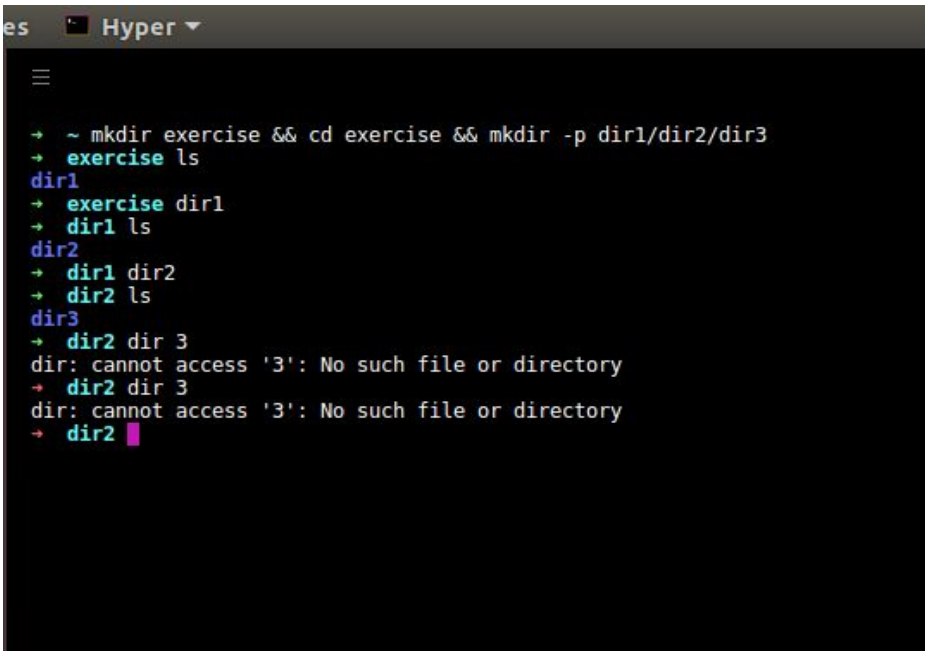
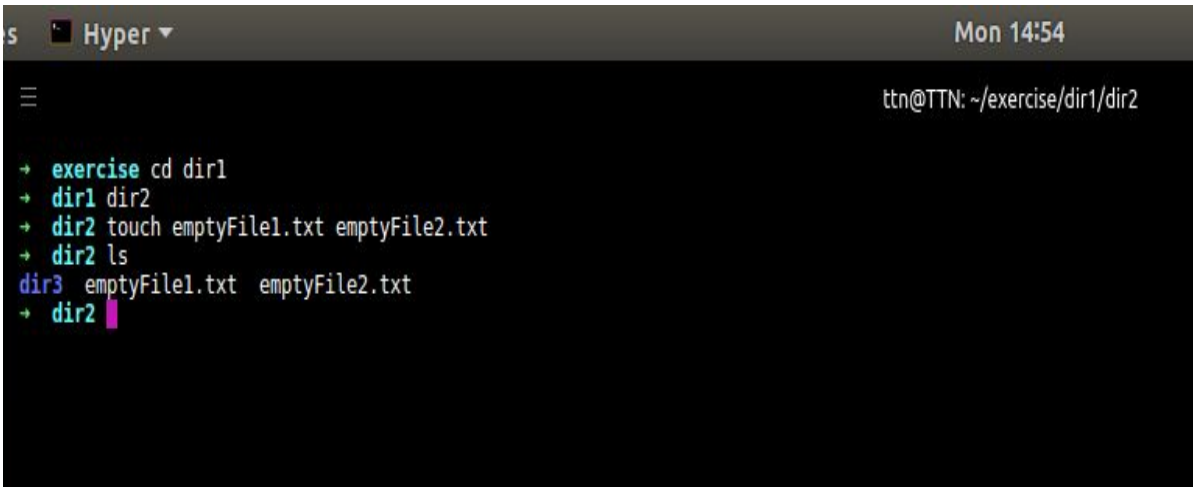
Exercise
Introduction To Linux
Name: Mahesh Inder Singh
EmpCode: 3296

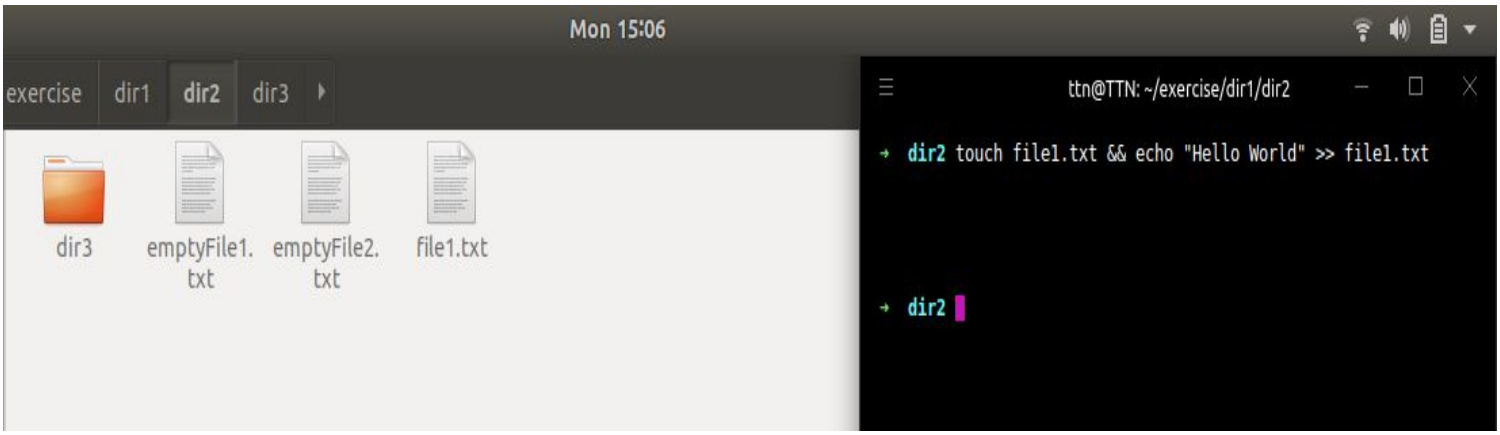
1. Create a directory "exercise" inside your home directory and create nested(dir1/dir2/dir3) directory structure inside "exercise" with single command.

