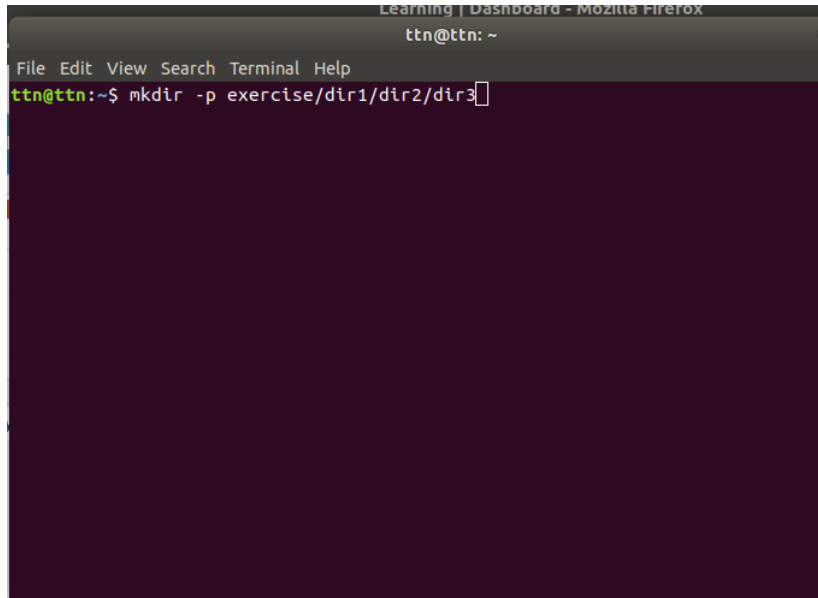


Introduction To Linux

Q1)

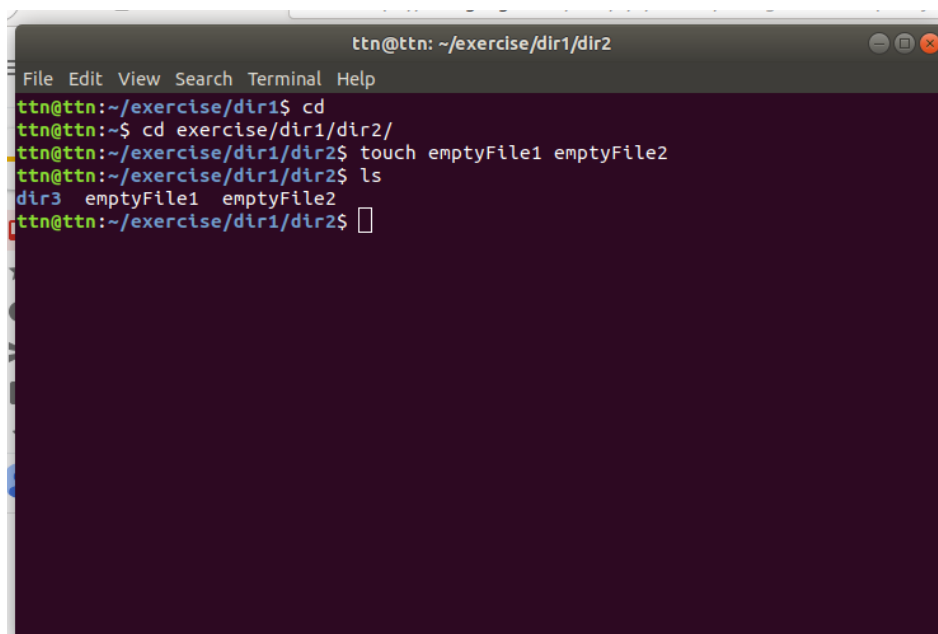
Create a directory "exercise" inside your home directory and create nested(dir1/dir2/dir3) directory structure inside "exercise" with single command.

A terminal window titled "Learning | Dashboard - Mozilla Firefox" with the prompt "ttn@ttn: ~". The command "mkdir -p exercise/dir1/dir2/dir3" is entered and executed, creating the nested directory structure. The terminal has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help".

```
ttn@ttn: ~  
File Edit View Search Terminal Help  
ttn@ttn:~$ mkdir -p exercise/dir1/dir2/dir3
```

Q2)

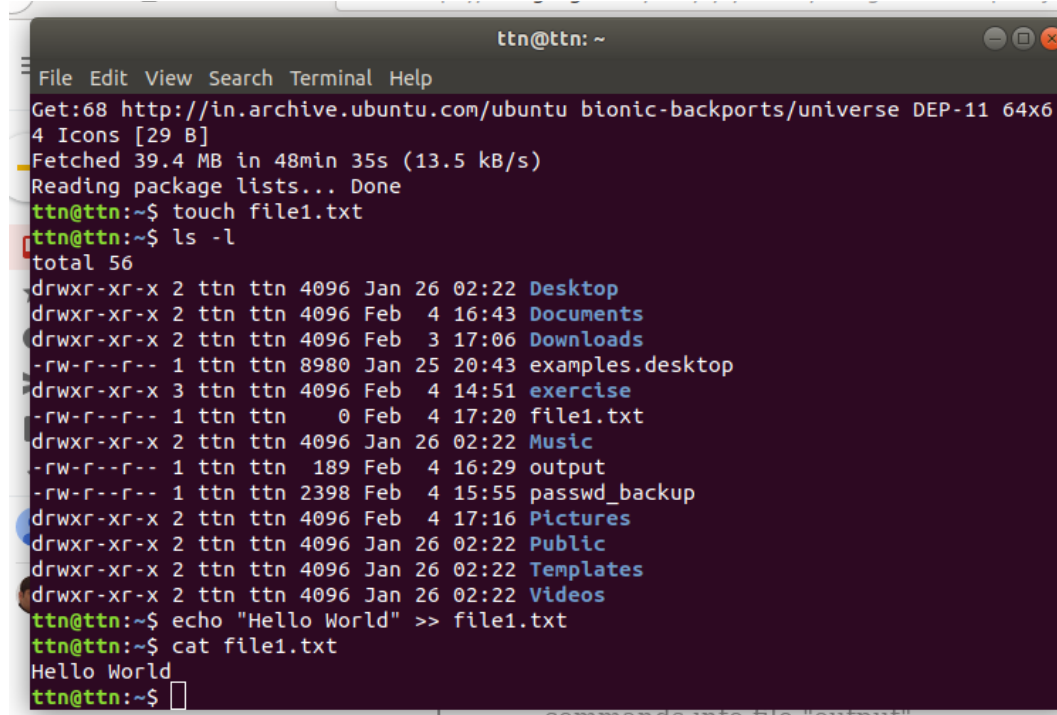
Create two empty files inside dir2 directory: emptyFile1,emptyFile2 in single command

