# File permissions in Linux

## Project description

I will check for permission on each file in the "projects" directory and determine if they are correct. If not, I will adjust them accordingly using Linux CLI commands.

## Check file and directory details

```
researcher2@37786ab29543:~$ cd projects
researcher2@37786ab29543:~/projects$ ls
drafts  project_k.txt  project_m.txt  project_r.txt  project_t.txt
researcher2@37786ab29543:~/projects$ ls la
ls: cannot access 'la': No such file or directory
researcher2@37786ab29543:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 01:18 ..
-rw--w---- 1 researcher2 research_team   46 Nov 28 00:40 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Nov 28 00:40 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Nov 28 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Nov 28 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_t.txt
researcher2@37786ab29543:~/projects$
```

## Describe the permissions string

For example, for the file labelled ".", the "d" stands for directory which is the file type. The user has read, write, and execute permission. The group has read and execute permissions but not write. The other has read and execute permissions, but not write.

## Change file permissions

```
researcher2@37786ab29543:~/projects$ chmod o-w project_k.txt
```

As the file "project_k.txt" has write permissions for the other category, I used this argument to remove it.

```
researcher2@37786ab29543:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 01:18 ..
-rw--w---- 1 researcher2 research_team   46 Nov 28 00:40 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Nov 28 00:40 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Nov 28 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_t.txt
```

I used the "ls -la" command to verify that "project_k.txt" does not have write permissions for others anymore.

## Change file permissions on a hidden file

```
researcher2@37786ab29543:~/projects$ chmod u-w,g-w,g+r .project_x.txt
```

As no one should have write permissions on ".project_x.txt", I used this line to remove write permissions for the user and the group, but added read permissions to the group.

```
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 01:18 ..
-r--r----- 1 researcher2 research_team   46 Nov 28 00:40 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Nov 28 00:40 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Nov 28 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_t.txt
```

I used "ls -la" command to verify that ".project_x.txt" is readable to the user and group but not writable to anyone.

## Change directory permissions

```
researcher2@37786ab29543:~/projects$ chmod g-x drafts
```

As the group still has execute permissions for "drafts", I used this line to remove the permission.

```
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Nov 28 01:18 ..
-r--r----- 1 researcher2 research_team   46 Nov 28 00:40 .project_x.txt
drwx------ 2 researcher2 research_team 4096 Nov 28 00:40 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Nov 28 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 28 00:40 project_t.txt
```

Now, only the user has read, write, and execute permissions for "drafts".

## Summary

Using the CLI Linux commands, I navigated to the "projects" directory then changed permissions on various files as according to the client needs.