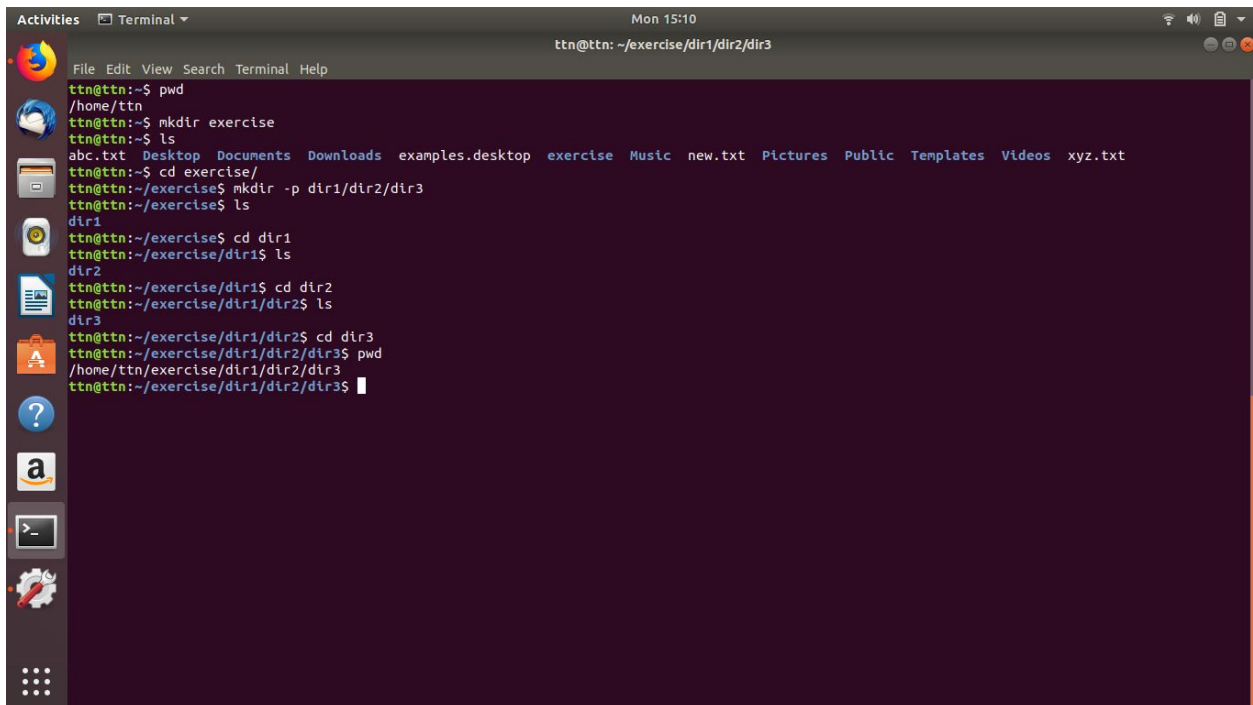
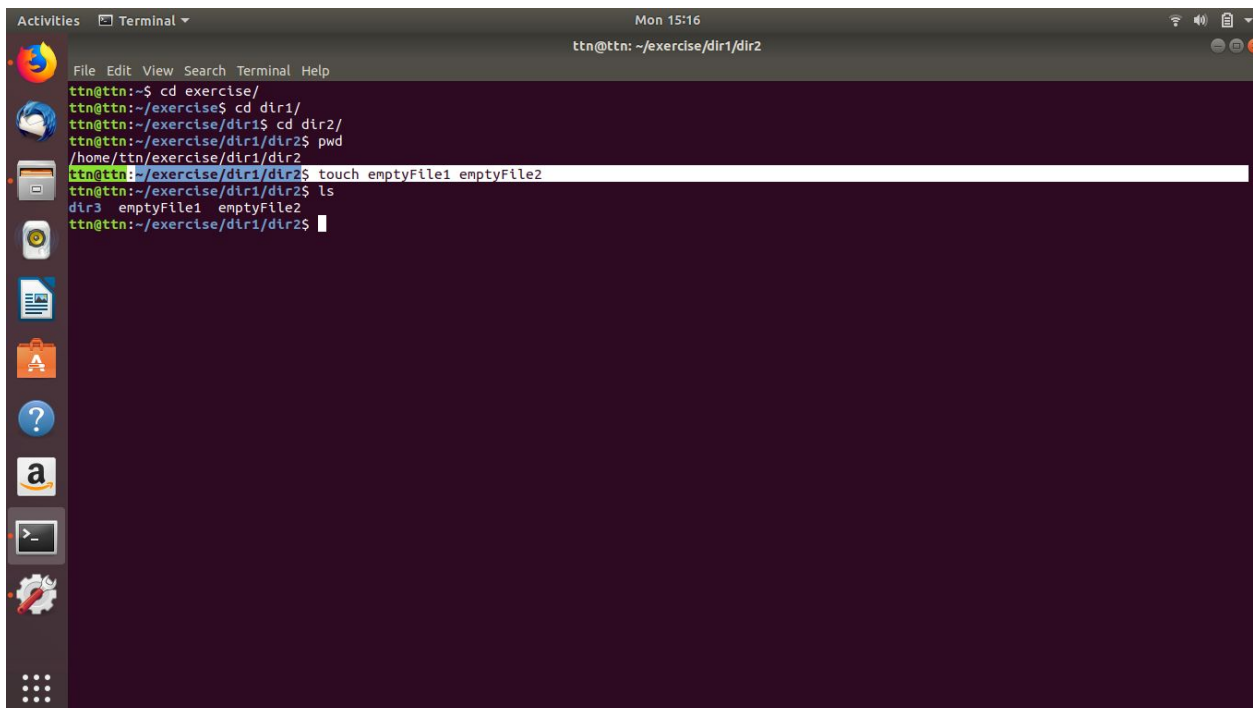


Question 1. Create a directory "exercise" inside your home directory and create nested (dir1/dir2/dir3) directory structure inside "exercise" with single command.

A terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Mon 15:10, ttn@ttn: ~/exercise/dir1/dir2/dir3). The terminal shows a series of commands to create a directory structure. The user starts in their home directory, creates a directory named "exercise", and then uses a single command to create the nested structure "dir1/dir2/dir3". The terminal output shows the user navigating through each directory level and confirming the creation of each subdirectory.

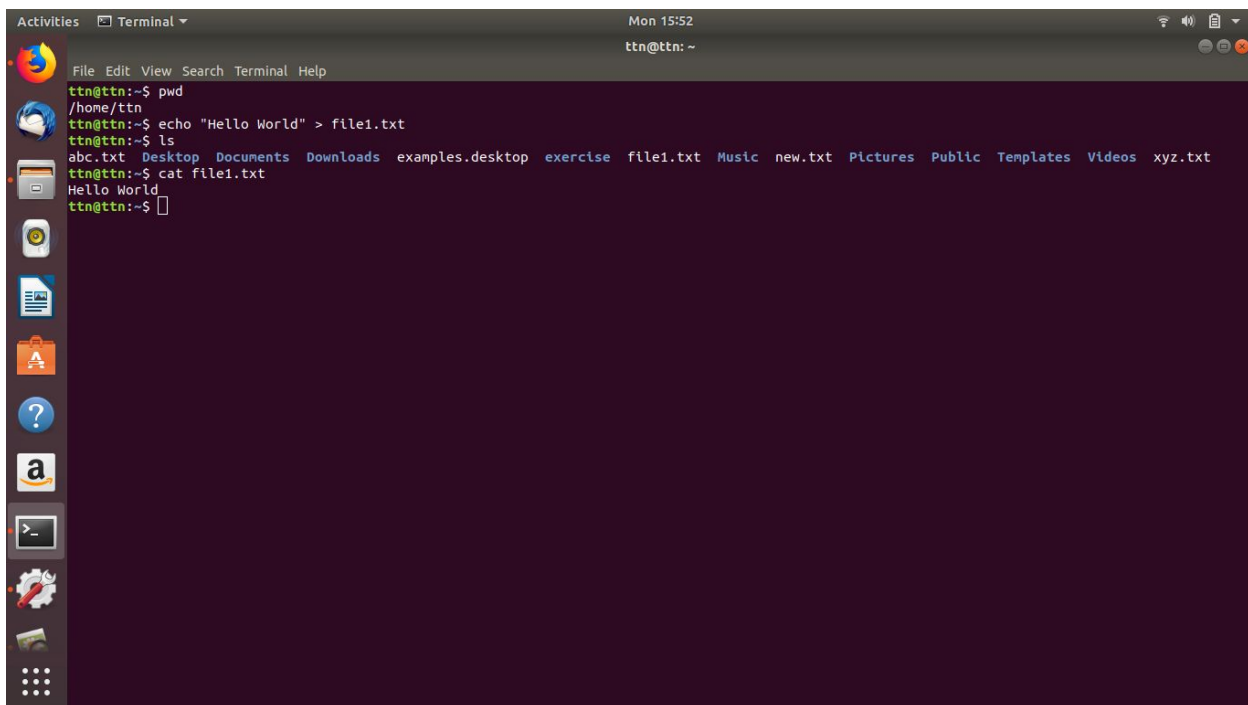
```
ttn@ttn:~$ pwd
/home/ttn
ttn@ttn:~$ mkdir exercise
ttn@ttn:~$ ls
abc.txt Desktop Documents Downloads examples.desktop exercise Music new.txt Pictures Public Templates Videos xyz.txt
ttn@ttn:~$ cd exercise/
ttn@ttn:~/exercise$ mkdir -p dir1/dir2/dir3
ttn@ttn:~/exercise$ ls
dir1
ttn@ttn:~/exercise$ cd dir1
ttn@ttn:~/exercise/dir1$ ls
dir2
ttn@ttn:~/exercise/dir1$ cd dir2
ttn@ttn:~/exercise/dir1/dir2$ ls
dir3
ttn@ttn:~/exercise/dir1/dir2$ cd dir3
ttn@ttn:~/exercise/dir1/dir2/dir3$ pwd
/home/ttn/exercise/dir1/dir2/dir3
ttn@ttn:~/exercise/dir1/dir2/dir3$
```