A terminal window titled "ttn@ttn: ~/exercise/dir1/dir2" with the prompt "ttn@ttn: ~/exercise/dir1/dir2". The commands "cd", "cd exercise/dir1/dir2/", "touch emptyFile1 emptyFile2", and "ls" are entered and executed. The "ls" command shows the output "dir3 emptyFile1 emptyFile2". The terminal has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help".

```
ttn@ttn: ~/exercise/dir1/dir2  
File Edit View Search Terminal Help  
ttn@ttn:~/exercise/dir1$ cd  
ttn@ttn:~$ cd 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$
```

Q3)

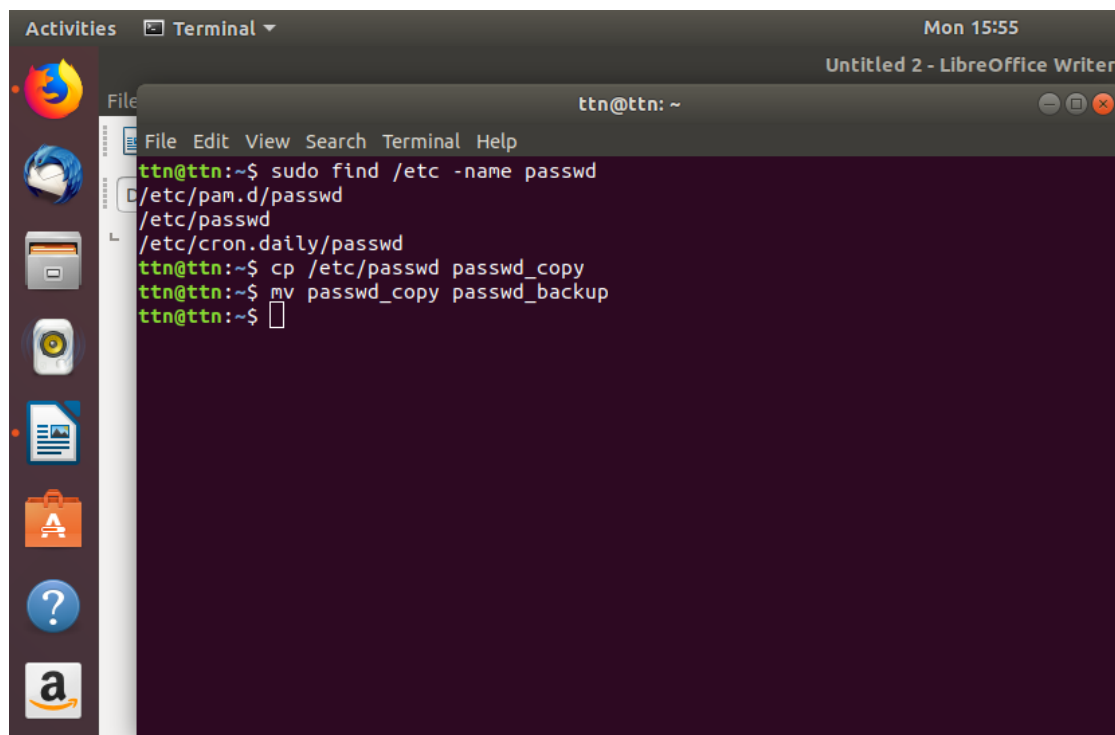
Create one file file1.txt containing text "hello world" and save it.



```
ttn@ttn: ~  
File Edit View Search Terminal Help  
Get:68 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe DEP-11 64x6  
4 Icons [29 B]  
Fetched 39.4 MB in 48min 35s (13.5 kB/s)  
Reading package lists... Done  
ttn@ttn:~$ touch file1.txt  
ttn@ttn:~$ ls -l  
total 56  
drwxr-xr-x 2 ttn ttn 4096 Jan 26 02:22 Desktop  
drwxr-xr-x 2 ttn ttn 4096 Feb  4 16:43 Documents  
drwxr-xr-x 2 ttn ttn 4096 Feb  3 17:06 Downloads  
-rw-r--r-- 1 ttn ttn 8980 Jan 25 20:43 examples.desktop  
drwxr-xr-x 3 ttn ttn 4096 Feb  4 14:51 exercise  
-rw-r--r-- 1 ttn ttn    0 Feb  4 17:20 file1.txt  
drwxr-xr-x 2 ttn ttn 4096 Jan 26 02:22 Music  
-rw-r--r-- 1 ttn ttn  189 Feb  4 16:29 output  
-rw-r--r-- 1 ttn ttn 2398 Feb  4 15:55 passwd_backup  
drwxr-xr-x 2 ttn ttn 4096 Feb  4 17:16 Pictures  
drwxr-xr-x 2 ttn ttn 4096 Jan 26 02:22 Public  
drwxr-xr-x 2 ttn ttn 4096 Jan 26 02:22 Templates  
drwxr-xr-x 2 ttn ttn 4096 Jan 26 02:22 Videos  
ttn@ttn:~$ echo "Hello World" > file1.txt  
ttn@ttn:~$ cat file1.txt  
Hello World  
ttn@ttn:~$
```

Q4)

