1. Create a directory "exercise" inside your home directory and create nested(dir1/dir2/dir3) directory structure inside "excerise" with single command.

Command: sudo mkdir -p exercise/{dir1,dir2,dir3}

```
abhi@ubuntu:~$ sudo mkdir -p exercise/{dir1,dir2,dir3}
abhi@ubuntu:~$ ls

Desktop Documents Downloads exercise Music Pictures Public Templates Videos

$ cd exercise
$ ls
dir1 dir2 dir3
```

2. Create two empty files inside dir2 directory: emptyFile1,emptyFile2 in single command

Command: cd exercise/dir

Sudo touch emptyFile1 emptyFile2

```
abhi@ubuntu:-$ cd exercise/dir2
abhi@ubuntu:-/exercise/dir2$ touch emptyFile1 emptyFile2
touch: cannot touch 'emptyFile1': Permission denied
touch: cannot touch 'emptyFile2': Permission denied
abhi@ubuntu:-/exercise/dir2$ sudo touch emptyFile1 emptyFile2
abhi@ubuntu:-/exercise/dir2$ ls
emptyFile1 emptyFile2
abhi@ubuntu:-/exercise/dir2$ []
```

3. Create one file file1.txt containing text "hello world" and save it.

Command: cat > file1.txt

```
root@ubuntu:~# cat > file1.txt
hello world
^C
root@ubuntu:~# cat file1.txt
hello world
root@ubuntu:~# [
```

- 4. Find a "passwd" file using find command inside /etc. copy this files as passwd_copy and then rename this file as passwd backup.
- a. Command: find /etc -name passwd

```
root@ubuntu:~# find /etc -name passwd
/etc/pam.d/passwd
/etc/passwd
root@ubuntu:~# [
```

- b. cp/etc/passwd passwd_copy
- c. mv passwd_copy passwd_backup

```
root@ubuntu:/home/abhi# cp /etc/passwd passwd_copy
root@ubuntu:/home/abhi# ls

Desktop Downloads Music Pictures Templates

Documents exercise passwd_copy Public Videos
root@ubuntu:/home/abhi# mv passwd_copy passwd_backup
root@ubuntu:/home/abhi# ls

Desktop Downloads Music Pictures Templates

Documents exercise passwd_backup Public Videos
root@ubuntu:/home/abhi# []
```

5. Try reading passwd_backup file in multiple tools: less,more,cat,strings etc and find the difference in their usage.

Command: less passwd backup

```
root@ubuntu:/home/abhi# less passwd_backup
[2]+ Stopped ______ less passwd_backup
```

```
root:xi0:0:root:/foot:/bin/bash
daemon:xi:1:1:daemon:/usr/sbin/susr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:xi3:3:sys:/dev:/usr/sbin/nologin
sys:xi3:3:sys:/dev:/usr/sbin/nologin
nan:x:6:1:2:man:/var/cache/nan:/usr/sbin/nologin
nan:x:6:1:2:man:/var/cache/nan:/usr/sbin/nologin
nan:x:6:1:2:man:/var/cache/nan:/usr/sbin/nologin
nan:x:6:1:2:man:/var/cache/nan:/usr/sbin/nologin
nati.x:8:8:manit:/var/manit:/usr/sbin/nologin
nati.x:8:8:manit:/var/manit:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
news:x:3:3:3:mem-data:/var/manitysr/sbin/nologin
nati.x:8:8:3:3:3:mem-data:/var/manitysr/sbin/nologin
nackup:x:3:3:3:3:mem-data:/var/manitysr/sbin/nologin
nackup:x:3:3:3:mem-data:/var/manitysr/sbin/nologin
nackup:x:3:3:3:mem-data:/var/manitysr/sbin/nologin
nackup:x:3:3:3:mem-data:/var/manitysr/manitysr/sbin/nologin
nackup:x:3:3:3:mem-data:/var/manitysr/sbin/nologin
nackup:x:3:3:3:mem-data:/var/manitysr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexistent:/usr/sbin/nologin
nackup:x:10:1:06::/nonexis
```

