.txt in the /mnt directory. Write the command.

Ans.



1 ls-la:

- -l: Lists detailed information such as permissions, owner, size, and modification date.
- -a: Includes hidden files (files starting with a .).

2 /usr/bin/: The directory to list.

3 >: Redirects the output of the command to a file.

4 /mnt/output.txt: Specifies the file where the output will be saved

9. Create the parent directories /Techno/Udaipur/Rajasthan/India/Asia/Earth/Solar using one command.

Then, check the full structure with details in a long listing format. Write the commands.

Ans.

```
[root@localhost ~]# mkdir -p /Techno/udaipur/rajasthan/earth/solar/
```

```
[root@localhost ~]# ls -lR /Techno
/Techno:
total 0
drwxr-xr-x. 3 root root 23 Jan 22 18:06 udaipur

/Techno/udaipur:
total 0
drwxr-xr-x. 3 root root 19 Jan 22 18:06 rajasthan

/Techno/udaipur/rajasthan:
total 0
drwxr-xr-x. 3 root root 19 Jan 22 18:06 earth

/Techno/udaipur/rajasthan/earth:
total 0
drwxr-xr-x. 2 root root 6 Jan 22 18:06 solar

/Techno/udaipur/rajasthan/earth/solar:
total 0
[root@localhost ~]#
```

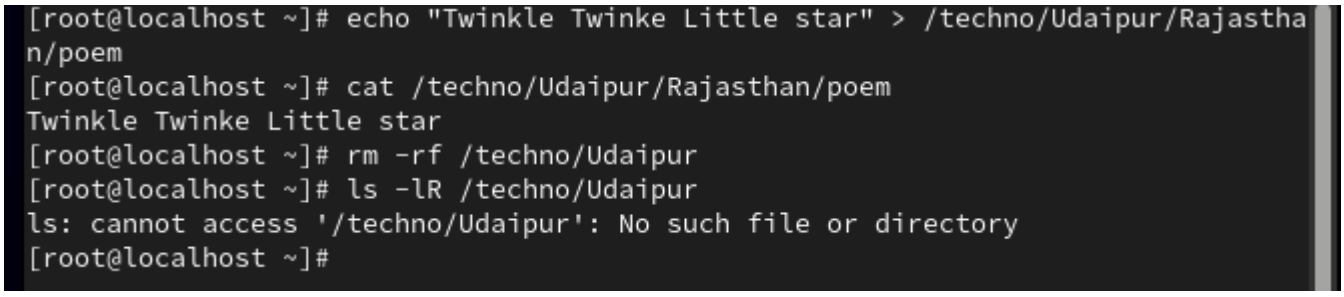
10. Create a file named “Poem” under the /Techno/Udaipur/Rajasthan/ directory. Write the text "Twinkle

Twinkle Little Star" into the file and save it. Perform all actions using the absolute path method.

Ans.

11. Delete the /Techno/Udaipur directory, including its contents, using a single Linux command. Write the command.

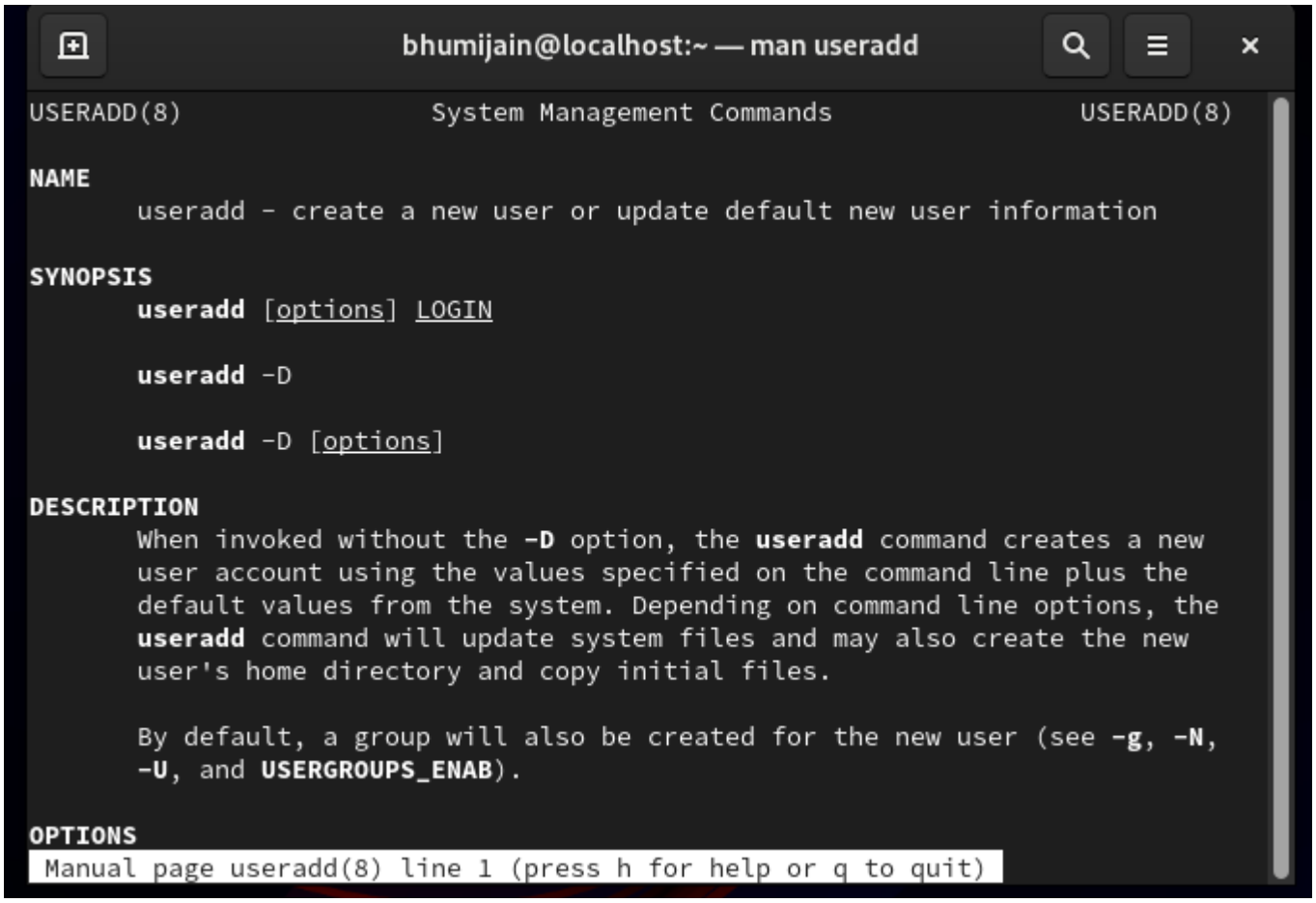
Ans.

