

Step 1. Create three groups- employee, payroll, and admin. (You may refer to the slides for week-4 – Group Management)

```
(ammar@kali)-[~]
$ sudo groupadd employee
[sudo] password for ammar:

(ammar@kali)-[~]
$ sudo groupadd payroll

(ammar@kali)-[~]
$ sudo groupadd admin
```

Step 2. Create three user accounts with a specified home directory for Sophia, Olivia, and Emma. Set the primary group for Sophia, Olivia, and Emma to "employee", "payroll", and "admin", respectively. And change their login shell to /bin/bash. Don't forget to set their passwords.

```
(ammar@kali)-[~]
$ sudo useradd -m Sophia

(ammar@kali)-[~]
$ sudo passwd Sophia
New password:
Retype new password:
passwd: password updated successfully
```

```
(ammar@kali)-[~]
$ sudo useradd -m Olivia
```

```
(ammar@kali)-[~]
$ sudo passwd Olivia
New password:
Retype new password:
passwd: password updated successfully
```

```
(ammar@kali)-[~]
$ sudo useradd -m Emma
```

```
(ammar@kali)-[~]
$ sudo passwd Emma
New password:
Retype new password:
passwd: password updated successfully
```

```
(ammar@kali)-[~]
$ sudo usermod -aG employee,payroll,admin Sophia

(ammar@kali)-[~]
$ sudo usermod -aG employee,payroll,admin Olivia

(ammar@kali)-[~]
$ sudo usermod -aG employee,payroll,admin Emma
```

```

(ammarr@kali)-[~]
$ sudo chsh -s /bin/bash Sophia

(ammarr@kali)-[~]
$ sudo chsh -s /bin/bash Olivia

(ammarr@kali)-[~]
$ sudo chsh -s /bin/bash Emma

```

Step 3. Create a shared group called "your_midas" (replace it with your MIDAS name) and set this shared group as the above accounts' secondary group. After this step, remember to check each user's group profile.

```

(ammarr@kali)-[~]
$ sudo groupadd asham1234

```

```

(ammarr@kali)-[~]
$ sudo usermod -aG asham2108 Sophia
usermod: group 'asham2108' does not exist

(ammarr@kali)-[~]
$ sudo usermod -aG asham1234 Sophia

(ammarr@kali)-[~]
$ sudo usermod -aG asham1234 Olivia

(ammarr@kali)-[~]
$ sudo usermod -aG asham1234 Emma

(ammarr@kali)-[~]
$ groups Sophia
Sophia : employee payroll admin asham1234

(ammarr@kali)-[~]
$ groups Olivia
Olivia : employee payroll admin asham1234

(ammarr@kali)-[~]
$ groups Emma
Emma : Emma employee payroll admin asham1234

```

I tried to remove Emma from the Emma group, but for some reason it didn't work? Not sure how it got there in the beginning.

Step 4. Create a directory named /home/cyse_project, which is to be owned by the "your_midas" group which is a shared group). After this step, remember to check the permission of this shared directory.

```

(ammar@kali)-[~]
$ sudo mkdir /home/cyse_project

(ammar@kali)-[~]
$ sudo chown :asham1234 /home/cyse_project

(ammar@kali)-[~]
$ ls -l /home/cyse_project
total 0

```

Step 5. Change the permissions of the /home/cyse_project directory to "rwxrwx---" using the octal method so that only the project group members have access to this directory. After this step, remember to check the permission of this shared directory.

```

(ammar@kali)-[~]
$ sudo chmod 770 /home/cyse_project

(ammar@kali)-[~]
$ ls -ld /home/cyse_project
drwxrwx--- 2 root asham1234 4096 Feb 28 11:44 /home/cyse_project

```

Step 6. Switch to Sophia's account. Change the default permissions using octal method with umask command, to "rw-r-----" for Sophia when she creates a file or directory. Check the value of umask, and permission of a new file after this step.

```

(ammar@kali)-[~]
$ su Sophia
Password:
(Sophia@kali)-[/home/ammam]
$ umask 027

(Sophia@kali)-[/home/ammam]
$ umask
0027

