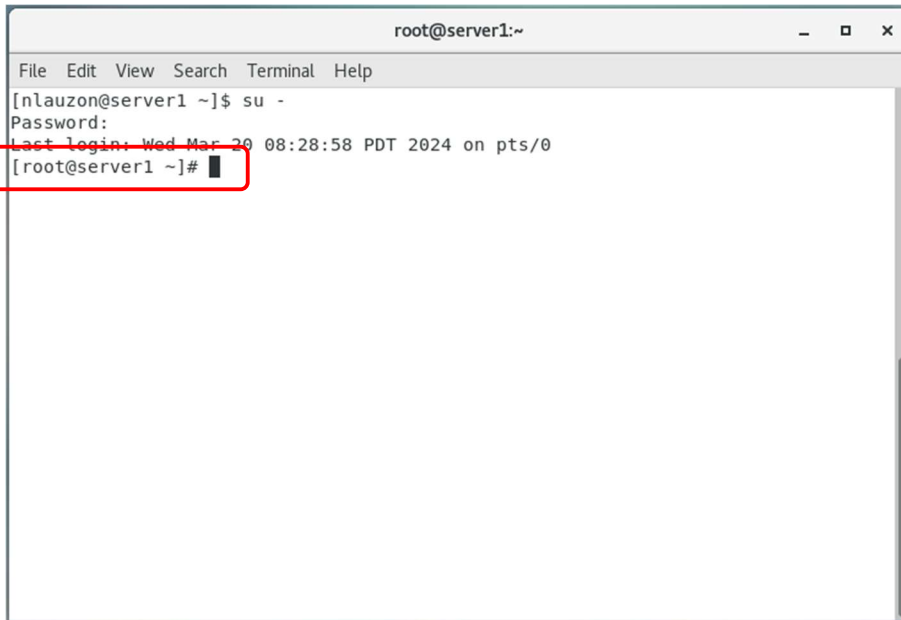


Ownership and Permissions 1

Nicolas Lauzon

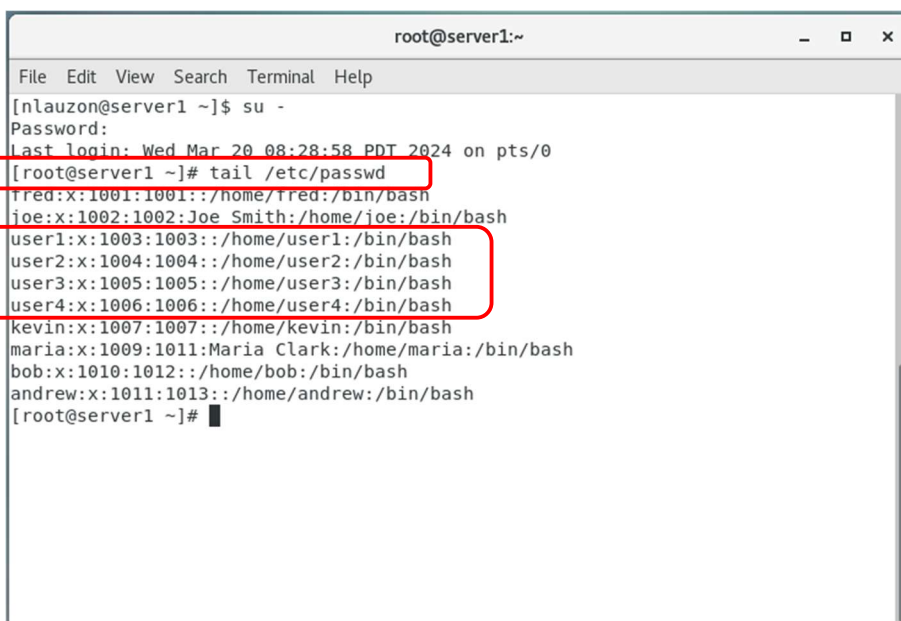
1. Log as root



```
root@server1:~  
File Edit View Search Terminal Help  
[nlauzon@server1 ~]$ su -  
Password:  
Last login: Wed Mar 20 08:28:58 PDT 2024 on pts/0  
[root@server1 ~]#
```

2. Add a new user: user1 and set his password

As a reminder, I already created user1 to user4 in a previous class. You insisted on us students doing it in class, saying it would be of some use to us later. I assume now is the time. Therefore, I will not repeat the process of creation here. I will mention it can be done with the following command: **[root@server1 ~]# useradd user1 ; passwd user1**. Below is the list of users I have already.



```
root@server1:~  
File Edit View Search Terminal Help  
[nlauzon@server1 ~]$ su -  
Password:  
Last login: Wed Mar 20 08:28:58 PDT 2024 on pts/0  
[root@server1 ~]# tail /etc/passwd  
fred:x:1001:1001::/home/fred:/bin/bash  
joe:x:1002:1002:Joe Smith:/home/joe:/bin/bash  
user1:x:1003:1003::/home/user1:/bin/bash  
user2:x:1004:1004::/home/user2:/bin/bash  
user3:x:1005:1005::/home/user3:/bin/bash  
user4:x:1006:1006::/home/user4:/bin/bash  
kevin:x:1007:1007::/home/kevin:/bin/bash  
maria:x:1009:1011:Maria Clark:/home/maria:/bin/bash  
bob:x:1010:1012::/home/bob:/bin/bash  
andrew:x:1011:1013::/home/andrew:/bin/bash  
[root@server1 ~]#
```

3. Add a new user: user2 and set his password

Please see question 2. It can be done with the following command:

```
[root@server1 ~]# useradd user2 ; passwd user2
```

4. Add a new user: user3 and set his password

Please see question 2. It can be done with the following command:

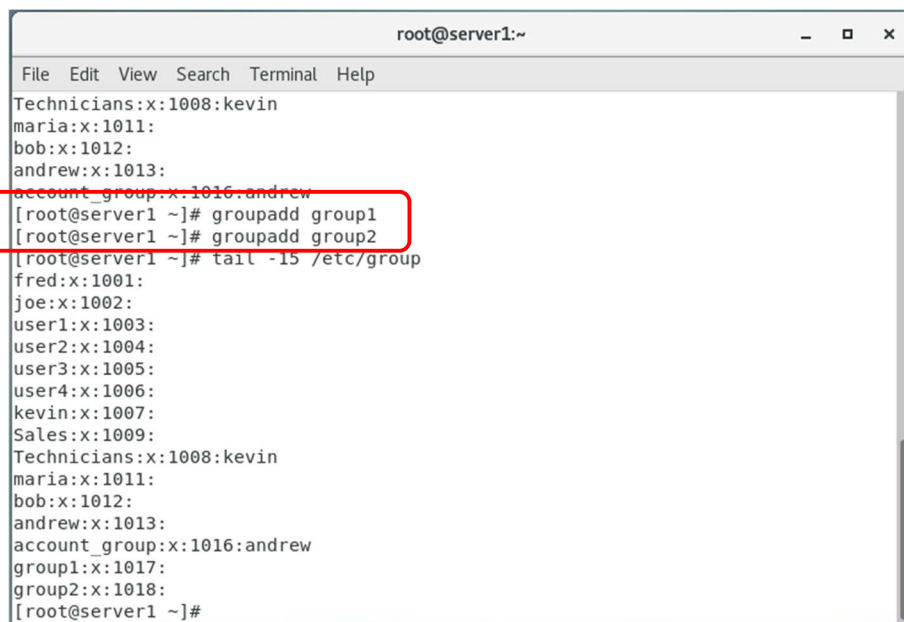
```
[root@server1 ~]# useradd user3 ; passwd user3
```

5. Add a new user: user4 and set his password

Please see question 2. It can be done with the following command:

```
[root@server1 ~]# useradd user4 ; passwd user4
```

