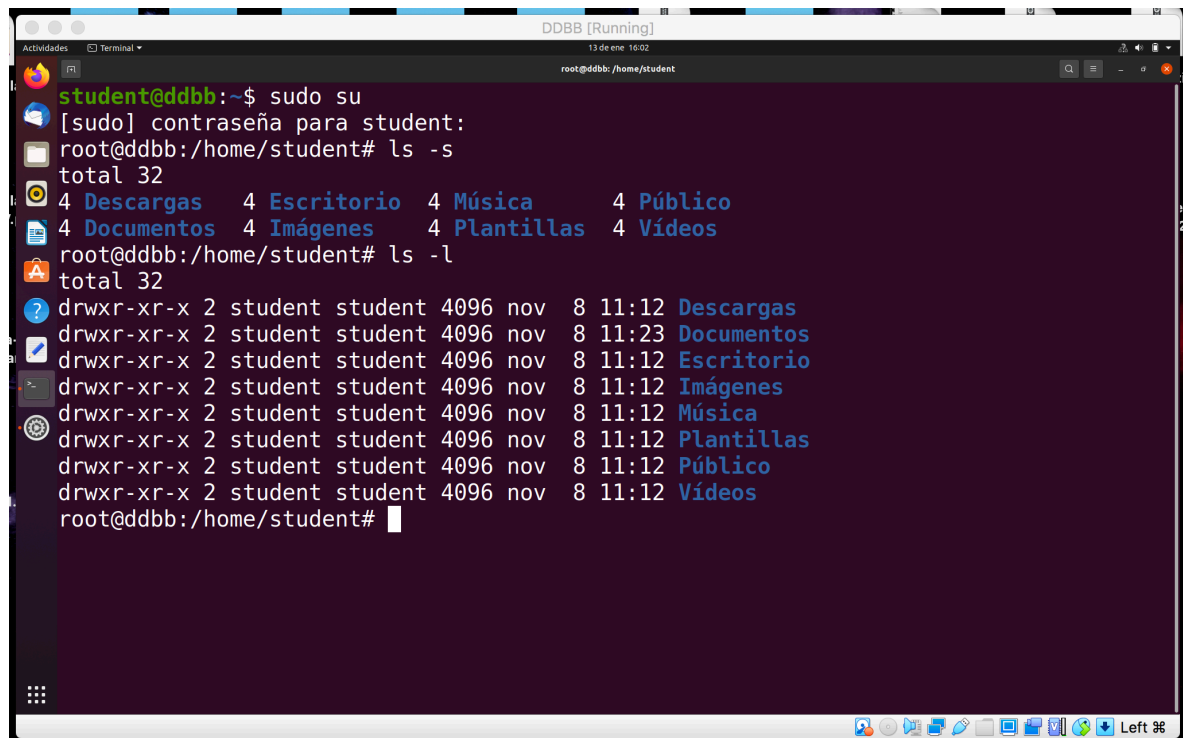


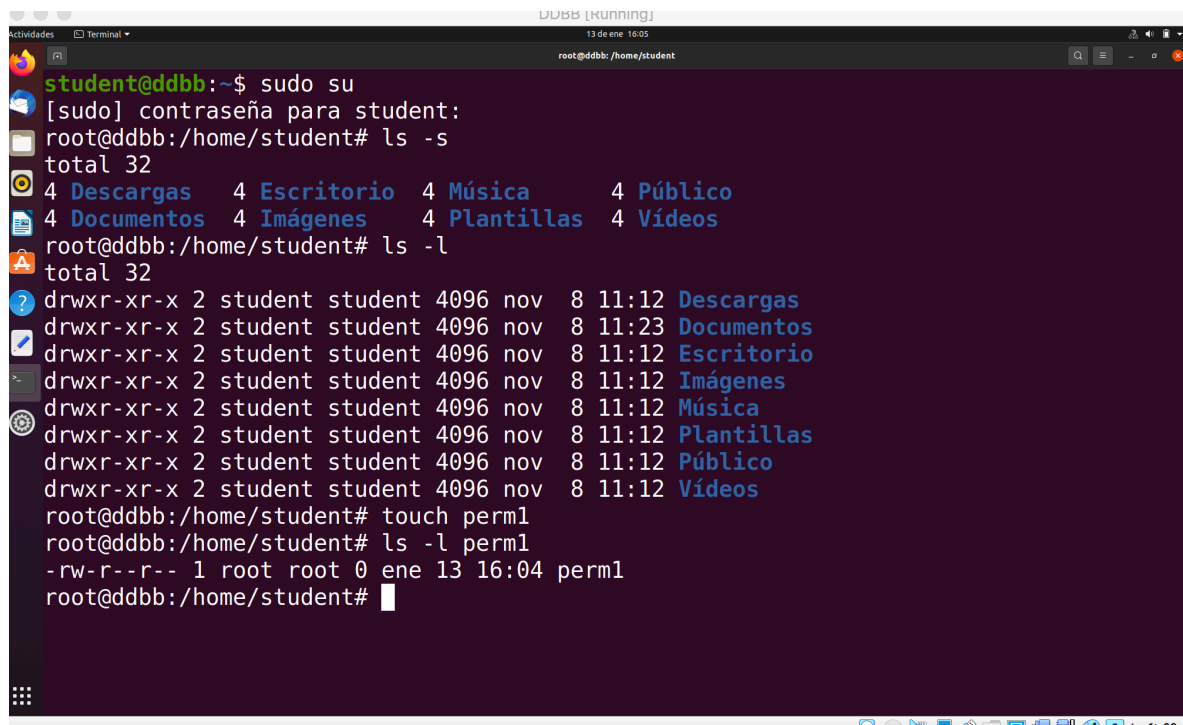
(3) Exercises -Permission

1 List the permissions in your current directory, including hidden files.

A terminal window titled 'DDBB [Running]' showing a user switching to root and listing directory contents. The user 'student' is at the prompt 'student@ddb:~\$'. They run 'sudo su' and enter the password. The root prompt 'root@ddb:/home/student#' is shown. They run 'ls -s' which shows a total of 32 and lists 8 directories: Descargas, Documentos, Escritorio, Imágenes, Música, Plantillas, Público, and Vídeos. Then they run 'ls -l' which shows the same total and lists the same 8 directories with their permissions (drwxr-xr-x), size (4096), owner (student), group (student), and timestamps (nov 8 11:12).

```
student@ddb:~$ sudo su
[sudo] contraseña para student:
root@ddb:/home/student# ls -s
total 32
4 Descargas 4 Escritorio 4 Música 4 Público
4 Documentos 4 Imágenes 4 Plantillas 4 Vídeos
root@ddb:/home/student# ls -l
total 32
drwxr-xr-x 2 student student 4096 nov 8 11:12 Descargas
drwxr-xr-x 2 student student 4096 nov 8 11:23 Documentos
drwxr-xr-x 2 student student 4096 nov 8 11:12 Escritorio
drwxr-xr-x 2 student student 4096 nov 8 11:12 Imágenes
drwxr-xr-x 2 student student 4096 nov 8 11:12 Música
drwxr-xr-x 2 student student 4096 nov 8 11:12 Plantillas
drwxr-xr-x 2 student student 4096 nov 8 11:12 Público
drwxr-xr-x 2 student student 4096 nov 8 11:12 Vídeos
root@ddb:/home/student#
```

