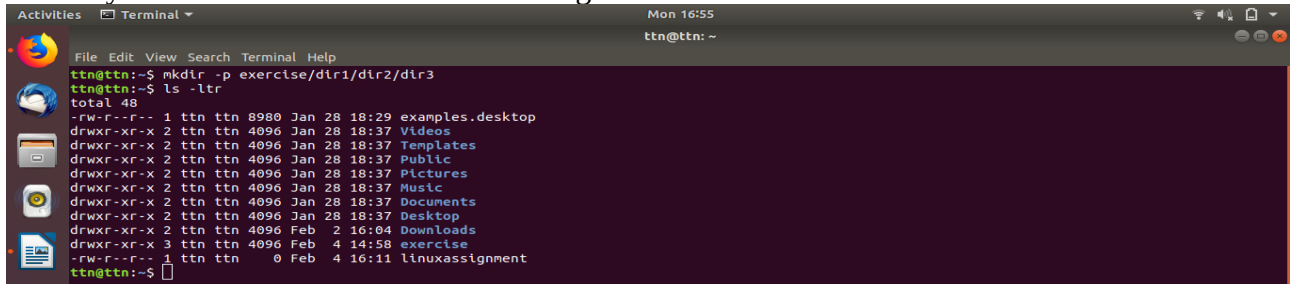


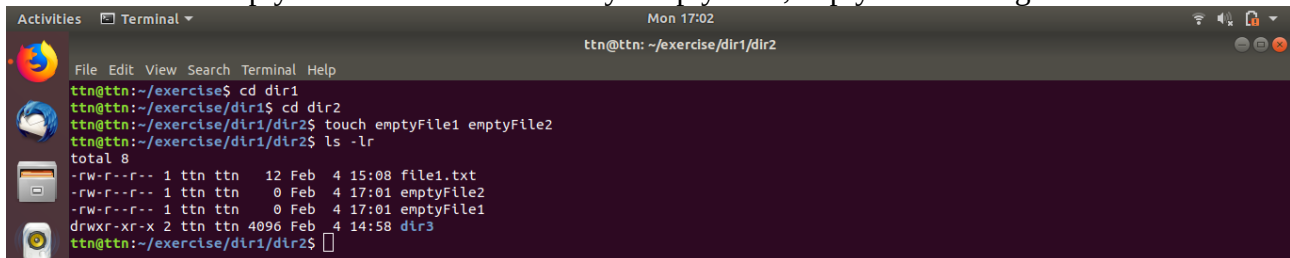
Exercise(Mehak Adlakha):

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



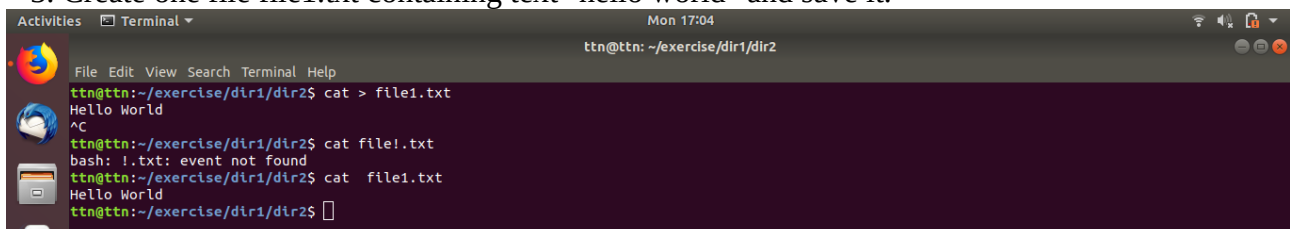
```
Mon 16:55
ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ mkdir -p exercise/dir1/dir2/dir3
ttn@ttn:~$ ls -ltr
total 48
-rw-r--r-- 1 ttn ttn 8980 Jan 28 18:29 examples.desktop
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Videos
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Templates
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Public
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Pictures
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Music
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Documents
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Desktop
drwxr-xr-x 2 ttn ttn 4096 Feb 2 16:04 Downloads
drwxr-xr-x 3 ttn ttn 4096 Feb 4 14:58 exercise
-rw-r--r-- 1 ttn ttn 0 Feb 4 16:11 linuxassignment
ttn@ttn:~$
```

