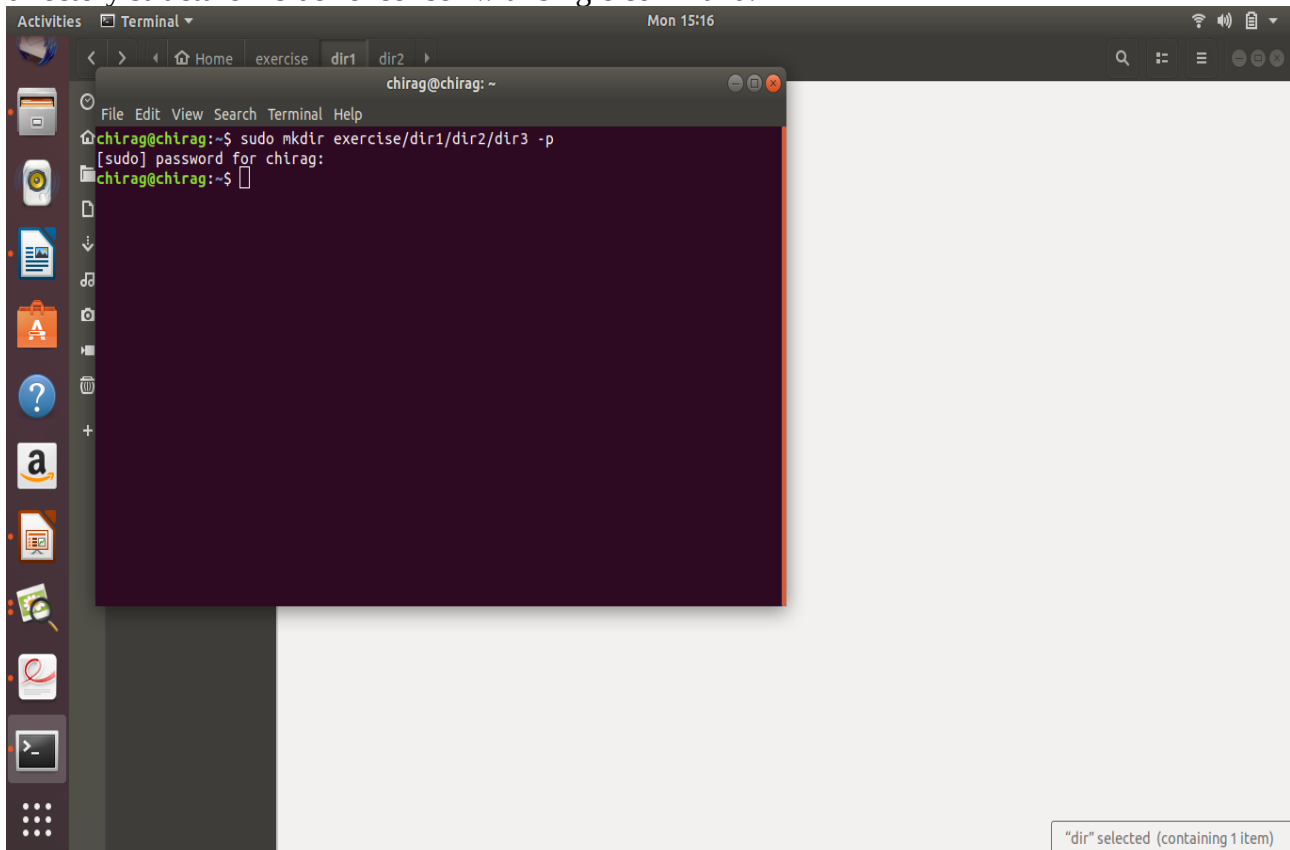
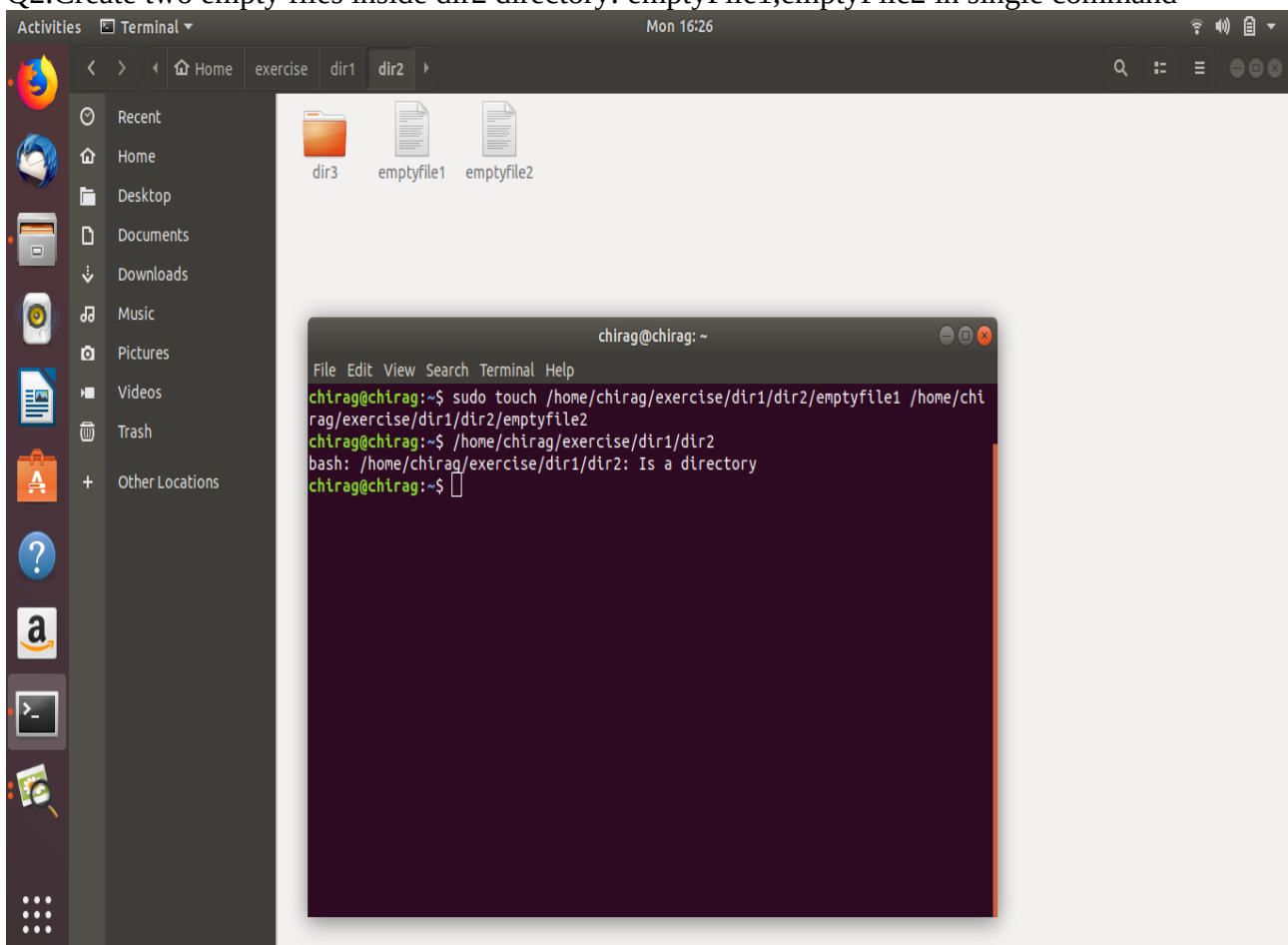


