

Assignment -1

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

Ans. CLI stands for **Command Line Interface**, a text-based interface where users interact with the operating system or software by typing commands.

1. **Usage:** Users input specific commands to perform tasks such as file manipulation, software installation, and system configuration.
2. **Advantages:**
 - **Efficiency:** CLI is faster for experienced users who know the commands.
 - **Resource-light:** It consumes fewer system resources compared to GUI.
 - **Powerful:** Offers advanced features and functionalities, often not available in GUI.
3. **Examples:** Bash, PowerShell, and Command Prompt.

GUI stands for **Graphical User Interface**, a visual interface that allows users to interact with the system using graphical elements like icons, windows, and menus.

1. **Usage:** Users navigate the interface using input devices like a mouse, keyboard, or touchscreen to execute tasks.
2. **Advantages:**
 - **User-friendly:** Ideal for beginners with intuitive navigation.
 - **Visual:** Provides a graphical representation of files, folders, and programs.
 - **Multitasking:** Simplifies handling multiple tasks simultaneously.
3. **Examples:** Windows, macOS, and GNOME.

Key Differences:

1. **Interaction Mode:** CLI uses commands; GUI uses graphical elements.
2. **Learning Curve:** CLI has a steeper learning curve; GUI is beginner-friendly.
3. **Speed:** CLI is faster for specific tasks; GUI may feel slower due to graphical overhead.

4. Resources: CLI is lightweight; GUI requires more memory and processing power.

Conclusion:

CLI is preferred by advanced users for precision and speed, while GUI is more accessible to general users. Both have unique advantages and are suited for different scenarios depending on the user's skill set and requirements.

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 a CLI compared to a GUI?

Ans.

A screenshot of a terminal window with a dark background. The title bar at the top shows a window icon and the text 'pratibhasingh@rhel:~'. The terminal content shows the prompt 'pratibhasingh@rhel [~] \$' followed by the command 'echo "Hello World"'. The output 'Hello World' is displayed on the next line. The prompt is then shown again with a cursor: 'pratibhasingh@rhel [~] \$ '.

Performing a Similar Action in GUI:

1. Open a text editor (like GNOME Text Editor or any other).
2. Type the text "Hello" in the editor.
3. Save the file or display it on the screen.

Advantages of Using CLI Compared to GUI:

1. **Speed and Efficiency:**
 - CLI allows users to execute tasks quickly by typing commands directly.
 - GUI involves multiple steps, such as opening applications and navigating through menus, which may take longer.
2. **Resource Usage:**

- CLI consumes minimal system resources since it doesn't rely on graphical components.
- GUI requires more memory and processing power due to the graphical interface.

3. Automation:

- CLI supports scripting to automate repetitive tasks, increasing productivity.
- GUI lacks direct automation capabilities and often requires manual input.

4. Precision and Control:

- CLI offers granular control over tasks and configurations.
- GUI provides limited control, often restricting advanced functionalities to default options.

5. Remote Access:

- CLI is ideal for remote system management via SSH or other protocols.
- GUI requires additional tools like remote desktop applications, which may be slower.

Conclusion: While GUI is intuitive and visually appealing, CLI excels in speed, efficiency, and control, making it a powerful tool for advanced users and developers.

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, several packages and components are required. Here's a breakdown of the essential packages needed to set up a graphical user interface (GUI) on a Linux system:

Key Packages Required:

1. Display Server:

- A display server handles the graphical rendering.
- Example:
 - X.Org Server (**xorg-server**) – The most commonly used display server for Linux systems.
 - Wayland – A modern alternative to X.Org with improved performance and security.

2. Desktop Environment (DE):

- A desktop environment provides a complete graphical interface with a window manager, file manager, and system utilities.
- Popular Options:
 - GNOME: A modern, user-friendly desktop environment.
 - KDE Plasma: A highly customizable and visually appealing DE.
 - Xfce: Lightweight and ideal for older hardware.
 - LXDE/LXQt: Ultra-lightweight options for minimal resource usage.

3. Window Manager (Optional if DE is installed):

- A window manager controls the appearance and behavior of windows.
- Example:
 - Openbox: A lightweight window manager.
 - i3: A tiling window manager for advanced users.

4. Login Manager (Display Manager):

- A login manager provides a graphical interface for user authentication.
- Popular Options:
 - GDM: GNOME Display Manager.
 - SDDM: Simple Desktop Display Manager for KDE.
 - LightDM: A lightweight display manager compatible with various DEs.

