

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

Ans.

We can make directory using mkdir command.For changing to home directory use “ \$ cd ~”.

Then make the directory “exercise” by following command : mkdir -p exercise/{dir1,dir2,dir3}.This creates “exercise” directory in home dir>Create one file file1.txt containing text "hello world" and save it and then sub directories dir1,dir2,dir3 are made within exercise one.

-p is used to make parent directories.

```
ttn@TTN:~/exercise$ cd ~
ttn@TTN:~$ mkdir -p exercise/{dir1,dir2,dir3}
ttn@TTN:~$ cd exercise
ttn@TTN:~/exercise$ ls
dir1 dir2 dir3
```

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

Ans.

To create a file, we use touch command

We can do that simply by writing :\$ touch emptyfile1,emptyfile2.

```
ttn@TTN:~/exercise/dir2$ touch emptyFile1,emptyFile2
ttn@TTN:~/exercise/dir2$ ls dir2
ls: cannot access 'dir2': No such file or directory
ttn@TTN:~/exercise/dir2$ ls
emptyFile1,emptyFile2
```

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

Ans.

Any file can be creted using touch command. Echo command is used to print the content .

> command overwrites the data written in file1.txt.

Hence, it can be used to create and write in a file.

```
ttn@TTN:~/exercise$ touch file1.txt
ttn@TTN:~/exercise$ echo hello world >file1.txt
ttn@TTN:~/exercise$ cat file1.txt
hello world
```

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

Ans

Find command is used to find files and directories. Cp command is used to copy one file from source destination to other. Mv command is used to move files and directories. We can change file's name.

```
ttn@TTN:~$ sudo find /etc -name passwd
/etc/cron.daily/passwd
/etc/passwd
/etc/pam.d/passwd
ttn@TTN:~$ cp /etc/passwd ./exercise/dir1/passwd_copy
ttn@TTN:~$ cd dir1
bash: cd: dir1: No such file or directory
ttn@TTN:~$ cd exercise
ttn@TTN:~/exercise$ ls
dir1  dir2  dir3  file1.txt
ttn@TTN:~/exercise$ ls dir1
dir2  passwd_copy
ttn@TTN:~/exercise$ mv passwd_copy passwd_backup
mv: cannot stat 'passwd_copy': No such file or directory
ttn@TTN:~/exercise$ cd dir1
ttn@TTN:~/exercise/dir1$ mv passwd_copy passwd_backup
ttn@TTN:~/exercise/dir1$ ls dir1
ls: cannot access 'dir1': No such file or directory
ttn@TTN:~/exercise/dir1$ ls
dir2  passwd backup
```

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

Ans.

More : It provides user an option to view less and then he can increase the content by pressing enter..

Less : works opposite of more and we view less content when pressed enter.

Cat : is used to append two or more files.

```
ttn@TTN:~/exercise/dir1$ less -10 passwd_backup
ttn@TTN:~/exercise/dir1$ more -10 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
ttn@TTN:~/exercise/dir1$ head 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
```

```
_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/s
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:TTN,,,:/home/ttn:/bin/bash
test:x:1001:1001::/home/test:/bin/sh
Hello world
```



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

Ans . Grep can be used to print content which matches with the specified pattern.wc -l command gives line count. By piping these commands we can achieve the desired answer.

```
ttn@TTN:~/exercise/dir1$ grep "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
ttn@TTN:~/exercise/dir1$ grep "bin/false" passwd_backup | wc -l
5
```

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

Ans .

Head -n is used to display first n lines of a file and '>' redirects it to output.txt file

```
ttn@TTN:~/exercise/dir1$ head -5 passwd_backup >output.txt
ttn@TTN:~/exercise/dir1$ 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
```

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

Ans.

Sudo allows a permitted user to execute a command as the superuser or another user.

