1Exercises about file and directory permission

1. List the permissions in your current directory, including hidden files.
   We use command: ls -la
2. Create a file called perm1. Now, check the default permissions and user and group
ownership
   To create the file we use: touch perm1.txt
   To check the permissions: ls -l perm1.txt

```
palo@palo-VirtualBox:~$ ls -l perm1.txt
-rw-rw-r-- 1 palo palo 0 ene 13 15:57 perm1.txt
```

3. Change permissions of perm1 so that everyone can read and only the owner user can write.
Specify the command in all possible ways.

```
palo@palo-VirtualBox:~$ chmod a=r,u=rw perm1.txt
palo@palo-VirtualBox:~$ ls -l perm1.txt
-rw-r--r-- 1 palo palo 0 ene 13 15:57 perm1.txt
palo@palo-VirtualBox:~$
```

4. Create a file called script1.sh, including the content below. List the default permissions.
#!/bin/bash
clear
who

```
palo@palo-VirtualBox:~$ nano script1.sh
palo@palo-VirtualBox:~$ ls -l script1.sh
-rw-rw-r-- 1 palo palo 23 ene 13 16:30 script1.sh
```

   We use command nano script1.sh and paste the content.
   Then we use ls -l script1.sh
5. Remove the read permission from the owner and try to open the file
   We use: chmod u-r script1.sh and then: nano script1.sh to open the file

```
palo@palo-VirtualBox:~$ chmod u-r script1.sh
palo@palo-VirtualBox:~$ nano script1.sh
```

   but we get an error since we removed reading permissions.

```
[ Error reading script1.sh: Permission denied ]
```

6. Remove the write permission from the owner on the file script1.sh. Add the line below. Is it
possible? Why?
   I added the reading permission again so we could see the file and then removed the writing
permission.

```
palo@palo-VirtualBox:~$ chmod u+r script1.sh; chmod u-w s
cript1.sh
palo@palo-VirtualBox:~$ nano script1.sh
```

   However we cannot add the line beacuse we removed the permission.

```
[ File 'script1.sh' is unwritable ]
```

7. Change the permissions on the file script1.sh so that the owner can read, write and
execute, but you deny all the permissions from the group and others.

```
palo@palo-VirtualBox:~$ chmod u+rwx,g-rwx,o-rwx script1.sh
```

8. Add the line indicated in exercise 6 "new line", in case it was not possible. Try to run the file like a
command.

```
palo@palo-VirtualBox:~$ nano script1.sh
  GNU nano 4.8              script1.sh
#!/bin/bash
clear
who
new line
```

9. Remove the read permission from the owner on the file script1.sh. Try to run the file. Is it possible?

```
palo@palo-VirtualBox:~$ chmod u-r script1.sh
```

It is not possible because we don't have permission to read the file even though we can execute it.

10. Create a directory called "systems". Remove the write permission from it and try to copy script1.sh inside.

```
palo@palo-VirtualBox:~$ mkdir systems
palo@palo-VirtualBox:~$ chmod u-w systems
palo@palo-VirtualBox:~$ cp script1.sh systems
cp: cannot open 'script1.sh' for reading: Permission denied
palo@palo-VirtualBox:~$
```

It is not possible.

11. If you were not able to copy the file, add the write permission again and copy the file inside.

```
palo@palo-VirtualBox:~$ chmod u+w systems
palo@palo-VirtualBox:~$ cp script1.sh systems
cp: cannot open 'script1.sh' for reading: Permission denied
palo@palo-VirtualBox:~$
```

It is not possible because we have no reading permissions on the script1.sh file if we add them it will allow us.

```
palo@palo-VirtualBox:~$ chmod u+r script1.sh
palo@palo-VirtualBox:~$ cp script1.sh systems
palo@palo-VirtualBox:~$
```

12. Remove the read permission from the user on the directory "systems" and try to list its contents.

```
palo@palo-VirtualBox:~$ chmod u-r systems
palo@palo-VirtualBox:~$ ls systems
ls: cannot open directory 'systems': Permission denied
```

It wont allow us because we dont have reading permissions.