5. GUI Applications (Optional):

- For a functional GUI experience, basic GUI applications can be installed, such as:
 - Web Browser: Firefox or Chromium.
 - Text Editor: gedit (GNOME) or Kate (KDE).
 - File Manager: Nautilus (GNOME) or Dolphin (KDE).

6. Drivers and Utilities:

- Graphics Drivers: Install appropriate drivers for your hardware (e.g., Intel, NVIDIA, or AMD).
- Fonts: Install a package like `fonts-dejavu` or `ttf-freefont` for readable text.

Commands to Install GUI Components:

- I. `sudo apt update`
- II. `sudo apt install xorg gnome gdm3`
- III. `sudo apt update`
- IV. `sudo apt install xorg xfce4 lightdm`
- V. `sudo yum groupinstall "Server with GUI"`

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. Terminals in Linux:

A terminal in Linux is an interface that allows users to interact with the system by typing commands. It is a powerful tool for performing administrative tasks, running programs, and managing files. Terminals can be physical (like a monitor and keyboard directly connected to a machine) or virtual, which are emulated within the operating system.

Virtual Terminals

Virtual terminals (VTs) are software-based terminals that provide multiple text-based interfaces on a single physical device. They allow users to switch between different sessions, enabling multitasking even in a command-line environment.

Number of Virtual Terminals:

- Most Linux distributions typically provide 6 virtual terminals by default for text-mode logins, and one graphical terminal if a GUI is installed.
- Virtual terminals are numbered as tty1 through tty6, while the GUI session runs on tty7 or higher.

Accessing Virtual Terminals:

- To switch between virtual terminals, use the key combinations:
 - Ctrl + Alt + F1 through Ctrl + Alt + F6 for text-mode terminals.
 - Ctrl + Alt + F7 (or F8) to return to the graphical interface.

Virtual terminals are especially useful for troubleshooting and managing multiple sessions without relying on a GUI.

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. Commands to Check a File and Directory in Long Listing Format:-

- To check a file in long listing format:-
ls -l example.txt
- To check a directory in long listing format:
ls -ld folder

Determining if It's a File or a Directory

Using the Output of **ls -l**:

- The output will display the **file type** in the first character of the permissions string:
 - **d**: Indicates a directory (e.g., **drwxr-xr-x**).
 - **-**: Indicates a regular file (e.g., **-rw-r--r--**).
 - **l**: Indicates a symbolic link.

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

Ans. Commands to View the Content of Files and Directories

Viewing Files

1. **cat** (Concatenate):

- Displays the content of a file.

Example:**cat filename.txt**

2. **less**:

- Opens a file for viewing one screen at a time.

Example:**less filename.txt**

3. **more**:

- Similar to **less** but with fewer navigation features.

Example:**more filename.txt**

4. **head**:

- Displays the first 10 lines of a file by default.

Example:**head filename.txt**

To specify a number of lines:**head -n 5 filename.txt**

5. **tail**:

- Displays the last 10 lines of a file by default.
- Example:**tail filename.txt**

Viewing Directories

1. **ls**:

- Lists files and directories.

Example:**ls**

2. `ls -l`:

- Lists files and directories in long format.

Example:`ls -l`

3. `tree`:

- Displays directories and files in a tree-like structure (may need installation).
- Example:`tree`

