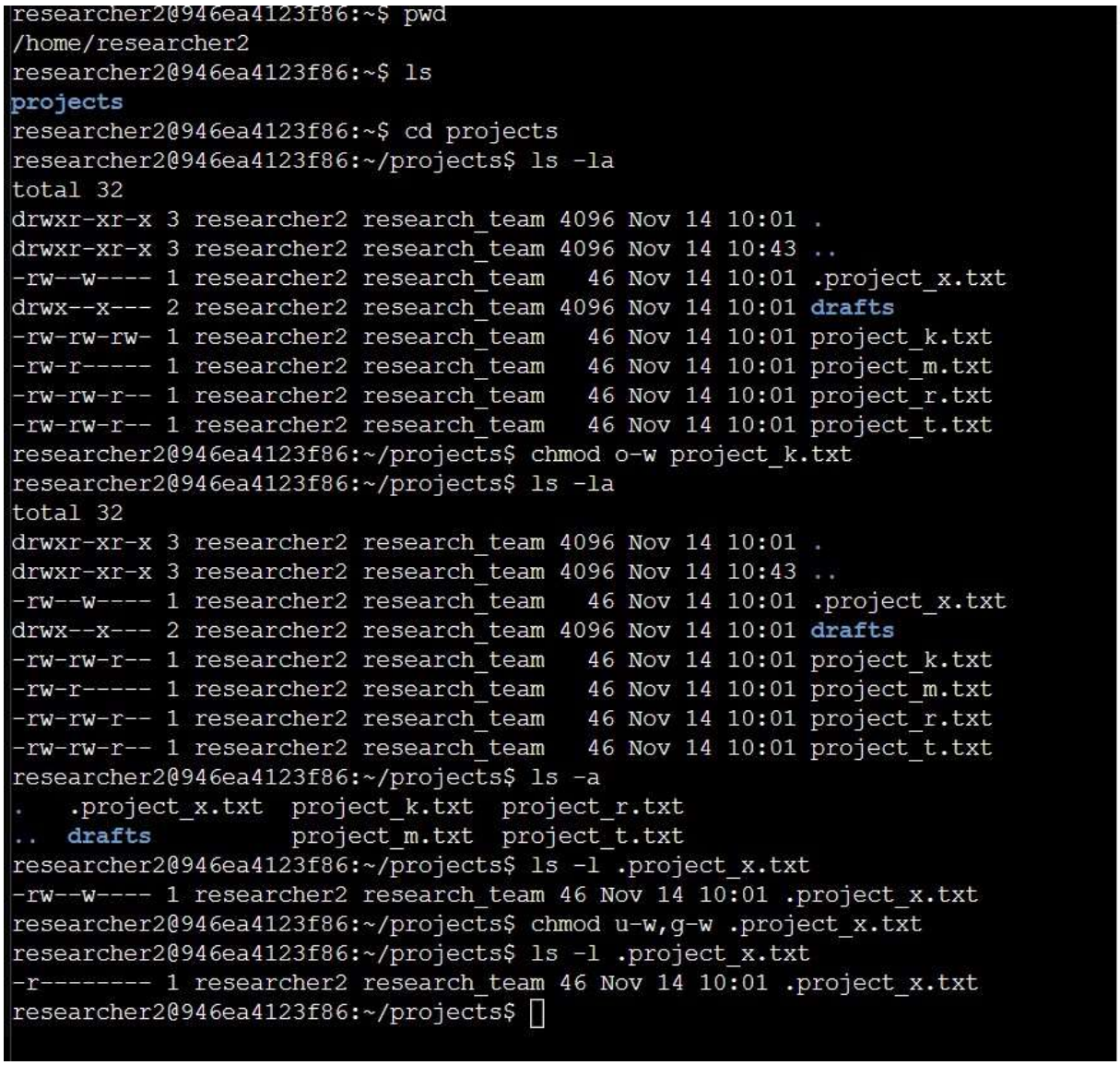
File permissions in Linux

Project description

This project involves demonstrating the utilisation of Linux commands to handle file permissions.
Assignment Objective: To verify if the file permissions align with the required authorization levels. In cases of discrepancies, the task involves modifying the permissions to grant access to appropriate users while removing unauthorised access. This process aims to strictly enforce compliance with the principles of confidentiality, integrity, and authenticity as per company policy.