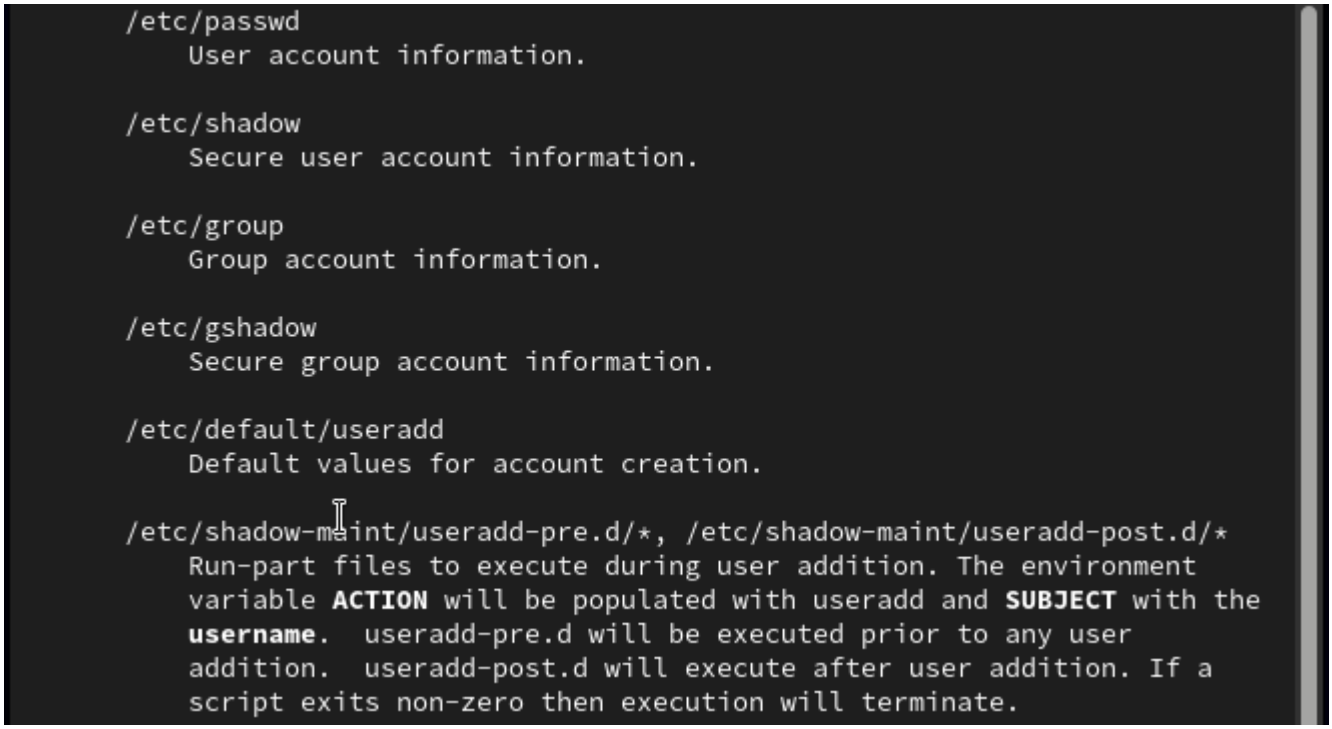


12. How can you view the manual page for the useradd command? From the manual page, identify which files

are important for user administration.(Hint: Check the 'Files' Section)

