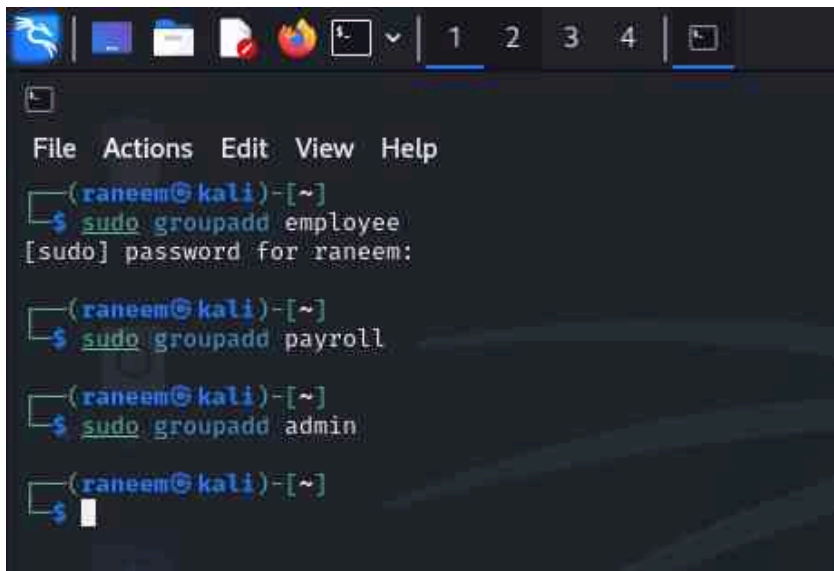


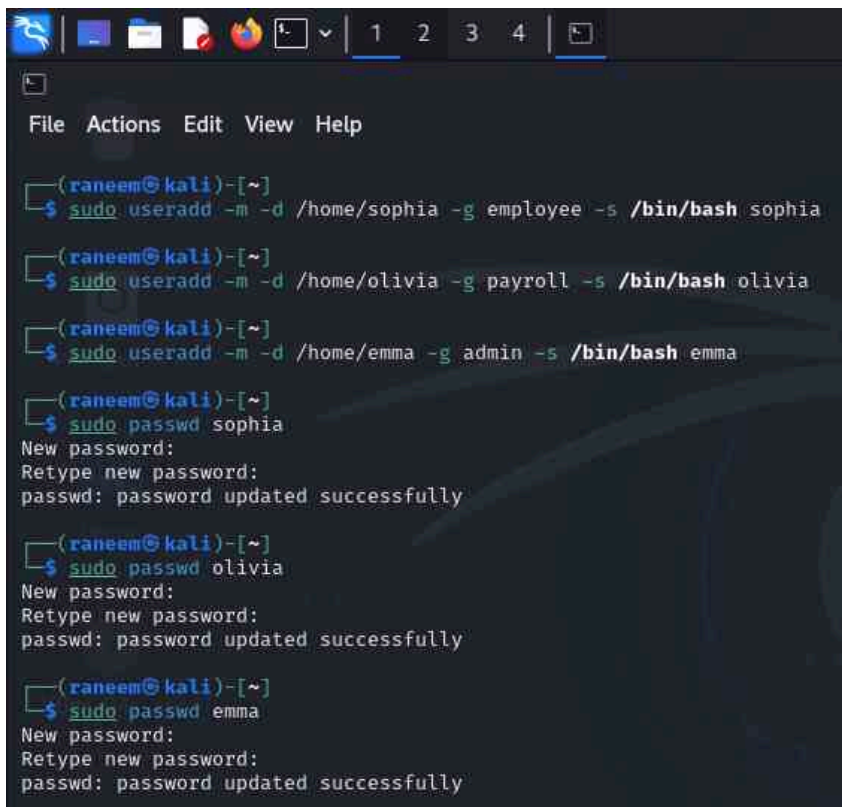
TASK A – Get Accounts and Groups Ready

Step 1: Create three groups- employee, payroll, and admin



```
(raneem@kali)-[~]
└─$ sudo groupadd employee
[sudo] password for raneem:
(raneem@kali)-[~]
└─$ sudo groupadd payroll
(raneem@kali)-[~]
└─$ sudo groupadd admin
(raneem@kali)-[~]
└─$
```