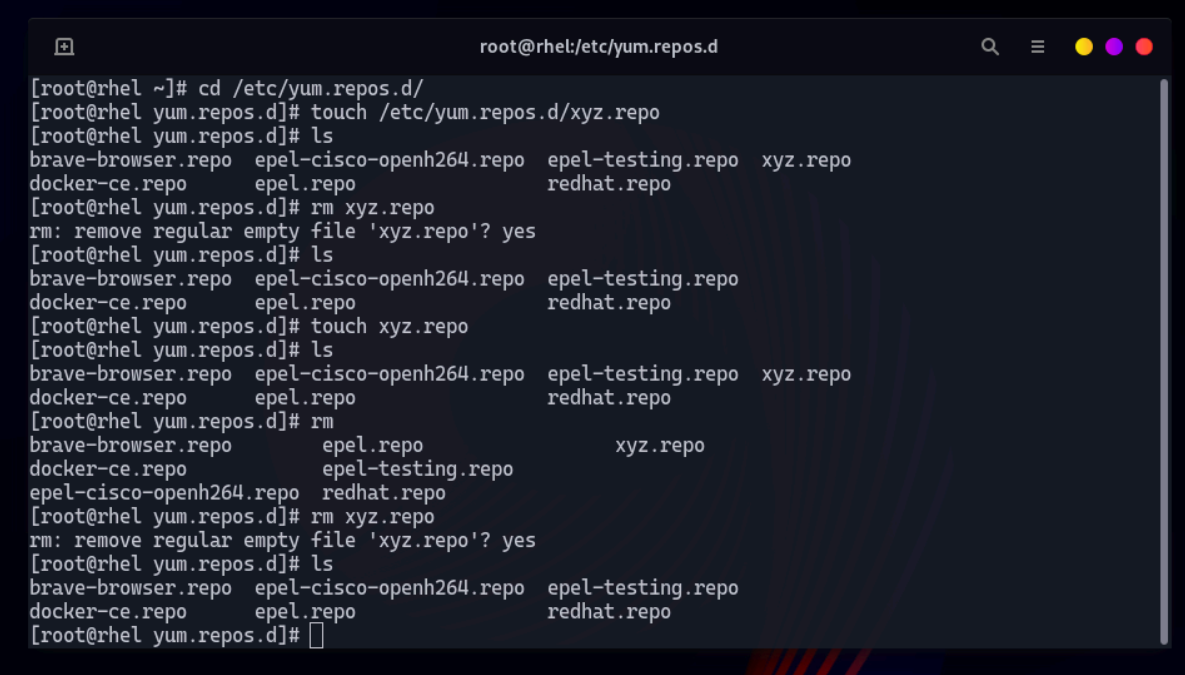
7. Change your current location to the `/etc/yum.repos.d` directory.

a. Using the relative path method, create a file named `xyz.repo` under the `/etc/yum.repos.d/` directory.

b. Using the absolute path method, create a file named `xyz.conf` under the `/etc/rsyslog.d/` directory.

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

Ans.



```
root@rhel:/etc/yum.repos.d
[root@rhel ~]# cd /etc/yum.repos.d/
[root@rhel yum.repos.d]# touch /etc/yum.repos.d/xyz.repo
[root@rhel yum.repos.d]# ls
brave-browser.repo  epel-cisco-openh264.repo  epel-testing.repo  xyz.repo
docker-ce.repo      epel.repo                  redhat.repo
[root@rhel yum.repos.d]# rm xyz.repo
rm: remove regular empty file 'xyz.repo'? yes
[root@rhel yum.repos.d]# ls
brave-browser.repo  epel-cisco-openh264.repo  epel-testing.repo
docker-ce.repo      epel.repo                  redhat.repo
[root@rhel yum.repos.d]# touch xyz.repo
[root@rhel yum.repos.d]# ls
brave-browser.repo  epel-cisco-openh264.repo  epel-testing.repo  xyz.repo
docker-ce.repo      epel.repo                  redhat.repo
[root@rhel yum.repos.d]# rm
brave-browser.repo  epel.repo                  xyz.repo
docker-ce.repo      epel-testing.repo
epel-cisco-openh264.repo  redhat.repo
[root@rhel yum.repos.d]# rm xyz.repo
rm: remove regular empty file 'xyz.repo'? yes
[root@rhel yum.repos.d]# ls
brave-browser.repo  epel-cisco-openh264.repo  epel-testing.repo
docker-ce.repo      epel.repo                  redhat.repo
[root@rhel yum.repos.d]#
```


Differences Between Relative Path and Absolute Path:

1. Relative Path:

- Depends on the current working directory.
- Shorter and simpler but requires you to be in or near the target location.