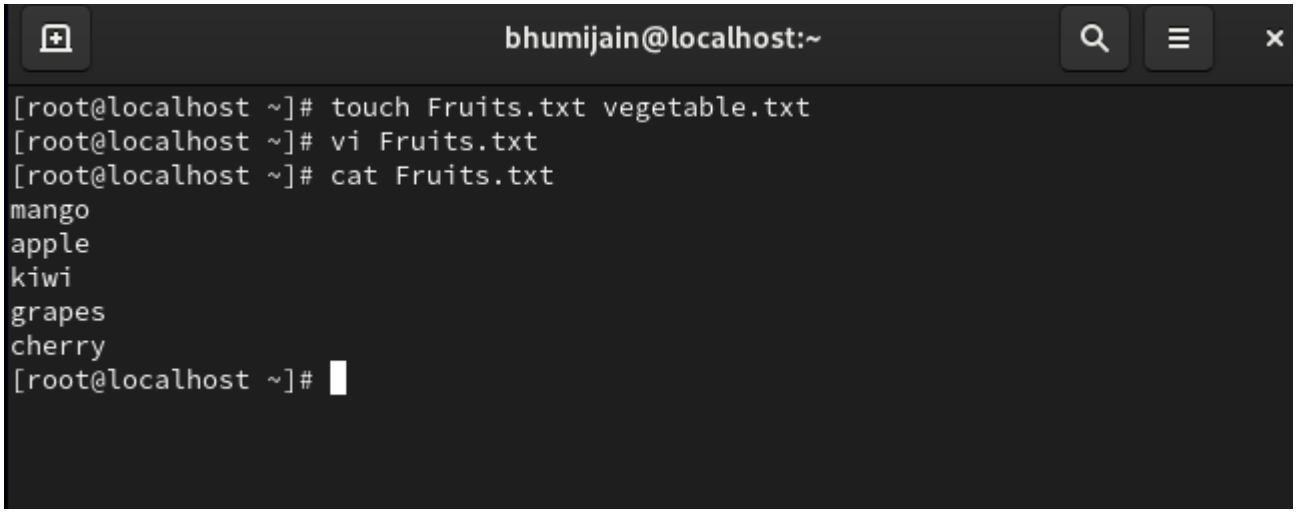
Ans. man useradd



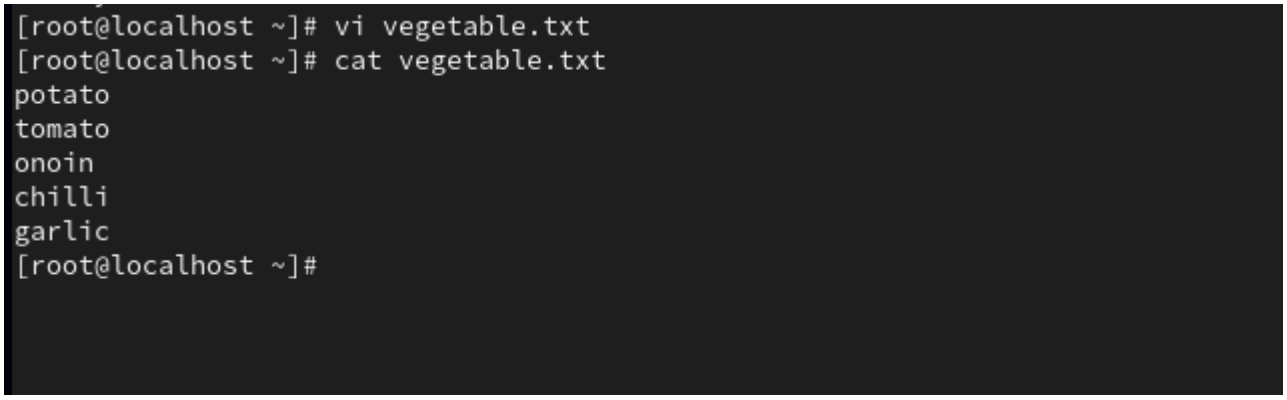


13. You have two files: Fruits.txt and Vegetables.txt, each containing related content.

a. Write content in fruits.txt using vi. (EX: mango, apple, kiwi, grapes, cherry).



b. Write content in vegetables.txt using nano. (Ex: potato, tomato, onion, chilli, garlic).