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

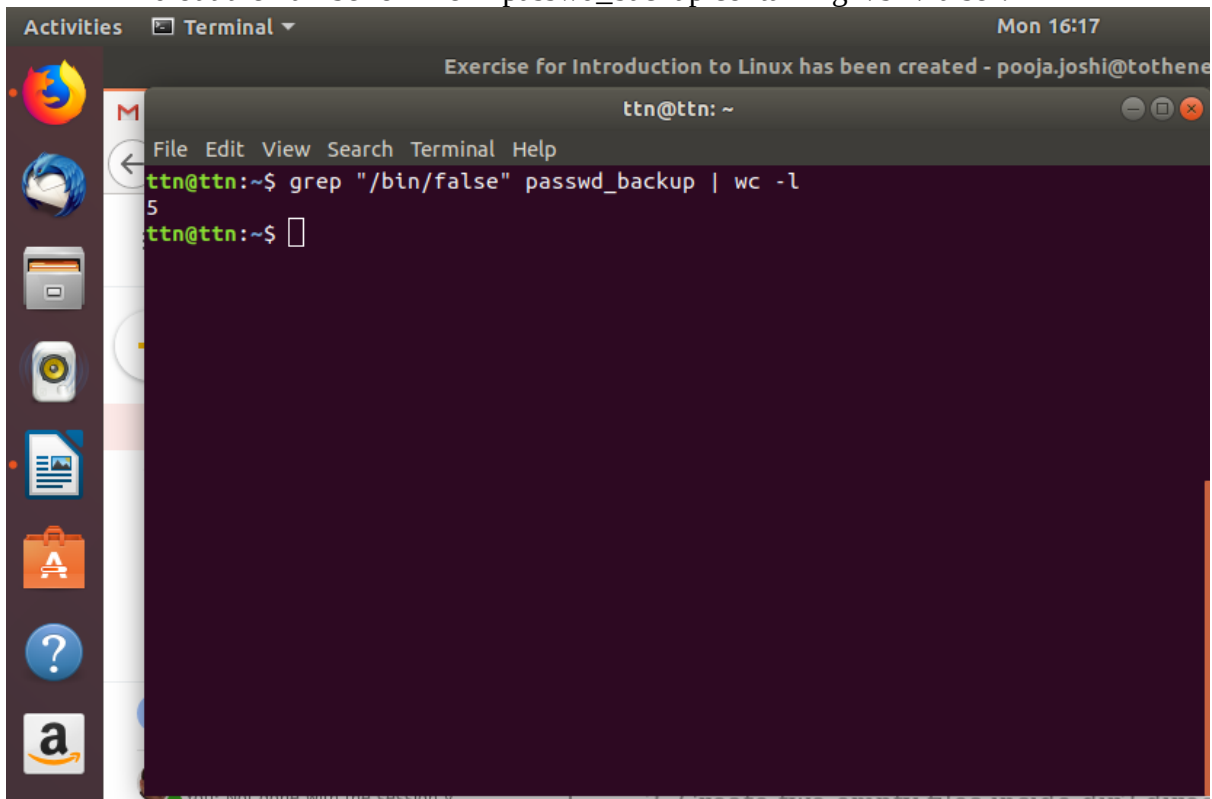


```
Activities Terminal Mon 15:55  
Untitled 2 - LibreOffice Writer  
ttn@ttn: ~  
File Edit View Search Terminal Help  
ttn@ttn:~$ sudo find /etc -name passwd  
/etc/pam.d/passwd  
/etc/passwd  
/etc/cron.daily/passwd  
ttn@ttn:~$ cp /etc/passwd passwd_copy  
ttn@ttn:~$ mv passwd_copy passwd_backup  
ttn@ttn:~$
```

Q 5) Try reading passwd_backup file in multiple tools :less,more,cat,string,etc.

```
less passwd_backup
more passwd_backup
cat passwd_backup
strings passwd_backup
```

Q 6)
Find out the number of line in passwd_backup containing "/bin/false".



The screenshot shows a terminal window titled "Exercise for Introduction to Linux has been created - pooja.joshi@tothene". The terminal prompt is "ttn@ttn: ~". The command "grep "/bin/false" passwd_backup | wc -l" has been entered, and the output "5" is displayed. The terminal window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The desktop background is dark, and the left sidebar shows various application icons including Firefox, a mail client, a file manager, a terminal, a web browser, a shopping bag, a question mark, and an Amazon logo.

```
ttn@ttn: ~  
File Edit View Search Terminal Help  
ttn@ttn:~$ grep "/bin/false" passwd_backup | wc -l  
5  
ttn@ttn:~$
```

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

```
Activities Terminal Mon 16:33 ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ head -5 passwd_backup > output
ttn@ttn:~$ 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: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
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
```

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

```
Activities Terminal Mon 16:51 ttn@ttn: ~/exercise/dir1/dir2
File Edit View Search Terminal Help
ttn@ttn:~$ cd exercise/
ttn@ttn:~/exercise$ sudo adduser test
[sudo] password for ttn:
Adding user 'test' ...
Adding new group 'test' (1001) ...
Adding new user 'test' (1001) with group 'test' ...
Creating home directory '/home/test' ...
Copying files from '/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for test
Enter the new value, or press ENTER for the default
  Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
ttn@ttn:~/exercise$ id test
uid=1001(test) gid=1001(test) groups=1001(test)
```

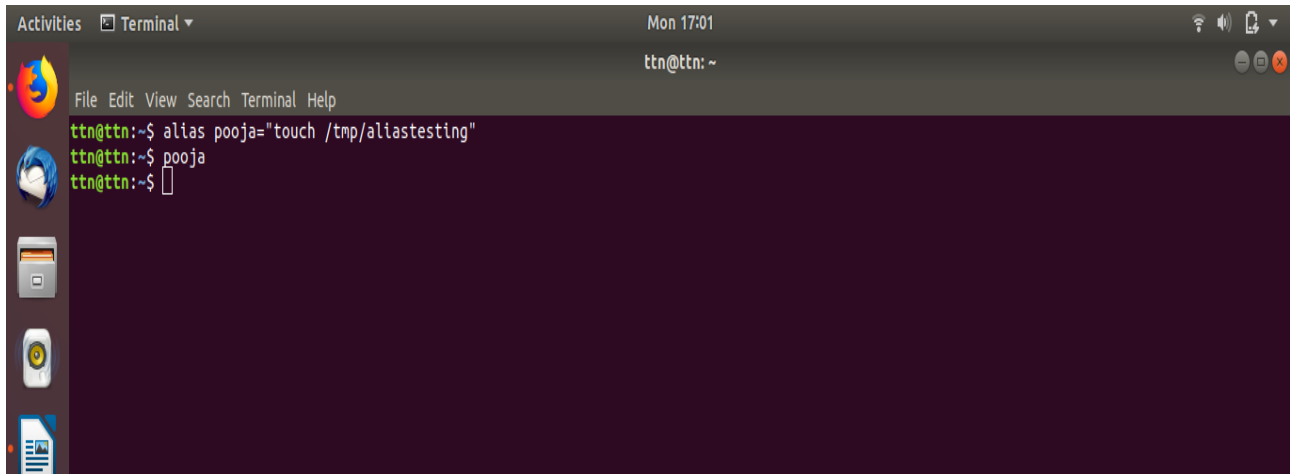
Q 9) Change the timestamp of emptyFile1, emptyFile2 which are exist in dir2

```
ttn@ttn:~/exercise/dir1/dir2$ touch -c emptyFile1 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$ ls -l
total 4
drwxr-xr-x 2 ttn ttn 4096 Feb  4 14:51 dir3
-rw-r--r-- 1 ttn ttn  0 Feb  4 16:50 emptyFile1
-rw-r--r-- 1 ttn ttn  0 Feb  4 16:50 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$
```

