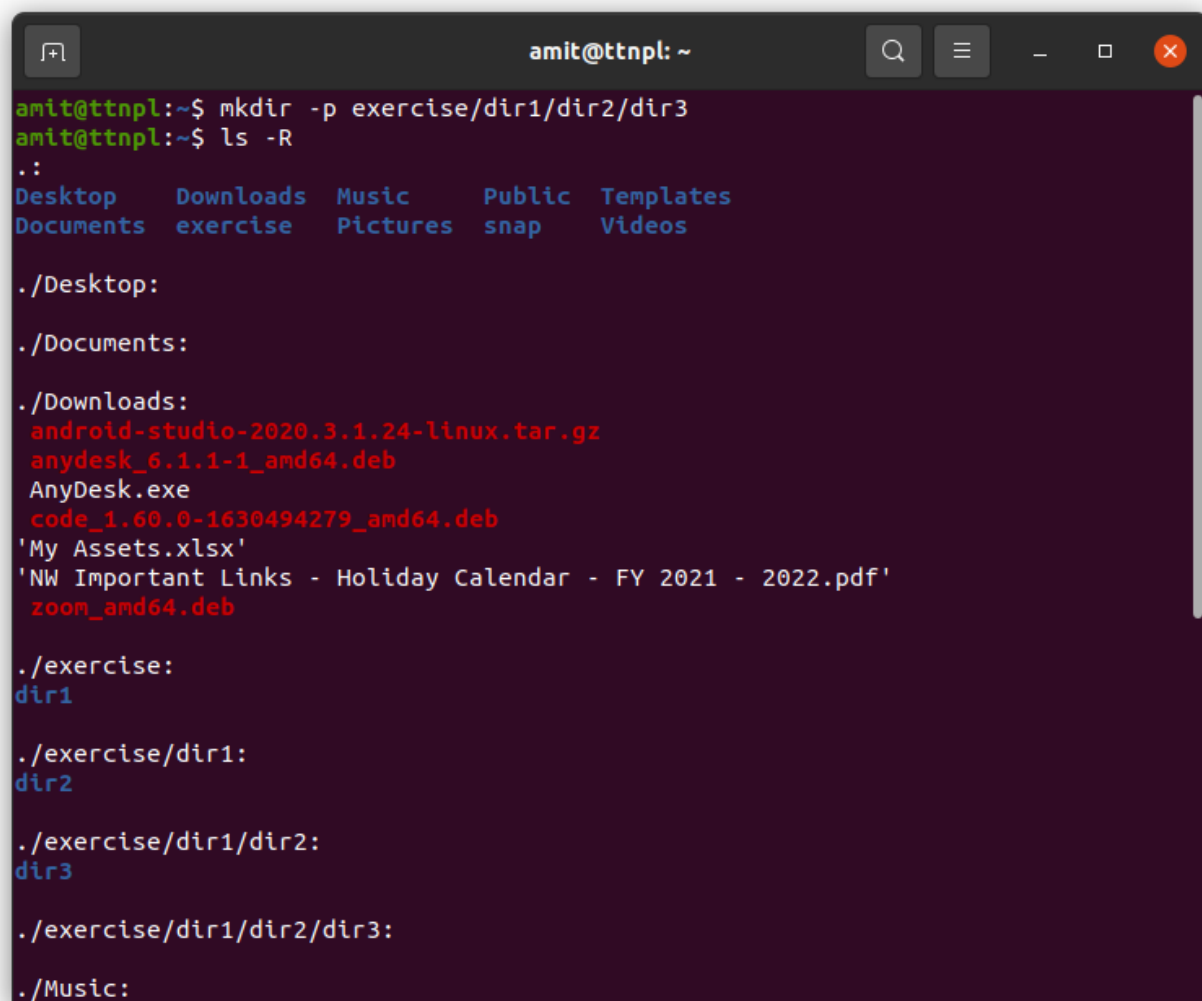


1.Create a directory "exercise" inside your home directory and create nested(dir1/dir2/dir3) directory structure inside "exercise" with single command.

Command

"mkdir -p exercise/dir1/dir2/dir3"

Screenshot



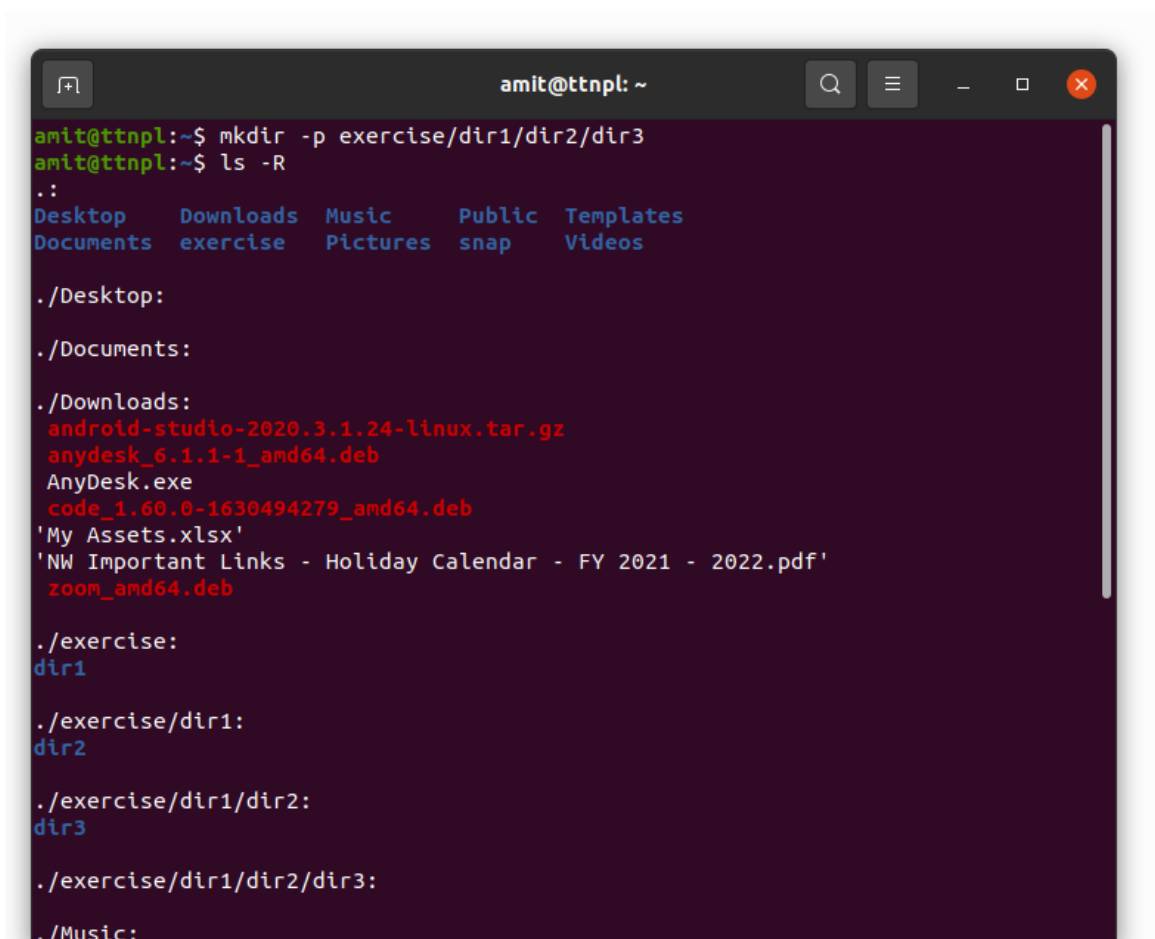
```
amit@ttnpl: ~  
amit@ttnpl:~$ mkdir -p exercise/dir1/dir2/dir3  
amit@ttnpl:~$ ls -R  
.:  
Desktop    Downloads  Music      Public     Templates  
Documents  exercise   Pictures    snap       Videos  
  
./Desktop:  
  
./Documents:  
  
./Downloads:  
android-studio-2020.3.1.24-linux.tar.gz  
anydesk_6.1.1-1_amd64.deb  
AnyDesk.exe  
code_1.60.0-1630494279_amd64.deb  
'My Assets.xlsx'  
'NW Important Links - Holiday Calendar - FY 2021 - 2022.pdf'  
zoom_amd64.deb  
  
./exercise:  
dir1  
  
./exercise/dir1:  
dir2  
  
./exercise/dir1/dir2:  
dir3  
  
./exercise/dir1/dir2/dir3:  
  
./Music:
```

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

Command

```
touch file{emptyFile1,emptyFile2}
```

Screenshot

A terminal window titled 'amit@ttnpl: ~' with standard window controls. The user has executed two commands: 'mkdir -p exercise/dir1/dir2/dir3' and 'ls -R'. The output of 'ls -R' shows a recursive listing of the file system. It starts with the root directory '.', followed by standard Linux directories like Desktop, Downloads, Music, Public, Templates, Documents, exercise, Pictures, snap, and Videos. The 'exercise' directory is expanded, showing 'dir1'. 'dir1' is expanded to show 'dir2'. 'dir2' is expanded to show 'dir3'. The 'dir3' directory is expanded to show its contents: 'emptyFile1' and 'emptyFile2'. The terminal text is as follows:

```
amit@ttnpl:~$ mkdir -p exercise/dir1/dir2/dir3
amit@ttnpl:~$ ls -R
.:
Desktop    Downloads  Music      Public     Templates
Documents  exercise   Pictures    snap       Videos

./Desktop:

./Documents:

./Downloads:
android-studio-2020.3.1.24-linux.tar.gz
anydesk_6.1.1-1_amd64.deb
AnyDesk.exe
code_1.60.0-1630494279_amd64.deb
'My Assets.xlsx'
'NW Important Links - Holiday Calendar - FY 2021 - 2022.pdf'
zoom_amd64.deb

./exercise:
dir1

./exercise/dir1:
dir2

./exercise/dir1/dir2:
dir3

./exercise/dir1/dir2/dir3:
emptyFile1
emptyFile2

./Music:
```

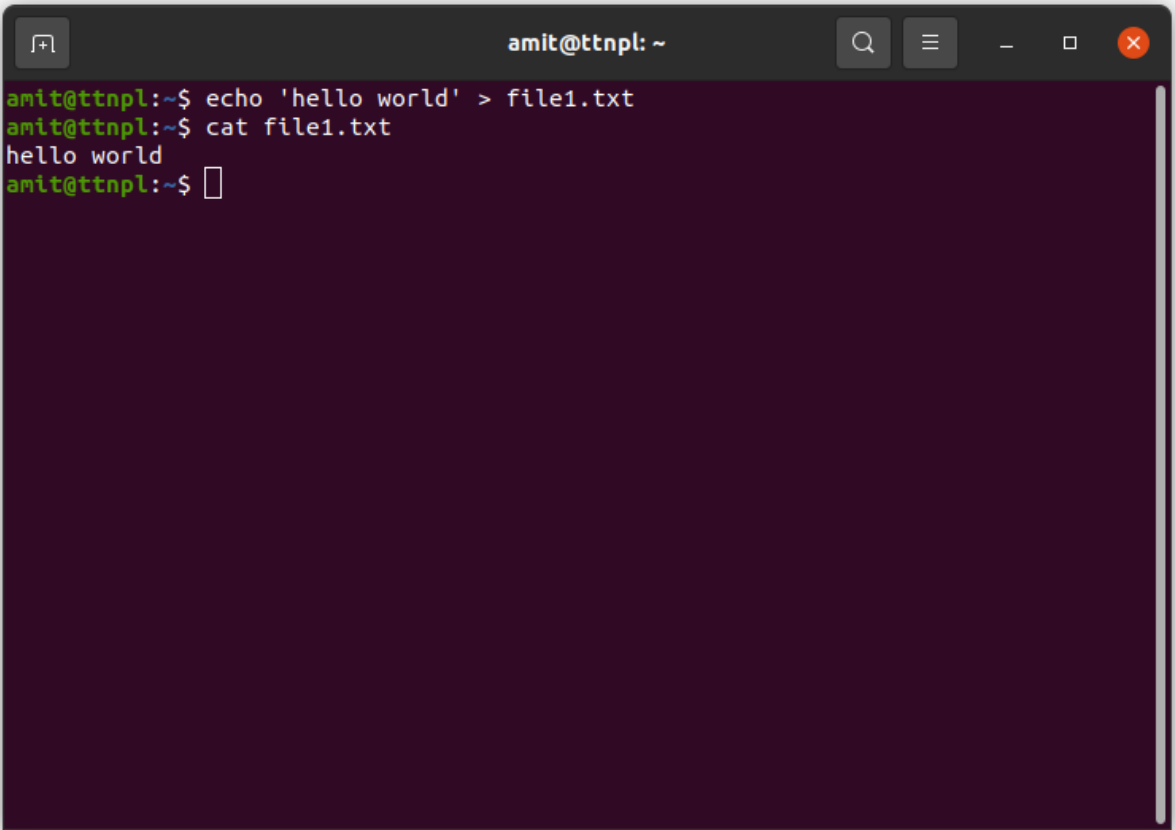
3.Create one file file1.txt containing text "hello world" and save it.