c. Write the single command to Combine the contents of both files into a single file named

vegetarian and display its content.

```
[root@localhost ~]# nano vegetable.txt
[root@localhost ~]# cat Fruits.txt vegetable.txt > vegetrian
[root@localhost ~]# cat Fruits.txt vegetable.txt > vegetrian && cat vegetrian
mango
apple
kiwi
grapes
cherry
potato
tomato
onoin
chilli
garlic
[root@localhost ~]#
```

14. Write the command to copy all files, including related sub-files, from /var to a new location

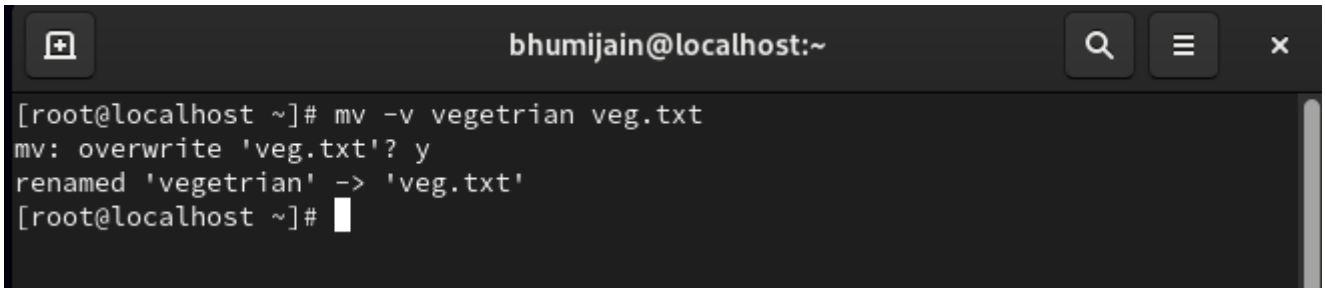
/tmp/data/. The output should be displayed during the copying process.

Ans.

```
[root@localhost ~]# mkdir -p /temp/data
[root@localhost ~]# cp -rv /var/* /temp/data
'/var/account' -> '/temp/data/account'
'/var/account/pacct' -> '/temp/data/account/pacct'
'/var/adm' -> '/temp/data/adm'
'/var/cache' -> '/temp/data/cache'
```

15. Rename the file “Vegetrian.txt” to “Veg.txt”. Write the command.

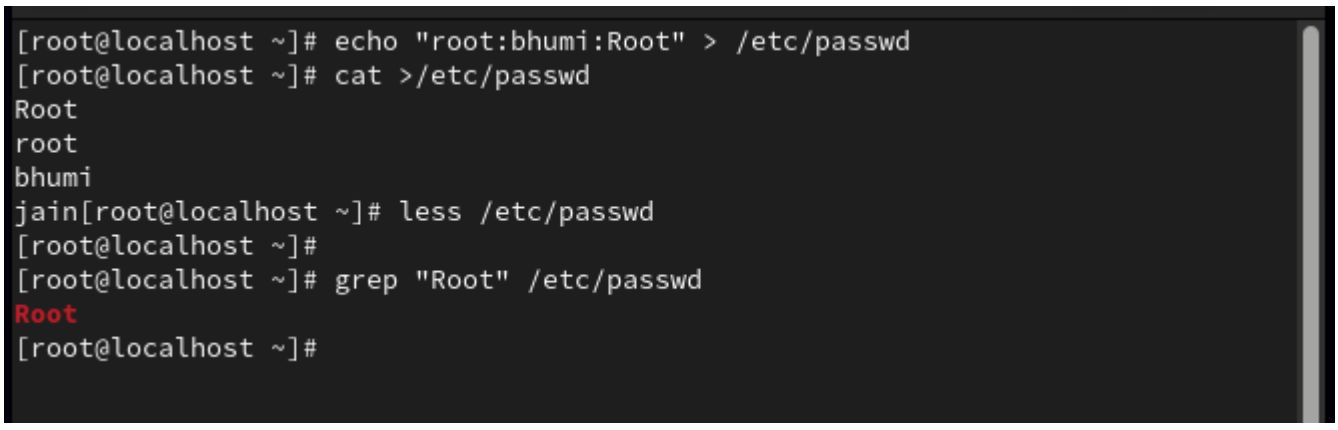
Ans.



16. Open the file “/etc/passwd and locate the following lines using less and more:

a. Search for the text "Root" using the less command.

b. Search for the word "root" using the grep command.



c. What is the use difference between more and less commands?

1 more:

- more is a basic pager program that allows you to view the content of a file one page at a time.
- You can move forward through the file by pressing the spacebar, but it doesn't allow you to move backward (unless using specific options).