2 Create a file called perm1. Now, check the default permissions and user and group ownership

A terminal window titled 'DDBB [Running]' showing the same user switching to root and listing directory contents. The user 'student' is at the prompt 'student@ddb:~\$'. They run 'sudo su' and enter the password. The root prompt 'root@ddb:/home/student#' is shown. They run 'ls -s' which shows a total of 32 and lists 8 directories. Then they run 'ls -l' which shows the same total and lists the same 8 directories with their permissions, size, owner, group, and timestamps. They then run 'touch perm1' to create a new file. Finally, they run 'ls -l perm1' which shows the file 'perm1' with permissions '-rw-r--r--', size 1, owner root, group root, and timestamp ene 13 16:04.

```
student@ddb:~$ sudo su
[sudo] contraseña para student:
root@ddb:/home/student# ls -s
total 32
4 Descargas 4 Escritorio 4 Música 4 Público
4 Documentos 4 Imágenes 4 Plantillas 4 Vídeos
root@ddb:/home/student# ls -l
total 32
drwxr-xr-x 2 student student 4096 nov 8 11:12 Descargas
drwxr-xr-x 2 student student 4096 nov 8 11:23 Documentos
drwxr-xr-x 2 student student 4096 nov 8 11:12 Escritorio
drwxr-xr-x 2 student student 4096 nov 8 11:12 Imágenes
drwxr-xr-x 2 student student 4096 nov 8 11:12 Música
drwxr-xr-x 2 student student 4096 nov 8 11:12 Plantillas
drwxr-xr-x 2 student student 4096 nov 8 11:12 Público
drwxr-xr-x 2 student student 4096 nov 8 11:12 Vídeos
root@ddb:/home/student# touch perm1
root@ddb:/home/student# ls -l perm1
-rw-r--r-- 1 root root 0 ene 13 16:04 perm1
root@ddb:/home/student#
```

