File permissions in Linux

Project description:

My task is to examine existing permissions on the file system. I need to determine if the permissions match the authorization that should be given. If they do not match, i need to modify the permissions to authorize the appropriate users and remove any unauthorized access. All of this should be done in Linux command bash.

Check file and directory details:

Linux command to check all files permissions (inside directory): ls -la

```
researcher2@9dadd85611b2:~$ pwd
/home/researcher2
researcher2@9dadd85611b2:~$ cd projects
researcher2@9dadd85611b2:~/projects$ pwd
/home/researcher2/projects
researcher2@9dadd85611b2:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:11 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:38 ..
-rw--w---- 1 researcher2 research_team   46 Aug 23 09:11 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 23 09:11 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Aug 23 09:11 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 23 09:11 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_t.txt
researcher2@9dadd85611b2:~/projects$
```

Describe the permissions string:

drwxr-xr-x -> d: directory, **rwx:** user permissions (read, write,execute), **-xr:** group permissions(write, read), **-x-:** other permissions (execute);

Change file permissions:

The organization does not allow other to have write access to any files:

We need to change project_k.txt permissions to other:
Linux command: **chmod o-w project_k.txt**

```
researcher2@9dadd85611b2:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:11 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:38 ..
-rw--w---- 1 researcher2 research_team   46 Aug 23 09:11 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 23 09:11 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 23 09:11 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_t.txt
```

Change file permissions on a hidden file:

The research team has archived *.project_x.txt*, which is why it's a hidden file. This file should not have write permissions for anyone, but the user and group should be able to read the file.
Linux command: **chmod u-w,g-w,g+r project_k.txt**

```
researcher2@9dadd85611b2:~/projects$ chmod u-w,g-w,g+r .project_x.txt
researcher2@9dadd85611b2:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:11 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:38 ..
-r--r----- 1 researcher2 research_team   46 Aug 23 09:11 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 23 09:11 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 23 09:11 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_t.txt
```

Change directory permissions:

The files and directories in the projects directory belong to the *researcher2* user. Only *researcher2* should be allowed to access the *drafts* directory and its contents.
Linux command: **chmod g-x drafts**

```
researcher2@9dadd85611b2:~/projects$ chmod g-x drafts
researcher2@9dadd85611b2:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:11 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 23 09:38 ..
-r--r----- 1 researcher2 research_team   46 Aug 23 09:11 .project_x.txt
drwx------ 2 researcher2 research_team 4096 Aug 23 09:11 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug 23 09:11 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug 23 09:11 project_t.txt
```

Summary:

In this exercise I compared all permissions approved with all current permissions. I used Linux command bash to analyze, add and remove user, group or other's permissions to normal files, hidden files, and directories.