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



```
(raneem@kali)-[~]
└─$ sudo useradd -m -d /home/sophia -g employee -s /bin/bash sophia
(raneem@kali)-[~]
└─$ sudo useradd -m -d /home/olivia -g payroll -s /bin/bash olivia
(raneem@kali)-[~]
└─$ sudo useradd -m -d /home/emma -g admin -s /bin/bash emma
(raneem@kali)-[~]
└─$ sudo passwd sophia
New password:
Retype new password:
passwd: password updated successfully
(raneem@kali)-[~]
└─$ sudo passwd olivia
New password:
Retype new password:
passwd: password updated successfully
(raneem@kali)-[~]
└─$ sudo passwd emma
New password:
Retype new password:
passwd: password updated successfully
```

Step 3: Create a shared group called "your_midass" (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

A terminal window on a Kali Linux system showing the process of creating a shared group and assigning it to three users. The terminal output is as follows:

```
(raneem@kali)-[~]
└─$ sudo groupadd ralar002

(raneem@kali)-[~]
└─$ sudo usermod -aG ralar002 sophia

(raneem@kali)-[~]
└─$ sudo usermod -aG ralar002 olivia

(raneem@kali)-[~]
└─$ sudo usermod -aG ralar002 emma

(raneem@kali)-[~]
└─$ groups sophia
sophia : employee ralar002

(raneem@kali)-[~]
└─$ groups olivia
olivia : payroll ralar002

(raneem@kali)-[~]
└─$ groups emma
emma : admin ralar002

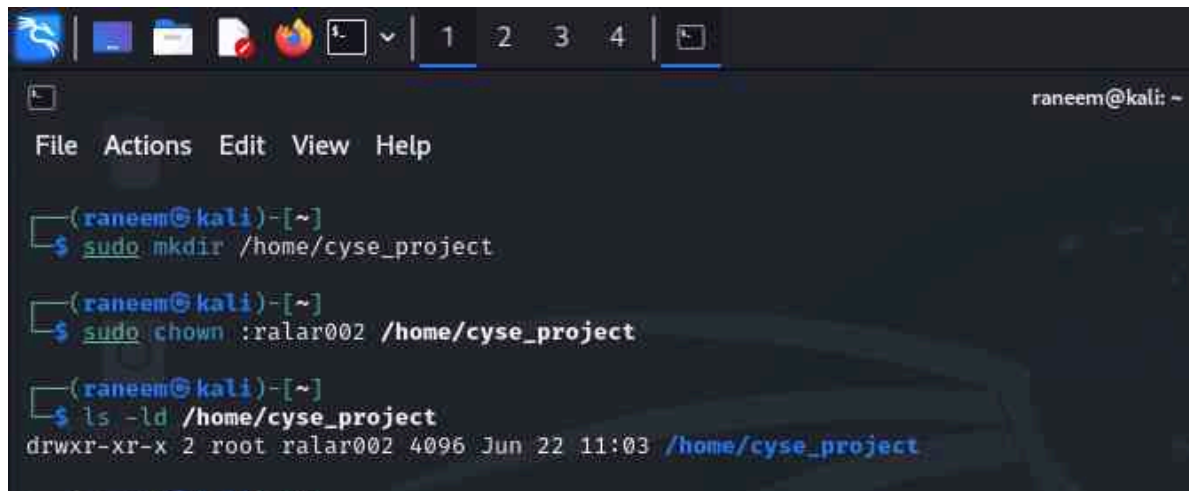
(raneem@kali)-[~]
└─$ id sophia
uid=1007(sophia) gid=1007(employee) groups=1007(employee),1010(ralar002)

(raneem@kali)-[~]
└─$ id olivia
uid=1008(olivia) gid=1008(payload) groups=1008(payload),1010(ralar002)

(raneem@kali)-[~]
└─$ id emma
uid=1009(emma) gid=1009(admin) groups=1009(admin),1010(ralar002)

(raneem@kali)-[~]
└─$
```

