

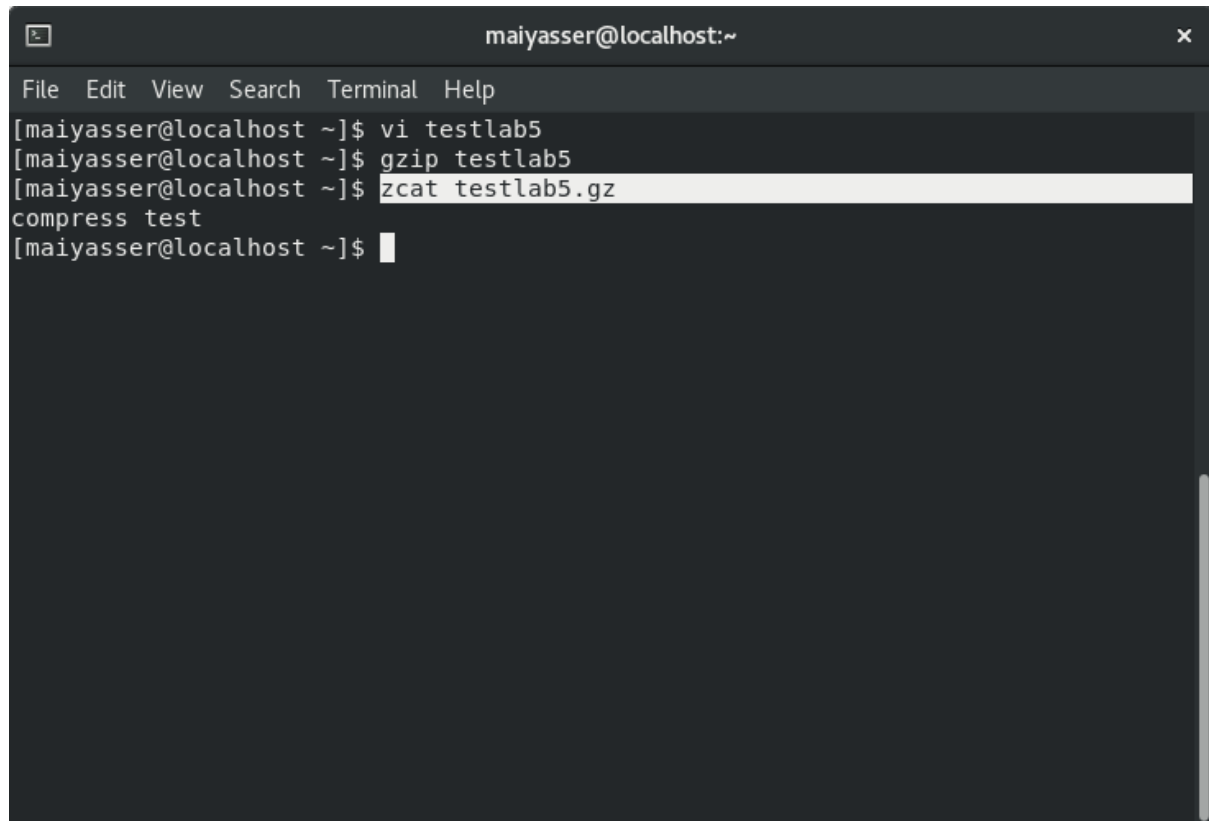
1. Compress a file by compress, gzip, zip commands and decompress it again. State the differences between compress and gzip commands:

Zip can compress multiple files and even entire directory hierarchies. gzip, on the other hand, compresses only a single file.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ touch testlab5  
[maiyasser@localhost ~]$ gzip testlab5  
test/      test1      testlab5  
[maiyasser@localhost ~]$ ls  
bash2      docs      filename1  lab3      oldpasswd  result  
Commands   Documents filename2   lab3bash  output     sudoers  
DBMS       Downloads filenamees  lol       page1.html Templates  
depts      email.txt lab2       mtemplate page2.html test  
Desktop    error     lab21      Music     Pictures   test1  
dir1       ff        lab2_1.sh  mycptest  project_try testlab5.gz  
dirtest    file2     lab2bash   myteam    Public     Videos  
[maiyasser@localhost ~]$ gzip -d testlab5.gz  
[maiyasser@localhost ~]$ ls  
bash2      docs      filename1  lab3      oldpasswd  result  
Commands   Documents filename2   lab3bash  output     sudoers  
DBMS       Downloads filenamees  lol       page1.html Templates  
depts      email.txt lab2       mtemplate page2.html test  
Desktop    error     lab21      Music     Pictures   test1  
dir1       ff        lab2_1.sh  mycptest  project_try testlab5  
dirtest    file2     lab2bash   myteam    Public     Videos  
