

Name : Ahmed Khaled Abdelmaksod

Group : IOT_701_O

DAY3

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

```
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ cd iot_logger/  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ sudo groupadd iot_team  
[sudo] password for ahmed:  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ cat /etc/group | grep iot_team  
iot_team:x:1001:  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ whoami  
ahmed  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ sudo usermod -aG iot_team ahmed  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ groups ahmed  
ahmed : ahmed adm cdrom sudo dip plugdev lpadmin lxd sambashare iot_team  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$
```

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

```
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ sudo adduser developer  
Adding user `developer' ...  
Adding new group `developer' (1002) ...  
Adding new user `developer' (1001) with group `developer' ...  
Creating home directory `/home/developer' ...  
Copying files from `/etc/skel' ...  
New password:  
Retype new password:  
passwd: password updated successfully  
Changing the user information for developer  
Enter the new value, or press ENTER for the default  
Full Name []: developer  
Room Number []: 1  
Work Phone []: 01112872036  
Home Phone []: 022843119  
Other []:  
Is the information correct? [Y/n] y  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ sudo usermod -aG iot_team developer  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$ groups developer  
developer : developer iot_team  
ahmed@ahmed-HP-Laptop-15-da0xxx:~/iot_logger$
```

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/
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ cd /opt/iot_shared/
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ sudo chown -R developer:iot_team 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.

```
ahmed@ahmed-HP-Laptop-15-da0xxx:~$ cd /opt/iot_shared/
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$ ls -l
total 16
drwxrwxr-x 2 ahmed ahmed 4096 Aug 31 16:26 data
-rw-rw-r-- 2 developer iot_team 25 Sep 2 23:18 hard.log
drwxrwx--- 2 developer iot_team 4096 Sep 2 23:18 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
og
ahmed@ahmed-HP-Laptop-15-da0xxx:/opt/iot_shared$
```

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