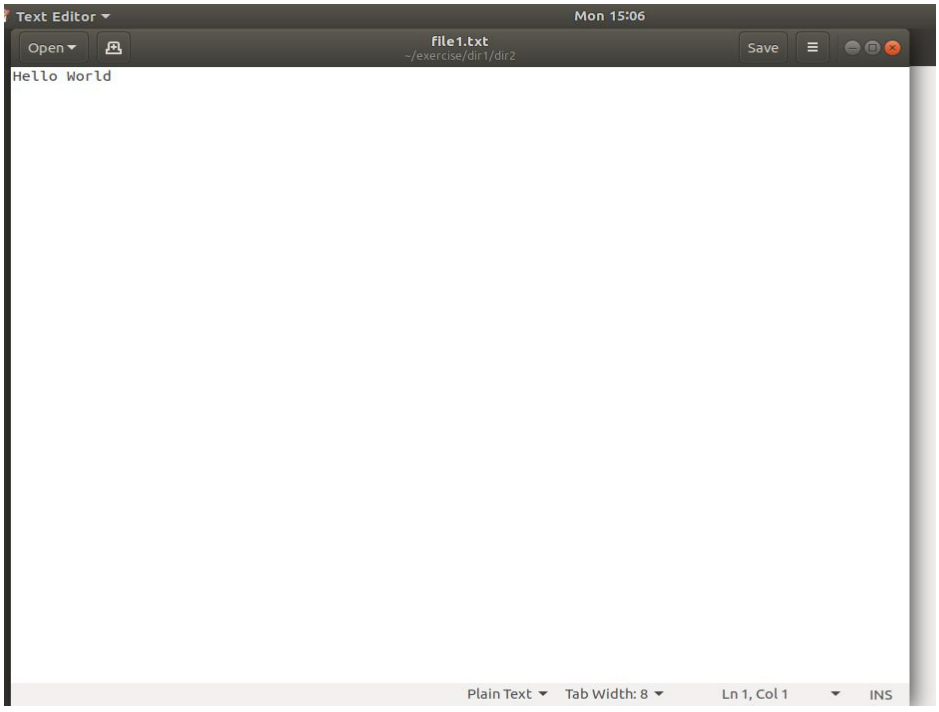


2. Create two empty files inside dir2 directory: emptyFile1, emptyFile2 in single command

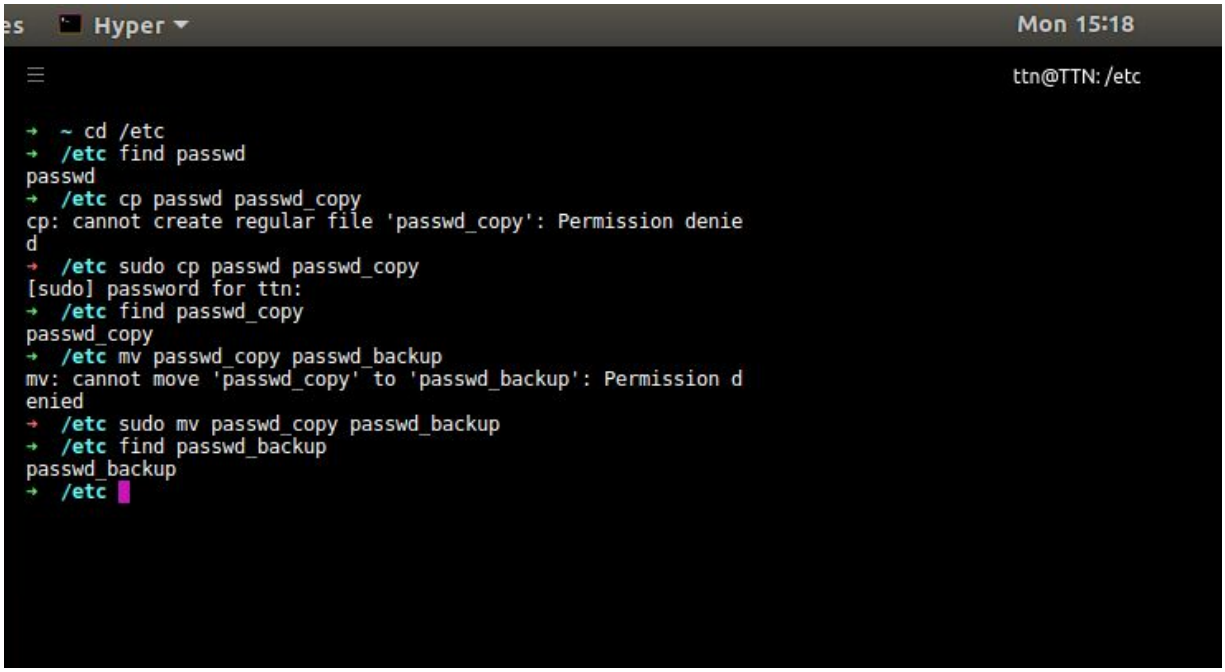


3. Create one file file1.txt containing text "hello world" and save it.



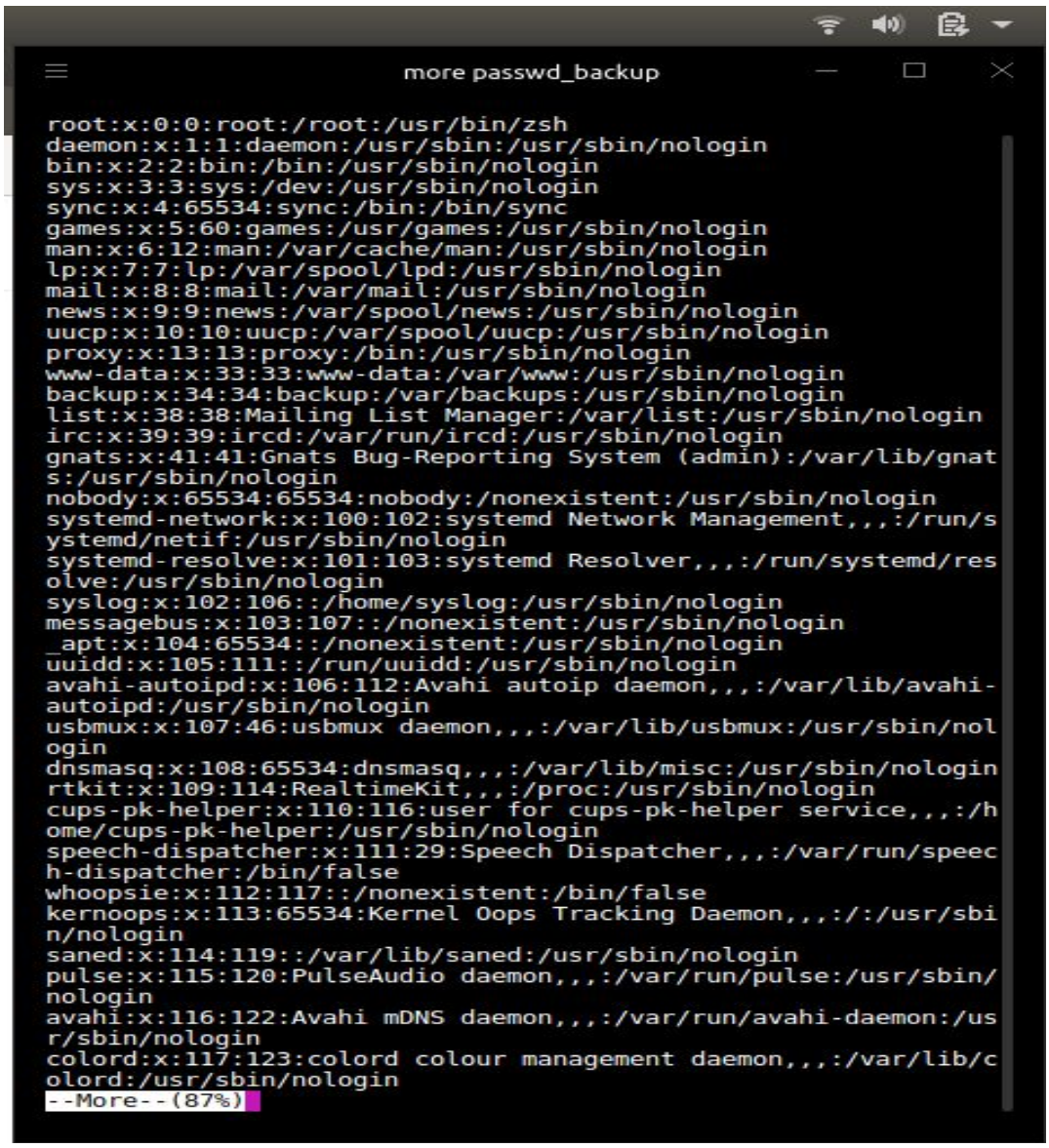


4. Find a "passwd" file using find command inside /etc. copy this files as passwd_copy and then rename this file as passwd_backup.