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



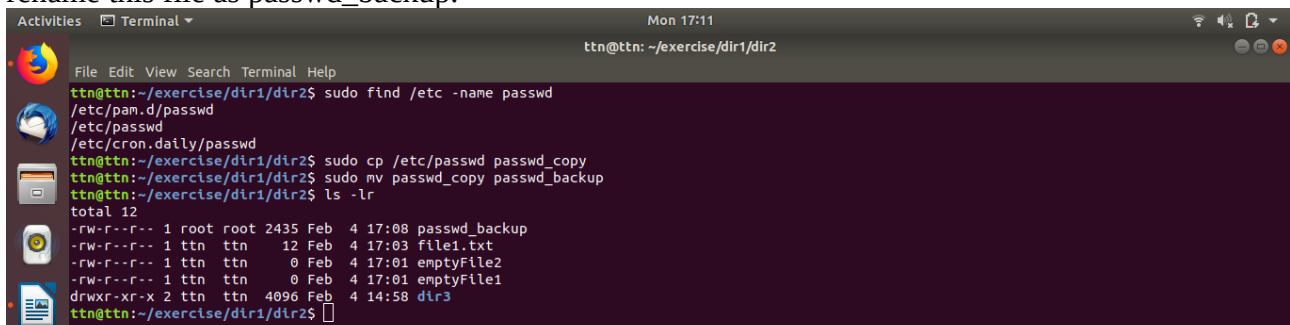
```
Mon 17:02
ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~/exercise$ cd dir1
ttn@ttn:~/exercise/dir1$ cd dir2
ttn@ttn:~/exercise/dir1/dir2$ touch emptyFile1 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$ ls -lr
total 8
-rw-r--r-- 1 ttn ttn 12 Feb 4 15:08 file1.txt
-rw-r--r-- 1 ttn ttn 0 Feb 4 17:01 emptyFile2
-rw-r--r-- 1 ttn ttn 0 Feb 4 17:01 emptyFile1
drwxr-xr-x 2 ttn ttn 4096 Feb 4 14:58 dir3
ttn@ttn:~/exercise/dir1/dir2$
```

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



```
Mon 17:04
ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~/exercise/dir1/dir2$ cat > file1.txt
Hello World
^C
ttn@ttn:~/exercise/dir1/dir2$ cat file1.txt
bash: !.txt: event not found
ttn@ttn:~/exercise/dir1/dir2$ cat file1.txt
Hello World
ttn@ttn:~/exercise/dir1/dir2$
```

4. Find a "passwd" file using find command inside /etc. copy this files as passwd_copy and then rename this file as passwd_backup.



```
Mon 17:11
ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~/exercise/dir1/dir2$ sudo find /etc -name passwd
/etc/pam.d/passwd
/etc/passwd
/etc/cron.daily/passwd
ttn@ttn:~/exercise/dir1/dir2$ sudo cp /etc/passwd passwd_copy
ttn@ttn:~/exercise/dir1/dir2$ sudo mv passwd_copy passwd_backup
ttn@ttn:~/exercise/dir1/dir2$ ls -lr
total 12
-rw-r--r-- 1 root root 2435 Feb 4 17:08 passwd_backup
-rw-r--r-- 1 ttn ttn 12 Feb 4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn 0 Feb 4 17:01 emptyFile2
-rw-r--r-- 1 ttn ttn 0 Feb 4 17:01 emptyFile1
drwxr-xr-x 2 ttn ttn 4096 Feb 4 14:58 dir3
ttn@ttn:~/exercise/dir1/dir2$
```