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

```
Pruebe chmod --help para mas informacion.  
root@ddeb:/home/student# chmod a=r,u+w perm1  
root@ddeb:/home/student# chmod u=rw,go=r perm1
```

```
root@ddeb:/home/student# chmod 644 perm1
```

4 Create a file called script1.sh, including the content below. List the default permissions

```
root@ddeb:/home/student# nano script1.sh  
... root@ddeb:/home/student#
```

```
script1.sh  
root@ddeb:/home/student# chmod u-r script1.sh  
root@ddeb:/home/student# ls -l script1.sh  
--w-r--r-- 1 root root 22 ene 13 16:16 script1.sh  
root@ddeb:/home/student#
```

5 Remove the read permission from the owner and try to open the file

```
cat: script1.sh: No existe el archivo o directorio  
student@ddeb:~$ cat script1.sh  
#!/bin/bash  
clear  
who  
student@ddeb:~$
```

6 Remove the write permission from the owner on the file script1.sh. Add the line below. Is it possible? Why? Not is possible because the user don't have permissions of execute.

```
student@ddeb:~$ cat > script1.sh  
bash: script1.sh: Permisos denegados  
student@ddeb:~$
```

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.

```
root@ddeb:/home/student# chmod u=rwx script1.sh  
root@ddeb:/home/student# chmod u=rwx,go=- script1.sh  
root@ddeb:/home/student#
```

8 Add the line indicated in exercise 6, in case it was not possible. Try to run the

file like a command.

```
new line
root@ddbb:/home/student# cat > script1.sh
#!/bin/bash
clear
who
new line
^C
root@ddbb:/home/student# exit
student@ddbb:~$
```

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

```
root@ddbb:/home/student# chmod u-r script1.sh
root@ddbb:/home/student# bash script1.sh
script1.sh: línea 1: new: orden no encontrada
root@ddbb:/home/student#
```

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

```
student@ddbb:~$ chmod u-w systems
student@ddbb:~$ cp script1.sh systems
cp: no se puede crear el fichero regular 'systems/script1.sh': Permiso denegado
student@ddbb:~$
```

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

```
cp: no se puede crear el fichero regular 'systems/script1.sh': Permiso denegado
student@ddbb:~$ chmod u+w systems
student@ddbb:~$ cp script1.sh systems
student@ddbb:~$
```

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

```
student@ddbb:~$ ls -l systems
ls: no se puede abrir el directorio 'systems': Permiso denegado
student@ddbb:~$
```

13 Change the permissions from "systems" so that the owner can read, write

and execute, but the group and others can only read

```
student@ddbb:~$ chmod u=rwx,go=r systems
student@ddbb:~$ ls -l
total 44
drwxr-xr-x 2 student student 4096 nov  8 11:12 Descargas
drwxr-xr-x 2 student student 4096 nov  8 11:23 Documentos
drwxr-xr-x 2 student student 4096 nov  8 11:12 Escritorio
drwxr-xr-x 2 student student 4096 nov  8 11:12 Imágenes
drwxr-xr-x 2 student student 4096 nov  8 11:12 Música
-rw-r--r-- 1 root     root      0 ene 13 16:04 perm1
drwxr-xr-x 2 student student 4096 nov  8 11:12 Plantillas
drwxr-xr-x 2 student student 4096 nov  8 11:12 Público
-rwxrwxrwx 1 root     root     31 ene 13 16:48 script1.sh
-rwxrwxrwx 1 root     root      9 ene 13 16:43 sript1.sh
drwxr--r-- 2 student student 4096 ene 13 17:22 systems
drwxr-xr-x 2 student student 4096 nov  8 11:12 Vídeos
student@ddbb:~$
```

