Assignment - 5

Setup

1) Create 2 users devops and angular

```
bhushan@ubuntu:~$ sudo adduser devops
[sudo] password for bhushan:
Adding user `devops' ...
Adding new group `devops' (1009) ...
Adding new user `devops' (1007) with group `devops' ...
The home directory `/home/devops' already exists.  Not copying from `/etc/skel'.
adduser: Warning: The home directory `/home/devops' does not belong to the user you are currently creating.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devops
Enter the new value, or press ENTER for the default
        Full Name []: DevOps
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
```

```
bhushan@ubuntu:~$ sudo adduser angular
[sudo] password for bhushan:
Adding user `angular' ...
Adding new group `angular' (1003) ...
Adding new user `angular' (1002) with group `angular' ...
Creating home directory `/home/angular' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for angular
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
```
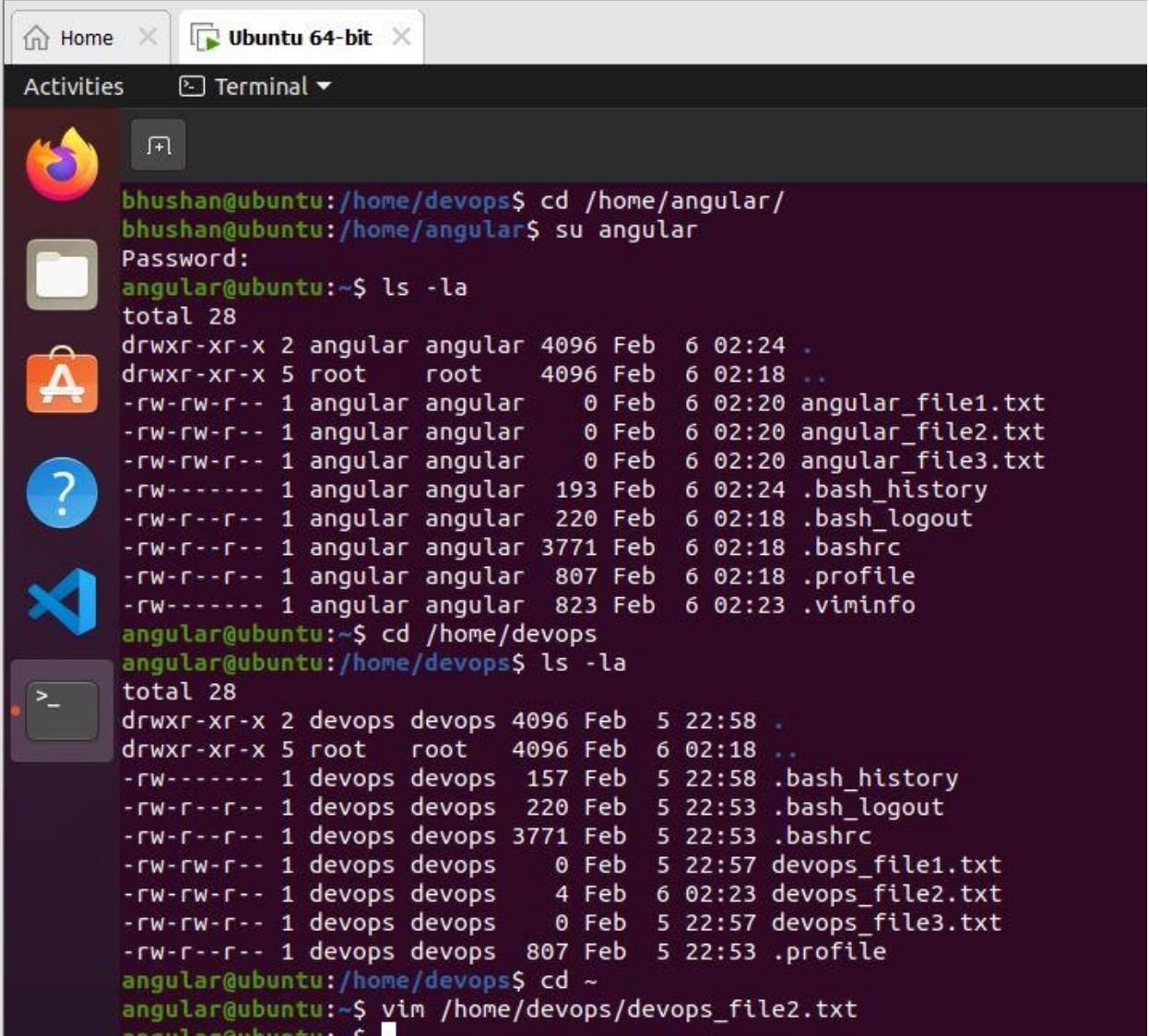
2) Create 3 files in devops$HOME_DIR [user: devops]
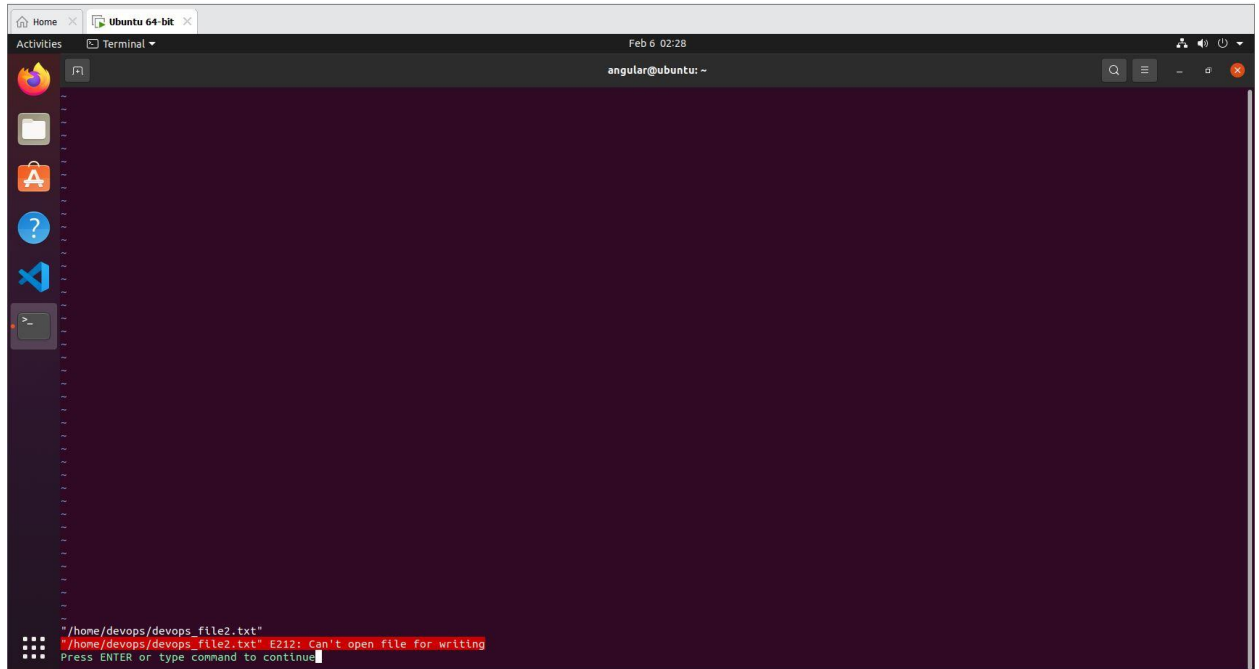
3) Create 3 files in angular $HOME_DIR[user :- angular]

```
bhushan@ubuntu:~$ cd /home/angular/
bhushan@ubuntu:/home/angular$ ls
bhushan@ubuntu:/home/angular$ su angular