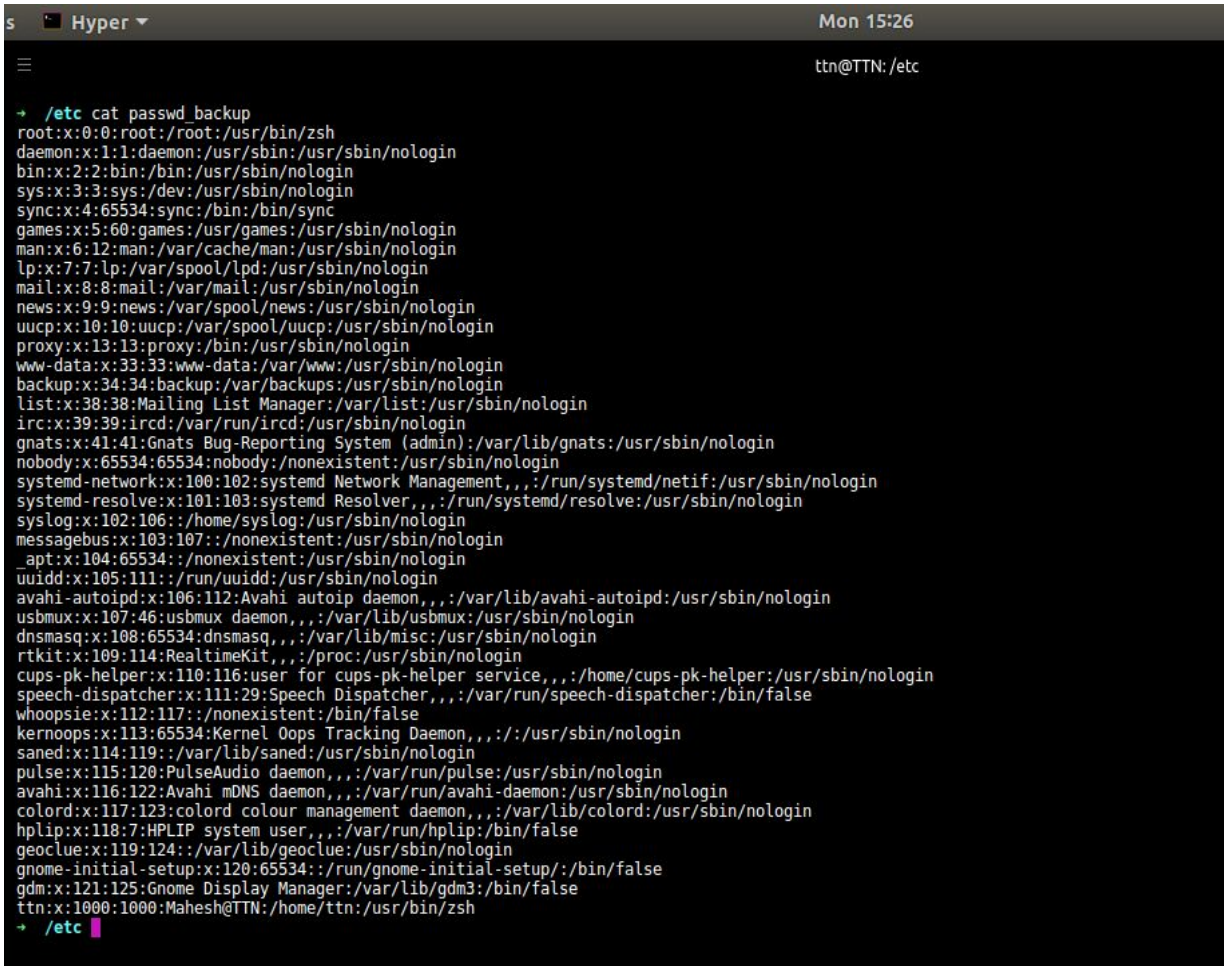


5. Try reading passwd_backup file in multiple tools: less,more,cat,strings etc and find the difference in their usage.

more>>



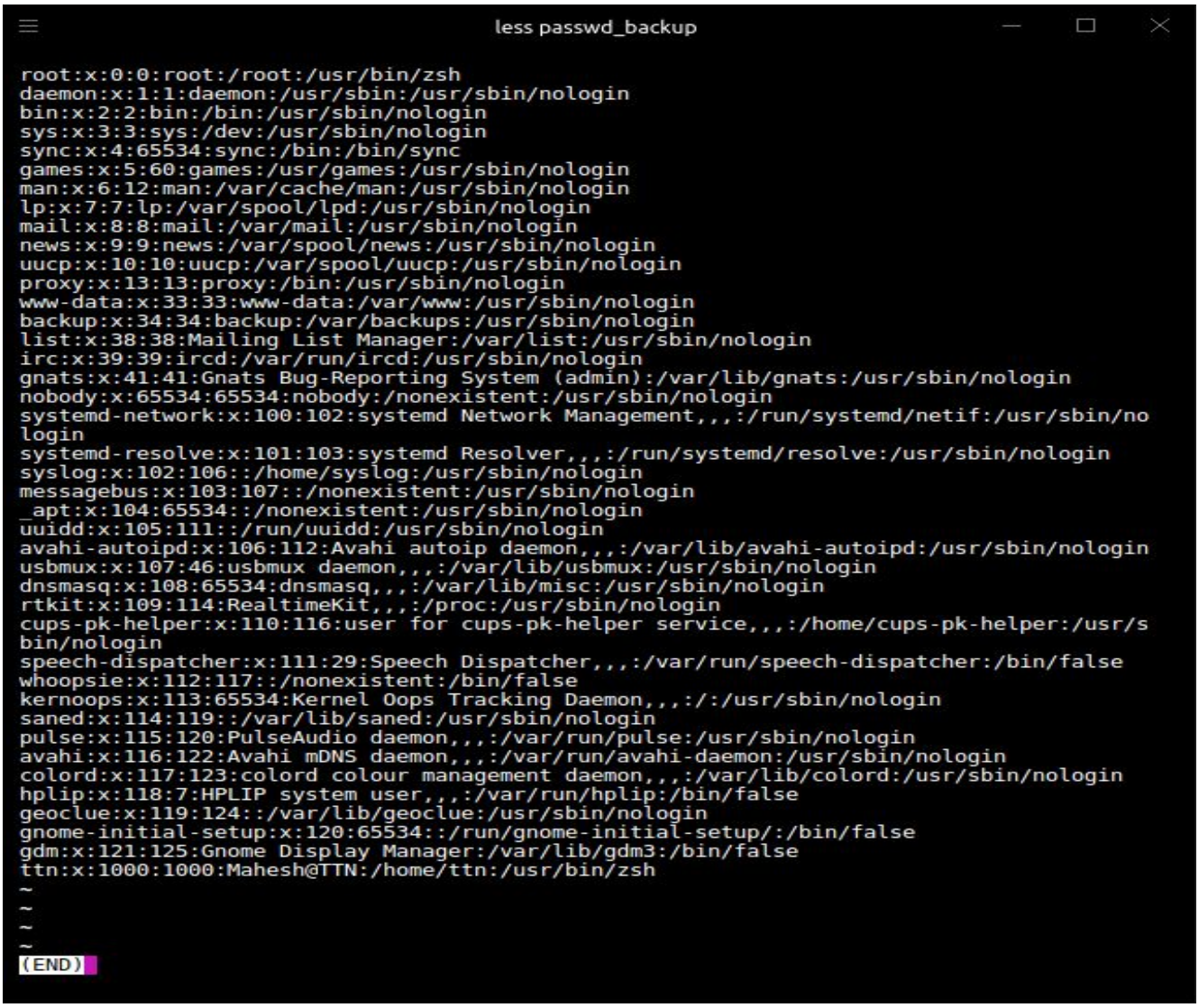
cat>>


Hyper
Mon 15:26
ttn@TTN: /etc
→ /etc cat passwd_backup
root:x:0:0:root:/root:/usr/bin/zsh
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
uuidd:x:105:111::/run/uuidd:/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
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
ttn:x:1000:1000:Mahesh@TTN:/home/ttn:/usr/bin/zsh
→ /etc

Less >>


00:26
ttn@TTN: /etc
→ ~ /etc
→ /etc less passwd_backup
→ /etc

Less(contd.)


less passwd_backup
root:x:0:0:root:/root:/usr/bin/zsh
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/no
login
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