Command: more passwd backup

```
root@ubuntu:/home/abhi# more passwd_backup
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
matl:x:8:8:matl:/var/matl:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
trc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
 apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:186:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:187:114::/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:115::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologinrtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,:/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
saned:x:117:123::/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125::/nonexistent:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/llb/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup/:/bin/false
gdm:x:125:130:Gnome Displanager:/var/lib/gdm3:/bin/false
abhi:x:1000:1000:abhishek,,,:/home/abhi:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
root@ubuntu:/home/abhi#
```

Command: cat passwd_backup

```
root@ubuntu:/home/abhi# cat passwd_backup
root:x:0:0:root:/root:/bin/bash
 daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
 games:x:5:60:games:/usr/games:/usr/sbin/nologin
 man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mall:x:8:8:mall:/var/mall:/usr/sbln/nologin
news:x:9:9:news:/var/spool/news:/usr/sbln/nologin
 uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
 proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
  www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
 syslog:x:104:110::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:114::/run/uuidd:/usr/sbin/nologin
 tcpdump:x:108:115::/nonexistent:/usr/sbin/nologin
tcpdump:x:188:115::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:169:116:Avahi autoip daemon,,,;/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,;/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:17:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,;/var/lib/mtsc:/usr/sbin/nologin
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
saned:x:117:123::/var/lib/saned:/usr/sbin/nologin
nm-openypn:x:118:124:NetworkManager OpenyPN...:/var/lib/openypn/chroot:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,;/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125::/nonexistent:/bin/false
colord:x:121:126:colord colour management daemon,,;/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup/:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
abhi:x:1000:1000:abhishek,,,:/home/abhi:/bin/bash
systemd-coredump:x:999:99:systemd Core Dumper:/:/usr/sbin/nologin
root@ubuntu:/home/abhi#
```

```
root@ubuntu:/home/abhi# strings passwd_backup
 oot:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbln/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
 messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:186:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:187:114::/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:115::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:120:user for cups-pk-helper service,,;/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
saned:x:117:123::/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,,/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125::/nonexistent:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup/:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
abhl:x:1000:1000:abhlshek,,,:/home/abhl:/bln/bash
systemd-coredump:x:999:9<u>9</u>9:systemd Core Dumper:/:/usr/sbin/nologin
root@ubuntu:/home/abhi#
```

6. Find out the number of line in password backup containing "/bin/false".

Command: cat passwd backup | grep -wc /bin/false

```
root@ubuntu:/home/abhi# cat passwd_backup | grep /bin/false
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125::/nonexistent:/bin/false
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup/:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
root@ubuntu:/home/abhi# cat passwd_backup | grep -wc /bin/false
6
```

7. Get the first 5 lines of a file "password_backup" and Redirect the output of the above commands into file "output".

Command: head -n 5 passwd_backup | cat > output

```
root@ubuntu:/home/abhi# head -n 5 passwd_backup
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
root@ubuntu:/home/abhi# head -n 5 passwd_backup | cat > output
root@ubuntu:/home/abhi# cat output
rootix:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin/loogin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sys:x:4:65534:sync:/bin:/bin/sync
root@ubuntu:/home/abhi# |
```

8. Create a "test" user create its password and find out its uid and gid.

Command: useradd test, passwd test, id test

```
root@ubuntu:/home/abhi# useradd test
root@ubuntu:/home/abhi# passwd test
New password:
Retype new password:
passwd: password updated successfully
root@ubuntu:/home/abhi# id -u test
1001
root@ubuntu:/home/abhi# id -g test
1001
root@ubuntu:/home/abhi# id test
uid=1001(test) gid=1001(test) groups=1001(test)
root@ubuntu:/home/abhi# []
```