Password:
angular@ubuntu:~$ touch angular_file1.txt angular_file2.txt angular_file3.txt
angular@ubuntu:~$ ls -la
total 20
drwxr-xr-x 2 angular angular 4096 Feb  5 08:07 .
drwxr-xr-x 8 root    root    4096 Feb  5 08:04 ..
-rw-rw-r-- 1 angular angular    0 Feb  5 08:07 angular_file1.txt
-rw-rw-r-- 1 angular angular    0 Feb  5 08:07 angular_file2.txt
-rw-rw-r-- 1 angular angular    0 Feb  5 08:07 angular_file3.txt
-rw-r--r-- 1 angular angular  220 Feb  5 08:04 .bash_logout
-rw-r--r-- 1 angular angular 3771 Feb  5 08:04 .bashrc
-rw-r--r-- 1 angular angular  807 Feb  5 08:04 .profile
angular@ubuntu:~$ exit
exit
bhushan@ubuntu:/home/angular$ cd /home/devops
bhushan@ubuntu:/home/devops$ su devops
Password:
devops@ubuntu:~$ ls -la
total 24
drwxr-xr-x 2 devops devops 4096 Feb  5 05:25 .
drwxr-xr-x 8 root   root   4096 Feb  5 08:04 ..
-rw------- 1 devops devops  184 Feb  5 05:25 .bash_history
-rw-r--r-- 1 devops devops  220 Feb  1 04:22 .bash_logout
-rw-r--r-- 1 devops devops 3771 Feb  1 04:22 .bashrc
-rw-rw-r-- 1 devops devops    0 Feb  5 05:25 devops_file1.txt
-rw-rw-r-- 1 devops devops    0 Feb  5 05:25 devops_file2.txt
-rw-rw-r-- 1 devops devops    0 Feb  5 05:25 devops_file3.txt
-rw-r--r-- 1 devops devops  807 Feb  1 04:22 .profile
devops@ubuntu:~$
```

