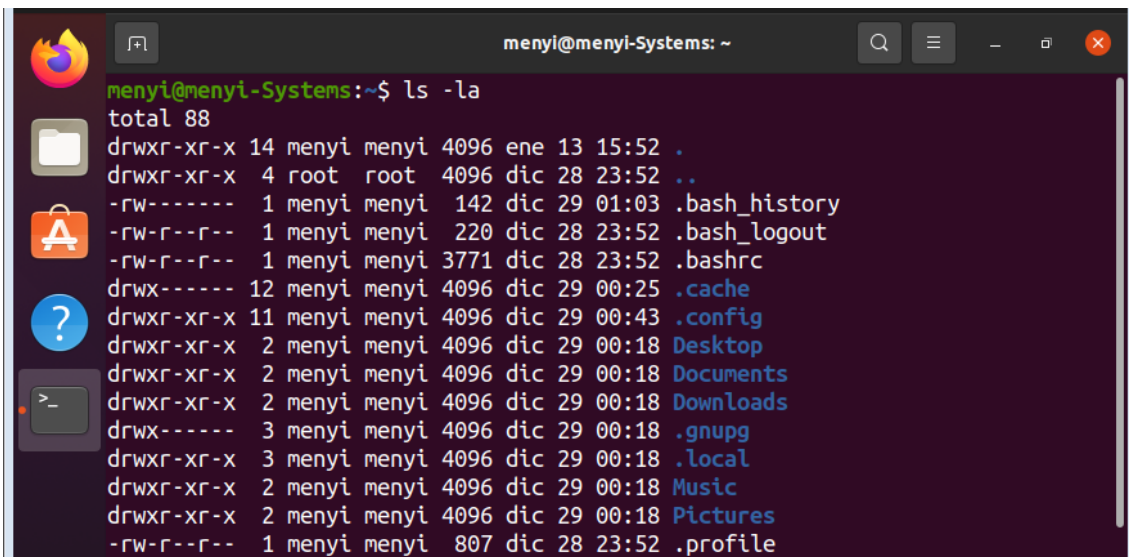


## UNIT 03: Linux systems administration # Exercise 07

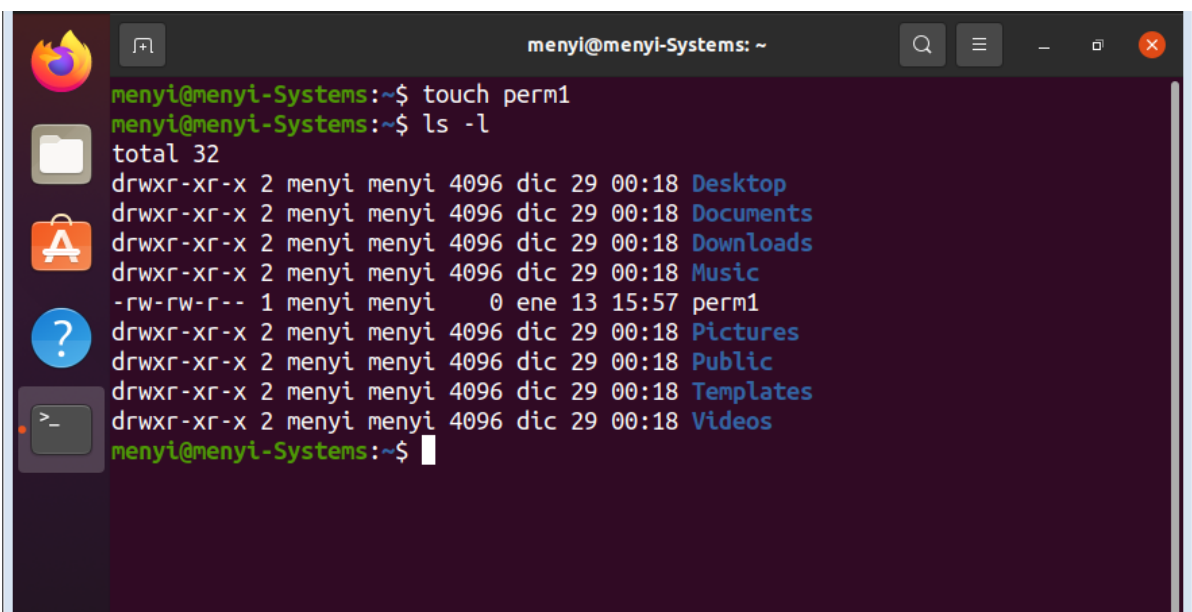
## Part 3# EXERCISES ABOUT FILE AND DIRECTORY PERMISSION

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



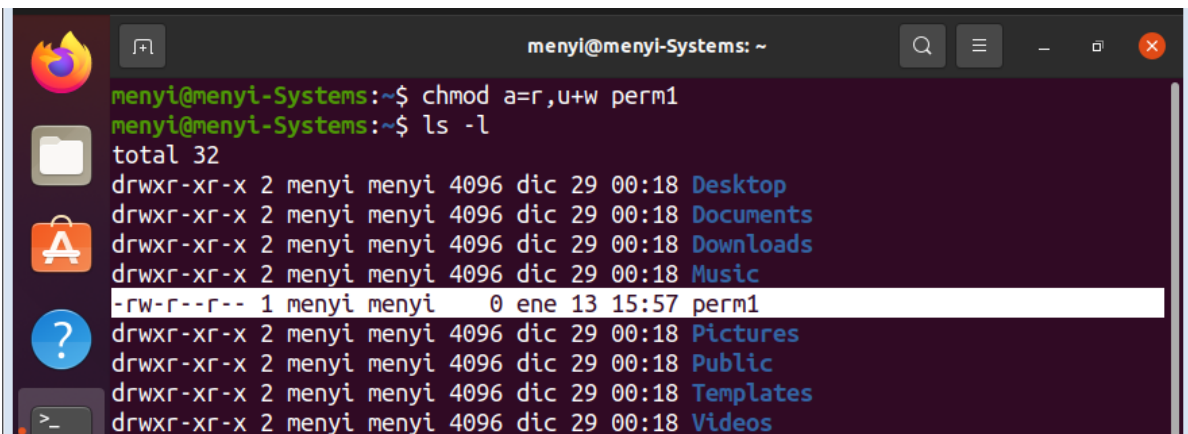
```
menyi@menyi-Systems: ~$ ls -la
total 88
drwxr-xr-x 14 menyi menyi 4096 ene 13 15:52 .
drwxr-xr-x  4 root  root  4096 dic 28 23:52 ..
-rw-----  1 menyi menyi   142 dic 29 01:03 .bash_history
-rw-r--r--  1 menyi menyi   220 dic 28 23:52 .bash_logout
-rw-r--r--  1 menyi menyi  3771 dic 28 23:52 .bashrc
drwx----- 12 menyi menyi 4096 dic 29 00:25 .cache
drwxr-xr-x 11 menyi menyi 4096 dic 29 00:43 .config
drwxr-xr-x  2 menyi menyi 4096 dic 29 00:18 Desktop
drwxr-xr-x  2 menyi menyi 4096 dic 29 00:18 Documents
drwxr-xr-x  2 menyi menyi 4096 dic 29 00:18 Downloads
drwx-----  3 menyi menyi 4096 dic 29 00:18 .gnupg
drwxr-xr-x  3 menyi menyi 4096 dic 29 00:18 .local
drwxr-xr-x  2 menyi menyi 4096 dic 29 00:18 Music
drwxr-xr-x  2 menyi menyi 4096 dic 29 00:18 Pictures
-rw-r--r--  1 menyi menyi   807 dic 28 23:52 .profile
```

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

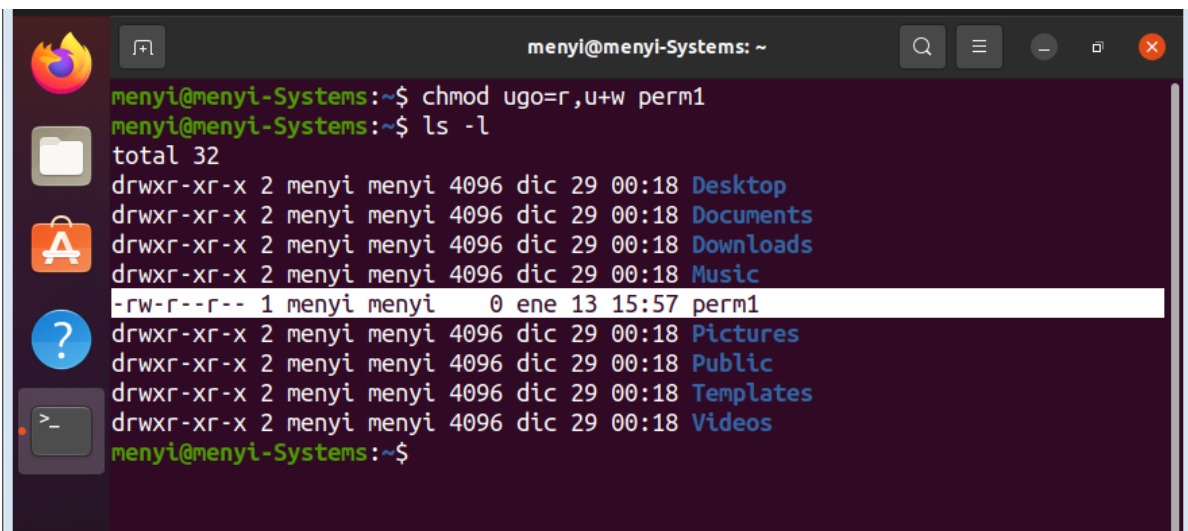


```
menyi@menyi-Systems:~$ touch perm1
menyi@menyi-Systems:~$ ls -l
total 32
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music
-rw-rw-r-- 1 menyi menyi    0 ene 13 15:57 perm1
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos
menyi@menyi-Systems:~$
```