Q 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.

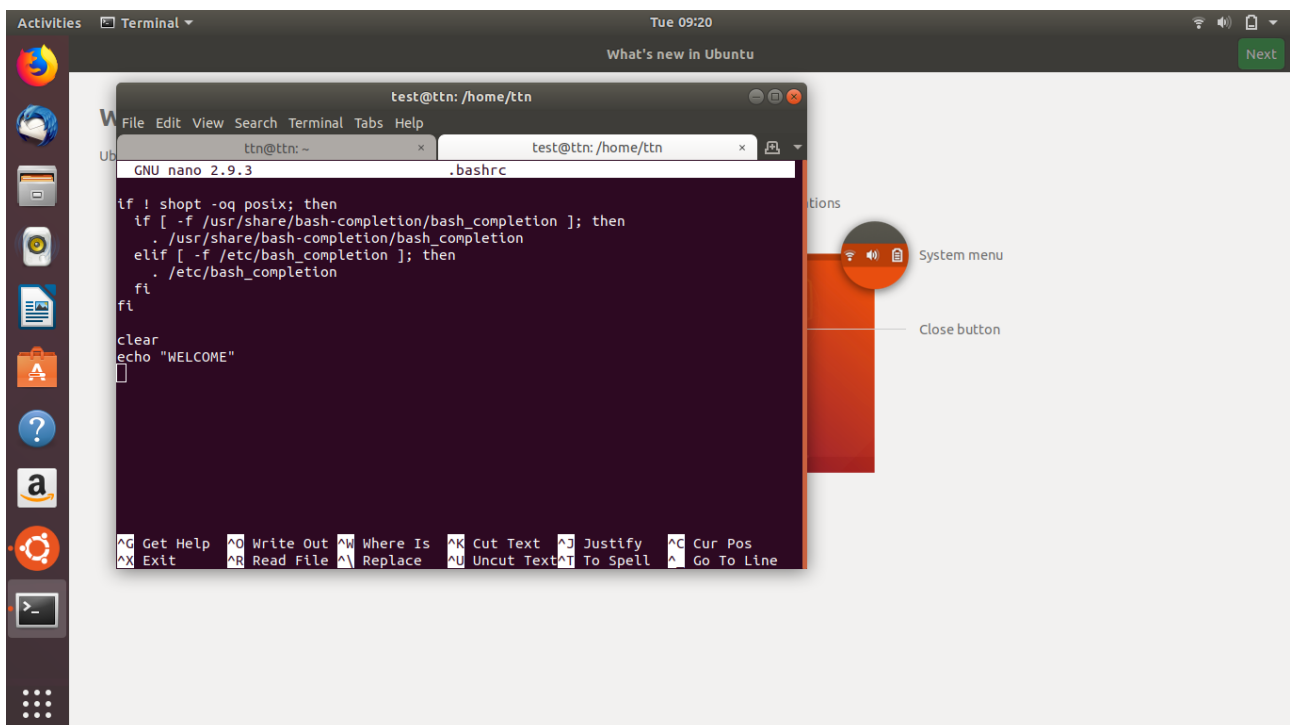
Q 11) Create alias with your name so that it creates a file as "/tmp/aliastesting".



```
Activities Terminal Mon 17:01 ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ alias pooja="touch /tmp/aliastesting"
ttn@ttn:~$ pooja
ttn@ttn:~$
```

Q 12)

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



```
Activities Terminal Tue 09:20 What's new in Ubuntu Next
test@ttn: /home/ttn
File Edit View Search Terminal Tabs Help
GNU nano 2.9.3 .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

clear
echo "WELCOME"

```

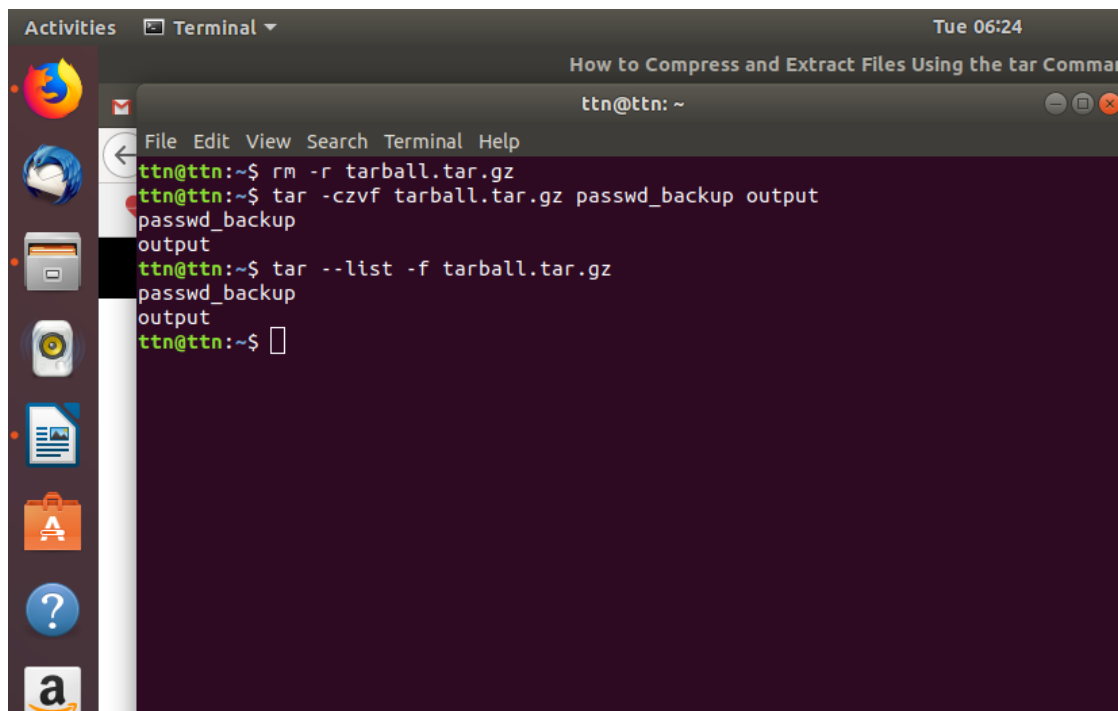
Q 13) Install “zip” package.



```
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 430 not upgraded.
ttn@ttn:~$
```