Command

```
echo 'hello world' > file1.txt
```

```
cat file1.txt
```

Screenshot



```
amit@ttnpl: ~  
amit@ttnpl:~$ echo 'hello world' > file1.txt  
amit@ttnpl:~$ cat file1.txt  
hello world  
amit@ttnpl:~$
```

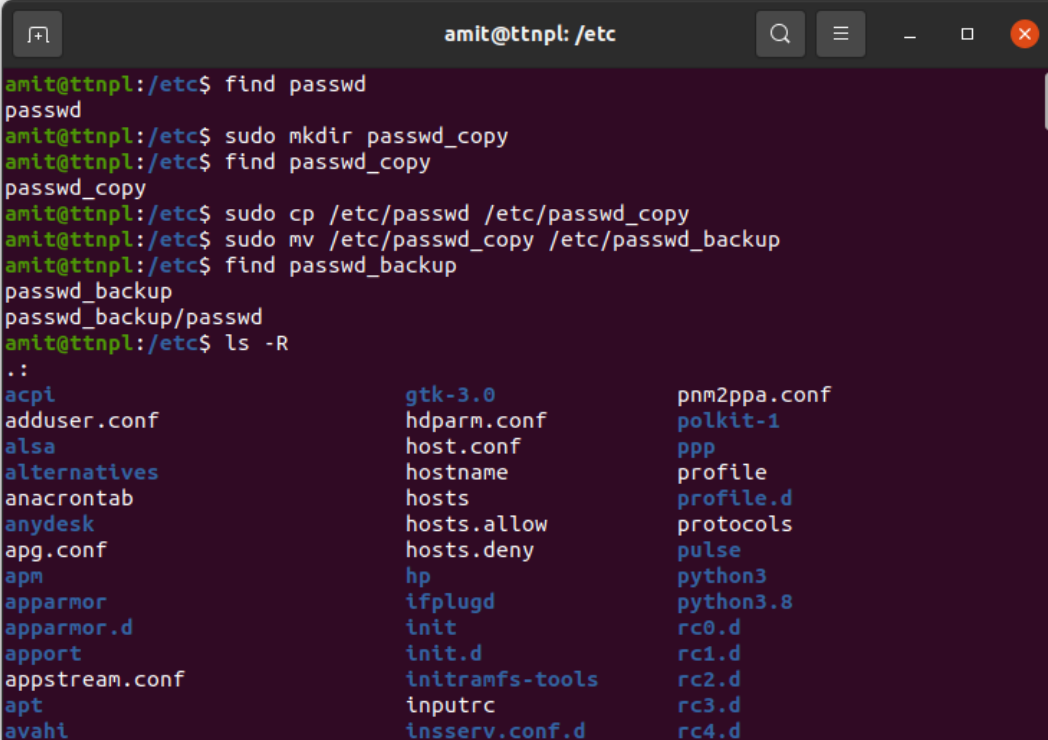
The screenshot shows a terminal window with a dark purple background. The window title is "amit@ttnpl: ~". The terminal displays the following sequence of commands and output: the user enters "echo 'hello world' > file1.txt", then "cat file1.txt", which outputs "hello world". The prompt "amit@ttnpl:~\$" is shown again with a cursor.

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

Command

```
find passwd
sudo mkdir passwd_copy
sudo cp /etc/passwd /etc/passwd_copy
sudo mv /etc/passwd_copy /etc/passwd_backup
```

Screenshot

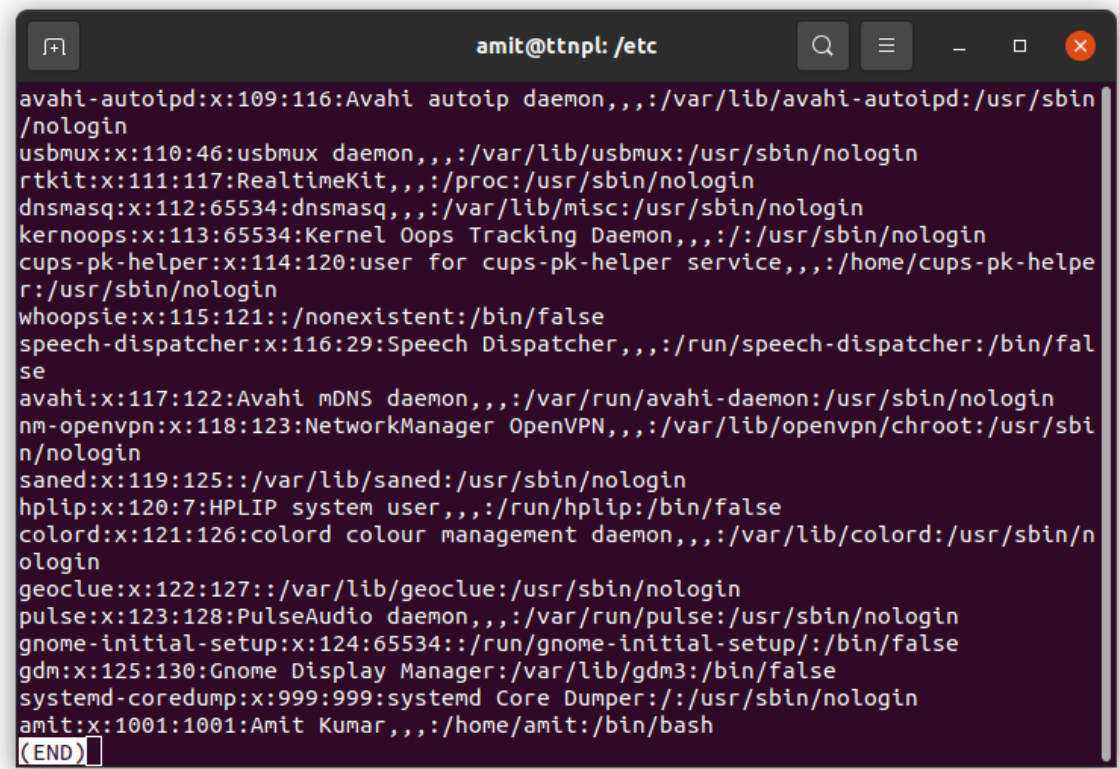


```
amit@ttnpl: /etc$ find passwd
passwd
amit@ttnpl: /etc$ sudo mkdir passwd_copy
amit@ttnpl: /etc$ find passwd_copy
passwd_copy
amit@ttnpl: /etc$ sudo cp /etc/passwd /etc/passwd_copy
amit@ttnpl: /etc$ sudo mv /etc/passwd_copy /etc/passwd_backup
amit@ttnpl: /etc$ find passwd_backup
passwd_backup
passwd_backup/passwd
amit@ttnpl: /etc$ ls -R
.:
acpi                gtk-3.0             pnm2ppa.conf
adduser.conf        hdparm.conf         polkit-1
alsa                host.conf            ppp
alternatives        hostname             profile
anacrontab          hosts                profile.d
anydesk              hosts.allow           protocols
apg.conf             hosts.deny            pulse
apm                  hp                    python3
apparmor             ifplugd               python3.8
apparmor.d           init                  rc0.d
appport              init.d                rc1.d
appstream.conf       initramfs-tools       rc2.d
apt                  inputrc               rc3.d
avahi                 insserv.conf.d        rc4.d
```

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

Screenshot (less)

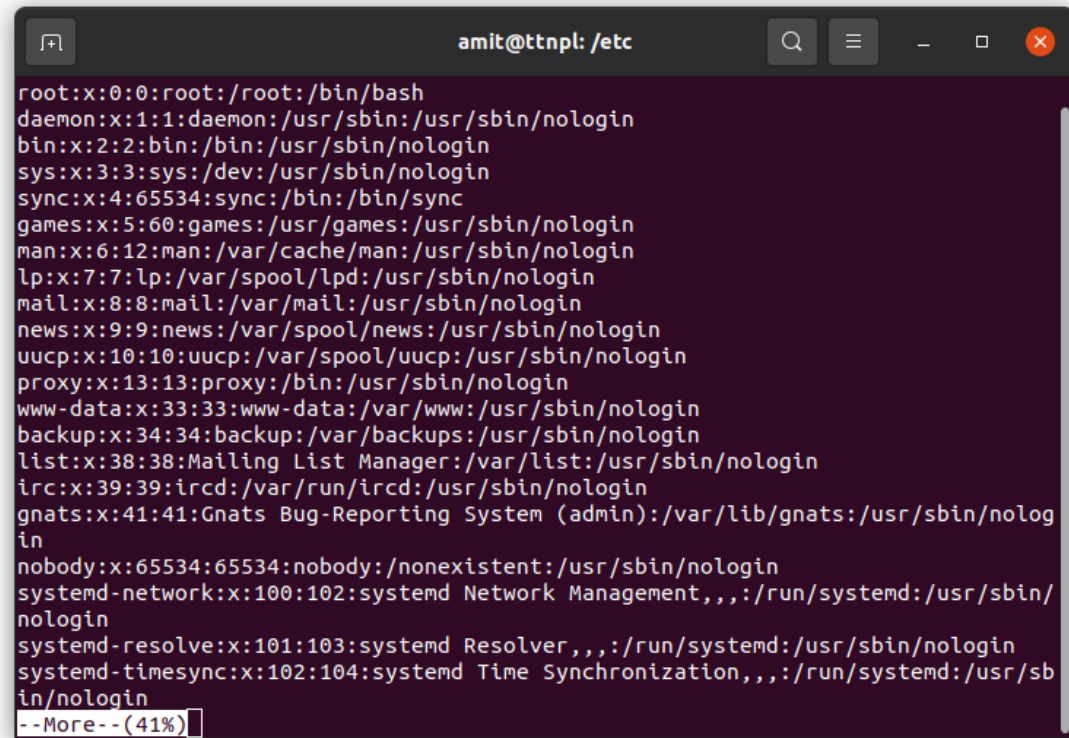
amit@ttnpl:/etc\$ less passwd_backup



```
amit@ttnpl: /etc
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
cups-pk-helper:x:114:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
whoopsie:x:115:121:/:nonexistent:/bin/false
speech-dispatcher:x:116:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:117:122:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
nm-openvpn:x:118:123:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:119:125:/:/var/lib/saned:/usr/sbin/nologin
hplip:x:120:7:HPLIP system user,,,:/run/hplip:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127:/:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534:/:/run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
amit:x:1001:1001:Amit Kumar,,,:/home/amit:/bin/bash
(END)
```

Screenshot (more)