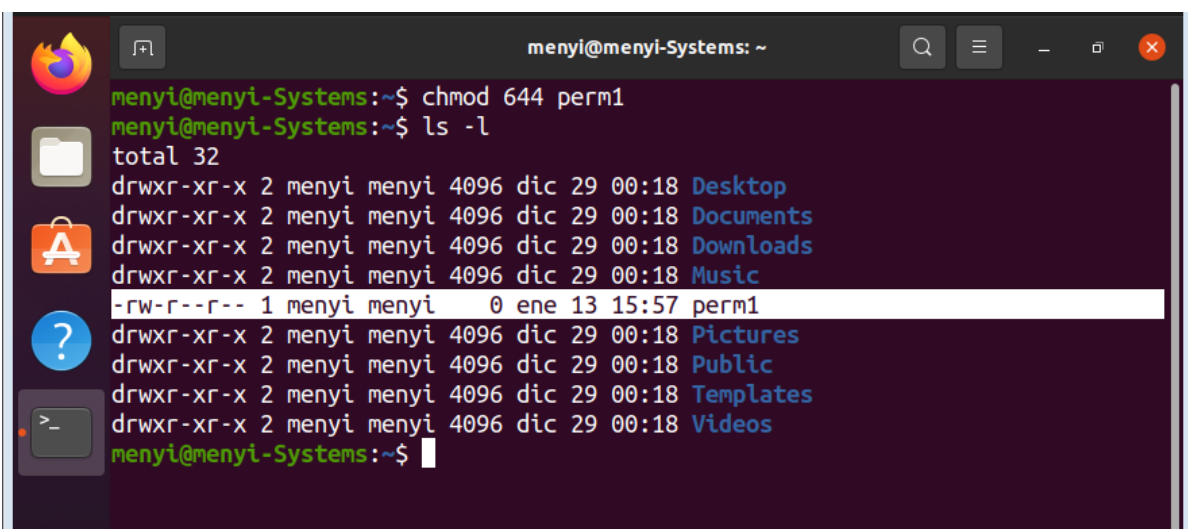
3. Change permissions of perm1 so that everyone can read and only the owner user can write. Specify the command in all possible ways.



```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ chmod a=r,u+w perm1  
menyi@menyi-Systems:~$ ls -l  
total 32  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi 0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos
```

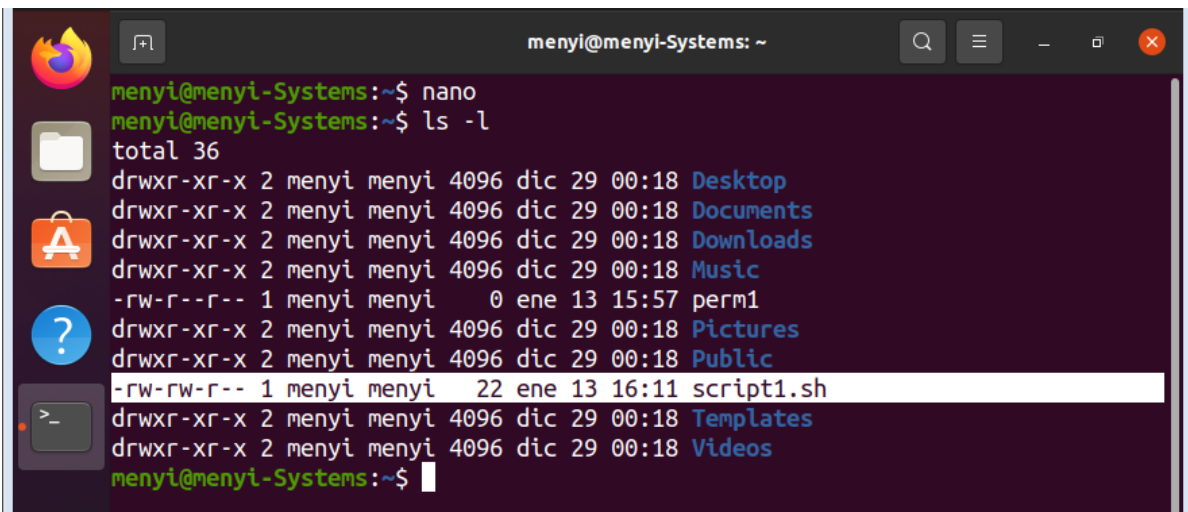


```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ chmod ugo=r,u+w perm1  
menyi@menyi-Systems:~$ ls -l  
total 32  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi 0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos  
menyi@menyi-Systems:~$
```



```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ chmod 644 perm1  
menyi@menyi-Systems:~$ ls -l  
total 32  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi 0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos  
menyi@menyi-Systems:~$
```

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

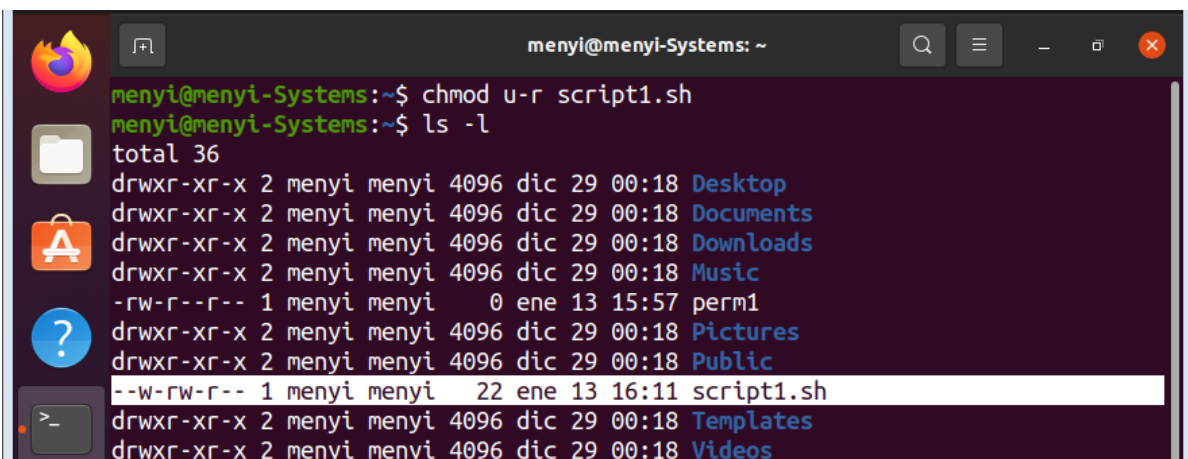


```

menyi@menyi-Systems: ~
menyi@menyi-Systems:~$ nano
menyi@menyi-Systems:~$ ls -l
total 36
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public
-rw-rw-r-- 1 menyi menyi  22 ene 13 16:11 script1.sh
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos
menyi@menyi-Systems:~$

```

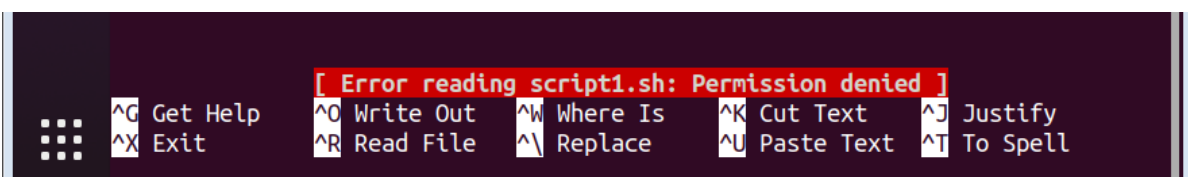
5. Remove the read permission from the owner and try to open the file



```

menyi@menyi-Systems:~$ chmod u-r script1.sh
menyi@menyi-Systems:~$ ls -l
total 36
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public
--w-rw-r-- 1 menyi menyi  22 ene 13 16:11 script1.sh
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos

```

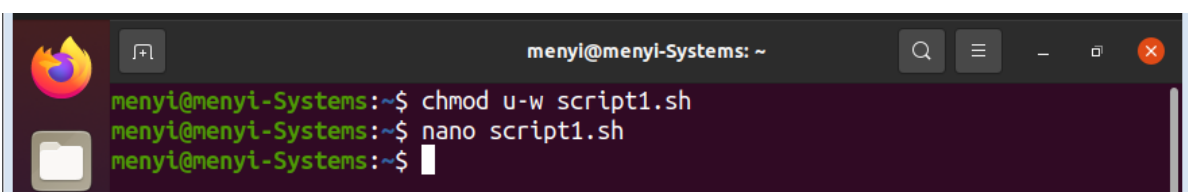


```

[ Error reading script1.sh: Permission denied ]

