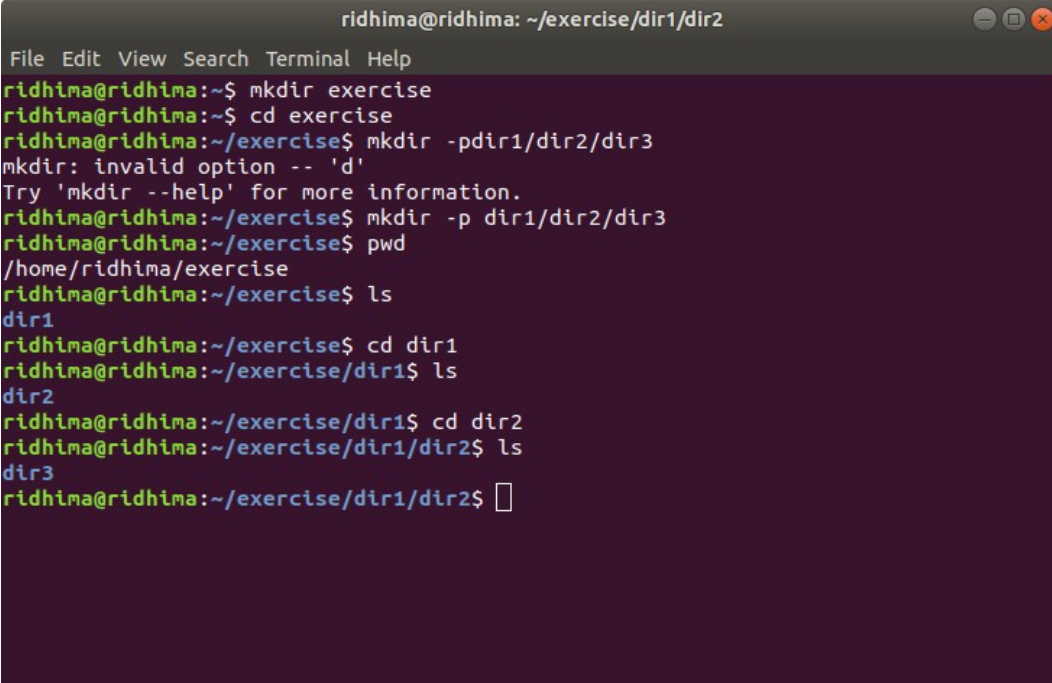


GROUP NO. 7 Exercise-Ridhima Gupta(4105)

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

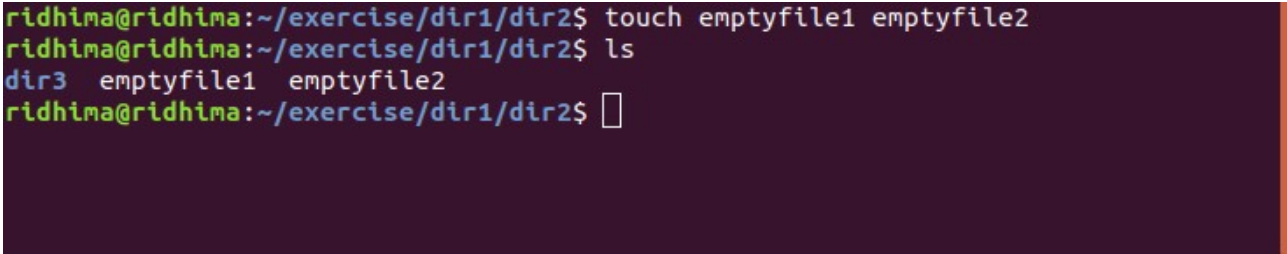
Command used:mkdir,cd,ls

A terminal window titled 'ridhima@ridhima: ~/exercise/dir1/dir2' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the following commands and output:

```
ridhima@ridhima:~$ mkdir exercise
ridhima@ridhima:~$ cd exercise
ridhima@ridhima:~/exercise$ mkdir -p dir1/dir2/dir3
mkdir: invalid option -- 'd'
Try 'mkdir --help' for more information.
ridhima@ridhima:~/exercise$ mkdir -p dir1/dir2/dir3
ridhima@ridhima:~/exercise$ pwd
/home/ridhima/exercise
ridhima@ridhima:~/exercise$ ls
dir1
ridhima@ridhima:~/exercise$ cd dir1
ridhima@ridhima:~/exercise/dir1$ ls
dir2
ridhima@ridhima:~/exercise/dir1$ cd dir2
ridhima@ridhima:~/exercise/dir1/dir2$ ls
dir3
ridhima@ridhima:~/exercise/dir1/dir2$
```