Check file and directory details

Executing the `***pwd***` command revealed that I'm currently operating within the directory "/home/researcher2," specifically within the "researcher2" directory. Upon using the `***ls***` command, the only file visible within this directory was "projects." By entering the command `***cd projects***`, I navigated into the **"projects"** subdirectory.



Describe the permissions string

The permission string, as depicted below, resulted from the execution of the ***`ls -la`*** command. This command effectively listed all files within the subdirectory, encompassing both regular and hidden files, along with their respective permissions.

The "**drwxrwxrwx**" (a 10-character string) represents the comprehensive permissions allocated to the "user," "group," and "other" categories, governing access to the listed files below.

```
researcher2@946ea4123f86:~$ cd projects
researcher2@946ea4123f86:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Nov 14 10:01 .
drwxr-xr-x 3 researcher2 research_team 4096 Nov 14 10:43 ..
-rw--w---- 1 researcher2 research_team   46 Nov 14 10:01 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Nov 14 10:01 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Nov 14 10:01 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Nov 14 10:01 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 14 10:01 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 14 10:01 project_t.txt
researcher2@946ea4123f86:~/projects$ chmod o-w project_k.txt
researcher2@946ea4123f86:~/projects$ ls -la
```

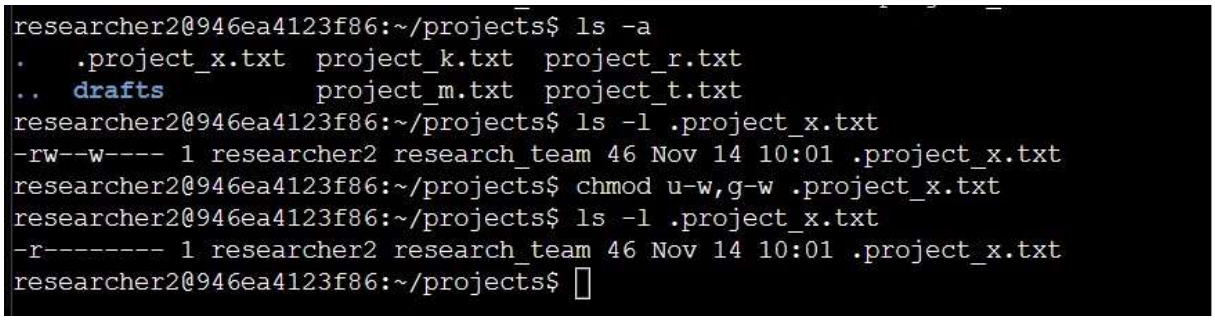
Change file permissions

The company policy prohibits granting "**others**" write permissions. Unfortunately, `project_k.txt` had write permissions assigned to "Others," violating this policy. Executing ***`chmod o-w project_k.txt`*** successfully revoked the write permission for "others" on the file in line with company policy.

```
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Nov 14 10:01 .
drwxr-xr-x 3 researcher2 research_team 4096 Nov 14 10:43 ..
-rw--w---- 1 researcher2 research_team   46 Nov 14 10:01 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Nov 14 10:01 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Nov 14 10:01 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Nov 14 10:01 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 14 10:01 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 14 10:01 project_t.txt
researcher2@946ea4123f86:~/projects$ chmod o-w project_k.txt
researcher2@946ea4123f86:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Nov 14 10:01 .
drwxr-xr-x 3 researcher2 research_team 4096 Nov 14 10:43 ..
-rw--w---- 1 researcher2 research_team   46 Nov 14 10:01 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Nov 14 10:01 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Nov 14 10:01 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Nov 14 10:01 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 14 10:01 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Nov 14 10:01 project_t.txt
```