13. Change the permissions from "sytems" so that the owner can read, write and execute, but the group and others can only read.
  We can do it in one command.

```
palo@palo-VirtualBox:~$ chmod u=rwx,go=r systems
palo@palo-VirtualBox:~$
```

14. Remove the execute permission from "systems". Can you execute systems/script1.sh? Is it possible to acces the directory to execute the file?

```
palo@palo-VirtualBox:~$ chmod u-x systems
palo@palo-VirtualBox:~$ bash /root/systems/script1.sh
bash: /root/systems/script1.sh: Permission denied
palo@palo-VirtualBox:~$ cd systems
bash: cd: systems: Permission denied
palo@palo-VirtualBox:~$
```

´It is not possible, we don't have the permission to execute.

15. Assign the execute permission to the directory again

```
palo@palo-VirtualBox:~$ chmod u+x systems
```

16. Create two files called "lucy" and "charles" into "systems". Change permissions of "charles", so that others can write and execute.

```
palo@palo-VirtualBox:~$ cd systems
palo@palo-VirtualBox:~/systems$ touch lucy ; touch charles
palo@palo-VirtualBox:~/systems$ chmod o+wx charles
palo@palo-VirtualBox:~/systems$
```

17.Change permissions of "lucy" so that the owner can read and execute, the group can read and write and others can only write. Specify the command in all possible ways.

```
palo@palo-VirtualBox:~/systems$ chmod u=rx,g=rw,o=w lucy
```

We could also use: chmod 562 lucy

18. Log in as root. Change the ownership of "charles" to "root". Exit the root session. Now, try to change the permission so that others cannot read and execute. Is it possible? Why?

```
palo@palo-VirtualBox:~/systems$ sudo su
[sudo] password for palo:
root@palo-VirtualBox:/home/palo/systems# chown root charles
root@palo-VirtualBox:/home/palo/systems# exit
exit
palo@palo-VirtualBox:~/systems$ chmod o-rx charles
chmod: changing permissions of 'charles': Operation not permi
tted
palo@palo-VirtualBox:~/systems$
```

It is not possible because the owner is root now.

19. Change the permissions of "charles" so that everybody can do everything

```
palo@palo-VirtualBox:~/systems$ sudo su
root@palo-VirtualBox:/home/palo/systems# chmod a+rwx charles
root@palo-VirtualBox:/home/palo/systems# ls -l
total 8
-rwxrwxrwx 1 root palo    0 ene 20 22:14 charles
```

20. Change the permissions of "lucy" so that the group can read and write, but the owner and others cannot do anything. Can you open the file?

```
palo@palo-VirtualBox:~/systems$ chmod uo=-,g=rw lucy
palo@palo-VirtualBox:~/systems$ nano lucy
```

```
[ Error reading lucy: Permission denied ]
```

We cannot open it, we don't have permissions.

21. Create a group called "newgroup". Set the group as the owner of the file "lucy" and "root" as the owner user.

```
palo@palo-VirtualBox:~/systems$ sudo su
root@palo-VirtualBox:/home/palo/systems# groupadd newgroup
root@palo-VirtualBox:/home/palo/systems# chown root:newgroup
lucy
```

22. Add your user to the secondary group "newgroup". Try to open the file "lucy" now. Is it possible?

```
palo@palo-VirtualBox:~$ sudo usermod -a -G newgroup palo
```

```
[ Error reading lucy: Permission denied ]
```

It is still not possible.

23. Change permissions of "lucy" so that everybody can read.

```
root@palo-VirtualBox:/home/palo/systems# chmod a+r lucy
```

24. Do exercise 13 again,(Change the permissions from "systems" so that the owner can read, write and execute, but the group and others can only read.) but this time granting permissions to the folder "systems" including files and subfolders.

```
palo@palo-VirtualBox:~$ chmod -R u=rwx,go=r systems
```

25. Change the group owner of "systems" to "root" including files and subfolders.

```
palo@palo-VirtualBox:~$ chgrp -R root systems
```