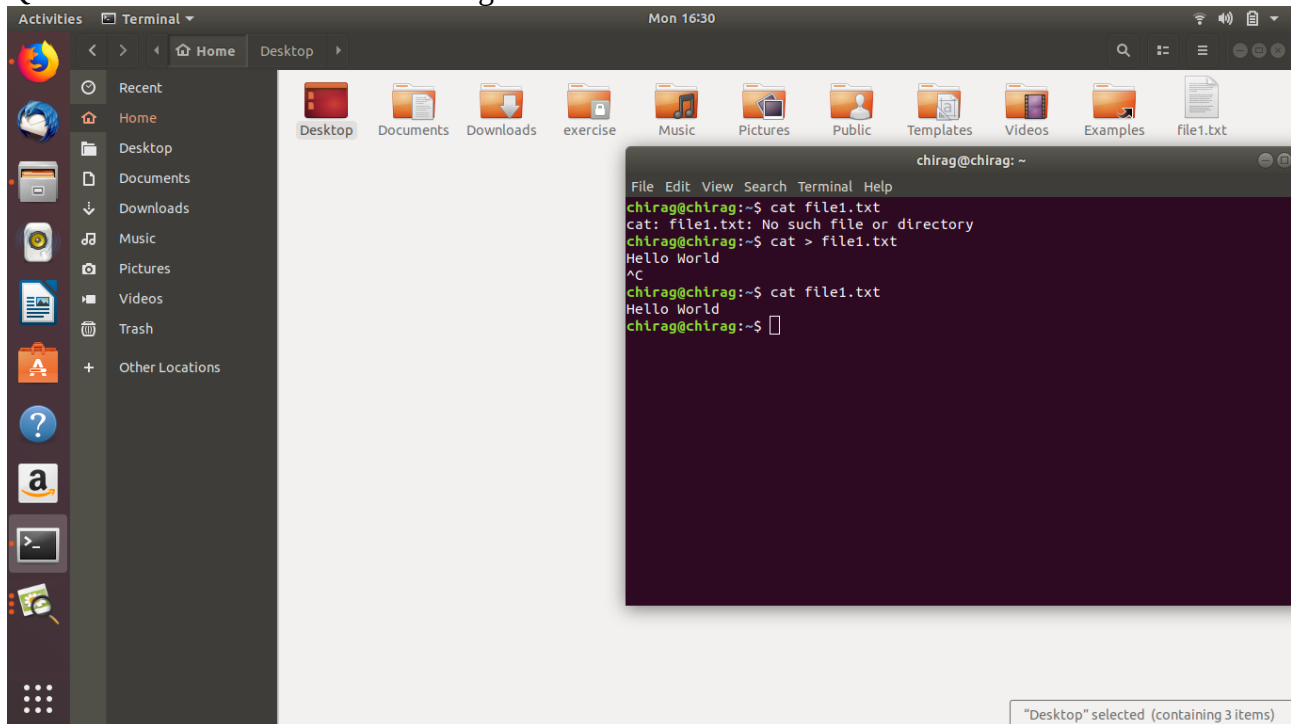
Q1.Create a directory "exercise" inside your home directory and create nested(dir1/dir2/dir3) directory structure inside "exerprise" with single command.



