file system management

1)  List out 5 files in your system which consuming most of the disk space

root@ip-172-31-26-56:/# du -Sh | sort -rh | head -5

4.1G ./Data4

4.1G ./Data3

2.1G ./Data2

2.1G ./Data1

375M ./var/lib/snapd/snaps

root@ip-172-31-26-56:/# find -type f -exec du -Sh {} + | sort -rh | head -n 5

4.1G ./Data4/emptyfile

4.1G ./Data3/emptyfile

2.1G ./Data2/emptyfile

2.1G ./Data1/emptyfile

98M ./var/lib/snapd/snaps/core\_10577.snap

2) Create one common folder in such way that anyone can create files inside that independently and should not be able to delete other users files from that common folder.

root@ip-172-31-26-56:/# mkdir common

root@ip-172-31-26-56:/# chmod 777 common

root@ip-172-31-26-56:/# ls

Data1 Data2 Data3 Data4 bin boot common dev etc home lib lib32 lib64 libx32 lost+found media mnt nikhil opt proc root run sbin snap srv suraj sys tmp usr var

root@ip-172-31-26-56:/# chmod +t common

root@ip-172-31-26-56:/# ls -l

total 92

drwxr-xr-x 3 root root 4096 Dec 15 21:14 Data1

drwxr-xr-x 3 root root 4096 Dec 15 21:24 Data2

drwxr-xr-x 3 root root 4096 Dec 15 21:25 Data3

drwxr-xr-x 3 root root 4096 Dec 15 21:37 Data4

lrwxrwxrwx 1 root root 7 Oct 26 23:25 bin -> usr/bin

drwxr-xr-x 3 root root 4096 Oct 26 23:36 boot

drwxrwxrwt 2 root root 4096 Dec 19 04:16 common

drwxr-xr-x 15 root root 3340 Dec 17 23:08 dev

drwxr-xr-x 94 root root 4096 Dec 19 03:36 etc

drwxr-xr-x 5 root root 4096 Dec 19 02:46 home

lrwxrwxrwx 1 root root 7 Oct 26 23:25 lib -> usr/lib

lrwxrwxrwx 1 root root 9 Oct 26 23:25 lib32 -> usr/lib32

lrwxrwxrwx 1 root root 9 Oct 26 23:25 lib64 -> usr/lib64

lrwxrwxrwx 1 root root 10 Oct 26 23:25 libx32 -> usr/libx32

drwx------ 2 root root 16384 Oct 26 23:32 lost+found

drwxr-xr-x 2 root root 4096 Oct 26 23:25 media

drwxr-xr-x 2 root root 4096 Oct 26 23:25 mnt

drwxr-xr-x 2 root root 4096 Dec 17 19:23 nikhil

drwxr-xr-x 2 root root 4096 Oct 26 23:25 opt

dr-xr-xr-x 152 root root 0 Dec 16 03:37 proc

drwx------ 7 root root 4096 Dec 17 18:17 root

drwxr-xr-x 24 root root 840 Dec 19 03:35 run

lrwxrwxrwx 1 root root 8 Oct 26 23:25 sbin -> usr/sbin

drwxr-xr-x 7 root root 4096 Dec 14 03:10 snap

drwxr-xr-x 2 root root 4096 Oct 26 23:25 srv

drwxr-xr-x 2 root root 4096 Dec 14 05:15 suraj

dr-xr-xr-x 13 root root 0 Dec 16 03:38 sys

drwxrwxrwt 11 root root 4096 Dec 19 01:38 tmp

drwxr-xr-x 14 root root 4096 Oct 26 23:28 usr

drwxr-xr-x 13 root root 4096 Oct 26 23:30 var

root@ip-172-31-26-56:/# cd common/

root@ip-172-31-26-56:/common# touch root.txt

root@ip-172-31-26-56:/common# mkdir root

root@ip-172-31-26-56:/common# sudo su ubuntu

ubuntu@ip-172-31-26-56:/common$ touch ubuntu.txt

ubuntu@ip-172-31-26-56:/common$ mkdir ubuntu

ubuntu@ip-172-31-26-56:/common$ sudo nikhil

sudo: nikhil: command not found

ubuntu@ip-172-31-26-56:/common$ sudo su nikhil

$ mkdir nikhil

$ touch nikhil.txt

$ sudo su shubham

[sudo] password for nikhil:

$ mkdir shubham

$ touch shubham.txt

$ sudo su demo

[sudo] password for shubham:

$ mkdir demo

$ touch demo.txt

$ ls -l

total 20

drwxrwxr-x 2 demo demo 4096 Dec 19 04:25 demo

-rw-rw-r-- 1 demo demo 0 Dec 19 04:25 demo.txt

drwxrwxr-x 2 nikhil nikhil 4096 Dec 19 04:23 nikhil

-rw-rw-r-- 1 nikhil nikhil 0 Dec 19 04:23 nikhil.txt

drwxr-xr-x 2 root root 4096 Dec 19 04:22 root

-rw-r--r-- 1 root root 0 Dec 19 04:22 root.txt

drwxrwxr-x 2 shubham shubham 4096 Dec 19 04:24 shubham

-rw-rw-r-- 1 shubham shubham 0 Dec 19 04:24 shubham.txt

drwxrwxr-x 2 ubuntu ubuntu 4096 Dec 19 04:23 ubuntu

-rw-rw-r-- 1 ubuntu ubuntu 0 Dec 19 04:23 ubuntu.txt

$ rm shubham.txt

rm: remove write-protected regular empty file 'shubham.txt'? y

rm: cannot remove 'shubham.txt': Operation not permitted

$ rm demo.txt

$ ls -l

total 20

drwxrwxr-x 2 demo demo 4096 Dec 19 04:25 demo

drwxrwxr-x 2 nikhil nikhil 4096 Dec 19 04:23 nikhil

-rw-rw-r-- 1 nikhil nikhil 0 Dec 19 04:23 nikhil.txt

drwxr-xr-x 2 root root 4096 Dec 19 04:22 root

-rw-r--r-- 1 root root 0 Dec 19 04:22 root.txt

drwxrwxr-x 2 shubham shubham 4096 Dec 19 04:24 shubham

-rw-rw-r-- 1 shubham shubham 0 Dec 19 04:24 shubham.txt

drwxrwxr-x 2 ubuntu ubuntu 4096 Dec 19 04:23 ubuntu

-rw-rw-r-- 1 ubuntu ubuntu 0 Dec 19 04:23 ubuntu.txt

$ sudo su shubham

[sudo] password for demo:

$ rm nikhil.txt

rm: remove write-protected regular empty file 'nikhil.txt'? y

rm: cannot remove 'nikhil.txt': Operation not permitted

$ rmdir shubham

$ ls -l

total 16

drwxrwxr-x 2 demo demo 4096 Dec 19 04:25 demo

drwxrwxr-x 2 nikhil nikhil 4096 Dec 19 04:23 nikhil

-rw-rw-r-- 1 nikhil nikhil 0 Dec 19 04:23 nikhil.txt

drwxr-xr-x 2 root root 4096 Dec 19 04:22 root

-rw-r--r-- 1 root root 0 Dec 19 04:22 root.txt

-rw-rw-r-- 1 shubham shubham 0 Dec 19 04:24 shubham.txt

drwxrwxr-x 2 ubuntu ubuntu 4096 Dec 19 04:23 ubuntu

-rw-rw-r-- 1 ubuntu ubuntu 0 Dec 19 04:23 ubuntu.txt

$

3) Create user name "shubham" and add that user in the group "adm"

root@ip-172-31-26-56:/# useradd shubham

root@ip-172-31-26-56:/# cat /etc/passwd

shubham:x:1002:1002::/home/shubham:/bin/sh

root@ip-172-31-26-56:/# gpasswd -a shubham adm

Adding user shubham to group adm

      a) Create folder /data , change owner and group as  "root:adm

$ mkdir data

$ ls

data

$ ls -l

total 4

drwxrwxr-x 2 shubham shubham 4096 Dec 19 03:02 data

$ sudo chown root data

$ ls -l

total 4

drwxrwxr-x 2 root shubham 4096 Dec 19 03:02 data

$ sudo chown .adm data

$ ls -l

total 4

drwxrwxr-x 2 root adm 4096 Dec 19 03:02 data

b) Change /data permission such a way that user can able to write data in this folder and ownership of files or folder which you creates in this folder should be same as parent folder i.e /data folder permission (root:adm)

$ sudo chmod 6775 data

$ ls -l

total 4

drwsrwsr-x 2 root adm 4096 Dec 19 03:02 data

$ touch shubham.txt

$ ls -l

total 0

-rw-rw-r-- 1 shubham adm 0 Dec 19 03:50 shubham.txt

$ sudo su

root@ip-172-31-26-56:/home/shubham/data# touch root.txt

root@ip-172-31-26-56:/home/shubham/data# ls -l

total 0

-rw-r--r-- 1 root adm 0 Dec 19 03:52 root.txt

-rw-rw-r-- 1 shubham adm 0 Dec 19 03:50 shubham.txt

root@ip-172-31-26-56:/home/shubham/data# sudo su ubuntu

ubuntu@ip-172-31-26-56:/home/shubham/data$ touch ubuntu.txt

ubuntu@ip-172-31-26-56:/home/shubham/data$ ls -l

total 0

-rw-r--r-- 1 root adm 0 Dec 19 03:52 root.txt

-rw-rw-r-- 1 shubham adm 0 Dec 19 03:50 shubham.txt

-rw-rw-r-- 1 ubuntu adm 0 Dec 19 04:08 ubuntu.txt