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

```
Activities Terminal Mon 17:19
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ 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
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/sbin/nologin
list:x:38:38:Mail 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/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106:/home/syslog:/usr/sbin/nologin
messagebus:x:103:107:/nonexistent:/usr/sbin/nologin
_apt:x:104:65534:/nonexistent:/usr/sbin/nologin
uidd:x:105:111:/run/uidd:/usr/sbin/nologin
avahi-autoipd:x:106:112:Avahi autoip daemon,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:107:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:108:65534:dnsmasq,,:/var/lib/misc:/usr/sbin/nologin
rtkit:x:109:114:RealtimeKit,,:/proc:/usr/sbin/nologin
cups-pk-helper:x:110:116:user for cups-pk-helper service,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:111:29:Speech Dispatcher,,:/var/run/speech-dispatcher:/bin/false
whoopie:x:112:117:/nonexistent:/bin/false
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,:/usr/sbin/nologin
saned:x:114:119:/var/lib/saned:/usr/sbin/nologin
```

```
Activities Terminal Mon 17:20
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

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
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/sbin/nologin
list:x:38:38:Mail 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/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106:/home/syslog:/usr/sbin/nologin
messagebus:x:103:107:/nonexistent:/usr/sbin/nologin
_apt:x:104:65534:/nonexistent:/usr/sbin/nologin
uidd:x:105:111:/run/uidd:/usr/sbin/nologin
avahi-autoipd:x:106:112:Avahi autoip daemon,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:107:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:108:65534:dnsmasq,,:/var/lib/misc:/usr/sbin/nologin
rtkit:x:109:114:RealtimeKit,,:/proc:/usr/sbin/nologin
cups-pk-helper:x:110:116:user for cups-pk-helper service,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:111:29:Speech Dispatcher,,:/var/run/speech-dispatcher:/bin/false
whoopie:x:112:117:/nonexistent:/bin/false
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,:/usr/sbin/nologin
saned:x:114:119:/var/lib/saned:/usr/sbin/nologin
pulse:x:115:120:PulseAudio daemon,,:/var/run/pulse:/usr/sbin/nologin
avahi:x:116:122:Avahi mDNS daemon,,:/var/run/avahi-daemon:/usr/sbin/nologin
colord:x:117:123:colord colour management daemon,,:/var/lib/colord:/usr/sbin/nologin
hplip:x:118:7:HPLIP system user,,:/var/run/hplip:/bin/false
passwd_backup
```

```
Mon 17:22
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ strings 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
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/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:41:41: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/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106::/home/syslog:/usr/sbin/nologin
messagebus:x:103:107::/nonexistent:/usr/sbin/nologin
_apt:x:104:65534::/nonexistent:/usr/sbin/nologin
uidd:x:105:111::/run/uidd:/usr/sbin/nologin
avahi-autoipd:x:106:112:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:107:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:108:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
rtkit:x:109:114:RealtimeKit,,,:/proc:/usr/sbin/nologin
cups-pk-helper:x:110:116:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:111:29:Speech Dispatcher,,,:/var/run/speech-dispatcher:/bin/false
whoopste:x:112:117::/nonexistent:/bin/false
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:114:119::/var/lib/saned:/usr/sbin/nologin
pulse:x:115:120:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
avahi:x:116:122:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
colord:x:117:123:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
```

```
Mon 17:23
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ 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
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/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:41:41: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/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106::/home/syslog:/usr/sbin/nologin
messagebus:x:103:107::/nonexistent:/usr/sbin/nologin
_apt:x:104:65534::/nonexistent:/usr/sbin/nologin
uidd:x:105:111::/run/uidd:/usr/sbin/nologin
avahi-autoipd:x:106:112:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:107:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:108:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
rtkit:x:109:114:RealtimeKit,,,:/proc:/usr/sbin/nologin
cups-pk-helper:x:110:116:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:111:29:Speech Dispatcher,,,:/var/run/speech-dispatcher:/bin/false
whoopste:x:112:117::/nonexistent:/bin/false
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:114:119::/var/lib/saned:/usr/sbin/nologin
pulse:x:115:120:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
avahi:x:116:122:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
colord:x:117:123:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
hplip:x:118:7:HPLIP system user,,,:/var/run/hplip:/bin/false
```

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

```
Mon 21:52
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ grep -c "/bin/false" passwd_backup
5
ttn@ttn:~/exercise/dir1/dir2$
```

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

```
Mon 21:53
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ grep -c "/bin/false" passwd_backup
5
ttn@ttn:~/exercise/dir1/dir2$ head -5 passwd_backup > output
ttn@ttn:~/exercise/dir1/dir2$ cat output
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
ttn@ttn:~/exercise/dir1/dir2$
```

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

```
Mon 22:18
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ sudo useradd test
ttn@ttn:~/exercise/dir1/dir2$ sudo passwd test
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
ttn@ttn:~/exercise/dir1/dir2$ id -u test
1001
ttn@ttn:~/exercise/dir1/dir2$ id -g test
1001
ttn@ttn:~/exercise/dir1/dir2$
```

