

Introduction To Linux

Assignment 1

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

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

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

```
ttn@ttn:~/exercise/dir1/dir2$ sudo touch {emptyfile1,exptyfile2}.txt
ttn@ttn:~/exercise/dir1/dir2$ ls -l
total 4
drwxr-xr-x 2 ttn ttn 4096 Feb 7 22:03 dir3
-rw-r--r-- 1 root root 0 Feb 7 22:11 emptyfile1.txt
-rw-r--r-- 1 root root 0 Feb 7 22:11 exptyfile2.txt
ttn@ttn:~/exercise/dir1/dir2$
```

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

```
ttn@ttn:~/exercise/dir1$ sudo echo "Hello World" > file1.txt
ttn@ttn:~/exercise/dir1$ ls
dir2 file1.txt
ttn@ttn:~/exercise/dir1$ cat file1.txt
Hello World
ttn@ttn:~/exercise/dir1$
```

Q4: 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:/etc$ find passwd
passwd
ttn@ttn:/etc$ sudo cp passwd passwd_copy
ttn@ttn:/etc$ sudo mv passwd_copy passwd_backup
ttn@ttn:/etc$ find passwd_backup
passwd_backup
ttn@ttn:/etc$
```

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

```
ttn@ttn:/etc$ sudo less passwd_backup
```

```
ttn@ttn:/etc$ sudo more passwd_backup
```

```
ttn@ttn:/etc$ sudo cat passwd_backup
```

```
ttn@ttn:/etc$ sudo strings passwd_backup
```

Q6: Find out the number of line in password_backup containing "/bin/false".

```
ttn@ttn:/etc$ cat passwd_backup | grep "/bin/false" |wc -l
6
```

Q7: Get the first 5 lines of a file "password_backup" and Redirect the output of the above commands into file "output".

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```
ttn@ttn:/etc$ sudo touch output.txt
ttn@ttn:/etc$ sudo chmod 666 output.txt
ttn@ttn:/etc$ sudo head -5 passwd_backup > output.txt
ttn@ttn:/etc$ 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
ttn@ttn:/etc$
```

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

```
ttn@ttn:~$ sudo su -
root@ttn:~# useradd test
root@ttn:~# passwd test
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@ttn:~# id test
uid=1001(test) gid=1001(test) groups=1001(test)
root@ttn:~#
```

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

```
ttn@ttn:~/exercise/dir1/dir2$ sudo touch -d '1 Feb 2019 12:22' emptyfile1.txt
ttn@ttn:~/exercise/dir1/dir2$ sudo touch -d '9 Feb 2019 12:22' emptyfile2.txt
```

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.

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.

```
ttn@ttn:~/exercise/dir1/dir2$ ls -l
total 0
-rw-r--r-- 1 root root 0 Feb  6 12:22 emptyfile1.txt
-rw-r--r-- 1 root root 0 Feb  5 12:22 emptyfile2.txt
ttn@ttn:~/exercise/dir1/dir2$ sudo touch -d '7 Feb 2019 12:22' emptyfile1.txt
ttn@ttn:~/exercise/dir1/dir2$ sudo touch -d '8 Feb 2019 12:22' emptyfile2.txt
ttn@ttn:~/exercise/dir1/dir2$ ls -l
total 0
-rw-r--r-- 1 root root 0 Feb  7 12:22 emptyfile1.txt
-rw-r--r-- 1 root root 0 Feb  8 12:22 emptyfile2.txt
ttn@ttn:~/exercise/dir1/dir2$
```

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.