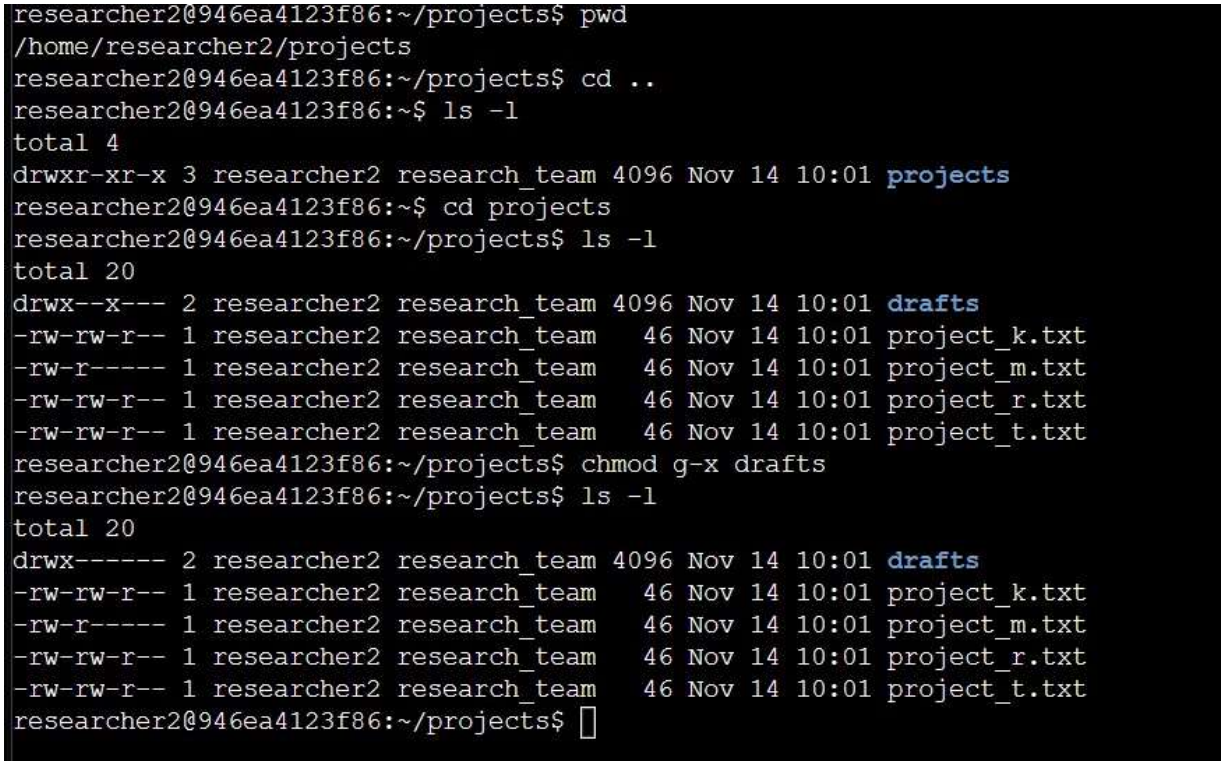
Change file permissions on a hidden file

The `*ls -a*` command reveals hidden files within the **project** sudirectory. Moreover, `*ls -l .project_x.txt*` provides insight into the file permissions. However, in adherence to company policy, **write** permissions should be restricted for this file, allowing only **read access for the user.** By executing `*chmod u-w,g-w .project_x.txt*`, the file's permissions were modified to comply with company policy.



Change directory permissions

Policy dictates that only "researcher2" should have access to **drafts**. However, the existing file permissions indicated that the "group" had execute privileges. Rectifying this, executing `*chmod g-x drafts*` resolved the issue, granting sole authorization to "researcher2" for the file.



Summary

By employing a range of commands, I successfully navigated to the project files, displaying both regular and hidden files alongside their permissions. Leveraging Linux commands, I effectively adjusted permissions within files for "user," "group," and "other" categories to ensure alignment with the company's established policy.