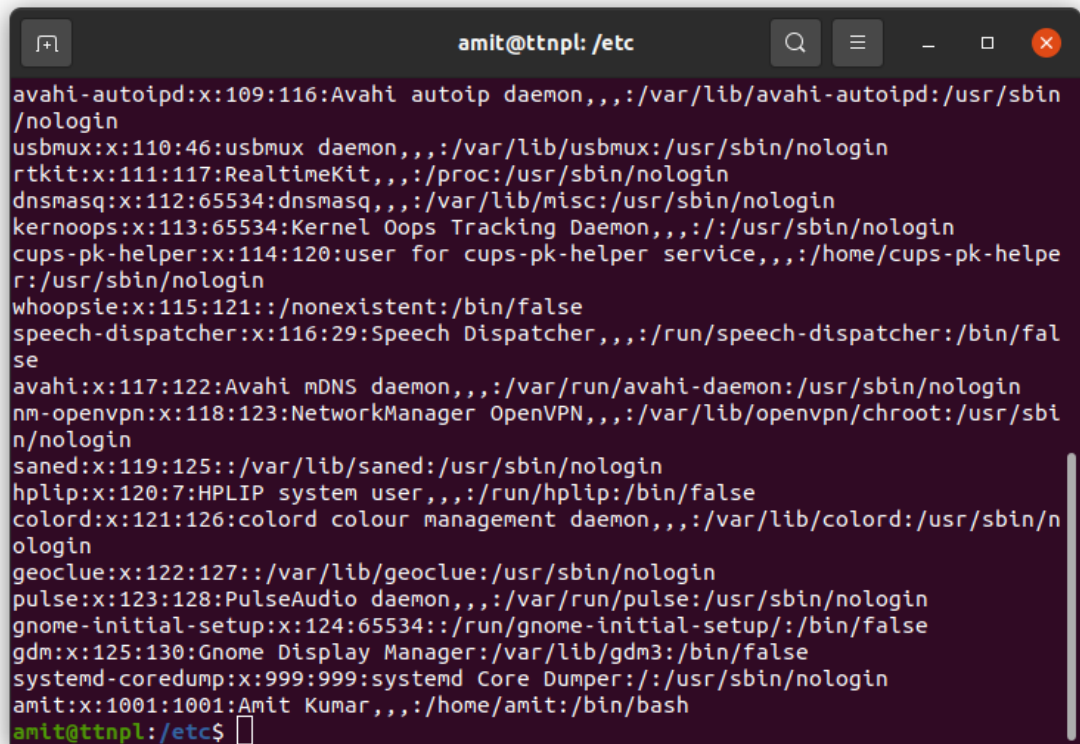
amit@ttnpl:/etc\$ more passwd_backup

A terminal window titled 'amit@ttnpl: /etc' with standard window controls (search, menu, zoom, close). The terminal displays the output of the 'more' command on the 'passwd_backup' file. The output lists system users in a colon-separated format: username:x:UID:GID:full_name:home_directory:shell. The users listed are root, daemon, bin, sys, sync, games, man, lp, mail, news, uucp, proxy, www-data, backup, list, irc, gnats, nobody, systemd-network, systemd-resolve, and systemd-timesync. The list is truncated at the bottom with '--More-- (41%)' and a cursor.

```
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:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
--More-- (41%)
```

Screenshot (cat)

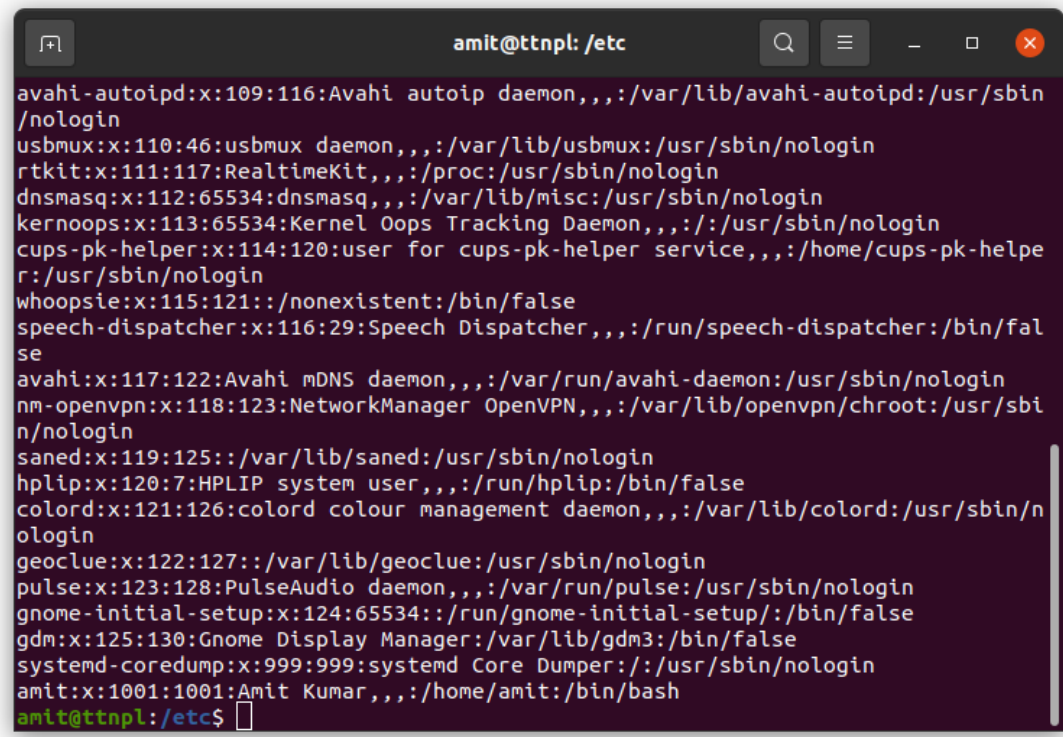
amit@ttnpl:/etc\$ cat passwd_backup

A screenshot of a terminal window titled 'amit@ttnpl: /etc'. The window shows the output of the command 'cat passwd_backup'. The output lists system users and their details, including UID, GID, name, description, home directory, and shell. The users listed are avahi-autoipd, usbmux, rtkit, dnsmasq, kernoops, cups-pk-helper, whoopsie, speech-dispatcher, avahi, nm-openvpn, saned, hplip, colord, geoclue, pulse, gnome-initial-setup, gdm, systemd-coredump, and amit. The terminal has a dark background with light-colored text. The window title bar includes a search icon, a menu icon, and standard window controls (minimize, maximize, close).

```
amit@ttnpl: /etc
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
cups-pk-helper:x:114:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
whoopsie:x:115:121::/nonexistent:/bin/false
speech-dispatcher:x:116:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:117:122:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
nm-openvpn:x:118:123:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:119:125::/var/lib/saned:/usr/sbin/nologin
hplip:x:120:7:HPLIP system user,,,:/run/hplip:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin
amit:x:1001:1001:Amit Kumar,,,:/home/amit:/bin/bash
amit@ttnpl:/etc$
```

Screenshot (string)

amit@ttnpl:/etc\$ strings passwd_backup



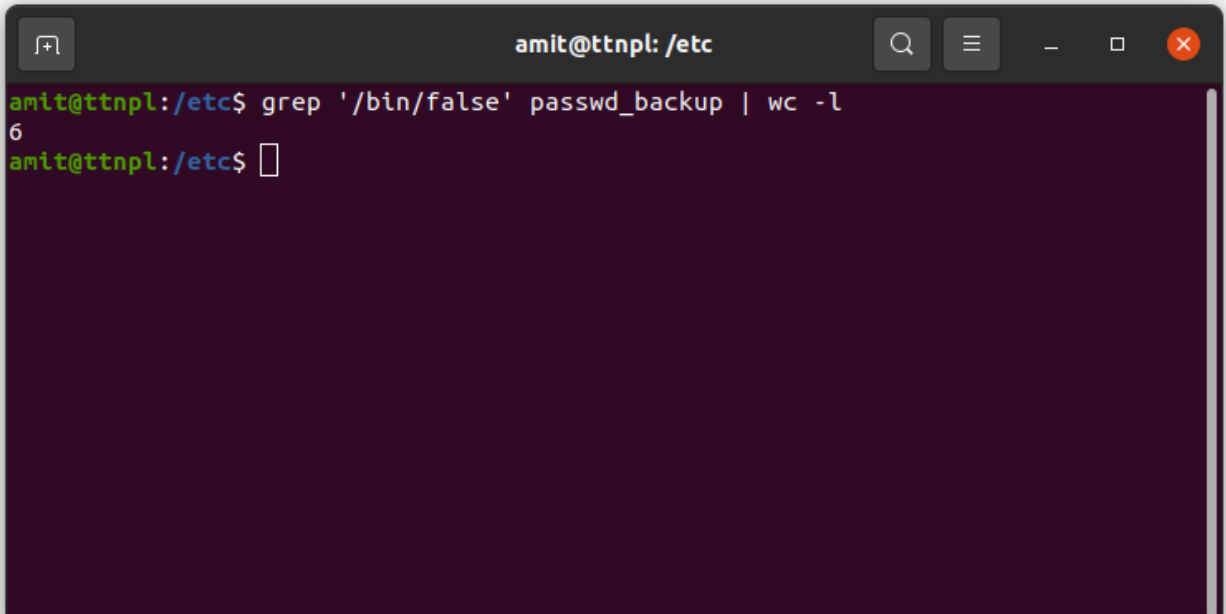
```
amit@ttnpl: /etc
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
cups-pk-helper:x:114:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
whoopsie:x:115:121::/nonexistent:/bin/false
speech-dispatcher:x:116:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:117:122:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
nm-openvpn:x:118:123:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:119:125::/var/lib/saned:/usr/sbin/nologin
hplip:x:120:7:HPLIP system user,,,:/run/hplip:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin
amit:x:1001:1001:Amit Kumar,,,:/home/amit:/bin/bash
amit@ttnpl:/etc$
```


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

Command

```
grep '/bin/false' passwd_backup
```

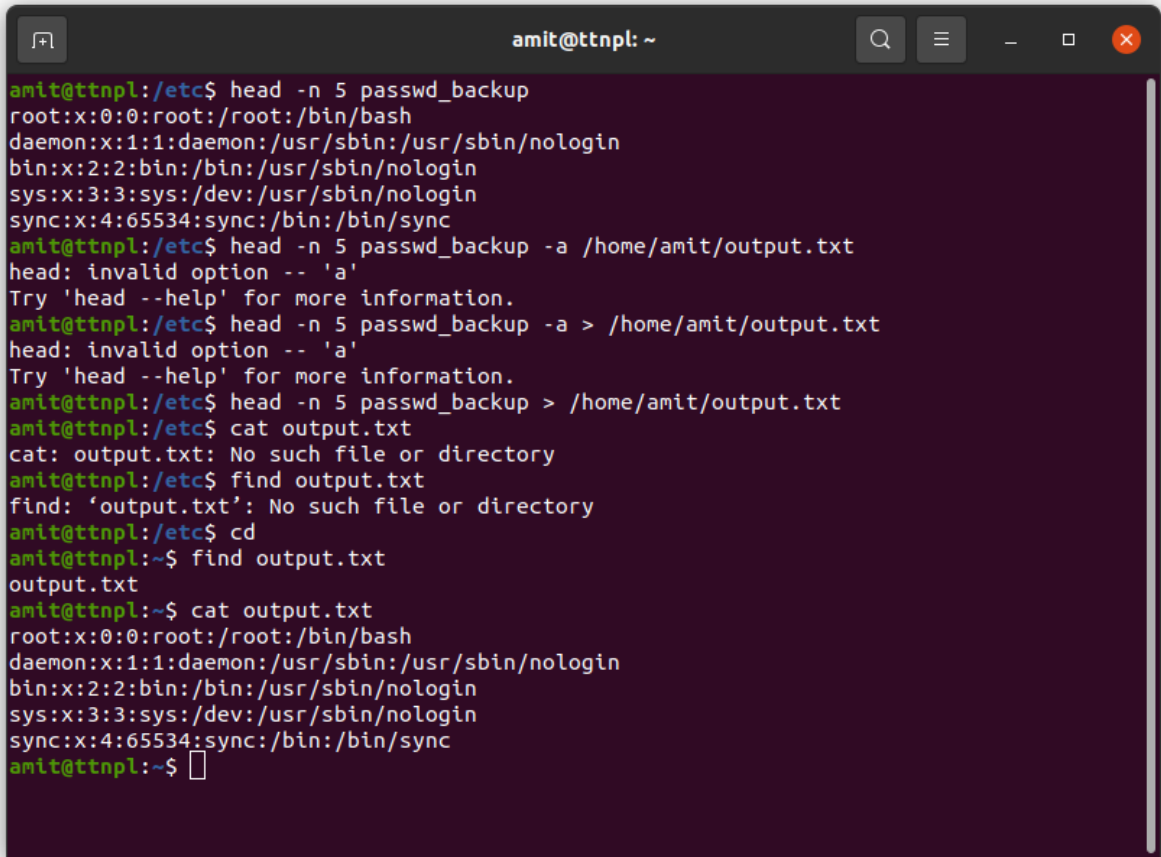
Output Screenshot



```
amit@ttnpl: /etc
amit@ttnpl:/etc$ grep '/bin/false' passwd_backup | wc -l
6
amit@ttnpl:/etc$
```