Useradd helps to add a user .

```
ttn@TTN:~/exercise/dir1$ sudo deluser test
Removing user `test' ...
Warning: group `test' has no more members.
Done.
ttn@TTN:~/exercise/dir1$ sudo useradd test
ttn@TTN:~/exercise/dir1$ id test
uid=1001(test) gid=1001(test) groups=1001(test)
```

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

Ans : touch -a can be used to change the access time of a file.

```
ttn@TTN:~/exercise/dir2$ stat emptyFile1
  File: emptyFile1
  Size: 0                Blocks: 0          IO Block: 4096   regular empty file
Device: 805h/2053d      Inode: 2888886    Links: 1
Access: (0644/-rw-r--r--)  Uid: ( 1000/     ttn)   Gid: ( 1000/     ttn)
Access: 2019-02-04 18:04:07.982511301 +0530
Modify: 2019-02-04 18:04:07.982511301 +0530
Change: 2019-02-04 18:04:07.982511301 +0530
 Birth: -

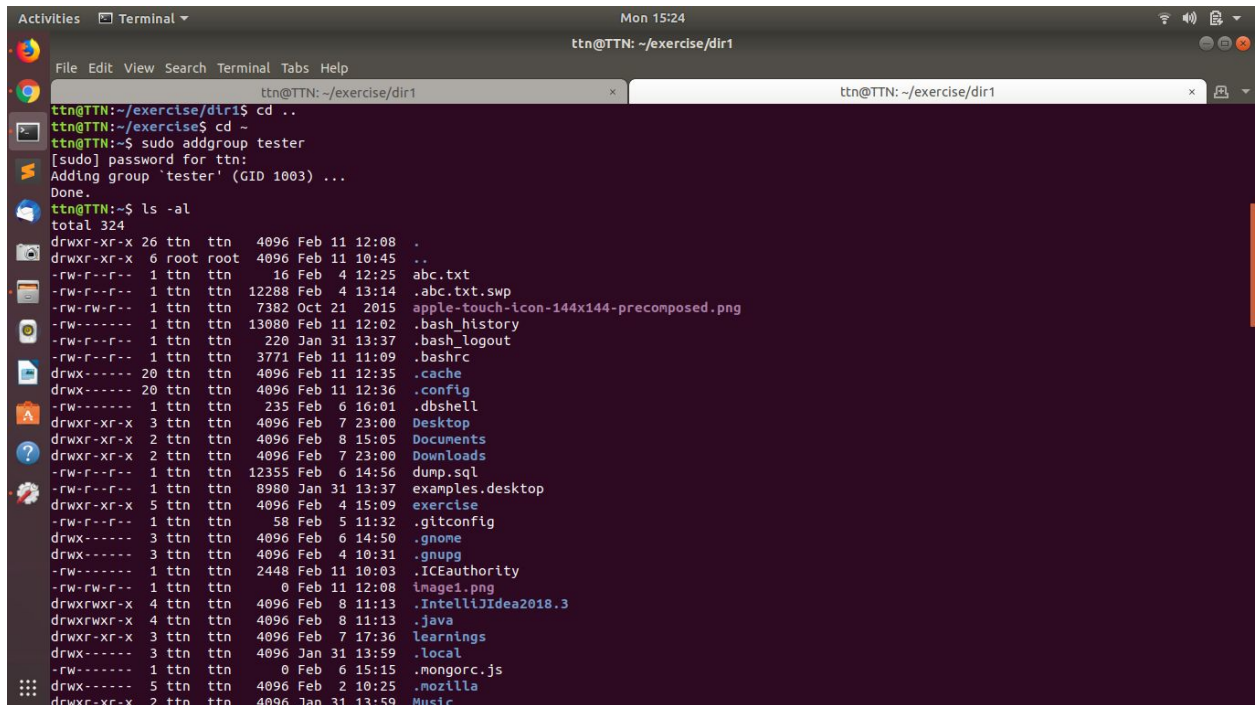
ttn@TTN:~/exercise/dir2$ touch -a emptyFile1
ttn@TTN:~/exercise/dir2$ stat emptyFile1
  File: emptyFile1
  Size: 0                Blocks: 0          IO Block: 4096   regular empty file
Device: 805h/2053d      Inode: 2888886    Links: 1
Access: (0644/-rw-r--r--)  Uid: ( 1000/     ttn)   Gid: ( 1000/     ttn)
Access: 2019-02-04 18:09:43.928960057 +0530
Modify: 2019-02-04 18:04:07.982511301 +0530
Change: 2019-02-04 18:09:43.928960057 +0530
 Birth: -
```

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.