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

```
Mon 22:19
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

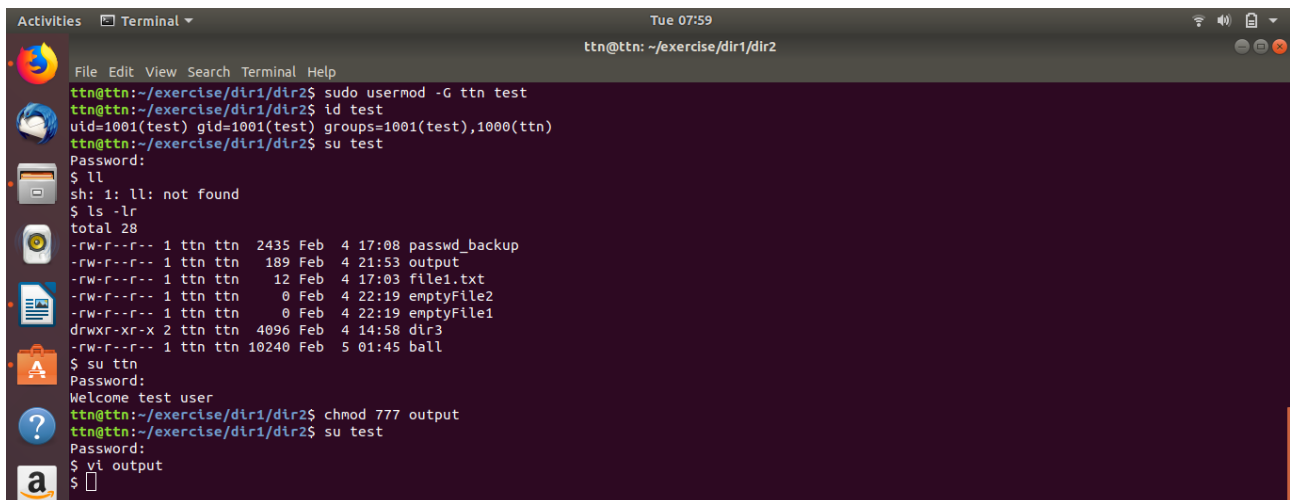
ttn@ttn:~/exercise/dir1/dir2$ touch emptyFile1 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$
```

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.

```
Mon 22:45
root@ttn: /home/ttn/exercise/dir1/dir2

File Edit View Search Terminal Help

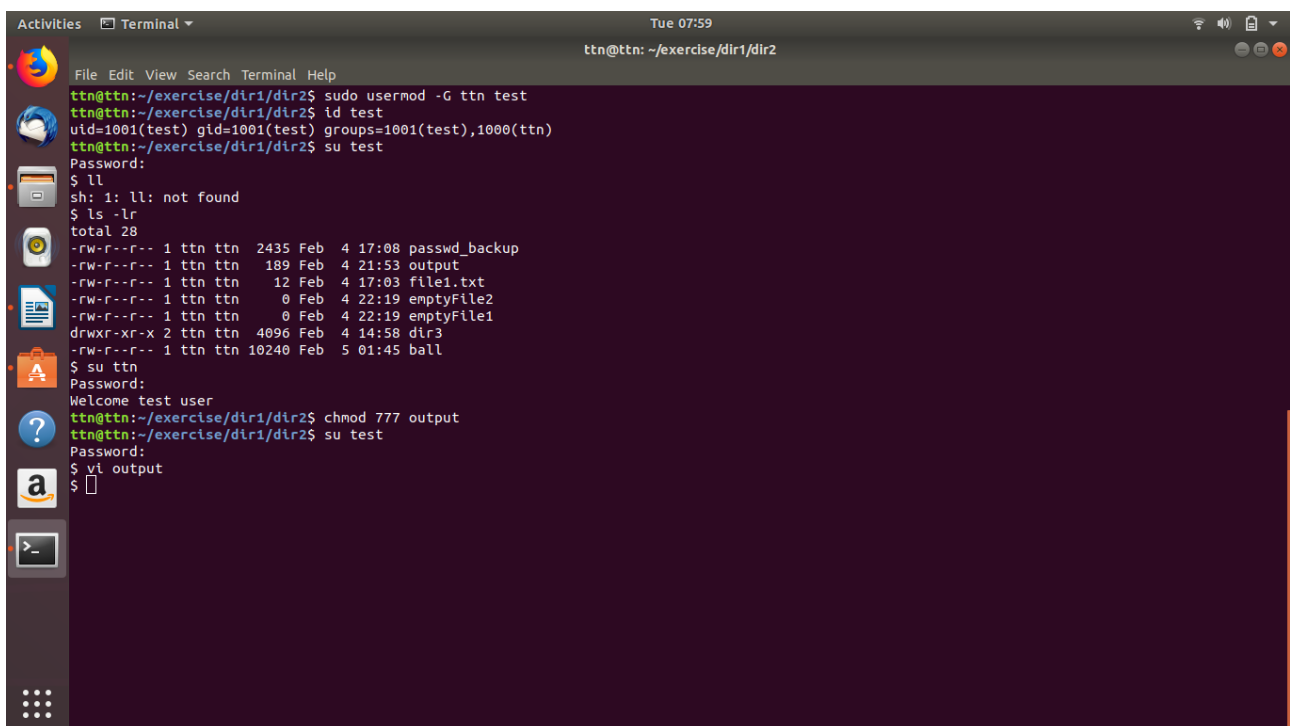
root@ttn:/home/ttn/exercise/dir1/dir2# su test
$ cat output
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
$ cat > output
sh: 2: cannot create output: Permission denied
$ chmod 777 output
chmod: changing permissions of 'output': Operation not permitted
$ ls -lr
total 16
-rw-r--r-- 1 root root 2435 Feb  4 17:08 passwd_backup
-rw-r--r-- 1 ttn ttn 189 Feb  4 21:53 output
-rw-r--r-- 1 ttn ttn 12 Feb  4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile1
drwxr-xr-x 2 ttn ttn 4096 Feb  4 14:58 dir3
$ sudo chmod 777 output
[sudo] password for test:
test is not in the sudoers file. This incident will be reported.
$
```

A terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Tue 07:59, ttn@ttn: ~/exercise/dir1/dir2). The terminal shows the following commands and output:

```
ttn@ttn:~/exercise/dir1/dir2$ sudo usermod -G ttn test
ttn@ttn:~/exercise/dir1/dir2$ id test
uid=1001(test) gid=1001(test) groups=1001(test),1000(ttn)
ttn@ttn:~/exercise/dir1/dir2$ su test
Password:
$ ll
sh: 1: ll: not found
$ ls -lr
total 28
-rw-r--r-- 1 ttn ttn 2435 Feb  4 17:08 passwd_backup
-rw-r--r-- 1 ttn ttn 189 Feb  4 21:53 output
-rw-r--r-- 1 ttn ttn 12 Feb  4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile1
drwxr-xr-x 2 ttn ttn 4096 Feb  4 14:58 dir3
-rw-r--r-- 1 ttn ttn 10240 Feb  5 01:45 ball
$ su ttn
Password:
Welcome test user
ttn@ttn:~/exercise/dir1/dir2$ chmod 777 output
ttn@ttn:~/exercise/dir1/dir2$ su test
Password:
$ vi output
$
```

1) 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

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

A terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Tue 07:59, ttn@ttn: ~/exercise/dir1/dir2). The terminal shows the following commands and output:

```
ttn@ttn:~/exercise/dir1/dir2$ sudo usermod -G ttn test
ttn@ttn:~/exercise/dir1/dir2$ id test
uid=1001(test) gid=1001(test) groups=1001(test),1000(ttn)
ttn@ttn:~/exercise/dir1/dir2$ su test
Password:
$ ll
sh: 1: ll: not found
$ ls -lr
total 28
-rw-r--r-- 1 ttn ttn 2435 Feb  4 17:08 passwd_backup
-rw-r--r-- 1 ttn ttn 189 Feb  4 21:53 output
-rw-r--r-- 1 ttn ttn 12 Feb  4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile1
drwxr-xr-x 2 ttn ttn 4096 Feb  4 14:58 dir3
-rw-r--r-- 1 ttn ttn 10240 Feb  5 01:45 ball
$ su ttn
Password:
Welcome test user
ttn@ttn:~/exercise/dir1/dir2$ chmod 777 output
ttn@ttn:~/exercise/dir1/dir2$ su test
Password:
$ vi output
$
```

3) Change the ownership to edit the file.

```
Activities Terminal Tue 08:02
ttn@ttn: ~/exercise/dir1/dir2

ttn@ttn:~/exercise/dir1/dir2$ id test
uid=1001(test) gid=1001(test) groups=1001(test),1000(ttn)
ttn@ttn:~/exercise/dir1/dir2$ su test
Password:
$ ll
sh: 1: ll: not found
$ ls -lr
total 28
-rw-r--r-- 1 ttn ttn 2435 Feb 4 17:08 passwd_backup
-rw-r--r-- 1 ttn ttn 189 Feb 4 21:53 output
-rw-r--r-- 1 ttn ttn 12 Feb 4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile1
drwxr-xr-x 2 ttn ttn 4096 Feb 4 14:58 dir3
-rw-r--r-- 1 ttn ttn 10240 Feb 5 01:45 ball
$ su ttn
Password:
Welcome test user
ttn@ttn:~/exercise/dir1/dir2$ chmod 777 output
ttn@ttn:~/exercise/dir1/dir2$ su test
Password:
$ vi output
$ su ttn
Password:
Welcome test user
ttn@ttn:~/exercise/dir1/dir2$ sudo chown test output
ttn@ttn:~/exercise/dir1/dir2$ ll
total 36
drwxr-xr-x 3 ttn ttn 4096 Feb 5 07:50 ./
drwxr-xr-x 3 ttn ttn 4096 Feb 4 14:58 ../
-rw-r--r-- 1 ttn ttn 10240 Feb 5 01:45 ball
drwxr-xr-x 2 ttn ttn 4096 Feb 4 14:58 dir3/
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile1
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn 12 Feb 4 17:03 file1.txt
-rwxrwxrwx 1 test ttn 189 Feb 5 07:59 output*
-rw-r--r-- 1 ttn ttn 2435 Feb 4 17:08 passwd_backup
ttn@ttn:~/exercise/dir1/dir2$
```