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

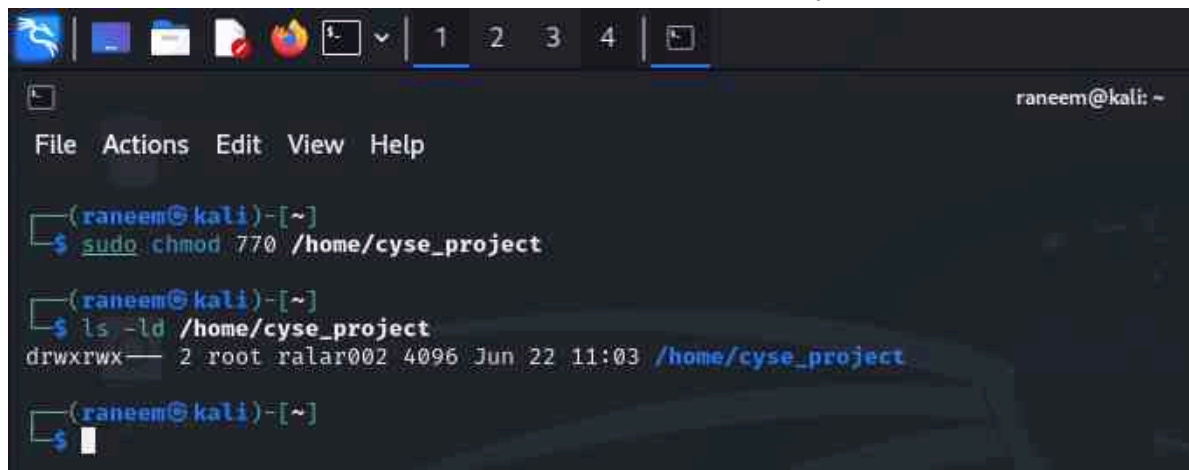


```
(raneem@kali)-[~]
└─$ sudo mkdir /home/cyse_project

(raneem@kali)-[~]
└─$ sudo chown :ralar002 /home/cyse_project

(raneem@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxr-xr-x 2 root ralar002 4096 Jun 22 11:03 /home/cyse_project
```

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

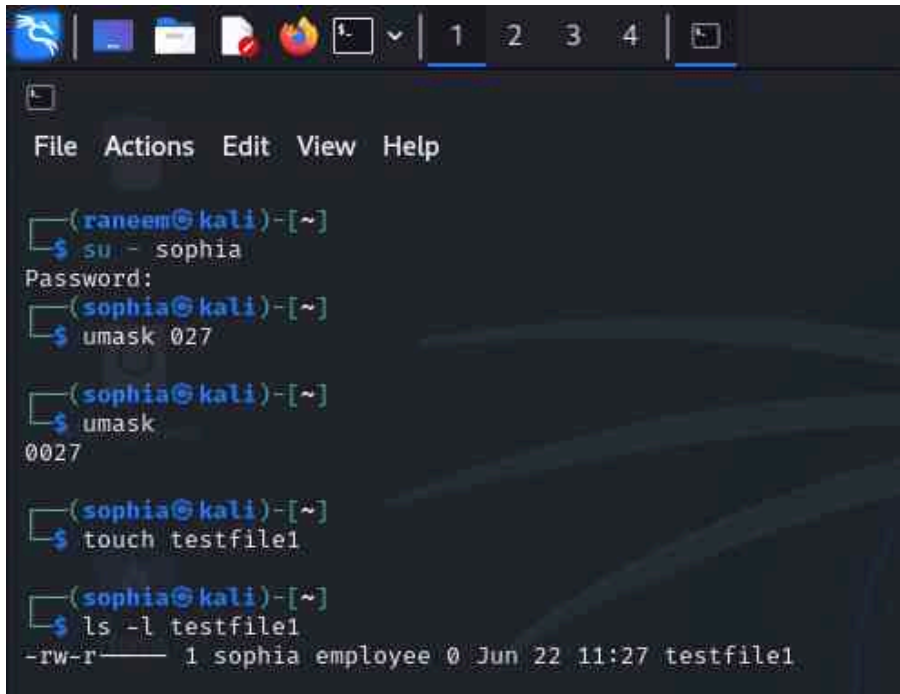


```
(raneem@kali)-[~]
└─$ sudo chmod 770 /home/cyse_project

(raneem@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxrwx--- 2 root ralar002 4096 Jun 22 11:03 /home/cyse_project

(raneem@kali)-[~]
└─$
```