9. Change the timestamp of emptyFile1,emptyFile2 which are exist in dir2

Command: touch emptyFile1 emptyFile2

```
root@ubuntu:/home/abhi/exercise/dir2# ls -l
total 0
-rw-r--r-- 1 root root 0 Feb 2 02:04 emptyFile1
-rw-r--r-- 1 root root 0 Feb 2 02:04 emptyFile2
root@ubuntu:/home/abhi/exercise/dir2# touch emptyFile1 emptyFile2
root@ubuntu:/home/abhi/exercise/dir2# ls -l
total 0
-rw-r--r-- 1 root root 0 Feb 2 02:51 emptyFile1
-rw-r--r-- 1 root root 0 Feb 2 02:51 emptyFile2
root@ubuntu:/home/abhi/exercise/dir2# [
```

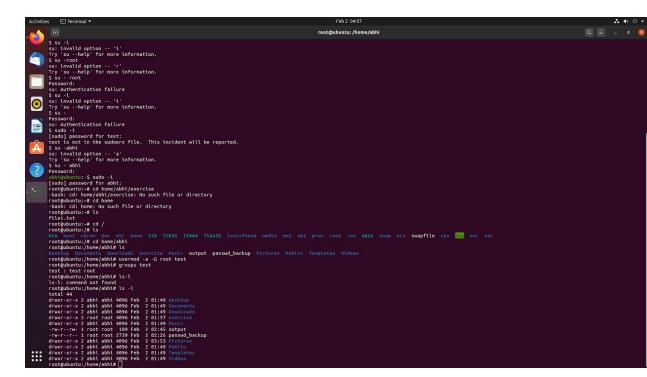
10. Login as test user and edit the "output" file created above. Since the permission wont allow you to save the changes. Configure such that test user can edit it.

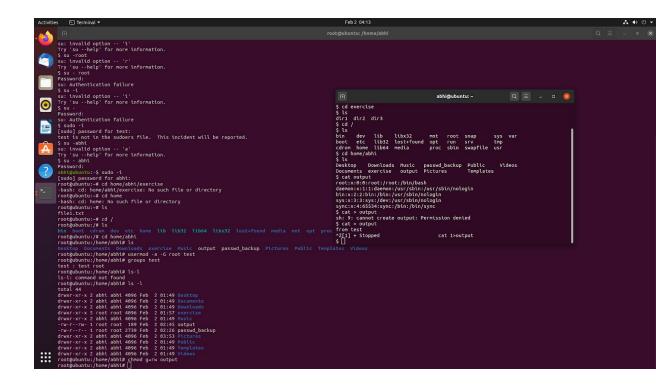
 Add group owner of the "output" file as the secondary group of testuser and check/change the "output" file permission if it is editable by group. Once done revert the changes

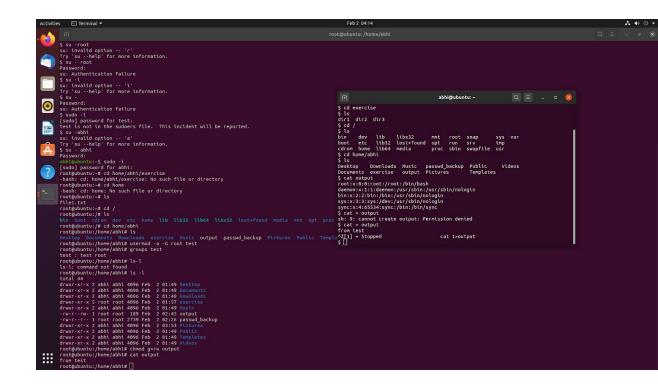
Command: (Adding test to the group root) usermod -a -G root test