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

```
Activities Terminal Tue 01:19
ttn@ttn: /tmp

ttn@ttn:~$ alias mehak="touch /tmp/aliastesting"
ttn@ttn:~$ ll
total 104
drwxr-xr-x 18 ttn ttn 4096 Feb 5 00:05 ./
drwxr-xr-x 4 root root 4096 Jan 28 18:29 ../
-rw-r----- 1 ttn ttn 2023 Feb 4 22:32 .bash_history
-rw-r--r-- 1 ttn ttn 220 Jan 28 18:29 .bash_logout
-rw-r--r-- 1 ttn ttn 3771 Jan 28 18:29 .bashrc
drwx----- 16 ttn ttn 4096 Feb 5 00:06 .cache/
drwx----- 13 ttn ttn 4096 Feb 4 16:54 .config/
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Desktop/
drwxr-xr-x 2 ttn ttn 4096 Feb 4 17:46 Documents/
drwxr-xr-x 2 ttn ttn 4096 Feb 2 16:04 Downloads/
-rw-r--r-- 1 ttn ttn 8980 Jan 28 18:29 examples.desktop
drwxr-xr-x 3 ttn ttn 4096 Feb 4 14:58 exercise/
drwx----- 3 ttn ttn 4096 Feb 4 14:51 .gnupg/
drwxr-xr-x 2 ttn ttn 4096 Feb 4 22:31 .gphoto/
-rw-r----- 1 ttn ttn 1530 Feb 5 00:05 .ICEauthority
-rw-r--r-- 1 ttn ttn 0 Feb 4 16:11 linuxassignment
drwx----- 3 ttn ttn 4096 Jan 28 18:37 .local/
drwx----- 5 ttn ttn 4096 Feb 2 15:58 .mozilla/
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Music/
drwxr-xr-x 2 ttn ttn 4096 Feb 4 16:54 Pictures/
-rw-r--r-- 1 ttn ttn 807 Jan 28 18:29 .profile
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Public/
drwx----- 2 ttn ttn 4096 Feb 4 14:51 .ssh/
-rw-r--r-- 1 ttn ttn 0 Feb 4 15:20 .sudo_as_admin_successful
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Templates/
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Videos/
ttn@ttn:~$ mehak
ttn@ttn:~$ ll
total 104
drwxr-xr-x 18 ttn ttn 4096 Feb 5 00:05 ./
drwxr-xr-x 4 root root 4096 Jan 28 18:29 ../
-rw-r----- 1 ttn ttn 2023 Feb 4 22:32 .bash_history
-rw-r--r-- 1 ttn ttn 220 Jan 28 18:29 .bash_logout
-rw-r--r-- 1 ttn ttn 3771 Jan 28 18:29 .bashrc
drwx----- 16 ttn ttn 4096 Feb 5 00:06 .cache/
```



```
Activities Terminal Tue 01:21 ttn@ttn: /tmp
File Edit View Search Terminal Help
drwx----- 3 ttn ttn 4096 Feb 4 14:51 .gnupg/
drwxr-xr-x 2 ttn ttn 4096 Feb 4 22:31 .gphoto/
-rw----- 1 ttn ttn 1530 Feb 5 00:05 .ICEauthority
-rw-r--r-- 1 ttn ttn 0 Feb 4 16:11 linuxassignment
drwx----- 3 ttn ttn 4096 Jan 28 18:37 .local/
drwx----- 5 ttn ttn 4096 Feb 2 15:58 .mozilla/
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Music/
drwxr-xr-x 2 ttn ttn 4096 Feb 4 16:54 Pictures/
-rw-r--r-- 1 ttn ttn 807 Jan 28 18:29 .profile
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Public/
drwx----- 2 ttn ttn 4096 Feb 4 14:51 .ssh/
-rw-r--r-- 1 ttn ttn 0 Feb 4 15:20 .sudo_as_admin_successful
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Templates/
drwxr-xr-x 2 ttn ttn 4096 Jan 28 18:37 Videos/
ttn@ttn:~$ cd /tmp
ttn@ttn:~$ ll
total 68
drwxrwxrwt 16 root root 4096 Feb 5 01:17 ./
drwxr-xr-x 24 root root 4096 Jan 28 18:30 ../
-rw-r--r-- 1 ttn ttn 0 Feb 5 01:17 aliaesting
-rw----- 1 ttn ttn 0 Feb 5 00:05 config-err-jNaM06
drwxrwxrwt 2 root root 4096 Feb 5 00:04 .font-unix/
drwxrwxrwt 2 root root 4096 Feb 5 00:05 .ICE-unix/
drwx----- 2 ttn ttn 4096 Feb 5 00:26 lu1813qeefny.tmp/
srwxrwxr-x 1 ttn ttn 0 Feb 5 00:05 OSL_PIPE_1000_SingleOfficeIPC_cfa729fc67be8cf99063327bc0904361=
drwx----- 2 ttn ttn 4096 Feb 5 00:05 ssh-MHVqfVBefrb/
drwx----- 3 root root 4096 Feb 5 00:04 systemd-private-0abe5761c7c414090251aa894e70800-bolt.service-whK1J5/
drwx----- 3 root root 4096 Feb 5 00:04 systemd-private-0abe5761c7c414090251aa894e70800-color.service-8h4iaZ/
drwx----- 3 root root 4096 Feb 5 00:05 systemd-private-0abe5761c7c414090251aa894e70800-fwupd.service-blXJ9Z/
drwx----- 3 root root 4096 Feb 5 00:04 systemd-private-0abe5761c7c414090251aa894e70800-rtklt-daemon.service-cJ1nHR/
drwx----- 3 root root 4096 Feb 5 00:04 systemd-private-0abe5761c7c414090251aa894e70800-systemd-resolved.service-sHZya3/
drwx----- 2 ttn ttn 4096 Feb 5 01:11 Temp-d51a4a73-b386-482d-9f83-aad40aacb680/
drwxrwxrwt 2 root root 4096 Feb 5 00:04 .Test-unix/
-rw-r--r-- 1 gdm gdm 11 Feb 5 00:04 .X11-unix-lock
drwxrwxrwt 2 root root 4096 Feb 5 00:05 .X11-unix/
drwxrwxrwt 2 root root 4096 Feb 5 00:04 .XIM-unix/
ttn@ttn:~$ ll
```