Q 14)

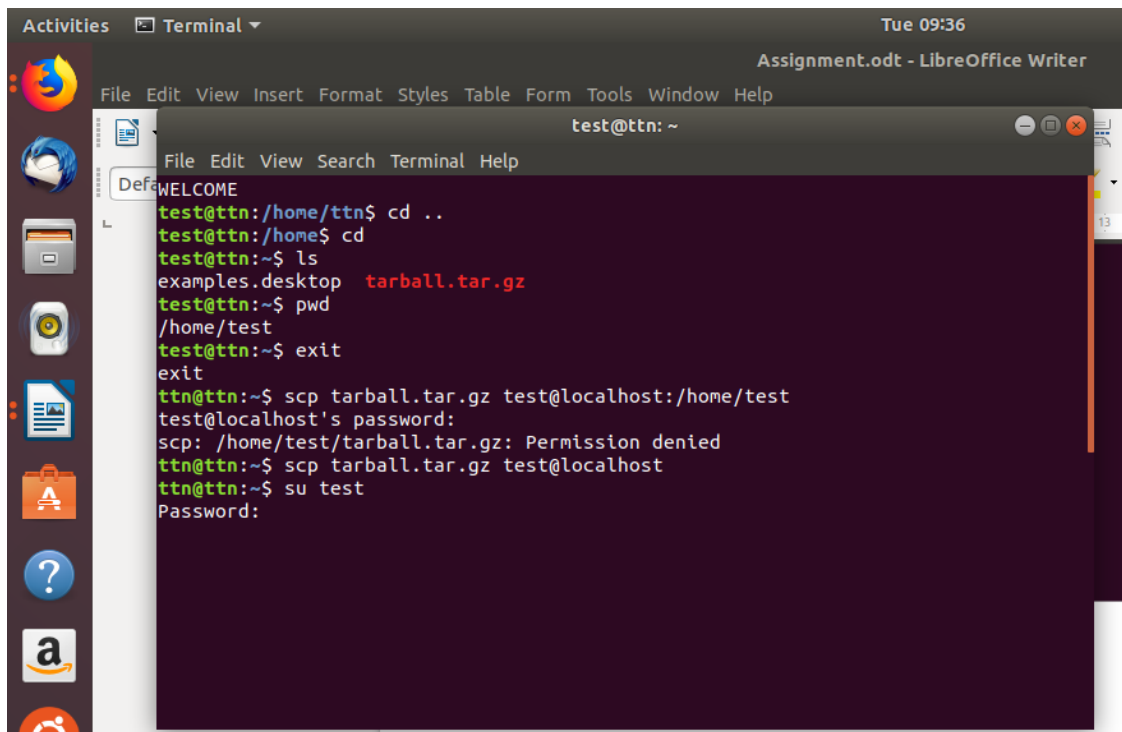
Compress "output" and "passwd_backup" files into a tar ball. List the files present inside the tar created.



```
Activities  Terminal  Tue 06:24
How to Compress and Extract Files Using the tar Command
ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ rm -r tarball.tar.gz
ttn@ttn:~$ tar -czvf tarball.tar.gz passwd_backup output
passwd_backup
output
ttn@ttn:~$ tar --list -f tarball.tar.gz
passwd_backup
output
ttn@ttn:~$
```

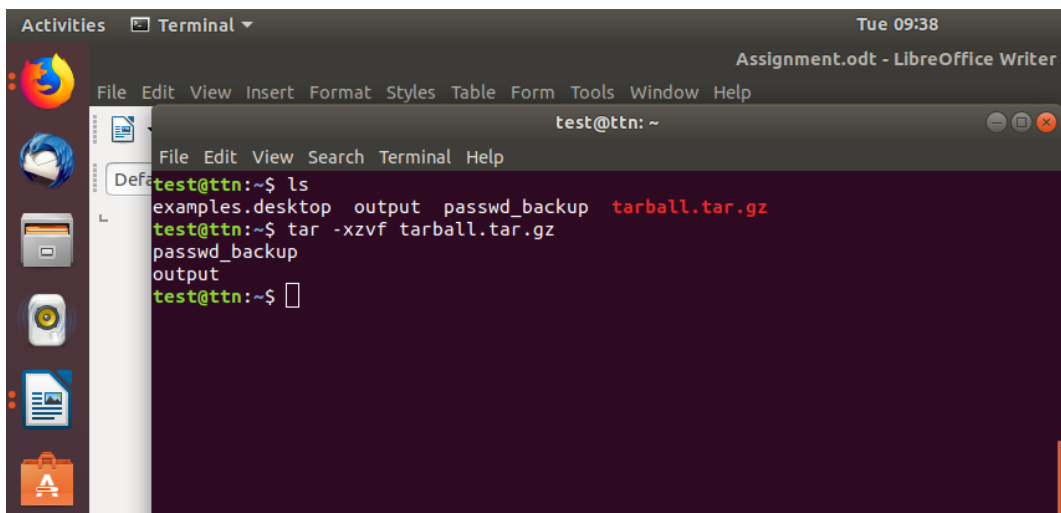
Q 15)