6. Create two groups: group1 and group2



```
root@server1:~  
File Edit View Search Terminal Help  
Technicians:x:1008:kevin  
maria:x:1011:  
bob:x:1012:  
andrew:x:1013:  
account_group:x:1016:andrew  
[root@server1 ~]# groupadd group1  
[root@server1 ~]# groupadd group2  
[root@server1 ~]# tail -15 /etc/group  
fred:x:1001:  
joe:x:1002:  
user1:x:1003:  
user2:x:1004:  
user3:x:1005:  
user4:x:1006:  
kevin:x:1007:  
Sales:x:1009:  
Technicians:x:1008:kevin  
maria:x:1011:  
bob:x:1012:  
andrew:x:1013:  
account_group:x:1016:andrew  
group1:x:1017:  
group2:x:1018:  
[root@server1 ~]#
```

7. Add the user1 and user2 to group1

```
root@server1:~  
File Edit View Search Terminal Help  
-R, --restrict          restrict access to GROUP to its members  
-M, --members USER,... set the list of members of GROUP  
-A, --administrators ADMIN,... set the list of administrators for GROUP  
Except for the -A and -M options, the options cannot be combined.  
[root@server1 ~]# gpasswd -M user1,user2 group1  
[root@server1 ~]# gpasswd -M user3,user4 group2  
[root@server1 ~]# tail -15 /etc/group  
fred:x:1001:  
joe:x:1002:  
user1:x:1003:  
user2:x:1004:  
user3:x:1005:  
user4:x:1006:  
kevin:x:1007:  
Sales:x:1009:  
Technicians:x:1008:kevin  
maria:x:1011:  
bob:x:1012:  
andrew:x:1013:  
account_group:x:1016:andrew  
group1:x:1017:user1,user2  
group2:x:1018:user3,user4  
[root@server1 ~]#
```

8. Add the user3 and user4 to group2

```
root@server1:~  
File Edit View Search Terminal Help  
-R, --restrict          restrict access to GROUP to its members  
-M, --members USER,... set the list of members of GROUP  
-A, --administrators ADMIN,... set the list of administrators for GROUP  
Except for the -A and -M options, the options cannot be combined.  
[root@server1 ~]# gpasswd -M user1,user2 group1  
[root@server1 ~]# gpasswd -M user3,user4 group2  
[root@server1 ~]# tail -15 /etc/group  
fred:x:1001:  
joe:x:1002:  
user1:x:1003:  
user2:x:1004:  
user3:x:1005:  
user4:x:1006:  
kevin:x:1007:  
Sales:x:1009:  
Technicians:x:1008:kevin  
maria:x:1011:  
bob:x:1012:  
andrew:x:1013:  
account_group:x:1016:andrew  
group1:x:1017:user1,user2  
group2:x:1018:user3,user4  
[root@server1 ~]#
```

9. Verify your groups configuration

```
root@server1:~  
File Edit View Search Terminal Help  
-R, --restrict                restrict access to GROUP to its members  
-M, --members USER,...      set the list of members of GROUP  
-A, --administrators ADMIN,... set the list of administrators for GROUP  
Except for the -A and -M options, the options cannot be combined.  
[root@server1 ~]# gpasswd -M user1,user2 group1  
[root@server1 ~]# gpasswd -M user3,user4 group2  
[root@server1 ~]# tail -15 /etc/group  
fred:x:1001:  
joe:x:1002:  
user1:x:1003:  
user2:x:1004:  
user3:x:1005:  
user4:x:1006:  
kevin:x:1007:  
Sales:x:1009:  
Technicians:x:1008:kevin  
maria:x:1011:  
bob:x:1012:  
andrew:x:1013:  
account_group:x:1016:andrew  
group1:x:1017:user1,user2  
group2:x:1018:user3,user4  
[root@server1 ~]#
```

10. Create a directory /share

```
root@server1:/  
File Edit View Search Terminal Help  
group1:x:1017:user1,user2  
group2:x:1018:user3,user4  
[root@server1 ~]# ls  
anaconda-ks.cfg original-ks.cfg  
[root@server1 ~]# cd /  
[root@server1 /]# ls  
bin dev home lib64 mnt proc run srv tmp var  
boot etc lib media opt root sbin sys usr  
[root@server1 /]# mkdir share  
[root@server1 /]# ls -lt  
total 24  
lrwxrwxrwx. 1 root root 7 Feb 5 13:40 bin -> usr/bin  
dr-xr-xr-x. 5 root root 4096 Feb 5 14:01 boot  
drwxr-xr-x. 20 root root 3320 Mar 25 09:59 dev  
drwxr-xr-x. 144 root root 8192 Mar 25 12:19 etc  
drwxr-xr-x. 14 root root 160 Mar 18 16:28 home  
lrwxrwxrwx. 1 root root 7 Feb 5 13:40 lib -> usr/lib  
lrwxrwxrwx. 1 root root 9 Feb 5 13:40 lib64 -> usr/lib64  
drwxr-xr-x. 2 root root 6 Apr 10 2018 media  
drwxr-xr-x. 2 root root 6 Apr 10 2018 mnt  
drwxr-xr-x. 3 root root 16 Feb 5 13:49 opt  
dr-xr-xr-x. 229 root root 0 Mar 25 09:59 proc  
dr-xr-xr-x. 4 root root 207 Mar 25 11:58 root  
drwxr-xr-x. 41 root root 1280 Mar 25 10:03 run
```

11. What are the permissions for the directory /share ?

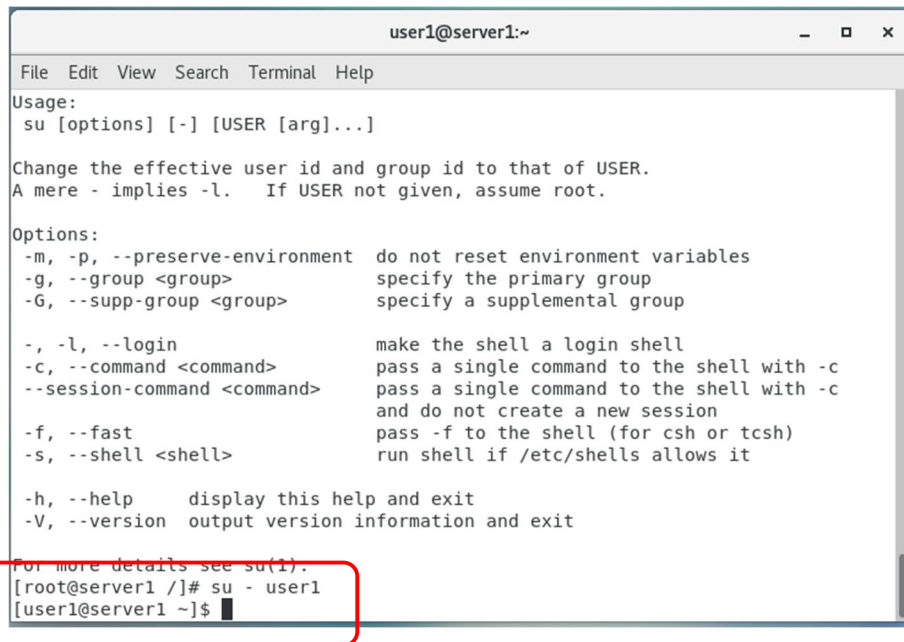
It is rwx for the user root, r-x for the group root, and r-x for others.

```
root@server1:/  
File Edit View Search Terminal Help  
[root@server1 /]# mkdir share  
[root@server1 /]# ls -l  
total 24  
lrwxrwxrwx. 1 root root 7 Feb 5 13:40 bin -> usr/bin  
dr-xr-xr-x. 5 root root 4096 Feb 5 14:01 boot  
drwxr-xr-x. 20 root root 3320 Mar 25 09:59 dev  
drwxr-xr-x. 144 root root 8192 Mar 25 12:19 etc  
drwxr-xr-x. 14 root root 160 Mar 18 16:28 home  
lrwxrwxrwx. 1 root root 7 Feb 5 13:40 lib -> usr/lib  
lrwxrwxrwx. 1 root root 9 Feb 5 13:40 lib64 -> usr/lib64  
drwxr-xr-x. 2 root root 6 Apr 10 2018 media  
drwxr-xr-x. 2 root root 6 Apr 10 2018 mnt  
drwxr-xr-x. 3 root root 16 Feb 5 13:49 opt  
dr-xr-xr-x. 229 root root 0 Mar 25 09:59 proc  
dr-xr-xr-x. 4 root root 207 Mar 25 11:58 root  
drwxr-xr-x. 41 root root 1280 Mar 25 10:03 run  
lrwxrwxrwx. 1 root root 8 Feb 5 13:40 sbin -> usr/sbin  
drwxr-xr-x. 2 root root 6 Mar 25 12:23 share  
drwxr-xr-x. 2 root root 6 Apr 10 2018 srv  
dr-xr-xr-x. 13 root root 0 Mar 25 09:59 sys  
drwxrwxrwt. 21 root root 4096 Mar 25 11:58 tmp  
drwxr-xr-x. 13 root root 155 Feb 5 13:40 usr  
drwxr-xr-x. 21 root root 4096 Feb 5 14:02 var  
[root@server1 /]#
```

