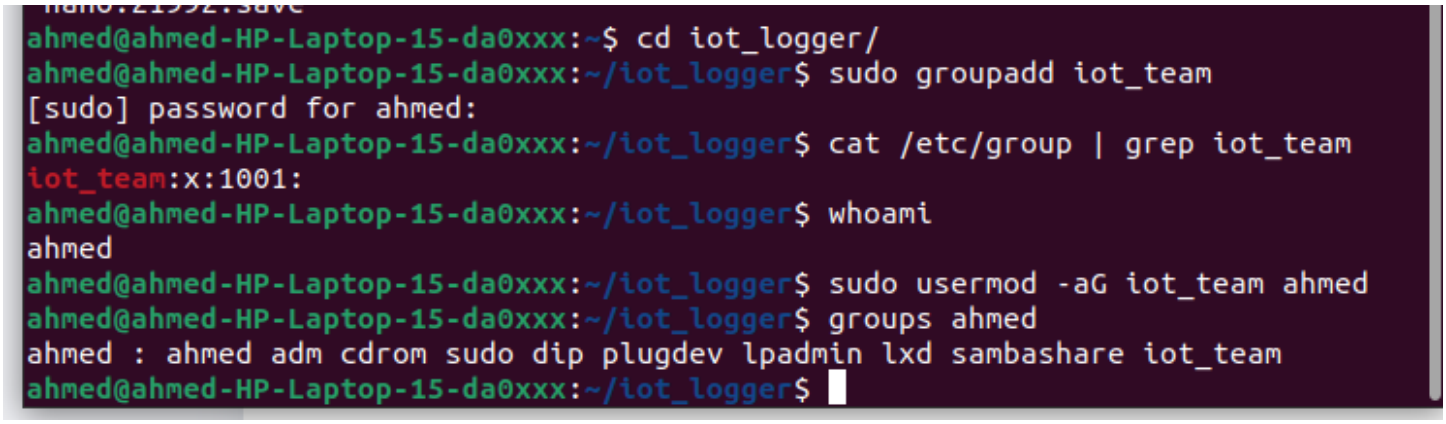
Name : Ahmed Khaled Abdelmaksod

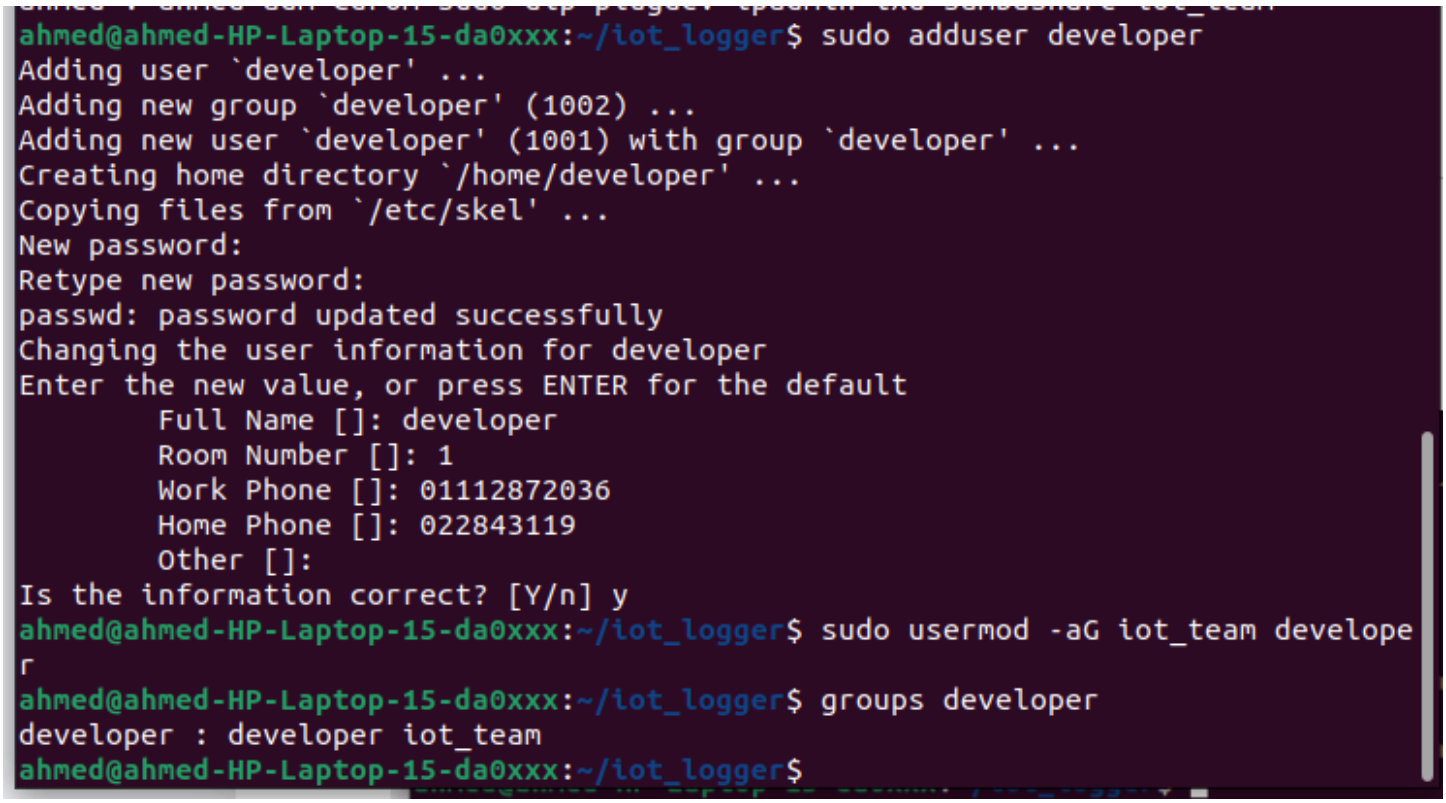
Group : IOT_701_O

DAY3

Create a new group iot_team and add your user to it.



Create a new developer user, add it to the group.



Change ownership of iot_logger to the developer + group.

```
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ sudo chown developer:iot_team iot_logger
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ ls -l iot_logger/
total 12
drwxrwxr-x 2 ahmed ahmed 4096 Aug 31 16:26 data
-rw-rw-r-- 2 ahmed ahmed    0 Aug 31 16:23 hard.log
drwxrwxr-x 2 ahmed ahmed 4096 Aug 31 16:23 logs
drwxrwxr-x 2 ahmed ahmed 4096 Aug 31 16:24 scripts
lrwxrwxrwx 1 ahmed ahmed   20 Aug 31 16:50 soft.log -> logs/temperature.log
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ ls -l
total 919760
-rw-rw-r--  1 ahmed     ahmed     10826975 Aug 16 21:11 '2025-08-16 21-10-59.mkv
```

```
drwxrwxr-x  5 developer iot_team      4096 Aug 31 16:50  iot_logger
```

Set permissions: group can read/write logs, others blocked.

```
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ chmod 660 logs/
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ ls -l
total 12
drwxrwxr-x 2 ahmed ahmed 4096 Aug 31 16:26 data
-rw-rw-r-- 2 ahmed ahmed    0 Aug 31 16:23 hard.log
drw-rw---- 2 ahmed ahmed 4096 Aug 31 16:23 logs
drwxrwxr-x 2 ahmed ahmed 4096 Aug 31 16:24 scripts
lrwxrwxrwx 1 ahmed ahmed   20 Aug 31 16:50 soft.log -> logs/temperature.l
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ ls -ld
drwxrwxr-x 5 developer iot_team 4096 Aug 31 16:50 .
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ ls -ld logs/
drw-rw---- 2 ahmed ahmed 4096 Aug 31 16:23 logs/
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$
```

