

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

- Zip :-

```
amgad@amgad-virtual-machine:~/ai$ touch f1
amgad@amgad-virtual-machine:~/ai$ touch f2
amgad@amgad-virtual-machine:~/ai$ zip zipped.zip f1
  adding: f1 (stored 0%)
amgad@amgad-virtual-machine:~/ai$ gzip f1
amgad@amgad-virtual-machine:~/ai$ compress f1
f1: No such file or directory
amgad@amgad-virtual-machine:~/ai$ touch f1
amgad@amgad-virtual-machine:~/ai$ compress f1
amgad@amgad-virtual-machine:~/ai$ ls -li
total 8
1331785 -rw-rw-r-- 1 amgad amgad  0 13:58 23 اک f1
1331790 -rw-rw-r-- 1 amgad amgad 23 13:56 23 اک f1.gz
1331786 -rw-rw-r-- 1 amgad amgad  0 13:56 23 اک f2
1331789 -rw-rw-r-- 1 amgad amgad 154 13:56 23 اک zipped.zip
amgad@amgad-virtual-machine:~/ai$
```

- unZip :-

```
amgad@amgad-virtual-machine:~/ai$ gunzip f1.gz
amgad@amgad-virtual-machine:~/ai$ unzip zipped.zip
Archive:  zipped.zip
replace f1? [y]es, [n]o, [A]ll, [N]one, [r]ename: y
extracting: f1
amgad@amgad-virtual-machine:~/ai$
```

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

Using :-

decompress:

■ gunzip zipped.tar

■ bunzip2 f1.tar

3. Backup /etc directory using tar utility.

```
amgad@amgad-virtual-machine:~$ sudo tar -cvf etc_backup.tar.gz /etc
[sudo] password for amgad:
tar: Removing leading `/' from member names
/etc/
/etc/hostname
/etc/localtime
/etc/init.d/
/etc/init.d/gdm3
/etc/init.d/apport
/etc/init.d/console-setup.sh
/etc/init.d/open-vm-tools
/etc/init.d/kmod
```

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

```
/etc/thermald/thermal-cpu-cdev-order.xml
amgad@amgad-virtual-machine:~$ find ~/ -type f -mtime -2
/home/amgad/error.log
/home/amgad/.bashrc
/home/amgad/.bash_history
/home/amgad/ai/f2
/home/amgad/ai/f1
/home/amgad/ai/f1.gz
/home/amgad/ai/zipped.zip
/home/amgad/.local/share/Trash/info/f3.trashinfo
/home/amgad/.local/share/Trash/info/f2.trashinfo
```

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

```
/etc/thermald/thermal-cpu-cdev-order.xml
amgad@amgad-virtual-machine:~$ sudo find /etc -user root
/etc
/etc/hostname
/etc/localtime
/etc/init.d
/etc/init.d/gdm3
/etc/init.d/apport
/etc/init.d/console-setup.sh
/etc/init.d/open-vm-tools
```

6. Find all directories in your home directory.

```
/etc/thermat/thermat-cpu-cdev-order.xml
amgad@amgad-virtual-machine:~$ find ~/ -type d
/home/amgad/
/home/amgad/ai
/home/amgad/Templates
/home/amgad/snap
/home/amgad/snap/tree
/home/amgad/snap/tree/common
/home/amgad/snap/tree/common/.local
/home/amgad/snap/tree/common/.local/lib
/home/amgad/snap/tree/common/.local/lib/locale
/home/amgad/snap/tree/common/.local/lib/locale/ar_EG.UTF-8
/home/amgad/snap/tree/common/.local/lib/locale/ar_EG.UTF-8/LC_MESSAGES
/home/amgad/snap/tree/common/.local/lib/locale/en_US.UTF-8
/home/amgad/snap/tree/common/.local/lib/locale/en_US.UTF-8/LC_MESSAGES
/home/amgad/snap/tree/18
```

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

```
amgad@amgad-virtual-machine:~$ find / -name .profile 2> /dev/null
/snap/core20/1974/etc/skel/.profile
/snap/core/16202/etc/skel/.profile
/snap/core22/864/etc/skel/.profile
/snap/core22/858/etc/skel/.profile
/etc/skel/.profile
/home/amgad/.profile
amgad@amgad-virtual-machine:~$
```

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

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

9. List the

9-inode numbers of /, /etc, /etc/hosts.

```
amgad@amgad-virtual-machine:~$ file /dev/sda
/dev/sda: block special (8/0)
amgad@amgad-virtual-machine:~$ ls -li /
 13 bin          15 lib32          1 proc           1 sys
1703937 boot      16 lib64         1310721 root          1835010 tmp
1179650 cdrom     17 libx32        1 run           393218 usr
 1 dev          11 lost+found    18 sbin          524290 var
 917505 etc       262145 media      1048577 snap
1179649 home     524289 mnt          1441793 srv
 14 lib         655361 opt          12 swapfile
amgad@amgad-virtual-machine:~$ ls -li /etc
 917512 acpi          917689 magic
 917642 adduser.conf  917690 magic.mime
 917513 alsa          924149 mailcap
 917514 alternatives  917692 mailcap.order
 917643 anacrontab    917693 manpath.config
 917644 apg.conf       917694 mime.types
 917515 apm           917695 mke2fs.conf
 917516 apparmor       917507 ModemManager
```

```
amgad@amgad-virtual-machine:~$ ls -li /etc/hosts
917669 /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.

```
517009 /etc/hosts
amgad@amgad-virtual-machine:~$ cp /etc/passwd ~/passwd_copy
amgad@amgad-virtual-machine:~$ diff /etc/passwd ~/passwd_copy
amgad@amgad-virtual-machine:~$ cmp /etc/passwd ~/passwd_copy
amgad@amgad-virtual-machine:~$ gedit ~/passwd_copy
amgad@amgad-virtual-machine:~$ diff /etc/passwd ~/passwd_copy
46a47
> amgaaaaaaaaad
amgad@amgad-virtual-machine:~$ cmp /etc/passwd ~/passwd_copy
/etc/passwd /home/amgad/passwd_copy differ: byte 2778, line 47
amgad@amgad-virtual-machine:~$
```

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

```
amgad@amgad-virtual-machine:~$ ln -s /etc/passwd /boot/passwd_link
ln: failed to create symbolic link '/boot/passwd_link': Permission denied
amgad@amgad-virtual-machine:~$ sudo ln -s /etc/passwd /boot/passwd_link
[sudo] password for amgad:
amgad@amgad-virtual-machine:~$
```

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

```
amgad@amgad-virtual-machine:~/ai$ sudo ln /etc/passwd /boot/passwd_link
amgad@amgad-virtual-machine:~/ai$
```