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


Command used:touch,ls

A terminal window showing the following commands and output:

```
ridhima@ridhima:~/exercise/dir1/dir2$ touch emptyfile1 emptyfile2
ridhima@ridhima:~/exercise/dir1/dir2$ ls
dir3 emptyfile1 emptyfile2
ridhima@ridhima:~/exercise/dir1/dir2$
```

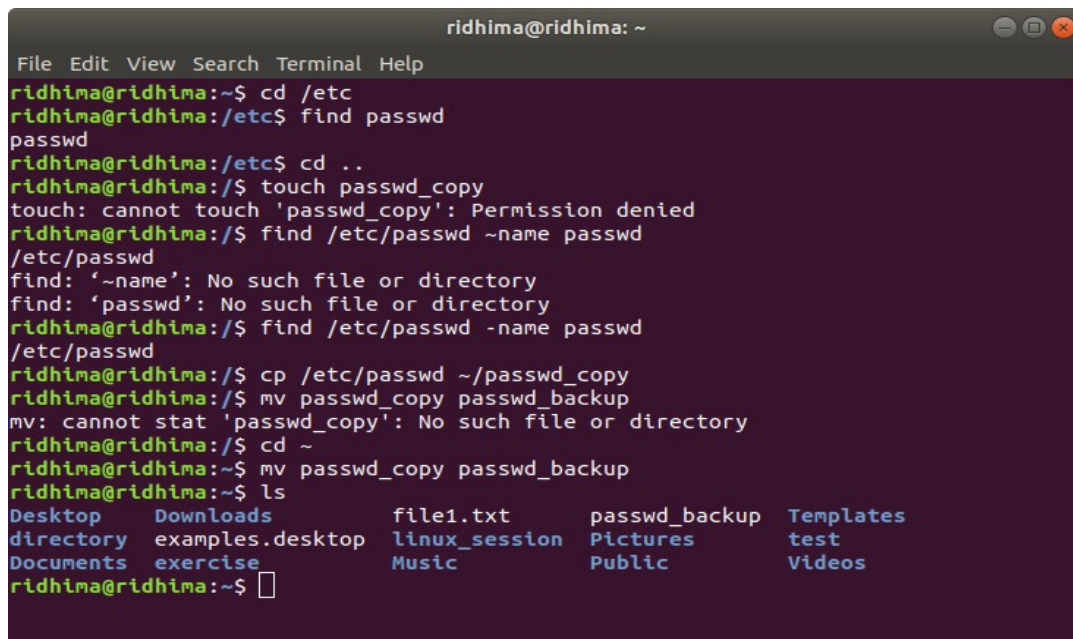
3.Create one file file1.txt containing text "hello world" and save it.

Command used:touch,echo,cat

A terminal window showing the following commands and output:

```
ridhima@ridhima:~$ touch file1.txt
ridhima@ridhima:~$ echo "hello world" > file1.txt
ridhima@ridhima:~$ cat file1.txt
hello world
ridhima@ridhima:~$
```

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



```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
ridhima@ridhima:~$ cd /etc  
ridhima@ridhima:/etc$ find passwd  
passwd  
ridhima@ridhima:/etc$ cd ..  
ridhima@ridhima:/$ touch passwd_copy  
touch: cannot touch 'passwd_copy': Permission denied  
ridhima@ridhima:/$ find /etc/passwd ~name passwd  
/etc/passwd  
find: '~name': No such file or directory  
find: 'passwd': No such file or directory  
ridhima@ridhima:/$ find /etc/passwd -name passwd  
/etc/passwd  
ridhima@ridhima:/$ cp /etc/passwd ~/passwd_copy  
ridhima@ridhima:/$ mv passwd_copy passwd_backup  
mv: cannot stat 'passwd_copy': No such file or directory  
ridhima@ridhima:/$ cd ~  
ridhima@ridhima:~$ mv passwd_copy passwd_backup  
ridhima@ridhima:~$ ls  
Desktop      Downloads    file1.txt    passwd_backup  Templates  
directory    examples.desktop  linux_session Pictures        test  
Documents    exercise     Music        Public          Videos  
ridhima@ridhima:~$
```