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

A terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Mon 15:16, ttn@ttn: ~/exercise/dir1/dir2). The terminal shows the user navigating to the "dir2" directory and then using a single command to create two empty files, "emptyFile1" and "emptyFile2". The terminal output shows the user's path and the successful execution of the "touch" command.

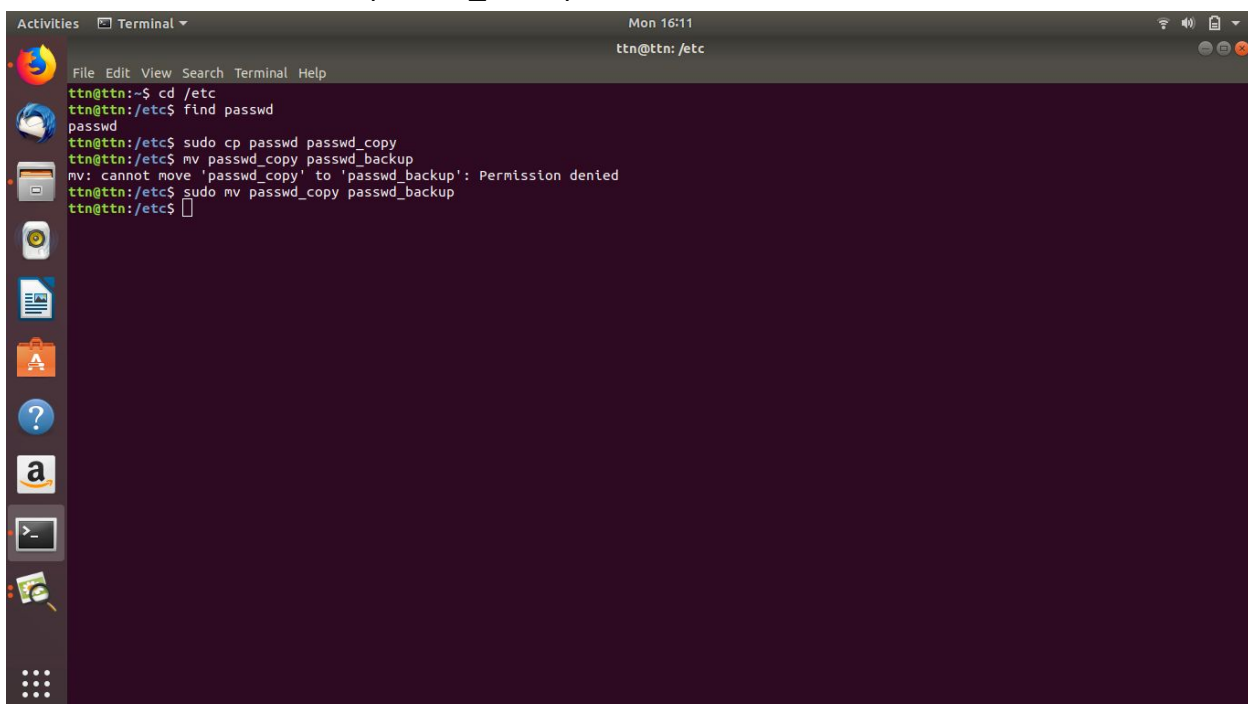
```
ttn@ttn:~$ cd exercise/
ttn@ttn:~/exercise$ cd dir1/
ttn@ttn:~/exercise/dir1$ cd dir2/
ttn@ttn:~/exercise/dir1/dir2$ pwd
/home/ttn/exercise/dir1/dir2
ttn@ttn:~/exercise/dir1/dir2$ touch emptyFile1 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$ ls
dir3 emptyFile1 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$
```

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



```
Activities Terminal Mon 15:52 ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ pwd
/home/ttn
ttn@ttn:~$ echo "Hello World" > file1.txt
ttn@ttn:~$ ls
abc.txt Desktop Documents Downloads examples.desktop exercise file1.txt Music new.txt Pictures Public Templates Videos xyz.txt
ttn@ttn:~$ cat file1.txt
Hello World
ttn@ttn:~$
```

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



```
Activities Terminal Mon 16:11 ttn@ttn: /etc
File Edit View Search Terminal Help
ttn@ttn:~$ cd /etc
ttn@ttn:/etc$ find passwd
passwd
ttn@ttn:/etc$ sudo cp passwd passwd_copy
ttn@ttn:/etc$ mv passwd_copy passwd_backup
mv: cannot move 'passwd_copy' to 'passwd_backup': Permission denied
ttn@ttn:/etc$ sudo mv passwd_copy passwd_backup
ttn@ttn:/etc$
```