2. Absolute Path:

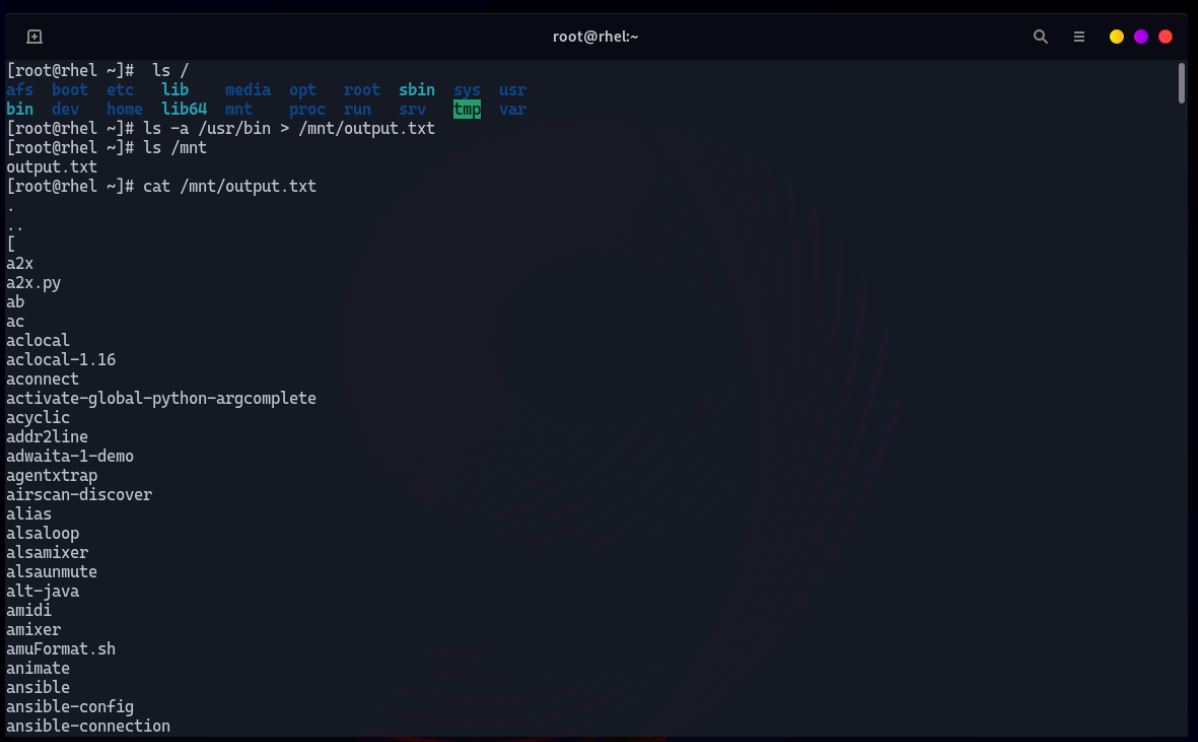
- Specifies the full path starting from the root (/).
- Independent of the current directory, always works.

Example:

- Relative: `touch xyz.repo` (from `/etc/yum.repos.d`).
- Absolute: `touch /etc/rsyslog.d/xyz.conf`.

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.



```
root@rhel:~  
[root@rhel ~]# ls /  
afs boot etc lib media opt root sbin sys usr  
bin dev home lib64 mnt proc run srv tmp var  
[root@rhel ~]# ls -la /usr/bin > /mnt/output.txt  
[root@rhel ~]# ls /mnt  
output.txt  
[root@rhel ~]# cat /mnt/output.txt  
.  
..  
[  
a2x  
a2x.py  
ab  
ac  
aclocal  
aclocal-1.16  
aconnect  
activate-global-python-argcomplete  
acyclic  
addr2line  
adwaita-1-demo  
agentxtrap  
airscan-discover  
alias  
alsaloop  
alsamixer  
alsaunmute  
alt-java  
amidi  
amixer  
amuFormat.sh  
animate  
ansible  
ansible-config  
ansible-connection
```

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.

```
pratibhasingh@rhel:~  
pratibhasingh@rhel [~] $ mkdir -p ~/Techno/Udaipur/Rajasthan/India/Asia/Earth/Solar  
pratibhasingh@rhel [~] $ tree Techno  
Techno  
├── Udaipur  
│   ├── Rajasthan  
│   │   ├── India  
│   │   │   ├── Asia  
│   │   │   │   ├── Earth  
│   │   │   │   └── Solar  
└── 6 directories, 0 files  
pratibhasingh@rhel [~] $
```