12. Allow read, write and execute to everyone (rwxrwxrwx) for the share directory

```
root@server1:/  
File Edit View Search Terminal Help  
[root@server1 /]# chmod 777 share  
[root@server1 /]# ls -l  
total 24  
lrwxrwxrwx. 1 root root 7 Feb 5 13:40 bin -> usr/bin  
dr-xr-xr-x. 5 root root 4096 Feb 5 14:01 boot  
drwxr-xr-x. 20 root root 3320 Mar 25 09:59 dev  
drwxr-xr-x. 144 root root 8192 Mar 25 12:19 etc  
drwxr-xr-x. 14 root root 160 Mar 18 16:28 home  
lrwxrwxrwx. 1 root root 7 Feb 5 13:40 lib -> usr/lib  
lrwxrwxrwx. 1 root root 9 Feb 5 13:40 lib64 -> usr/lib64  
drwxr-xr-x. 2 root root 6 Apr 10 2018 media  
drwxr-xr-x. 2 root root 6 Apr 10 2018 mnt  
drwxr-xr-x. 3 root root 16 Feb 5 13:49 opt  
dr-xr-xr-x. 229 root root 0 Mar 25 09:59 proc  
dr-xr-xr-x. 4 root root 207 Mar 25 11:58 root  
drwxr-xr-x. 41 root root 1280 Mar 25 10:03 run  
lrwxrwxrwx. 1 root root 8 Feb 5 13:40 sbin -> usr/sbin  
drwxrwxrwx. 2 root root 6 Mar 25 12:23 share  
drwxr-xr-x. 2 root root 6 Apr 10 2018 srv  
dr-xr-xr-x. 13 root root 0 Mar 25 09:59 sys  
drwxrwxrwt. 22 root root 4096 Mar 25 12:30 tmp  
drwxr-xr-x. 13 root root 155 Feb 5 13:40 usr  
drwxr-xr-x. 21 root root 4096 Feb 5 14:02 var  
[root@server1 /]#
```

13. Log as user1



```
user1@server1:~
File Edit View Search Terminal Help
Usage:
su [options] [-] [USER [arg]...]

Change the effective user id and group id to that of USER.
A mere - implies -l.  If USER not given, assume root.

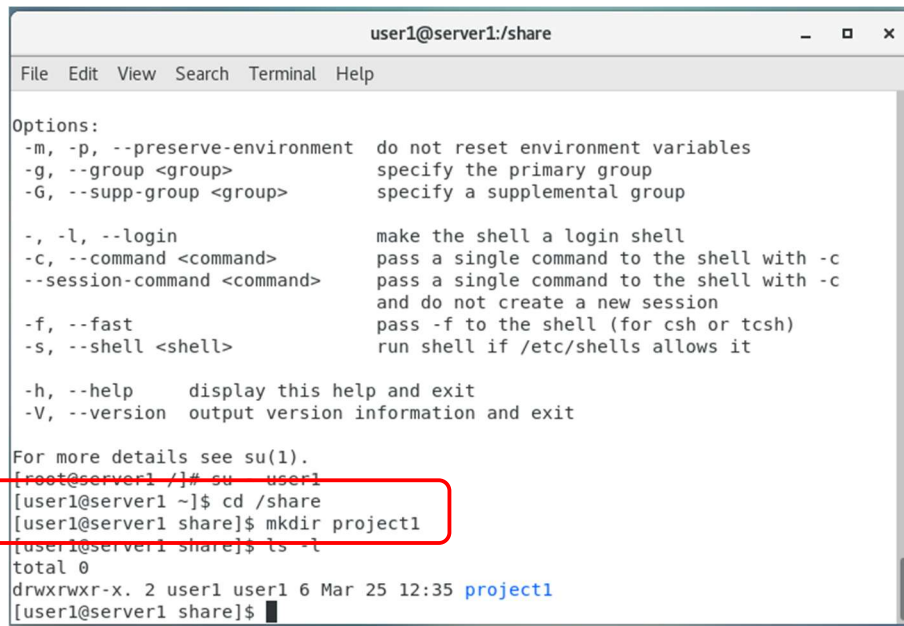
Options:
-m, -p, --preserve-environment  do not reset environment variables
-g, --group <group>             specify the primary group
-G, --supp-group <group>        specify a supplemental group

-, -l, --login                   make the shell a login shell
-C, --command <command>         pass a single command to the shell with -c
--session-command <command>     pass a single command to the shell with -c
                                and do not create a new session
-f, --fast                      pass -f to the shell (for csh or tcsh)
-s, --shell <shell>            run shell if /etc/shells allows it

-h, --help                      display this help and exit
-V, --version                   output version information and exit

For more details see su(1).
[root@server1 /]# su - user1
[user1@server1 ~]$
```

14. Create a directory named project1 under the share directory (/share/project1)



```
user1@server1:/share
File Edit View Search Terminal Help

Options:
-m, -p, --preserve-environment  do not reset environment variables
-g, --group <group>             specify the primary group
-G, --supp-group <group>        specify a supplemental group

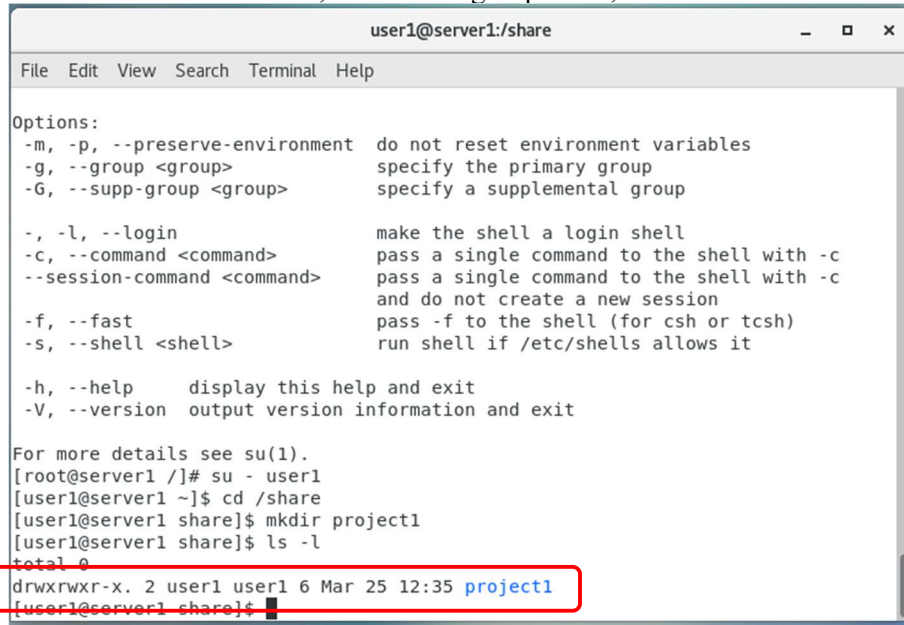
-, -l, --login                   make the shell a login shell
-C, --command <command>         pass a single command to the shell with -c
--session-command <command>     pass a single command to the shell with -c
                                and do not create a new session
-f, --fast                      pass -f to the shell (for csh or tcsh)
-s, --shell <shell>            run shell if /etc/shells allows it

-h, --help                      display this help and exit
-V, --version                   output version information and exit

For more details see su(1).
[root@server1 /]# su - user1
[user1@server1 ~]$ cd /share
[user1@server1 share]$ mkdir project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 user1 6 Mar 25 12:35 project1
[user1@server1 share]$
```