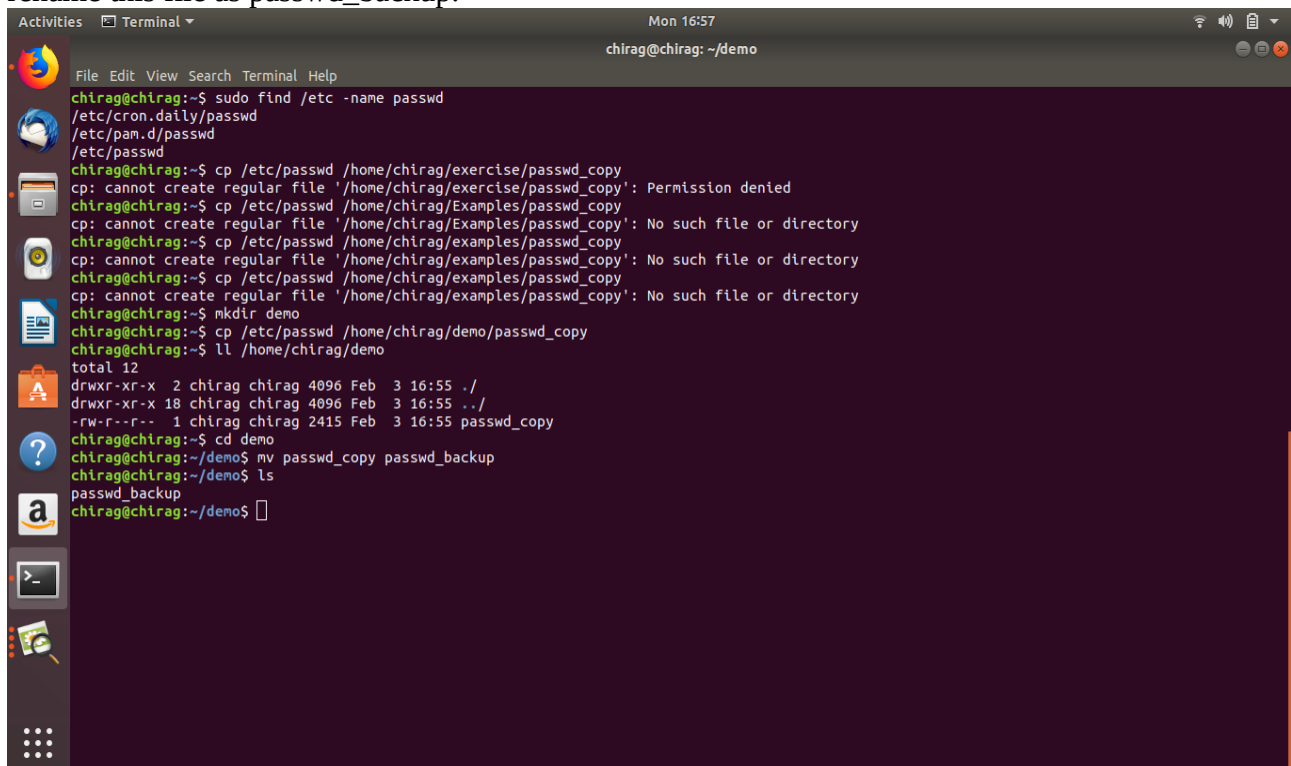
Q2.Create two empty files inside dir2 directory: emptyFile1,emptyFile2 in single command



Q3.Create one file file1.txt containing text "hello world" and save it.



Q4.Find a "passwd" file using find command inside /etc. copy this files as passwd\_copy and then rename this file as passwd\_backup.



Q5. Try reading passwd\_backup file in multiple tools: less, more, cat, strings etc and find the difference in their usage.

```
Mon 23:01
chirag@chirag: ~/exercise

File Edit View Search Terminal Help

chirag@chirag:~/exercise$ 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
uiddd:x:105:111:/:run/uiddd:/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
```

```
Mon 23:02
chirag@chirag: ~/exercise

File Edit View Search Terminal Help

chirag@chirag:~/exercise$ 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
uiddd:x:105:111:/:run/uiddd:/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
```

Q6. Find out the number of line in password\_backup containing "/bin/false".

The screenshot shows a Linux desktop environment. In the background, a web browser (Mozilla Firefox) displays a Gmail interface with an email titled "Exercise for Introduction to Linux". The email content includes a list of tasks and a link to a Google Docs document. In the foreground, a terminal window is open, showing the contents of the password\_backup file and the output of a grep command. The terminal output shows the following lines:

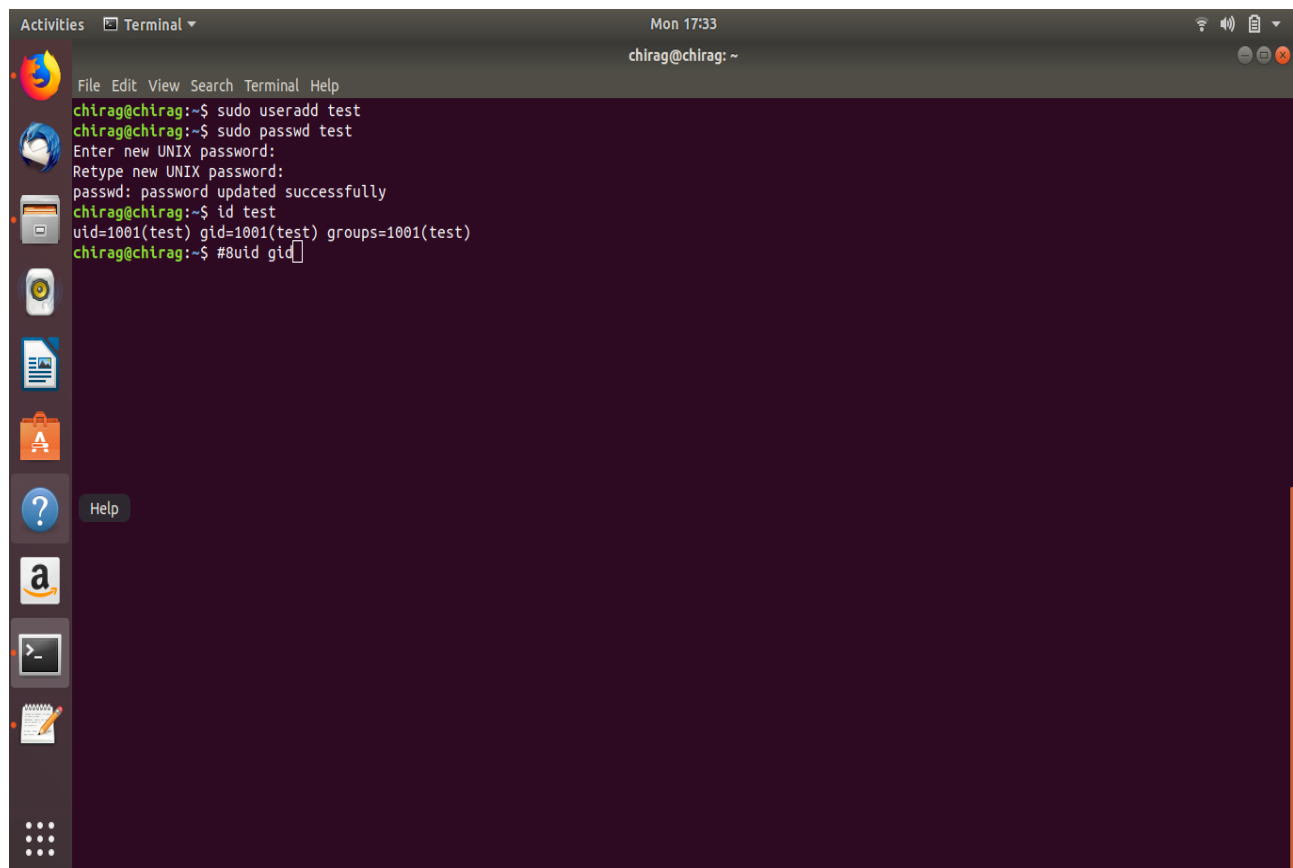
```
chirag@chirag: ~/exercise
false
whoopsie:x:112:117::/nonexistent:/bin/false
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:114:119::/var/lib/saned:/usr/sbin/nologin
pulse:x:115:120:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
avahi:x:116:122:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
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
geoclue:x:119:124::/var/lib/geoclue:/usr/sbin/nologin
gnome-initial-setup:x:120:65534::/run/gnome-initial-setup:/bin/false
gdm:x:121:125:Gnome Display Manager:/var/lib/gdm3:/bin/false
chirag:x:1000:1000:Chirag Singhal,,,:/home/chirag:/bin/bash
test:x:1001:1001::/home/test:/bin/sh
chirag@chirag:~/exercise$ grep "/bin/false" passwd_backup
whoopsie:x:112:117::/nonexistent:/bin/false
hplip:x:118:7:HPLIP system user,,,:/var/run/hplip:/bin/false
gnome-initial-setup:x:120:65534::/run/gnome-initial-setup:/bin/false
chirag@chirag:~/exercise$ grep "/bin/false" passwd_backup | wc -l
5
chirag@chirag:~/exercise$
```

