

Lab 5: Operating System

Muhammad Shafeen

Roll No: 22P-9278

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Lab Task :

1 Commands and Outputs

1.1 Command: `ls -lh`

Gives details of the file about permissions.

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ touch file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ nano file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat file.txt
Lab # 5
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rw-rw-r-- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod 761 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rwxrw---x 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.2 Command: `chmod 000 file.txt`

The command is used to give permission to the file.

```
mount: /dev/nvme1n1p2: can't find in /etc/fstab.
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod 252 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
--w-r-x-w- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.3 Command: Question : --w-r-x-w-

Changed the permission to the above by calculating and then doing chmod 746

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -l
total 4
--w-r-x-w- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod 746 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls
file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -l
total 4
-rwxr--rw- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
```

1.4 Command: chmod o+x file.txt

Giving the file execute command for others

```
shafeenkhan@shafeenkhan-Dell-G15-5515: ~/main
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod o+x file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh file.txt
-r-xr---x 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

User Denotations	

1.5 Command: chmod o+w file.txt

Giving the file write command for others

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod o+w file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-r-xr---wx 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

User Denotations	
u	user/owner
g	Group
o	Other

1.6 Command: chmod 000 file.txt

take all permissions from other user

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod o+w file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-r-xr--w- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

User Denotations	
u	User/owner
g	Group
o	Other

1.7 Command: chmod o+rw file.txt

Giving permissions to others with symbolic commands

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod o+rw file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rwxr--r- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.8 Command: Give --w-r-x-w- with symbolics

Giving -w-r-x-w- permissions to others with symbolic commands

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod u+w file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
--w----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod g+rx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
--w-r-x-- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod o+w file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
--w-r-x-w- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.9 Command: Give --w-r-x-w- with symbolics in one line

Giving -w-r-x-w- permissions to others with symbolic commands

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod u+w file.txt && chmod
g+rx file.txt && chmod o+w file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rw-r-x-w- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.10 Command: chmod ug=rwx file.txt

Give all permissions to user and group

```
shafeenkhan@shafeenkhan-Dell-G15-5515: ~/main
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod ug=rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rwxrwx-w- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.11 Command: chmod ugo=rwx testfile.txt

give all permissins to everyone , owner , group , user

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod ugo=rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rwxrwxrwx 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.12 Command: chmod ugo+rwx file.txt

Give all permissions to everyone

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod ugo+rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rwxrwxrwx 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

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ls -l

To give permission to everybody or take permission from every body

1.13 Command: chmod ugo-rwx file.txt

Take all permissions to everyone

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod ugo-rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.14 Command: chmod u+w file.txt

Give user write commands

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod ugo+rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rwxrwxrwx 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.15 Command: chmod u-w file.txt

Take write command from user

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod ugo-rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.16 Command: chmod a+wrx file.txt

give all command to user

```
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod a+rx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
-rwxrwxrwx 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.17 Command: `chmod a-wrx file.txt`

Take all command from user

```
shafeenkhan@shafeenkhan-Dell-G15-5515: ~/main
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod a-rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.18 Command: `chmod a-rwx abc/`

Take all permission from directory and try to access it

```
shafeenkhan@shafeenkhan-Dell-G15-5515: ~/main
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod a-rwx file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$
```

1.19 Command: Give execute command to abc and try to write

Give execute command and try to view files in abc and write something in it

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod u+x abc/  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cd abc/  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls  
ls: cannot open directory '.': Permission denied  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls  
ls: cannot open directory '.': Permission denied  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls  
ls: cannot open directory '.': Permission denied  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ mkdir abc1  
mkdir: cannot create directory 'abc1': Permission denied  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$
```

1.20 Command: `chmod u+w abc` , `touch file`

Create file in abc directory and try to access it wont

