

Exercise

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

```
ttn@ttn:~$ mkdir exercise
ttn@ttn:~$ mkdir -p exercise/dir1/dir2/dir3
ttn@ttn:~$ ls -l
```

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

```
ttn@ttn:~/exercise/dir1/dir2$ touch emptyFile1 emptyFile2
ttn@ttn:~/exercise/dir1/dir2$
```

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

```
ttn@ttn:~/exercise/dir1/dir2$ echo "hello world">file1.txt
ttn@ttn:~/exercise/dir1/dir2$ ls
```

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

```
ttn@ttn:~/exercise$ cd /etc/
ttn@ttn:~/exercise$ cd /etc/
ttn@ttn:/etc$ find passwd
passwd
ttn@ttn:/etc$ cp passwd /home/ttn/exercise/passwd_copy
ttn@ttn:/etc$ mv /home/ttn/exercise/passwd_copy /home/ttn/exercise/passwd_backup
ttn@ttn:/etc$ cd /home/ttn/exercise/
ttn@ttn:~/exercise$ ll
total 16
drwxr-xr-x  3 ttn ttn 4096 Feb  4 14:53 ./
drwxr-xr-x 18 ttn ttn 4096 Feb  4 14:42 ../
drwxr-xr-x  3 ttn ttn 4096 Feb  4 14:37 dir1/
-rw-r--r--  1 ttn ttn 2444 Feb  4 14:52 passwd_backup
ttn@ttn:~/exercise$
```

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

Less : It is used to traverse content of file in both the directions, we can even move n lines by specifying the no. Of lines to be moved.

More : It provides traversal in forward direction only, it provides the percentage of file read as well.

Cat : It is used to view a file, write or append in a file(using redirection operator). It prints the whole content in one go.

Strings : It can be used to print no. Of characters per line.

Head : It can be used to print content from the top of file.

Tail : It can be used to print content from the bottom of file.

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

```
ttn@ttn:~/exercise$ grep -c "/bin/false" passwd_backup
5
```

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

```
ttn@ttn:~/exercise$ head -5 passwd_backup >output
ttn@ttn:~/exercise$
```

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

```
useradd: cannot lock /etc/passwd, try again later.
ttn@ttn:~/exercise$ sudo useradd test -p "blabla"
[sudo] password for ttn:
ttn@ttn:~/exercise$ id test
uid=1001(test) gid=1001(test) groups=1001(test)
```

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

```
ttn@ttn:~/exercise$ ll dir1/dir2/
total 16
drwxr-xr-x 3 ttn ttn 4096 Feb  4 14:45 ./
drwxr-xr-x 3 ttn ttn 4096 Feb  4 14:37 ../
drwxr-xr-x 2 ttn ttn 4096 Feb  4 14:37 dir3/
-rw-r--r-- 1 ttn ttn    0 Feb  4 14:42 emptyFile1
-rw-r--r-- 1 ttn ttn    0 Feb  4 14:42 emptyFile2
-rw-r--r-- 1 ttn ttn   12 Feb  4 14:45 file1.txt
ttn@ttn:~/exercise$ touch dir1/dir2/emptyFile1 dir1/dir2/emptyFile2
ttn@ttn:~/exercise$ ll dir1/dir2/
total 16
drwxr-xr-x 3 ttn ttn 4096 Feb  4 14:45 ./
drwxr-xr-x 3 ttn ttn 4096 Feb  4 14:37 ../
drwxr-xr-x 2 ttn ttn 4096 Feb  4 14:37 dir3/
-rw-r--r-- 1 ttn ttn    0 Feb  4 15:10 emptyFile1
-rw-r--r-- 1 ttn ttn    0 Feb  4 15:10 emptyFile2
-rw-r--r-- 1 ttn ttn   12 Feb  4 14:45 file1.txt
ttn@ttn:~/exercise$
```

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.

```
File Edit View Search Terminal Help
ttn@ttn:~/exercise$ su test
Password:
$ cat>output
sh: 1: cannot create output: Permission denied
$ exit
ttn@ttn:~/exercise$ usermod -a -G ttn test
usermod: Permission denied.
usermod: cannot lock /etc/passwd; try again later.
ttn@ttn:~/exercise$ sudo usermod -a -G ttn test
ttn@ttn:~/exercise$ su test
Password:
$ cat>>output
sh: 1: cannot create output: Permission denied
$ exit
ttn@ttn:~/exercise$ ll output
-rw-r--r-- 1 ttn ttn 189 Feb  4 15:11 output
ttn@ttn:~/exercise$ chmod g+w output
ttn@ttn:~/exercise$ su test
Password:
su: Authentication failure
ttn@ttn:~/exercise$ su test
Password:
$ cat>>output
added something
```

```
added something
^C
$ 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
added something
$ exit
```

```
ttn@ttn:~/exercise$ usermod -G test test
usermod: Permission denied.
usermod: cannot lock /etc/passwd; try again later.
ttn@ttn:~/exercise$ sudo usermod -G test test
ttn@ttn:~/exercise$ su test
Password:
$ cat>output
sh: 1: cannot create output: Permission denied
$ exit
```