```

6. Remove the write permission from the owner on the file script1.sh.



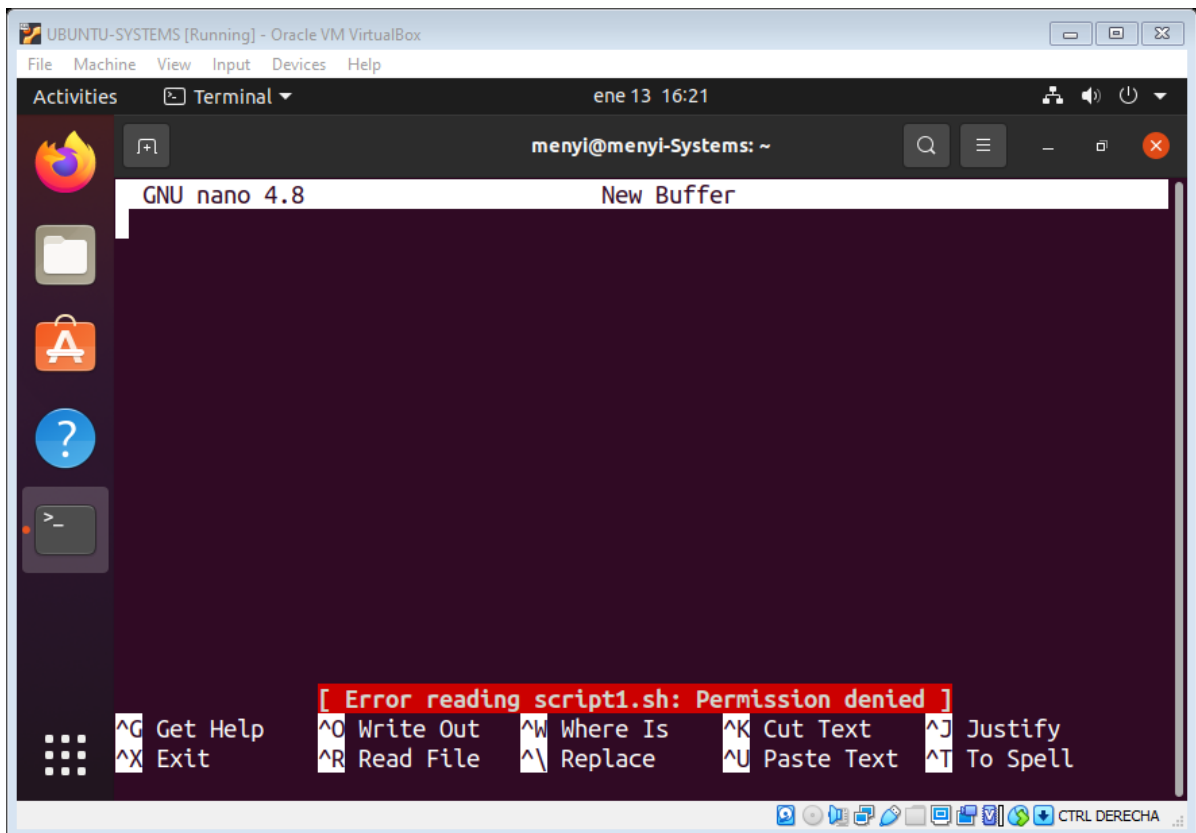
```

menyi@menyi-Systems:~$ chmod u-w script1.sh
menyi@menyi-Systems:~$ nano script1.sh
menyi@menyi-Systems:~$

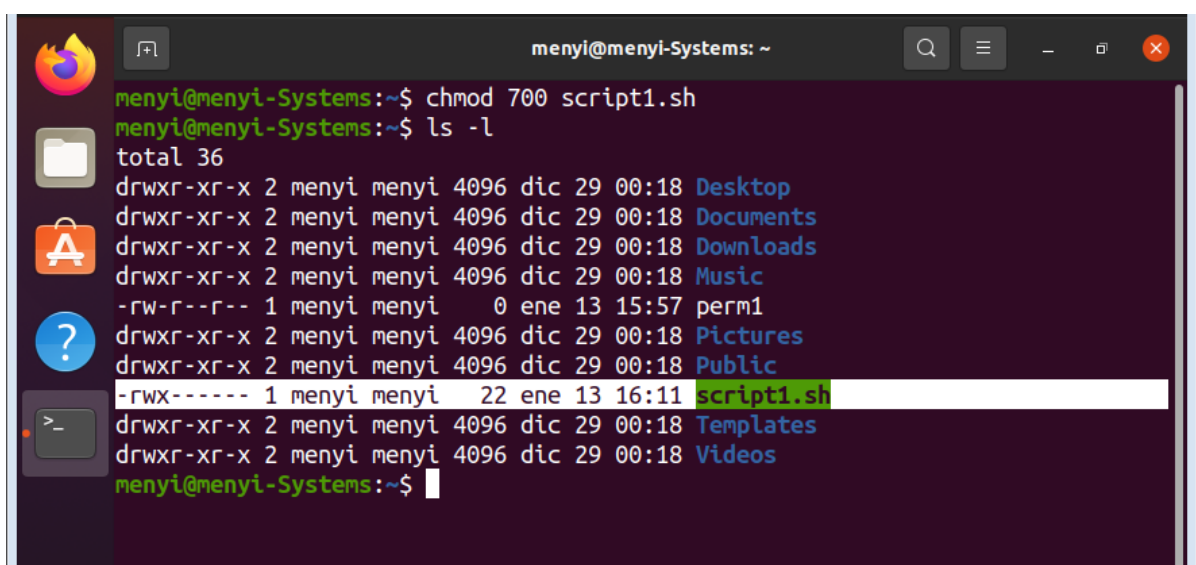
```

**Add the line below. Is it possible? Why?**

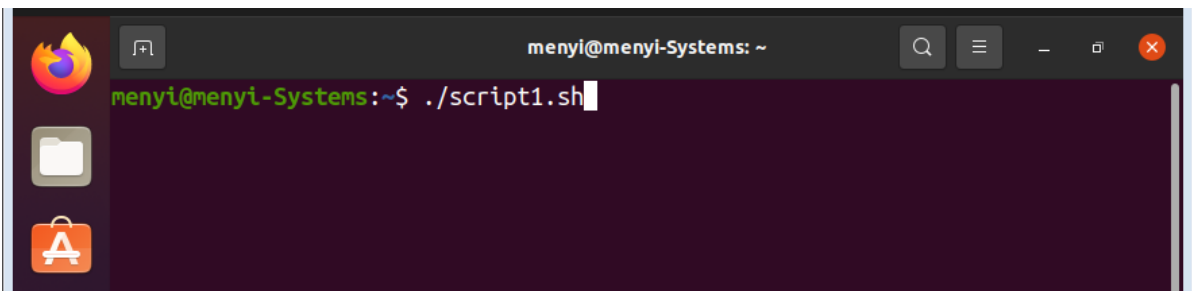
No, because the user doesn't have permission to read or write.



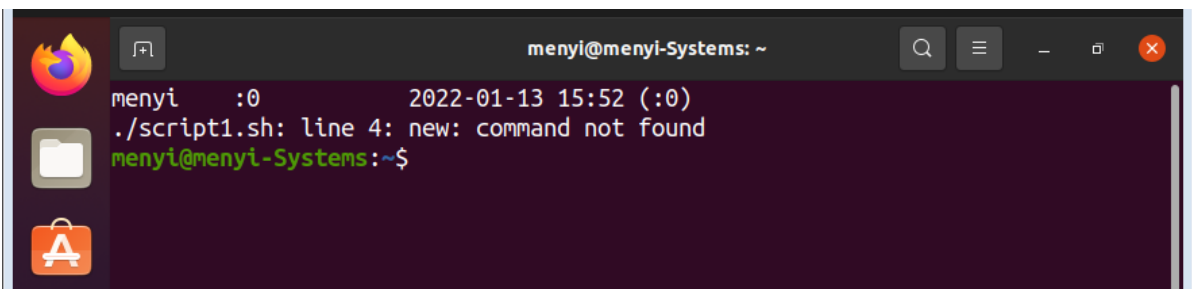
7. Change the permissions on the file script1.sh so that the owner can read, write and execute, but you deny all the permissions from the group and others.



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

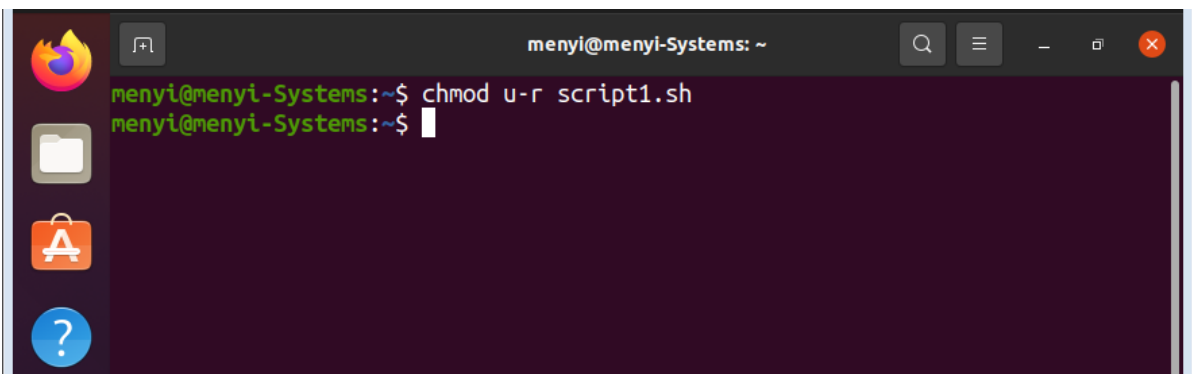


```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ ./script1.sh
```