(giving write permission to group of output file) chmod g=rw output

(reverting changes after verification) chmod g=r output





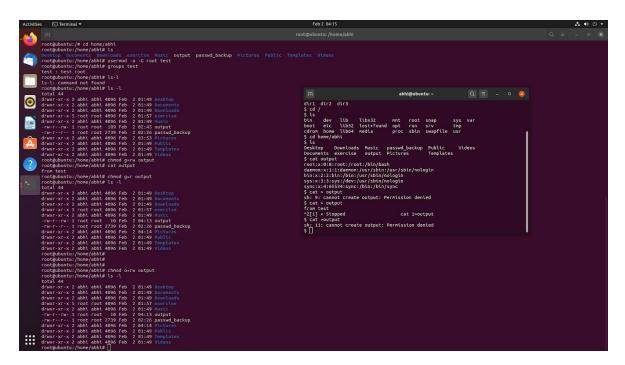


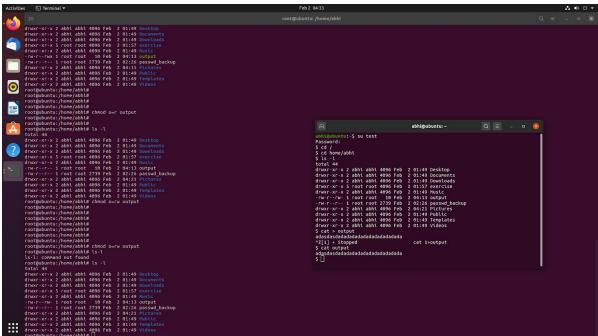
2. Make the file editable to the world so that test user can access it. Revert the changes after verification

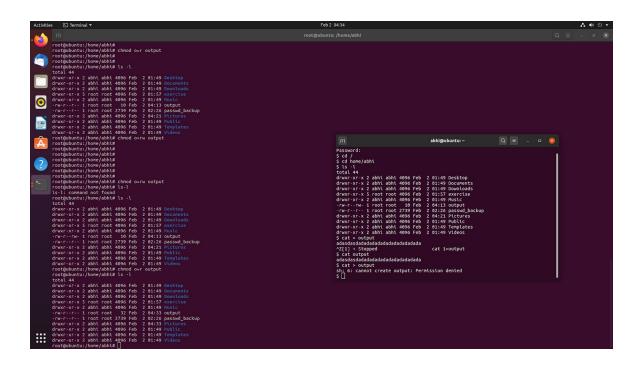
Command:

(giving permission to other/world to write on file) chmod o=rw output

(reverting changes after verification) chmod o=r output

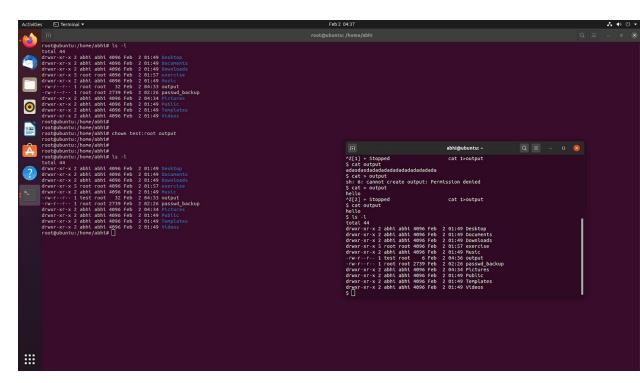






3. Change the ownership to edit the file.

Command: (changing ownership of file) chown test:root output



11. Create alias with your name so that it creates a file as "/tmp/aliastesting".

Command: alias abhishek = "touch ../tmp/aliastesting"

```
root@ubuntu:/# alias abhishek="touch ../tmp/aliastesting"
root@ubuntu:/# cd tmp
root@ubuntu:/tmp# ls
abhi
config-err-6VB2LX
ssh-BLBLUKOBIpua
systemd-private-58ac0fe550a04b1a996fa4843504908b-colord.service-e78J8f
systemd-private-58ac0fe550a04b1a996fa4843504908b-ModemManager.service-81ZV1f
systemd-private-58ac0fe550a04b1a996fa4843504908b-switcheroo-control.service-YbKMTe
root@ubuntu:/tmp# cd /
root@ubuntu:/# abhishek
root@ubuntu:/# abhishek
root@ubuntu:/# cd tmp
root@ubuntu:/tmp# ls
abhi
aliastesting
config-err-6VB2LX
ssh-BLBLUKD8Ipua
systemd-private-58ac0fe550a04b1a996fa4843504908b-colord.service-e78J8f
systemd-private-58ac0fe550a04b1a996fa4843504908b-switcheroo-control.service-YbKMTe
systemd-private-58ac0fe550a04b1a996fa4843504908b-systemd-logind.service-4Drsif
systemd-private-58ac0fe550a04b1a996fa4843504908b-systemd-logind.service-4Drsif
systemd-private-58ac0fe550a04b1a996fa4843504908b-systemd-resolved.service-PVCtvj
root@ubuntu:/tmp# []
```

12. Edit ~/.bashrc file such that when you change to "test" user it should clear the screen and print "Welcome".

Command: cat>> .bashrc

clear

echo"welcome\${USER}"

```
$ cat >>.bashrc
|clear
|echo "Welcome ${USER}"
|echo^Z[1] + Stopped | cat 1>>.bashrc
```

13. Install "zip" package.

Command: sudo apt install zip

```
root@ubuntu:-# sudo apt install zip
Reading package lists... Done
Building dependency tree
Reading state information... Done
zip is already the newest version (3.0-11build1).
zip set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 425 not upgraded.
```

14. Compress "output" and "password_backup" files into a tar ball. List the files present inside the tar created.

Command: tar -czvf archive.tar.gz output passwd_backup

tar -tvf archive.tar.gz

15. scp this file to test user

Command: scp root@192.168.139.129:/home/abhi/archive.tar.gz /home/test/

16. Unzip this tar bar by logging into the remote server

Command: ssh test@192.168.139.129

tar -xvf archive.tar.gz

```
$ cd home
$ ls
abhi test
$ cd abhi
$ ls
archive.tar.gz
              Documents exercise output
                                                  Pictures Templates
               Downloads Music
                                    passwd_backup Public
                                                            Videos
Desktop
$ tar -xvf archive.tar.gz
output
tar: output: Cannot open: File exists
passwd_backup
tar: passwd_backup: Cannot open: File exists
tar: Exiting with failure status due to previous errors
$
```

17. Download any image from web and move to desktop

Command: wget <image link address>

mv /tmp/13209.jpg /home/abhi/Desktop/123

18. How to get help of commands usages.

Command: cat -h

```
root@ubuntu:/tmp# cat --h
Usage: cat [OPTION]... [FILE]...
Concatenate FILE(s) to standard output.
With no FILE, or when FILE is -, read standard input.
                                       equivalent to -vET
   -A, --show-all
  -b, --number-nonblank
                                       number nonempty output lines, overrides -n
                                       equivalent to -vE
  -e
                                       display $ at end of each line number all output lines
  -E, --show-ends
   -n, --number
   -s, --squeeze-blank
                                       suppress repeated empty output lines
                                       equivalent to -vT
                                       display TAB characters as ^I
   -T, --show-tabs
                                       (tgnored)
   -U
   -v, --show-nonprinting use ^ and M- notation, except for LFD and TAB
--help display this help and exit
--version output version information and exit
Examples:
  cat f - g Output f's contents, then standard input, then g's contents.
cat Copy standard input to standard output.
GNU coreutils online help: <a href="https://www.gnu.org/software/coreutils/">https://www.gnu.org/software/coreutils/>
Full documentation at: <a href="https://www.gnu.org/software/coreutils/cat">https://www.gnu.org/software/coreutils/cat</a> or available locally via: info '(coreutils) cat invocation'
root@ubuntu:/tmp#
root@ubuntu:/tmp# man cat
root@ubuntu:/tmp#
```

```
CAT(1)
                                                                                           User Commands
NAME
      cat - concatenate files and print on the standard output
SYNOPSIS
      cat [OPTION]... [FILE]...
DESCRIPTION
      Concatenate FILE(s) to standard output.
       With no FILE, or when FILE is -, read standard input.
       -A, --show-all
              equivalent to -vET
       -b, --number-nonblank
             number nonempty output lines, overrides -n
             equivalent to -vE
       -e
      -E, --show-ends
             display $ at end of each line
      -n, --number
             number all output lines
       -s, --squeeze-blank
             suppress repeated empty output lines
            equivalent to -vT
       -t
      -T, --show-tabs
             display TAB characters as ^I
             (ignored)
       -v, --show-nonprinting
              use ^ and M- notation, except for LFD and TAB
       --help display this help and exit
       --version
              output version information and exit
EXAMPLES
       cat f - g
             Output f's contents, then standard input, then g's contents.
             Copy standard input to standard output.
      cat
AUTHOR
       Written by Torbjorn Granlund and Richard M. Stallman.
REPORTING BUGS
Manual page cat(1) line 1 (press h for help or q to quit)
```