```

Step 7. Create a new file called "Sophia_homework" in the home directory of Sophia and put your name in the file as content. After this step, remember to check the content and the permission of the new file. (ls -l Sophia_homework)

```

(Sophia@kali)-[~]
$ touch Sophia_homework

(Sophia@kali)-[~]
$ nano Sophia_homework

(Sophia@kali)-[~]
$ ls -l Sophia_homework
-rw-r----- 1 Sophia employee 16 Feb 28 12:16 Sophia_homework

```

Step 8. Copy "Sophia_homework" to the /home/cyse_project directory. After this step, remember to check the permission of the file in the shared directory.

```
(Sophia@kali)-[~]
$ cp Sophia_homework /home/cyse_project

(Sophia@kali)-[~]
$ ls -l
total 4
-rw-r----- 1 Sophia employee 16 Feb 28 12:16 Sophia_homework
```

Step 9. Switch to Emma's account. Try to read "Sophia_homework" in the /home/cyse_project Directory.

```
(ammar@kali)-[~]
$ su Emma
Password:
(Emma@kali)-[/home/ammar]
$ cd /home/cyse_project

(Emma@kali)-[/home/cyse_project]
$ ls
Sophia_homework

(Emma@kali)-[/home/cyse_project]
$ cat Sophia_homework
cat: Sophia_homework: Permission denied
```

Step 10. Exit out of Emma's account and Sophia's account.

```
(Emma@kali)-[/home/cyse_project]
$ exit
exit

(ammar@kali)-[~]
$
```

Task B: Set SGID permission (15 points)

Step 1. Switch to root or the regular user's account. To allow group members to access the files shared in the shared directory, you need to fix the sharing issue by setting the correct SGID group values to /home/cyse_project directory.

```
(ammar@kali)-[~]  
$ sudo chmod g+s /home/cyse_project
```

Step 2. Switch to Sophia's account. Copy "Sophia_homework" to the /home/cyse_project directory as "Sophia_homework2".

```
(Sophia@kali)-[~]  
$ cp Sophia_homework /home/cyse_project/Sophia_homework2
```

Step 3. Switch to Emma's account. Try to read "Sophia_homework2" in the /home/cyse_project directory.

```
(Emma@kali)-[/home/cyse_project]  
$ ls -l  
total 8  
-rw-r----- 1 Sophia employee 16 Feb 28 14:58 Sophia_homework  
-rw-r----- 1 Sophia asham1234 16 Feb 28 16:02 Sophia_homework2  
  
(Emma@kali)-[/home/cyse_project]  
$ cat Sophia_homework2  
Ammar Shamsheer
```

Task C: Unset SGID permissions (15 points)

Step 1. Switch to root the regular user's account. To disallow group members to access the files in the shared folder, you need to fix the sharing issue by setting the correct SGID group values to /home/cyse_project directory to remove the group user read permission.

```
(ammar@kali)-[~]  
$ sudo chmod g-s /home/cyse_project
```

Step 2. Switch to Sophia's account. Copy "Sophia_homework" to the /home/cyse_project directory as "Sophia_homework3".

```
(Sophia@kali)-[~]  
$ cp Sophia_homework /home/cyse_project/Sophia_homework3
```

Step 3. Switch to Olivia's account. Try to read "Sophia_homework3" in the /home/cyse_project directory.

```
(olivia@kali)-[/home/cyse_project]
```

```
$ ls -l
```

```
total 12
```

```
-rw-r----- 1 Sophia employee 16 Feb 28 14:58 Sophia_homework  
-rw-r----- 1 Sophia asham1234 16 Feb 28 16:02 Sophia_homework2  
-rw-r----- 1 Sophia employee 16 Feb 28 16:16 Sophia_homework3
```

```
(olivia@kali)-[/home/cyse_project]
```

```
$ cat Sophia_homework3
```

```
Ammar Shamsheer
```