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

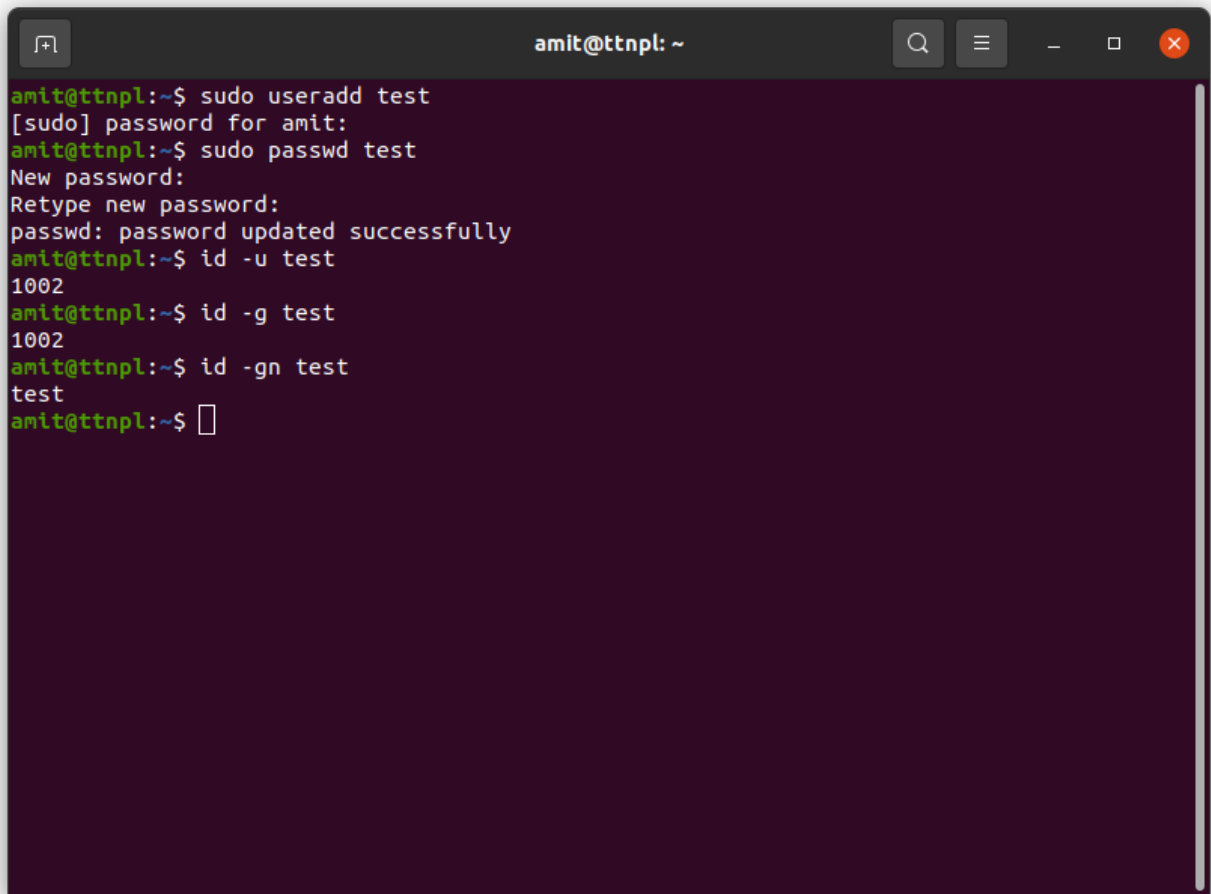
Output Screenshot



```
amit@ttnpl: ~  
amit@ttnpl:/etc$ 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  
amit@ttnpl:/etc$ head -n 5 passwd_backup -a /home/amit/output.txt  
head: invalid option -- 'a'  
Try 'head --help' for more information.  
amit@ttnpl:/etc$ head -n 5 passwd_backup -a > /home/amit/output.txt  
head: invalid option -- 'a'  
Try 'head --help' for more information.  
amit@ttnpl:/etc$ head -n 5 passwd_backup > /home/amit/output.txt  
amit@ttnpl:/etc$ cat output.txt  
cat: output.txt: No such file or directory  
amit@ttnpl:/etc$ find output.txt  
find: 'output.txt': No such file or directory  
amit@ttnpl:/etc$ cd  
amit@ttnpl:~$ find output.txt  
output.txt  
amit@ttnpl:~$ cat output.txt  
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  
amit@ttnpl:~$
```

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

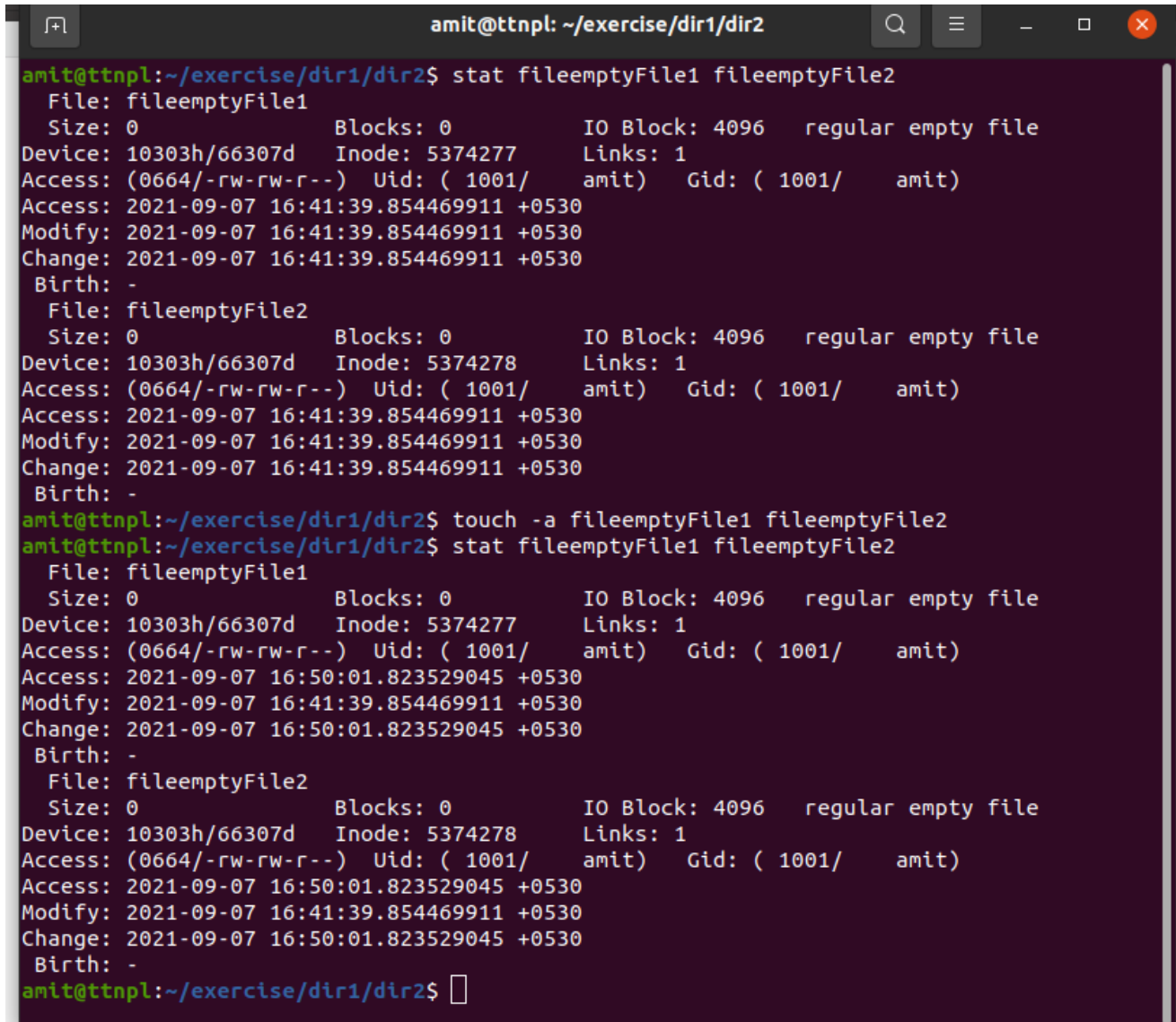
Output Screenshot



```
amit@ttnpl: ~  
amit@ttnpl:~$ sudo useradd test  
[sudo] password for amit:  
amit@ttnpl:~$ sudo passwd test  
New password:  
Retype new password:  
passwd: password updated successfully  
amit@ttnpl:~$ id -u test  
1002  
amit@ttnpl:~$ id -g test  
1002  
amit@ttnpl:~$ id -gn test  
test  
amit@ttnpl:~$
```