15. What are the permissions for the directory project1?

It is rwx for the user user1, rwx for the group user1, and r-x for others.



```
user1@server1:/share
File Edit View Search Terminal Help

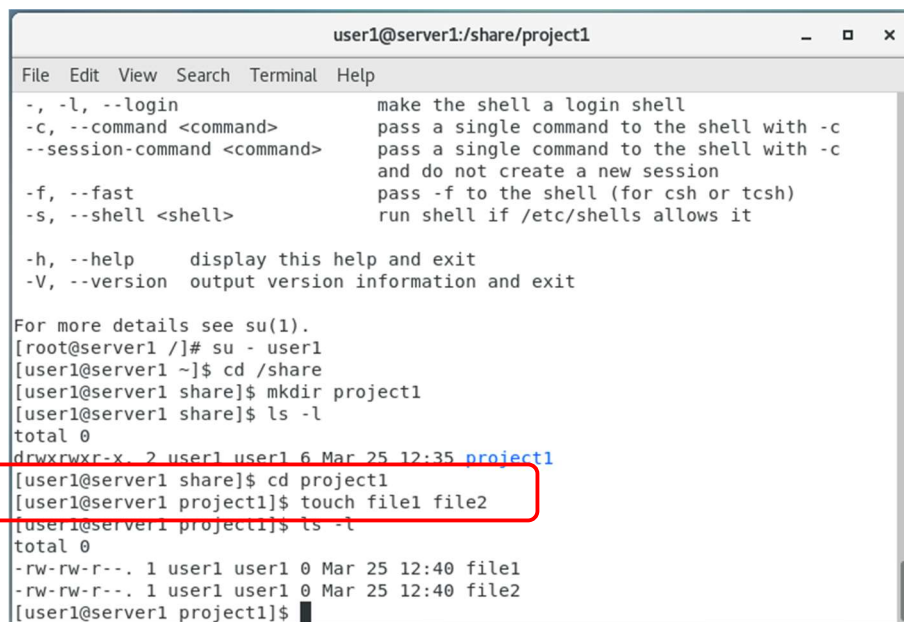
Options:
-m, -p, --preserve-environment  do not reset environment variables
-g, --group <group>             specify the primary group
-G, --supp-group <group>       specify a supplemental group

-, -l, --login                  make the shell a login shell
-c, --command <command>        pass a single command to the shell with -c
--session-command <command>    pass a single command to the shell with -c
                                and do not create a new session
-f, --fast                     pass -f to the shell (for csh or tcsh)
-s, --shell <shell>            run shell if /etc/shells allows it

-h, --help                     display this help and exit
-V, --version                   output version information and exit

For more details see su(1).
[root@server1 /]# su - user1
[user1@server1 ~]$ cd /share
[user1@server1 share]$ mkdir project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 user1 6 Mar 25 12:35 project1
[user1@server1 share]$
```

16. Create two files named file1 and file2 under the project1 directory



```
user1@server1:/share/project1
File Edit View Search Terminal Help

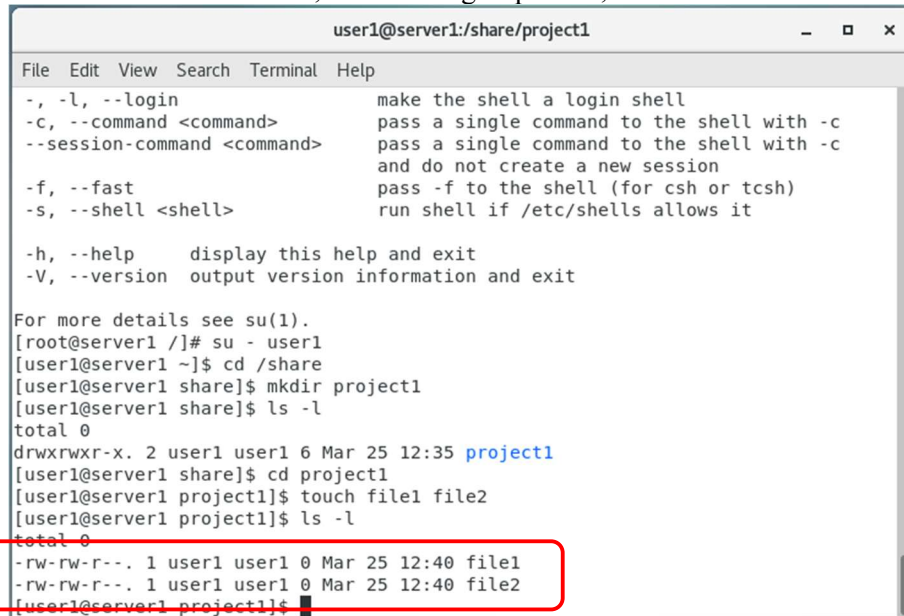
-, -l, --login                  make the shell a login shell
-c, --command <command>        pass a single command to the shell with -c
--session-command <command>    pass a single command to the shell with -c
                                and do not create a new session
-f, --fast                     pass -f to the shell (for csh or tcsh)
-s, --shell <shell>            run shell if /etc/shells allows it

-h, --help                     display this help and exit
-V, --version                   output version information and exit

For more details see su(1).
[root@server1 /]# su - user1
[user1@server1 ~]$ cd /share
[user1@server1 share]$ mkdir project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 user1 6 Mar 25 12:35 project1
[user1@server1 share]$ cd project1
[user1@server1 project1]$ touch file1 file2
[user1@server1 project1]$ ls -l
total 0
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file1
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file2
[user1@server1 project1]$
```


17. What are the permissions for file1 and file2?

It is rw- for the user user1, rw- for the group user1, and r-- for others.



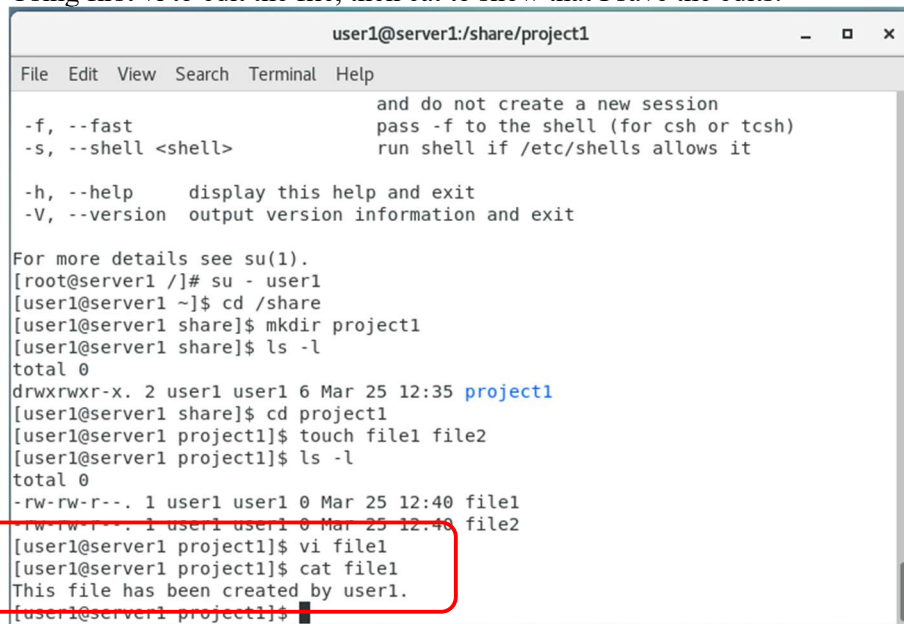
```
user1@server1:/share/project1
File Edit View Search Terminal Help
-, -l, --login          make the shell a login shell
-c, --command <command> pass a single command to the shell with -c
--session-command <command> pass a single command to the shell with -c
                        and do not create a new session
-f, --fast             pass -f to the shell (for csh or tcsh)
-s, --shell <shell>    run shell if /etc/shells allows it

-h, --help            display this help and exit
-V, --version          output version information and exit

For more details see su(1).
[root@server1 /]# su - user1
[user1@server1 ~]$ cd /share
[user1@server1 share]$ mkdir project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 user1 6 Mar 25 12:35 project1
[user1@server1 share]$ cd project1
[user1@server1 project1]$ touch file1 file2
[user1@server1 project1]$ ls -l
total 0
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file1
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file2
[user1@server1 project1]$
```

18. Edit the file1, add “this file has been created by user1” then save.

Using first vi to edit the file, then cat to show that I save the edits.