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

```
Activities Terminal Mon 16:40
ttn@ttn: /etc

File Edit View Search Terminal Help

ttn@ttn: /etc$ 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
uuid:x:105:111:/run/uuid:/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
whoopsie: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
```

```
Activities Terminal Mon 16:13
ttn@ttn: /etc

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: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
uuid:x:105:111:/run/uuid:/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
whoopsie: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
:
```



```
Activities Terminal Mon 16:15
ttn@ttn: /etc

File Edit View Search Terminal Help

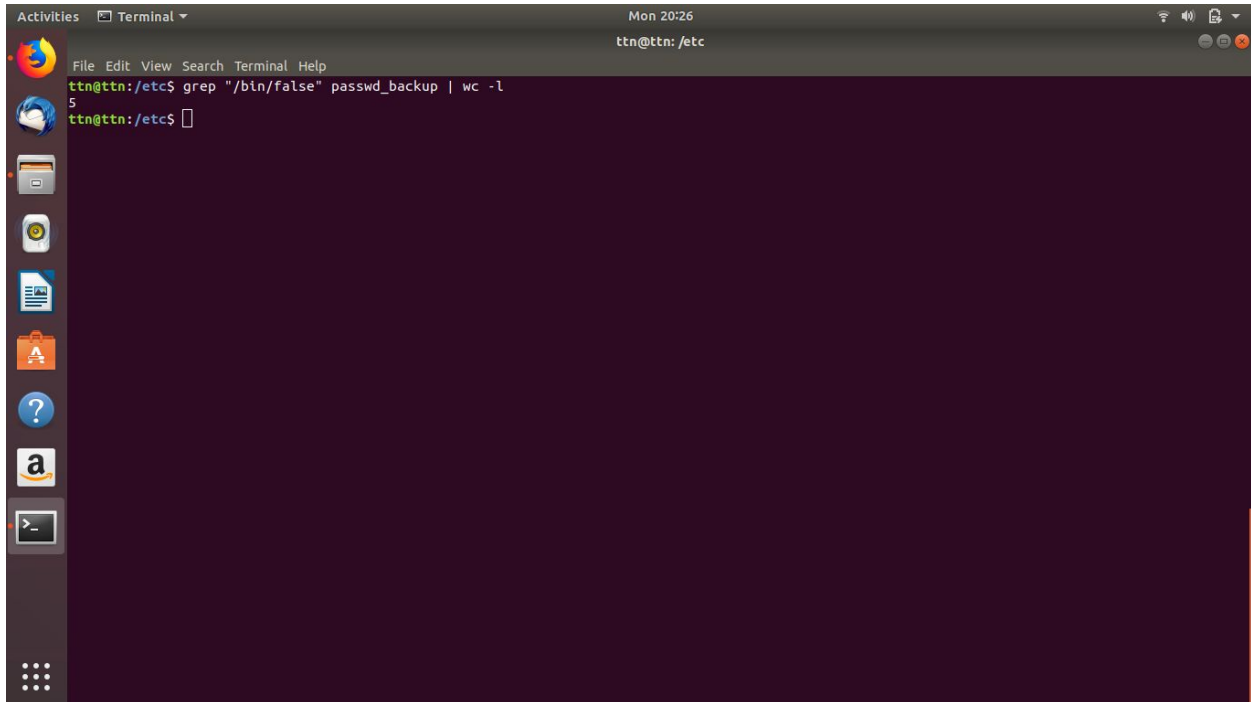
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
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
rtklt: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
whoopsie: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
--More-- (90%)
```

```
Activities Terminal Mon 20:10
ttn@ttn: /etc

File Edit View Search Terminal Help

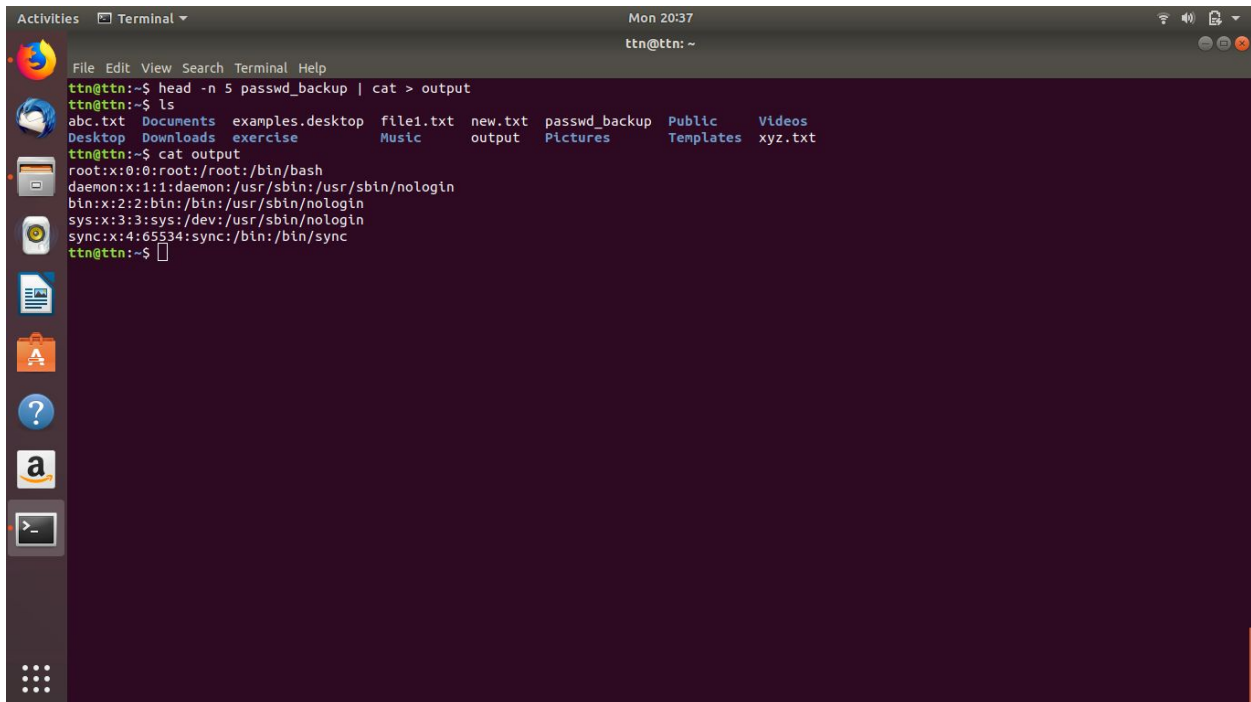
ttn@ttn: /etc$ strings passwd_backup
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
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: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
rtklt: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
whoopsie: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
```

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



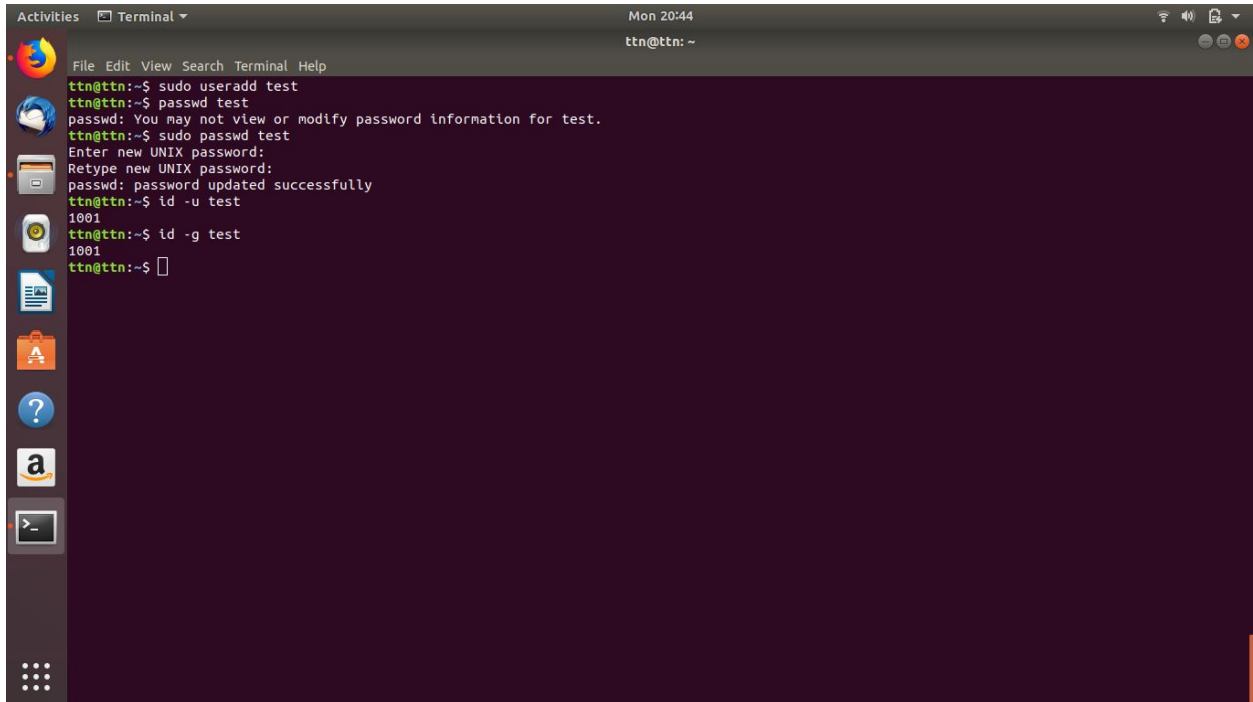
```
Activities Terminal Mon 20:26 ttn@ttn: /etc
File Edit View Search Terminal Help
ttn@ttn:/etc$ grep "/bin/false" passwd_backup | wc -l
5
ttn@ttn:/etc$
```

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



```
Activities Terminal Mon 20:37 ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ head -n 5 passwd_backup | cat > output
ttn@ttn:~$ ls
abc.txt  Documents  examples.desktop  file1.txt  new.txt  passwd_backup  Public  Videos
Desktop  Downloads  exercise         Music      output  Pictures      Templates  xyz.txt
ttn@ttn:~$ 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:~$
```

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

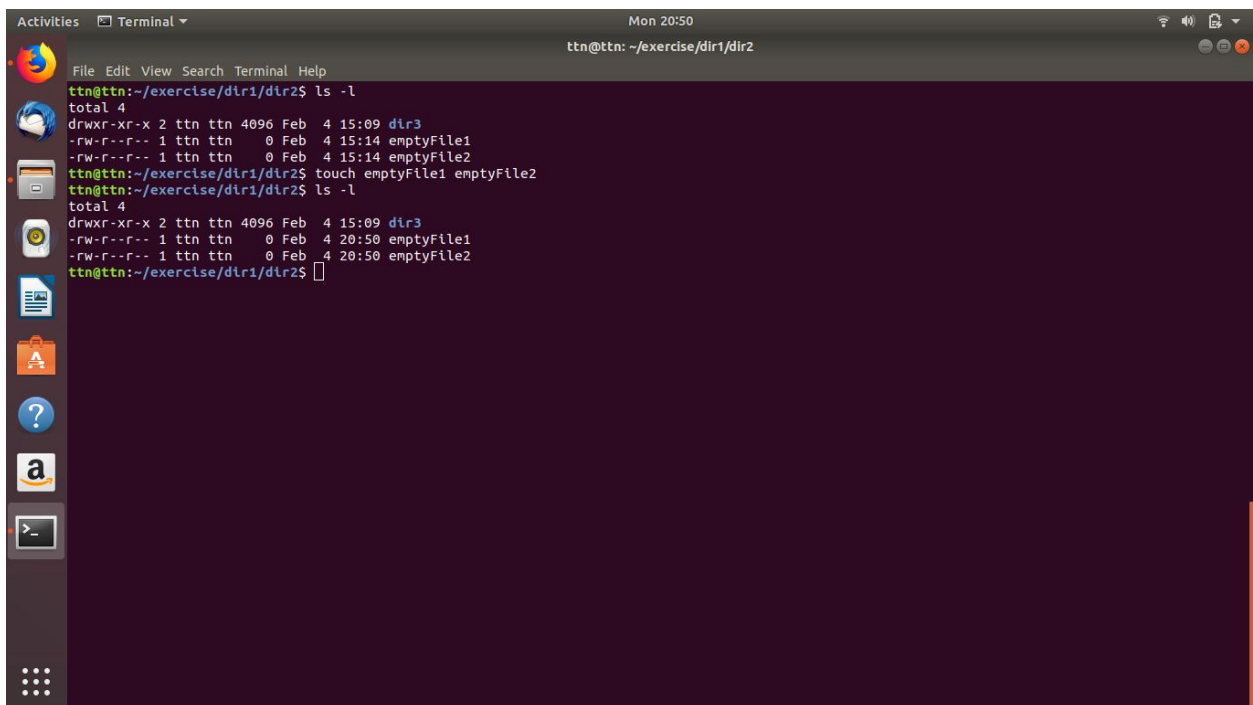


```
Mon 20:44
ttn@ttn: ~

File Edit View Search Terminal Help

ttn@ttn:~$ sudo useradd test
ttn@ttn:~$ passwd test
passwd: You may not view or modify password information for test.
ttn@ttn:~$ sudo passwd test
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
ttn@ttn:~$ id -u test
1001
ttn@ttn:~$ id -g test
1001
ttn@ttn:~$
```