19. Create a symlink of /etc/services into /tmp/ports-info

In -s /etc/services /tmp/ports-info

```
oot@ubuntu:/# ln -s /etc/services /tmp/ports-info
root@ubuntu:/#
root@ubuntu:/# cd tmp
root@ubuntu:/tmp# ls -l
total 560
drwx----- 3 root root
                                4096 Feb 2 01:47 systemd-private-58ac0fe550a04b1a996fa4843504908b-switcheroo-control.service-YbKMTe
drwx----- 3 root root
drwx----- 3 root root
                                4096 Feb 2 01:47 systemd-private-58ac0fe550a04b1a996fa4843504908b-systemd-logind.service-40rsif
4096 Feb 2 01:47 systemd-private-58ac0fe550a04b1a996fa4843504908b-systemd-resolved.service-PVCtvj
drwx----- 3 root root
                                 4096 Feb 2 01:47 systemd-private-58ac0fe550a04b1a996fa4843504908b-systemd-timesyncd.service-yB0x8h
                                 4096 Feb
                                              2 01:49 systemd-private-58ac0fe550a04b1a996fa4843504908b-upower.service-emDTmg
drwx----- 2 abht abht 4096 Feb 2 01:53 Temp-15cfd2dd-e246-43a1-aced-e447d4e0bflc
drwx---- 2 abht abht 4096 Feb 2 01:53 Temp-ef379bd1-9e57-4e25-8909-873ca269437e
-rw---- 1 abht abht 511815 Feb 2 01:54 tmpaddon
drwx---- 2 abht abht 4096 Feb 2 06:17 tracker-extract-files.1000
drwx----- 2 abht abht
drwx----- 2 abht abht
drwx----- 2 abht abht
                                4096 Feb 2 01:49 tracker-extract-files.125
4096 Feb 2 01:49 VMworeDnD
4096 Feb 2 01:49 vmware-root_2107-2125739014
drwx----- 2 gdm gdm
drwxrwxrwt 2 root root
drwx----- 2 root root
root@ubuntu:/tmp#
```

20. You are appointed as a Software/DevOps Engineer in ABC media services. On your first day you need to troubleshoot a problem. There is a command "xyz" somewhere installed in that linux system. But as a new joinee you do not have any idea about where is that Installed. How can you check that?

Command: whereis cat

type cat

```
root@ubuntu:/home/abhi/Desktop# whereis cat
cat: /usr/bin/cat /usr/share/man/man1/cat.1.gz
root@ubuntu:/home/abhi/Desktop# type cat
cat is hashed (/usr/bin/cat)
root@ubuntu:/home/abhi/Desktop# []
```