File permissions in Linux

Project description

This project is to demonstrate my experience using Linux commands to manage file permissions. My task is to examine existing permissions on the file system. I will 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.

Check file and directory details

```
researcher2@3f5874187399:~/projects$ pwd
/home/researcher2/projects
```

```
researcher2@3f5874187399:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Oct 23 17:34 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Oct 23 17:34 project_k.t
xt
-rw-r----- 1 researcher2 research_team   46 Oct 23 17:34 project_m.t
xt
-rw-rw-r-- 1 researcher2 research_team   46 Oct 23 17:34 project_r.t
xt
-rw-rw-r-- 1 researcher2 research_team   46 Oct 23 17:34 project_t.t
xt
```

Describe the permissions string

```
drwxr-xr-x 3 researcher2 research_team 4096 Oct 23 1
7:34 .
drwxr-xr-x 3 researcher2 research_team 4096 Oct 23 1
8:03 ..
-rw--w---- 1 researcher2 research_team   46 Oct 23 1
7:34 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Oct 23 1
7:34 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Oct 23 1
7:34 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Oct 23 1
7:34 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct 23 1
7:34 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct 23 1
```

Change file permissions

```
-rw-rw-rw- 1 researcher2 research_team   46 Oct 23 17:34 project_k.t
xt
```

```
researcher2@3f5874187399:~/projects$ chmod o-w project_k.txt
```

```
-rw-rw-r-- 1 researcher2 research_team   46 Oct 23 17:34 project_k.t
xt
```

```
-rw-r----- 1 researcher2 research_team   46 Oct 23 17:34 project_m.t
xt
```

```
researcher2@3f5874187399:~/projects$ chmod g-r project_m.txt
```

```
-rw------- 1 researcher2 research_team   46 Oct 23 17:34 project_m.t
xt
```

Change file permissions on a hidden file

```
researcher2@3f5874187399:~/projects$ ls -a
.   .project_x.txt  project_k.txt  project_r.txt
..  drafts          project_m.txt  project_t.txt
```

```
-rw--w---- 1 researcher2 research_team   46 Oct 23 17:34 .project_x.
txt
```

```
researcher2@3f5874187399:~/projects$ chmod u-w,g-w,g+r .project_x.txt
```

```
-r--r----- 1 researcher2 research_team   46
 Oct 23 17:34 .project_x.txt
```

Change directory permissions

```
researcher2@3f5874187399:~/projects$ ls
drafts          project_m.txt  project_t.txt
project_k.txt  project_r.txt
researcher2@3f5874187399:~/projects$ cd drafts
researcher2@3f5874187399:~/projects/drafts$ ls -la
total 8
drwx--x--- 2 researcher2 research_team 4096 Oct 23 17:34 .
drwxr-xr-x 3 researcher2 research_team 4096 Oct 23 17:34 ..
```

```
researcher2@3f5874187399:~/projects/drafts$ cd /home/resear
cher2/projects
researcher2@3f5874187399:~/projects$
```

```
researcher2@3f5874187399:~/projects$ chmod g-x drafts
researcher2@3f5874187399:~/projects$ ls
drafts          project_m.txt  project_t.txt
project_k.txt  project_r.txt
researcher2@3f5874187399:~/projects$ cd drafts
researcher2@3f5874187399:~/projects/drafts$ ls -la
total 8
drwx------ 2 researcher2 research_team 4096 Oct 23 17:34 .
drwxr-xr-x 3 researcher2 research_team 4096 Oct 23 17:34 ..
```

Summary

First task was to check the files and navigate to the `projects` directory & list the contents and permissions of the `projects` directory. Then I checked whether any hidden files exist in the `projects` directory. I had to check whether any files in the `projects` directory have written permissions for the owner type of other and change the permissions of the file identified in the previous step so that the owner

type of other doesn't have write permissions. The file `project_m.txt` is a restricted file and should not be readable or writable by the group or other; only the user should have these permissions on this file. I used the `chmod` command to change permissions of the `project_m.txt` file so that the group doesn't have read or write permissions. Next, I searched for hidden files and found that the file `.project_x.txt` is a hidden file that has been archived and should not be written to by anyone. After checking permissions, I changed the permissions of the file `.project_x.txt` so that both the user and the group can read, but not write to, the file. Lastly, I changed the group permissions in `drafts` directory so that only the `researcher2` user should be allowed to access it.

Codes I used to complete this project are as follows:

`pwd`
print working directory – this displays the current location within the file system

`cd`
this command allows me to move between directories

`ls`
this is going to show me the files and directories present in the current working directory

`ls -l`
this command displays detailed permissions

`ls -la`
also displays detailed permission, just includes the hidden files as well.

`chmod`
stands for change mode, this is what allows me to modify permissions for users, groups, and others on files and directories

`u-w,g-w,g+r`
this string of commands stands for: user remove write permissions, group remove write permissions, and group add read permissions.

`o-w`
stands for owner remove write permissions

`g-x`
stands for group remove execute permissions