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



```
Mon 20:50
ttn@ttn: ~/exercise/dir1/dir2

File Edit View Search Terminal Help

ttn@ttn:~/exercise/dir1/dir2$ ls -l
total 4
drwxr-xr-x 2 ttn ttn 4096 Feb  4 15:09 dir3
-rw-r--r-- 1 ttn ttn  0 Feb  4 15:14 emptyFile1
-rw-r--r-- 1 ttn ttn  0 Feb  4 15:14 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$ touch emptyFile1 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$ ls -l
total 4
drwxr-xr-x 2 ttn ttn 4096 Feb  4 15:09 dir3
-rw-r--r-- 1 ttn ttn  0 Feb  4 20:50 emptyFile1
-rw-r--r-- 1 ttn ttn  0 Feb  4 20:50 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$
```

Question 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

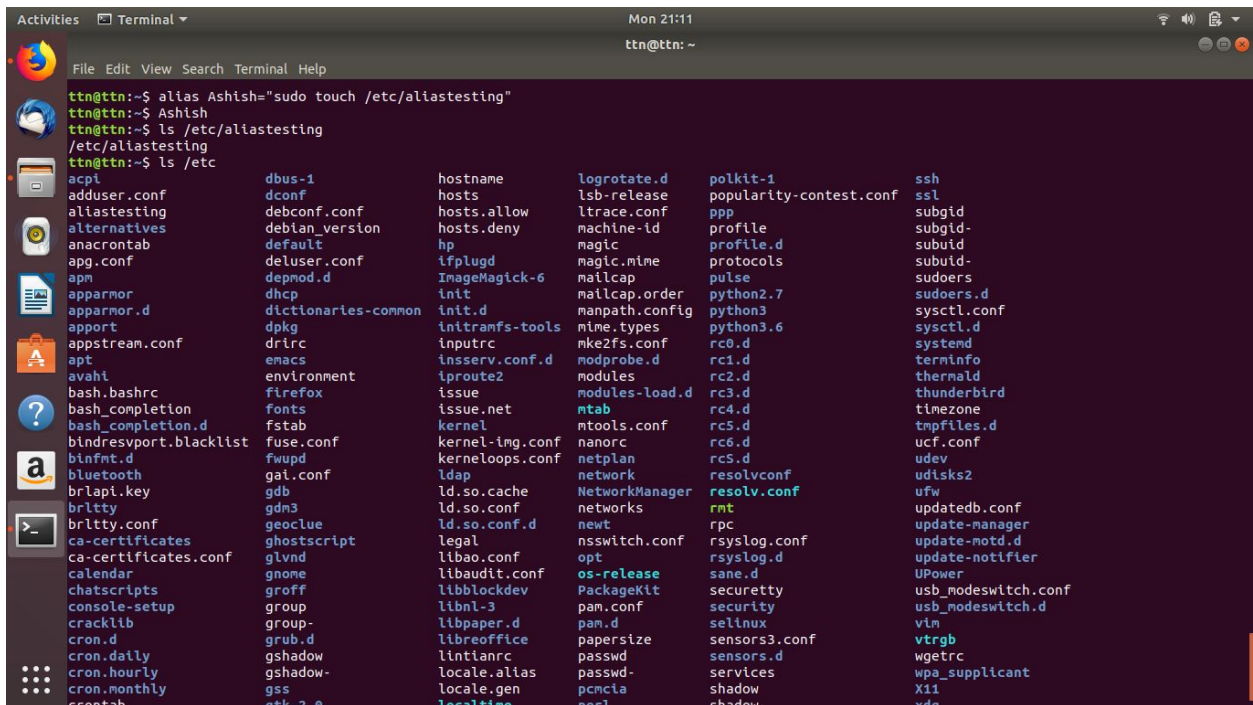
Make the file editable to the world so that test user can access it.Revert the changes after verification

Change the ownership to edit the file.

```
Activities Terminal Mon 23:20 ttn@ttn: ~
File Edit View Search Terminal Help
-rw-r--r-- 1 ttn ttn 8980 Jan 28 12:07 examples.desktop
drwxr-xr-x 3 ttn ttn 4096 Feb 4 15:09 exercise
-rw-r--r-- 1 ttn ttn 12 Feb 4 15:40 file1.txt
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Music
-rw-r--r-- 1 ttn ttn 103 Feb 4 13:13 new.txt
-rw-rw-rw- 1 ttn ttn 189 Feb 4 20:37 output
-rw-rw-rw- 1 ttn ttn 10240 Feb 4 22:07 output.tar.gz
-rw-rw-rw- 1 ttn ttn 2398 Feb 4 20:36 passwd_backup
drwxr-xr-x 2 ttn ttn 4096 Feb 4 23:16 Pictures
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Public
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Templates
-rw-rw-rw- 1 ttn ttn 1313 Feb 4 22:10 'url?sa=i'
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Videos
-rw-rw-rw- 1 ttn ttn 680 Feb 4 22:10 wget-log
-rw-r--r-- 1 ttn ttn 92 Feb 4 12:39 xyz.txt
ttn@ttn:~$ sudo chown test output
ttn@ttn:~$ ls -l
total 92
-rw-r--r-- 1 ttn ttn 7 Feb 4 12:40 abc.txt
drwxr-xr-x 2 ttn ttn 4096 Feb 4 22:12 Desktop
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Documents
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Downloads
-rw-r--r-- 1 ttn ttn 8980 Jan 28 12:07 examples.desktop
drwxr-xr-x 3 ttn ttn 4096 Feb 4 15:09 exercise
-rw-r--r-- 1 ttn ttn 12 Feb 4 15:40 file1.txt
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Music
-rw-r--r-- 1 ttn ttn 103 Feb 4 13:13 new.txt
-rw-rw-rw- 1 test ttn 189 Feb 4 20:37 output
-rw-rw-rw- 1 ttn ttn 10240 Feb 4 22:07 output.tar.gz
-rw-rw-rw- 1 ttn ttn 2398 Feb 4 20:36 passwd_backup
drwxr-xr-x 2 ttn ttn 4096 Feb 4 23:16 Pictures
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Public
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Templates
-rw-rw-rw- 1 ttn ttn 1313 Feb 4 22:10 'url?sa=i'
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Videos
-rw-rw-rw- 1 ttn ttn 680 Feb 4 22:10 wget-log
-rw-r--r-- 1 ttn ttn 92 Feb 4 12:39 xyz.txt
ttn@ttn:~$
```

```
Activities Terminal Mon 21:01 ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ sudo usermod -G test -a ttn
[sudo] password for ttn:
ttn@ttn:~$ ls -l
total 72
-rw-r--r-- 1 ttn ttn 7 Feb 4 12:40 abc.txt
drwxr-xr-x 2 ttn ttn 4096 Feb 4 12:08 Desktop
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Documents
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Downloads
-rw-r--r-- 1 ttn ttn 8980 Jan 28 12:07 examples.desktop
drwxr-xr-x 3 ttn ttn 4096 Feb 4 15:09 exercise
-rw-r--r-- 1 ttn ttn 12 Feb 4 15:40 file1.txt
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Music
-rw-r--r-- 1 ttn ttn 103 Feb 4 13:13 new.txt
-rw-r--r-- 1 ttn ttn 189 Feb 4 20:37 output
-rw-rw-rw- 1 ttn ttn 2398 Feb 4 20:36 passwd_backup
drwxr-xr-x 2 ttn ttn 4096 Feb 4 20:51 Pictures
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Public
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Templates
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Videos
-rw-r--r-- 1 ttn ttn 92 Feb 4 12:39 xyz.txt
ttn@ttn:~$ sudo chmod 666 output
ttn@ttn:~$ ls -l
total 72
-rw-r--r-- 1 ttn ttn 7 Feb 4 12:40 abc.txt
drwxr-xr-x 2 ttn ttn 4096 Feb 4 12:08 Desktop
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Documents
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Downloads
-rw-r--r-- 1 ttn ttn 8980 Jan 28 12:07 examples.desktop
drwxr-xr-x 3 ttn ttn 4096 Feb 4 15:09 exercise
-rw-r--r-- 1 ttn ttn 12 Feb 4 15:40 file1.txt
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Music
-rw-r--r-- 1 ttn ttn 103 Feb 4 13:13 new.txt
-rw-rw-rw- 1 ttn ttn 189 Feb 4 20:37 output
-rw-rw-rw- 1 ttn ttn 2398 Feb 4 20:36 passwd_backup
drwxr-xr-x 2 ttn ttn 4096 Feb 4 20:51 Pictures
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Public
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Templates
drwxr-xr-x 2 ttn ttn 4096 Jan 28 12:16 Videos
ttn@ttn:~$
```