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

```
File Edit View Search Terminal Help
ttn@ttn:~/exercise$ alias yatin="touch /tmp/aliastesting"
ttn@ttn:~/exercise$ yatin
ttn@ttn:~/exercise$ ls /tmp/
aliastesting
config-err-tq4C8R
lu2432q3y0s7.tmp
OSL_PIPE_1000_SingleOfficeIPC_cfa729fc67be8cf99063327bc0904361
ssh-8Wk23iToiL6c
systemd-private-3620851298074f2a88e7c7e1f6ad1609-bolt.service-1qwvOI
systemd-private-3620851298074f2a88e7c7e1f6ad1609-colord.service-oyYxqc
systemd-private-3620851298074f2a88e7c7e1f6ad1609-fwupd.service-D8Pyz2
systemd-private-3620851298074f2a88e7c7e1f6ad1609-rtkit-daemon.service-0mvhDN
systemd-private-3620851298074f2a88e7c7e1f6ad1609-systemd-resolved.service-CVkwGJ
systemd-private-3620851298074f2a88e7c7e1f6ad1609-systemd-timesyncd.service-k7I3z
Temp-31c499fc-0009-481f-b495-a413749fec4e
ttn@ttn:~/exercise$
```

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

```
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
clear
echo "Welcome"
```

13. Install "zip" package.

```
ttn@ttn:~$ 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 429 not upgraded.
ttn@ttn:~$
```

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

```
ttn@ttn:~/exercise$ tar -cvf tar_ball output passwd_backup
output
passwd_backup
ttn@ttn:~/exercise$ tar --list -f tar_ball
output
passwd_backup
ttn@ttn:~/exercise$
```

15. scp this file to test user

```
ttn@ttn:~/exercise$ sudo scp tar_ball test@127.0.0.1:/tmp
test@127.0.0.1's password:
Could not chdir to home directory /home/test: Not a directory
tar_ball                                100% 10KB 11.4MB/s 00:00
ttn@ttn:~/exercise$ ll /tmp/tar_ball
-rw-r--r-- 1 test test 10240 Feb  4 16:47 /tmp/tar_ball
ttn@ttn:~/exercise$
```

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

```
tar: Exiting with failure status due to previous errors
$ sudo tar -vxf /tmp/tar_ball
[sudo] password for test:
output
passwd_backup
$ ll
sh: 3: ll: not found
$ ls -l
total 56
-rw-r--r-- 1 ttn ttn    0 Feb  4 11:57 bla
drwxr-xr-x 2 ttn ttn 4096 Jan 29 00:58 Desktop
drwxr-xr-x 2 ttn ttn 4096 Feb  4 16:19 Documents
drwxr-xr-x 2 ttn ttn 4096 Feb  4 16:41 Downloads
-rw-r--r-- 1 ttn ttn 8980 Jan 28 19:20 examples.desktop
drwxr-xr-x 3 ttn ttn 4096 Feb  4 16:52 exercise
drwxr-xr-x 2 ttn ttn 4096 Jan 29 00:58 Music
-rw-rw-r-- 1 ttn ttn  205 Feb  4 15:28 output
-rw-r--r-- 1 ttn ttn 2444 Feb  4 14:52 passwd_backup
drwxr-xr-x 2 ttn ttn 4096 Jan 29 00:58 Pictures
drwxr-xr-x 2 ttn ttn 4096 Jan 29 00:58 Public
drwxr-xr-x 2 ttn ttn 4096 Jan 29 00:58 Templates
```

17.Download any image from web and move to desktop

```
ttn@ttn:~/Desktop$ wget https://www.google.com/images/branding/googlelogo/1x/googlelogo_color_272x92dp.png
--2019-02-04 16:56:48-- https://www.google.com/images/branding/googlelogo/1x/googlelogo_color_272x92dp.png
Resolving www.google.com (www.google.com)... 172.217.166.228, 2404:6800:4002:804::2004
Connecting to www.google.com (www.google.com)|172.217.166.228|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 5969 (5.8K) [image/png]
Saving to: 'googlelogo_color_272x92dp.png'

googlelogo_color_27 100%[=====] 5.83K --.-KB/s in 0s

2019-02-04 16:56:48 (61.9 MB/s) - 'googlelogo_color_272x92dp.png' saved [5969/5969]

ttn@ttn:~/Desktop$
```

18.How to get help of commands usages.

Man : It is used to view a predifed detailed manual for and shell program,system calls etc.

Help : It is a switch that can be used with any command to give a breif description about each switch and options available for that command.

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

```
ttn@ttn:~/Desktop$ ln -s /etc/services /tmp/ports-info
ttn@ttn:~/Desktop$ ll /tmp/ports-info
lrwxrwxrwx 1 ttn ttn 13 Feb  4 17:00 /tmp/ports-info -> /etc/services
ttn@ttn:~/Desktop$
```

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?

Which : It is the command that will give us the executable for the command xyz.

Whereis : It can be used to view full path of every file related to xyz command like man pages etc.