Q7. Get the first 5 lines of a file "password\_backup" and Redirect the output of the above commands into file "output".

The screenshot shows a Linux desktop environment. In the background, a web browser (Mozilla Firefox) displays a Gmail interface with an email titled "Exercise for Introduction to Linux". The email content includes a list of tasks and a link to a Google Docs document. In the foreground, a terminal window is open, showing the output of a head command. The terminal output shows the following lines:

```
chirag@chirag: ~
File Edit View Search Terminal Help
chirag@chirag:~$ head -n 5 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
chirag@chirag:~$
```

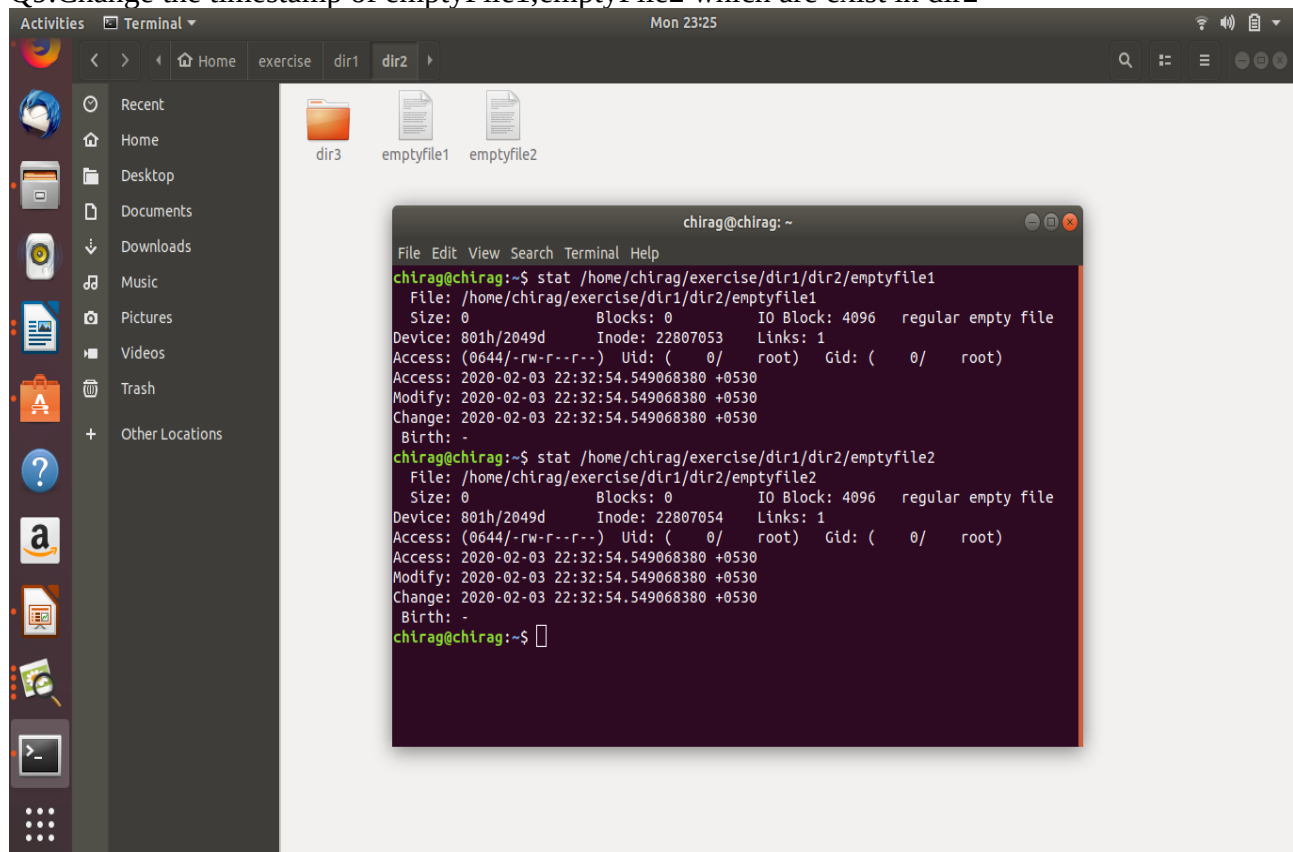
Q8.Create a "test" user,create its password and find out its uid and gid.



A terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Mon 17:33, chirag@chirag: ~). The terminal shows the following commands and output:

```
chirag@chirag:~$ sudo useradd test
chirag@chirag:~$ sudo passwd test
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
chirag@chirag:~$ id test
uid=1001(test) gid=1001(test) groups=1001(test)
chirag@chirag:~$ #uid gid
```

Q9.Change the timestamp of emptyFile1,emptyFile2 which are exist in dir2



A file manager window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Mon 23:25, chirag@chirag: ~). The file manager shows a directory structure with "dir3", "emptyfile1", and "emptyfile2". A terminal window is open, showing the following commands and output:

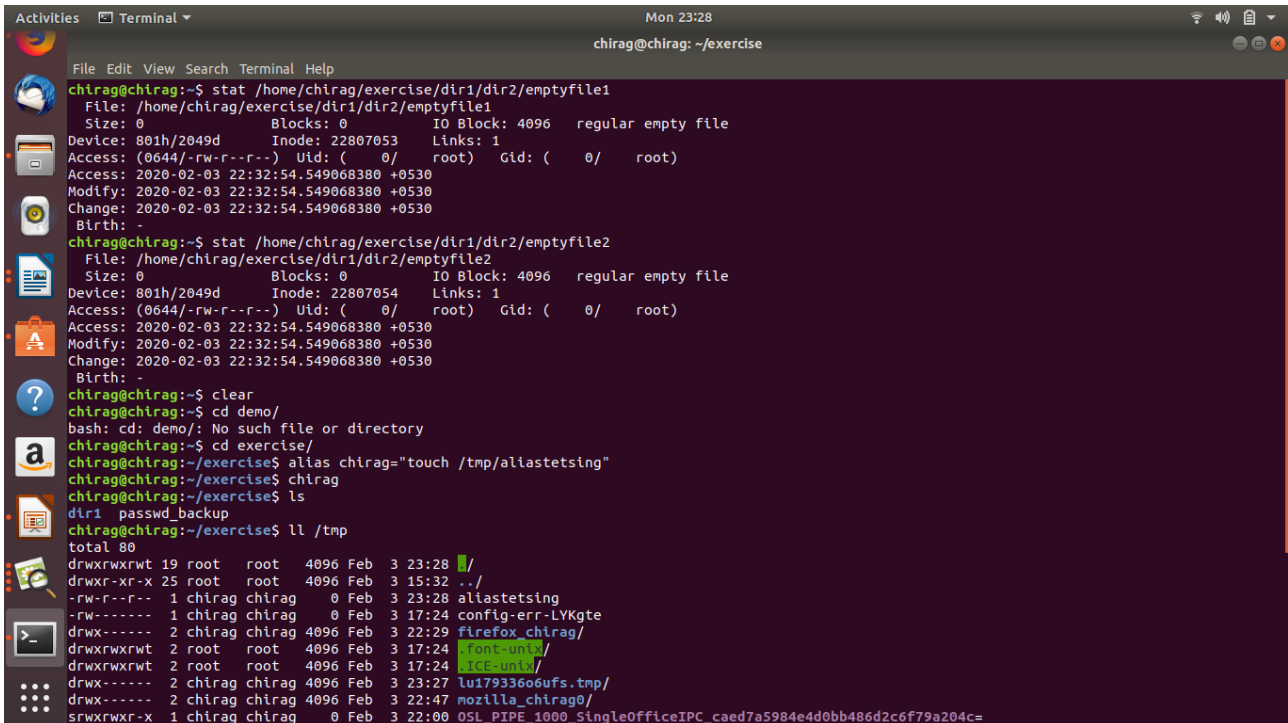
```
chirag@chirag:~$ stat /home/chirag/exercise/dir1/dir2/emptyfile1
File: /home/chirag/exercise/dir1/dir2/emptyfile1
Size: 0          Blocks: 0          IO Block: 4096   regular empty file
Device: 801h/2049d Inode: 22807053 Links: 1
Access: (0644/-rw-r--r--)  Uid: (   0/   root)   Gid: (   0/   root)
Access: 2020-02-03 22:32:54.549068380 +0530
Modify: 2020-02-03 22:32:54.549068380 +0530
Change: 2020-02-03 22:32:54.549068380 +0530
Birth: -
chirag@chirag:~$ stat /home/chirag/exercise/dir1/dir2/emptyfile2
File: /home/chirag/exercise/dir1/dir2/emptyfile2
Size: 0          Blocks: 0          IO Block: 4096   regular empty file
Device: 801h/2049d Inode: 22807054 Links: 1
Access: (0644/-rw-r--r--)  Uid: (   0/   root)   Gid: (   0/   root)
Access: 2020-02-03 22:32:54.549068380 +0530
Modify: 2020-02-03 22:32:54.549068380 +0530
Change: 2020-02-03 22:32:54.549068380 +0530
Birth: -
chirag@chirag:~$
```

Q10.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.

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
3. Change the ownership to edit the file.