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

```
Activities Terminal Tue 07:26 ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
alias grep='grep --color=auto'
alias fgrep='fgrep --color=auto'
alias egrep='egrep --color=auto'
fi

# colored GCC warnings and errors
#export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=01:quote=01'

# some more ls aliases
alias ll='ls -alF'
alias la='ls -A'
alias l='ls -CF'

# Add an "alert" alias for long running commands. Use like so:
# sleep 10; alert
alias alert='notify-send --urgency=low -i "${[ $? = 0 ]} && echo terminal || echo error)" "${history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/;&[]\s*atert$/'\''}"'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
. ~/.bash_aliases
fi

# Terminal programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
if [ -f /usr/share/bash-completion/bash_completion ]; then
. /usr/share/bash-completion/bash_completion
elif [ -f /etc/bash_completion ]; then
. /etc/bash_completion
fi
fi
echo "Welcome test user"
```

```
Activities Terminal Tue 07:35 ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~/exercise/dir1/dir2$ su test
Password:
$ su ttn
Password:
Welcome test user
ttn@ttn:~/exercise/dir1/dir2$
```

13. Install "zip" package.

```
Activities Terminal Tue 01:42
ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ sudo apt install zip
[sudo] password for ttn:
Reading package lists... Done
Building dependency tree
Reading state information... Done
zip is already the newest version (3.0-11build1).
0 upgraded, 0 newly installed, 0 to remove and 430 not upgraded.
ttn@ttn:~$
```

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

```
Activities Terminal Tue 01:47
ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~/exercise/dir1/dir2$ tar -cvf ball passwd_backup output
passwd_backup
output
ttn@ttn:~/exercise/dir1/dir2$ ll
total 36
drwxr-xr-x 3 ttn ttn 4096 Feb 5 01:45 ./
drwxr-xr-x 3 ttn ttn 4096 Feb 4 14:58 ../
-rw-r--r-- 1 ttn ttn 10240 Feb 5 01:45 ball
drwxr-xr-x 2 ttn ttn 4096 Feb 4 14:58 dir3/
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile1
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn 12 Feb 4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn 189 Feb 4 21:53 output
-rw-r--r-- 1 root root 2435 Feb 4 17:08 passwd_backup
ttn@ttn:~/exercise/dir1/dir2$ ll -f
output file1.txt ball ./ emptyFile1 dir3/ emptyFile2 passwd_backup ../
ttn@ttn:~/exercise/dir1/dir2$ tar --list -f ball
passwd_backup
output
ttn@ttn:~/exercise/dir1/dir2$
```