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



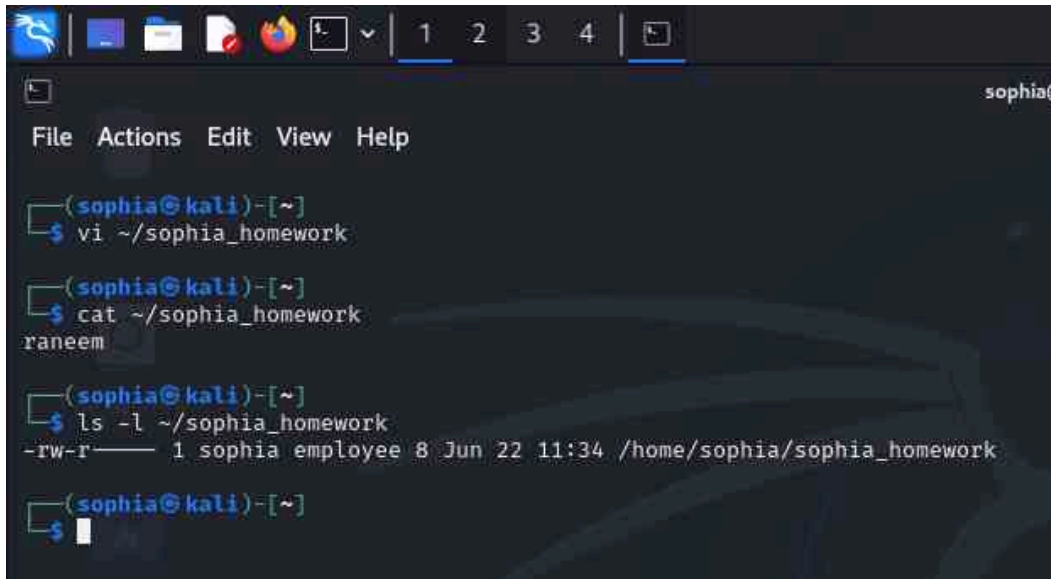
```
(raneem@kali)-[~]
└─$ su - sophia
Password:
(sophia@kali)-[~]
└─$ umask 027

(sophia@kali)-[~]
└─$ umask
0027

(sophia@kali)-[~]
└─$ touch testfile1

(sophia@kali)-[~]
└─$ ls -l testfile1
-rw-r----- 1 sophia employee 0 Jun 22 11:27 testfile1
```

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



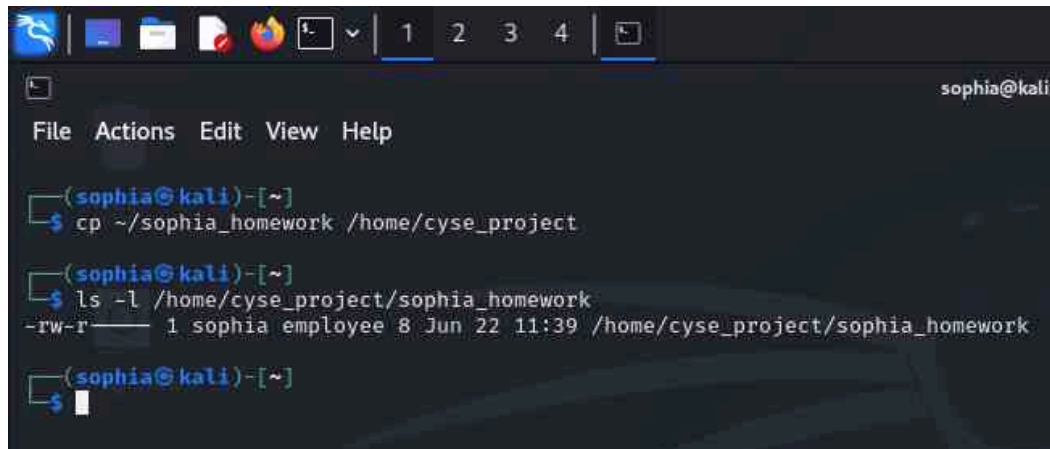
```
(sophia@kali)-[~]
└─$ vi ~/sophia_homework

(sophia@kali)-[~]
└─$ cat ~/sophia_homework
raneem

(sophia@kali)-[~]
└─$ ls -l ~/sophia_homework
-rw-r----- 1 sophia employee 8 Jun 22 11:34 /home/sophia/sophia_homework

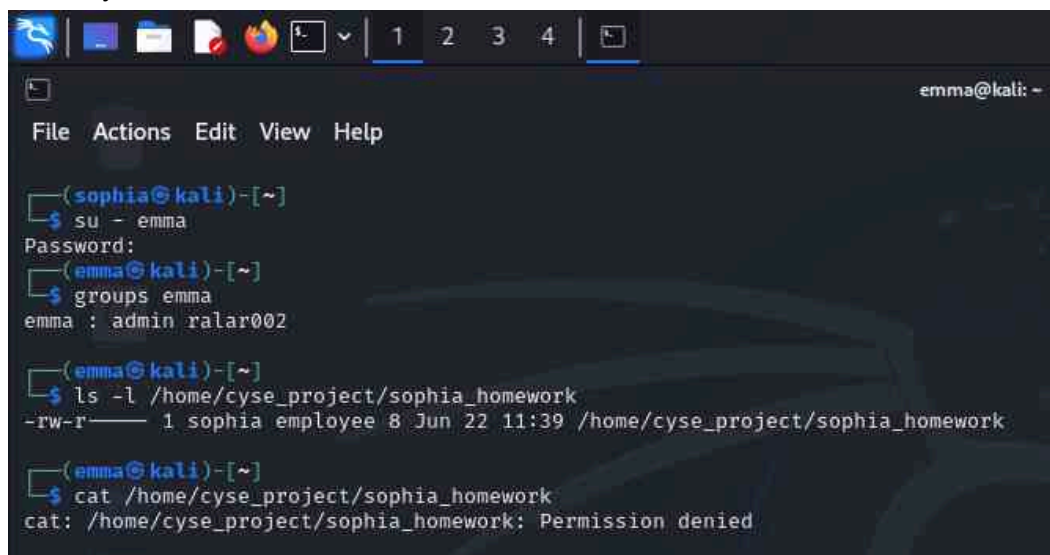
(sophia@kali)-[~]
└─$
```