uuidd:x:105:111::/run/uuidd:/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/s
bin/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
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
ttn:x:1000:1000:Mahesh@TTN:/home/ttn:/usr/bin/zsh
~
~
~
~
(END)

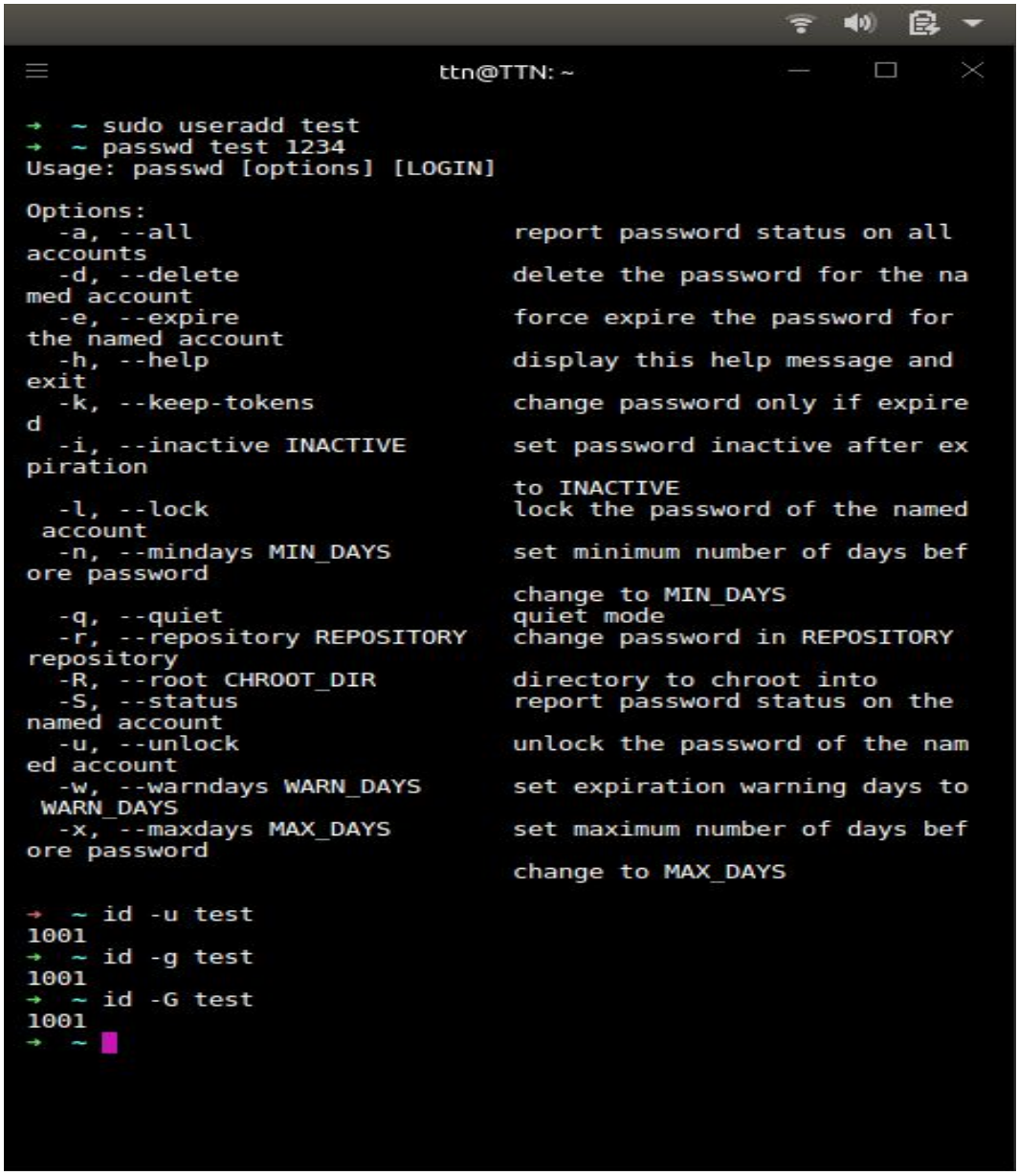
6. Find out the number of line in password_backup containing "/bin/false".

```
e
ttn@TTN:/etc$ grep -n "/bin/false" passwd_backup
30:speech-dispatcher:x:111:29:Speech Dispatcher,,,:/var/run/speech-dispatcher:/bin/false
31:whoopsie:x:112:117::/nonexistent:/bin/false
37:hplip:x:118:7:HPLIP system user,,,:/var/run/hplip:/bin/false
39:gnome-initial-setup:x:120:65534::/run/gnome-initial-setup/:/bin/false
40:gdm:x:121:125:Gnome Display Manager:/var/lib/gdm3:/bin/false
ttn@TTN:/etc$
```