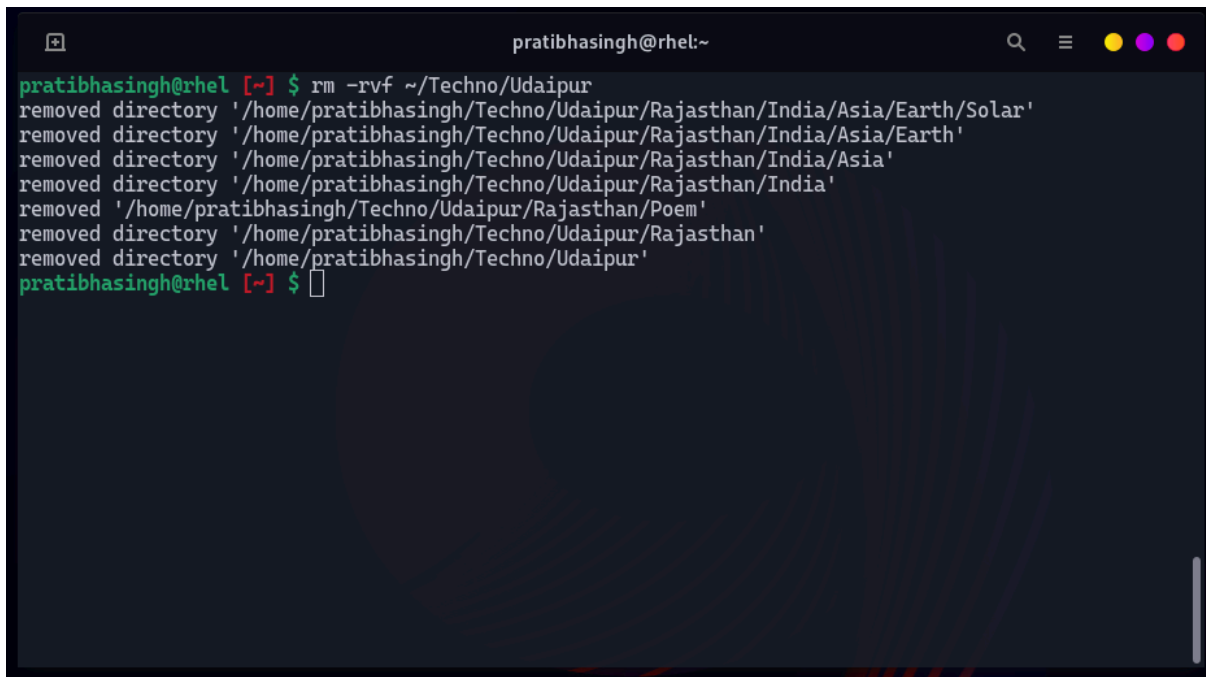
10. Create a file named "Poem" under the /Techno/Udaipur/Rajasthan/ directory. Write the text "Twinkle Twinkle Little Star" into the file and save it. Perform all actions using the absolute path method.

Ans.

```
pratibhasingh@rhel:~  
pratibhasingh@rhel [~] $ mkdir -p ~/Techno/Udaipur/Rajasthan/India/Asia/Earth/Solar  
pratibhasingh@rhel [~] $ tree Techno  
Techno  
├── Udaipur  
│   ├── Rajasthan  
│   │   ├── India  
│   │   │   ├── Asia  
│   │   │   │   ├── Earth  
│   │   │   │   └── Solar  
│   └── Poem  
└── 6 directories, 1 file  
pratibhasingh@rhel [~] $ echo "Twinkle Twinkle Little Star" > /home/pratibhasingh/Techno/Udaipur/Rajasthan/Poem  
pratibhasingh@rhel [~] $ cat ~/Techno/Udaipur/Rajasthan/Poem  
Twinkle Twinkle Little Star  
pratibhasingh@rhel [~] $
```

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

Ans.



```
pratibhasingh@rhel [~] $ rm -rvf ~/Techno/Udaipur
removed directory '/home/pratibhasingh/Techno/Udaipur/Rajasthan/India/Asia/Earth/Solar'
removed directory '/home/pratibhasingh/Techno/Udaipur/Rajasthan/India/Asia/Earth'
removed directory '/home/pratibhasingh/Techno/Udaipur/Rajasthan/India/Asia'
removed directory '/home/pratibhasingh/Techno/Udaipur/Rajasthan/India'
removed '/home/pratibhasingh/Techno/Udaipur/Rajasthan/Poem'
removed directory '/home/pratibhasingh/Techno/Udaipur/Rajasthan'
removed directory '/home/pratibhasingh/Techno/Udaipur'
pratibhasingh@rhel [~] $
```

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. Viewing the Manual Page for **useradd**:

To view the manual page for the **useradd** command, use the following command in the terminal:**man useradd**