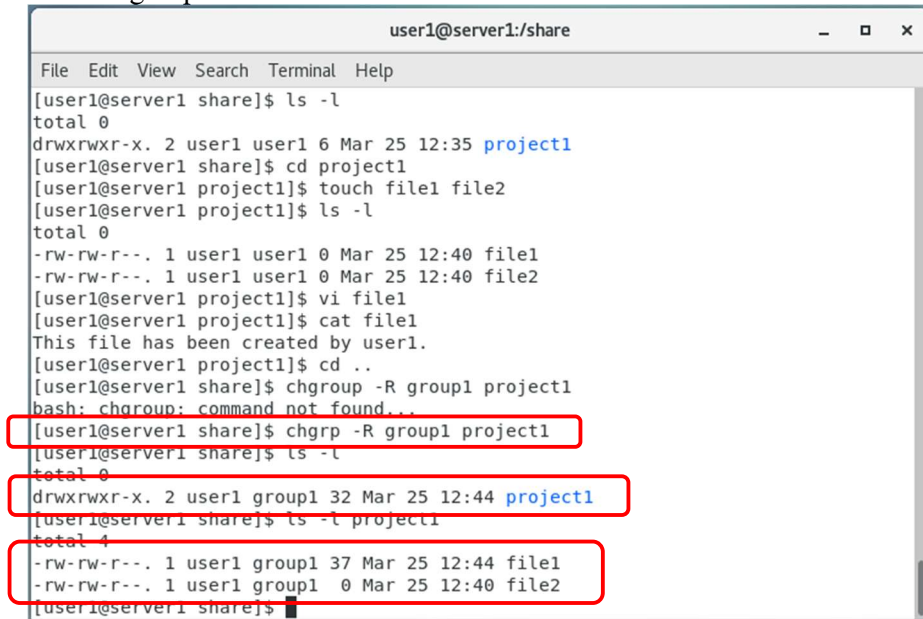
```
user1@server1:/share/project1
File Edit View Search Terminal Help
-f, --fast             pass -f to the shell (for csh or tcsh)
-s, --shell <shell>    run shell if /etc/shells allows it

-h, --help            display this help and exit
-V, --version          output version information and exit

For more details see su(1).
[root@server1 /]# su - user1
[user1@server1 ~]$ cd /share
[user1@server1 share]$ mkdir project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 user1 6 Mar 25 12:35 project1
[user1@server1 share]$ cd project1
[user1@server1 project1]$ touch file1 file2
[user1@server1 project1]$ ls -l
total 0
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file1
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file2
[user1@server1 project1]$ vi file1
[user1@server1 project1]$ cat file1
This file has been created by user1.
[user1@server1 project1]$
```

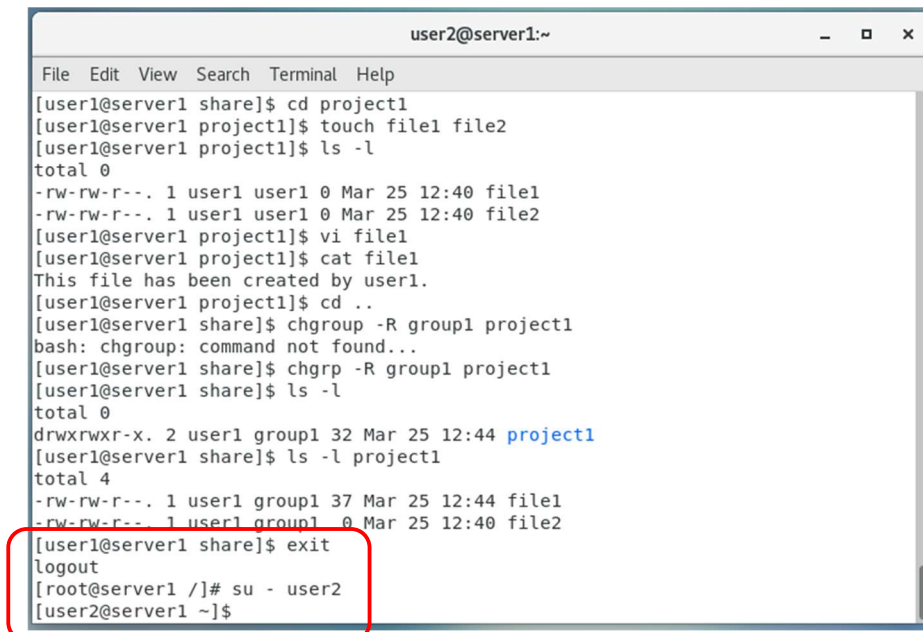

19. Change the group owner of the directory project1 to group1 (including files and subdirectory within it) and verify the new permissions.

The permissions are the same as those verified in questions 15 (rwxrwxr-x) and 17 (rw-rw-r--), because the command chgrp does not affect permissions. The group has however switched from user1 to group1.



```
user1@server1:/share
File Edit View Search Terminal Help
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 user1 6 Mar 25 12:35 project1
[user1@server1 share]$ cd project1
[user1@server1 project1]$ touch file1 file2
[user1@server1 project1]$ ls -l
total 0
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file1
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file2
[user1@server1 project1]$ vi file1
[user1@server1 project1]$ cat file1
This file has been created by user1.
[user1@server1 project1]$ cd ..
[user1@server1 share]$ chgroup -R group1 project1
bash: chgroup: command not found...
[user1@server1 share]$ chgrp -R group1 project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 group1 32 Mar 25 12:44 project1
[user1@server1 share]$ ls -l project1
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user1@server1 share]$
```

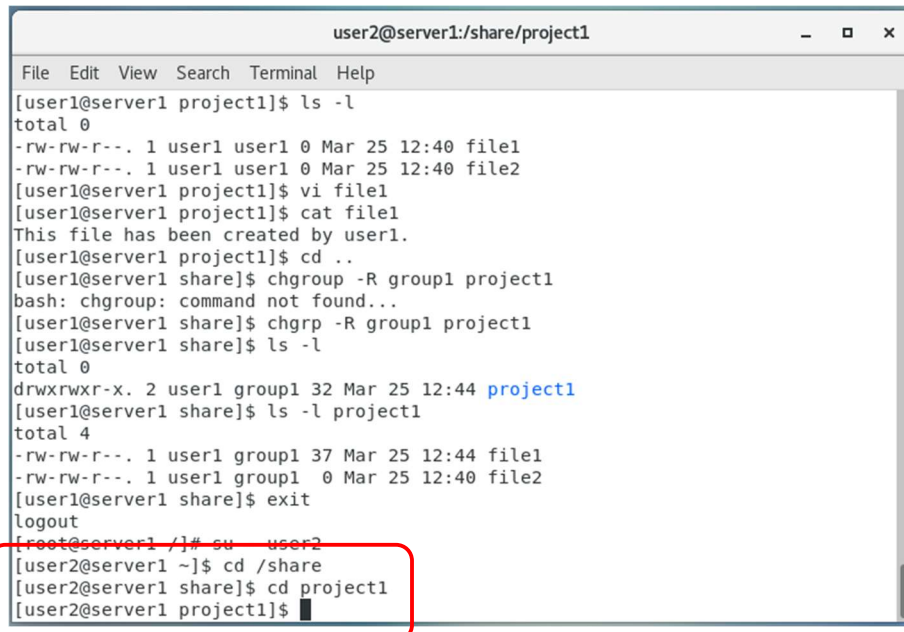
20. Log as user2



```
user2@server1:~
File Edit View Search Terminal Help
[user1@server1 share]$ cd project1
[user1@server1 project1]$ touch file1 file2
[user1@server1 project1]$ ls -l
total 0
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file1
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file2
[user1@server1 project1]$ vi file1
[user1@server1 project1]$ cat file1
This file has been created by user1.
[user1@server1 project1]$ cd ..
[user1@server1 share]$ chgroup -R group1 project1
bash: chgroup: command not found...
[user1@server1 share]$ chgrp -R group1 project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 group1 32 Mar 25 12:44 project1
[user1@server1 share]$ ls -l project1
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user1@server1 share]$ exit
logout
[root@server1 /]# su - user2
[user2@server1 ~]$
```