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

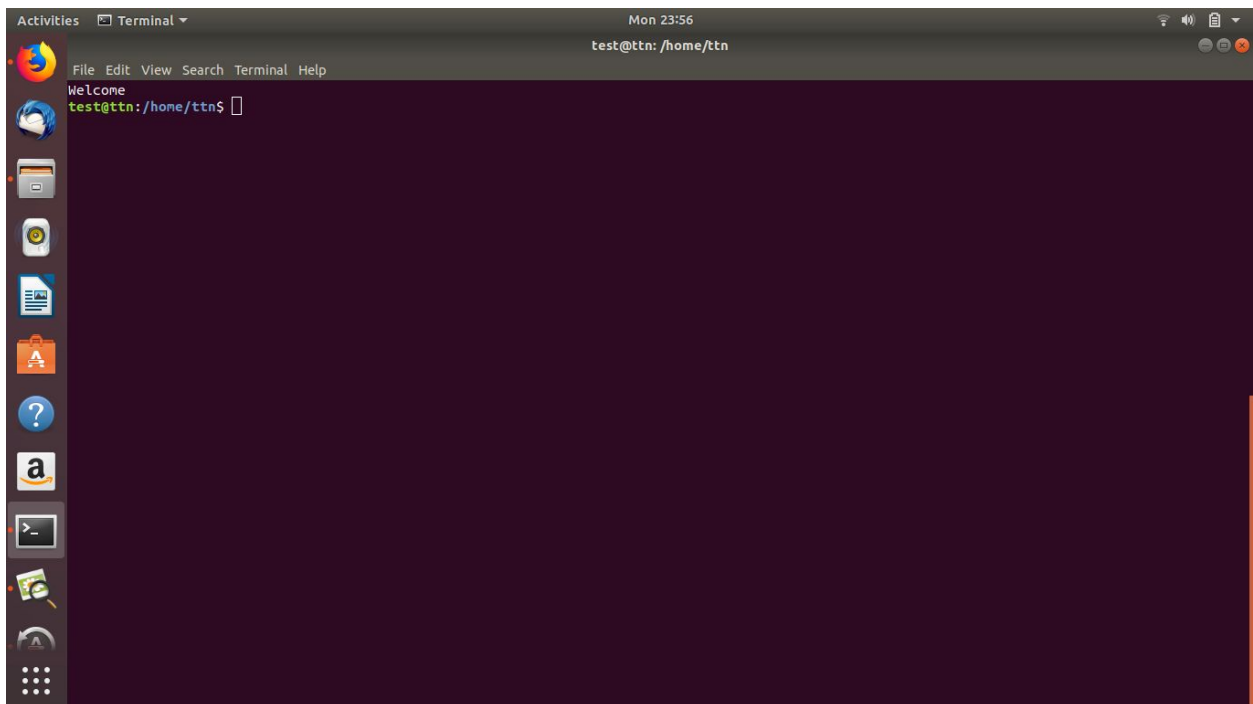


```
Mon 21:11
ttn@ttn: ~

File Edit View Search Terminal Help

ttn@ttn:~$ alias Ashish="sudo touch /etc/aliastesting"
ttn@ttn:~$ Ashish
ttn@ttn:~$ ls /etc/aliastesting
ttn@ttn:~$ ls /etc
acpi          dbus-1        hostname      logrotate.d   polkit-1      ssh
adduser.conf dconf         hosts         lsb-release   popularity-contest.conf ssl
aliastesting debconf.conf hosts.allow   ltrace.conf   ppp           subgid
alternatives debconf       hosts.deny    machine-id    profile       subgid-
anacrontab   default      hp            magic          profile.d     subuid
apg.conf     deluser.conf ifplugd       magic.mime    protocols     sudoers
apm          depmod.d      init          mailcap        pulse         sudoers.d
apparmor     dhcp          dictionaries-common init           manpath.config python2.7     sysctl.conf
apparmor.d   dpkg          inputrc       initscripts   mime.types    python3       systemd
appstream.conf drirc         inserv.conf.d modprobe.d     rc0.d         terminfo
apt          environment   issue         modules        rc1.d         thernald
avahi        firefox       issue.net     modules-load.d rc3.d         thunderbird
bash.bashrc  fonts         kernel        ntfs           rc4.d         timezone
bash_completion fstab         kernel-img.conf nttools.conf   rc5.d         tmpfiles.d
bindresport.blacklist fuse.conf     kernel-loops.conf nttools.conf   rc6.d         ucf.conf
binfmt.d     fwupd         ld            ld.so.cache   NetworkManager resolvconf    udev
bluetooth    gai.conf     ld.so         ld.so.conf    network        resolvconf    udisks2
brlapi.key   gdb          ld.so.conf    ld.so.conf.d  networks        resolvconf    ufw
brltty       gdm3         ld.so.conf.d  legal         nsswitch.conf   sane.d        updatedb.conf
brltty.conf geoclue      libao.conf    libaudit.conf os-release      securetty     update-manager
ca-certificates glvnd        libblockdev   libl-3         PackageKit      security      update-notd.d
ca-certificates.conf gnome         libpaper.d    liboffice     pam.conf        selinux       update-notifier
calendar     groff        libpaper.d    liboffice     pam.d           sensors3.conf usb_modeswitch.conf
chatscripts  group        libreoffice   lintianrc     passw           services      usb_modeswitch.d
console-setup group-        grub.d        locale.alias  passwd          shadow        vim
cracklib     group-       gshadow       locale.gen    pcmla           shadow-       vtrgb
cron.d       grub.d       gshadow-      locale.gen    perl            shadow-       wgetrc
cron.daily   gss          gss           localtime     perl            shadow-       wpa_supplicant
cron.hourly  gtk-2.0     gtk-2.0       localtime     perl            shadow-       x11
cron.monthly gss          gss           localtime     perl            shadow-       xdm
crontab      gtk-2.0     gtk-2.0       localtime     perl            shadow-       xdm
```

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

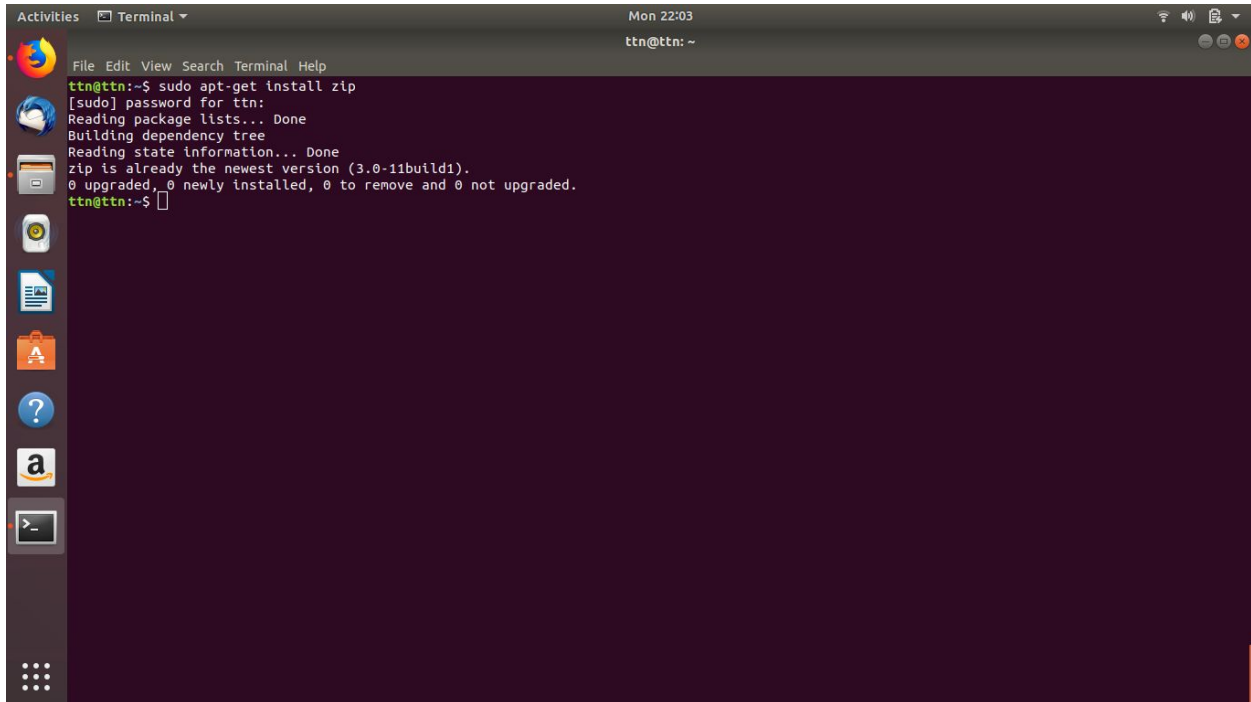


```
Mon 23:56
test@ttn: /home/ttn

File Edit View Search Terminal Help

Welcome
test@ttn: /home/ttn$
```

Question 13. Install "zip" package.