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



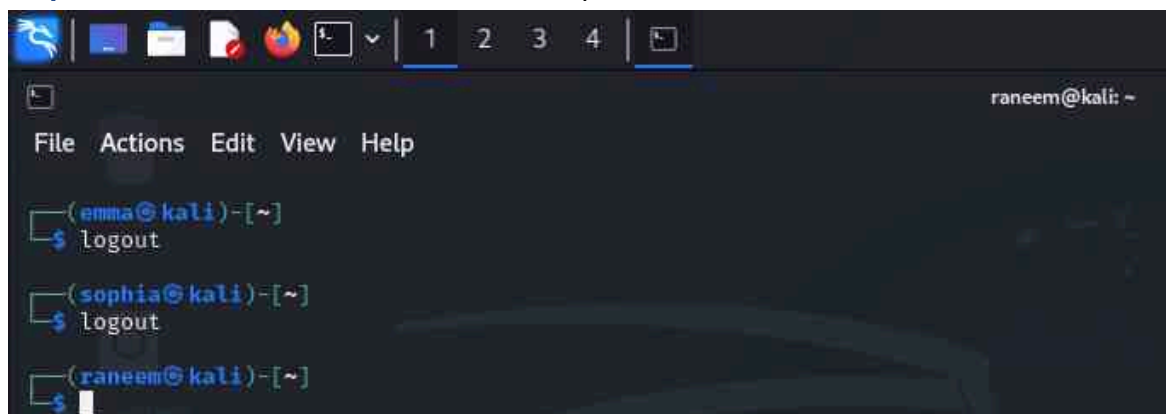
```
sophia@kali: ~  
File Actions Edit View Help  
(sophia@kali)-[~]  
└─$ cp ~/sophia_homework /home/cyse_project  
  
(sophia@kali)-[~]  
└─$ ls -l /home/cyse_project/sophia_homework  
-rw-r----- 1 sophia employee 8 Jun 22 11:39 /home/cyse_project/sophia_homework  
  
(sophia@kali)-[~]  
└─$
```

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



```
emma@kali: ~  
File Actions Edit View Help  
(sophia@kali)-[~]  
└─$ su - emma  
Password:  
(emma@kali)-[~]  
└─$ groups emma  
emma : admin ralar002  
  
(emma@kali)-[~]  
└─$ ls -l /home/cyse_project/sophia_homework  
-rw-r----- 1 sophia employee 8 Jun 22 11:39 /home/cyse_project/sophia_homework  
  
(emma@kali)-[~]  
└─$ cat /home/cyse_project/sophia_homework  
cat: /home/cyse_project/sophia_homework: Permission denied
```