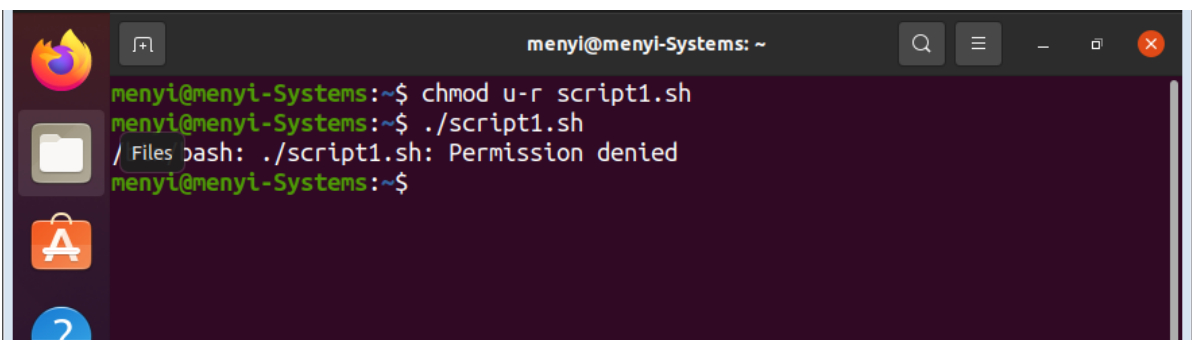
```
menyi :0      2022-01-13 15:52 (:0)  
./script1.sh: line 4: new: command not found  
menyi@menyi-Systems:~$
```

9. Remove the read permission from the owner on the file script1.sh



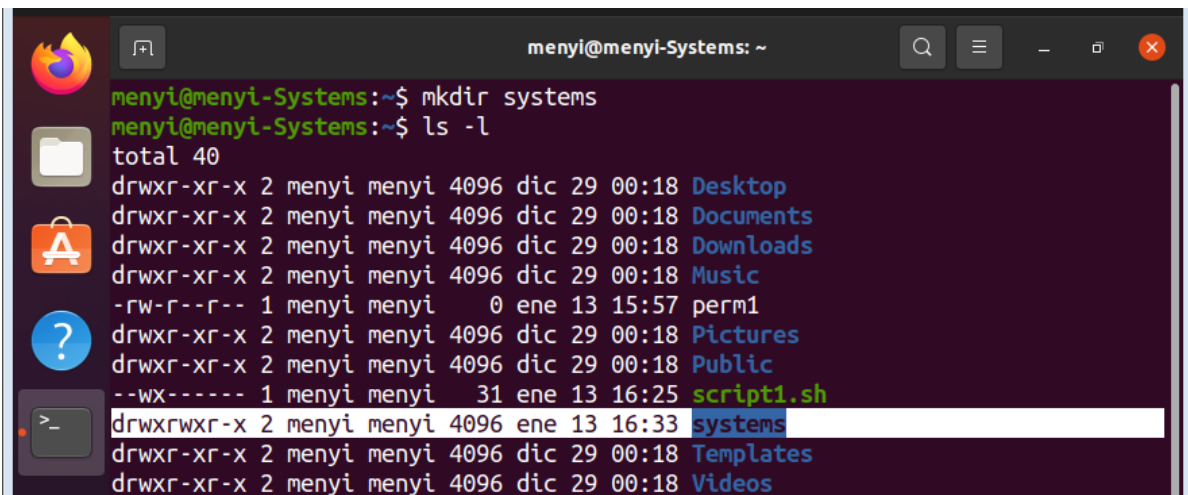
```
menyi@menyi-Systems:~$ chmod u-r script1.sh  
menyi@menyi-Systems:~$
```

**Try to run the file. Is it possible?** No, permission denied

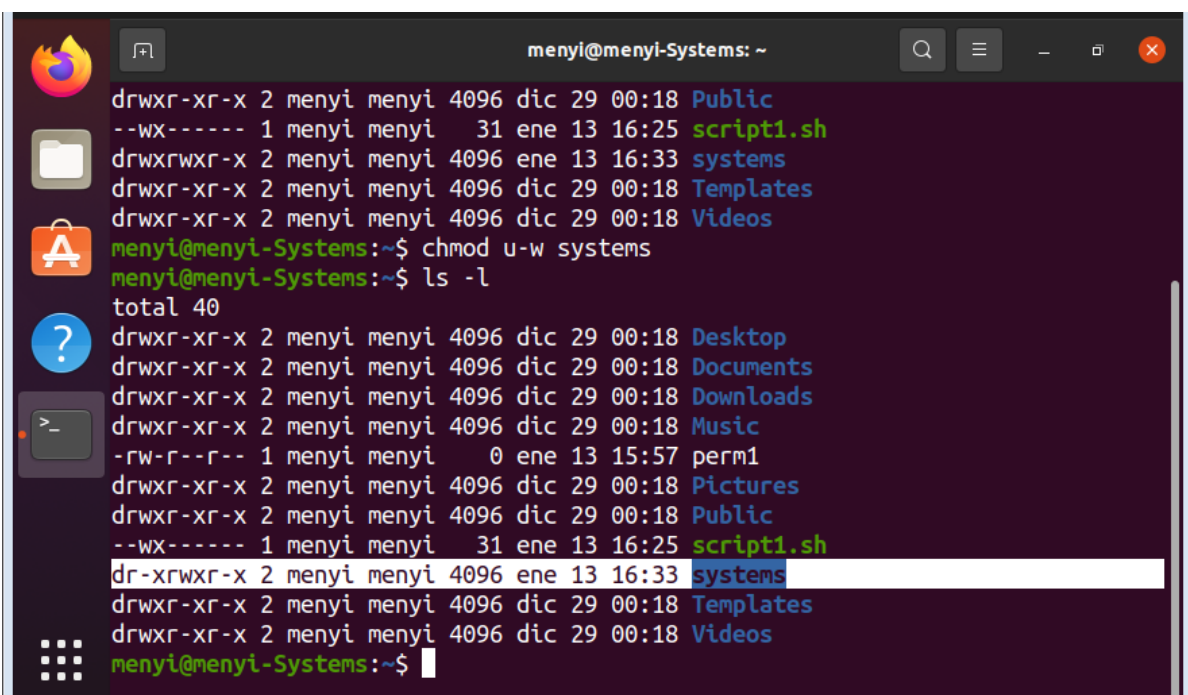


```
menyi@menyi-Systems:~$ chmod u-r script1.sh  
menyi@menyi-Systems:~$ ./script1.sh  
/ Files bash: ./script1.sh: Permission denied  
menyi@menyi-Systems:~$
```

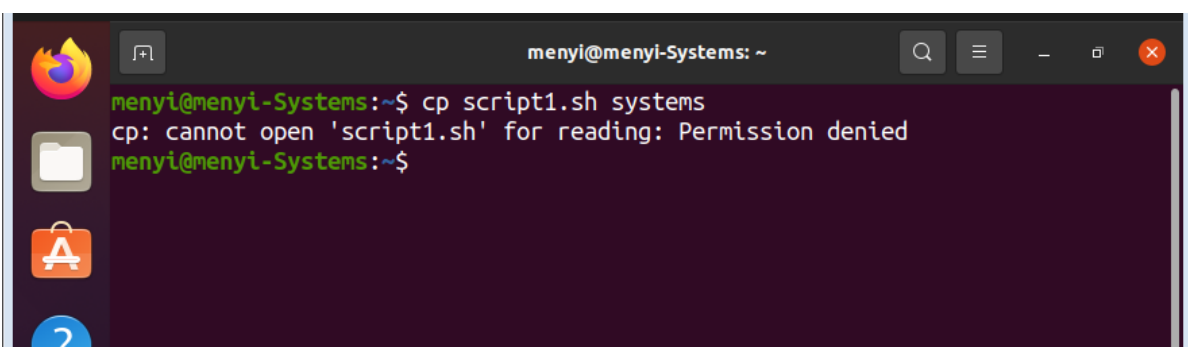
10. Create a directory called "systems".  
Remove the write permission from it and try to copy script1.sh inside.



```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ mkdir systems  
menyi@menyi-Systems:~$ ls -l  
total 40  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
--wx----- 1 menyi menyi  31 ene 13 16:25 script1.sh  
drwxrwxr-x 2 menyi menyi 4096 ene 13 16:33 systems  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos
```

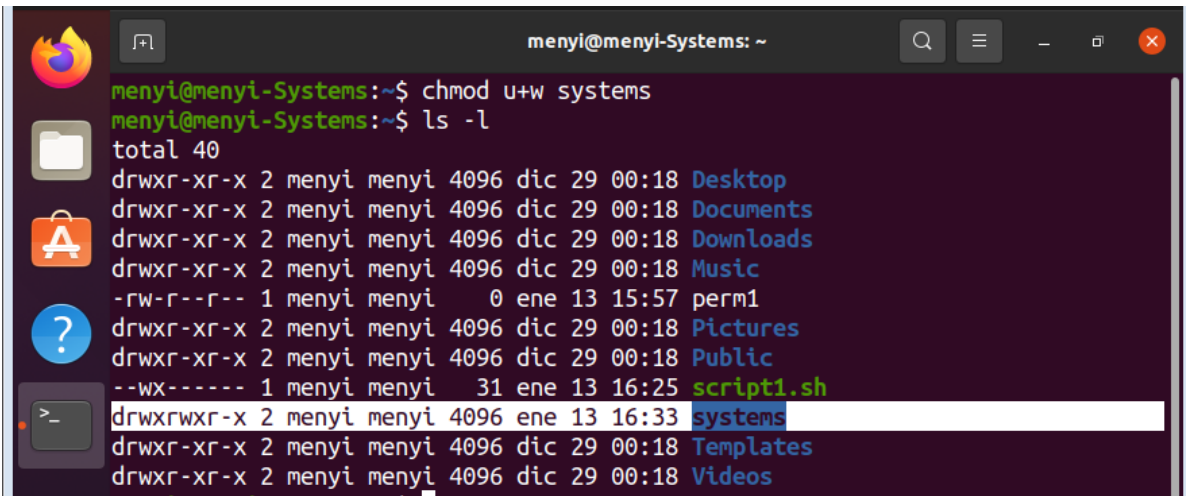


```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ chmod u-w systems  
menyi@menyi-Systems:~$ ls -l  
total 40  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
--wx----- 1 menyi menyi  31 ene 13 16:25 script1.sh  
dr-xrwxr-x 2 menyi menyi 4096 ene 13 16:33 systems  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos  
menyi@menyi-Systems:~$
```