21. Are you able to cd to the directory project1? Why?

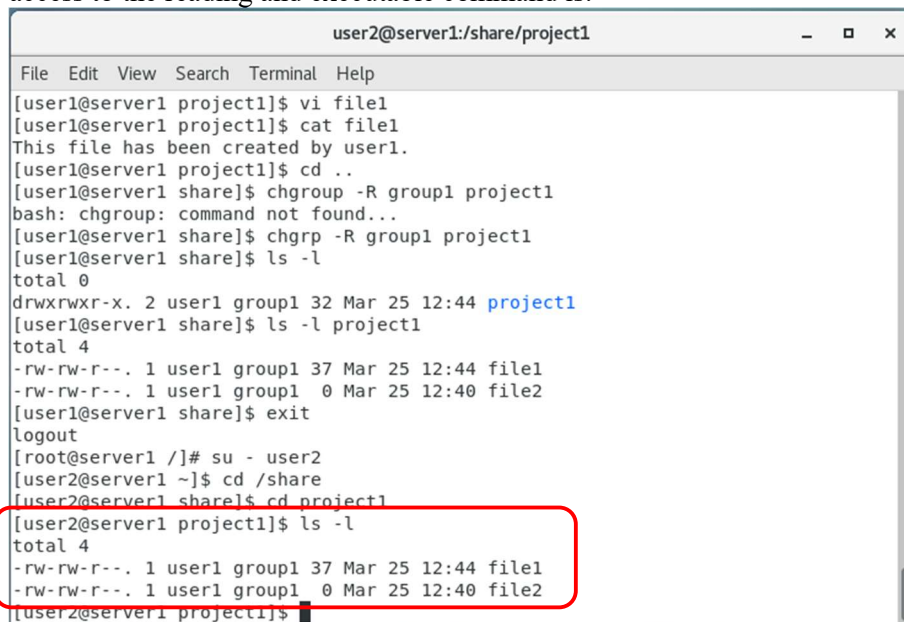
Yes, given that user2 belongs to group1. Permission for group1 are rwx for the directory, giving access to the executable command cd.



```
user2@server1:/share/project1
File Edit View Search Terminal Help
[user1@server1 project1]$ ls -l
total 0
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file1
-rw-rw-r--. 1 user1 user1 0 Mar 25 12:40 file2
[user1@server1 project1]$ vi file1
[user1@server1 project1]$ cat file1
This file has been created by user1.
[user1@server1 project1]$ cd ..
[user1@server1 share]$ chgroup -R group1 project1
bash: chgroup: command not found...
[user1@server1 share]$ chgrp -R group1 project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 group1 32 Mar 25 12:44 project1
[user1@server1 share]$ ls -l project1
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user1@server1 share]$ exit
logout
[root@server1 /]# su - user2
[user2@server1 ~]$ cd /share
[user2@server1 share]$ cd project1
[user2@server1 project1]$
```

22. Can you list the directory project1 contents? Why?

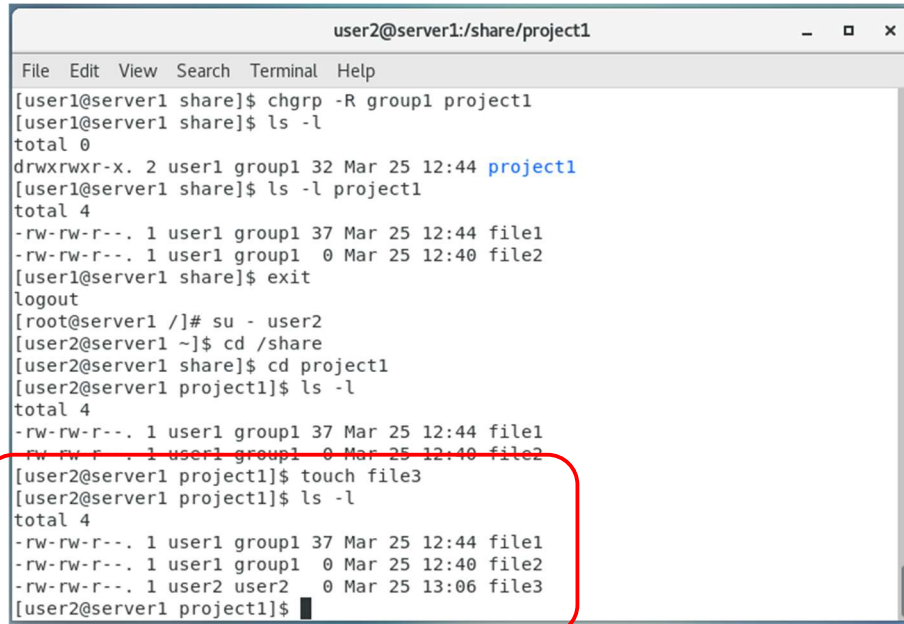
Yes, given that user2 belongs to group1. Permission for group1 are rwx for the directory, giving access to the reading and executable command ls.



```
user2@server1:/share/project1
File Edit View Search Terminal Help
[user1@server1 project1]$ vi file1
[user1@server1 project1]$ cat file1
This file has been created by user1.
[user1@server1 project1]$ cd ..
[user1@server1 share]$ chgroup -R group1 project1
bash: chgroup: command not found...
[user1@server1 share]$ chgrp -R group1 project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 group1 32 Mar 25 12:44 project1
[user1@server1 share]$ ls -l project1
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user1@server1 share]$ exit
logout
[root@server1 /]# su - user2
[user2@server1 ~]$ cd /share
[user2@server1 share]$ cd project1
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user2@server1 project1]$
```

23. Are you able to create a new file in project1 directory? Why?

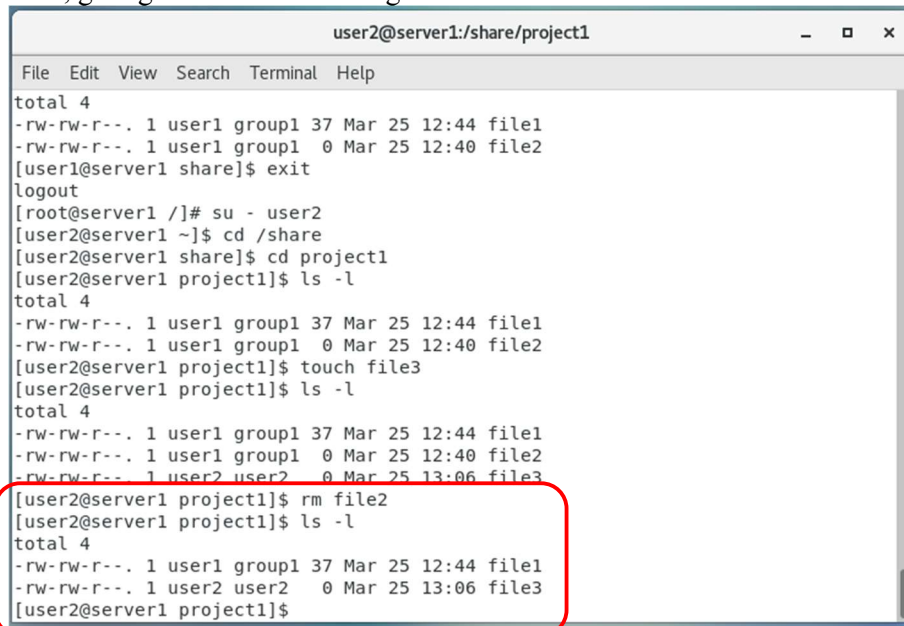
Yes, given that user2 belongs to group1. Permission for group1 are rwx for the directory, giving access to the writing command touch. The new file is however associated to user user2 and group user2.



```
user2@server1:/share/project1
File Edit View Search Terminal Help
[user1@server1 share]$ chgrp -R group1 project1
[user1@server1 share]$ ls -l
total 0
drwxrwxr-x. 2 user1 group1 32 Mar 25 12:44 project1
[user1@server1 share]$ ls -l project1
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user1@server1 share]$ exit
logout
[root@server1 /]# su - user2
[user2@server1 ~]$ cd /share
[user2@server1 share]$ cd project1
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user2@server1 project1]$ touch file3
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$
```