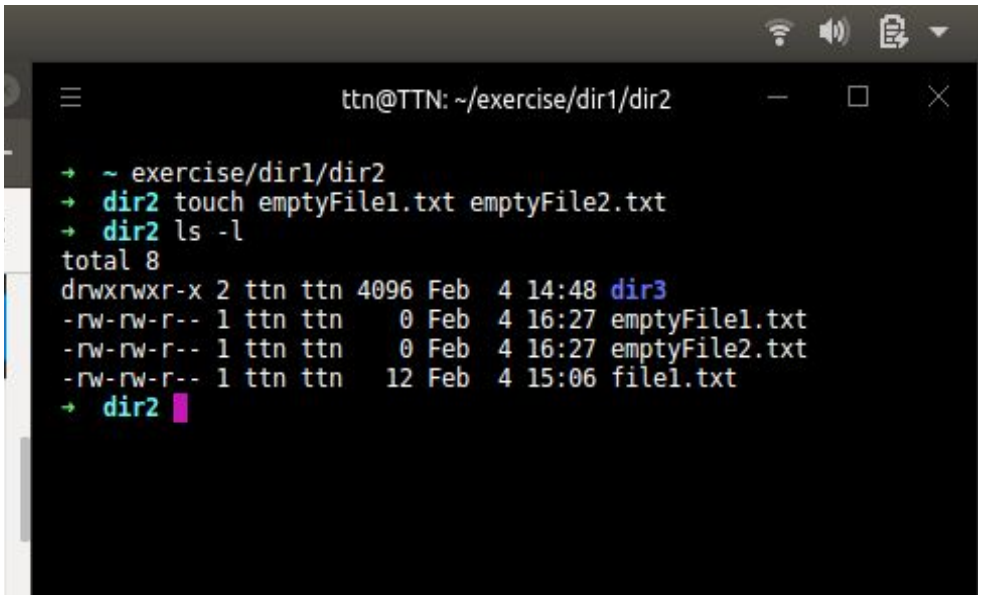
7. Get the first 5 lines of a file “password_backup” and Redirect the output of the above commands into file "output".

```
sudo: 1: command not found
➜  /etc sudo  head -n 5 passwd_backup  > output
➜  /etc find output
output
➜  /etc sudo head -n 5 output
root:x:0:0:root:/root:/usr/bin/zsh
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
➜  /etc
```

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



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

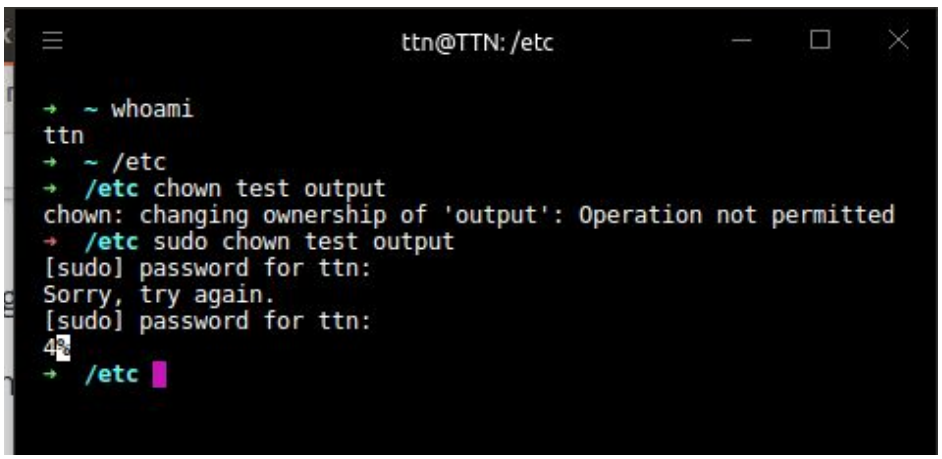


10. Login as test user and edit the "output" file created above. Since the permission won't allow you to save the changes. Configure such that test user can edit it.

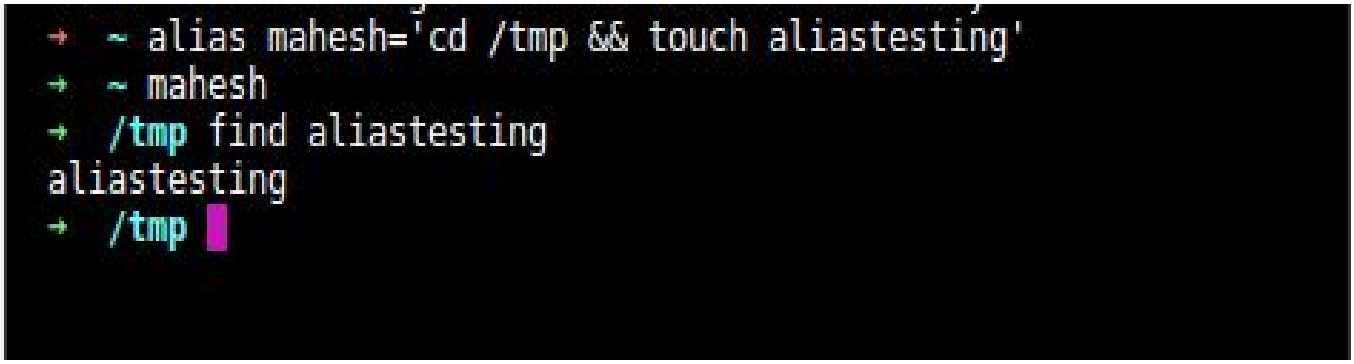
10.1. Add group owner of the "output" file as the secondary group of testuser and check/change the "output" file permission if it is editable by group. Once done revert the changes

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

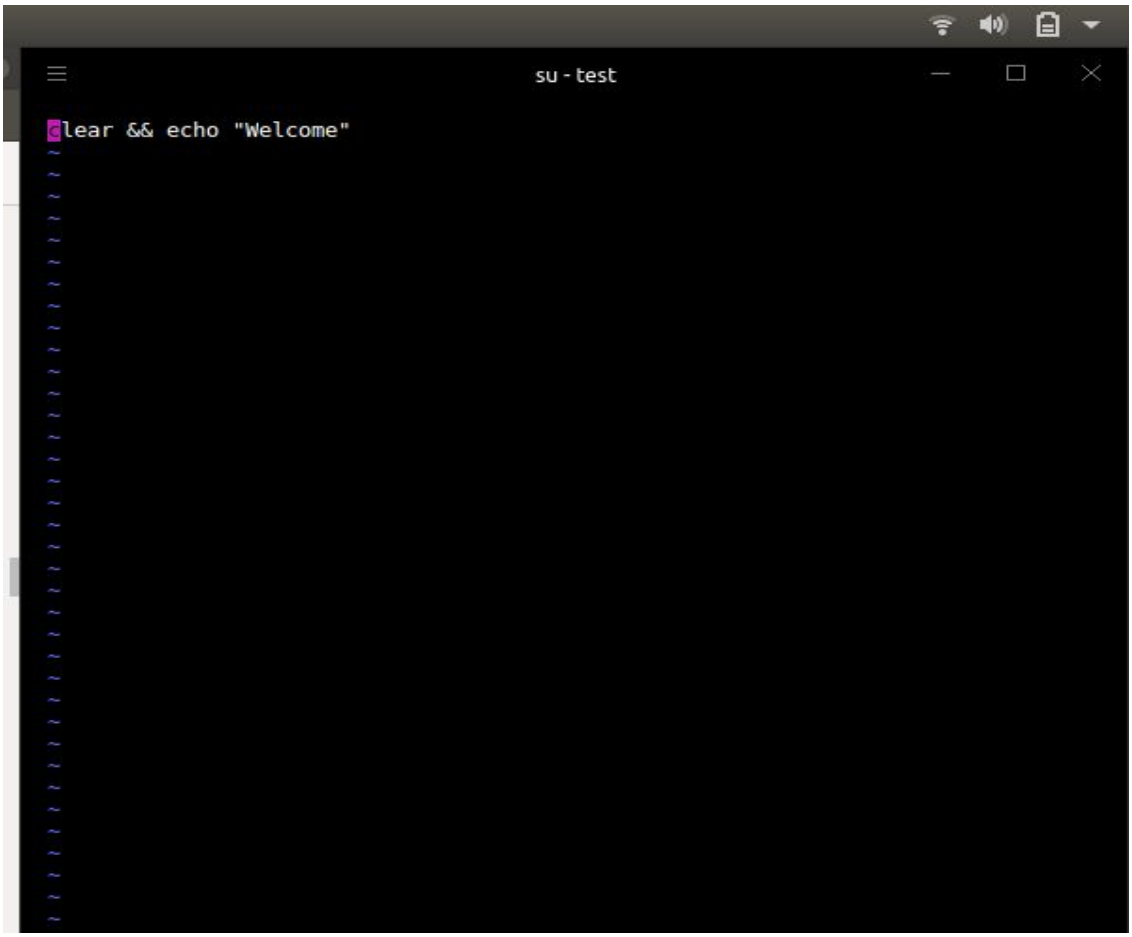
10.3 Change the ownership to edit the file.