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

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

Change the ownership to edit the file.



```
ttn@TTN: ~/exercise/dir1
File Edit View Search Terminal Tabs Help
ttn@TTN: ~/exercise/dir1
ttn@TTN:~/exercise/dir1$ cd ..
ttn@TTN:~/exercise$ cd ~
ttn@TTN:~$ sudo addgroup tester
[sudo] password for ttn:
Adding group `tester' (GID 1003) ...
Done.
ttn@TTN:~$ ls -al
total 324
drwxr-xr-x 26 ttn ttn 4096 Feb 11 12:08 .
drwxr-xr-x 6 root root 4096 Feb 11 10:45 ..
-rw-r--r-- 1 ttn ttn 16 Feb 4 12:25 abc.txt
-rw-r--r-- 1 ttn ttn 12288 Feb 4 13:14 .abc.txt.swp
-rw-rw-r-- 1 ttn ttn 7382 Oct 21 2015 apple-touch-icon-144x144-precomposed.png
-rw-r--r-- 1 ttn ttn 13080 Feb 11 12:02 .bash_history
-rw-r--r-- 1 ttn ttn 220 Jan 31 13:37 .bash_logout
-rw-r--r-- 1 ttn ttn 3771 Feb 11 11:09 .bashrc
drwx----- 20 ttn ttn 4096 Feb 11 12:35 .cache
drwx----- 20 ttn ttn 4096 Feb 11 12:36 .config
-rw-r--r-- 1 ttn ttn 235 Feb 6 16:01 .dbshell
drwxr-xr-x 3 ttn ttn 4096 Feb 7 23:00 Desktop
drwxr-xr-x 2 ttn ttn 4096 Feb 8 15:05 Documents
drwxr-xr-x 2 ttn ttn 4096 Feb 7 23:00 Downloads
-rw-r--r-- 1 ttn ttn 12355 Feb 6 14:56 dump.sql
-rw-r--r-- 1 ttn ttn 8980 Jan 31 13:37 examples.desktop
drwxr-xr-x 5 ttn ttn 4096 Feb 4 15:09 exercise
-rw-r--r-- 1 ttn ttn 58 Feb 5 11:32 .gitconfig
drwx----- 3 ttn ttn 4096 Feb 6 14:50 .gnome
drwx----- 3 ttn ttn 4096 Feb 4 10:31 .gnupg
-rw-r--r-- 1 ttn ttn 2448 Feb 11 10:03 .ICEauthority
-rw-rw-r-- 1 ttn ttn 0 Feb 11 12:08 image1.png
drwxrwxr-x 4 ttn ttn 4096 Feb 8 11:13 .IntelliJ IDEA2018.3
drwxrwxr-x 4 ttn ttn 4096 Feb 8 11:13 .java
drwxr-xr-x 3 ttn ttn 4096 Feb 7 17:36 Learnings
drwx----- 3 ttn ttn 4096 Jan 31 13:59 .local
-rw-r--r-- 1 ttn ttn 0 Feb 6 15:15 .mongorc.js
drwx----- 5 ttn ttn 4096 Feb 2 10:25 .mozilla
drwxr-xr-x 2 ttn ttn 4096 Jan 31 13:59 Music
```

```
ttn@TTN:~$ sudo chown testUser:tester ~/exercise/dir1/output.txt
ttn@TTN:~$ ls -al
total 324
```

```
Activities  Terminal  Mon 15:28
ttn@TTN: ~/exercise/dir1

File Edit View Search Terminal Tabs Help

ttn@TTN: ~/exercise/dir1
drwxr-xr-x  2 ttn ttn  4096 Jan 31 13:59 Videos
-rw-rw-r--  1 ttn ttn  169 Feb 11 12:08 .wget-hsts
ttn@TTN:~$ cd exercise
ttn@TTN:~/exercise$ cd dir1
ttn@TTN:~/exercise/dir1$ ls -al
total 24
drwxr-xr-x  3 ttn ttn  4096 Feb  4 17:56 .
drwxr-xr-x  5 ttn ttn  4096 Feb  4 15:09 ..
-rw-r--r--  1 ttn ttn   12 Feb  4 17:32 abc.text
drwxr-xr-x  3 ttn ttn  4096 Feb  4 13:24 dir2
-rw-r--r--  1 testUser tester 189 Feb  4 17:56 output.txt
-rw-r--r--  1 ttn ttn  2435 Feb  4 17:03 passwd_backup
ttn@TTN:~/exercise/dir1$ chmod 666 output.txt
chmod: changing permissions of 'output.txt': Operation not permitted
ttn@TTN:~/exercise/dir1$ sudo chmod 666 output.txt
ttn@TTN:~/exercise/dir1$ ls -l
total 16
-rw-r--r--  1 ttn ttn   12 Feb  4 17:32 abc.text
drwxr-xr-x  3 ttn ttn  4096 Feb  4 13:24 dir2
-rw-rw-rw-  1 testUser tester 189 Feb  4 17:56 output.txt
-rw-r--r--  1 ttn ttn  2435 Feb  4 17:03 passwd_backup
ttn@TTN:~/exercise/dir1$ su testUser
Password:
$ bash
testUser@TTN:/home/ttn/exercise/dir1$ ls
abc.text dir2 output.txt passwd_backup
testUser@TTN:/home/ttn/exercise/dir1$ vi output.txt
testUser@TTN:/home/ttn/exercise/dir1$ cat output.txt
hel

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
testUser@TTN:/home/ttn/exercise/dir1$
```