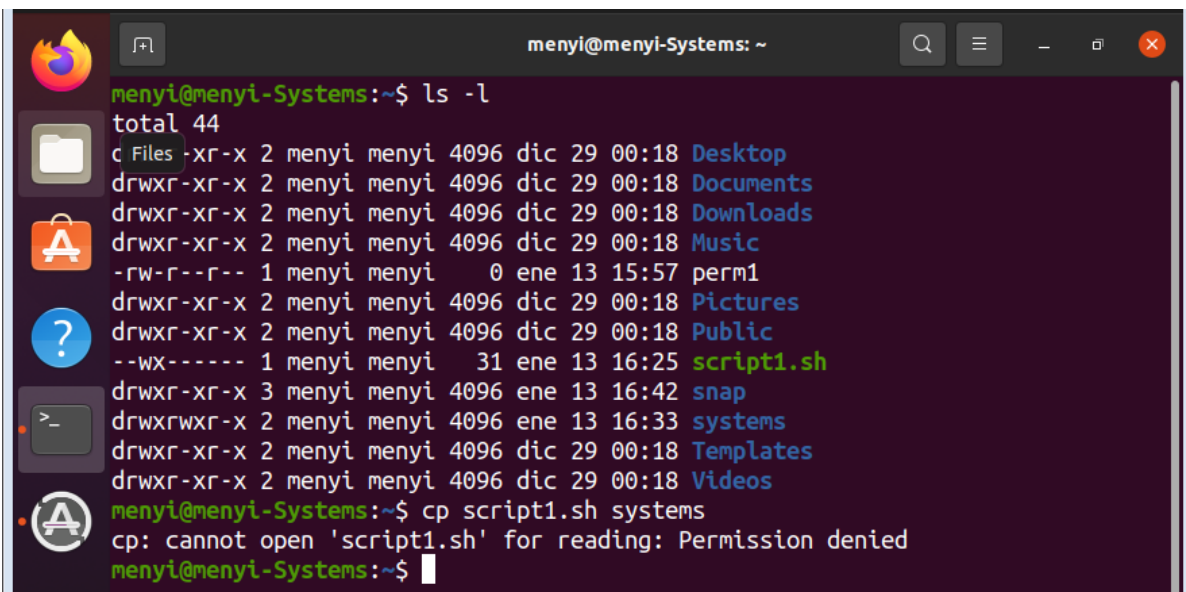


```
menyi@menyi-Systems:~$ cp script1.sh systems  
cp: cannot open 'script1.sh' for reading: Permission denied  
menyi@menyi-Systems:~$
```

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

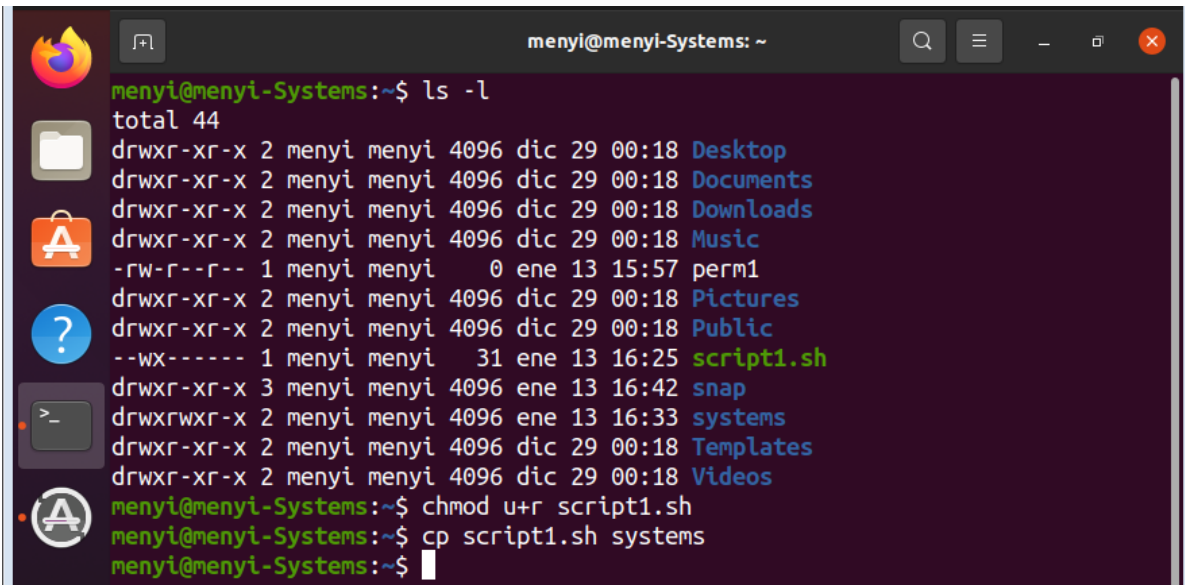


```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ chmod u+w systems  
menyi@menyi-Systems:~$ ls -l  
total 40  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
--wx----- 1 menyi menyi  31 ene 13 16:25 script1.sh  
drwxrwxr-x 2 menyi menyi 4096 ene 13 16:33 systems  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos
```

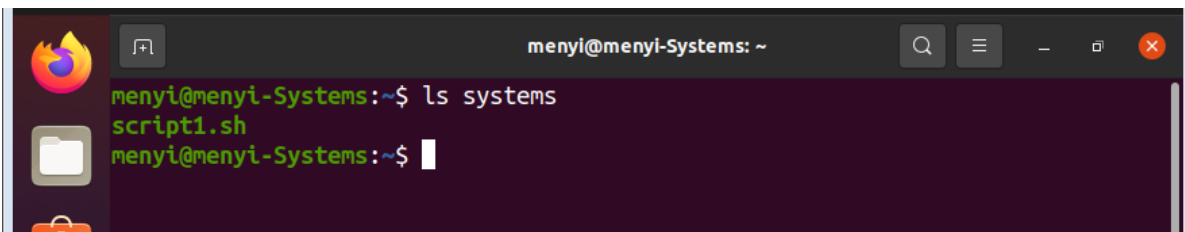


```
menyi@menyi-Systems:~$ ls -l  
total 44  
c Files -xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
--wx----- 1 menyi menyi  31 ene 13 16:25 script1.sh  
drwxr-xr-x 3 menyi menyi 4096 ene 13 16:42 snap  
drwxrwxr-x 2 menyi menyi 4096 ene 13 16:33 systems  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos  
menyi@menyi-Systems:~$ cp script1.sh systems  
cp: cannot open 'script1.sh' for reading: Permission denied  
menyi@menyi-Systems:~$
```



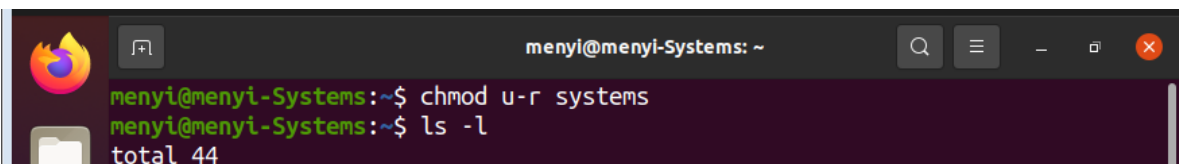


```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ ls -l  
total 44  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
--wx----- 1 menyi menyi  31 ene 13 16:25 script1.sh  
drwxr-xr-x 3 menyi menyi 4096 ene 13 16:42 snap  
drwxrwxr-x 2 menyi menyi 4096 ene 13 16:33 systems  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Templates  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Videos  
menyi@menyi-Systems:~$ chmod u+r script1.sh  
menyi@menyi-Systems:~$ cp script1.sh systems  
menyi@menyi-Systems:~$
```

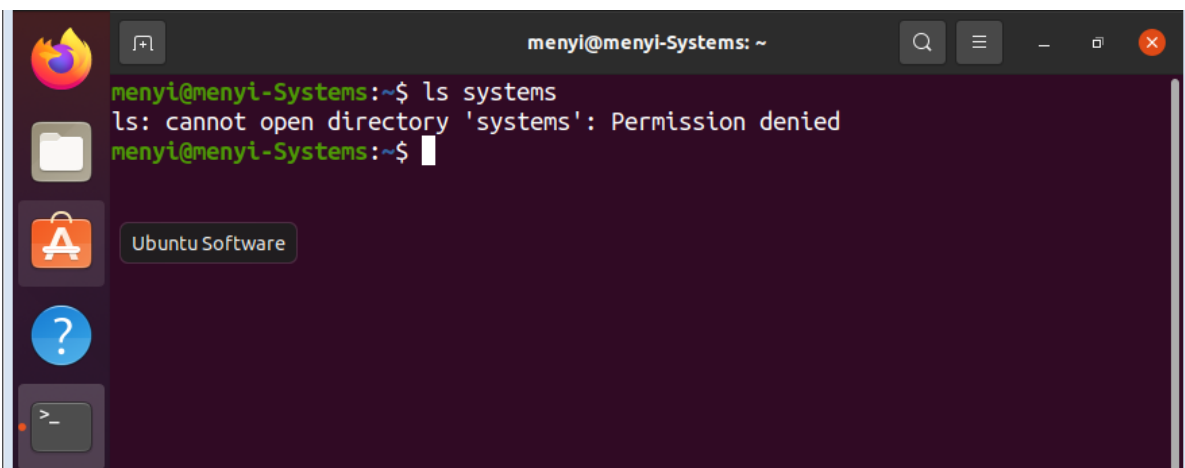


```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ ls systems  
script1.sh  
menyi@menyi-Systems:~$
```