24. Are you able to delete file2 in project1 directory? Why?

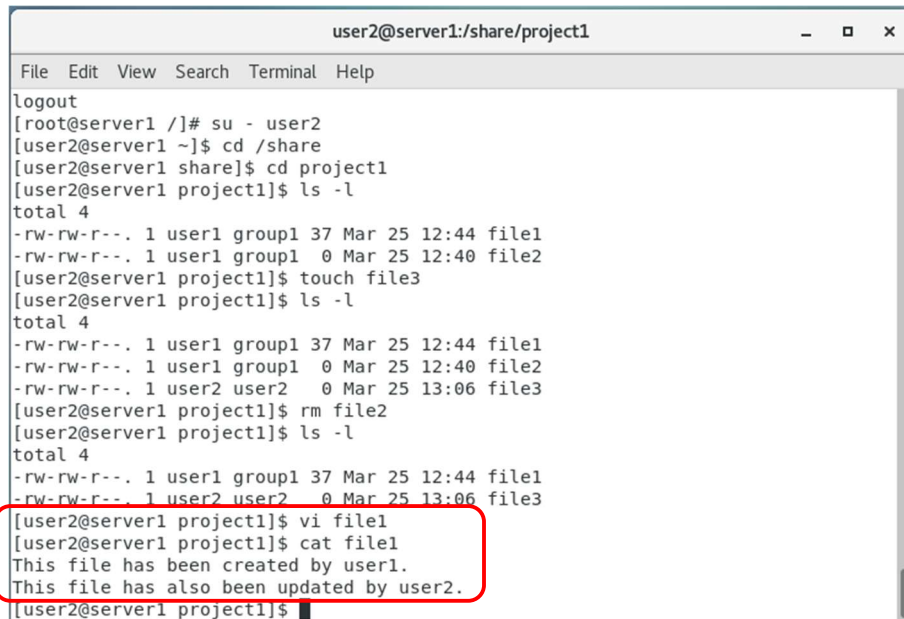
Yes, given that user2 belongs to group1. Permission for group1 are rw- for the directory containing file2, giving access to the writing command rm.



```
user2@server1:/share/project1
File Edit View Search Terminal Help
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user1@server1 share]$ exit
logout
[root@server1 /]# su - user2
[user2@server1 ~]$ cd /share
[user2@server1 share]$ cd project1
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user2@server1 project1]$ touch file3
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$ rm file2
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$
```

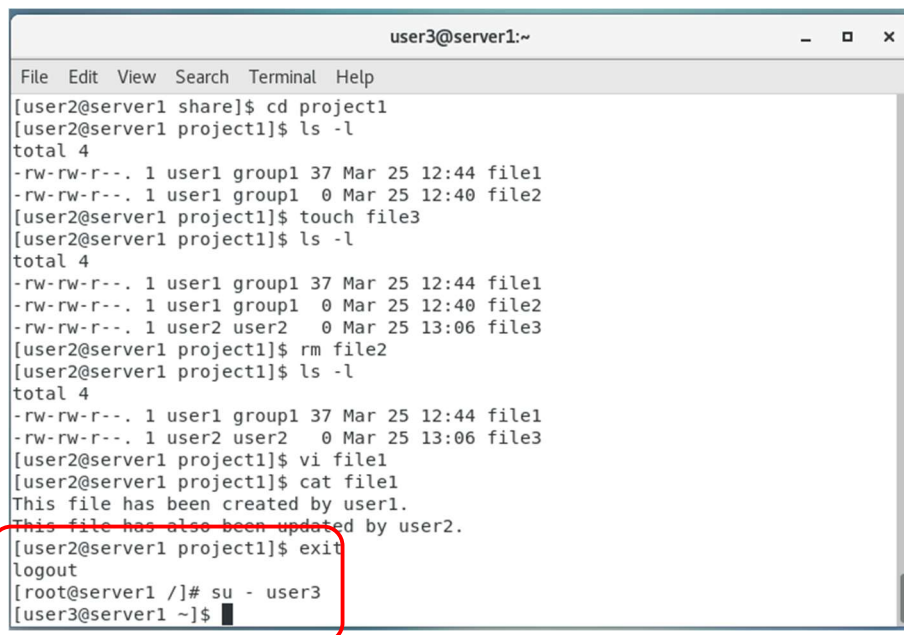
25. Are you able to change the file1? Why?

Yes, given that user2 belongs to group1. Permission for group1 are rw- for file1, giving access to the editor vi.



```
user2@server1:/share/project1
File Edit View Search Terminal Help
logout
[root@server1 /]# su - user2
[user2@server1 ~]$ cd /share
[user2@server1 share]$ cd project1
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user2@server1 project1]$ touch file3
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$ rm file2
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$ vi file1
[user2@server1 project1]$ cat file1
This file has been created by user1.
This file has also been updated by user2.
[user2@server1 project1]$
```

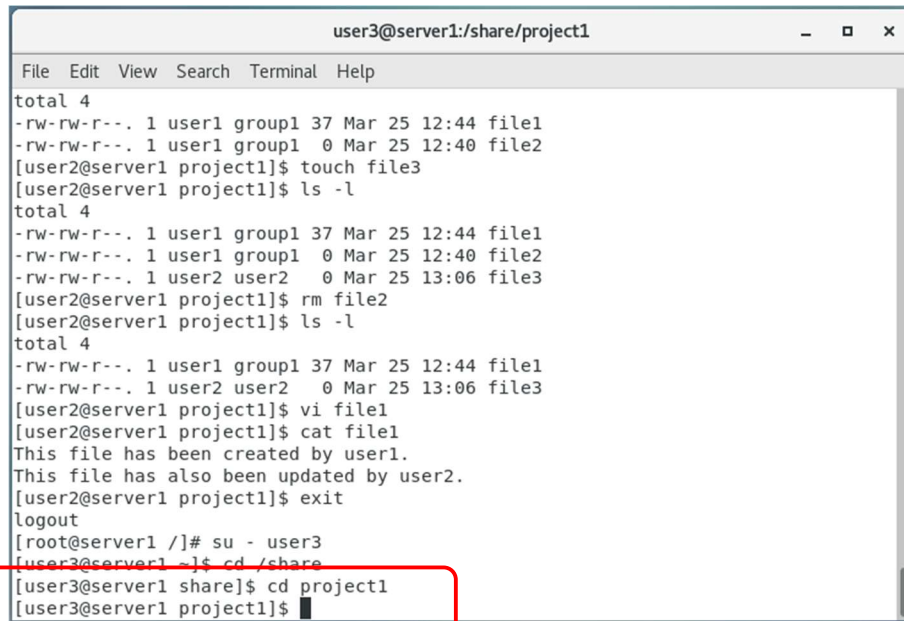
26. Log as user3



```
user3@server1:~
File Edit View Search Terminal Help
[user2@server1 share]$ cd project1
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
[user2@server1 project1]$ touch file3
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$ rm file2
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$ vi file1
[user2@server1 project1]$ cat file1
This file has been created by user1.
This file has also been updated by user2.
[user2@server1 project1]$ exit
logout
[root@server1 /]# su - user3
[user3@server1 ~]$
```

27. Are you able to cd to the directory project1? Why?

The user user3 belongs to the other category, that is, he is neither user1 nor belonging to group1. Permissions for others are r-x for project1, and user 3 can access the directory from the executable command cd.