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

Ans )

Shell aliases are shortcut names for commands. They can be used instead of writing the whole command.

\$ alias list="ls -l"



```

ttn@TTN:~/exercise/dir1$ cd ~
ttn@TTN:~$ alias list="ls -l"
ttn@TTN:~$ list
total 204
-rw-r--r-- 1 ttn ttn 16 Feb 4 12:25 abc.txt
-rw-rw-r-- 1 ttn ttn 7382 Oct 21 2015 apple-touch-icon-144x144-precomposed.png
drwxr-xr-x 3 ttn ttn 4096 Feb 7 23:00 Desktop
drwxr-xr-x 2 ttn ttn 4096 Feb 8 15:05 Documents
drwxr-xr-x 2 ttn ttn 4096 Feb 7 23:00 Downloads
-rw-r--r-- 1 ttn ttn 12355 Feb 6 14:56 dump.sql
-rw-r--r-- 1 ttn ttn 8980 Jan 31 13:37 examples.desktop
drwxr-xr-x 5 ttn ttn 4096 Feb 4 15:09 exercise
-rw-rw-r-- 1 ttn ttn 0 Feb 11 12:08 image1.png
drwxr-xr-x 3 ttn ttn 4096 Feb 7 17:36 learnings
drwxr-xr-x 2 ttn ttn 4096 Jan 31 13:59 Music
drwxr-xr-x 4 ttn ttn 4096 Feb 5 18:14 new
-rw-r--r-- 1 ttn ttn 20 Feb 11 10:51 new.txt
-rw-r--r-- 1 ttn ttn 0 Feb 4 15:21 passwd_copy
drwxr-xr-x 2 ttn ttn 4096 Feb 7 22:09 Pictures
drwxr-xr-x 2 ttn ttn 4096 Jan 31 13:59 Public
-rw-r--r-- 1 ttn ttn 12047 Feb 5 01:26 'Screenshot from 2019-02-05 01-26-00.png'
-rw-r--r-- 1 ttn ttn 52234 Feb 5 01:28 'Screenshot from 2019-02-05 01-28-25.png'
-rw-r--r-- 1 ttn ttn 42139 Feb 7 17:30 'Screenshot from 2019-02-07 17-29-49.png'
drwxr-xr-x 4 ttn ttn 4096 Feb 8 14:45 snap
drwxr-xr-x 2 ttn ttn 4096 Jan 31 13:59 Templates
drwxr-xr-x 2 ttn ttn 4096 Jan 31 13:59 Videos
ttn@TTN:~$