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

Output Screenshot



```
amit@ttnpl: ~/exercise/dir1/dir2
amit@ttnpl:~/exercise/dir1/dir2$ stat fileemptyFile1 fileemptyFile2
  File: fileemptyFile1
  Size: 0                Blocks: 0                IO Block: 4096   regular empty file
Device: 10303h/66307d   Inode: 5374277       Links: 1
Access: (0664/-rw-rw-r--)  Uid: ( 1001/   amit)   Gid: ( 1001/   amit)
Access: 2021-09-07 16:41:39.854469911 +0530
Modify: 2021-09-07 16:41:39.854469911 +0530
Change: 2021-09-07 16:41:39.854469911 +0530
 Birth: -
  File: fileemptyFile2
  Size: 0                Blocks: 0                IO Block: 4096   regular empty file
Device: 10303h/66307d   Inode: 5374278       Links: 1
Access: (0664/-rw-rw-r--)  Uid: ( 1001/   amit)   Gid: ( 1001/   amit)
Access: 2021-09-07 16:41:39.854469911 +0530
Modify: 2021-09-07 16:41:39.854469911 +0530
Change: 2021-09-07 16:41:39.854469911 +0530
 Birth: -
amit@ttnpl:~/exercise/dir1/dir2$ touch -a fileemptyFile1 fileemptyFile2
amit@ttnpl:~/exercise/dir1/dir2$ stat fileemptyFile1 fileemptyFile2
  File: fileemptyFile1
  Size: 0                Blocks: 0                IO Block: 4096   regular empty file
Device: 10303h/66307d   Inode: 5374277       Links: 1
Access: (0664/-rw-rw-r--)  Uid: ( 1001/   amit)   Gid: ( 1001/   amit)
Access: 2021-09-07 16:50:01.823529045 +0530
Modify: 2021-09-07 16:41:39.854469911 +0530
Change: 2021-09-07 16:50:01.823529045 +0530
 Birth: -
  File: fileemptyFile2
  Size: 0                Blocks: 0                IO Block: 4096   regular empty file
Device: 10303h/66307d   Inode: 5374278       Links: 1
Access: (0664/-rw-rw-r--)  Uid: ( 1001/   amit)   Gid: ( 1001/   amit)
Access: 2021-09-07 16:50:01.823529045 +0530
Modify: 2021-09-07 16:41:39.854469911 +0530
Change: 2021-09-07 16:50:01.823529045 +0530
 Birth: -
amit@ttnpl:~/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.

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.

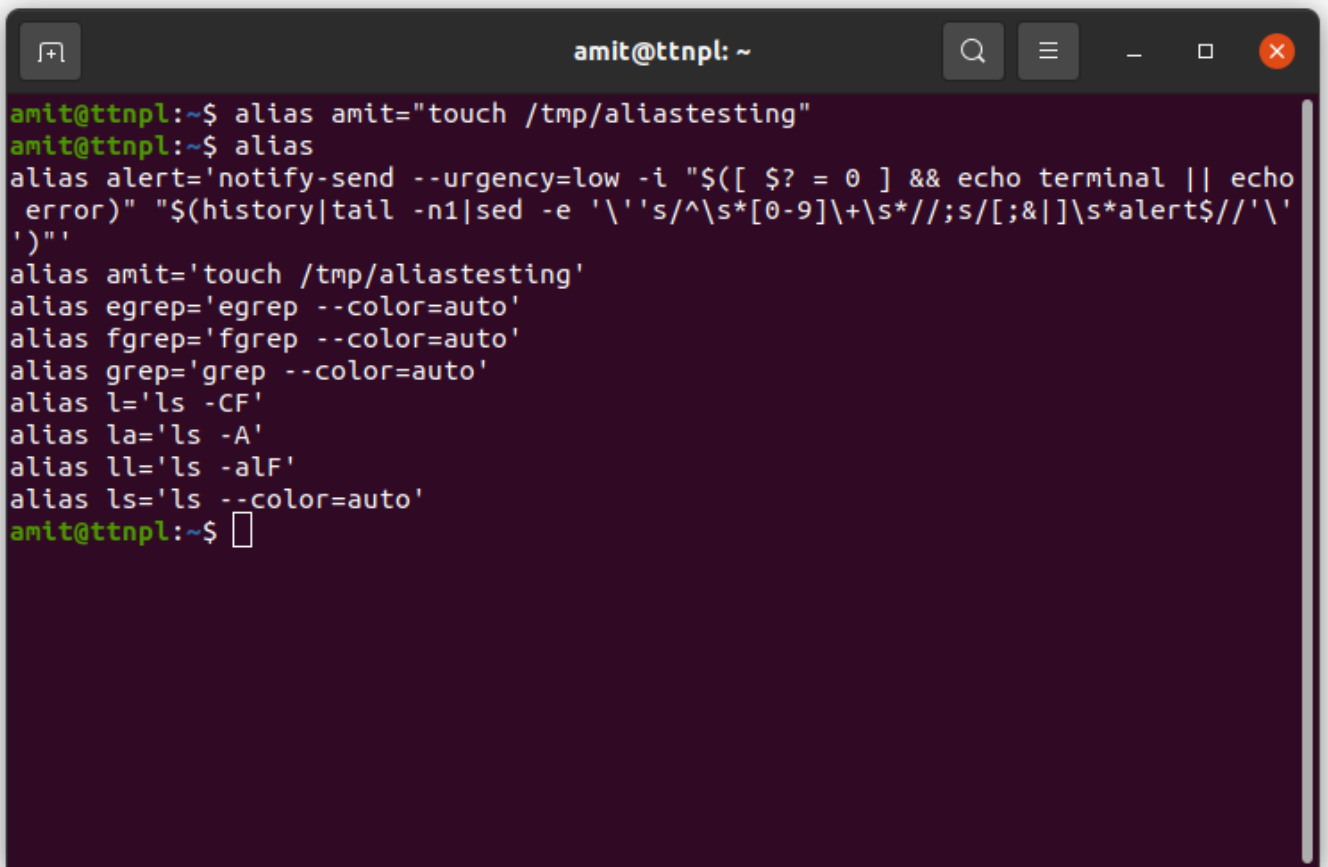
Output Screenshot

A screenshot of a terminal window titled "amit@ttnpl: ~/exercise/dir1/dir2". The terminal has a dark purple background. It displays two lines of text: "this is test user" followed by "some text is there" on the next line. Below this, there are approximately 20 tilde (~) characters arranged vertically. At the bottom left corner, the prompt ":wq" is visible. The terminal window includes standard OS window controls (minimize, maximize, close) in the top right corner.

```
"output.txt"
"output.txt" E212: Can't open file for writing
Press ENTER or type command to continue
```

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

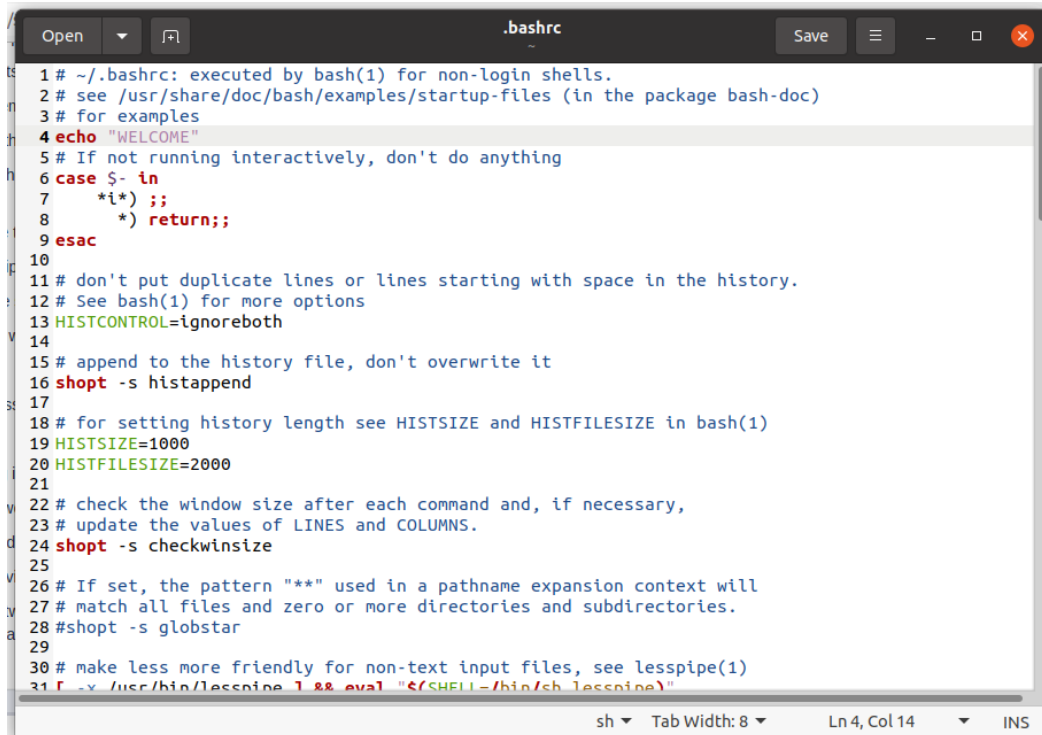
Output Screenshot



```
amit@ttnpl: ~  
amit@ttnpl:~$ alias amit="touch /tmp/aliastesting"  
amit@ttnpl:~$ alias  
alias alert='notify-send --urgency=low -i "${[ $? = 0 ]}&& echo terminal || echo error)" "${history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&]\s*alert$//'\`'  
'\`''  
alias amit='touch /tmp/aliastesting'  
alias egrep='egrep --color=auto'  
alias fgrep='fgrep --color=auto'  
alias grep='grep --color=auto'  
alias l='ls -CF'  
alias la='ls -A'  
alias ll='ls -alF'  
alias ls='ls --color=auto'  
amit@ttnpl:~$
```

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

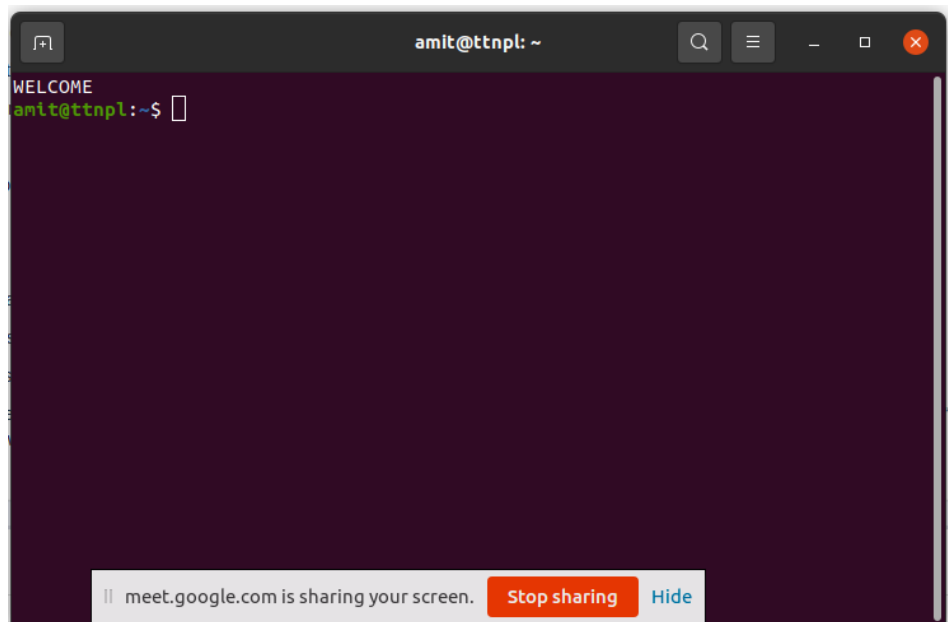
Output Screenshot



A screenshot of a text editor window titled ".bashrc". The window has a dark theme and includes "Open", "Save", and window control buttons. The file content is as follows:

```
1 # ~/.bashrc: executed by bash(1) for non-login shells.
2 # see /usr/share/doc/bash/examples/startup-files (in the package bash-doc)
3 # for examples
4 echo "WELCOME"
5 # If not running interactively, don't do anything
6 case $- in
7     *) ;;
8     *) return;;
9 esac
10
11 # don't put duplicate lines or lines starting with space in the history.
12 # See bash(1) for more options
13 HISTCONTROL=ignoreboth
14
15 # append to the history file, don't overwrite it
16 shopt -s histappend
17
18 # for setting history length see HISTSIZE and HISTFILESIZE in bash(1)
19 HISTSIZE=1000
20 HISTFILESIZE=2000
21
22 # check the window size after each command and, if necessary,
23 # update the values of LINES and COLUMNS.
24 shopt -s checkwinsize
25
26 # If set, the pattern "*" used in a pathname expansion context will
27 # match all files and zero or more directories and subdirectories.
28 #shopt -s globstar
29
30 # make less more friendly for non-text input files, see lesspipe(1)
31 if -x /usr/bin/lesspipe 1 && eval "$(SHELL=/bin/ch lesspipe)"
```

The status bar at the bottom shows "sh", "Tab Width: 8", "Ln 4, Col 14", and "INS".



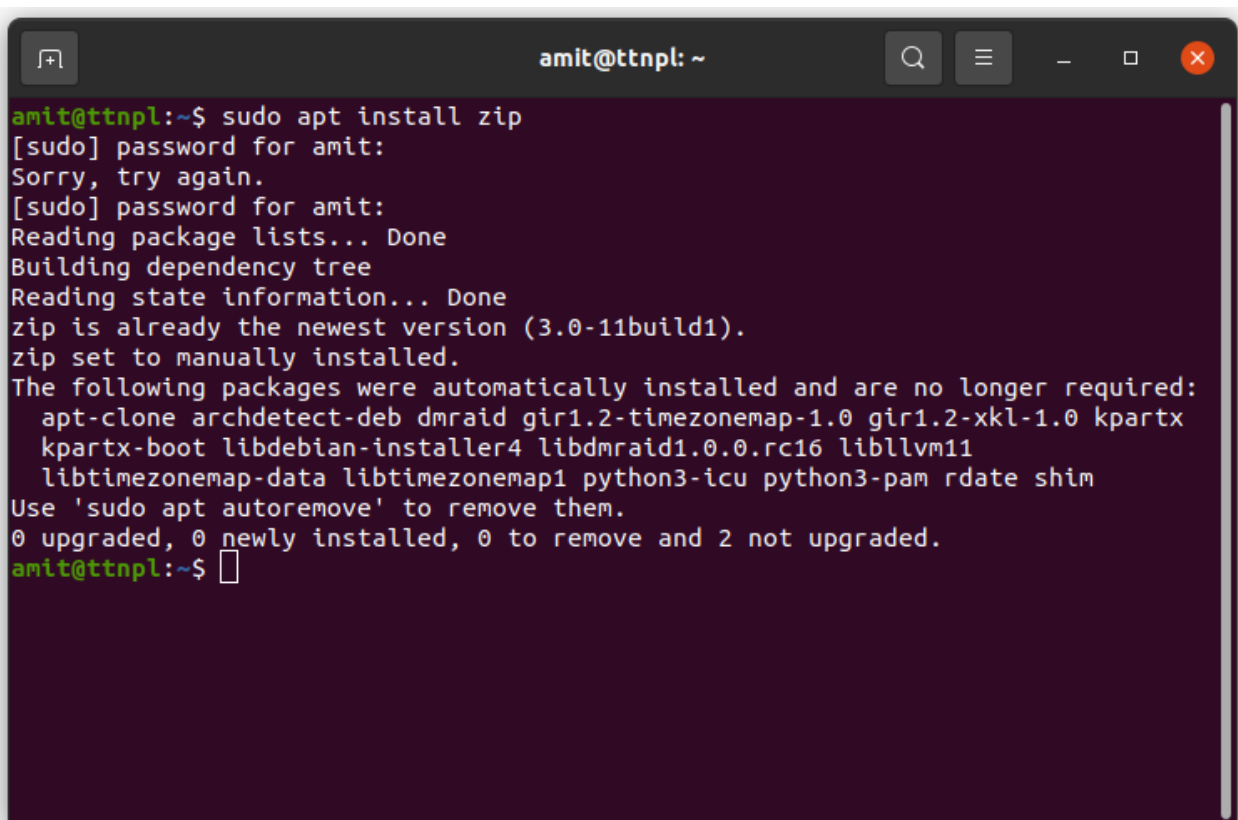
A screenshot of a terminal window titled "amit@ttnpl: ~". The terminal has a dark purple background. The output of the .bashrc file is visible:

