

1. Compress a file by compress, gzip, zip commands and decompress it again. State the differences between compress and gzip commands.

compress -v file.txt	Compress
uncompress file.txt.Z	Decompress

gzip file.txt	Compress
gunzip file.txt.gz	Decompress

zip file.zip file.txt	Compress
unzip file.zip	Decompress

compress uses LZW algorithm while gzip uses DEFLATE gzip is more efficient and widely used

2. What is the command used to view the content of a compressed file.

zcat file.gz

3. Backup /etc directory using tar utility.

```
tar -czvf etc_backup.tar.gz /etc  
tar -xzvf etc_backup.tar.gz
```

4. Starting from your home directory, find all files that were modified in the last two day.

```
find ~ -type f -mtime -2
```

5. Starting from /etc, find files owned by root user.

```
find /etc -type f -user root
```

6. Find all directories in your home directory.

```
find ~ -type d
```

7. Write a command to search for all files on the system, its name is “.profile”.

```
ubuntu@ubuntu:~$ find / -name .profile 2>/dev/null
/etc/skel/.profile
/home/ubuntu/.profile
/snap/core22/1748/etc/skel/.profile
```

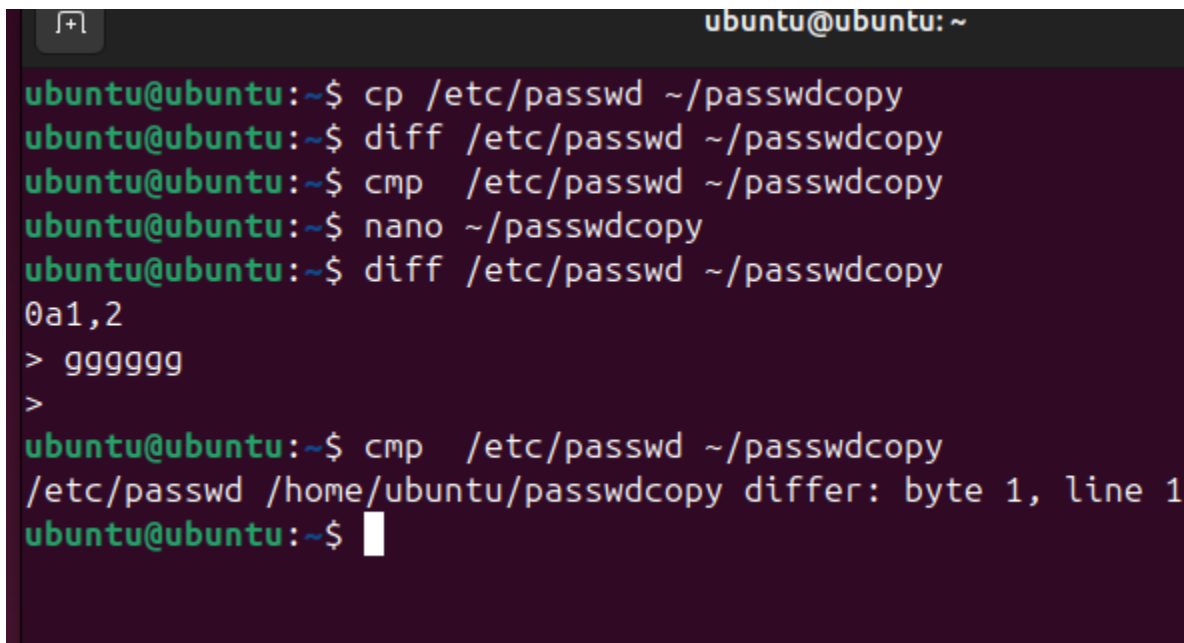
**8. Identify the file types of the following:
/etc/passwd, /dev/pts/0, /etc, /dev/sda**

```
ubuntu@ubuntu:~$ file /etc/passwd
/etc/passwd: ASCII text
ubuntu@ubuntu:~$ file /dev/pts/0
/dev/pts/0: character special (136/0)
ubuntu@ubuntu:~$ file /etc
/etc: directory
ubuntu@ubuntu:~$ file /dev/sda
/dev/sda: block special (8/0)
ubuntu@ubuntu:~$
```

9. List the inode numbers of /, /etc, /etc/hosts.

`-ls -i / /etc /etc/hosts`

10. Copy /etc/passwd to your home directory, use the commands diff and cmp, and Edit in the file you copied, and then use these commands again, and check the output.

A terminal window with a dark purple background and light green text. The prompt is 'ubuntu@ubuntu: ~'. The user enters several commands: 'cp /etc/passwd ~/passwdcopy', 'diff /etc/passwd ~/passwdcopy', 'cmp /etc/passwd ~/passwdcopy', 'nano ~/passwdcopy', and 'diff /etc/passwd ~/passwdcopy'. The output of the second diff command shows a difference at line 1, column 1. The user then enters 'gggggg' and a blank line in the nano editor. Finally, the user runs 'cmp /etc/passwd ~/passwdcopy', which outputs '/etc/passwd /home/ubuntu/passwdcopy differ: byte 1, line 1'.

```
ubuntu@ubuntu: ~  
ubuntu@ubuntu:~$ cp /etc/passwd ~/passwdcopy  
ubuntu@ubuntu:~$ diff /etc/passwd ~/passwdcopy  
ubuntu@ubuntu:~$ cmp /etc/passwd ~/passwdcopy  
ubuntu@ubuntu:~$ nano ~/passwdcopy  
ubuntu@ubuntu:~$ diff /etc/passwd ~/passwdcopy  
0a1,2  
> gggggg  
>  
ubuntu@ubuntu:~$ cmp /etc/passwd ~/passwdcopy  
/etc/passwd /home/ubuntu/passwdcopy differ: byte 1, line 1  
ubuntu@ubuntu:~$
```

11. Create a symbolic link of /etc/passwd in /boot.

`sudo ln -s /etc/passwd /boot/passwdlink`

**12. Create a hard link of /etc/passwd in /boot.
Could you? Why?**

`sudo ln /etc/passwd /boot/passwd_hardlink`

No , /boot is on separate file system