[maiyasser@localhost ~]$
```

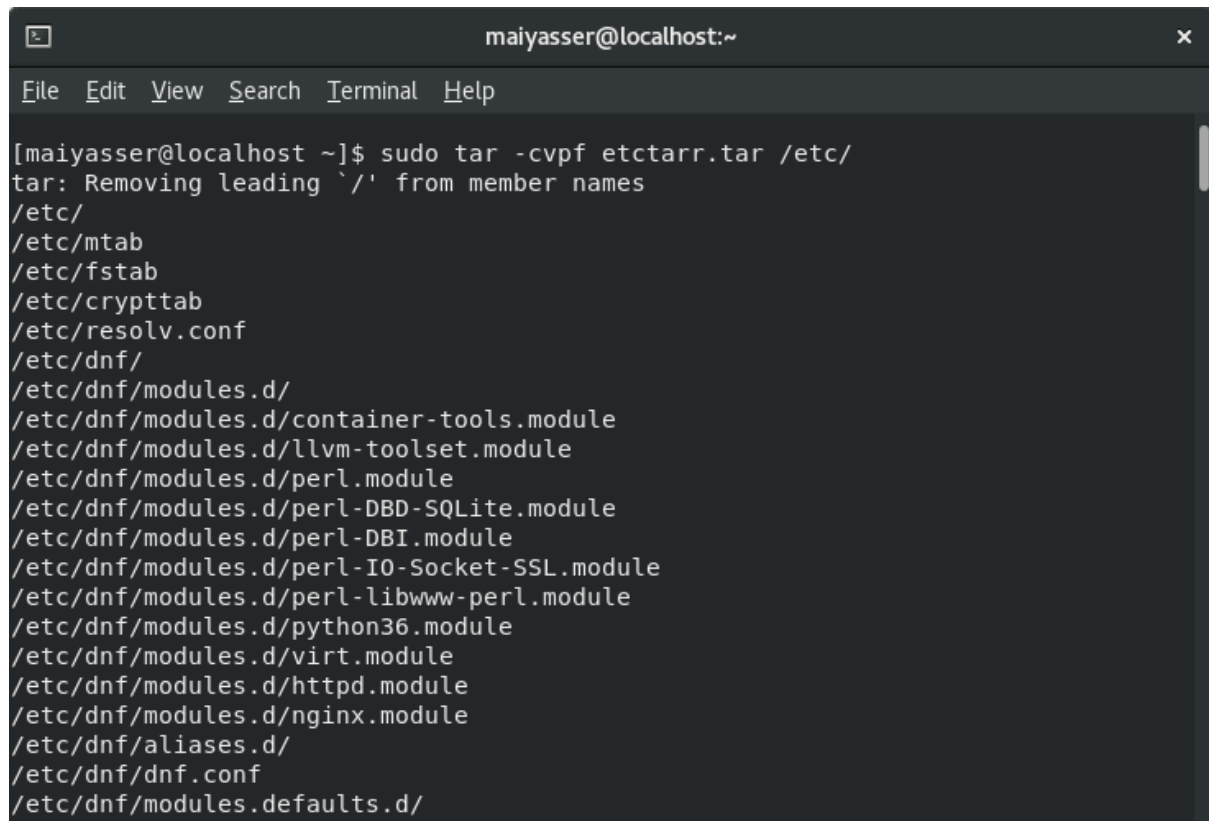
```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ bzip2 test2lab5  
[maiyasser@localhost ~]$ ls  
bash2      Documents filenamees  mtemplate  Pictures   test2lab5.bz2  
Commands   Downloads lab2       Music     project_try testlab5  
DBMS       email.txt  lab21      mycptest   Public     Videos  
depts      error     lab2_1.sh  myteam    result  
Desktop    ff        lab2bash   oldpasswd sudoers  
dir1       file2     lab3       output     Templates  
dirtest    filename1 lab3bash   page1.html test  
docs       filename2 lol        page2.html test1  
[maiyasser@localhost ~]$ bunzip2 test2lab5.bz2  
[maiyasser@localhost ~]$ ls  
bash2      docs      filename1  lab3      oldpasswd  result  Videos  
Commands   Documents filename2   lab3bash  output     sudoers  
DBMS       Downloads filenamees  lol       page1.html Templates  
depts      email.txt lab2       mtemplate page2.html test  
Desktop    error     lab21      Music     Pictures   test1  
dir1       ff        lab2_1.sh  mycptest  project_try test2lab5  
dirtest    file2     lab2bash   myteam    Public     testlab5  
[maiyasser@localhost ~]$
```

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



```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ vi testlab5  
[maiyasser@localhost ~]$ gzip testlab5  
[maiyasser@localhost ~]$ zcat testlab5.gz  
compress test  
[maiyasser@localhost ~]$
```