```
WELCOME
amit@ttnpl:~$
```

At the bottom of the terminal window, there is a notification bar that says "meet.google.com is sharing your screen." with "Stop sharing" and "Hide" buttons.

13. Install “zip” package.

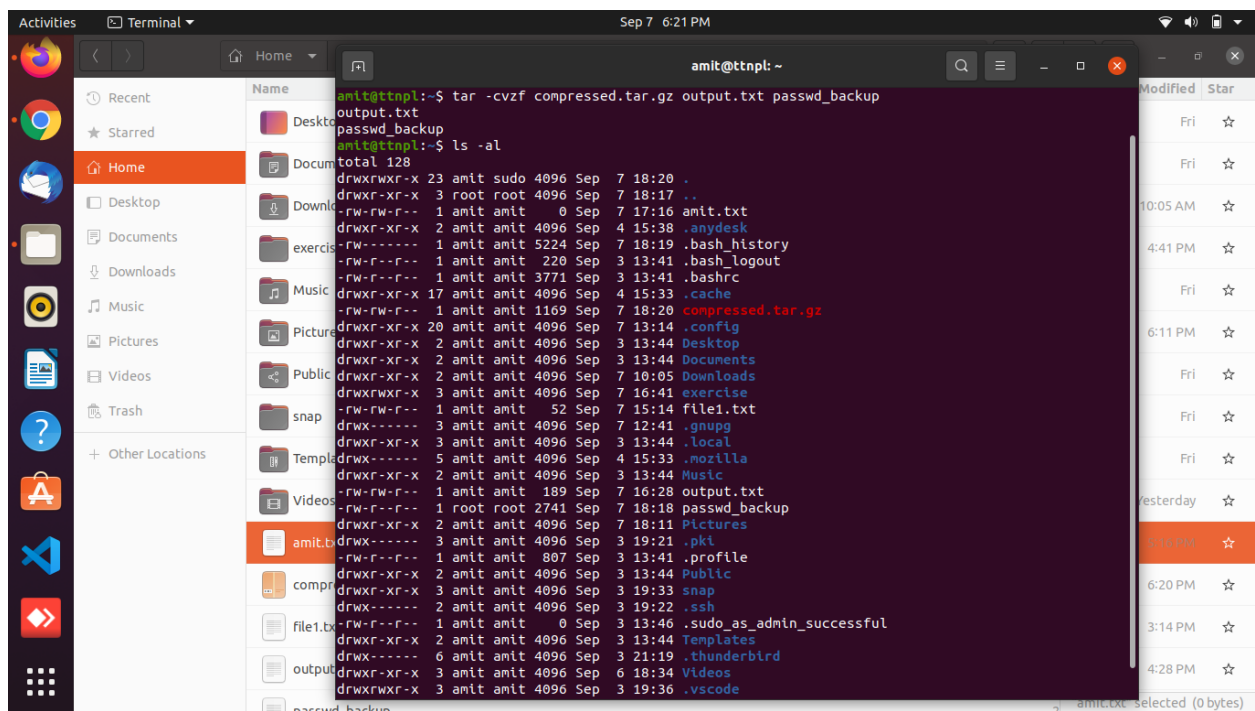
Output Screenshot

A terminal window with a dark purple background and white text. The window title is 'amit@ttnpl: ~'. The terminal shows the command 'sudo apt install zip' being executed. It prompts for a password, which is entered twice. The output shows that the package lists are read, the dependency tree is built, and state information is read. It then states that 'zip' is already the newest version (3.0-11build1) and is set to manually installed. A list of packages that were automatically installed and are no longer required is shown, including apt-clone, archdetect-deb, dmraid, gir1.2-timezonemap-1.0, gir1.2-xkl-1.0, kpartx, kpartx-boot, libdebian-installer4, libdmraid1.0.0.rc16, liblvm11, libtimezonemap-data, libtimezonemap1, python3-icu, python3-pam, rdate, and shim. It suggests using 'sudo apt autoremove' to remove them. Finally, it shows the status: 0 upgraded, 0 newly installed, 0 to remove, and 2 not upgraded. The prompt returns to 'amit@ttnpl:~\$' with a cursor.

```
amit@ttnpl:~$ sudo apt install zip
[sudo] password for amit:
Sorry, try again.
[sudo] password for amit:
Reading package lists... Done
Building dependency tree
Reading state information... Done
zip is already the newest version (3.0-11build1).
zip set to manually installed.
The following packages were automatically installed and are no longer required:
  apt-clone archdetect-deb dmraid gir1.2-timezonemap-1.0 gir1.2-xkl-1.0 kpartx
  kpartx-boot libdebian-installer4 libdmraid1.0.0.rc16 liblvm11
  libtimezonemap-data libtimezonemap1 python3-icu python3-pam rdate shim
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
amit@ttnpl:~$
```


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

Output Screenshot



The screenshot shows a terminal window with the following commands and output:

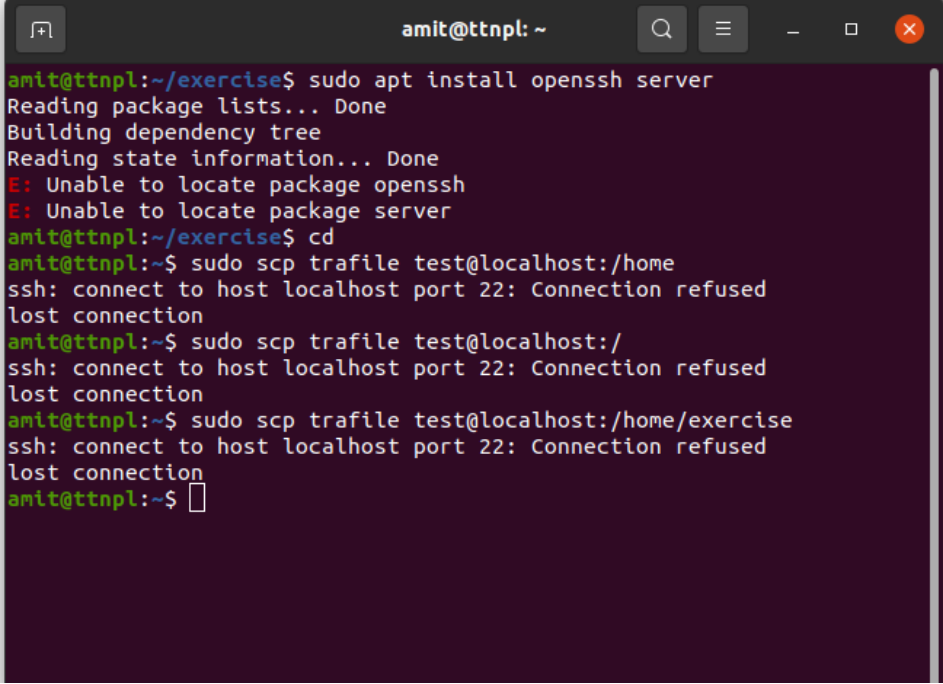
```
amit@ttmpl:~$ tar -cvzf compressed.tar.gz output.txt passwd_backup
amit@ttmpl:~$ ls -al
```

The output of the `ls -al` command is as follows:

```
total 128
drwxrwxr-x 23 amit sudo 4096 Sep  7 18:20 .
drwxr-xr-x  3 root root 4096 Sep  7 18:17 ..
-rw-rw-r--  1 amit amit   0 Sep  7 17:16 amit.txt
drwxr-xr-x  2 amit amit 4096 Sep  4 15:38 .anydesk
-rw-r-----  1 amit amit 5224 Sep  7 18:19 .bash_history
-rw-r--r--  1 amit amit  220 Sep  3 13:41 .bash_logout
-rw-r--r--  1 amit amit 3771 Sep  3 13:41 .bashrc
drwxr-xr-x 17 amit amit 4096 Sep  4 15:33 .cache
-rw-rw-r--  1 amit amit 1169 Sep  7 18:20 compressed.tar.gz
drwxr-xr-x 20 amit amit 4096 Sep  7 13:14 .config
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Desktop
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Documents
drwxr-xr-x  2 amit amit 4096 Sep  7 10:05 Downloads
drwxrwxr-x  3 amit amit 4096 Sep  7 16:41 exercise
-rw-rw-r--  1 amit amit  52 Sep  7 15:14 file1.txt
drwx-----  3 amit amit 4096 Sep  7 12:41 .gnupg
drwxr-xr-x  3 amit amit 4096 Sep  3 13:44 .local
drwx-----  5 amit amit 4096 Sep  4 15:33 .mozilla
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Music
-rw-rw-r--  1 amit amit  189 Sep  7 16:28 output.txt
-rw-r--r--  1 root root 2741 Sep  7 18:18 passwd_backup
drwxr-xr-x  2 amit amit 4096 Sep  7 18:11 Pictures
drwx-----  3 amit amit 4096 Sep  3 19:21 .pki
-rw-r--r--  1 amit amit  807 Sep  3 13:41 .profile
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Public
drwxr-xr-x  3 amit amit 4096 Sep  3 19:33 snap
drwx-----  2 amit amit 4096 Sep  3 19:22 .ssh
-rw-rw-r--  1 amit amit   0 Sep  3 13:46 .sudo_as_admin_successful
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Templates
drwx-----  6 amit amit 4096 Sep  3 21:19 .thunderbird
drwxr-xr-x  3 amit amit 4096 Sep  6 18:34 Videos
drwxrwxr-x  3 amit amit 4096 Sep  3 19:36 .vscode
```

15. scp this file to test user

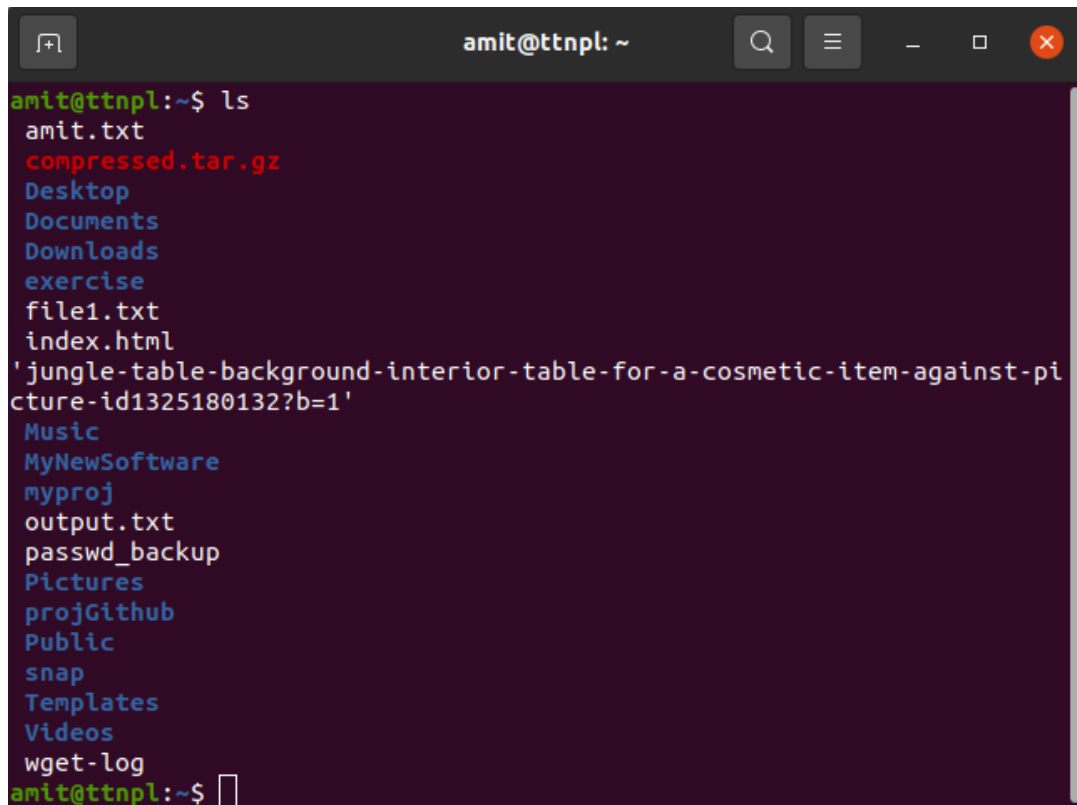
Output Screenshot

A terminal window titled 'amit@ttnpl: ~' with standard window controls. The terminal shows the following commands and output:

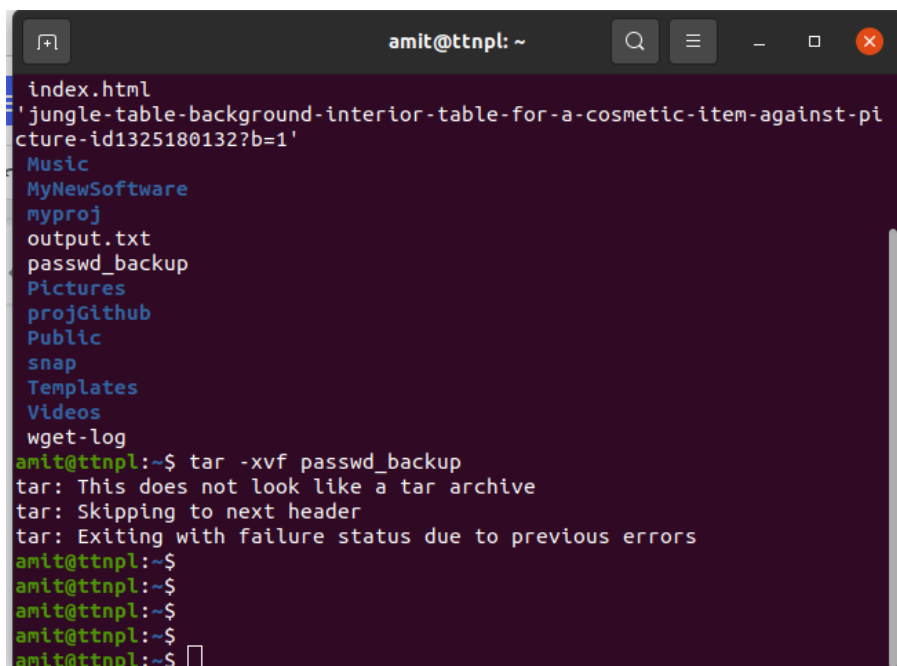
```
amit@ttnpl:~/exercise$ sudo apt install openssh server
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package openssh
E: Unable to locate package server
amit@ttnpl:~/exercise$ cd
amit@ttnpl:~$ sudo scp trfile test@localhost:/home
ssh: connect to host localhost port 22: Connection refused
lost connection
amit@ttnpl:~$ sudo scp trfile test@localhost:/
ssh: connect to host localhost port 22: Connection refused
lost connection
amit@ttnpl:~$ sudo scp trfile test@localhost:/home/exercise
ssh: connect to host localhost port 22: Connection refused
lost connection
amit@ttnpl:~$
```

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

Output Screenshot



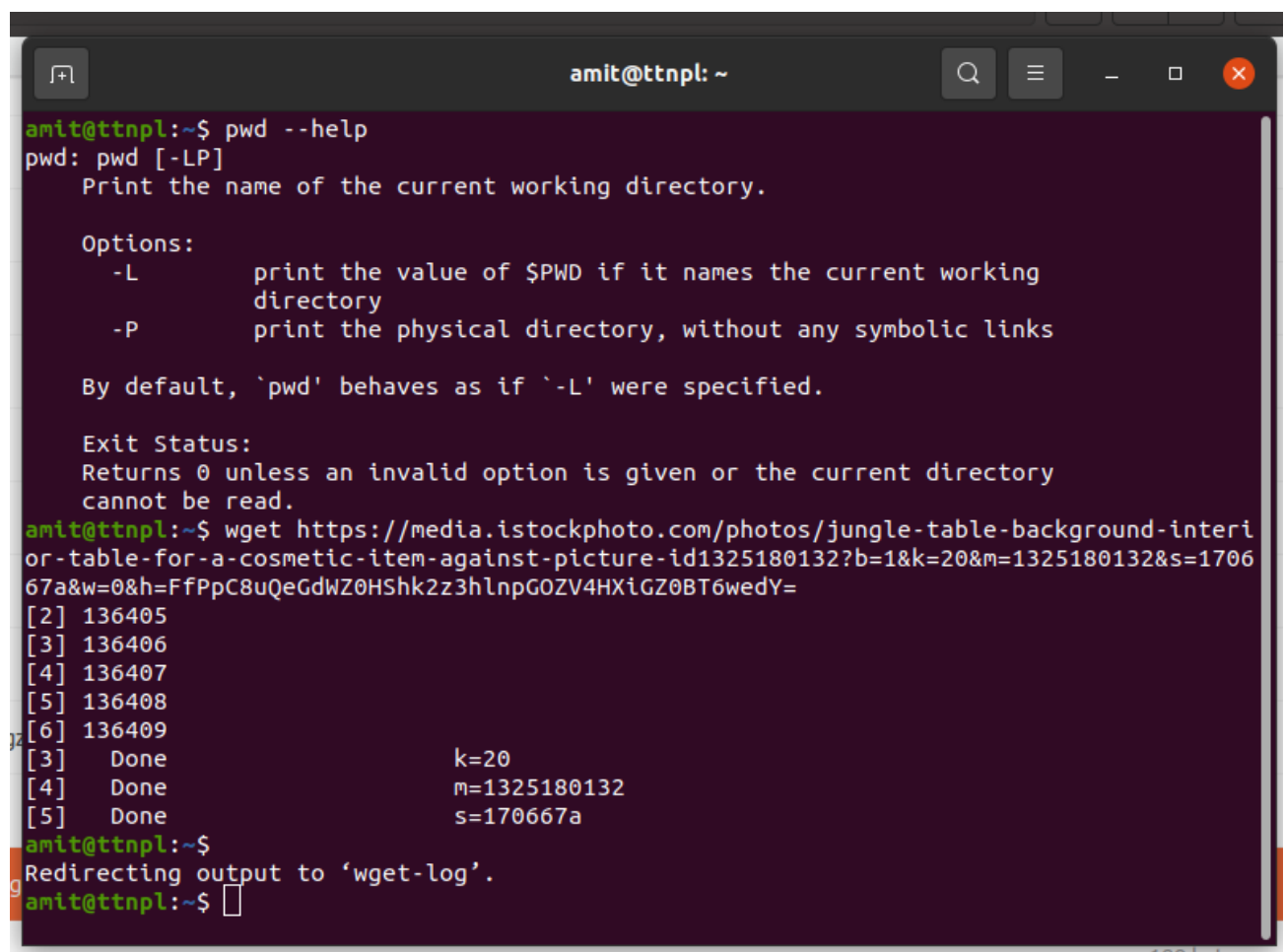
```
amit@ttnpl: ~  
amit@ttnpl:~$ ls  
amit.txt  
compressed.tar.gz  
Desktop  
Documents  
Downloads  
exercise  
file1.txt  
index.html  
'jungle-table-background-interior-table-for-a-cosmetic-item-against-pi  
cture-id1325180132?b=1'  
Music  
MyNewSoftware  
myproj  
output.txt  
passwd_backup  
Pictures  
projGithub  
Public  
snap  
Templates  
Videos  
wget-log  
amit@ttnpl:~$
```



```
index.html  
'jungle-table-background-interior-table-for-a-cosmetic-item-against-pi  
cture-id1325180132?b=1'  
Music  
MyNewSoftware  
myproj  
output.txt  
passwd_backup  
Pictures  
projGithub  
Public  
snap  
Templates  
Videos  
wget-log  
amit@ttnpl:~$ tar -xvf passwd_backup  
tar: This does not look like a tar archive  
tar: Skipping to next header  
tar: Exiting with failure status due to previous errors  
amit@ttnpl:~$  
amit@ttnpl:~$  
amit@ttnpl:~$  
amit@ttnpl:~$  
amit@ttnpl:~$
```

17. Download any image from web and move to desktop

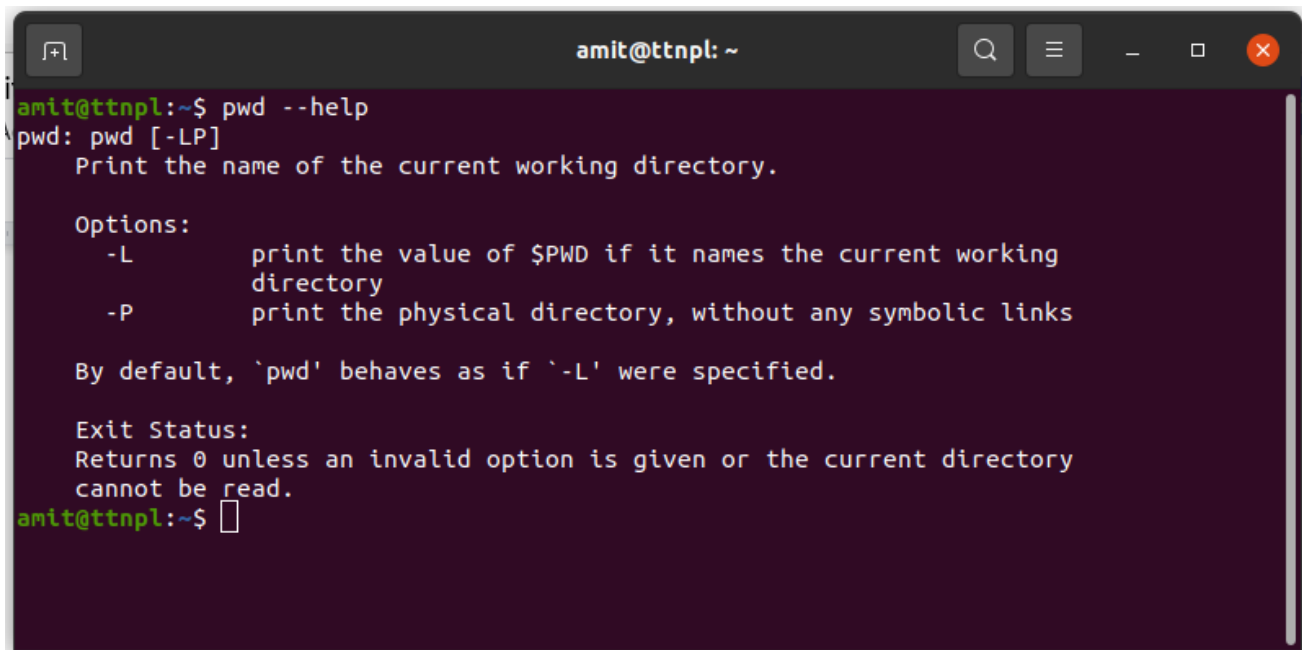
Output Screenshot



```
amit@ttnpl: ~  
amit@ttnpl:~$ pwd --help  
pwd: pwd [-LP]  
    Print the name of the current working directory.  
  