#DOUBT

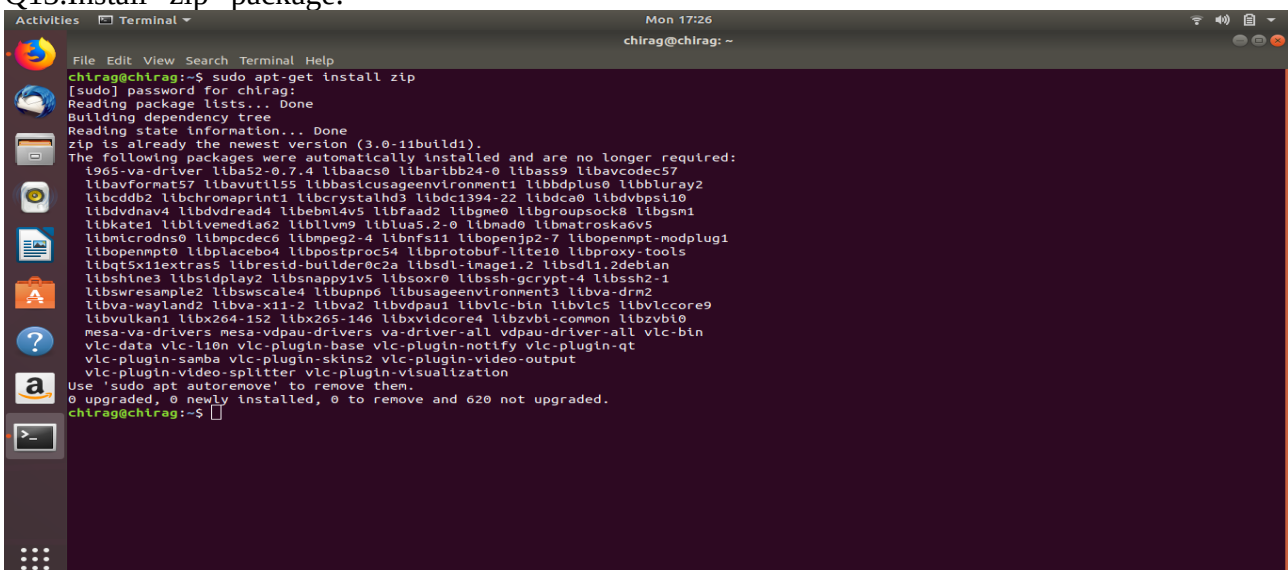
Q11.Create alias with your name so that it creates a file as "/tmp/aliastesting".



```
chirag@chirag: ~/exercise
File Edit View Search Terminal Help
chirag@chirag:~$ stat /home/chirag/exercise/dir1/dir2/emptyfile1
  File: /home/chirag/exercise/dir1/dir2/emptyfile1
  Size: 0          Blocks: 0          IO Block: 4096   regular empty file
Device: 801h/2049d Inode: 22807053   Links: 1
Access: (0644/-rw-r--r--)  Uid: (  0/   root)   Gid: (  0/   root)
Access: 2020-02-03 22:32:54.549068380 +0530
Modify: 2020-02-03 22:32:54.549068380 +0530
Change: 2020-02-03 22:32:54.549068380 +0530
 Birth: -
chirag@chirag:~$ stat /home/chirag/exercise/dir1/dir2/emptyfile2
  File: /home/chirag/exercise/dir1/dir2/emptyfile2
  Size: 0          Blocks: 0          IO Block: 4096   regular empty file
Device: 801h/2049d Inode: 22807054   Links: 1
Access: (0644/-rw-r--r--)  Uid: (  0/   root)   Gid: (  0/   root)
Access: 2020-02-03 22:32:54.549068380 +0530
Modify: 2020-02-03 22:32:54.549068380 +0530
Change: 2020-02-03 22:32:54.549068380 +0530
 Birth: -
chirag@chirag:~$ clear
chirag@chirag:~$ cd demo/
bash: cd: demo/: No such file or directory
chirag@chirag:~$ cd exercise/
chirag@chirag:~/exercise$ alias chirag="touch /tmp/aliastetsing"
chirag@chirag:~/exercise$ chirag
chirag@chirag:~/exercise$ ls
dir1  passwd_backup
chirag@chirag:~/exercise$ ll /tmp
total 80
drwxrwxrwt 19 root root 4096 Feb 3 23:28 //
drwxr-xr-x 25 root root 4096 Feb 3 15:32 ../
-rw-r--r-- 1 chirag chirag 0 Feb 3 23:28 aliastetsing
-rw----- 1 chirag chirag 0 Feb 3 17:24 config-err-LYKgte
drwx----- 2 chirag chirag 4096 Feb 3 22:29 firefox_chirag/
drwxrwxrwt 2 root root 4096 Feb 3 17:24 .font-unix/
drwxrwxrwt 2 root root 4096 Feb 3 17:24 .lcf-unix/
drwx----- 2 chirag chirag 4096 Feb 3 23:27 lu179336o6ufs.tmp/
drwx----- 2 chirag chirag 4096 Feb 3 22:47 mozilla_chirag0/
srwxrwxr-x 1 chirag chirag 0 Feb 3 22:00 OSL_PIPE_1000_SingleOfficeIPC_caed7a5984e4d0bb486d2c6f79a204c=
```

Q12.Edit ~/.bashrc file such that when you change to "test" user it should clear the screen and print "Welcome".(DB)