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

Command using : cat

```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
ridhima@ridhima:~$ 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
```

command using :less

```
ridhima@ridhima: ~  
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  
passwd_backup
```

command using:more

```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
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/no  
login  
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  
--More-- (95%)
```

command using :strings

```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
  
ridhima@ridhima:~$ 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/nologi  
n  
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/nol
```


Difference

Cat:The use of Cat is to take multiple inputs and stick them end to end.It is used to concatenate files.

Less:Less is a file reader that reads a file one screen at a time, and loads more of the file as you scroll through it.Less is a file reading program.

More:In more,you can navigate the file in forward scroll only and cannot go backward.

Strings:The strings command returns each string of characters in files. It is uses to determine the contents of and to extract text from binary files

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

```
ridhima@ridhima:~$ grep -r "/bin/false" passwd_backup
speech-dispatcher:x:111:29:Speech Dispatcher,,,:/var/run/speech-dispatcher:/bin/false
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
gdm:x:121:125:Gnome Display Manager:/var/lib/gdm3:/bin/false
ridhima@ridhima:~$
```

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

```
ridhima@ridhima:~$ cat passwd_backup | head -n 5 > output
ridhima@ridhima:~$ 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
ridhima@ridhima:~$
```

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

Creating user and password

```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
ridhima@ridhima:~$ sudo adduser test  
[sudo] password for ridhima:  
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 []: test  
    Room Number []:  
    Work Phone []:  
    Home Phone []:  
    Other []:  
Is the information correct? [Y/n] y  
for gid and uid
```

```
ridhima@ridhima:~$ id -g test  
1001  
ridhima@ridhima:~$ id -u test  
1001  
ridhima@ridhima:~$
```

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

```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
1001  
ridhima@ridhima:~$ touch -a -m -t 203801181205 emptyfile1 emptyfile2  
ridhima@ridhima:~$ stat emptyfile1 emptyfile2  
  File: emptyfile1  
  Size: 0                Blocks: 0                IO Block: 4096   regular empty file  
Device: 801h/2049d      Inode: 18224915       Links: 1  
Access: (0644/-rw-r--r--)  Uid: ( 1000/  ridhima)   Gid: ( 1000/  ridhima)  
Access: 2038-01-18 12:05:00.000000000 +0530  
Modify: 2038-01-18 12:05:00.000000000 +0530  
Change: 2020-02-03 17:46:35.759056022 +0530  
Birth: -  
  File: emptyfile2  
  Size: 0                Blocks: 0                IO Block: 4096   regular empty file  
Device: 801h/2049d      Inode: 18224916       Links: 1  
Access: (0644/-rw-r--r--)  Uid: ( 1000/  ridhima)   Gid: ( 1000/  ridhima)  
Access: 2038-01-18 12:05:00.000000000 +0530  
Modify: 2038-01-18 12:05:00.000000000 +0530  
Change: 2020-02-03 17:46:35.759056022 +0530  
Birth: -
```

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.

```
test@ridhima:/home/ridhima$ 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  
test@ridhima:/home/ridhima$ chmod 711 output  
chmod: changing permissions of 'output': Operation not permitted  
test@ridhima:/home/ridhima$ su ridhima  
Password:  
:wq: command not found  
bash: /home/ridhima/.bashrc: line 120: unexpected EOF while looking for matching  
``'  
bash: /home/ridhima/.bashrc: line 121: syntax error: unexpected end of file  
ridhima@ridhima:~$ 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  
ridhima@ridhima:~$ chmod 711 output  
ridhima@ridhima:~$
```