Use Case A: Try modifying devops_file2.txt in devops [user : angular] login. Note down if it is a success or failure. If failure changes the group of [user : angular] from angular to devops then Try Modifying devops_file2.txt in devops $HOME_DIR from [user : demo] Login. If success Case 1 Complete
Else debug.

a) Trying to Modify the devops_file2.txt in devops [user : angular] login. From demo login we are unable to modify the devops_file2.txt.
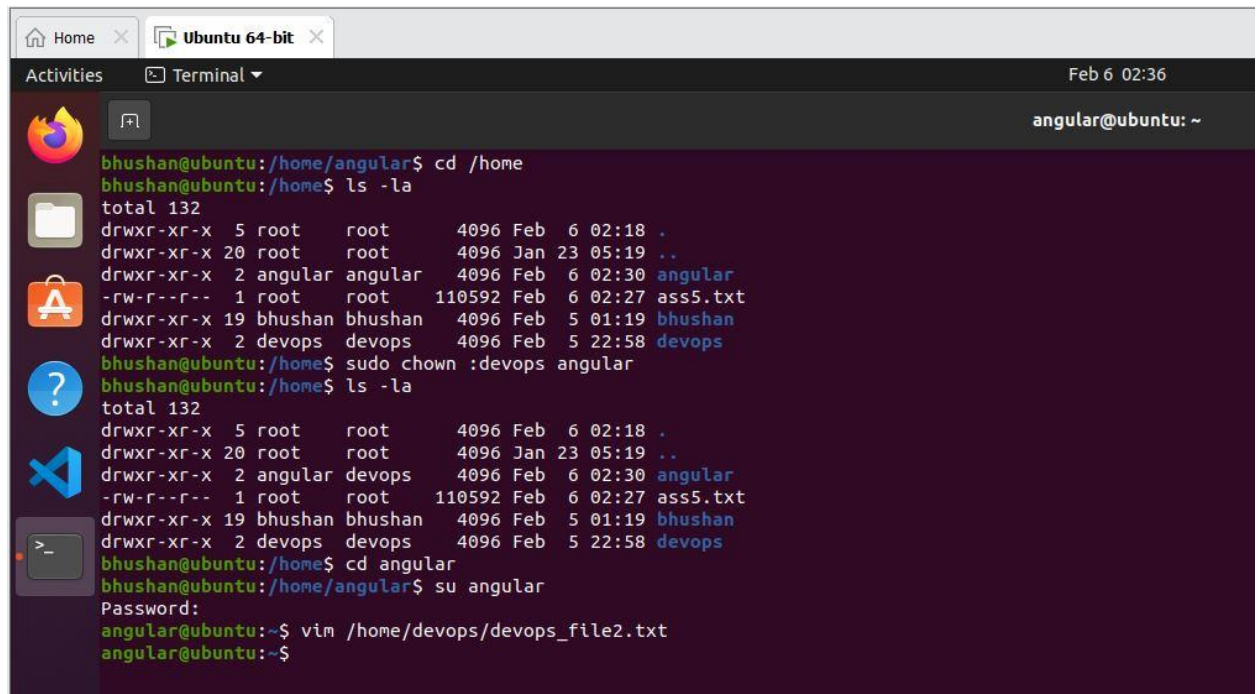
b) If we want to modify the devops_file2.txt file from angular login then we have to change or add angular user in devops group then try to modify the devops_file2.tx from angular login. Still we are not able to modify the devops_file2.txt. So to modify it we have to change the permission of devops_file2.txt file.

```
"/home/devops/devops_file2.txt"
"/home/devops/devops_file2.txt" E212: Can't open file for writing
Press ENTER or type command to continue
```