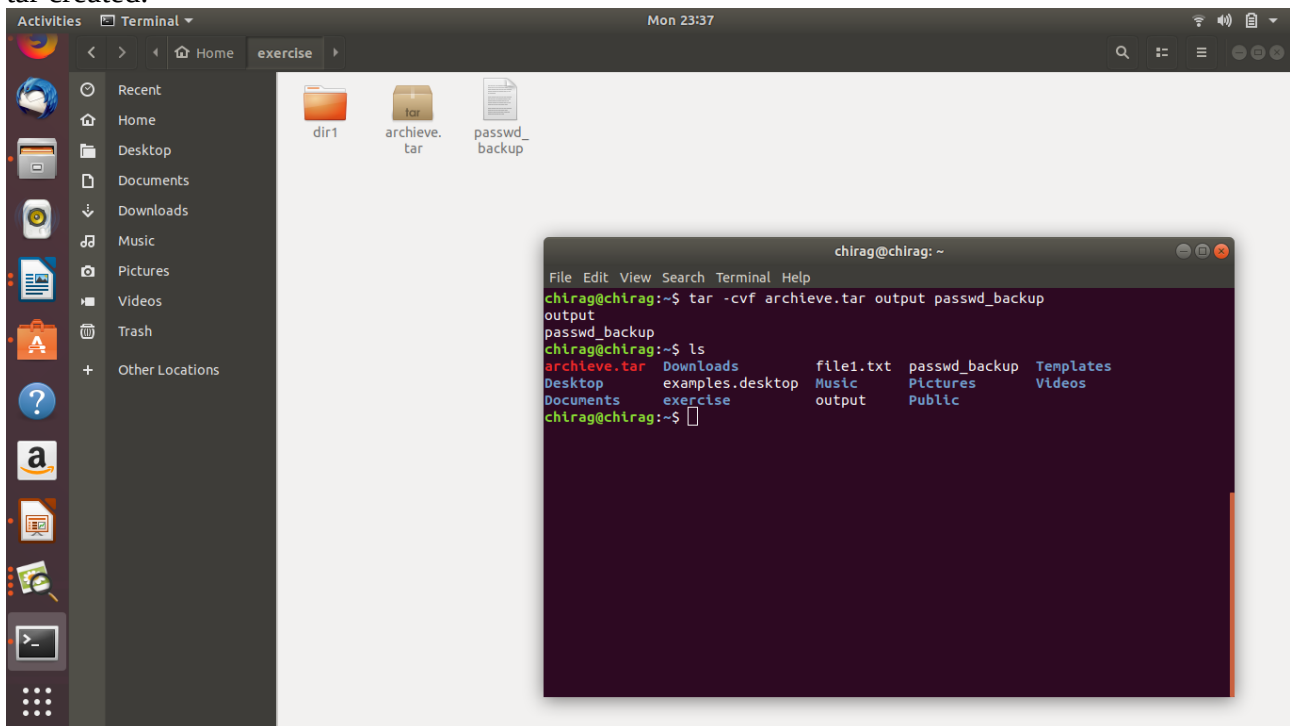
Q13.Install “zip” package.



```
chirag@chirag: ~
File Edit View Search Terminal Help
chirag@chirag:~$ sudo apt-get install zip
[sudo] password for chirag:
Reading package lists... Done
Building dependency tree
Reading state information... Done
zip is already the newest version (3.0-11build1).
The following packages were automatically installed and are no longer required:
  i965-via-driver liba52-0.7.4 libaacs0 libaribb24-0 libass9 libavcodec57
  libavformat57 libavutil55 libbasicusageenvironment1 libbdplus0 libbluray2
  libcdcb2 libchromaprint1 libcrystalhd3 libdc1394-22 libdca0 libdvbpsi10
  libdvbnav4 libdvdrad4 libebml4v5 libfaad2 libgnme0 libgroupsock8 libgsm1
  libkate1 liblvm2da62 liblvm9 liblua5.2-0 libmad0 libmatroska6v5
  libmtcrodns0 libmpegdec6 libmpeg2-4 libnfs11 libopenjp2-7 libopenmpt-modplug1
  libopenmpt0 libplacebo4 libpostproc54 libprotobuf-lite10 libproxy-tools
  libqt5x11extras5 librest-builder0c2a libSDL-image1.2 libSDL1.2debian
  libshine3 libslideshow2 libsnappy1v5 libsoxr0 libssh-gcrypt-4 libssh2-1
  libswresample2 libswscale4 libunpnp6 libusageenvironment3 libva-drm2
  libva-wayland2 libva-x11-2 libva2 libvdpau libvlc-bin libvlc5 libvlccore9
  libvulkan1 libx264-152 libx265-146 libxvidcore4 libzvt-common libzvt0
  mesa-va-drivers mesa-vdpau-drivers va-driver-all vdpau-driver-all vlc-bin
  vlc-data vlc-l10n vlc-plugin-base vlc-plugin-notify vlc-plugin-qt
  vlc-plugin-samba vlc-plugin-skins2 vlc-plugin-video-output
  vlc-plugin-video-splitter vlc-plugin-visualization
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 620 not upgraded.
chirag@chirag:~$
```

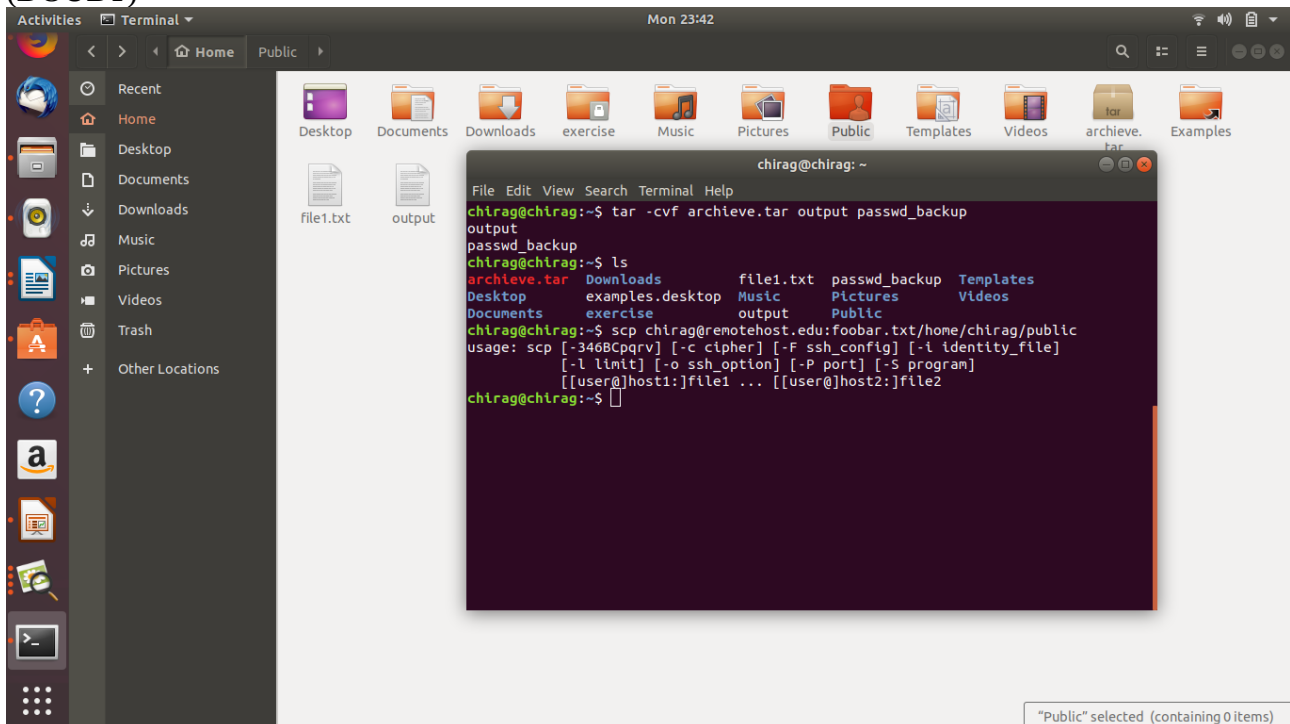


Q14. Compress "output" and "password\_backup" files into a tar ball. List the files present inside the tar created.



