File Permissions in Linux

Project description

Review permissions and modify based on business needs. Ensure only appropriate users, groups, and others have the right permissions to files and directories, including any hidden ones.

Check file and directory details

Using `ls -la` command, this displays all subdirectories and files including hidden ones in the in the projects directory

```
researcher2@2f6332b6e550:~/projects$ ls
 -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 01:17 ..
-rw--w---- 1 researcher2 research_team   46 Jul  3 00:40 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul  3 00:40 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jul  3 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul  3 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_t.txt
researcher2@2f6332b6e550:~/projects$
```

Describe the permissions string

The permissions string for the hidden file (.project_x.txt) is `-rw- -w----` this means this is a file and not a directory due to the hyphen at the beginning of the string, and the user has read, & write permissions, and the group have write permissions, while the others have no permissions.

Change file permissions

Only file named `project_k.txt`, allow its others to have writing access. Using command `chmod o-w project_k.txt` will remove writing privileges from the file:

```
researcher2@2f6332b6e550:~/projects$ chmod o-w project_k.txt
researcher2@2f6332b6e550:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 01:17 ..
-rw--w---- 1 researcher2 research_team   46 Jul  3 00:40 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul  3 00:40 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul  3 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_t.txt
```

Change file permissions on a hidden file

Using command `chmod u-w,g-w,g+r .project_x.txt` will remove writing privileges from the user and the group, while adding reading permissions to the group of the hidden file.

```
researcher2@2f6332b6e550:~/projects$ chmod u-w,g-w,g+r .project_x.txt
researcher2@2f6332b6e550:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 01:17 ..
-r--r----- 1 researcher2 research_team   46 Jul  3 00:40 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul  3 00:40 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul  3 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_t.txt
```

Change directory permissions

Using `command chmod u-rw,g-x` drafts will give the user access to the drafts subdirectory only while removing all other permissions from the user and the group.

```
researcher2@2f6332b6e550:~/projects$ command chmod u-rw,g-x drafts
researcher2@2f6332b6e550:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 00:40 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul  3 01:17 ..
-r--r----- 1 researcher2 research_team   46 Jul  3 00:40 .project_x.txt
d--x------ 2 researcher2 research_team 4096 Jul  3 00:40 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul  3 00:40 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  3 00:40 project_t.txt
```

Conclusion

By analyzing permissions using the ls -la command, I'm able to review all files and directories permissions including any hidden ones. This is important to restrict employees access of information to only a need-to-know basis. Using the chmod command in symbolic then allows me to modify permissions based on the business needs to maintain confidentiality and integrity with the company's internal data.