File permissions in Linux

Project description

The projects folder contains 5 files (one of which is hidden) and a folder. These assets have different permission that need to be modified according to the needs.

Check file and directory details

```
researcher2@899acc7aa4a2:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 18:44 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 19:29 ..
-rw--w---- 1 researcher2 research_team   46 Aug 15 18:44 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 15 18:44 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Aug 15 18:44 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 15 18:44 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_t.txt
```

1. `ls -la` command is used to retrieve all the contents (directories and files) in a directory alongside with the description of the permissions for each directory and file. Notice that the hidden files have a (.) at the beginning of the name.

Describe the permissions string

1. -rw-rw-r-- means that there is a file where the owner and the group have read and write permissions and "other" has only read permissions.

Change file permissions

```
researcher2@899acc7aa4a2:~/projects$ chmod o-w project_k.txt
researcher2@899acc7aa4a2:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 18:44 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 19:29 ..
-rw--w---- 1 researcher2 research_team   46 Aug 15 18:44 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 15 18:44 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 15 18:44 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_t.txt
```

1. `chmod -o-w project_k.txt` specifies that "others" shall not have write rights anymore for the project_k.txt file.
   - **chmod**: This is the command used to change file permissions.
   - **o-w**: This part specifies that you're modifying the permissions for "others" (users who are not the owner or in the group that owns the file) by removing (-) the write (w) permission.
   - **project_k.txt**: This is the name of the file you're modifying the permissions for.

Change file permissions on a hidden file

```
researcher2@899acc7aa4a2:~/projects$ chmod g+r .project_x.txt
researcher2@899acc7aa4a2:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 18:44 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 19:29 ..
-r--r----- 1 researcher2 research_team   46 Aug 15 18:44 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 15 18:44 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 15 18:44 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_t.txt
```

1. `chmod g+r .project_x.txt` specifies that the groups shall have read permissions for the project_x.txt hidden file.

Change directory permissions

```
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 18:44 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 15 19:29 ..
-r--r----- 1 researcher2 research_team   46 Aug 15 18:44 .project_x.txt
drwx------ 2 researcher2 research_team 4096 Aug 15 18:44 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 15 18:44 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 15 18:44 project_t.txt
```

```
chmod g-x drafts
```

1. For changing the permissions of the drafts directory, the chmod `g-x drafts` command is used so only the owner shall have rights on the specified directory.

Summary

This project offered the possibility to practice ls -la and chmod commands, to view the permissions of all the files and folders (including the hidden ones), respectively to change these permissions to ensure that only the permitted owners have the required access.