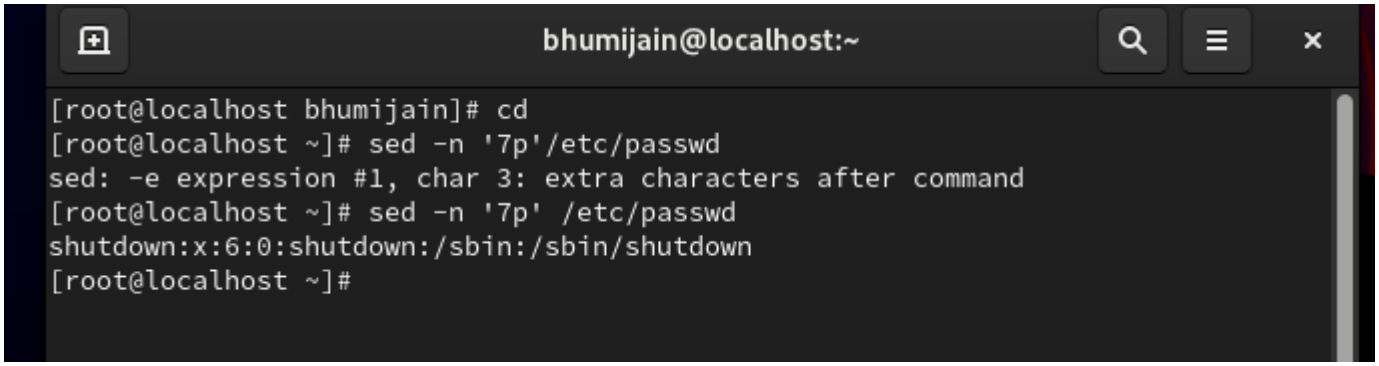
2 less:

- less is an advanced pager that allows both forward and backward navigation within a file.
- You can use the arrow keys to scroll up and down, search for text with /, and more.
- Generally, less is considered more versatile and user-friendly than more.

17. Perform the following tasks and write the commands to achieve them:

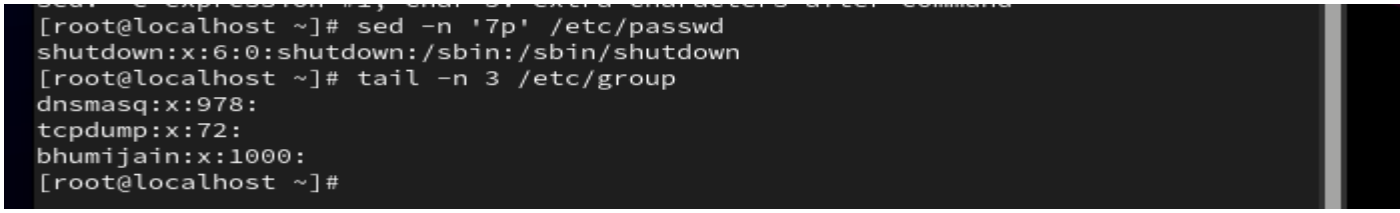
a. Display the top 7th line of the /etc/passwd file.

Ans.



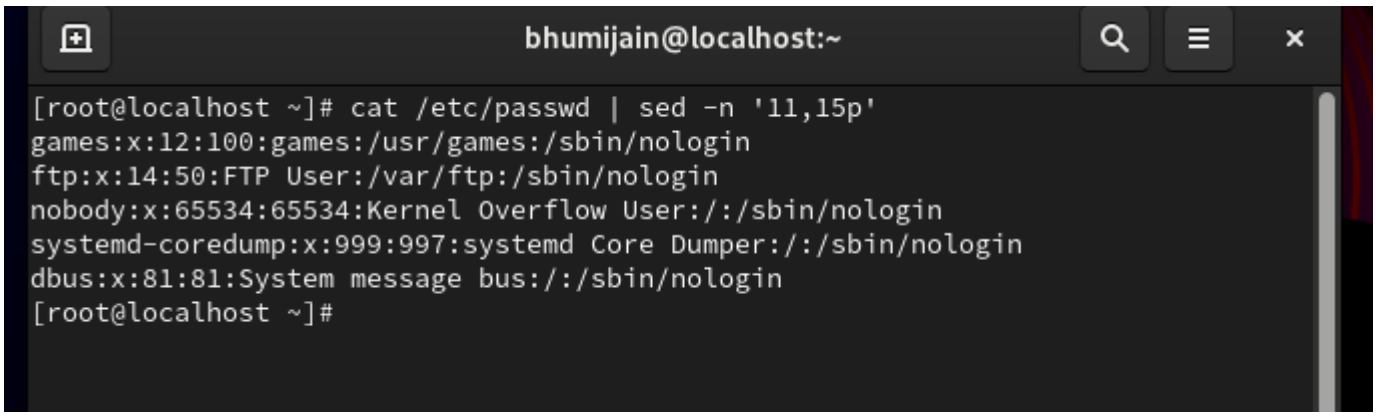
b. Display the last 3 lines of the /etc/group file.

Ans.