Note: - Give write permission to others for accessing the devops_file2.txt from angular login.
After changing the permission we can access the devops_file2.txt from angular login.


```
angular@ubuntu:~$ exit
exit
bhushan@ubuntu:/home/angular$ cd /home/devops
bhushan@ubuntu:/home/devops$ ls -la
total 28
drwxr-xr-x 2 devops devops 4096 Feb  5 22:58 .
drwxr-xr-x 5 root   root   4096 Feb  6 02:18 ..
-rw------- 1 devops devops  157 Feb  5 22:58 .bash_history
-rw-r--r-- 1 devops devops  220 Feb  5 22:53 .bash_logout
-rw-r--r-- 1 devops devops 3771 Feb  5 22:53 .bashrc
-rw-rw-r-- 1 devops devops    0 Feb  5 22:57 devops_file1.txt
-rw-rw-r-- 1 devops devops    4 Feb  6 02:23 devops_file2.txt
-rw-rw-r-- 1 devops devops    0 Feb  5 22:57 devops_file3.txt
-rw-r--r-- 1 devops devops  807 Feb  5 22:53 .profile
bhushan@ubuntu:/home/devops$ sudo chmod o+w devops_file2.txt
bhushan@ubuntu:/home/devops$ ls -la
total 28
drwxr-xr-x 2 devops devops 4096 Feb  5 22:58 .
drwxr-xr-x 5 root   root   4096 Feb  6 02:18 ..
-rw------- 1 devops devops  157 Feb  5 22:58 .bash_history
-rw-r--r-- 1 devops devops  220 Feb  5 22:53 .bash_logout
