

Day 11 - File Ownership Challenge (chown and chgrp)

TASK 1 - Understanding Ownership

```
ubuntu@ip-172-31-13-238:~$ ls -l
total 84
-rw-rw-r-- 1 ubuntu ubuntu    22 Jan 29 08:24 access.log
drwxrwxr-x 2 ubuntu ubuntu 4096 Jan 26 14:45 app
-rw-rw-r-- 1 ubuntu ubuntu     0 Jan 27 11:46 checkurl.log
drwxrwxr-x 2 ubuntu ubuntu 4096 Jan 30 11:23 day-6-practice
drwxrwxr-x 3 ubuntu ubuntu 4096 Feb   3 06:43 day10
drwxrwxr-x 3 ubuntu ubuntu 4096 Feb   3 06:54 day10-bkp
-rw-rw-r-- 1 ubuntu ubuntu     0 Feb   3 06:49 devops.txt
-rw-rw-r-- 1 ubuntu ubuntu 15202 Feb   2 17:58 docker_log.txt
-rw-rw-r-- 1 ubuntu ubuntu     0 Jan 29 16:33 file.txt
-rw----- 1 ubuntu ubuntu   419 Jan 31 04:36 linux-for-devops
-rw-r--r-- 1 ubuntu ubuntu   105 Jan 31 04:36 linux-for-devops.pub
-rw-rw-r-- 1 ubuntu ubuntu 15914 Feb   2 17:23 nginx_access_log.txt
-rw-rw-r-- 1 ubuntu ubuntu 17567 Feb   2 17:24 nginx_all_logs
-rw----- 1 ubuntu ubuntu  1059 Jan 29 09:37 nohup.out
ubuntu@ip-172-31-13-238:~$ |
```

In the above screenshot both owner and group of all files is ubuntu column no 3 is owner and column no 4 is group.

Difference between Owner and Group (Linux)

- **Owner:**

The owner is a **single user** who owns the file or directory. The permissions assigned to the owner determine what **that specific user** can do (read, write, execute).

- **Group:**

The group represents a **collection of users**. Any user who belongs to the assigned group can access the file or directory **according to the group permissions**

TASK 2 - Basic chown Operation:

```
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch devops-file.txt
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 root root 0 Feb  3 08:37 devops-file.txt
ubuntu@ip-172-31-13-238:/opt/day11$ chown tokyo devops-file.txt
chown: changing ownership of 'devops-file.txt': Operation not permitted
ubuntu@ip-172-31-13-238:/opt/day11$ sudo chown tokyo devops-file.txt
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 tokyo root 0 Feb  3 08:37 devops-file.txt
ubuntu@ip-172-31-13-238:/opt/day11$ sudo chown berlin devops-file.txt
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 berlin root 0 Feb  3 08:37 devops-file.txt
ubuntu@ip-172-31-13-238:/opt/day11$ |
```

TASK 3 - Basic chgrp Operations:

```
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 berlin root 0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 root    root 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ sudo groupadd hiest-team
ubuntu@ip-172-31-13-238:/opt/day11$ sudo chgrp hiest-team team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 berlin root      0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 root    hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ |
```

TASK 4 - Combined ownership and group change:

```
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 berlin root 0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 root    root 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ sudo groupadd hiest-team
ubuntu@ip-172-31-13-238:/opt/day11$ sudo chgrp hiest-team team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 berlin root      0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 root    hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch project-config.yaml
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 berlin root      0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 root    root    0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root    hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ sudo chown professor:hiest-team project-config.yaml
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 0
-rw-r--r-- 1 berlin    root    0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 professor hiest-team 0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root    hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ mkdir app-logs
mkdir: cannot create directory 'app-logs': Permission denied
ubuntu@ip-172-31-13-238:/opt/day11$ sudo mkdir app-logs
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 4
drwxr-xr-x 2 root    root    4096 Feb  3 08:46 app-logs
-rw-r--r-- 1 berlin    root    0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 professor hiest-team 0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root    hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ |
```

```

ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 4
drwxr-xr-x 2 root      root      4096 Feb  3 08:46 app-logs
-rw-r--r-- 1 berlin    root      0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 professor hiest-team 0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root      hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ chown berlin:hiest-team app-logs
chown: changing ownership of 'app-logs': Operation not permitted
ubuntu@ip-172-31-13-238:/opt/day11$ sudo chown berlin:hiest-team app-logs
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 4
drwxr-xr-x 2 berlin    hiest-team 4096 Feb  3 08:46 app-logs
-rw-r--r-- 1 berlin    root      0 Feb  3 08:37 devops-file.txt
-rw-r--r-- 1 professor hiest-team 0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root      hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ |