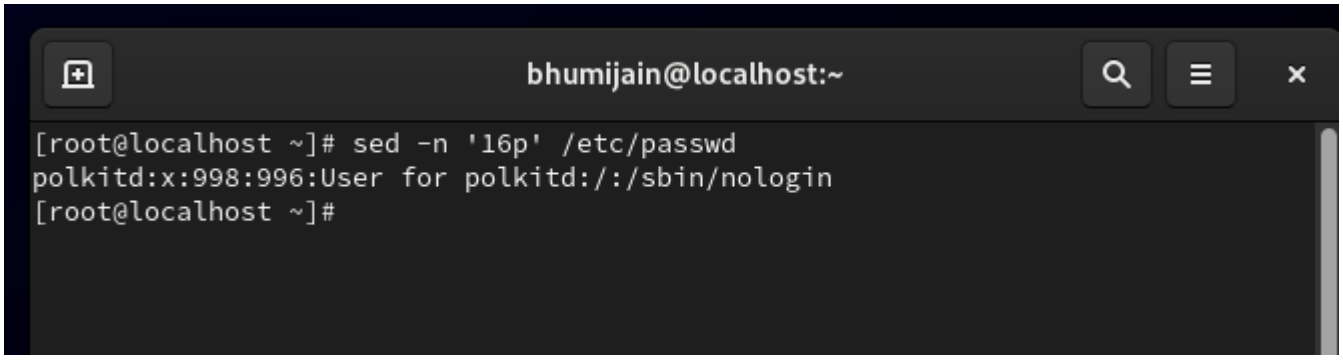
c. Display the lines 11th to 15th from the /etc/shadow file using a pipeline.

Ans.



d. Display only the 16th line of the /etc/passwd file.

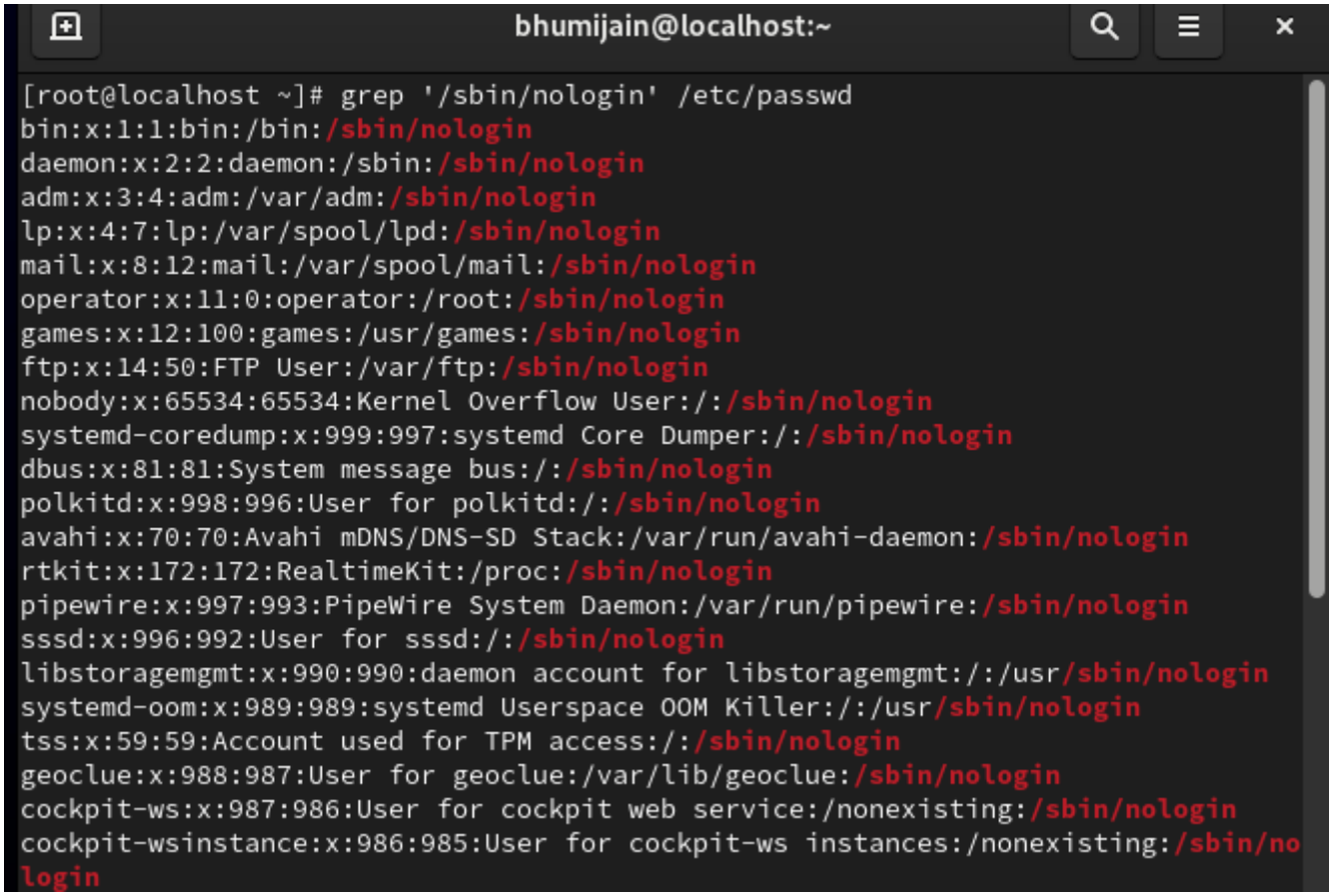
Ans.