-rw-r--r-- 1 devops devops 3771 Feb  5 22:53 .bashrc
-rw-rw-r-- 1 devops devops    0 Feb  5 22:57 devops_file1.txt
-rw-rw-rw- 1 devops devops    4 Feb  6 02:23 devops_file2.txt
-rw-rw-r-- 1 devops devops    0 Feb  5 22:57 devops_file3.txt
-rw-r--r-- 1 devops devops  807 Feb  5 22:53 .profile
bhushan@ubuntu:/home/devops$ cd /home/angular
bhushan@ubuntu:/home/angular$ su angular
Password:
angular@ubuntu:~$ vim /home/devops/devops_file2.txt
angular@ubuntu:~$ cat /home/devops/devops_file2.txt
Trying to modify the devops_file2.txt after changing the permission!
Give write permission to other!
angular@ubuntu:~$
```
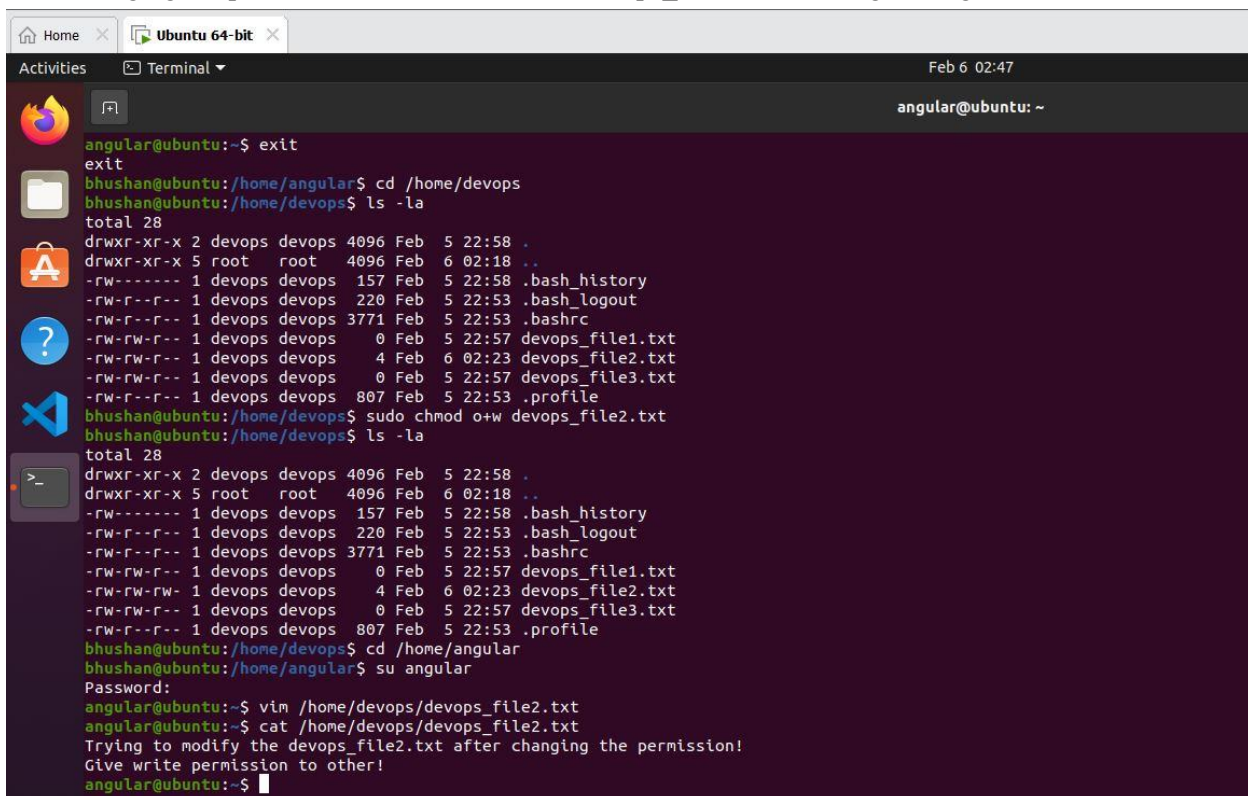
UseCase B: a) Give write permission to file angular_file3.txt for others by using symbolic mode.
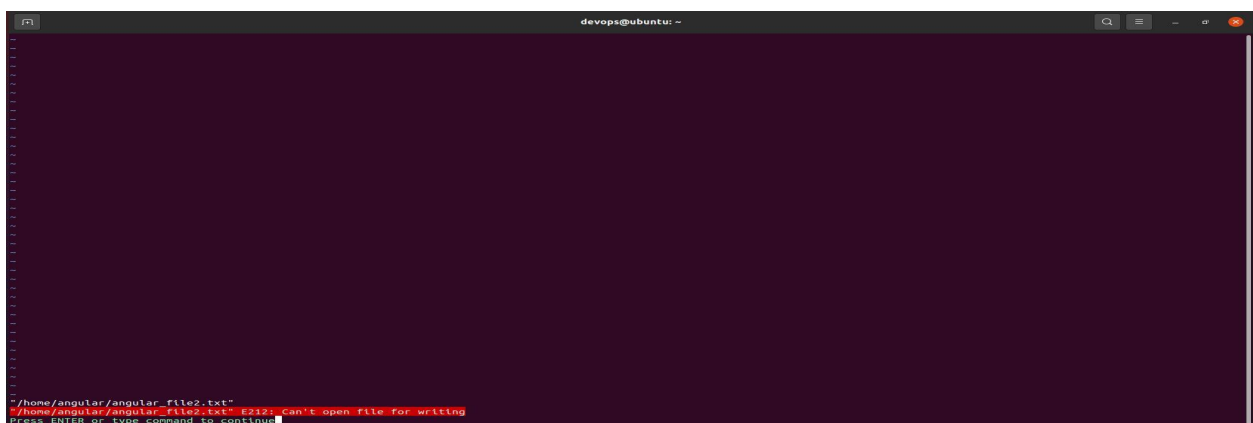
```
angular@ubuntu:~$ ls -la
total 28
drwxr-xr-x 2 angular devops  4096 Feb  6 02:46 .
drwxr-xr-x 5 root    root    4096 Feb  6 02:18 ..
-rw-rw-r-- 1 angular angular     0 Feb  6 02:20 angular_file1.txt
-rw-rw-r-- 1 angular angular     0 Feb  6 02:20 angular_file2.txt