3. Backup /etc directory using tar utility.



```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo tar -cvpf etctarr.tar /etc/  
tar: Removing leading '/' from member names  
/etc/  
/etc/mtab  
/etc/fstab  
/etc/crypttab  
/etc/resolv.conf  
/etc/dnf/  
/etc/dnf/modules.d/  
/etc/dnf/modules.d/container-tools.module  
/etc/dnf/modules.d/llvm-toolset.module  
/etc/dnf/modules.d/perl.module  
/etc/dnf/modules.d/perl-DBD-SQLite.module  
/etc/dnf/modules.d/perl-DBI.module  
/etc/dnf/modules.d/perl-IO-Socket-SSL.module  
/etc/dnf/modules.d/perl-libwww-perl.module  
/etc/dnf/modules.d/python36.module  
/etc/dnf/modules.d/virt.module  
/etc/dnf/modules.d/httpd.module  
/etc/dnf/modules.d/nginx.module  
/etc/dnf/aliases.d/  
/etc/dnf/dnf.conf  
/etc/dnf/modules.defaults.d/
```

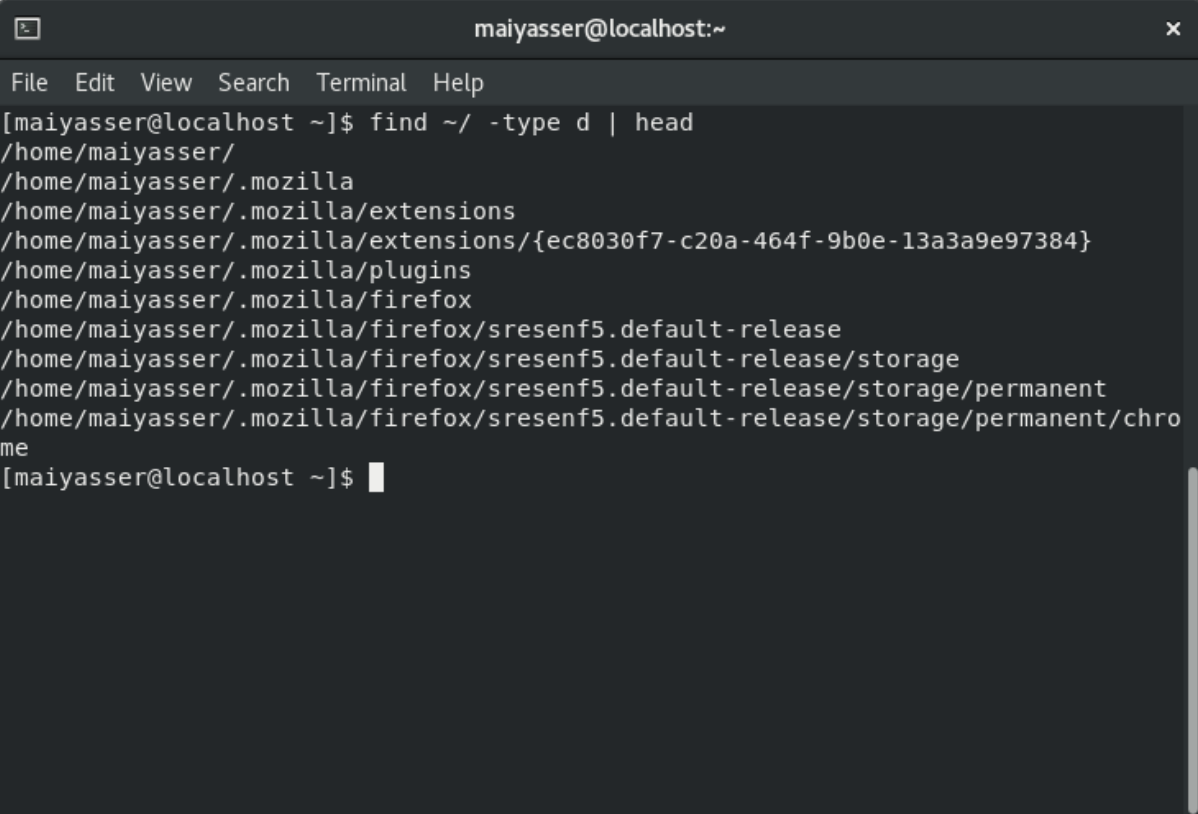
4. Starting from your home directory, find all files that were modified in the last two day.

```
maiyaasser@localhost:~  
File Edit View Search Terminal Help  
[maiyaasser@localhost ~]$ find -x -type f -mtime -2 | more  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/parentlock  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/permissions.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/cookies.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/prefs.js  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/sessioncheckpoints.json  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/chrome/ldb/3870112724rsegmottet-es.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/.metadata-v2  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++docs.google.com/./metadata-v2  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++docs.google.com/ldb/40410692560s0oegvlierD.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/caches.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/187/(675919a2-c729-4c69-a9b5-a9d98f6438bb).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/111/(b35930b2-f89b-4bee-9066-cdb0c26946f7).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/195/(1b023abb-befc-477a-9cfd-babfdd661dc3).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/98/(eecd95e-7721-4207-b32f-4436d0969562).