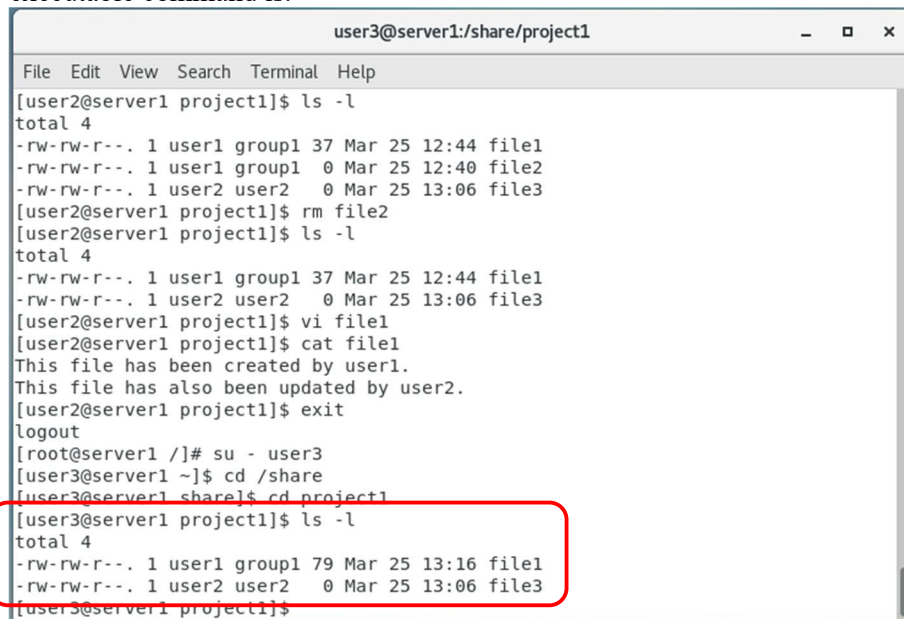


```

user3@server1:/share/project1
File Edit View Search Terminal Help
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1  0 Mar 25 12:40 file2
[user2@server1 project1]$ touch file3
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1  0 Mar 25 12:40 file2
-rw-rw-r--. 1 user2 user2   0 Mar 25 13:06 file3
[user2@server1 project1]$ rm file2
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user2 user2   0 Mar 25 13:06 file3
[user2@server1 project1]$ vi file1
[user2@server1 project1]$ cat file1
This file has been created by user1.
This file has also been updated by user2.
[user2@server1 project1]$ exit
logout
[root@server1 /]# su - user3
[user3@server1 ~]$ cd /share
[user3@server1 share]$ cd project1
[user3@server1 project1]$
  
```

28. Can you list the directory project1 contents? Why?

The user user3 belongs to the other category, that is, he is neither user1 nor belonging to group1. Permissions for others are r-x for project1, and user 3 can access the directory from the reading and executable command ls.



```

user3@server1:/share/project1
File Edit View Search Terminal Help
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1  0 Mar 25 12:40 file2
-rw-rw-r--. 1 user2 user2   0 Mar 25 13:06 file3
[user2@server1 project1]$ rm file2
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user2 user2   0 Mar 25 13:06 file3
[user2@server1 project1]$ vi file1
[user2@server1 project1]$ cat file1
This file has been created by user1.
This file has also been updated by user2.
[user2@server1 project1]$ exit
logout
[root@server1 /]# su - user3
[user3@server1 ~]$ cd /share
[user3@server1 share]$ cd project1
[user3@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 79 Mar 25 13:16 file1
-rw-rw-r--. 1 user2 user2   0 Mar 25 13:06 file3
[user3@server1 project1]$
  
```

29. Are you able to create a new file in project1 directory? Why?

The user user3 belongs to the other category, that is, he is neither user1 nor belonging to group1. Permissions for others are r-x for project1, and user 3 cannot write a new file in the directory because it does not have writing permission.


```

user3@server1:/share/project1
File Edit View Search Terminal Help
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user1 group1 0 Mar 25 12:40 file2
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$ rm file2
[user2@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 37 Mar 25 12:44 file1
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user2@server1 project1]$ vi file1
[user2@server1 project1]$ cat file1
This file has been created by user1.
This file has also been updated by user2.
[user2@server1 project1]$ exit
logout
[root@server1 /]# su - user3
[user3@server1 ~]$ cd /share
[user3@server1 share]$ cd project1
[user3@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 79 Mar 25 13:16 file1
-rw-rw-r--. 1 user2 user2 0 Mar 25 13:06 file3
[user3@server1 project1]$ touch file4
touch: cannot touch 'file4': Permission denied
[user3@server1 project1]$

```

30. Are you able to change the file1? Why?

The user user3 belongs to the other category, that is, he is neither user1 nor belonging to group1. Permissions for others are r-- for file1, and user 3 cannot write file1 because it does not have writing permission, as confirmed in the warning in vi.



The screenshot shows a Windows File Explorer window titled 'user3@server1:/share/project1'. The address bar displays the path 'C:\Users\user3\share\project1'. The file list contains one file, 'test.txt', which is highlighted. The file's properties are shown on the right: 'Created by: user1' and 'Updated by: user3'. The status bar at the bottom indicates '3,42 All' and a warning message: 'Warning: Changing a readonly file'. A red box highlights this warning message.

Name	Size	Modified	Created	Access	Attributes
test.txt	3,42	12/12/2023 14:42	12/12/2023 14:42	Full Control	Read-only

Warning: Changing a readonly file

The next screen shows the results of not saving file1, by using cat. However, vi offered me to override the read-only permission by using a specific command (I did not try though).


```
user3@server1:/share/project1
File Edit View Search Terminal Help
[user2@server1 project1]$ exit
logout
[root@server1 /]# su - user3
[user3@server1 ~]$ cd /share
[user3@server1 share]$ cd project1
[user3@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 79 Mar 25 13:16 file1
-rw-rw-r--. 1 user2 user2  0 Mar 25 13:06 file3
[user3@server1 project1]$ touch file4
touch: cannot touch 'file4': Permission denied
[user3@server1 project1]$ vi file1

[No write since last change]
/bin/bash: q: command not found

shell returned 127

Press ENTER or type command to continue
[user3@server1 project1]$
[user3@server1 project1]$ cat file1
This file has been created by user1.
This file has also been updated by user2.
[user3@server1 project1]$
```

31. Are you able to delete file1 in project1 directory? Why?

The user user3 belongs to the other category, that is, he is neither user1 nor belonging to group1. Permissions for others are r-- for file1, and user 3 cannot delete file1 because it does not have writing permission.

```
user3@server1:/share/project1
File Edit View Search Terminal Help
[user3@server1 ~]$ cd /share
[user3@server1 share]$ cd project1
[user3@server1 project1]$ ls -l
total 4
-rw-rw-r--. 1 user1 group1 79 Mar 25 13:16 file1
-rw-rw-r--. 1 user2 user2  0 Mar 25 13:06 file3
[user3@server1 project1]$ touch file4
touch: cannot touch 'file4': Permission denied
[user3@server1 project1]$ vi file1

[No write since last change]
/bin/bash: q: command not found

shell returned 127

Press ENTER or type command to continue
[user3@server1 project1]$
[user3@server1 project1]$ cat file1
This file has been created by user1.
This file has also been updated by user2.
[user3@server1 project1]$ rm file1
rm: remove write-protected regular file 'file1'? y
rm: cannot remove 'file1': Permission denied
[user3@server1 project1]$
```