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Changing user

```
ttn@ttn:~$ sudo su - test
[sudo] password for ttn:
No directory, logging in with HOME=/
$ whoami
test
```

Checking the ownership and group of file

```
ttn@ttn:~/exercise$ ls -l output.txt
-rw-rw-rw- 1 ttn ttn 259 Feb  8 16:39 output.txt
```

Changing the ownership and group to TEST user:

```
ttn@ttn:~/exercise$ sudo chown test:test output.txt
```

Checking again for ownership of file:

```
$ ls -l
total 8
drwxr-xr-x 3 ttn ttn 4096 Feb  7 22:14 dir1
-rw-rw-rw- 1 test test 223 Feb  8 16:35 output.txt
```

Opening file for editing:

```
$ vi output.txt
```

File after being edited:

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```
$ cat output.txt

edited after changing the ownership to test
qw
:wq
[08]
A
A
C
helloe
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
$
```

Reverting the ownership to TTN

```
ttn@ttn:~/exercise$ sudo chown ttn:ttn output.txt
ttn@ttn:~/exercise$ ls -l
total 8
drwxr-xr-x 3 ttn ttn 4096 Feb  7 22:14 dir1
-rw-rw-rw- 1 ttn ttn 259 Feb  8 16:39 output.txt
```

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

Ans: Firstly Checking the directory :

```
ttn@ttn:~$ ls /tmp/
bitrock_installer.log
config-err-6V08cq
evince-3568
output.swp
output.txt.swo
output.txt.swp
ssh-0Ql4PD0zFNgd
systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-bolt.service-02WRDC
systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-colord.service-0x0W82
systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-fwupd.service-AYwUxq
systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-rtkit-daemon.service-8LgVIY
systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-systemd-resolved.service-EtUx4q
systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-systemd-timesyncd.service-4P92tm
```

Then creating Alias:

```
ttn@ttn:~$ alias Abhishek="touch /tmp/aliastesting"
```

Then calling Alias:

```
ttn@ttn:~$ Abhishek
```

And Last check for result:

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```
ttn@ttn:~$ ls /tmp/
aliastesting
```

Question 12:

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

Ans:

```
ttn@ttn:~$ sudo su ttn
```

```
clear|
echo "Welcome"
```

```
File Edit View Search Terminal Help

Welcome
ttn@ttn:~$
```

Question 13: Install Zip

```
File Edit View Search Terminal Help
ttn@ttn:~$ sudo apt-get 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 425 not upgraded.
ttn@ttn:~$
```

Question 14: Compress "output" and "password_backup" files into a tar ball. List the files present

inside the tar created.

```
File Edit View Search Terminal Help
ttn@ttn:~/exercise$ ls
dir1 output.txt
ttn@ttn:~/exercise$ sudo tar -cvf my_archive.tar output.txt /etc/passwd_backup
output.txt
tar: Removing leading '/' from member names
/etc/passwd_backup
ttn@ttn:~/exercise$ ls -l
total 20
drwxr-xr-x 3 ttn ttn 4096 Feb  7 22:14 dir1
-rw-r--r-- 1 root root 10240 Feb  8 17:38 my_archive.tar
-rw-rw-rw- 1 ttn ttn 259 Feb  8 16:39 output.txt
ttn@ttn:~/exercise$ tar -tvf my_archive.tar
-rw-rw-rw- ttn/ttn 259 2019-02-08 16:39 output.txt
-rw-r--r-- root/root 2561 2019-02-07 22:20 etc/passwd_backup
ttn@ttn:~/exercise$
```

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Question 15: scp this file to test user

Unzip this tar bar by logging into the remote server.

Question 17 : Download any image from web and move to desktop.

```
File Edit View Search Terminal Help
ttn@ttn:~$ wget https://erp.psit.in/assets/img/psit.png
--2019-02-08 17:53:20-- https://erp.psit.in/assets/img/psit.png
Resolving erp.psit.in (erp.psit.in)... 220.225.135.115
Connecting to erp.psit.in (erp.psit.in)|220.225.135.115|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 33183 (32K) [image/png]
Saving to: 'psit.png'

psit.png      100%[=====>]  32.41K  ---KB/s   in 0.01s

2019-02-08 17:53:20 (2.40 MB/s) - 'psit.png' saved [33183/33183]

ttn@ttn:~$ sudo mv psit.png Desktop/
ttn@ttn:~$ ls Desktop/
dir1  file1.txt  folder  'New Folder'  psit.png
ttn@ttn:~$
```

Question 18: How to get help of commands usages.

```
File Edit View Search Terminal Help
ttn@ttn:~$ sudo --help
sudo - execute a command as another user
```

Question 19:

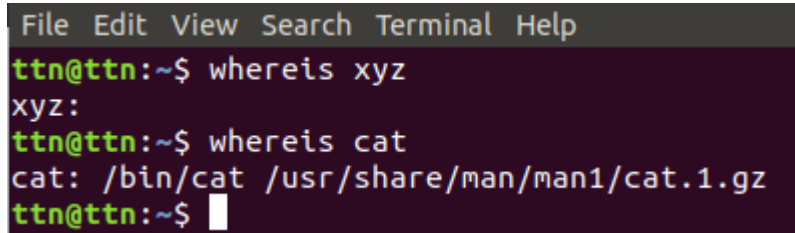
```
ttn@ttn:~$ ln -s /etc/services /tmp/ports-info
ttn@ttn:~$ ls -al /tmp
total 108
drwxrwxrwt 16 root root 4096 Feb  8 17:58 .
drwxr-xr-x 26 root root 4096 Feb  4 12:45 ..
-rw-r--r--  1 ttn  ttn    0 Feb  8 16:57 alltesting
-rw-----  1 ttn  ttn   137 Feb  8 11:10 bitrock_installer.log
drwx-----  2 ttn  ttn  4096 Feb  8 09:52 .com.google.Chrome.VnLxKe
-rw-----  1 ttn  ttn    0 Feb  8 09:48 config-err-6V08cq
drwx-----  2 ttn  ttn  4096 Feb  8 15:47 evince-3568
drwxrwxrwt  2 root root 4096 Feb  8 09:45 .font-unix
drwxrwxrwt  2 root root 4096 Feb  8 09:48 .ICE-unix
-rw-----  1 test test 12288 Feb  8 15:34 output.swp
-rw-r--r--  1 test test 12288 Feb  8 16:19 output.txt.swp
-rw-r--r--  1 test test 12288 Feb  8 16:00 output.txt.swp
drwxrwxrwt  1 ttn  ttn   13 Feb  8 17:58 ports-info -> /etc/services
drwx-----  2 ttn  ttn  4096 Feb  8 09:48 ssh-0ql4p0ozfNgd
drwx-----  3 root root 4096 Feb  8 09:45 systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-bolt.service-02HRDC
drwx-----  3 root root 4096 Feb  8 09:45 systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-colord.service-0x0W82
drwx-----  3 root root 4096 Feb  8 09:48 systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-fwupd.service-AYwUxq
drwx-----  3 root root 4096 Feb  8 09:45 systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-rtkit-daemon.service-8LgVIY
drwx-----  3 root root 4096 Feb  8 09:45 systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-systemd-resolved.service-EtUx4q
drwx-----  3 root root 4096 Feb  8 09:45 systemd-private-4d61b28a5d5e40a295e6b4127d88ae38-systemd-timesyncd.service-4P92tn
drwxrwxrwt  2 root root 4096 Feb  8 09:45 .test-unix
-r--r--r--  1 gdm  gdm   11 Feb  8 09:45 .X1024-lock
drwxrwxrwt  2 root root 4096 Feb  8 09:48 .X11-unix
drwxrwxrwt  2 root root 4096 Feb  8 09:45 .XIM-unix
ttn@ttn:~$
```

Question 20 : You are appointed as a Software/DevOps Engineer in ABC media services. On your first

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day you need to troubleshoot a problem. There is a command “xyz” somewhere installed in thatlinux system. But as a new joinee you do not have any idea about where is that Installed. How

can you check that?

A terminal window with a dark background and a menu bar at the top containing 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal shows the following commands and output:
ttn@ttn:~\$ whereis xyz
xyz:
ttn@ttn:~\$ whereis cat
cat: /bin/cat /usr/share/man/man1/cat.1.gz
ttn@ttn:~\$
The prompt 'ttn@ttn:~\$' is shown in green, and the output is in white. A cursor is visible at the end of the last line.

```
File Edit View Search Terminal Help
ttn@ttn:~$ whereis xyz
xyz:
ttn@ttn:~$ whereis cat
cat: /bin/cat /usr/share/man/man1/cat.1.gz
ttn@ttn:~$
```