File permissions in Linux

Project description

This project is to demonstrate the use of Linux commands to search through files and changing permissions. It will be using screenshots from the project to illustrate the actions and methods taking place.

Check file and directory details

```
researcher2@57c59ae35bf5:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 May 17 12:40 drafts
-rw-rw-rw- 1 researcher2 research_team   46 May 17 12:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 May 17 12:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 May 17 12:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 May 17 12:40 project_t.txt
researcher2@57c59ae35bf5:~/projects$
```

After using ‘cd’ command to change the directory to the ‘projects’ folder, ‘ls-l’ command is used to list the permissions of all files in the folder

Describe the permissions string

```
drwx--x---
```

This is a permission string. The ‘d’ in a permission string stands for Directory. There are three types of permissions within three types of users. The first three permissions after directory are for the owner user. The following three is for a group, and the final three is for other. As for the permissions themselves “r” stands for read permission, “w” stands for writing permission, and “x” stands for execute permission.
In this case for the demonstration above, the owner has read, write, and execute permissions. The group only has executing permissions, and other has no permissions at all.

Change file permissions

```
chmod o-w project_k.txt
```

To change permissions we must use “chmod”. This tells Linux that I’d like to make a change to permissions in directories. After “chmod” we add “o-w”. The “o” stands for owner, the “-“ symbol is taking away the following symbol, which in this case is “w” for write. We have taken away write permission for the owner user in the project_k.txt file.

Change file permissions on a hidden file

```
drwx--x--- 2 researcher2 research_team 4096 May 17 12:40 drafts
-rw-rw-rw- 1 researcher2 research_team   46 May 17 12:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 May 17 12:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 May 17 12:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 May 17 12:40 project_t.txt
researcher2@57c59ae35bf5:~/projects$ ls -a
.  ..  .project_x.txt  drafts  project_k.txt  project_m.txt  project_r.txt  project_t.txt
```

I use the command “ls-a” to search through a file for hidden files. Project_x.txt shows itself.

```
researcher2@57c59ae35bf5:~/projects$ ls -l .project_x.txt
-rw--w---- 1 researcher2 research_team 46 May 17 12:40 .project_x.txt
```

I then check who has the permissions for this hidden file and I see that the owner has read and write permissions, and the group only has write permissions. I want to change permissions so that the owner only has read and group has no permissions.

```
researcher2@57c59ae35bf5:~/projects$ chmod u-w,g-w .project_x.txt
researcher2@57c59ae35bf5:~/projects$ ls -l .project_x.txt
-r-------- 1 researcher2 research_team 46 May 17 12:40 .project_x.txt
```

I use “chmod” and remove write permissions for both the owner and the group. I use “ls-l” to see the update and I find that the owner is the only one with read permissions

Change directory permissions

```
researcher2@57c59ae35bf5:~/projects$ /home/researcher2/projects/drafts
-bash: /home/researcher2/projects/drafts: Is a directory
```

The drafts file is a directory. I want to change the directory permissions as the group has execute permission.

```
researcher2@57c59ae35bf5:~/projects$  chmod g-x drafts
researcher2@57c59ae35bf5:~/projects$ ls -l
total 20
drwx------ 2 researcher2 research_team 4096 May 17 12:40 drafts
```

I use “chmod” again and remove execute permission from the group, leaving only the owner to have all permissions for the directory file.

Summary

In summary, this project is to demonstrate the use of linux commands to find files through directories and change their permissions to certain user groups.