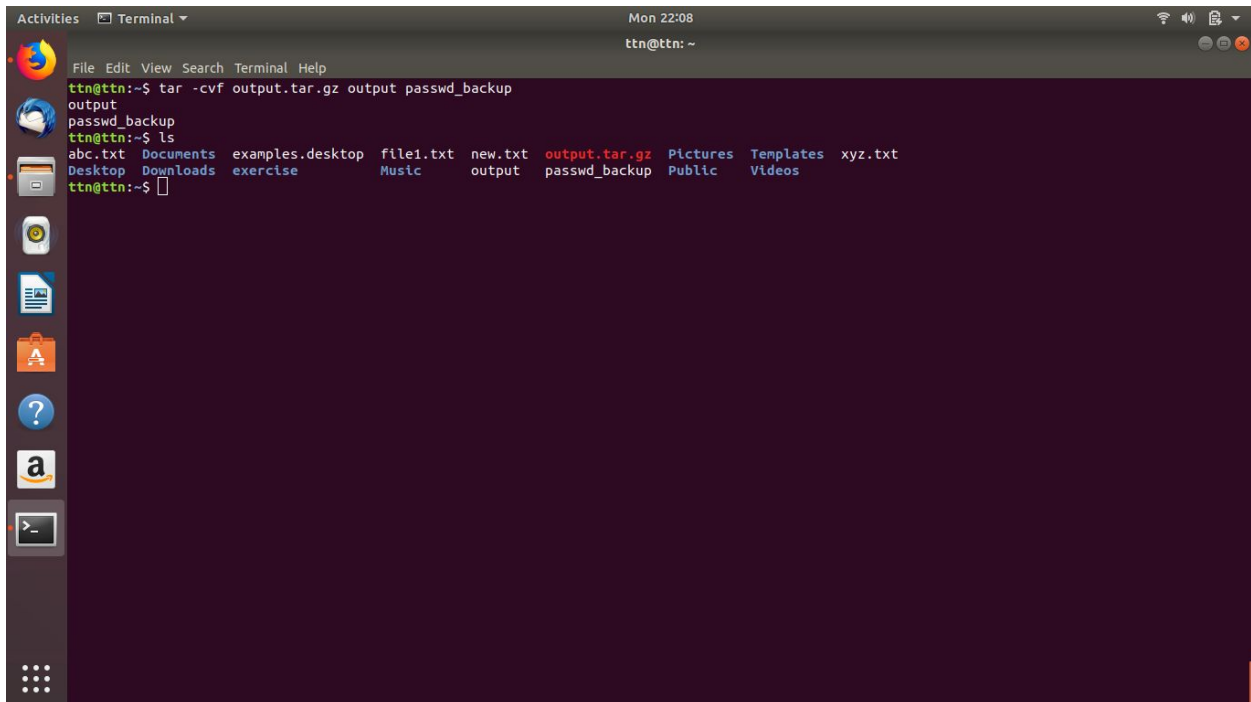


```
Activities  Terminal  Mon 22:03
ttn@ttn: ~

File Edit View Search Terminal Help

ttn@ttn:~$ sudo apt-get 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 0 not upgraded.
ttn@ttn:~$
```

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



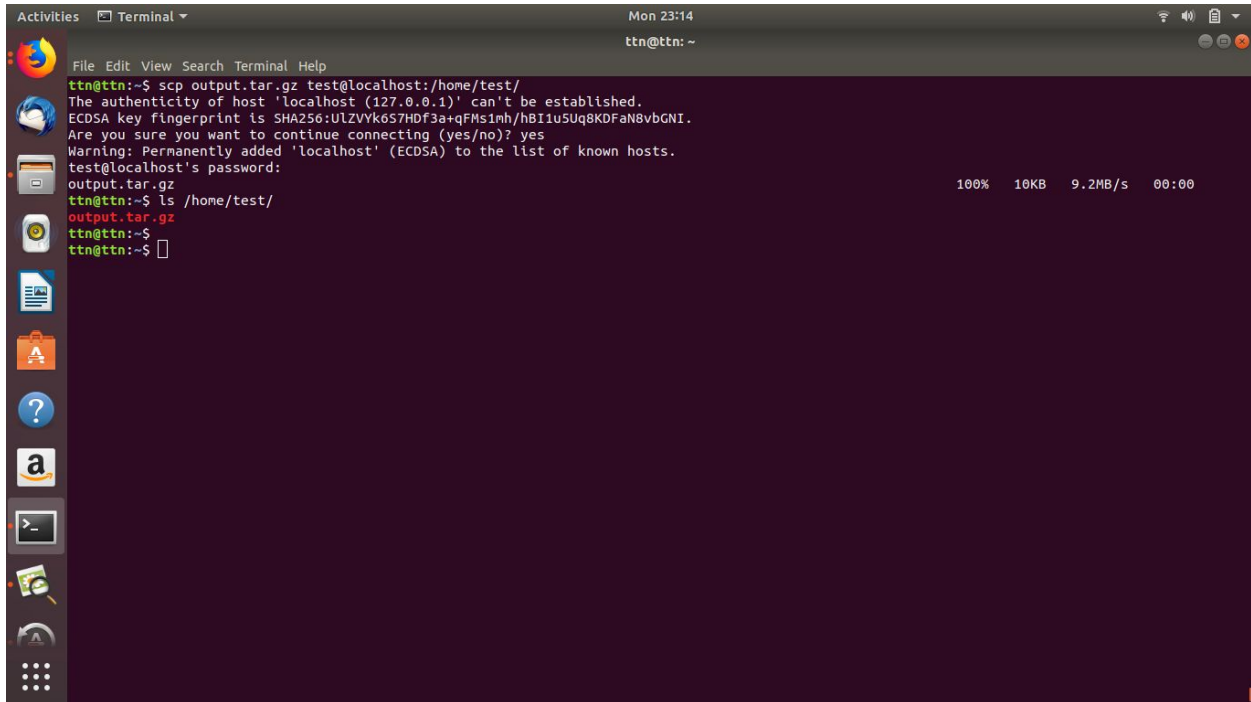
```
Activities  Terminal  Mon 22:08
ttn@ttn: ~

File Edit View Search Terminal Help

ttn@ttn:~$ tar -cvf output.tar.gz output passwd_backup
output
passwd_backup
ttn@ttn:~$ ls
abc.txt  Documents  examples.desktop  file1.txt  new.txt  output.tar.gz  Pictures  Templates  xyz.txt
Desktop  Downloads  exercise          Music      output   passwd_backup  Public    Videos

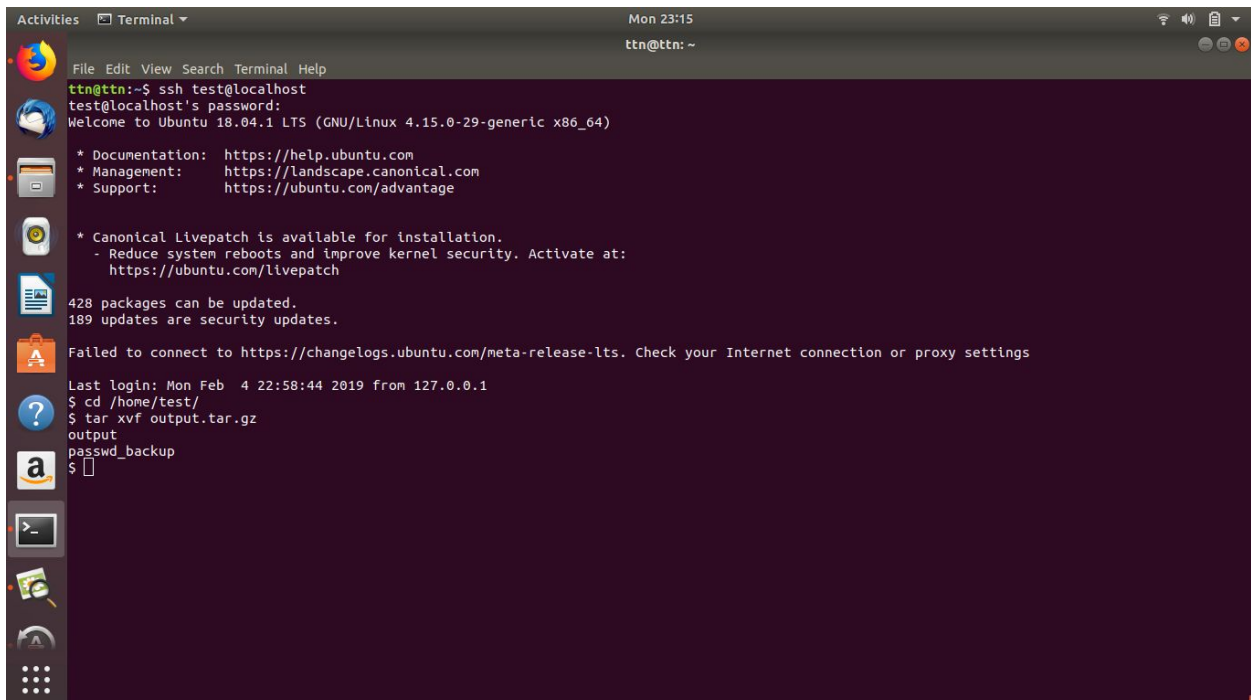
ttn@ttn:~$
```