-rw-rw-r-- 1 angular angular     0 Feb  6 02:20 angular_file3.txt
-rw------- 1 angular angular   312 Feb  6 02:44 .bash_history
-rw-r--r-- 1 angular angular   220 Feb  6 02:18 .bash_logout
-rw-r--r-- 1 angular angular  3771 Feb  6 02:18 .bashrc
-rw-r--r-- 1 angular angular   807 Feb  6 02:18 .profile
-rw------- 1 angular angular  1981 Feb  6 02:46 .viminfo
angular@ubuntu:~$ exit
exit
bhushan@ubuntu:/home/angular$ sudo chmod o+w angular_file3.txt
bhushan@ubuntu:/home/angular$ ls -la
total 28
drwxr-xr-x 2 angular devops  4096 Feb  6 02:46 .
drwxr-xr-x 5 root    root    4096 Feb  6 02:18 ..
-rw-rw-r-- 1 angular angular     0 Feb  6 02:20 angular_file1.txt
-rw-rw-r-- 1 angular angular     0 Feb  6 02:20 angular_file2.txt
-rw-rw-rw- 1 angular angular     0 Feb  6 02:20 angular_file3.txt
-rw------- 1 angular angular   421 Feb  6 02:51 .bash_history
-rw-r--r-- 1 angular angular   220 Feb  6 02:18 .bash_logout
-rw-r--r-- 1 angular angular  3771 Feb  6 02:18 .bashrc
-rw-r--r-- 1 angular angular   807 Feb  6 02:18 .profile
-rw------- 1 angular angular  1981 Feb  6 02:46 .viminfo
bhushan@ubuntu:/home/angular$
```