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



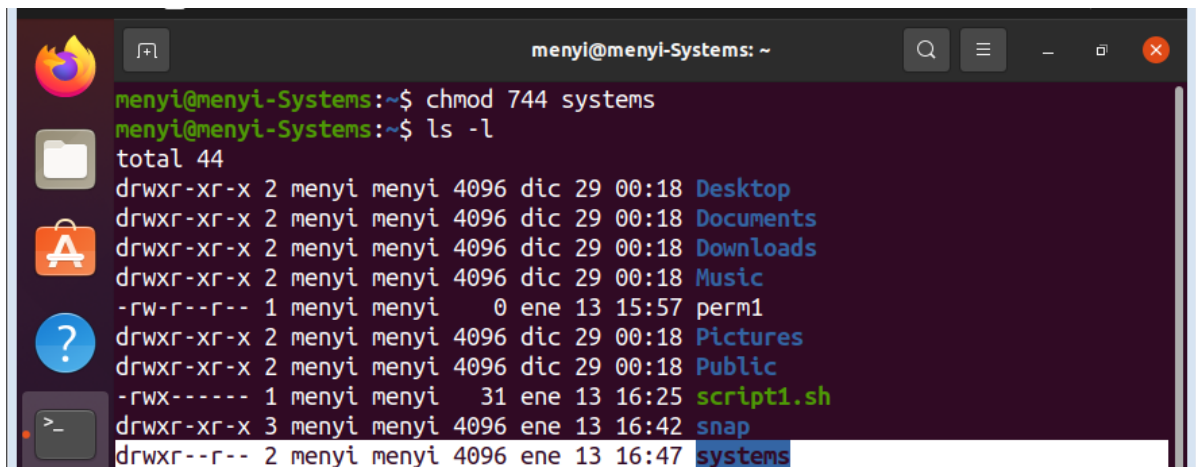
```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ chmod u-r systems  
menyi@menyi-Systems:~$ ls -l  
total 44
```



```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ ls systems  
ls: cannot open directory 'systems': Permission denied  
menyi@menyi-Systems:~$
```

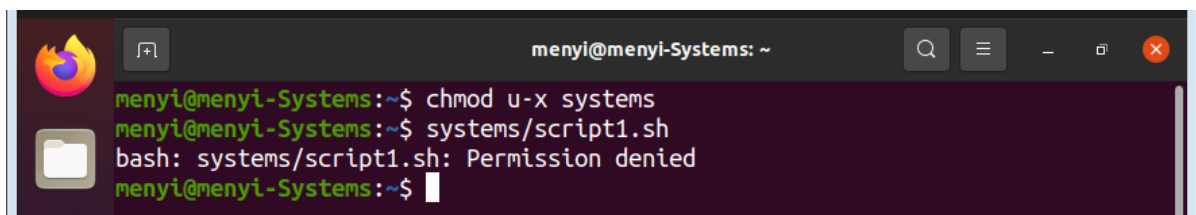


13. Change the permissions from “systems” so that the owner can read, write and execute but the group and others can only read.



```
menyi@menyi-Systems: ~  
menyi@menyi-Systems:~$ chmod 744 systems  
menyi@menyi-Systems:~$ ls -l  
total 44  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
-rwx----- 1 menyi menyi  31 ene 13 16:25 script1.sh  
drwxr-xr-x 3 menyi menyi 4096 ene 13 16:42 snap  
drwxr--r-- 2 menyi menyi 4096 ene 13 16:47 systems
```

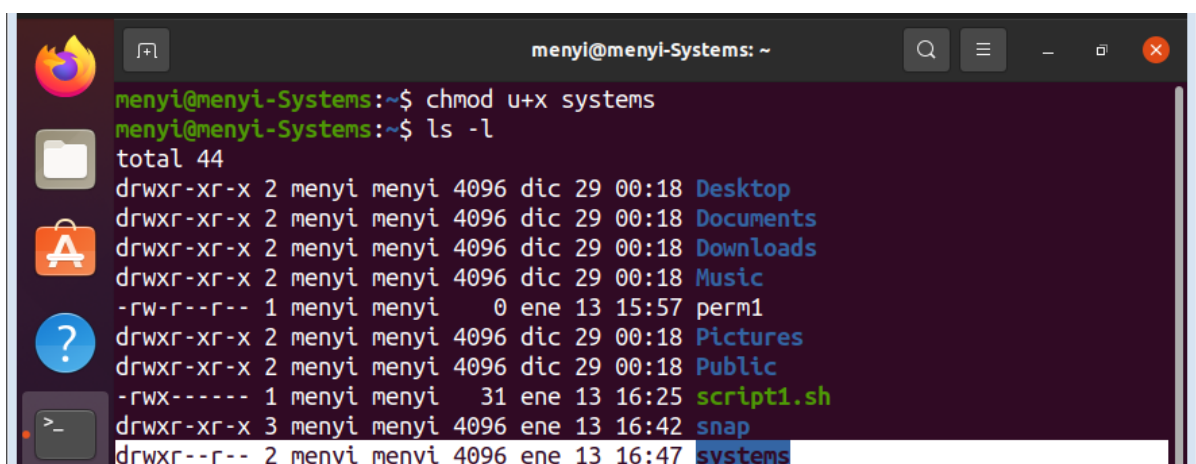
14. Remove the execute permission from “systems”



```
menyi@menyi-Systems:~$ chmod u-x systems  
menyi@menyi-Systems:~$ systems/script1.sh  
bash: systems/script1.sh: Permission denied  
menyi@menyi-Systems:~$
```

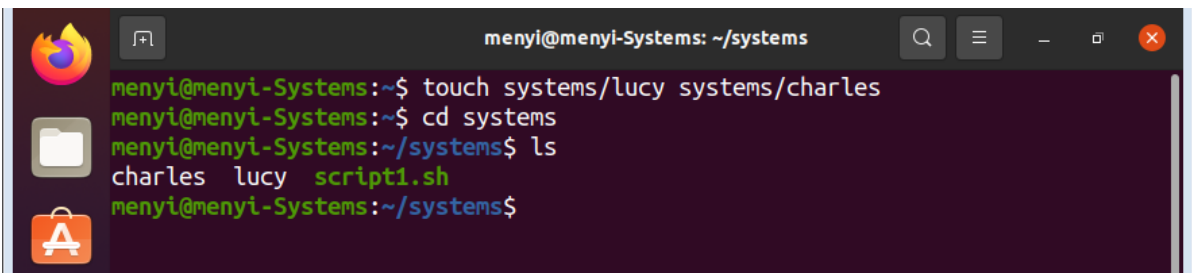
**Can you execute systems/script1.sh? Is it possible to access the directory to execute the file?**  
It is not possible because user doesn't have execute permission

15. Assign the execute permission to the directory again

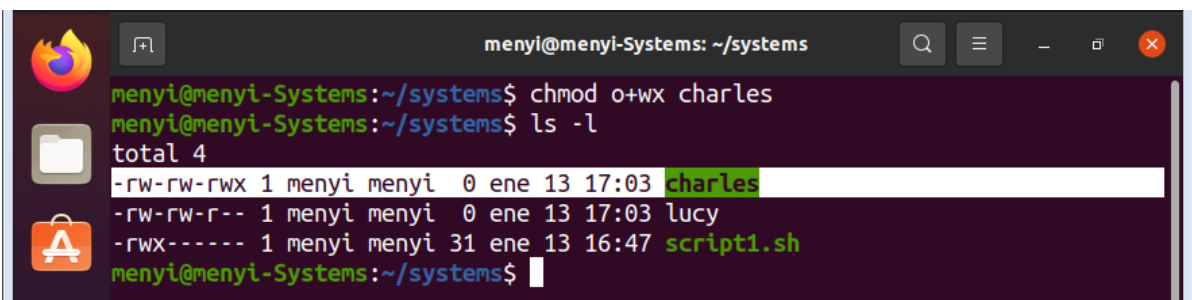


```
menyi@menyi-Systems:~$ chmod u+x systems  
menyi@menyi-Systems:~$ ls -l  
total 44  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Desktop  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Documents  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Downloads  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Music  
-rw-r--r-- 1 menyi menyi  0 ene 13 15:57 perm1  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Pictures  
drwxr-xr-x 2 menyi menyi 4096 dic 29 00:18 Public  
-rwx----- 1 menyi menyi  31 ene 13 16:25 script1.sh  
drwxr-xr-x 3 menyi menyi 4096 ene 13 16:42 snap  
drwxr--r-- 2 menyi menyi 4096 ene 13 16:47 systems
```