Question_15.scp this file to test user

A terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Mon 23:14, ttn@ttn: ~). The terminal shows the execution of an scp command to copy a file to a local test user's home directory. It displays a warning about the host's authenticity, a confirmation to continue, and the successful completion of the file transfer with a progress bar at 100%.

```
File Edit View Search Terminal Help
ttn@ttn:~$ scp output.tar.gz test@localhost:/home/test/
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:ULZVYk6S7Hdf3a+qFMs1mh/hBI1u5Uq8KDFa8vbGNI.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
test@localhost's password:
output.tar.gz 100% 10KB 9.2MB/s 00:00
ttn@ttn:~$ ls /home/test/
output.tar.gz
ttn@ttn:~$
```

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

A terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Mon 23:15, ttn@ttn: ~). The terminal shows the execution of an ssh command to log into a remote server. It displays the Ubuntu login banner, system information, and a list of updates. The user then navigates to the /home/test/ directory and extracts the tar.gz file using the tar command.

```
File Edit View Search Terminal Help
ttn@ttn:~$ ssh test@localhost
test@localhost's password:
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-29-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

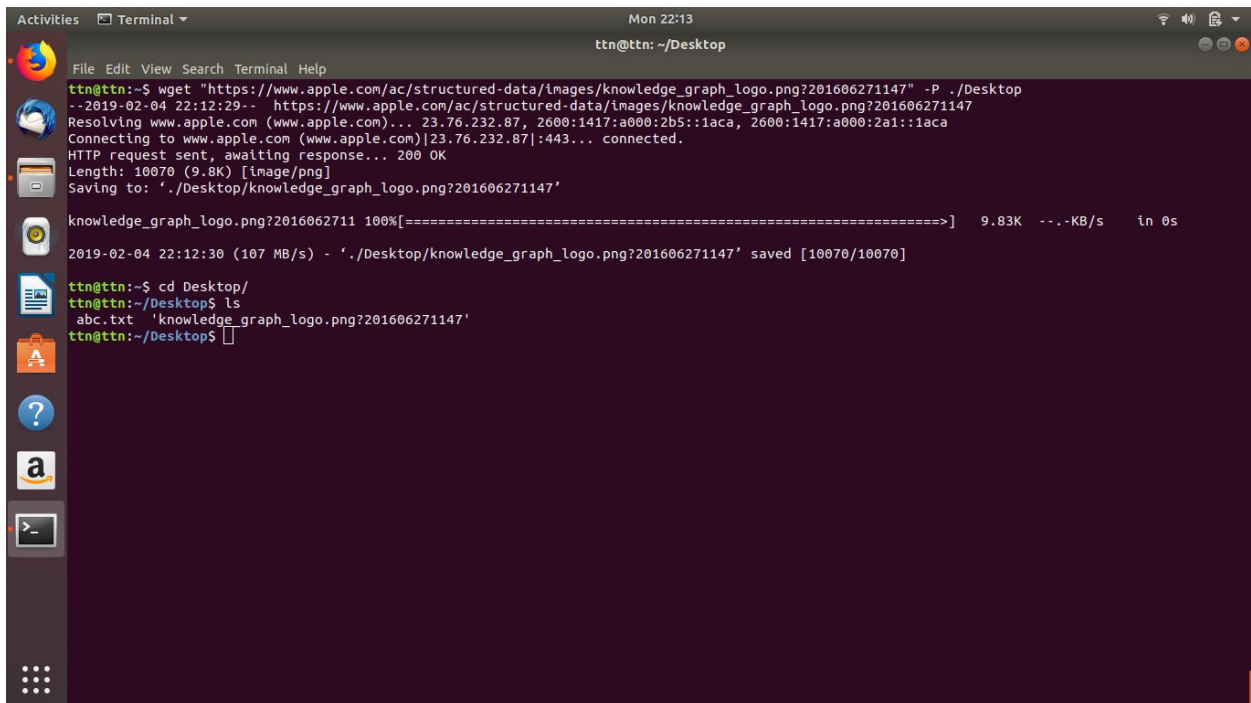
 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

428 packages can be updated.
189 updates are security updates.

Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings

Last login: Mon Feb  4 22:58:44 2019 from 127.0.0.1
$ cd /home/test/
$ tar xvf output.tar.gz
output
passwd_backup
$
```

Question 17. Download any image from web and move to desktop



```
Mon 22:13
ttn@ttn: ~/Desktop

File Edit View Search Terminal Help

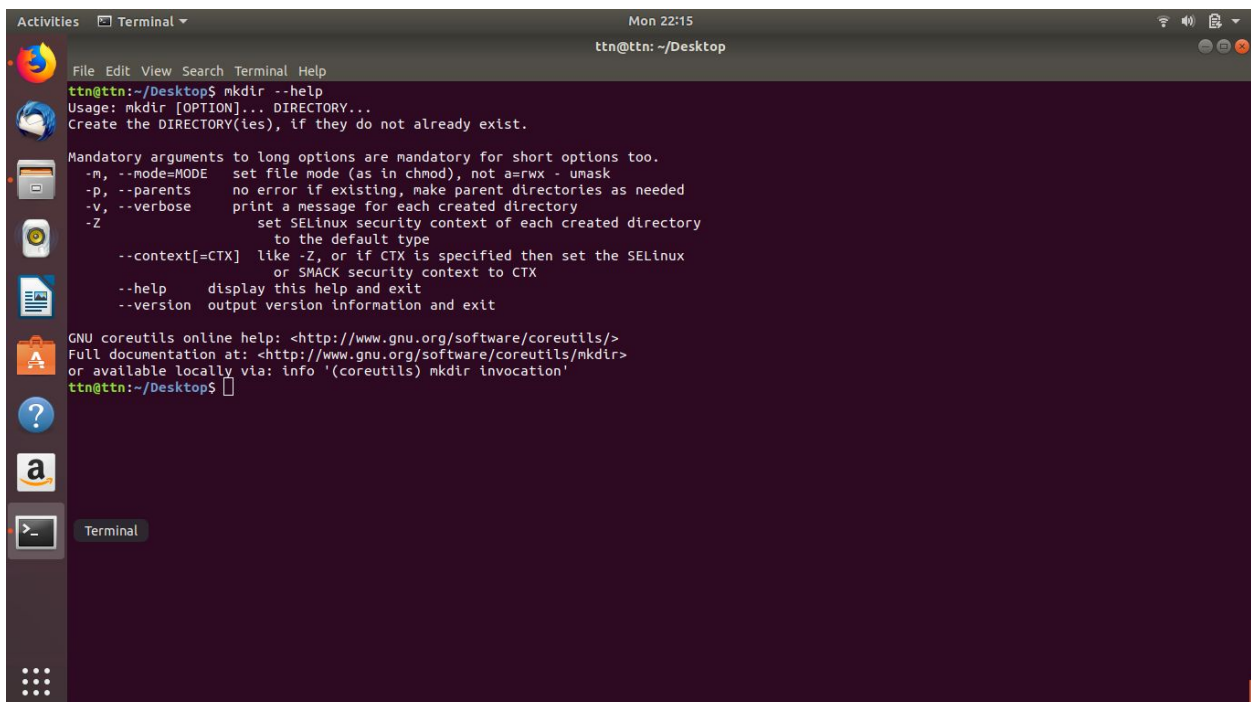
ttn@ttn:~$ wget "https://www.apple.com/ac/structured-data/images/knowledge_graph_logo.png?201606271147" -P ./Desktop
--2019-02-04 22:12:29-- https://www.apple.com/ac/structured-data/images/knowledge_graph_logo.png?201606271147
Resolving www.apple.com (www.apple.com)... 23.76.232.87, 2600:1417:a000:2b5::1aca, 2600:1417:a000:2a1::1aca
Connecting to www.apple.com (www.apple.com)|23.76.232.87|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10070 (9.8K) [image/png]
Saving to: './Desktop/knowledge_graph_logo.png?201606271147'

knowledge_graph_logo.png?2016062711 100%[=====] 9.83K --.-KB/s in 0s

2019-02-04 22:12:30 (107 MB/s) - './Desktop/knowledge_graph_logo.png?201606271147' saved [10070/10070]

ttn@ttn:~$ cd Desktop/
ttn@ttn:~/Desktop$ ls
abc.txt knowledge_graph_logo.png?201606271147
ttn@ttn:~/Desktop$
```