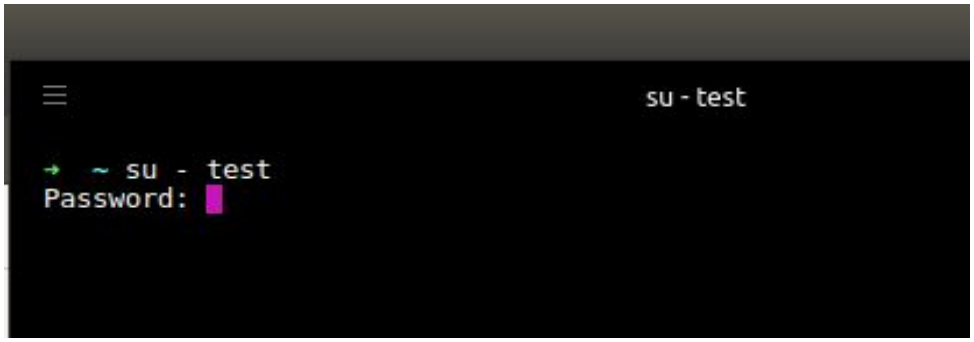


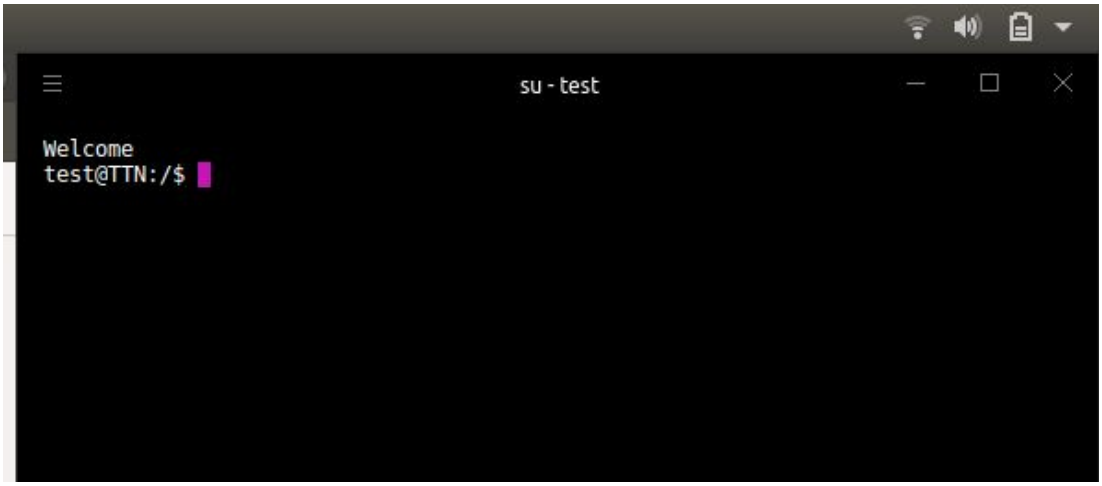
11. Create alias with your name so that it creates a file as "/tmp/aliastesting".



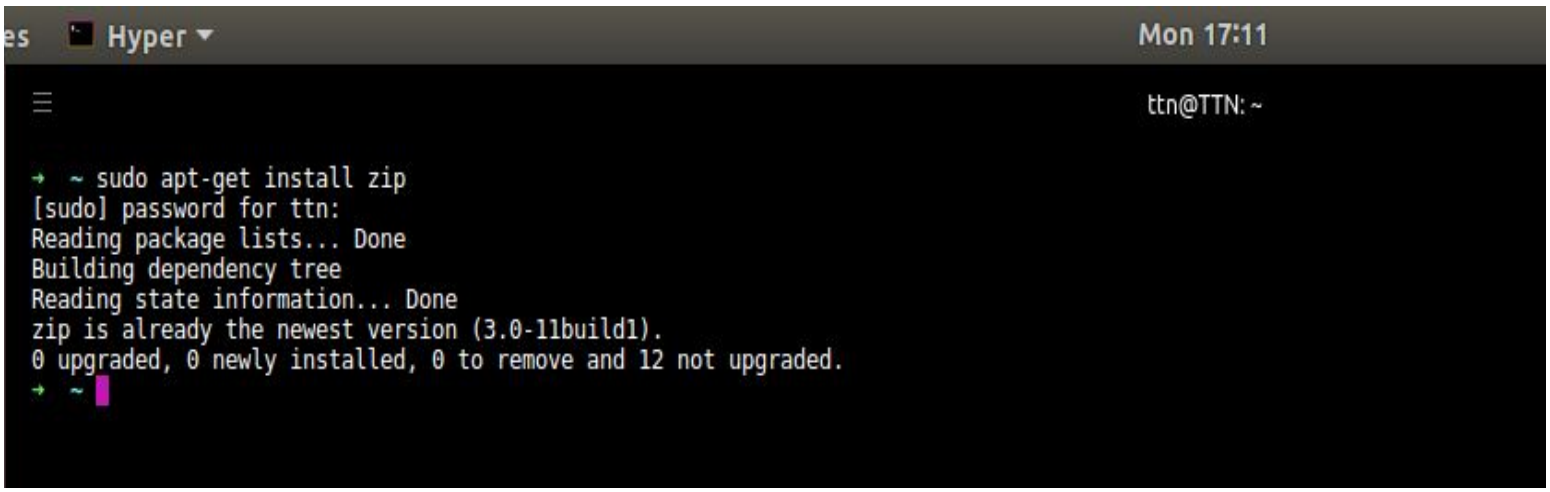
12. Edit ~/.bashrc file such that when you change to "test" user it should clear the screen and print "Welcome".