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

```
student@ddbb:~$ chmod a-x systems
student@ddbb:~$ ls -l
total 44
drwxr-xr-x 2 student student 4096 nov  8 11:12 Descargas
drwxr-xr-x 2 student student 4096 nov  8 11:23 Documentos
drwxr-xr-x 2 student student 4096 nov  8 11:12 Escritorio
drwxr-xr-x 2 student student 4096 nov  8 11:12 Imágenes
drwxr-xr-x 2 student student 4096 nov  8 11:12 Música
-rw-r--r-- 1 root     root      0 ene 13 16:04 perm1
drwxr-xr-x 2 student student 4096 nov  8 11:12 Plantillas
drwxr-xr-x 2 student student 4096 nov  8 11:12 Público
-rwxrwxrwx 1 root     root     31 ene 13 16:48 script1.sh
-rwxrwxrwx 1 root     root      9 ene 13 16:43 sript1.sh
drw-r--r-- 2 student student 4096 ene 13 17:22 systems
drwxr-xr-x 2 student student 4096 nov  8 11:12 Vídeos
student@ddbb:~$
```

15 Assign the execute permission to the directory again

```
student@ddbb:~$ bash systems/script1.sh
bash: systems/script1.sh: Permiso denegado
student@ddbb:~$
```

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

```
student@ddb:~$ touch systems/lucy
student@ddb:~$ touch systems/charles
student@ddb:~$ ls -l systems
total 4
-rw-rw-r-- 1 student student 0 ene 13 17:38 charles
-rw-rw-r-- 1 student student 0 ene 13 17:38 lucy
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
```

```
student@ddb:~$ chmod go+wx systems/charles
student@ddb:~$ ls -l systems
total 4
-rw-rwxrwx 1 student student 0 ene 13 17:38 charles
-rw-rw-r-- 1 student student 0 ene 13 17:38 lucy
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
student@ddb:~$
```

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.

```
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
student@ddb:~$ chmod u=rx,g=rw,o=w systems/lucy
student@ddb:~$ chmod 562 systems/lucy
student@ddb:~$ chmod a=rwx,u-w,g-x,o-rx systems/lucy
student@ddb:~$
```

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? Yes, because everyone have permissions to read.

```
root@ddb:/home/student# cd systems
root@ddb:/home/student/systems# ls -l
total 4
-rw-rwxrwx 1 student student 0 ene 13 17:38 charles
-r-xrw--w- 1 student student 0 ene 13 17:38 lucy
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
root@ddb:/home/student/systems# chown root charles
root@ddb:/home/student/systems# ls -l
total 4
-rw-rwxrwx 1 root student 0 ene 13 17:38 charles
-r-xrw--w- 1 student student 0 ene 13 17:38 lucy
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
root@ddb:/home/student/systems#
```

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

```
root@ddbb:/home/student/systems# chmod a=rwx charles
root@ddbb:/home/student/systems# ls -l
total 4
-rwxrwxrwx 1 root    student  0 ene 13 17:38 charles
-r-xrw--w- 1 student student  0 ene 13 17:38 lucy
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
root@ddbb:/home/student/systems#
```

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? No, because the user don't have permissions only is possible open it when you at loading at root.

```
Try 'chmod --help' for more information.
root@ddbb:/home/student/systems# chmod uo-rwx,g+rw lucy
root@ddbb:/home/student/systems# ls -l
total 4
-rwxrwxrwx 1 root    student  0 ene 13 17:38 charles
----rw---- 1 student student  0 ene 13 17:38 lucy
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
root@ddbb:/home/student/systems#
```

```
student@ddbb:~$ cat lucy
student@ddbb:~$ cd systems
student@ddbb:~/systems$ cat lucy
cat: lucy: Permission denied
student@ddbb:~/systems$
```

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

```
root@ddbb:/home/student/systems# groupadd newgroup
root@ddbb:/home/student/systems# cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
```

```
3 directories, 3 files
root@ddbb:/home/student/systems# chown root lucy
```

```
root@ddbb:/home/student/systems# chgrp newgroup lucy
```

```
-rwxrwxrwx 1 root    student  0 ene 13 17:38 charles
----rw---- 1 root    newgroup 0 ene 13 17:38 lucy
-rwxrwxr-x 1 student student 31 ene 13 17:22 script1.sh
```