```
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod u+w abc/  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh  
total 8.0K  
-wx----- 2 shafeenkhan shafeenkhan 4.0K Sep 20 09:28 abc  
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cd abc/  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls  
ls: cannot open directory '.': Permission denied  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ touch file  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls  
ls: cannot open directory '.': Permission denied  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$
```

1.21 Command: Make directory `abc1` and make text file in it

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ touch file  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls  
ls: cannot open directory '.': Permission denied  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ rm file  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ mkdir abc1  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ cd abc1  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc/abc1$ touch file  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc/abc1$ ls  
file  
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc/abc1$
```

1.22 Command: Give read permission-
to abc and then check

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ chmod u+r abc/
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 8.0K
drwx----- 3 shafeenkhan shafeenkhan 4.0K Sep 20 09:52 abc
----- 1 shafeenkhan shafeenkhan 8 Sep 20 08:15 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cd abc/
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls
abc1
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$
```

1.23 Command: Give all permission-
to abc's group and then check

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ chmod g+rwX abc1/
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls -lh
total 4.0K
drwxrwxr-x 2 shafeenkhan shafeenkhan 4.0K Sep 20 09:52 abc1
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$
```

1.24 Command: Give all permission-
to abc's other and then check

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ chmod o+rwX abc1/
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls -lh
total 4.0K
drwxrwxrwx 2 shafeenkhan shafeenkhan 4.0K Sep 20 09:52 abc1
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$
```

1.25 Command: Take all permission-
from abc's user and then check

```
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ chmod u-rwx abc1/
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$ ls -lh
total 4.0K
d---rwxrwx 2 shafeenkhan shafeenkhan 4.0K Sep 20 09:52 abc1
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main/abc$
```

1.26 Command: chown root file.txt
, sudo chown root file.txt

changed the owner of file.txt from shafeenkhan to root


```

(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
drwxrwxr-x 2 shafeenkhan shafeenkhan 4.0K Sep 20 10:04 abc
-rw-rw-r-- 1 shafeenkhan shafeenkhan 0 Sep 20 10:04 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ sudo chown root file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
drwxrwxr-x 2 shafeenkhan shafeenkhan 4.0K Sep 20 10:04 abc
-rw-rw-r-- 1 root shafeenkhan 0 Sep 20 10:04 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$

```

1.27 Command: Changing user to root

changed the owner of abc from shafeenkhan to root

```

(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ sudo chown root file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
drwxrwxr-x 2 shafeenkhan shafeenkhan 4.0K Sep 20 10:04 abc
-rw-rw-r-- 1 root shafeenkhan 0 Sep 20 10:04 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ sudo chown root abc/
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 4.0K
drwxrwxr-x 2 root shafeenkhan 4.0K Sep 20 10:04 abc
-rw-rw-r-- 1 root shafeenkhan 0 Sep 20 10:04 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$

```

1.28 Command: changing group to root as well

changed the group of abc from shafeenkhan to root

```

(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ sudo chown root:root file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 8.0K
drwxrwxr-x 2 root shafeenkhan 4.0K Sep 20 10:04 abc
-rw-rw-r-- 1 root root 1 Sep 20 10:13 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat > file.txt
bash: file.txt: Permission denied
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$

```

1.29 Command: nano hello.c , gcc hello.c , ./a.out

Making a c file and then running a simple hello world command

```

(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ sudo chown root:root file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 8.0K
drwxrwxr-x 2 root shafeenkhan 4.0K Sep 20 10:04 abc
-rw-rw-r-- 1 root:root 1 Sep 20 10:13 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat file.txt
chown user:group filename
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat file.txt
sudo chown usman:usman file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat > file.txt
bash: file.txt: Permission denied
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ following message.

```

1.30 Command: nano hello.c ,
gcc hello.c , ./a.out

using the system("ls -l");

```

(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ sudo chown root:root file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ ls -lh
total 8.0K
drwxrwxr-x 2 root shafeenkhan 4.0K Sep 20 10:04 abc
-rw-rw-r-- 1 root:root 1 Sep 20 10:13 file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat file.txt
chown user:group filename
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat file.txt
sudo chown usman:usman file.txt
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ cat > file.txt
bash: file.txt: Permission denied
(base) shafeenkhan@shafeenkhan-Dell-G15-5515:~/main$ following message.

```