Important Files for User Administration (from the 'Files' section):

The **useradd** manual page lists several files important for user administration:

1. **/etc/passwd**:
 - Contains user account information.
2. **/etc/shadow**:
 - Stores secure user password information.
3. **/etc/group**:

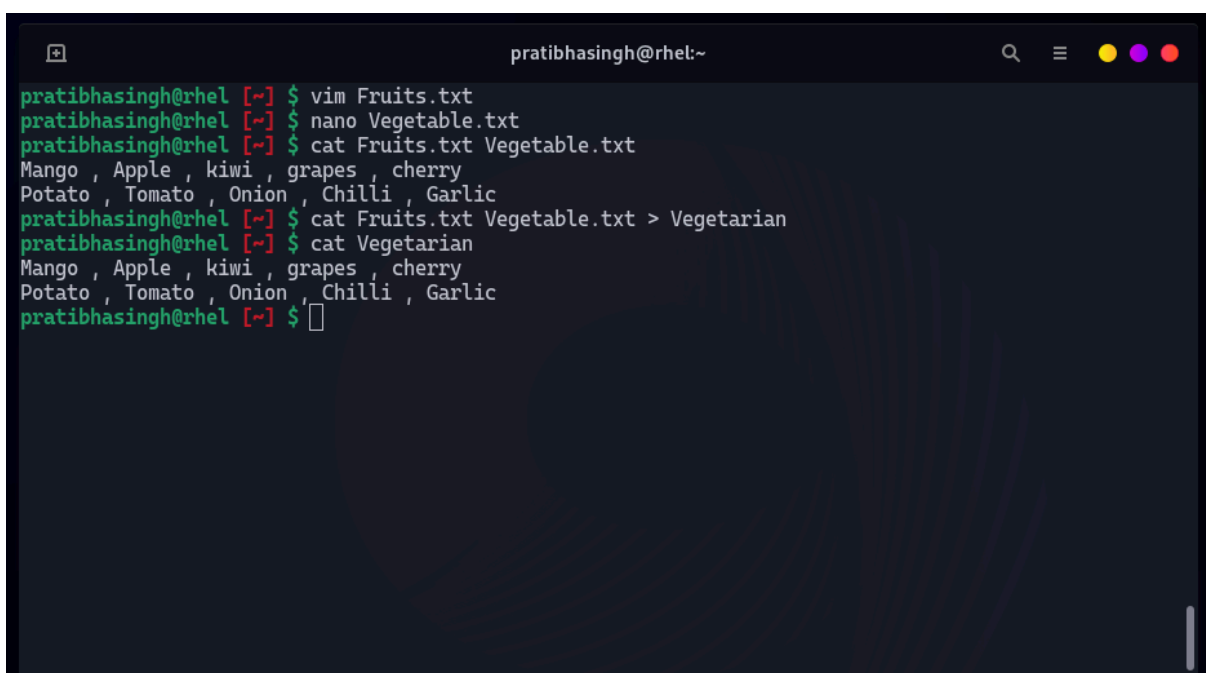
- Contains group information.
- 4. `/etc/default/useradd`:
 - Default settings for the `useradd` command.
- 5. `/etc/skel/`:
 - Directory containing skeleton files that are copied to a new user's home directory.
- 6. `/etc/login.defs`:
 - Configuration file for login settings and defaults.

These files are critical for managing users, groups, and their authentication details.

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.

Ans.



```
pratibhasingh@rhel:~  
pratibhasingh@rhel [~] $ vim Fruits.txt  
pratibhasingh@rhel [~] $ nano Vegetable.txt  
pratibhasingh@rhel [~] $ cat Fruits.txt Vegetable.txt  
Mango , Apple , kiwi , grapes , cherry  
Potato , Tomato , Onion , Chilli , Garlic  
pratibhasingh@rhel [~] $ cat Fruits.txt Vegetable.txt > Vegetarian  
pratibhasingh@rhel [~] $ cat Vegetarian  
Mango , Apple , kiwi , grapes , cherry  
Potato , Tomato , Onion , Chilli , Garlic  
pratibhasingh@rhel [~] $
```