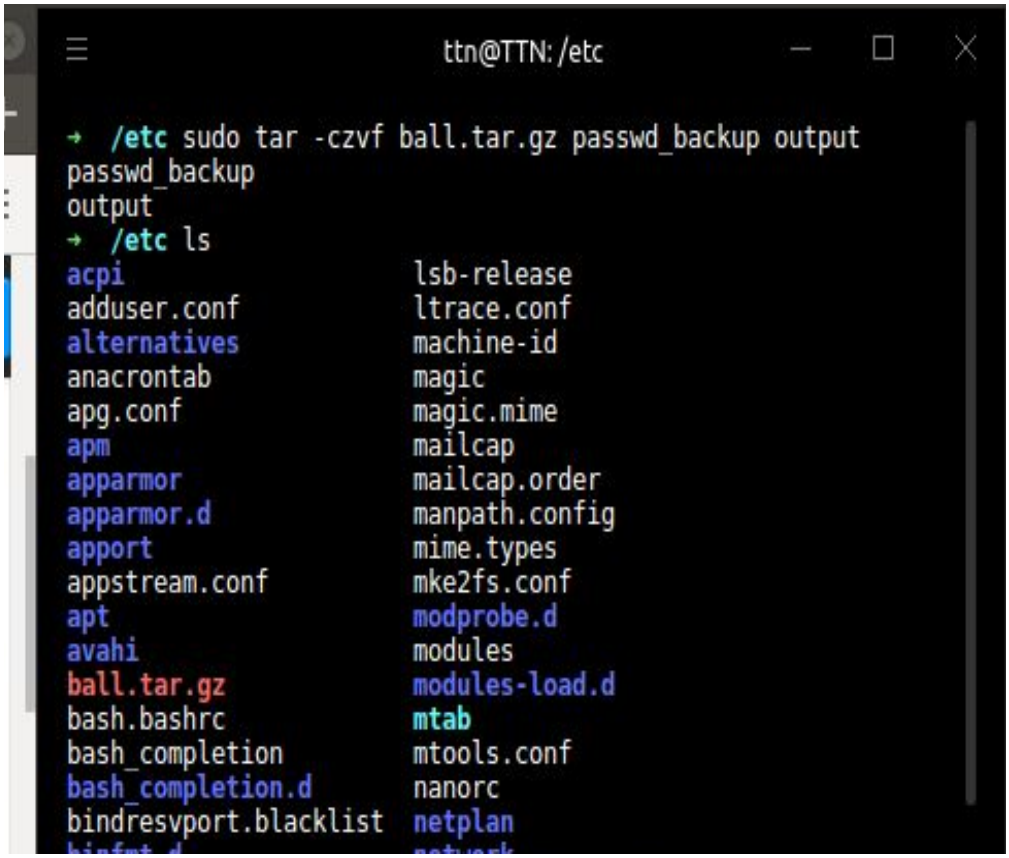


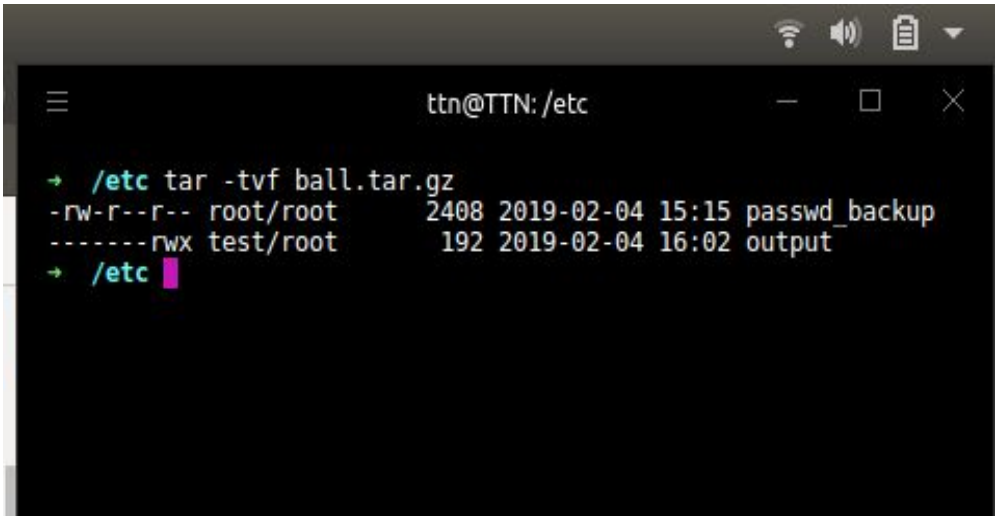


13. Install “zip” package.

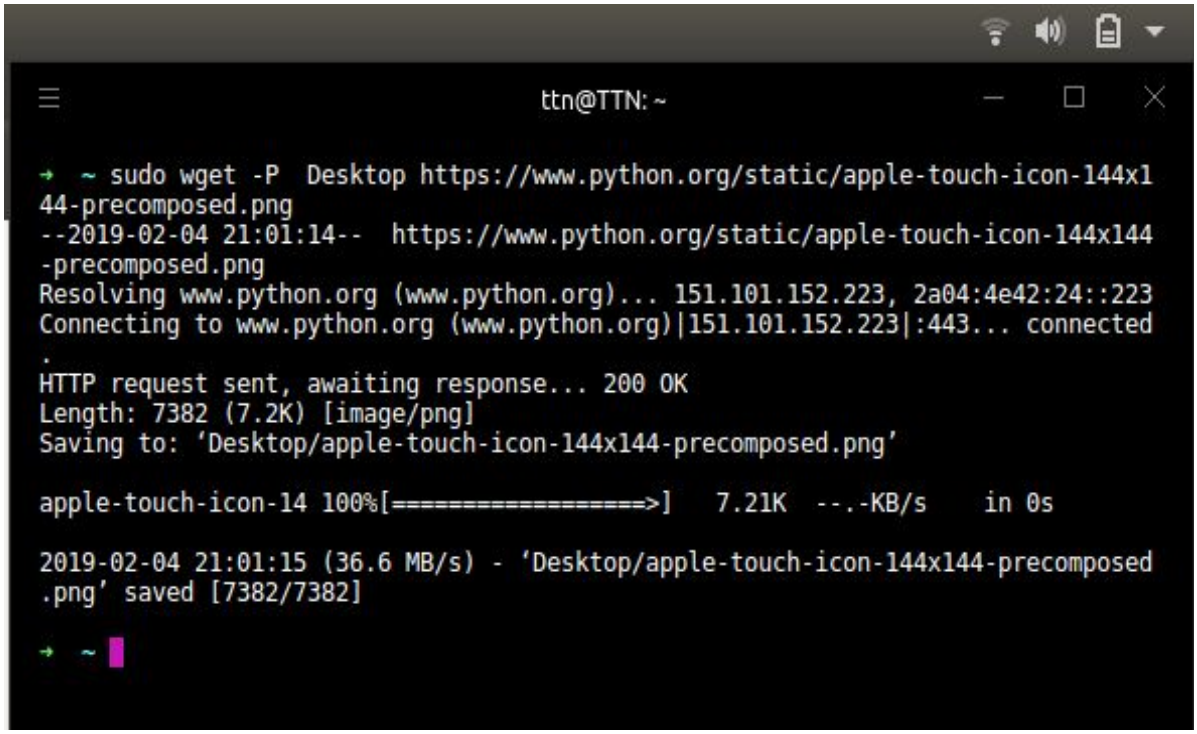


14. Compress "output" and "password_backup" files into a tar ball. List the files present inside the tar created.





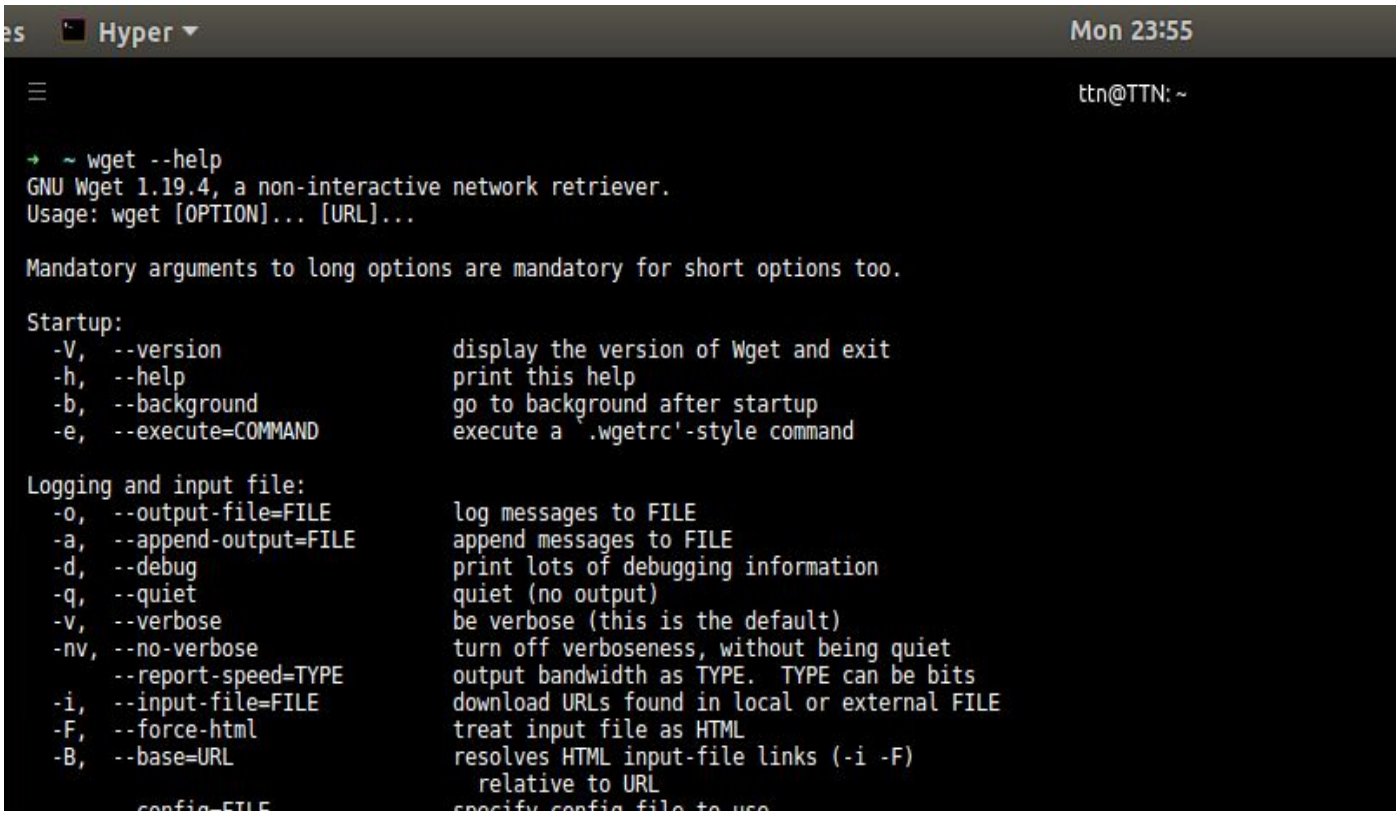
17. Download any image from web and move to desktop



18. How to get help of commands usages.

- By using

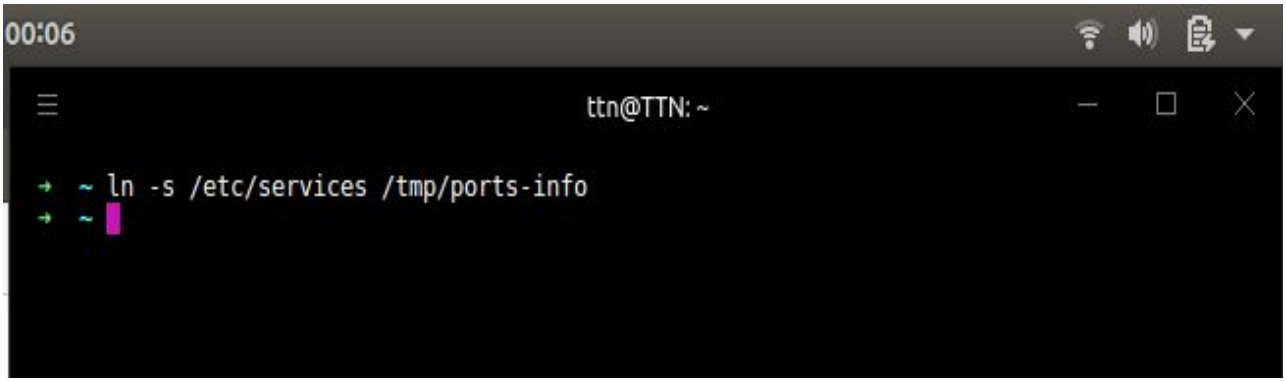
  “command” --help



- By using man “command”

```
man wget

WGET(1)                                                    GNU Wget

NAME
       Wget - The non-interactive network downloader.

SYNOPSIS
       wget [option]... [URL]...

DESCRIPTION
       GNU Wget is a free utility for non-interactive download of files from the Web.  It supports HTTP, HTTPS, and FTP protocols, as well as retriev

       Wget is non-interactive, meaning that it can work in the background, while the user is not logged on.  This allows you to start a retrieval an
       system, letting Wget finish the work.  By contrast, most of the Web browsers require constant user's presence, which can be a great hindrance
       data.

       Wget can follow links in HTML, XHTML, and CSS pages, to create local versions of remote web sites, fully recreating the directory structure of
       is sometimes referred to as "recursive downloading."  While doing that, Wget respects the Robot Exclusion Standard (/robots.txt).  Wget can be
       links in downloaded files to point at the local files, for offline viewing.

       Wget has been designed for robustness over slow or unstable network connections; if a download fails due to a network problem, it will keep re
       file has been retrieved.  If the server supports regetting, it will instruct the server to continue the download from where it left off.

OPTIONS
   Option Syntax
       Since Wget uses GNU getopt to process command-line arguments, every option has a long form along with the short one.  Long options are more co
       take time to type.  You may freely mix different option styles, or specify options after the command-line arguments.  Thus you may write:

              wget -r --tries=10 http://fly.srk.fer.hr/ -o log
```

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



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?