scp this file to test user



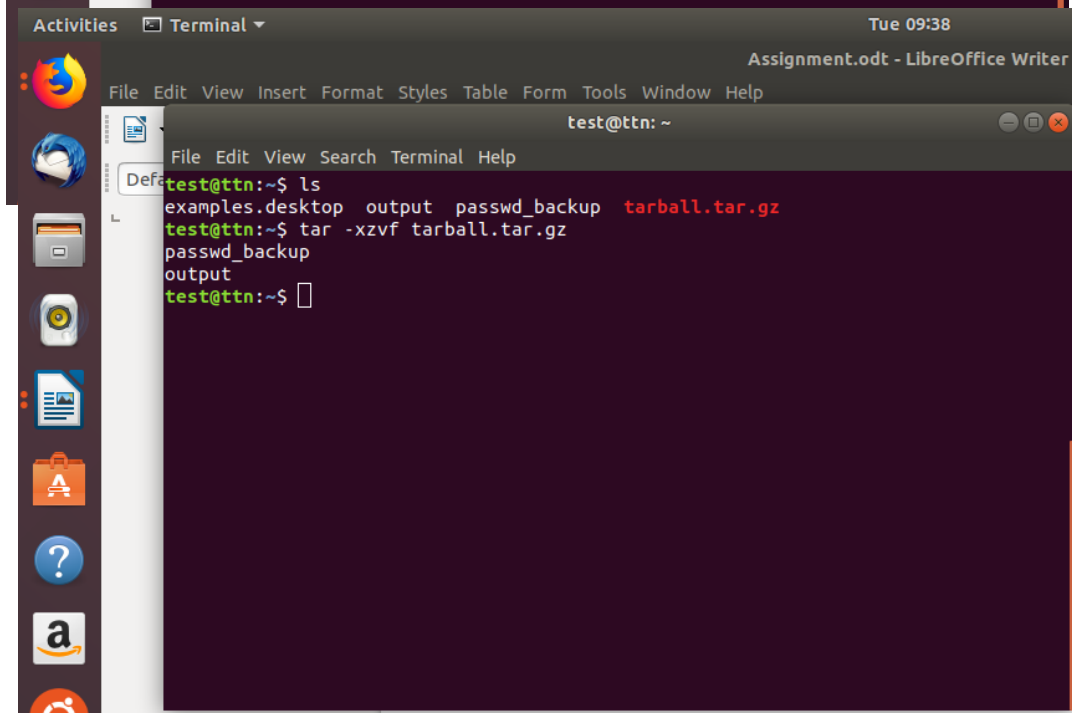
The terminal window shows the user 'test' at host 'ttn'. The user navigates to the home directory, lists files (showing 'tarball.tar.gz'), and checks the current directory path. An attempt to use 'scp' to copy 'tarball.tar.gz' to 'localhost' fails with a 'Permission denied' error. The user then attempts to switch to the 'test' user using 'su test'.

```
test@ttn: ~  
WELCOME  
test@ttn:/home/ttn$ cd ..  
test@ttn:/home$ cd  
test@ttn:~$ ls  
examples.desktop  tarball.tar.gz  
test@ttn:~$ pwd  
/home/test  
test@ttn:~$ exit  
exit  
ttn@ttn:~$ scp tarball.tar.gz test@localhost:/home/test  
test@localhost's password:  
scp: /home/test/tarball.tar.gz: Permission denied  
ttn@ttn:~$ scp tarball.tar.gz test@localhost  
ttn@ttn:~$ su test  
Password:
```



The terminal window shows the user 'test' at host 'ttn'. The user lists files (showing 'tarball.tar.gz') and then uses 'tar -xzf tarball.tar.gz' to extract the contents. The output shows the files 'passwd_backup' and 'output' have been successfully extracted.

```
test@ttn:~$ ls  
examples.desktop  output  passwd_backup  tarball.tar.gz  
test@ttn:~$ tar -xzf tarball.tar.gz  
passwd_backup  
output  
test@ttn:~$
```

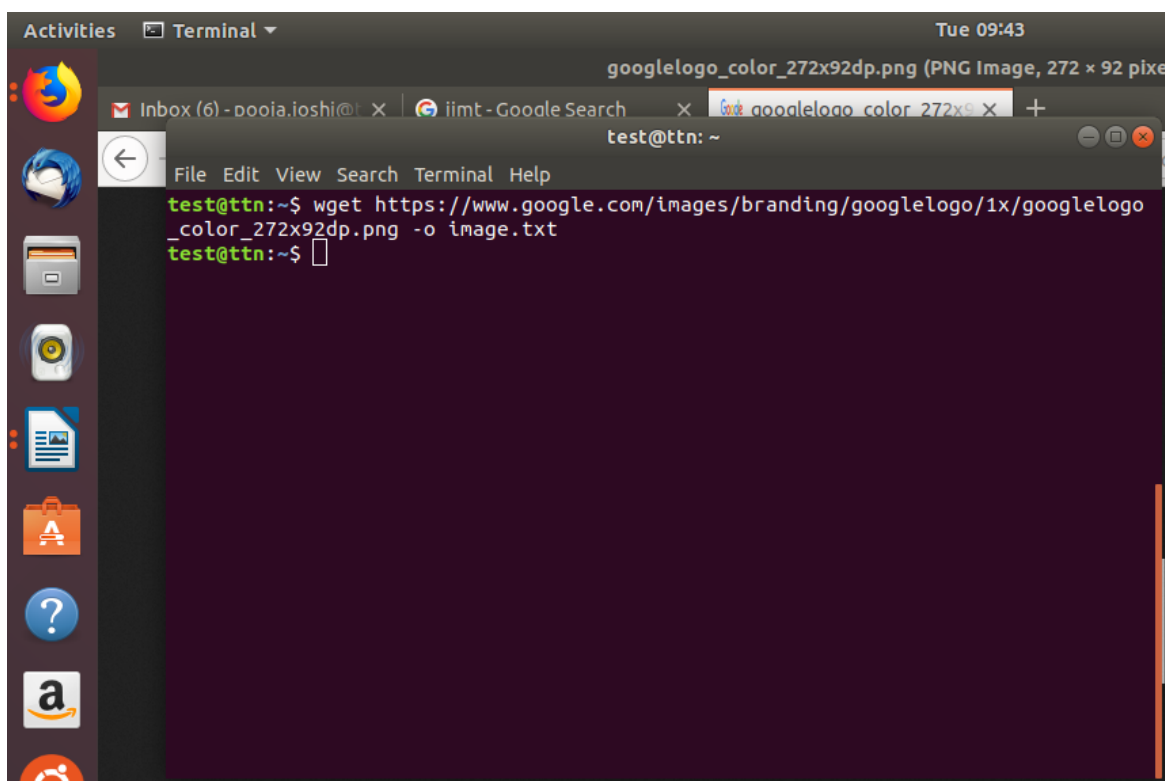


This terminal window is identical to the one above, showing the successful extraction of 'passwd_backup' and 'output' from 'tarball.tar.gz'.