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/78/(2462645e-4ff1-4283-9f72-23424306fa4e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/70/(c70d16c7-cf99-4379-b397-3ab38073054e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/255/(39fb2d24-60ec-41ea-afaf-cdb155f8d1ff).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/177/(62e963c7-1187-4be1-9bce-35dd91cb41b1).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/17/(922311de-27ba-490b-97c8-83d33380b11).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/27/(b00a90c7-96ae-4517-aedd-79d1c90ca01b).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/morgue/48/(a947852a-b7b8-4570-9c42-caf587328930).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/.padding  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/caches.sqlite-wal  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/cache/context_open.marker  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++linuxize.com/ldb/378241778bwcnyksb-odxn-uboaarc.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/4197707836enworiiktbaorxi-pex.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/.metadata-v2  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/3713173747 s edmban.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/31684530890caw.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/32717812546s0panadit-s.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/2181795718meogdaerlo-ts.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/351887895oefgadr-ost.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/417041101930ughasr-ost.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/1773850371fetgsa-rsot.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/ldb/1975025290lbrdri-meegdairao-ts.sqlite  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/151/(c30801a5-f169-443c-a21e-b07f31d0cf97).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/37/(c080fcea-23fe-4697-b5b2-3ddb26c7a253).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/144/(0fb5882d-c308-45e5-bf1a-47188887290).