15. scp this file to test user

```
Activities Terminal Tue 01:50
ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~/exercise/dir1/dir2$ scp ball -4 test@ttn:/tmp
```

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

```
Activities Terminal Tue 07:45
ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~/exercise/dir1/dir2$ ll
total 36
drwxr-xr-x 3 ttn ttn 4096 Feb 5 01:45 ./
drwxr-xr-x 3 ttn ttn 4096 Feb 4 14:58 ../
-rw-r--r-- 1 ttn ttn 10240 Feb 5 01:45 ball
drwxr-xr-x 2 ttn ttn 4096 Feb 4 14:58 dir3/
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile1
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn 12 Feb 4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn 189 Feb 4 21:53 output
-rw-r--r-- 1 root root 2435 Feb 4 17:08 passwd_backup
ttn@ttn:~/exercise/dir1/dir2$ tar -xvf ball
passwd_backup
output
ttn@ttn:~/exercise/dir1/dir2$ ll
total 36
drwxr-xr-x 3 ttn ttn 4096 Feb 5 07:45 ./
drwxr-xr-x 3 ttn ttn 4096 Feb 4 14:58 ../
-rw-r--r-- 1 ttn ttn 10240 Feb 5 01:45 ball
drwxr-xr-x 2 ttn ttn 4096 Feb 4 14:58 dir3/
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile1
-rw-r--r-- 1 ttn ttn 0 Feb 4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn 12 Feb 4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn 189 Feb 4 21:53 output
-rw-r--r-- 1 ttn ttn 2435 Feb 4 17:08 passwd_backup
ttn@ttn:~/exercise/dir1/dir2$
```

17. Download any image from web and move to desktop


```
Activities Terminal Tue 07:50
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ ll
total 116
drwxr-xr-x 3 ttn ttn 4096 Feb  5 07:48 ./
drwxr-xr-x 3 ttn ttn 4096 Feb  4 14:58 ../
-rw-r--r-- 1 ttn ttn 10240 Feb  5 01:45 ball
drwxr-xr-x 2 ttn ttn 4096 Feb  4 14:58 dir3/
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile1
-rw-r--r-- 1 ttn ttn  0 Feb  4 22:19 emptyFile2
-rw-r--r-- 1 ttn ttn 12 Feb  4 17:03 file1.txt
-rw-r--r-- 1 ttn ttn 189 Feb  4 21:53 output
-rw-r--r-- 1 ttn ttn 2435 Feb  4 17:08 passwd_backup
-rw-rw-r-- 1 ttn ttn 78754 May 31 2016 work-area.jpg
ttn@ttn:~/exercise/dir1/dir2$ sudo mv work-area.jpg /home/desktop
[sudo] password for ttn:
Sorry, try again.
[sudo] password for ttn:
ttn@ttn:~/exercise/dir1/dir2$
```

18. How to get help of commands usages.

1. `man [command name]`
2. `[command name] --help`

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

```
Activities Terminal Tue 07:53
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ ln -s /etc/services /tmp/ports-info
ttn@ttn:~/exercise/dir1/dir2$ cat /tmp/ports-info
# Network services, Internet style
#
# Note that it is presently the policy of IANA to assign a single well-known
# port number for both TCP and UDP; hence, officially ports have two entries
# even if the protocol doesn't support UDP operations.
#
# Updated from http://www.iana.org/assignments/port-numbers and other
# sources like http://www.freebsd.org/cgi/cvsweb.cgi/src/etc/services .
# New ports will be added on request if they have been officially assigned
# by IANA and used in the real-world or are needed by a debian package.
# If you need a huge list of used numbers please install the nmap package.

tcpmux      1/tcp                # TCP port service multiplexer
echo        7/tcp
echo        7/udp
discard     9/tcp            sink null
discard     9/udp            sink null
systat      11/tcp            users
daytime     13/tcp
daytime     13/udp
netstat     15/tcp
qotd        17/tcp            quote
msp         18/tcp            # message send protocol
msp         18/udp
chargen     19/tcp            ttytst source
chargen     19/udp            ttytst source
ftp-data    20/tcp
ftp         21/tcp
ftp         21/udp            fspd
ssh         22/tcp            # SSH Remote Login Protocol
telnet      23/tcp
smtp        25/tcp            mail
time        37/tcp            timserver
time        37/udp            timserver
rlo         39/udp            resource
```

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?

which xyz