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

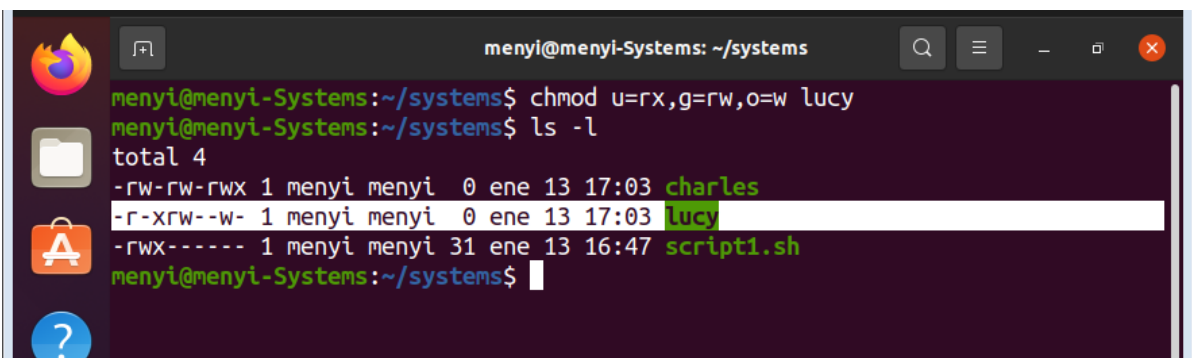


```
menyi@menyi-Systems: ~/systems
menyi@menyi-Systems:~$ touch systems/lucy systems/charles
menyi@menyi-Systems:~$ cd systems
menyi@menyi-Systems:~/systems$ ls
charles lucy script1.sh
menyi@menyi-Systems:~/systems$
```

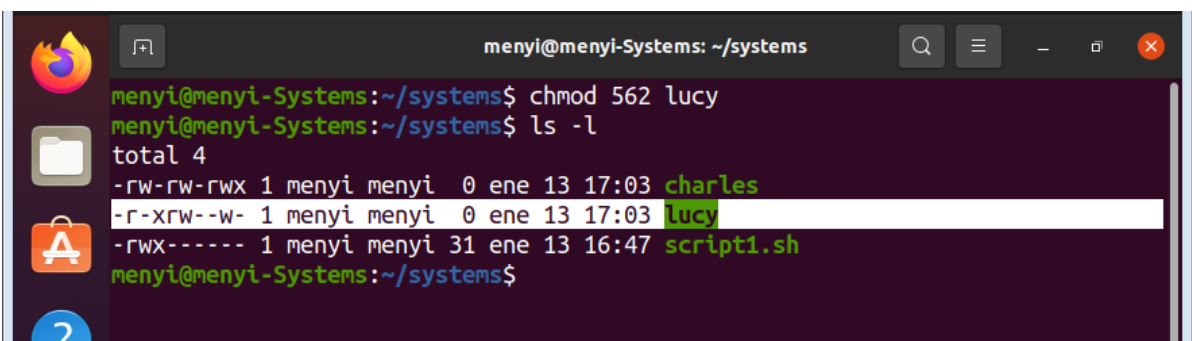


```
menyi@menyi-Systems: ~/systems
menyi@menyi-Systems:~/systems$ chmod o+wx charles
menyi@menyi-Systems:~/systems$ ls -l
total 4
-rw-rw-rwx 1 menyi menyi 0 ene 13 17:03 charles
-rw-rw-r-- 1 menyi menyi 0 ene 13 17:03 lucy
-rwx----- 1 menyi menyi 31 ene 13 16:47 script1.sh
menyi@menyi-Systems:~/systems$
```

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.

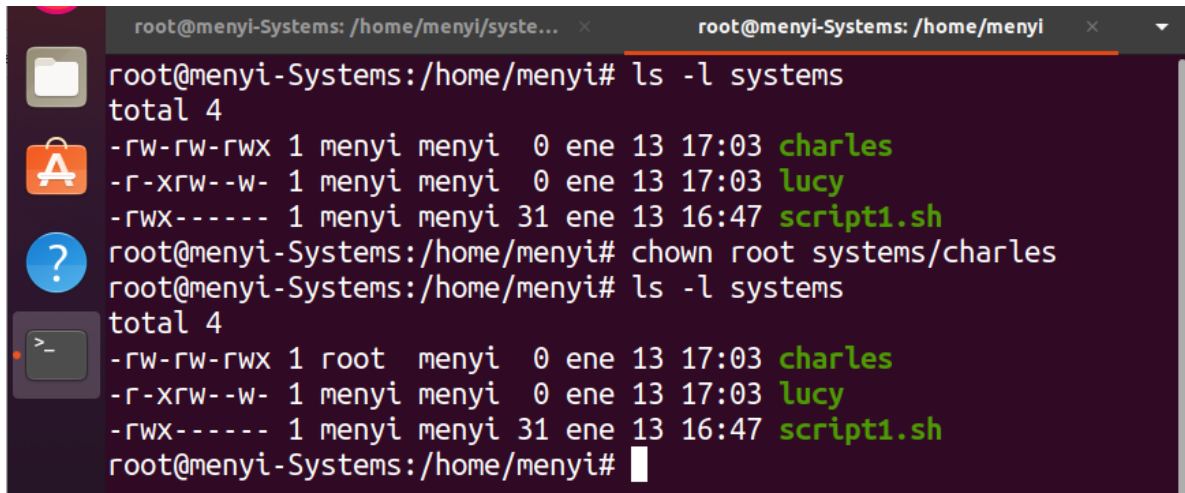


```
menyi@menyi-Systems: ~/systems
menyi@menyi-Systems:~/systems$ chmod u=rx,g=rw,o=w lucy
menyi@menyi-Systems:~/systems$ ls -l
total 4
-rw-rw-rwx 1 menyi menyi 0 ene 13 17:03 charles
-r-xrw--w- 1 menyi menyi 0 ene 13 17:03 lucy
-rwx----- 1 menyi menyi 31 ene 13 16:47 script1.sh
menyi@menyi-Systems:~/systems$
```



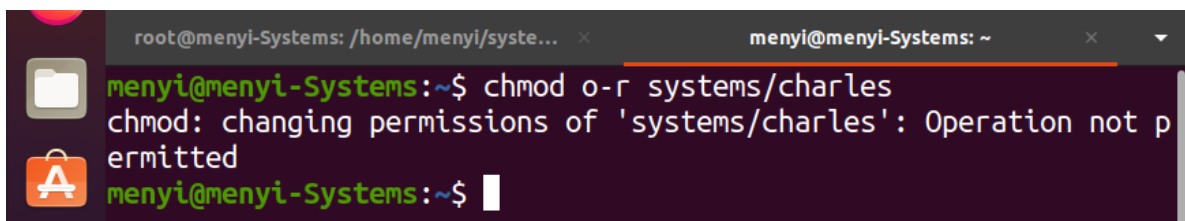
```
menyi@menyi-Systems: ~/systems
menyi@menyi-Systems:~/systems$ chmod 562 lucy
menyi@menyi-Systems:~/systems$ ls -l
total 4
-rw-rw-rwx 1 menyi menyi 0 ene 13 17:03 charles
-r-xrw--w- 1 menyi menyi 0 ene 13 17:03 lucy
-rwx----- 1 menyi menyi 31 ene 13 16:47 script1.sh
menyi@menyi-Systems:~/systems$
```

18. Log in as root. Change the ownership of “charles” to “root”.



```
root@menyi-Systems: /home/menyi/syste... x root@menyi-Systems: /home/menyi x
root@menyi-Systems:/home/menyi# ls -l systems
total 4
-rw-rw-rwx 1 menyi menyi 0 ene 13 17:03 charles
-r-xrw--w- 1 menyi menyi 0 ene 13 17:03 lucy
-rwx----- 1 menyi menyi 31 ene 13 16:47 script1.sh
root@menyi-Systems:/home/menyi# chown root systems/charles
root@menyi-Systems:/home/menyi# ls -l systems
total 4
-rw-rw-rwx 1 root menyi 0 ene 13 17:03 charles
-r-xrw--w- 1 menyi menyi 0 ene 13 17:03 lucy
-rwx----- 1 menyi menyi 31 ene 13 16:47 script1.sh
root@menyi-Systems:/home/menyi#
```

Exit the root session. Now, try to change the permission so that others cannot read and execute. Is it possible? Why? Operation not permitted because we don't have permission to do so.



```
root@menyi-Systems: /home/menyi/syste... x menyi@menyi-Systems: ~ x
menyi@menyi-Systems:~$ chmod o-r systems/charles
chmod: changing permissions of 'systems/charles': Operation not p
ermitted
menyi@menyi-Systems:~$
```

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



```
root@menyi-Systems: /home/menyi/syste... x root@menyi-Systems: /home/menyi x
menyi@menyi-Systems:~$ sudo su
[sudo] password for menyi:
root@menyi-Systems:/home/menyi# chmod 777 systems/charles
root@menyi-Systems:/home/menyi# ls -l systems/charles
-rwxrwxrwx 1 root menyi 0 ene 13 17:03 systems/charles
root@menyi-Systems:/home/menyi#
```

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? Yes, because user belongs to the group**

```

root@menyi-Systems: /home/menyi/systems/
root@menyi-Systems: /home/menyi# chmod 060 systems/lucy
root@menyi-Systems: /home/menyi# ls -l systems
total 4
-rwxrwxrwx 1 root  menyi  0 ene 13 17:03 charles
----rwx--- 1 menyi menyi  0 ene 13 17:03 lucy
-rwx----- 1 menyi menyi 31 ene 13 16:47 script1.sh
root@menyi-Systems: /home/menyi#

```

```

UBUNTU-SYSTEMS [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal ene 20 17:14
root@menyi-Systems: /home/menyi
root@menyi-Systems: /home/menyi/systems/
GNU nano 4.8 systems/lucy
[ Read 0 lines ]
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify
^X Exit ^R Read File ^_ Replace ^U Paste Text ^T To Spell