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/144/(dbb8eca-6189-4a93-801e-319c209f399).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/144/(d7ef194f-a69f-43bd-a696-d712e64d0890).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/144/(41b505ef-f233-4ffc-820b-ea9fedd67e90).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/06/(d10c3f67-faf7-464f-8708-2fcfc2b760).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/94/(6f1abaf7-7cc9-4714-9fb4-aef07e49015e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/94/(47dc9294-b5d4-4a94-89de-28d95908455e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/94/(713cc1a-797e-4d2a-b6b0-e5314030735e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/94/(ebb944dc-34ac-4ed2-9182-d8bd33390b5e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/94/(0fa2d74d-65a7-4b06-be95-004ba65a4f5e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/94/(52b44cfd-f74c-49ee-b830-089e076f025e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/94/(bada4e5-eed2-471b-bc49-78553080675e).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/207/(02e6dfda-27ba-4667-9e82-b32baf4057cf).final  
/home/maiyaasser/.mozilla/firefox/sresenf5.default-release/storage/default/https++web.whatsapp.com/cache/morgue/160/(0ed443ca-c6d9-4669-9f6e-9351053776a0).final
```

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

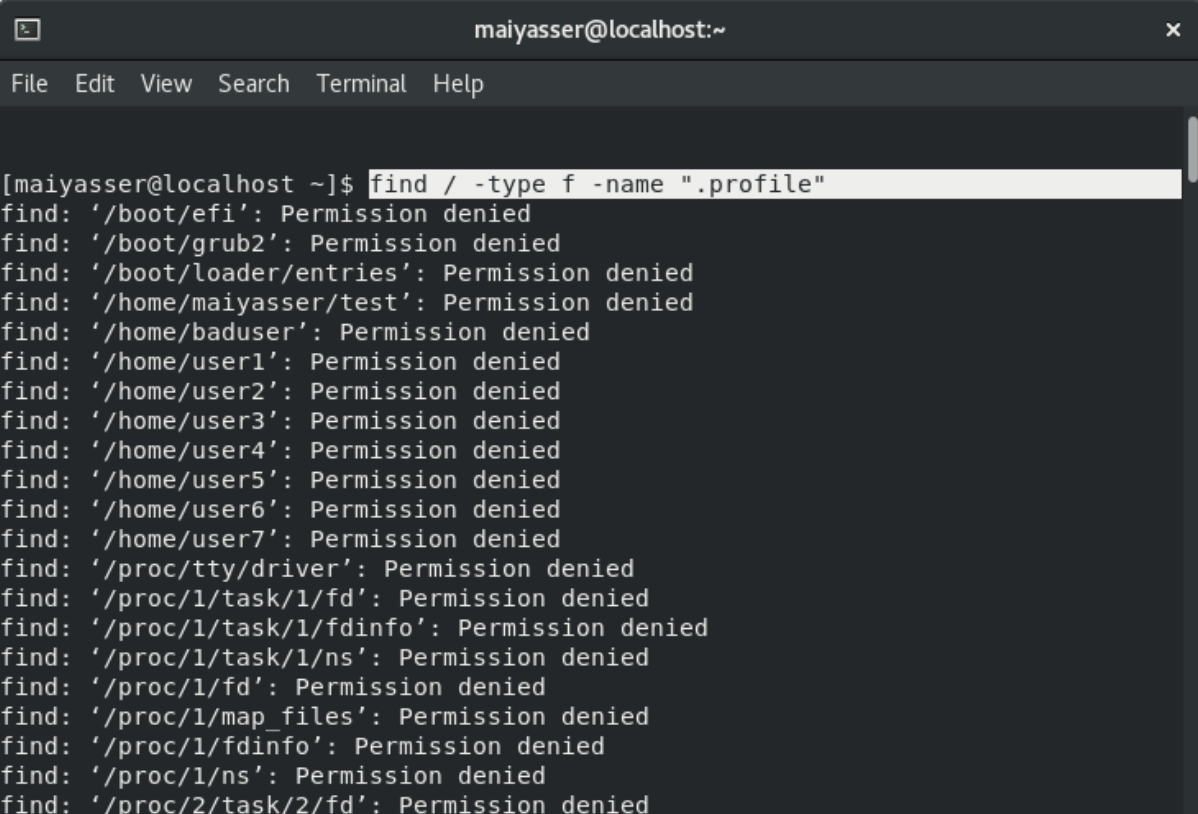
```
maiyaasser@localhost:~  
File Edit View Search Terminal Help  
[maiyaasser@localhost ~]$ find /etc -user root | more  
/etc  
/etc/mtab  
/etc/fstab  
/etc/crypttab  
/etc/resolv.conf  
/etc/dnf  
/etc/dnf/modules.d  
/etc/dnf/modules.d/container-tools.module  
/etc/dnf/modules.d/llvm-toolset.module  
/etc/dnf/modules.d/perl.module  
/etc/dnf/modules.d/perl-DBD-SQLite.module  
/etc/dnf/modules.d/perl-DBI.module  
/etc/dnf/modules.d/perl-IO-Socket-SSL.module  
/etc/dnf/modules.d/perl-libwww-perl.module  
/etc/dnf/modules.d/python36.module  
/etc/dnf/modules.d/virt.module  
/etc/dnf/modules.d/httpd.module  
/etc/dnf/modules.d/nginx.module  
/etc/dnf/aliases.d  
/etc/dnf/dnf.conf  
/etc/dnf/modules.defaults.d  
/etc/dnf/plugins  
/etc/dnf/plugins/copr.conf
```