18. Perform the following tasks using the grep command on the /etc/passwd file:

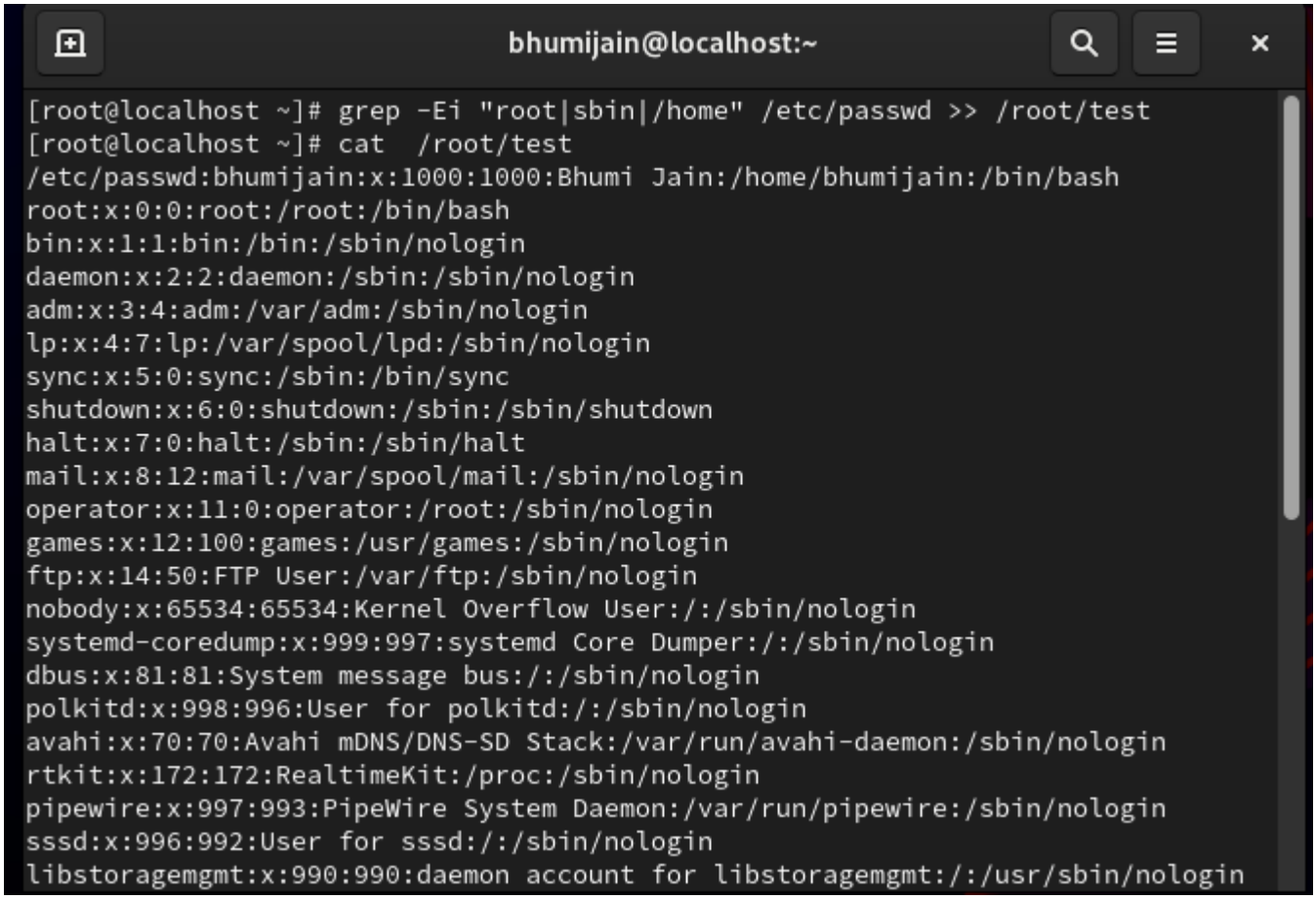
a. Write a command to match and display lines containing the word /sbin/nologin.

Ans.



b. Write a command to match and display lines containing the multiple words (root, sbin, and /home) simultaneously, ignoring typographical case errors. Save the output for all three matches into the file /root/test. Without loosing data.