Options:  
  -L      print the value of $PWD if it names the current working  
          directory  
  -P      print the physical directory, without any symbolic links  
  
By default, `pwd' behaves as if `-L' were specified.  
  
Exit Status:  
Returns 0 unless an invalid option is given or the current directory  
cannot be read.  
amit@ttnpl:~$ wget https://media.istockphoto.com/photos/jungle-table-background-interi  
or-table-for-a-cosmetic-item-against-picture-id1325180132?b=1&k=20&m=1325180132&s=1706  
67a&w=0&h=FfPpC8uQeGdWZ0HShk2z3hlnpGOZV4HXiGZ0BT6wedY=  
[2] 136405  
[3] 136406  
[4] 136407  
[5] 136408  
[6] 136409  
[3] Done k=20  
[4] Done m=1325180132  
[5] Done s=170667a  
amit@ttnpl:~$  
Redirecting output to 'wget-log'.  
amit@ttnpl:~$
```

18. How to get help of commands usages.

Output Screenshot



```
amit@ttnpl: ~$ pwd --help
pwd: pwd [-LP]
    Print the name of the current working directory.

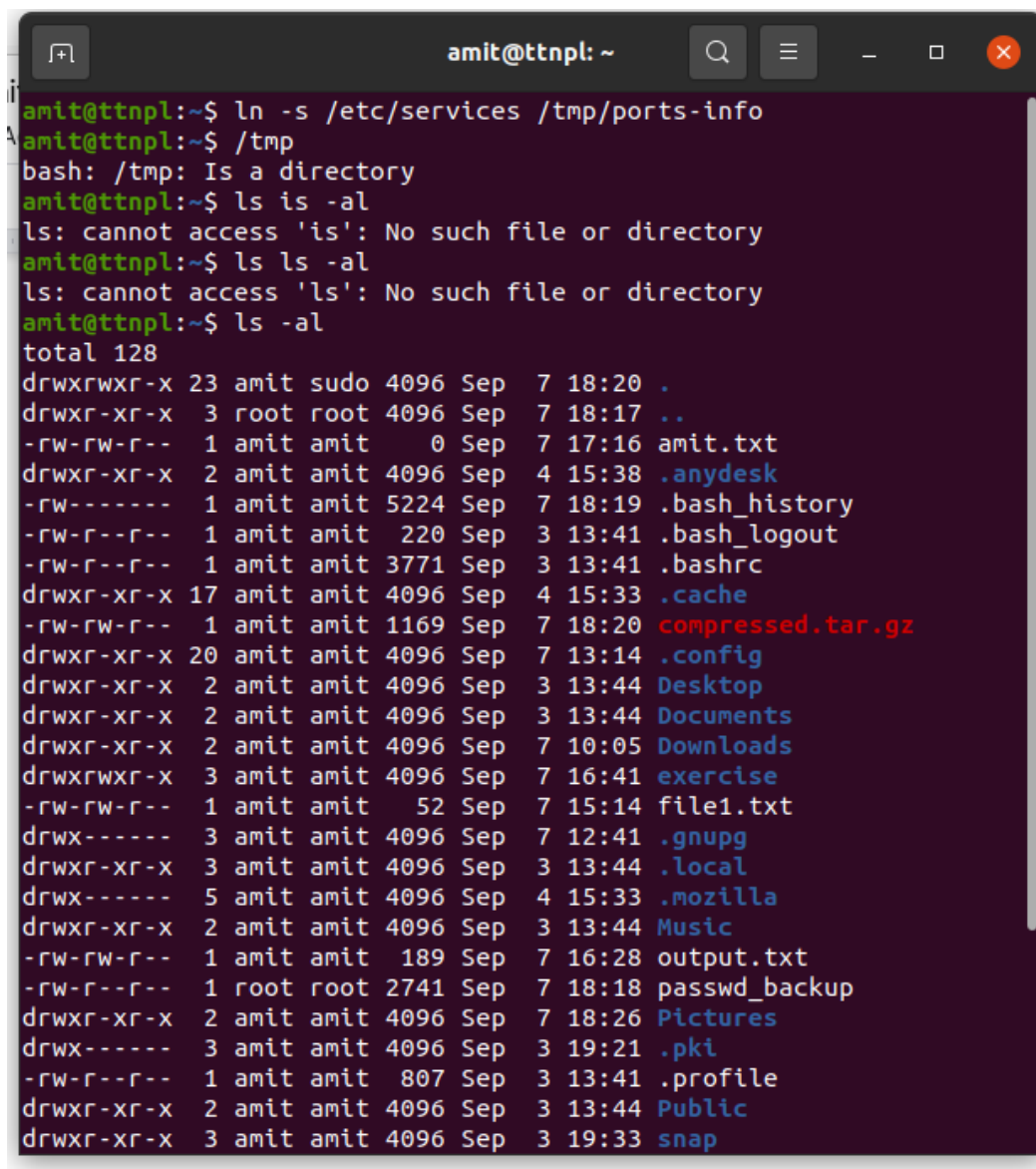
Options:
  -L      print the value of $PWD if it names the current working
          directory
  -P      print the physical directory, without any symbolic links

By default, `pwd' behaves as if `-L' were specified.

Exit Status:
Returns 0 unless an invalid option is given or the current directory
cannot be read.
amit@ttnpl:~$
```

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

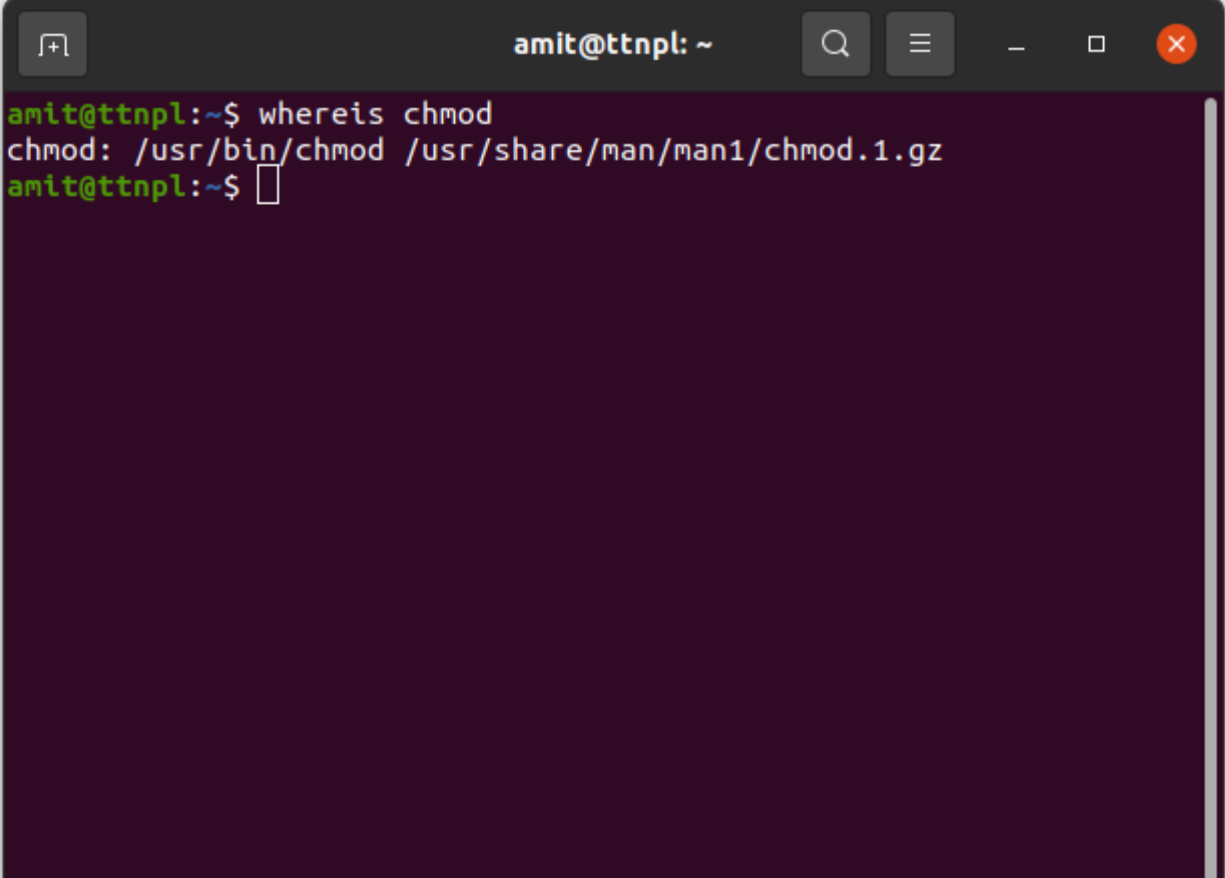
Output Screenshot



```
amit@ttnpl: ~  
amit@ttnpl:~$ ln -s /etc/services /tmp/ports-info  
amit@ttnpl:~$ /tmp  
bash: /tmp: Is a directory  
amit@ttnpl:~$ ls is -al  
ls: cannot access 'is': No such file or directory  
amit@ttnpl:~$ ls ls -al  
ls: cannot access 'ls': No such file or directory  
amit@ttnpl:~$ ls -al  
total 128  
drwxrwxr-x 23 amit sudo 4096 Sep  7 18:20 .  
drwxr-xr-x  3 root root 4096 Sep  7 18:17 ..  
-rw-rw-r--  1 amit amit   0 Sep  7 17:16 amit.txt  
drwxr-xr-x  2 amit amit 4096 Sep  4 15:38 .anydesk  
-rw-----  1 amit amit 5224 Sep  7 18:19 .bash_history  
-rw-r--r--  1 amit amit  220 Sep  3 13:41 .bash_logout  
-rw-r--r--  1 amit amit 3771 Sep  3 13:41 .bashrc  
drwxr-xr-x 17 amit amit 4096 Sep  4 15:33 .cache  
-rw-rw-r--  1 amit amit 1169 Sep  7 18:20 compressed.tar.gz  
drwxr-xr-x 20 amit amit 4096 Sep  7 13:14 .config  
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Desktop  
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Documents  
drwxr-xr-x  2 amit amit 4096 Sep  7 10:05 Downloads  
drwxrwxr-x  3 amit amit 4096 Sep  7 16:41 exercise  
-rw-rw-r--  1 amit amit   52 Sep  7 15:14 file1.txt  
drwx-----  3 amit amit 4096 Sep  7 12:41 .gnupg  
drwxr-xr-x  3 amit amit 4096 Sep  3 13:44 .local  
drwx-----  5 amit amit 4096 Sep  4 15:33 .mozilla  
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Music  
-rw-rw-r--  1 amit amit  189 Sep  7 16:28 output.txt  
-rw-r--r--  1 root root 2741 Sep  7 18:18 passwd_backup  
drwxr-xr-x  2 amit amit 4096 Sep  7 18:26 Pictures  
drwx-----  3 amit amit 4096 Sep  3 19:21 .pki  
-rw-r--r--  1 amit amit  807 Sep  3 13:41 .profile  
drwxr-xr-x  2 amit amit 4096 Sep  3 13:44 Public  
drwxr-xr-x  3 amit amit 4096 Sep  3 19:33 snap
```

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?

Output Screenshot



```
amit@ttnpl: ~  
amit@ttnpl:~$ whereis chmod  
chmod: /usr/bin/chmod /usr/share/man/man1/chmod.1.gz  
amit@ttnpl:~$
```

The screenshot shows a terminal window with a dark background. The title bar at the top reads "amit@ttnpl: ~". The terminal content shows the user running the command "whereis chmod". The output of the command is "chmod: /usr/bin/chmod /usr/share/man/man1/chmod.1.gz". The prompt "amit@ttnpl:~\$" is visible at the bottom of the terminal.