File permissions in Linux

Project description

Ensure users on the team are authorized with the appropriate permissions. Examine existing permissions on the file system. Determine if the permissions match the authorization that should be given. If they do not match, modify the permissions to authorize the appropriate users and remove any unauthorized access.

Check file and directory details

```
researcher2@3f0181f7b660:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:36 ..
-rw--w---- 1 researcher2 research_team   46 Dec 23 03:27 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Dec 23 03:27 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Dec 23 03:27 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Dec 23 03:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_t.txt
researcher2@3f0181f7b660:~/projects$
```

Command “ls -la”: list all files and directories including hidden and include permissions

Describe the permissions string

Example file “preject_k.txt with permission string “-rw-rw-rw-” The first dash means the item is a file. Followed by read and write permissions for the user are allowed but not execute permissions. Read and write permissions for the group are allowed as well but not execute permissions and also read and write permissions for other but no execute permissions.

Change file permissions

```
researcher2@3f0181f7b660:~/projects$ chmod o-w project_k.txt
researcher2@3f0181f7b660:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:36 ..
-rw--w---- 1 researcher2 research_team   46 Dec 23 03:27 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Dec 23 03:27 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Dec 23 03:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_t.txt
researcher2@3f0181f7b660:~/projects$
```

The organization does not allow others to have write permissions. Command used is chmod o-w project_k.txt to remove write permissions for the one file that still had these permissions available.

Change file permissions on a hidden file

```
researcher2@3f0181f7b660:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:36 ..
-rw--w---- 1 researcher2 research_team   46 Dec 23 03:27 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Dec 23 03:27 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Dec 23 03:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_t.txt
researcher2@3f0181f7b660:~/projects$ chmod u-w,g=r .project_x.txt
researcher2@3f0181f7b660:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Dec 23 03:36 ..
-r--r----- 1 researcher2 research_team   46 Dec 23 03:27 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Dec 23 03:27 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Dec 23 03:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_t.txt
researcher2@3f0181f7b660:~/projects$
```

Hidden file “.project_x.txt” should only have read permissions for the user and the group and no access for others. Command used was “chmod o-w, g=r .project_x.txt” o-w removes write access for the user, g=r overwrites the existing write permission to a read permission to save using a third command g+r to add the read permission.

Change directory permissions

```
researcher2@3f0181f7b660:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Dec 23 03:27 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Dec 23 03:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_t.txt
researcher2@3f0181f7b660:~/projects$ chmod g-x drafts
researcher2@3f0181f7b660:~/projects$ ls -l
total 20
drwx------ 2 researcher2 research_team 4096 Dec 23 03:27 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Dec 23 03:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Dec 23 03:27 project_t.txt
researcher2@3f0181f7b660:~/projects$
```

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. Command used to remove current execute permissions to enter the directory by the group is “chmod g-x drafts”.

Summary

In this activity we listed all files and directories in the projects directory and applied the read, write and access permissions outlined in the instructions for the activity.