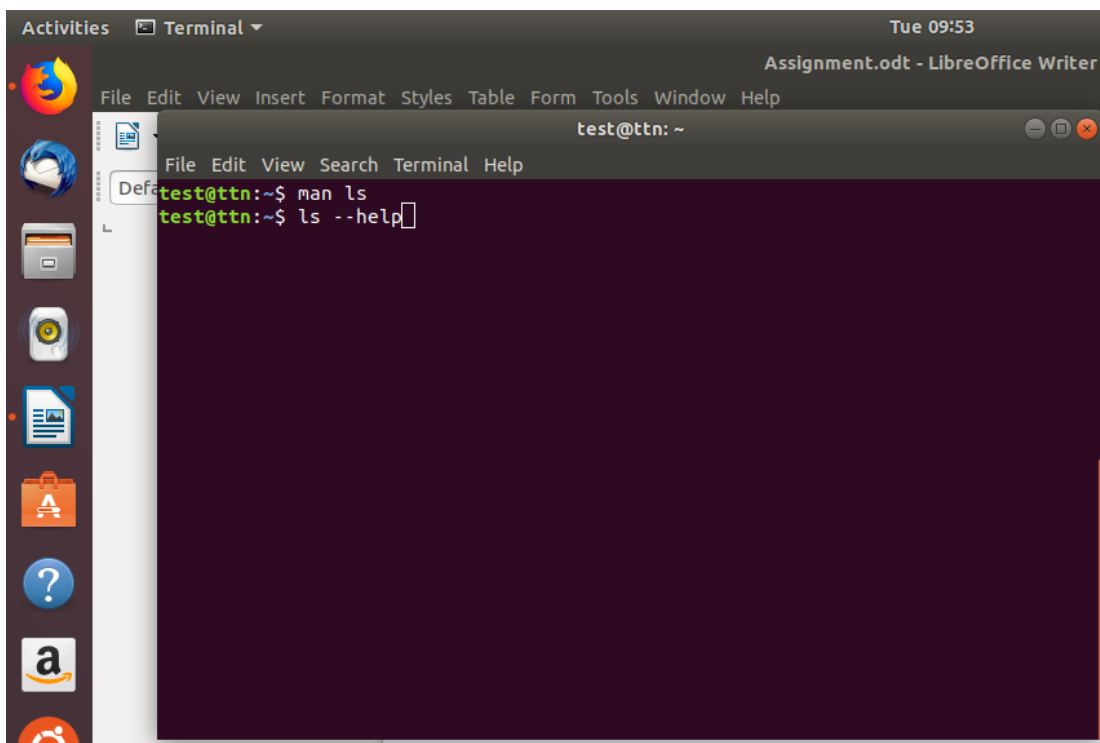
```
test@ttn:~$ ls  
examples.desktop  output  passwd_backup  tarball.tar.gz  
test@ttn:~$ tar -xzf tarball.tar.gz  
passwd_backup  
output  
test@ttn:~$
```

Q 16) unzip the tar ball by logging into the remote server.

Q 17) download any image from web and move to desktop.

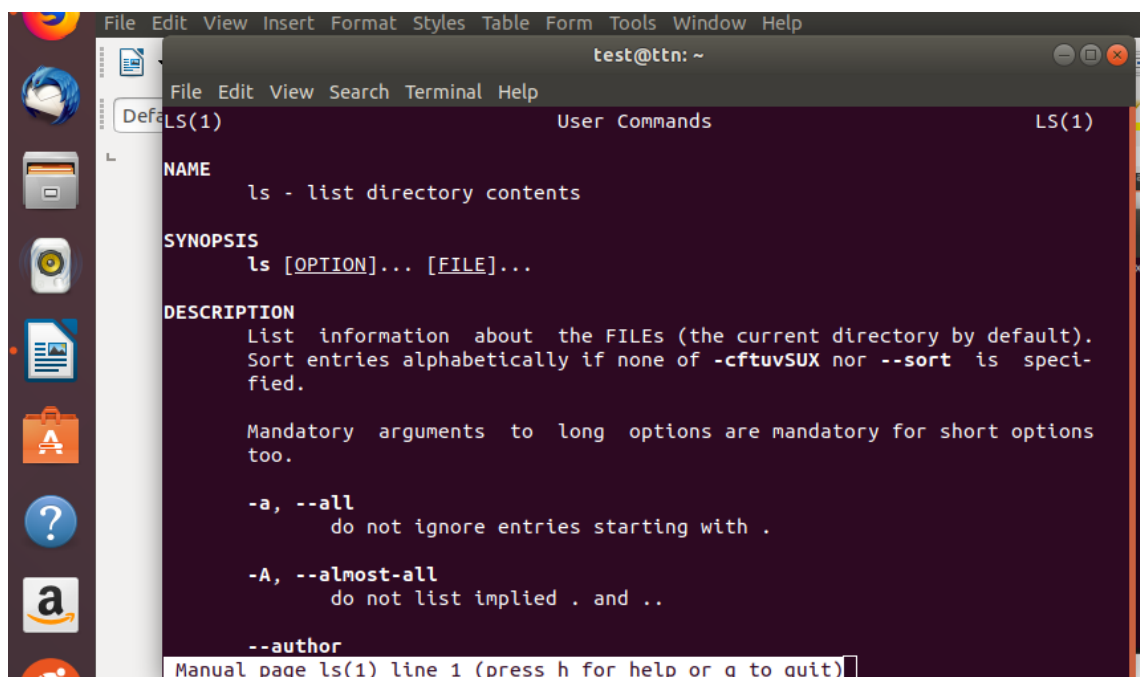


Q 18) How to get help of commands usages.