```

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



```
testUser@TTN:/home/testUser$ vim .bashrc
testUser@TTN:/home/testUser$ ls
new.txt  tayibah
testUser@TTN:/home/testUser$ exit
exit
$ eixt
sh: 2: eixt: not found
$ exixt
sh: 3: exixt: not found
$ exit
ttn@TTN:~$ su - testUser
Password:
$ bash

welcome
testUser@TTN:/home/testUser$
```

13 Install "zip" package.

It can be installed by using sudo : superuser

```
ttn@TTN:/home$ sudo apt install zip
[sudo] password for ttn:
Reading package lists... Done
Building dependency tree
Reading state information... Done
zip is already the newest version (3.0-11build1).
0 upgraded, 0 newly installed, 0 to remove and 399 not upgraded.
ttn@TTN:/home$
```

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

Ans

Use the following command to compress an entire directory or a single file on Linux. It'll also compress every other directory inside a directory you specify—in other words, it works recursively.

```
tar -czvf name-of-archive.tar.gz /path/to/directory-or-file
```

Here's what those switches actually mean:

- -c: **C**reate an archive.
- -z: Compress the archive with **gzip**.
- -v: Display progress in the terminal while creating the archive, also known as “**verbose**” mode. The v is always optional in these commands, but it's helpful.
- -f: Allows you to specify the **f**ilename of the archive.

```
ttn@TTN:~/exercise/dir1$ tar -czvf backup.tar.gz output.txt passwd_backup
output.txt
passwd_backup
ttn@TTN:~/exercise/dir1$ info tar
ttn@TTN:~/exercise/dir1$
```

To list the contents of tar archive file, just run the following command with option **t** (**list content**).

```
ttn@TTN:~/exercise/dir1$ info tar
ttn@TTN:~/exercise/dir1$ tar -tvf backup.tar.gz
-rw-rw-rw- testUser/tester 193 2019-02-11 15:29 output.txt
-rw-r--r-- ttn/ttn          2435 2019-02-04 17:03 passwd_backu
ttn@TTN:~/exercise/dir1$
```

15 scp this file to test user

Ans)

**SCP** is used to copy file(s) between servers in secure way.

Eg:

```
$ scp your_username@remotehost.edu:foobar.txt /some/local/directory
```

```

ttn@TTN:~/exercise/dir1$ sudo scp backup.tar.gz testUser@localhost:~/tayibah
testUser@localhost's password:
backup.tar.gz                                100% 1068    1.2MB/s   00:00
ttn@TTN:~/exercise/dir1$ cd tayibah
bash: cd: tayibah: No such file or directory
ttn@TTN:~/exercise/dir1$ cd ..
ttn@TTN:~/exercise$ cd ..
ttn@TTN:~$ cd tayibah
bash: cd: tayibah: No such file or directory
ttn@TTN:~$ cd tayibah
bash: cd: tayibah: No such file or directory
ttn@TTN:~$ su testUser
Password:
$ bash
testUser@TTN:/home/ttn$ cd tayibah
bash: cd: tayibah: No such file or directory
testUser@TTN:/home/ttn$ cd ..
testUser@TTN:/home$ cd ..
testUser@TTN:/ $ ~
bash: /home/testUser/: Is a directory
testUser@TTN:/ $ cd tayibah
testUser@TTN:/tayibah$ ls
copy.txt
testUser@TTN:/tayibah$ █

