Project Description In this project, I ensure proper authorization of files and directories in a Linux file system. By using Linux commands, I check existing permissions, interpret permission strings, and update them as needed to maintain security standards. Specifically, I modify file permissions to prevent unauthorized write access, adjust hidden file permissions, and restrict directory access to a specific user.

Check File and Directory Details To check the permissions of files and directories, I use the following command:

ls -la /home/researcher2/projects

This command lists all files, including hidden ones, and displays their permission settings, ownership, and other details.

Describe the Permissions String The permissions for `project_k.txt` are:

-rw-rw-rw- 1 researcher2 researchteam 1024 Mar 20 10:00 project_k.txt

The breakdown of the permission string `-rw-rw-rw-` is as follows:

- `-` : Regular file (not a directory)
- `rw-` : User (owner) has read and write permissions
- `rw-` : Group has read and write permissions
- `rw-` : Others have read and write permissions

Since "others" should not have write access, modifications are needed.

Change File Permissions The organization does not allow others to have write access to any files. To correct this, I use the `chmod` command:

chmod o-w /home/researcher2/projects/project_k.txt

After running this command, the new permissions are:

-rw-rw-r-- 1 researcher2 researchteam 1024 Mar 20 10:00 project_k.txt

Now, "others" can only read the file but not modify it.

Change File Permissions on a Hidden File The `.project_x.txt` file should not have write permissions for anyone, but the user and group should be able to read it. The command used is:

chmod 440 /home/researcher2/projects/.project_x.txt

The updated permissions string is:

-r--r----- 1 researcher2 researchteam 512 Mar 20 10:00 .project_x.txt

Now, the user and group can read the file, but no one can write to it.

Change Directory Permissions The `drafts` directory should only be accessible to `researcher2`. To restrict access, I use:

chmod 700 /home/researcher2/projects/drafts

The new permissions are:

drwx------ 1 researcher2 researchteam 4096 Mar 20 10:00 drafts

Now, only `researcher2` can access, modify, or execute files within this directory.

Summary Through this project, I reviewed and updated file and directory permissions to align with security policies. I used `ls -la` to check permissions, analyzed permission strings, and applied `chmod` to correct unauthorized access. These modifications ensure that sensitive research files are only accessible by the appropriate users while maintaining security best practices.