```

TASK 5 - Recursive Operations

```

ubuntu@ip-172-31-13-238:/opt/day11$ sudo mkdir -p hiest-project/vault
ubuntu@ip-172-31-13-238:/opt/day11$ sudo mkdir -p hiest-project/plans
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch hiest-project/vault/gold.txt
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch hiest-project/plans/strategy.conf
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 8
drwxr-xr-x 2 berlin    hiest-team 4096 Feb  3 08:46 app-logs
-rw-r--r-- 1 berlin    root      0 Feb  3 08:37 devops-file.txt
drwxr-xr-x 4 root      root      4096 Feb  3 08:51 hiest-project
-rw-r--r-- 1 professor hiest-team 0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root      hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ cd hiest-project/
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project$ ls -l
total 8
drwxr-xr-x 2 root      root      4096 Feb  3 08:52 plans
drwxr-xr-x 2 root      root      4096 Feb  3 08:51 vault
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project$ cd vault/
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/vault$ ls -l
total 0
-rw-r--r-- 1 root      root      0 Feb  3 08:51 gold.txt
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/vault$ cd ../plans
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/plans$ ls -l
total 0
-rw-r--r-- 1 root      root      0 Feb  3 08:52 strategy.conf
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/plans$ |

```

```

ubuntu@ip-172-31-13-238:/opt/day11$ sudo groupadd planners
ubuntu@ip-172-31-13-238:/opt/day11$ sudo chown -R professor:planners hiest-project/
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 8
drwxr-xr-x 2 berlin    hiest-team 4096 Feb  3 08:46 app-logs
-rw-r--r-- 1 berlin    root      0 Feb  3 08:37 devops-file.txt
drwxr-xr-x 4 professor  planners  4096 Feb  3 08:51 hiest-project
-rw-r--r-- 1 professor hiest-team 0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root      hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ cd hiest-project/
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project$ ls -l
total 8
drwxr-xr-x 2 professor  planners  4096 Feb  3 08:52 plans
drwxr-xr-x 2 professor  planners  4096 Feb  3 08:51 vault
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project$ cd vault/
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/vault$ ls -l
total 0
-rw-r--r-- 1 professor planners 0 Feb  3 08:51 gold.txt
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/vault$ cd ../plans/
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/plans$ ls -l
total 0
-rw-r--r-- 1 professor planners 0 Feb  3 08:52 strategy.conf
ubuntu@ip-172-31-13-238:/opt/day11/hiest-project/plans$ |

```

```

ubuntu@ip-172-31-13-238:/opt/day11$ ls -lR hiest-project/
hiest-project/:
total 8
drwxr-xr-x 2 professor planners 4096 Feb  3 08:52 plans
drwxr-xr-x 2 professor planners 4096 Feb  3 08:51 vault

hiest-project/plans:
total 0
-rw-r--r-- 1 professor planners 0 Feb  3 08:52 strategy.conf

hiest-project/vault:
total 0
-rw-r--r-- 1 professor planners 0 Feb  3 08:51 gold.txt
ubuntu@ip-172-31-13-238:/opt/day11$
```

TASK 6 - Practice Challenge

```

ubuntu@ip-172-31-13-238:/opt/day11$ sudo groupadd vault-team
ubuntu@ip-172-31-13-238:/opt/day11$ sudo groupadd tech-team
ubuntu@ip-172-31-13-238:/opt/day11$ sudo mkdir bank-heist
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l
total 12
drwxr-xr-x 2 berlin    hiest-team 4096 Feb  3 08:46 app-logs
drwxr-xr-x 2 root      root       4096 Feb  3 09:00 bank-heist
-rw-r--r-- 1 berlin    root       0 Feb  3 08:37 devops-file.txt
drwxr-xr-x 4 professor planners 4096 Feb  3 08:51 hiest-project
-rw-r--r-- 1 professor hiest-team 0 Feb  3 08:45 project-config.yaml
-rw-r--r-- 1 root      hiest-team 0 Feb  3 08:42 team-notes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ cd bank-heist/
ubuntu@ip-172-31-13-238:/opt/day11/bank-heist$ cd ..
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch bank-heist/access-codes.txt
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch bank-heist/blueprints.pdf
ubuntu@ip-172-31-13-238:/opt/day11$ sudo touch bank-heist/escape-plan.txt
ubuntu@ip-172-31-13-238:/opt/day11$ cd bank-heist/
ubuntu@ip-172-31-13-238:/opt/day11/bank-heist$ ls -l
total 0
-rw-r--r-- 1 root root 0 Feb  3 09:01 access-codes.txt
-rw-r--r-- 1 root root 0 Feb  3 09:01 blueprints.pdf
-rw-r--r-- 1 root root 0 Feb  3 09:02 escape-plan.txt
```

```

ubuntu@ip-172-31-13-238:/opt/day11/bank-heist$ sudo chown tokyo:vault-team access-codes.txt
ubuntu@ip-172-31-13-238:/opt/day11/bank-heist$ sudo chown berlin:tech-team blueprints.pdf
ubuntu@ip-172-31-13-238:/opt/day11/bank-heist$ sudo chown nairobi:vault-team escape-plan.txt
ubuntu@ip-172-31-13-238:/opt/day11/bank-heist$ cd ..
ubuntu@ip-172-31-13-238:/opt/day11$ ls -l bank-heist/
total 0
-rw-r--r-- 1 tokyo  vault-team 0 Feb  3 09:01 access-codes.txt
-rw-r--r-- 1 berlin  tech-team  0 Feb  3 09:01 blueprints.pdf
-rw-r--r-- 1 nairobi vault-team 0 Feb  3 09:02 escape-plan.txt
ubuntu@ip-172-31-13-238:/opt/day11$ |
```

From this practice, I learned how to manage **ownership and permissions** of files and directories in Linux.