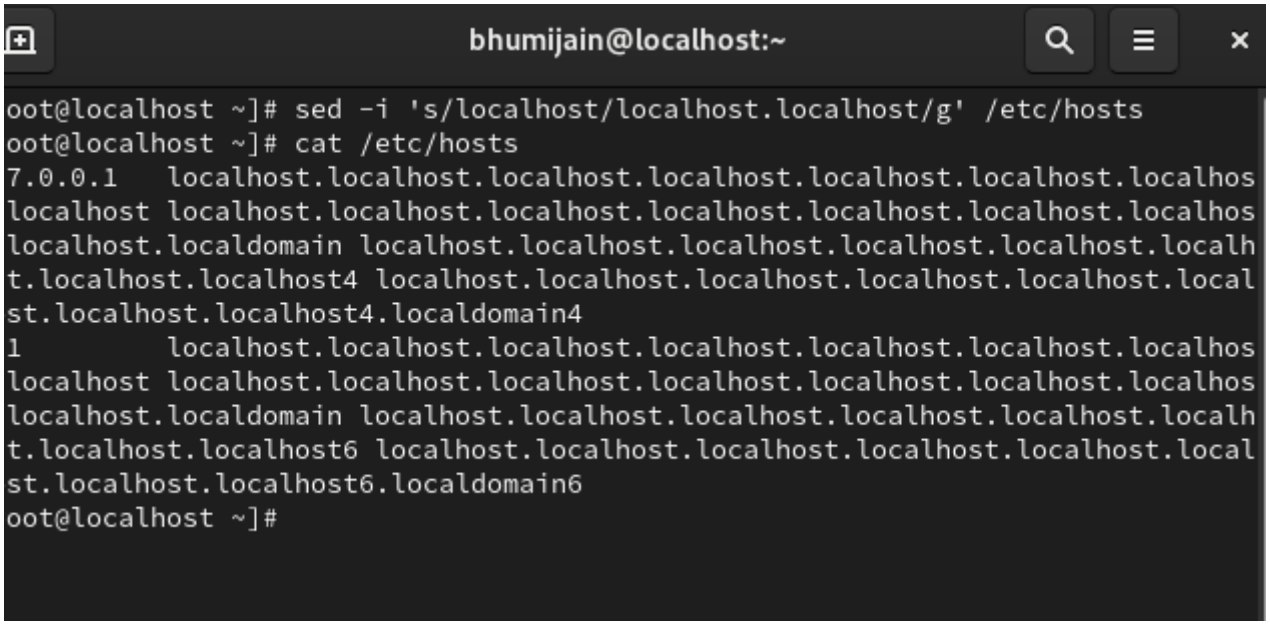
Ans.



19. Replace Text Using sed Linux Commands

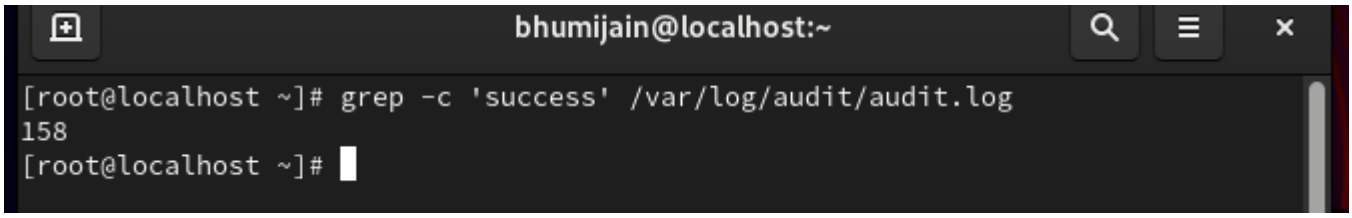
a. Write the command to replace the word localhost with localhost.localhost in the file

/etc/hosts without opening the file in an editor.



b. The /var/log/audit/audit.log file contains audit log messages, some of which include the word

“success.” Write the command to count how many lines contain the word success.



20. Create a directory named “demo” on “/root”.

a. Create a file “RedHat” under the “demo” directory.

```
[root@localhost ~]# ls
anaconda-ks.cfg  demo  test
[root@localhost ~]# ls demo
Redhat
[root@localhost ~]#
```

b. Run the command “vimtutor” and save the output to the “RedHat” file.

```
bhumijain@localhost:~
[root@localhost ~]# ls
anaconda-ks.cfg  demo  test
[root@localhost ~]# ls demo
Redhat
[root@localhost ~]# vimtutor > /root/demo/Redhat
```

c. Now create a soft link of “RedHat” to “/etc/” location.

```
[root@localhost ~]# ln -s /root/demo/Redhat /etc/Redhat
[root@localhost ~]# ls -l /etc/Redhat
lrwxrwxrwx. 1 root root 17 Jan 23 15:19 /etc/Redhat -> /root/demo/Redhat
[root@localhost ~]#
```

d. Create a hard link of /var/log/messages to /etc/log.

```
[root@localhost ~]# ln /var/log/messages /etc/log
[root@localhost ~]# ls -l /etc/log
-rw-------. 2 root root 1064522 Jan 23 15:19 /etc/log
[root@localhost ~]#
```