Test access as new user, then remove test user.

```
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ ls -l logs/
total 0
-rw-rw-r-- 2 ahmed ahmed 0 Aug 31 16:23 temperature.log
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ cat logs/temperature.log
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ nano logs/temperature.log
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ su - ahmed
Password:
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ cd /opt/
google/     iot_shared/ microsoft/  ros/        st/
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ cd /opt/iot_shared/
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ sudo chown -R developer:iot_tea
m logs/
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ su - developer
Password:
developer@ahmed-HP-Laptop-15-da0xxx:~$ cd /opt/iot_shared/
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ nano logs/temperature.log
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ cat logs/temperature.log
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ nano logs/temperature.log
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ cat logs/temperature.log
Temp : 20 c
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ ls -l logs/
total 4
-rw-rw-r-- 2 developer iot_team 12 Sep  2 23:17 temperature.log
developer@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ su - ahmed
Password:
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ cd /opt/iot_shared/
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ nano logs/temperature.log
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ cat logs/temperature.log
Temp : 20 c
Temp : 21 c

ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ ls -l logs
total 4
-rw-rw-r-- 2 developer iot_team 25 Sep  2 23:18 temperature.log
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$
```

How do Linux file permissions (r, w, x) work for files vs directories? Give an example using ls -l.

for file :

r → we can read the content of the file

w → we can modify or delete the file

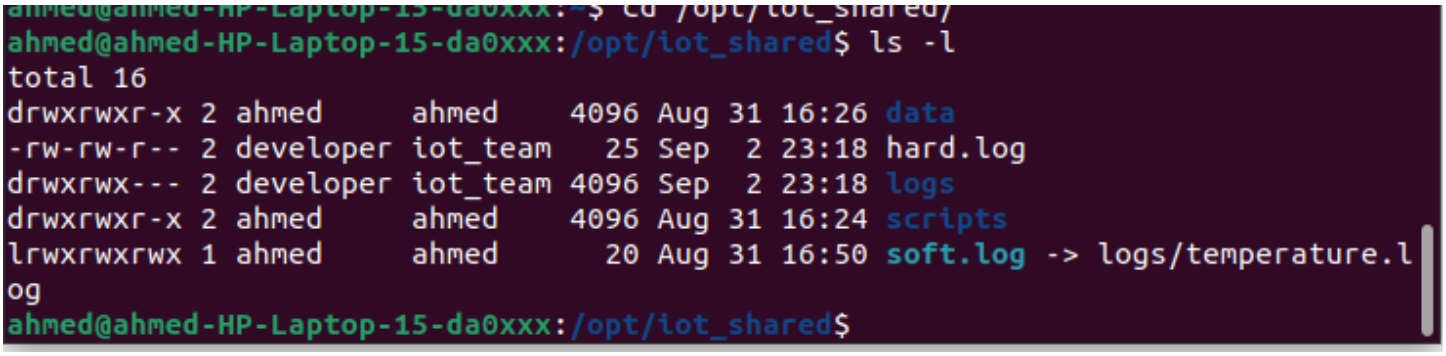
x → we can run it as a program

for directory :

r → we can list the directory content

w → we can create, delete or update file names inside the directory

x → we can enter the directory and access files inside it.



Explain octal notation for permissions and what the umask command does. Give one calculation example.

we will use octal notation to determind the permissions for user, group and other.

the notation u+g+o first we determind the user permissions then group then others

rwx → mapped to 8 notations if we want to read then set bit r to 1 so the number will be 4 base 8
example : rw-rwx--- => 110 111 000 => 670

- we will use umask command to remove the unwanted permission
  umask 020 => 670 - 020 = 650

What is the difference between the root user and a normal user? Why is root considered dangerous?

root user has all privilage on the system but normal user has limited access. so root will be dangerous as it can do any thing even harmful ones without any check