6. Find all directories in your home directory.



```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ find ~/ -type d | head  
/home/maiyasser/  
/home/maiyasser/.mozilla  
/home/maiyasser/.mozilla/extensions  
/home/maiyasser/.mozilla/extensions/{ec8030f7-c20a-464f-9b0e-13a3a9e97384}  
/home/maiyasser/.mozilla/plugins  
/home/maiyasser/.mozilla/firefox  
/home/maiyasser/.mozilla/firefox/sresenf5.default-release  
/home/maiyasser/.mozilla/firefox/sresenf5.default-release/storage  
/home/maiyasser/.mozilla/firefox/sresenf5.default-release/storage/permanent  
/home/maiyasser/.mozilla/firefox/sresenf5.default-release/storage/permanent/chrome  
[maiyasser@localhost ~]$
```

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



```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ find / -type f -name ".profile"  
find: '/boot/efi': Permission denied  
find: '/boot/grub2': Permission denied  
find: '/boot/loader/entries': Permission denied  
find: '/home/maiyasser/test': Permission denied  
find: '/home/baduser': Permission denied  
find: '/home/user1': Permission denied  
find: '/home/user2': Permission denied  
find: '/home/user3': Permission denied  
find: '/home/user4': Permission denied  
find: '/home/user5': Permission denied  
find: '/home/user6': Permission denied  
find: '/home/user7': Permission denied  
find: '/proc/tty/driver': Permission denied  
find: '/proc/1/task/1/fd': Permission denied  
find: '/proc/1/task/1/fdinfo': Permission denied  
find: '/proc/1/task/1/ns': Permission denied  
find: '/proc/1/fd': Permission denied  
find: '/proc/1/map_files': Permission denied  
find: '/proc/1/fdinfo': Permission denied  
find: '/proc/1/ns': Permission denied  
find: '/proc/2/task/2/fd': Permission denied
```

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

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ file -b /etc/passwd  
ASCII text  
[maiyasser@localhost ~]$ file -b /dev/pts/0  
character special (136/0)  
[maiyasser@localhost ~]$ file -b /etc  
directory  
[maiyasser@localhost ~]$ file -b /dev/sda/etc  
cannot open `/dev/sda/etc' (Not a directory)
```

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

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ ls -di /  
128 /  
[maiyasser@localhost ~]$ ls -di /etc  
67148353 /etc  
[maiyasser@localhost ~]$ ls -di /etc/hosts  
67173151 /etc/hosts  
[maiyasser@localhost ~]$
```

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.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ touch cppasswd  
[maiyasser@localhost ~]$ cp /etc/passwd ~/cppasswd  
[maiyasser@localhost ~]$ ls  
bash2      docs      file2      lab3      output     sudoers  
Commands   Documents filename1   lab3bash  page1.html Templates  
cppasswd   Downloads filename2   lol       page2.html test  
DBMS       email.txt fileusernames mtemplate passwd      test1  
depts      error     lab2       Music     Pictures    test2lab5.gz  
Desktop    etc.tar   lab21      mycptest  project_try testlab5.gz  
dir1       etctarr.tar lab2_1.sh  myteam   Public      Videos  
dirtest    ff        lab2bash  oldpasswd result  
[maiyasser@localhost ~]$ cat cppasswd | head  
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  
[maiyasser@localhost ~]$
```

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ diff /etc/passwd ~/cppasswd  
[maiyasser@localhost ~]$ cmp /etc/passwd ~/cppasswd  
[maiyasser@localhost ~]$ vi cppasswd  
[maiyasser@localhost ~]$ diff /etc/passwd ~/cppasswd  
0a1  
> hello copied!  
[maiyasser@localhost ~]$ cmp /etc/passwd ~/cppasswd  
/etc/passwd /home/maiyasser/cppasswd differ: byte 1, line 1  
[maiyasser@localhost ~]$
```