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.

```
pratibhasingh@rhel:~  
pratibhasingh@rhel [~] $ sudo cp -r /var /tmp/data  
[sudo] password for pratibhasingh:  
pratibhasingh@rhel [~] $ ls /tmp/data  
account  cache  db      ftp      kerberos  local  log   named  opt      run      target  www  
adm      crash  empty   games    lib        lock   mail  nis     preserve spool    tmp     yp  
pratibhasingh@rhel [~] $ ls /var  
account  cache  db      ftp      kerberos  local  log   named  opt      run      target  www  
adm      crash  empty   games    lib        lock   mail  nis     preserve spool    tmp     yp  
pratibhasingh@rhel [~] $ ls /tmp  
data  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-bluetooth.service-4qMrnW  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-chrond.service-zgWE0V  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-colord.service-yUSTlw  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-dbus-broker.service-NKHrBZ  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-fwupd.service-SdOzfQ  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-irqbalance.service-5hc0c9  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-kdump.service-KomW4B  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-ModemManager.service-rniX3Q  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-power-profiles-daemon.service-uazrDY  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-rtkit-daemon.service-imT0Qp  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-switcheroo-control.service-K5w63K  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-systemd-logind.service-qkHiIz  
systemd-private-aaa81f6ed2554f5681f03b33dfd6dbc4-upower.service-yuFXnZ  
pratibhasingh@rhel [~] $
```

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

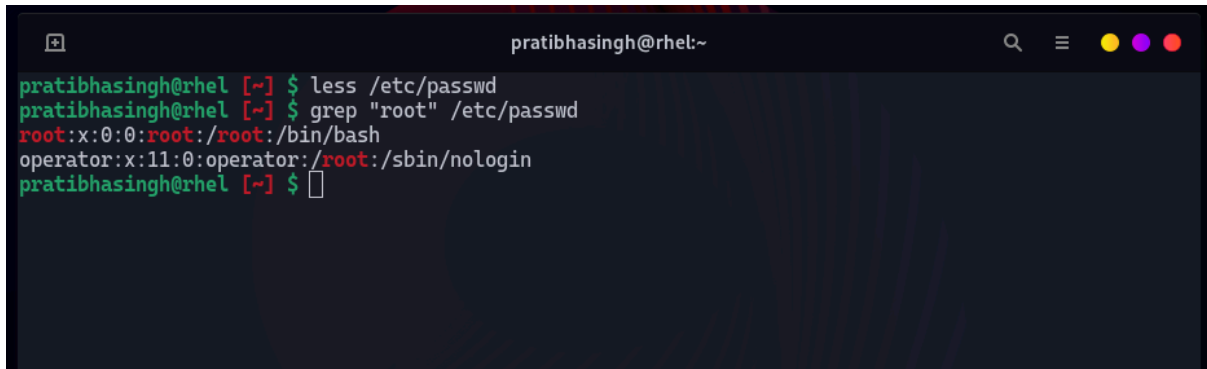
Ans.

```
pratibhasingh@rhel:~  
pratibhasingh@rhel [~] $ ls  
Desktop  Downloads  Music  Pictures  shortnote  Vegetarian.txt  
Documents  Fruits.txt  newfile  Public  Templates  Videos  
pratibhasingh@rhel [~] $ mv Vegetarian.txt Veg.txt  
pratibhasingh@rhel [~] $ ls  
Desktop  Downloads  Music  Pictures  shortnote  Veg.txt  
Documents  Fruits.txt  newfile  Public  Templates  Videos  
pratibhasingh@rhel [~] $
```

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

- Search for the text "Root" using the less command.
- Search for the word "root" using the grep command.
- What is the difference between more and less commands?

Ans.

A terminal window titled 'pratibhasingh@rhel:~' with search and window control icons in the top right. The terminal shows the following commands and output:

```
pratibhasingh@rhel [~] $ less /etc/passwd
pratibhasingh@rhel [~] $ grep "root" /etc/passwd
root:x:0:0:root:/root:/bin/bash
operator:x:11:0:operator:/root:/sbin/nologin
pratibhasingh@rhel [~] $
```

Difference Between **more** and **less** Commands:

Feature	more	less
Navigation	Only forward navigation is supported.	Supports both forward and backward navigation.
Interactive	Simpler with limited features.	More interactive with advanced search and scrolling options.
Performance	Loads the entire file into memory.	Loads content dynamically, improving performance for large files.
Quitting	Exit by pressing q .	Exit by pressing q .