b) Change terminal login to [user:devops] Check if [user:devops] can now write to angular_file1.txt

```
bhushan@ubuntu:/home/angular$ cd /home/devops
bhushan@ubuntu:/home/devops$ su devops
Password:
devops@ubuntu:~$ vim /home/angular/angular_file3.txt
devops@ubuntu:~$ cat /home/angular/angular_file3.txt
Trying to modify angular_file3.txt after giving write oermission to other from devops login! Able to Modify as we have permission !
devops@ubuntu:~$
```

Use Case C: a) Check if [user:devops] can write to angular_file2.txt.

```
devops@ubuntu:~$ vim /home/angular/angular_file2.txt
devops@ubuntu:~$
```

```
                                        devops@ubuntu: ~


















"/home/angular/angular_file2.txt"
"/home/angular/angular_file2.txt" E212: Can't open file for writing
Press ENTER or type command to continue
```

b) Change the owner of the angular_file2.tx to devops then try to modify the angular_file2.txt file from devops login.

```
bhushan@ubuntu:/home/devops$ cd /home/angular
bhushan@ubuntu:/home/angular$ ls -la
total 32
drwxr-xr-x 2 angular devops  4096 Feb  6 02:46 .
drwxr-xr-x 5 root    root    4096 Feb  6 02:18 ..
-rw-rw-r-- 1 angular angular    0 Feb  6 02:20 angular_file1.txt
-rw-rw-r-- 1 angular angular    0 Feb  6 02:20 angular_file2.txt
-rw-rw-rw- 1 angular angular  132 Feb  6 02:56 angular_file3.txt
-rw------- 1 angular angular  421 Feb  6 02:51 .bash_history
-rw-r--r-- 1 angular angular  220 Feb  6 02:18 .bash_logout
-rw-r--r-- 1 angular angular 3771 Feb  6 02:18 .bashrc
-rw-r--r-- 1 angular angular  807 Feb  6 02:18 .profile
-rw------- 1 angular angular 1981 Feb  6 02:46 .viminfo
bhushan@ubuntu:/home/angular$ sudo chown devops:devops angular_file2.txt
[sudo] password for bhushan:
bhushan@ubuntu:/home/angular$ ls -la
total 32
drwxr-xr-x 2 angular devops  4096 Feb  6 02:46 .
drwxr-xr-x 5 root    root    4096 Feb  6 02:18 ..
-rw-rw-r-- 1 angular angular    0 Feb  6 02:20 angular_file1.txt
-rw-rw-r-- 1 devops  devops     0 Feb  6 02:20 angular_file2.txt
-rw-rw-rw- 1 angular angular  132 Feb  6 02:56 angular_file3.txt
-rw------- 1 angular angular  421 Feb  6 02:51 .bash_history
-rw-r--r-- 1 angular angular  220 Feb  6 02:18 .bash_logout
-rw-r--r-- 1 angular angular 3771 Feb  6 02:18 .bashrc
-rw-r--r-- 1 angular angular  807 Feb  6 02:18 .profile
-rw------- 1 angular angular 1981 Feb  6 02:46 .viminfo
bhushan@ubuntu:/home/angular$ cd /home/devops
bhushan@ubuntu:/home/devops$ su devops
Password:
devops@ubuntu:~$ vim /home/angular/angular_file2.txt
devops@ubuntu:~$ cat /home/angular/angular_file2.txt
I am trying to modify the angular_file2.txt file from devops login after changing the owner of the angular_file2.tx to devops!
devops@ubuntu:~$
```

UseCase D: a) Search and analyze about the concept of precedence in file permission showcase it using a working use case.

Consider a situation, where the user owner doesn't have any permissions, a group has read permission while others have read and write permissions.

```
bhushan@ubuntu:/home/oops$ ls -la | grep fil1.txt
----r--rw- 1 oops devops    0 Feb  5 09:19 fil1.txt
bhushan@ubuntu:/home/oops$
```

Now, if the user oops tries to read the file using cat or less command, will he be able to? No because it doesn't have the read permission.
But user oops is part of group devops and the group has read access. And others have read and write permission. This should mean that everyone (including user oops) can read and write the file, right? Wrong!

```
oops@ubuntu:~$ cat fil1.txt
cat: fil1.txt: Permission denied
oops@ubuntu:~$ less fil1.txt
fil1.txt: Permission denied
oops@ubuntu:~$
```

In Linux, the precedence takes from user and then group and then to other. Linux system checks who initiated the process (cat or less in our example). If the user who initiated the process is also the user owner of the file, the user permission bits are set.
If the owner of the file didn't initiate the process, then the Linux system checks the group. If the user who initiated the process is in the same group as the owner group of the file, group permissions are set.

If this process owner is not even in the group as the file's group owner, then the other permission bits are set.