The screenshot shows a terminal window titled "test@ttn: ~" with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal displays the following commands and their outputs:

```
test@ttn:~$ man ls
test@ttn:~$ ls --help
```



The screenshot shows the terminal window displaying the man page for the 'ls' command. The page is titled "LS(1) User Commands LS(1)". The content includes the following sections:

NAME
ls - list directory contents

SYNOPSIS
ls [OPTION]... [FILE]...

DESCRIPTION
List information about the FILES (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.

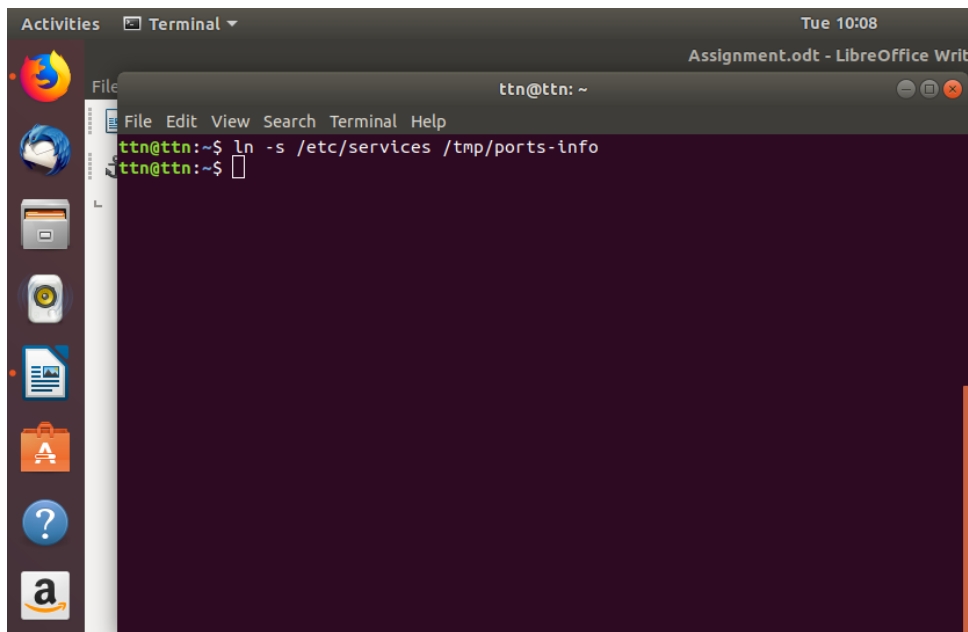
-a, --all
do not ignore entries starting with .

-A, --almost-all
do not list implied . and ..

--author

Manual page ls(1) line 1 (press h for help or q to quit)

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

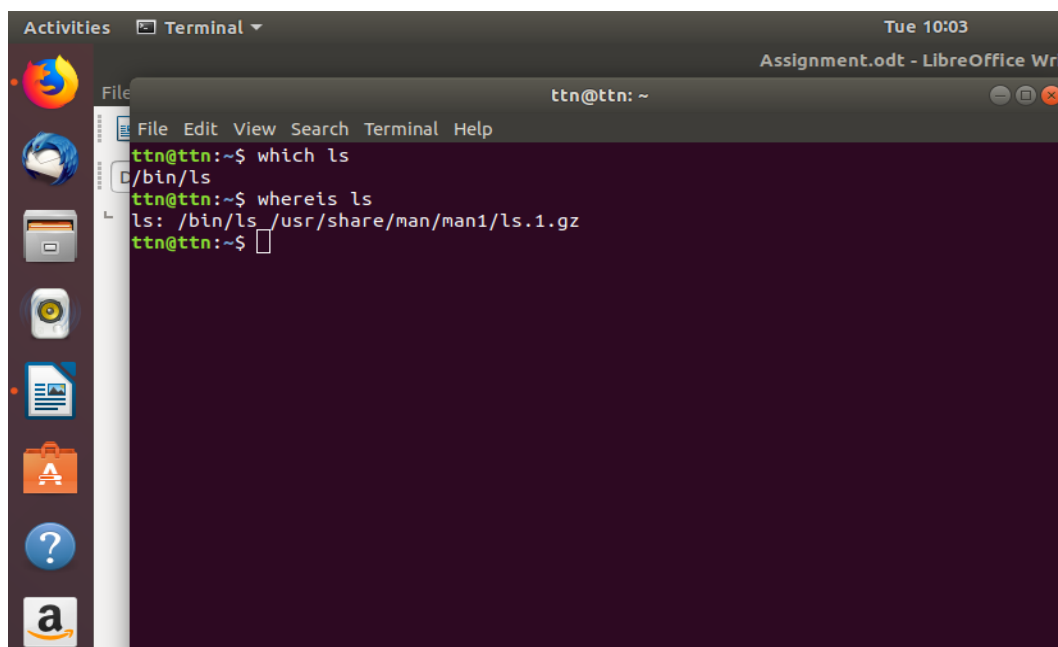


A terminal window titled "ttn@ttn: ~" is shown. The user has entered the command `ln -s /etc/services /tmp/ports-info` and the prompt is waiting for the next command. The terminal is part of a desktop environment with a sidebar containing icons for Firefox, a mail client, a file manager, a terminal, a disk, a folder, a question mark, and an Amazon logo. The top bar shows "Activities", "Terminal", and the time "Tue 10:08".

```
ttn@ttn: ~  
File Edit View Search Terminal Help  
ttn@ttn:~$ ln -s /etc/services /tmp/ports-info  
ttn@ttn:~$
```

Q 20)

To find the location of “xyz ” command “which “ and “whereis” is used-



A terminal window titled "ttn@ttn: ~" is shown. The user has entered the command `which ls`, which returned `/bin/ls`. Then, the user entered `whereis ls`, which returned `ls: /bin/ls /usr/share/man/man1/ls.1.gz`. The terminal is part of a desktop environment with a sidebar containing icons for Firefox, a mail client, a file manager, a terminal, a disk, a folder, a question mark, and an Amazon logo. The top bar shows "Activities", "Terminal", and the time "Tue 10:03".

```
ttn@ttn:~$ which ls  
/bin/ls  
ttn@ttn:~$ whereis ls  
ls: /bin/ls /usr/share/man/man1/ls.1.gz  
ttn@ttn:~$
```