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

```
ridhima@ridhima:~/tmp$ alias ridhima="mkdir -p tmp/aliastesting"
ridhima@ridhima:~/tmp$ ridhima
ridhima@ridhima:~/tmp$ cd tmp
ridhima@ridhima:~/tmp/tmp$ ls
aliastesting
ridhima@ridhima:~/tmp/tmp$
```

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


`Chmod 777 homeridhima/.bashrc`

`su test`

`vi .bashrc`

press i .type clear and printf "welcome" type :wq to save

switch user back to ridhima



```
ridhima@ridhima: ~
File Edit View Search Terminal Help
Welcomeridhima@ridhima:~$
```

13.Install "zip" package.

```
ridhima@ridhima:~$ sudo apt-get install zip
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 620 not upgraded.
ridhima@ridhima:~$
```

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

```
ridhima@ridhima:~$ tar -zcvf file.tar.gz output passwd_backup
output
passwd_backup
ridhima@ridhima:~$ tar -ztvf file.tar.gz
-rw-r--r-- ridhima/ridhima 189 2020-02-03 17:15 output
-rw-r--r-- ridhima/ridhima 2462 2020-02-03 16:27 passwd_backup
ridhima@ridhima:~$
```


15.scp this file to test user

```
ridhima@ridhima:~$ scp file.tar.gz test@localhost:~
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:P145CZvli8hdCYg9zrHQNGSgy6Nq5LJHpKI8Y2SDmPU.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
test@localhost's password:
ridhima@ridhima:~$ scp file.tar.gz test@localhost:~
test@localhost's password:
file.tar.gz                               100% 1040      2.4MB/s   00:00
ridhima@ridhima:~$
```

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

```
test@ridhima:/home/ridhima$ cd ~
test@ridhima:~$ tar -xvzf file.tar.gz
output
passwd_backup
test@ridhima:~$
```

17.Download any image from web and move to desktop

```
ridhima@ridhima: ~
File Edit View Search Terminal Help
Welcome
ridhima@ridhima:~$ curl https://www.python.org/static/apple-touch-icon-14
recomposed.png > image.png
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload  Total  Spent    Left  Speed
100  7382  100  7382    0     0  1467      0  0:00:05  0:00:05 --:--:-- 1485
ridhima@ridhima:~$ mv image.png ~/Desktop
ridhima@ridhima:~$
```