Question 18. How to get help of commands usages.



```
Mon 22:15
ttn@ttn: ~/Desktop

File Edit View Search Terminal Help

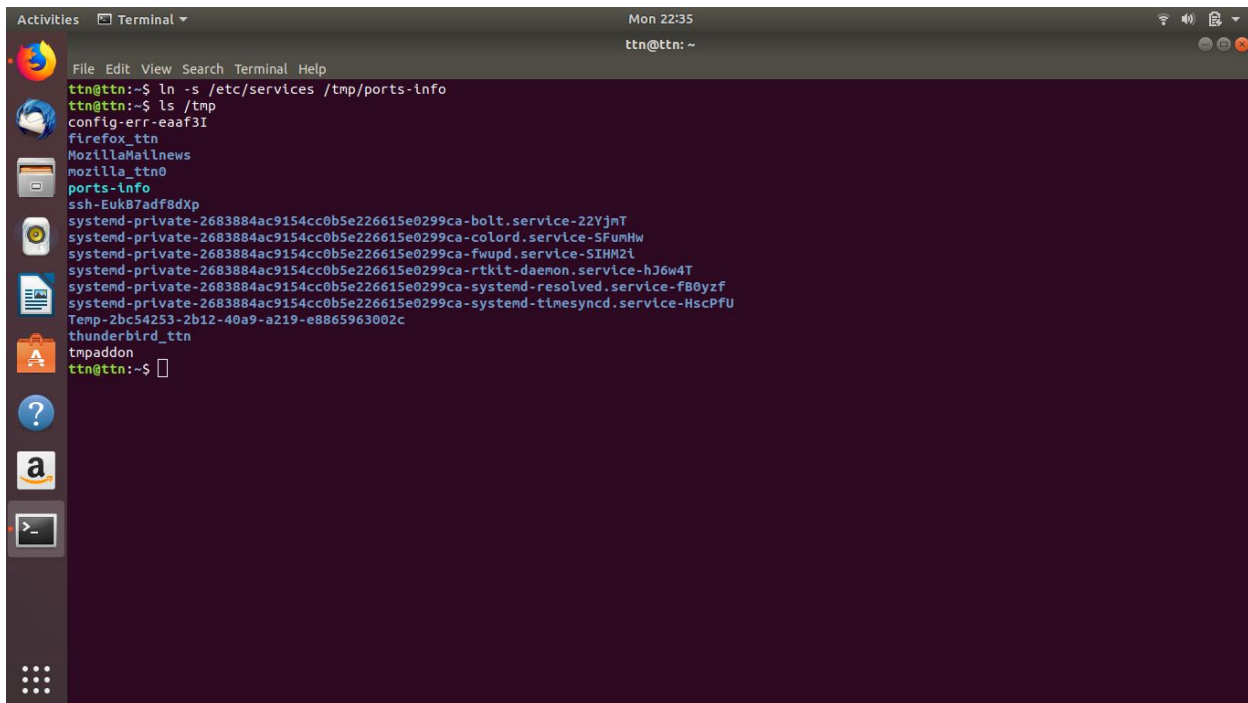
ttn@ttn:~/Desktop$ mkdir --help
Usage: mkdir [OPTION]... DIRECTORY...
Create the DIRECTORY(ies), if they do not already exist.

Mandatory arguments to long options are mandatory for short options too.
  -m, --mode=MODE    set file mode (as in chmod), not a=rwx - umask
  -p, --parents       no error if existing, make parent directories as needed
  -v, --verbose       print a message for each created directory
  -Z                 set SELinux security context of each created directory
                     to the default type
  --context[=CTX]    like -Z, or if CTX is specified then set the SELinux
                     or SMACK security context to CTX
  --help             display this help and exit
  --version          output version information and exit

GNU coreutils online help: <http://www.gnu.org/software/coreutils/>
Full documentation at: <http://www.gnu.org/software/coreutils/mkdir>
or available locally via: info '(coreutils) mkdir invocation'

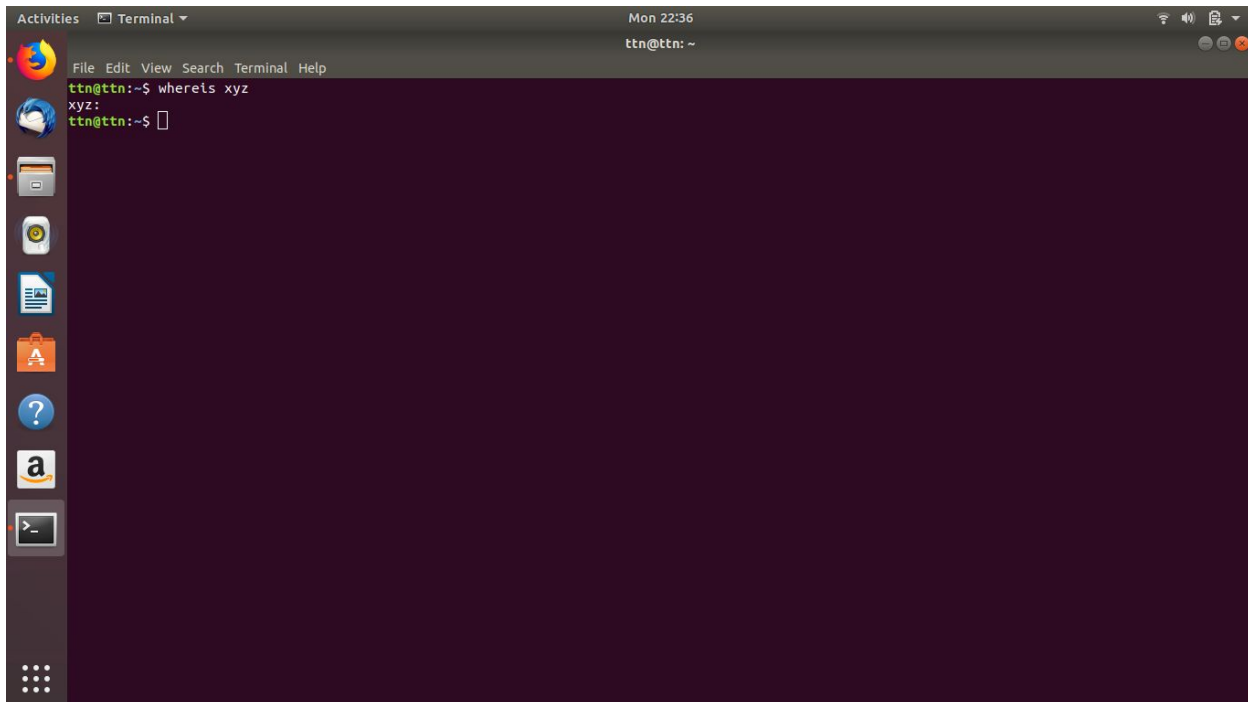
ttn@ttn:~/Desktop$
```

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



```
Activities  Terminal  Mon 22:35
ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ ln -s /etc/services /tmp/ports-info
ttn@ttn:~$ ls /tmp
config-err-eaaf3I
firefox_ttn
MozillaMailnews
mozilla_ttn0
ports-info
ssh-EukB7adf8dXp
systemd-private-2683884ac9154cc0b5e226615e0299ca-bolt.service-22YjnT
systemd-private-2683884ac9154cc0b5e226615e0299ca-color.service-SFunHw
systemd-private-2683884ac9154cc0b5e226615e0299ca-fwupd.service-SIHM2l
systemd-private-2683884ac9154cc0b5e226615e0299ca-rtkit-daemon.service-hJ6w4T
systemd-private-2683884ac9154cc0b5e226615e0299ca-systemd-resolved.service-F80yzf
systemd-private-2683884ac9154cc0b5e226615e0299ca-systemd-timesyncd.service-HscPFU
Temp-2bc54253-2b12-40a9-a219-e8865963002c
thunderbird_ttn
tmpaddon
ttn@ttn:~$
```

Question 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?



```
Activities  Terminal  Mon 22:36
ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ whereis xyz
xyz:
ttn@ttn:~$
```