Q15. scp this file to test user

(DOUBT)



The screenshot displays a Linux desktop environment. On the left is a vertical dock with application icons: Firefox, a person icon, a folder icon, a music icon, a camera icon, a video icon, a shopping bag icon, a question mark icon, an Amazon icon, a terminal icon, a presentation icon, and a grid of dots. The top panel shows 'Activities', 'Terminal', and the time 'Tue 00:01'. The file manager window has a sidebar with 'Home', 'Recent', 'Desktop', 'Documents', 'Downloads', 'Music', 'Pictures', 'Videos', 'Trash', and 'Other Locations'. The main pane shows a directory with icons for 'Desktop', 'Documents', 'Downloads', 'exercise', 'file1.txt', 'output', 'passwd\_backup', and 'porto-portugal-12-may-2015-igreja-152419033'. The terminal window, titled 'chirag@chirag: ~', shows the execution of the 'wget' command to download a file from Shutterstock. The output indicates the file was successfully downloaded and saved as 'porto-portugal-12-may-2015-igreja-152419033'. Below the terminal window, a tooltip states: '"porto-portugal-12-may-2015-igreja-152419033" selected (223.6 kB)'.

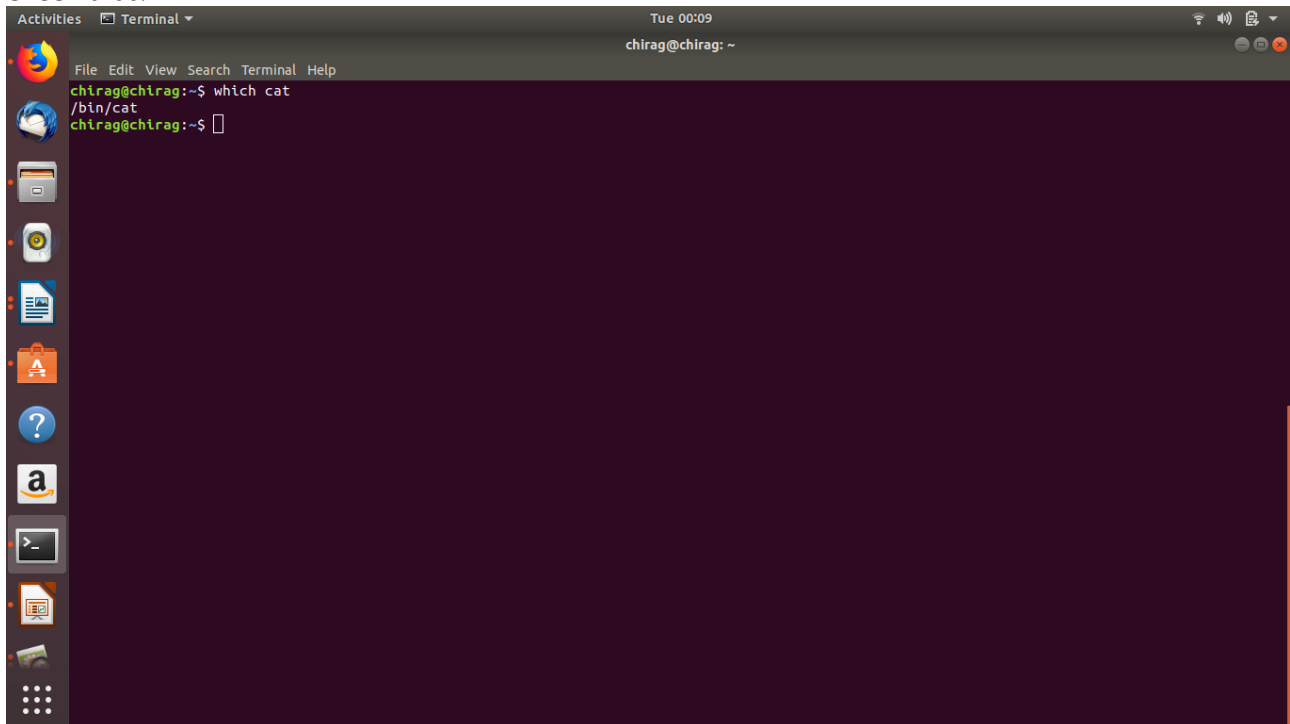
it basically has manual pages inside it and have the maximum information

A screenshot of a Linux terminal window titled "Activities Terminal". The window shows a series of commands and their outputs. It starts with an HTTP request being sent and saved as a file named "porto-portugal-12-may-2015-igreja-1524190331". Then, it shows the file's size and transfer speed. Next, the user runs "ls" to list files in the current directory, showing a table-like output with columns for file names and their locations. Finally, the user runs "ln -s /etc/services /tmp/ports-info" to create a symbolic link, followed by "ll /tmp/ports-info" which shows the details of the newly created link.

```
Tue 00:07  
chirag@chirag: ~  
  
File Edit View Search Terminal Help  
HTTP request sent, awaiting response... 200 OK  
Length: 223595 (218K) [text/html]  
Saving to: 'porto-portugal-12-may-2015-igreja-1524190331'  
  
porto-portugal-12-m 100%[=====] 218.35K  1.26MB/s   in 0.2s  
  
2020-02-04 00:01:02 (1.26 MB/s) - 'porto-portugal-12-may-2015-igreja-1524190331' saved [223595/223595]  
  
chirag@chirag:~$ ls  
archive.tar      exercise         Pictures  
Desktop          file1.txt       porto-portugal-12-may-2015-igreja-1524190331  
Documents        Music           Public  
Downloads        output          Templates  
examples.desktop passwd_backup    Videos  
  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
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chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$  
chirag@chirag:~$ ln -s /etc/services /tmp/ports-info  
chirag@chirag:~$ ll /tmp/ports-info  
lrwxrwxrwx 1 chirag chirag 13 Feb  4 00:06 /tmp/ports-info -> /etc/services  
chirag@chirag:~$
```



Q20. 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?



The image shows a terminal window titled "Terminal" with a menu bar containing "File", "Edit", "View", "Search", "Terminal", and "Help". The window title bar also displays "Tue 00:09" and "chirag@chirag: ~". The terminal content shows the following commands and output:

```
chirag@chirag:~$ which cat
/bin/cat
chirag@chirag:~$
```

The terminal window is part of a desktop environment with a sidebar on the left containing various application icons, including a web browser, file manager, and terminal. The terminal window itself has a dark background and a light-colored text area.