18.How to get help of commands usages

```
File Edit View Search Terminal Help
ridhima@ridhima:~$ wget --help
GNU Wget 1.19.4, a non-interactive network retriever.
Usage: wget [OPTION]... [URL]...

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

Startup:
-V, --version          display the version of Wget and exit
-h, --help             print this help
-b, --background       go to background after startup
-e, --execute=COMMAND  execute a '.wgetrc'-style command

Logging and input file:
-o, --output-file=FILE  log messages to FILE
-a, --append-output=FILE append messages to FILE
-d, --debug            print lots of debugging information
-q, --quiet            quiet (no output)
-v, --verbose          be verbose (this is the default)
-nv, --no-verbose      turn off verbosity, without being quiet
--report-speed=TYPE    output bandwidth as TYPE. TYPE can be bits
-i, --input-file=FILE  download URLs found in local or external FILE
-F, --force-html       treat input file as HTML
-B, --base=URL         resolves HTML input-file links (-i -F)
                       relative to URL
--config=FILE          specify config file to use
--no-config            do not read any config file
--rejected-log=FILE    log reasons for URL rejection to FILE

Download:
-t, --tries=NUMBER     set number of retries to NUMBER (0 unlimits)
--retry-connrefused    retry even if connection is refused
-O, --output-document=FILE write documents to FILE
-nc, --no-clobber       skip downloads that would download to
                       existing files (overwriting them)
--no-netrc             don't try to obtain credentials from .netrc
-c, --continue          resume getting a partially-downloaded file
--start-pos=OFFSET     start downloading from zero-based position OFFSET
--progress=TYPE        select progress gauge type
--show-progress         display the progress bar in any verbosity mode
```

```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
-C, --continue resume getting a partially-downloaded file  
--start-pos=OFFSET start downloading from zero-based position OFFSET  
--progress=TYPE select progress gauge type  
--show-progress display the progress bar in any verbosity mode  
-N, --timestamping don't re-retrieve files unless newer than  
local  
--no-if-modified-since don't use conditional if-modified-since get  
requests in timestamping mode  
--no-use-server-timestamps don't set the local file's timestamp by  
the one on the server  
-S, --server-response print server response  
--spider don't download anything  
-T, --timeout=SECONDS set all timeout values to SECONDS  
--dns-timeout=SECS set the DNS lookup timeout to SECS  
--connect-timeout=SECS set the connect timeout to SECS  
--read-timeout=SECS set the read timeout to SECS  
-w, --wait=SECONDS wait SECONDS between retrievals  
--waitretry=SECONDS wait 1..SECONDS between retries of a retrieval  
--random-wait wait from 0.5*WAIT...1.5*WAIT secs between retrievals  
--no-proxy explicitly turn off proxy  
-Q, --quota=NUMBER set retrieval quota to NUMBER  
--bind-address=ADDRESS bind to ADDRESS (hostname or IP) on local host  
--limit-rate=RATE limit download rate to RATE  
--no-dns-cache disable caching DNS lookups  
--restrict-file-names=OS restrict chars in file names to ones OS allows  
--ignore-case ignore case when matching files/directories  
-4, --inet4-only connect only to IPv4 addresses  
-6, --inet6-only connect only to IPv6 addresses  
--prefer-family=FAMILY connect first to addresses of specified family,  
one of IPv6, IPv4, or none  
--user=USER set both ftp and http user to USER  
--password=PASS set both ftp and http password to PASS  
--ask-password prompt for passwords  
--use-askpass=COMMAND specify credential handler for requesting  
username and password. If no COMMAND is  
specified the WGET_ASKPASS or the SSH_ASKPASS  
environment variable is used.  
--no-iri turn off IRI support
```

```
ridhima@ridhima: ~  
File Edit View Search Terminal Help  
Directories:  
-nd, --no-directories don't create directories  
-x, --force-directories force creation of directories  
-nh, --no-host-directories don't create host directories  
--protocol-directories use protocol name in directories  
-P, --directory-prefix=PREFIX save files to PREFIX/..  
--cut-dirs=NUMBER ignore NUMBER remote directory components  
HTTP options:  
--http-user=USER set http user to USER  
--http-password=PASS set http password to PASS  
--no-cache disallow server-cached data  
--default-page=NAME change the default page name (normally  
this is 'index.html'.)  
-E, --adjust-extension save HTML/CSS documents with proper extensions  
--ignore-length ignore 'Content-Length' header field  
--header=STRING insert STRING among the headers  
--max-redirect maximum redirections allowed per page  
--proxy-user=USER set USER as proxy username  
--proxy-password=PASS set PASS as proxy password  
--referer=URL include 'Referer: URL' header in HTTP request  
--save-headers save the HTTP headers to file  
-U, --user-agent=AGENT identify as AGENT instead of Wget/VERSION  
--no-http-keep-alive disable HTTP keep-alive (persistent connections)  
--no-cookies don't use cookies  
--load-cookies=FILE load cookies from FILE before session  
--save-cookies=FILE save cookies to FILE after session  
--keep-session-cookies load and save session (non-permanent) cookies  
--post-data=STRING use the POST method; send STRING as the data  
--post-file=FILE use the POST method; send contents of FILE  
--method=HTTPMethod use method "HTTPMethod" in the request  
--body-data=STRING send STRING as data. --method MUST be set  
--body-file=FILE send contents of FILE. --method MUST be set  
--content-disposition honor the Content-Disposition header when  
choosing local file names (EXPERIMENTAL)  
--content-on-error output the received content on server errors  
--auth-no-challenge send Basic HTTP authentication information
```

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

```
ridhima@ridhima: /tmp$ ln -s /etc/services /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 joiner you do not have any idea about where is that Installed. How can you check that?

To check if the package is installed or not we will write the command

```
$ which <package_name>
```

ex: \$ which xyz

```
/usr/bin/xyz
```

this means that xyz package is at */usr/bin* path