```

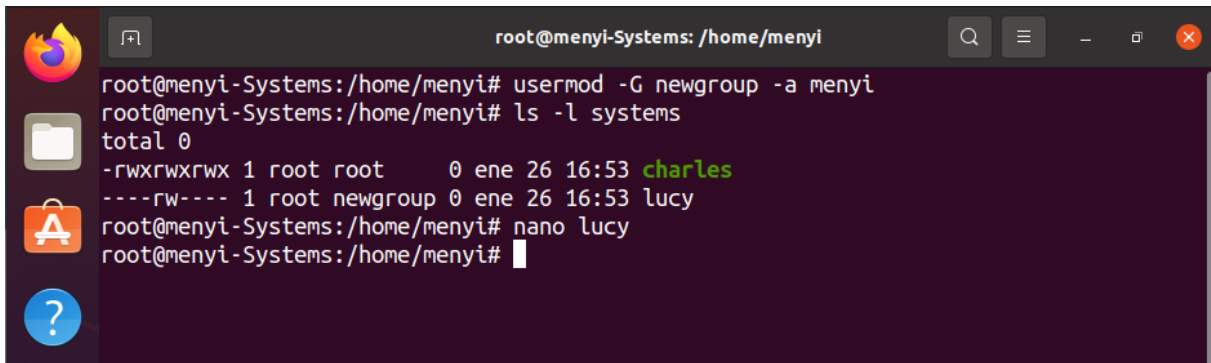
21. Create a group called “newgroup”. Set the group as the owner of the file “lucy” and “root” as the owner user.

```

root@menyi-Systems: /home/menyi/systems/
root@menyi-Systems: /home/menyi# groupadd newgroup
root@menyi-Systems: /home/menyi# chown root:newgroup systems/lucy
root@menyi-Systems: /home/menyi#

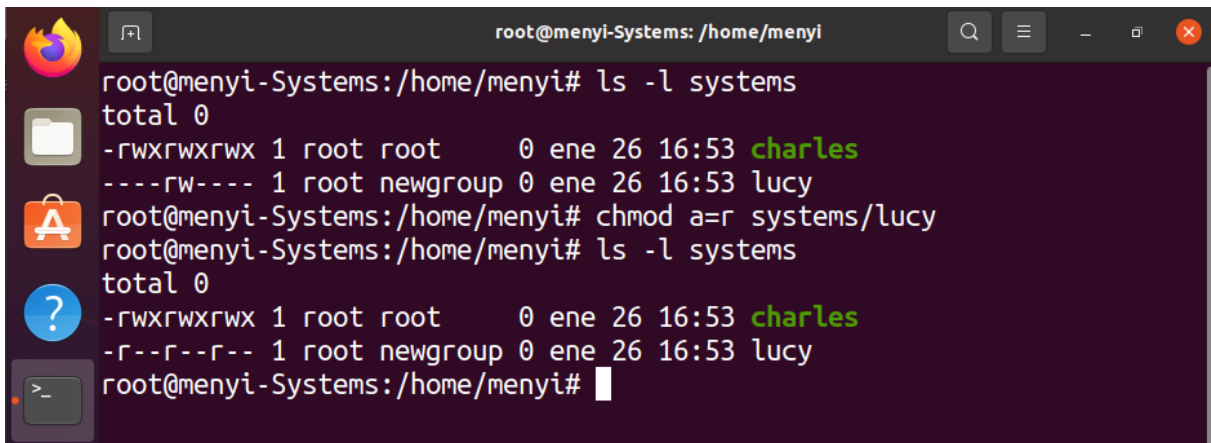
```

22. Add your user to the secondary group “newgroup”. Try to open the file “lucy” now. **Is it possible? Yes**



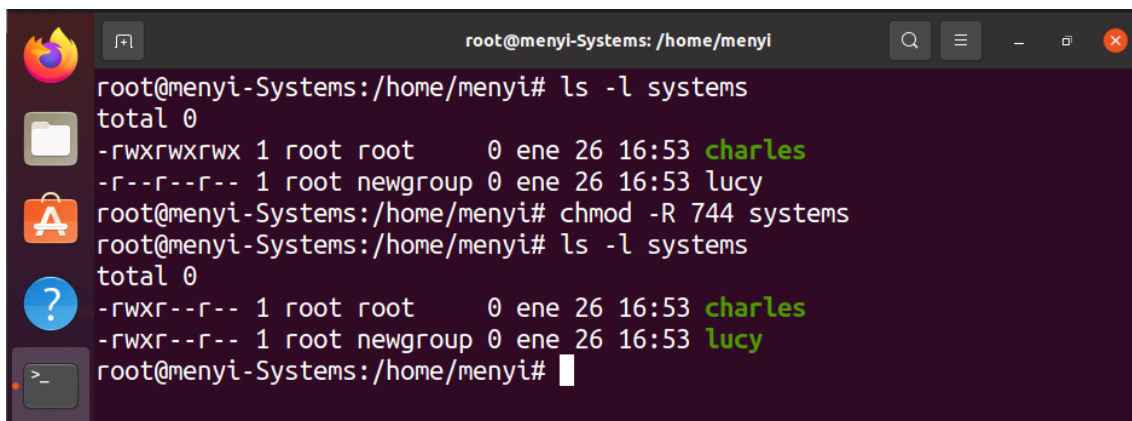
```
root@menyi-Systems: /home/menyi
root@menyi-Systems:/home/menyi# usermod -G newgroup -a menyi
root@menyi-Systems:/home/menyi# ls -l systems
total 0
-rwxrwxrwx 1 root root    0 ene 26 16:53 charles
----rw---- 1 root newgroup 0 ene 26 16:53 lucy
root@menyi-Systems:/home/menyi# nano lucy
root@menyi-Systems:/home/menyi#
```

23. Change permissions of “lucy” so that everybody can read.



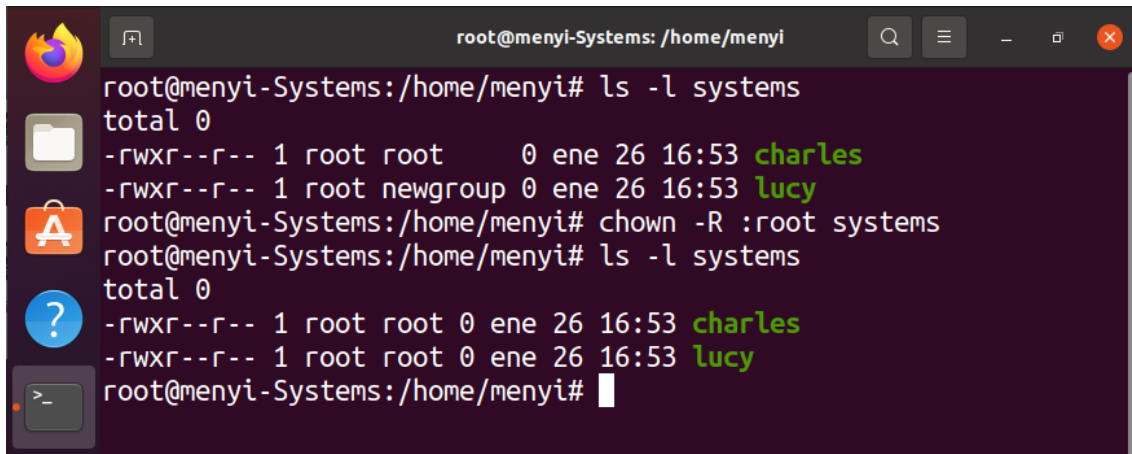
```
root@menyi-Systems: /home/menyi
root@menyi-Systems:/home/menyi# ls -l systems
total 0
-rwxrwxrwx 1 root root    0 ene 26 16:53 charles
----rw---- 1 root newgroup 0 ene 26 16:53 lucy
root@menyi-Systems:/home/menyi# chmod a=r systems/lucy
root@menyi-Systems:/home/menyi# ls -l systems
total 0
-rwxrwxrwx 1 root root    0 ene 26 16:53 charles
-r--r--r-- 1 root newgroup 0 ene 26 16:53 lucy
root@menyi-Systems:/home/menyi#
```

24. Do exercise 13 again, but this time granting permissions to the folder “systems” including files and subfolders



```
root@menyi-Systems: /home/menyi
root@menyi-Systems:/home/menyi# ls -l systems
total 0
-rwxrwxrwx 1 root root    0 ene 26 16:53 charles
-r--r--r-- 1 root newgroup 0 ene 26 16:53 lucy
root@menyi-Systems:/home/menyi# chmod -R 744 systems
root@menyi-Systems:/home/menyi# ls -l systems
total 0
-rwxr--r-- 1 root root    0 ene 26 16:53 charles
-rwxr--r-- 1 root newgroup 0 ene 26 16:53 lucy
root@menyi-Systems:/home/menyi#
```

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



```
root@menyi-Systems: /home/menyi
root@menyi-Systems:/home/menyi# ls -l systems
total 0
-rwxr--r-- 1 root root    0 ene 26 16:53 charles
-rwxr--r-- 1 root newgroup 0 ene 26 16:53 lucy
root@menyi-Systems:/home/menyi# chown -R :root systems
root@menyi-Systems:/home/menyi# ls -l systems
total 0
-rwxr--r-- 1 root root 0 ene 26 16:53 charles
-rwxr--r-- 1 root root 0 ene 26 16:53 lucy
root@menyi-Systems:/home/menyi#
```