```

17 Download any image from web and move to desktop

Ans)

To download an image use wget <url>.

```

ttn@TTN:/ $ $ wget https://www.python.org/static/apple-touch-icon-144x144-precomposed.png >image1.png
bash: image1.png: Permission denied
ttn@TTN:/ $ $ wget https://www.python.org/static/apple-touch-icon-144x144-precomposed.png >image1.png
bash: image1.png: Permission denied
ttn@TTN:/ $ cd tayibah
ttn@TTN:/tayibah$ $ wget https://www.python.org/static/apple-touch-icon-144x144-precomposed.png >image1.png
bash: image1.png: Permission denied
ttn@TTN:/tayibah$ cd ..
ttn@TTN:/ $ cd ~
ttn@TTN:~$ wget https://www.python.org/static/apple-touch-icon-144x144-precomposed.png >image1.png
--2019-02-11 12:08:32-- https://www.python.org/static/apple-touch-icon-144x144-precomposed.png
Resolving www.python.org (www.python.org)... 151.101.0.223, 151.101.64.223, 151.101.128.223, ...
Connecting to www.python.org (www.python.org)|151.101.0.223|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 7382 (7.2K) [image/png]
Saving to: 'apple-touch-icon-144x144-precomposed.png'

apple-touch-icon-14 100%[=====] 7.21K --.-KB/s in 0s

2019-02-11 12:08:32 (43.4 MB/s) - 'apple-touch-icon-144x144-precomposed.png' saved [7382/7382]

ttn@TTN:~$ ls
abc.txt
apple-touch-icon-144x144-precomposed.png
Desktop

```

Q18. How to get help of commands usages.

Ans .

man command\_name can be used to get help in any command.

Also command\_name --help gives us all the information that is required.

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

Ans)

Symlink /soft links are very similar to what we say “Shortcut” in windows, is a way to link to a file or directory. It creates new file pointing to original file but with different inode.

```
ttn@TTN:~$ ln -s /etc/services /tmp/ports-info
ttn@TTN:~$ ls /tmp/ports-info
/tmp/ports-info
ttn@TTN:~$ ls /etc/services
/etc/services
ttn@TTN:~$ man ln
ttn@TTN:~$ ^C
ttn@TTN:~$ xdg-open /tmp/ports-info
ttn@TTN:~$ xdg-open /tmp/
ttn@TTN:~$ xdg-open /etc/services
ttn@TTN:~$
```

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?



```
Activities Terminal Mon 12:27 ttn@TTN: ~
File Edit View Search Terminal Help
aE:++^one(äU%
jVedvKeN'8:|0+a)
_'it. bIecZ.
#;++++IENDB`♦ttn@TTN:~$
ttn@TTN:~$ wwhich jvm
Command 'wwhich' not found, did you mean:
    command 'which' from deb debianutils
Try: sudo apt install <deb name>
ttn@TTN:~$ which jvm
ttn@TTN:~$ which ls
/bin/ls
ttn@TTN:~$ where ls
where: command not found
ttn@TTN:~$ whereis ls
ls: /bin/ls /usr/share/man/man1/ls.1.gz
ttn@TTN:~$ locate ls
/bin/false
/bin/ls
/bin/lsblk
/bin/lsmmod
/bin/ntfsls
/boot/grub/i386-pc/cbls.mod
/boot/grub/i386-pc/command.lst
/boot/grub/i386-pc/crypto.lst
/boot/grub/i386-pc/fs.lst
/boot/grub/i386-pc/ls.mod
/boot/grub/i386-pc/lsacpi.mod
/boot/grub/i386-pc/lsapm.mod
/boot/grub/i386-pc/lsmmap.mod
/boot/grub/i386-pc/lspci.mod
/boot/grub/i386-pc/moddep.lst
/boot/grub/i386-pc/partmap.lst
```