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

- a. Display the top 7th line of the /etc/passwd file.
- b. Display the last 3 lines of the /etc/group file.
- c. Display the lines 11th to 15th from the /etc/shadow file using a pipeline.
- d. Display only the 16th line of the /etc/passwd file

Ans.



```
pratibhasingh@rhel:~  
pratibhasingh@rhel [~] $ sed -n '7p' /etc/passwd  
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown  
pratibhasingh@rhel [~] $ tail -n 3 /etc/group  
D:x:1003:  
linuxx:x:1004:foo47  
EG:x:1005:  
pratibhasingh@rhel [~] $ sudo sed -n '11,15p' /etc/shadow  
[sudo] password for pratibhasingh:  
games*:19760:0:99999:7::  
ftp*:19760:0:99999:7::  
nobody*:19760:0:99999:7::  
apache:!!:20108:~::~:  
unbound:!!:20108:~::~:  
pratibhasingh@rhel [~] $ sed -n '16p' /etc/passwd  
pegasus:x:66:65:tog-pegasus OpenPegasus WBEM/CIM services:/var/lib/Pegasus:/sbin/nologin  
pratibhasingh@rhel [~] $
```

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.
- 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 losing data

Ans.

```
pratibhasingh@rhel:~$ grep "/sbin/nologin" /etc/passwd
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
apache:x:48:48:Apache:/usr/share/httpd:/sbin/nologin
unbound:x:999:999:Unbound DNS resolver:/etc/unbound:/sbin/nologin
pegasus:x:66:65:tog-pegasus OpenPegasus WBEM/CIM services:/var/lib/Pegasus:/sbin/nologin
systemd-coredump:x:998:996:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:997:995:User for polkitd:/:/sbin/nologin
qemu:x:107:107:qemu user:/:/sbin/nologin
sssd:x:996:993:User for sssd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
geoclue:x:995:991:User for geoclue:/var/lib/geoclue:/sbin/nologin
tss:x:59:59:Account used for TPM access:/usr/sbin/nologin
clevis:x:994:990:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/usr/sbin/nologin
rtkit:x:172:172:RealtimeKit:/:/sbin/nologin
```

```
pratibhasingh@rhel:~$ sudo grep -i -e "root" -e "sbin" -e "/home" /etc/passwd >> ~/test
pratibhasingh@rhel [~] $ cat ~/test
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
apache:x:48:48:Apache:/usr/share/httpd:/sbin/nologin
unbound:x:999:999:Unbound DNS resolver:/etc/unbound:/sbin/nologin
pegasus:x:66:65:tog-pegasus OpenPegasus WBEM/CIM services:/var/lib/Pegasus:/sbin/nologin
systemd-coredump:x:998:996:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:997:995:User for polkitd:/:/sbin/nologin
qemu:x:107:107:qemu user:/:/sbin/nologin
```

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.

Ans.

```
pratibhasingh@rhel:~  
pratibhasingh@rhel [~] $ sudo sed -i 's/localhost/localhost.localdomain/g' /etc/hosts  
pratibhasingh@rhel [~] $ cat /etc/hosts  
127.0.0.1 localhost localhost.localdomain localhost4 localhost.local  
host4.localdomain4  
::1 localhost localhost.localdomain localhost6 localhost.local  
host6.localdomain6  
pratibhasingh@rhel [~] $ sudo grep -c "success" /var/log/audit/audit.log  
4937  
pratibhasingh@rhel [~] $
```

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

- a. Create a file “RedHat” under the “demo” directory.
- b. Run the command “vimtutor” and save the output to the “RedHat” file.
- c. Now create a soft link of “RedHat” to “/etc/” location.
- d. Create a hard link of /var/log/messages to /etc/log.

Ans.

```
root@rhel:~  
[root@rhel ~]# mkdir /root/demo  
[root@rhel ~]# touch /root/demo/red_Hat  
[root@rhel ~]# cat /usr/share/vim/vim82/tutor/tutor > /root/demo/red_Hat  
[root@rhel ~]# ln -s /root/demo/red_Hat /etc/red_Hat  
[root@rhel ~]# ln -s /var/log/messages /etc/log  
[root@rhel ~]# ll /etc/red_Hat  
lrwxrwxrwx. 1 root root 18 Jan 24 07:42 /etc/red_Hat -> /root/demo/red_Hat  
[root@rhel ~]# ll /etc/log  
lrwxrwxrwx. 1 root root 17 Jan 24 07:42 /etc/log -> /var/log/messages  
[root@rhel ~]#
```

