2- Add and manage users with Linux commands

Task 1. Add a new user

A new employee has joined the Research department. In this task, you must add them to the system. The username assigned to them is `researcher9`.

Next, you need to add the new user to the `research_team` group.

```
analyst@c366d8131a4b:~$ sudo useradd researcher9
analyst@c366d8131a4b:~$ sudo usermod -g research_team researcher9
```

1- User Creation: I used the command `sudo useradd researcher9` to create the new user account on the system. This command sets up the necessary environment for the user, including creating a home directory.

2- Group Assignment: Following the user creation, I added `researcher9` to the `research_team` group as required by the organization. This was done using the command `sudo usermod -g research_team researcher9`, which assigns `research_team` as the primary group for `researcher9`.

Task 2. Assign file ownership

The new employee, `researcher9`, will take responsibility for `project_r`. In this task, you must make them the owner of the `project_r.txt` file.

The `project_r.txt` file is located in the `/home/researcher2/projects` directory, and owned by the `researcher2` user.

```
analyst@c366d8131a4b:/home/researcher2/projects$ sudo chown researcher9 project_r.txt
analyst@c366d8131a4b:/home/researcher2/projects$ ls -l
total 4
-rw-rw-r-- 1 researcher9 research_team 46 Aug 24 13:43 project_r.txt
```

I used the command `sudo chown researcher9 /home/researcher2/projects/project_r.txt` to change the ownership of the `project_r.txt` file to `researcher9`. The `chown` command effectively transfers file ownership, ensuring that the new owner has the appropriate permissions to manage the file.

Task 3. Add the user to a secondary group

A couple of months later, this employee's role at the organization has changed, and they are working in both the Research and the Sales departments.

```
analyst@c366d8131a4b:~$ sudo usermod -aG sales_team researcher9
analyst@c366d8131a4b:~$ groups researcher9
researcher9 : research_team sales_team
```

1- I used the command `sudo usermod -aG sales_team researcher9` to append `researcher9` to the `sales_team` group. The `-aG` option ensures that the user is added to the `sales_team` group without removing them from their existing group (`research_team`).

2- Verification: I confirmed the group memberships by running the command `groups researcher9`. The output showed that `researcher9` is now a member of both `research_team` (primary group) and `sales_team` (secondary group).

Task 4. Delete a user

A year later, `researcher9`, decided to leave the company. In this task, you must remove them from the system.

```
analyst@c366d8131a4b:~$ sudo userdel researcher9
userdel: group researcher9 not removed because it is not the primary group of user researcher9.
analyst@c366d8131a4b:~$ sudo groupdel researcher9
analyst@c366d8131a4b:~$ []
```

1- User Deletion: I executed the command `sudo userdel researcher9` to remove the user account. During this process, a standard error message appeared, which is typical when the user's primary group shares the same name as the user and is still present on the system.

2- Group Cleanup: To maintain a clean system, I removed the now-empty group associated with `researcher9` using the command `sudo groupdel researcher9`. This step ensures that no orphaned groups are left behind after user removal.