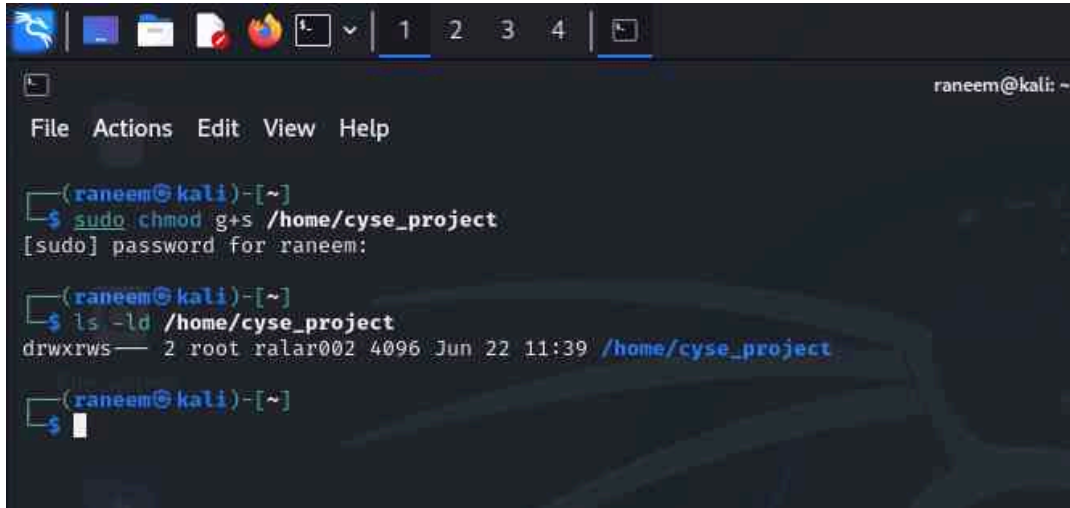
Step 10: Exit out of Emma's account and Sophia's account



```
raneem@kali: ~  
File Actions Edit View Help  
  
(emma@kali)-[~]  
└─$ logout  
  
(sophia@kali)-[~]  
└─$ logout  
  
(raneem@kali)-[~]  
└─$
```

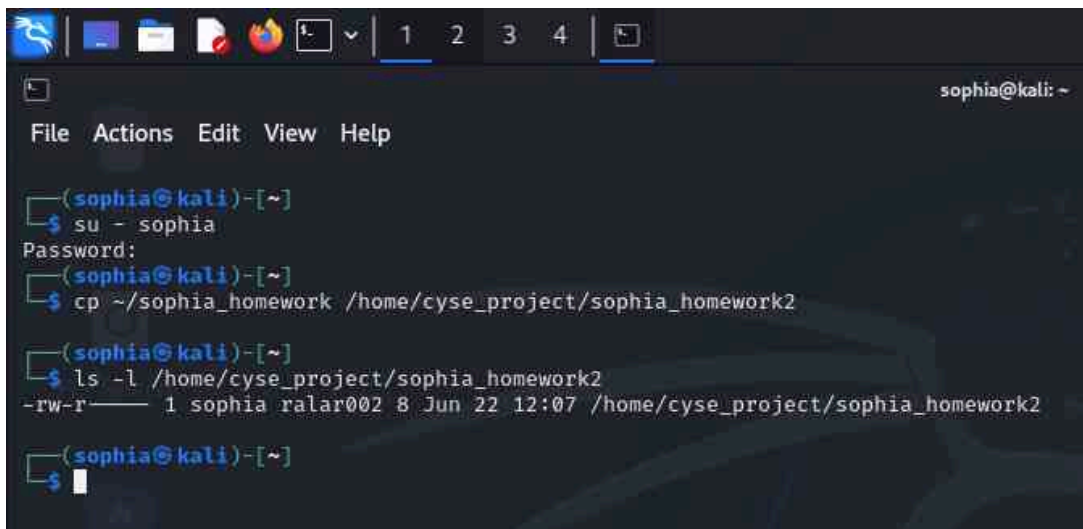
TASK B – Set SGID Permissions

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



```
(raneem@kali)-[~]
└─$ sudo chmod g+s /home/cyse_project
[sudo] password for raneem:
(raneem@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxrws— 2 root ralar002 4096 Jun 22 11:39 /home/cyse_project
(raneem@kali)-[~]
└─$
```

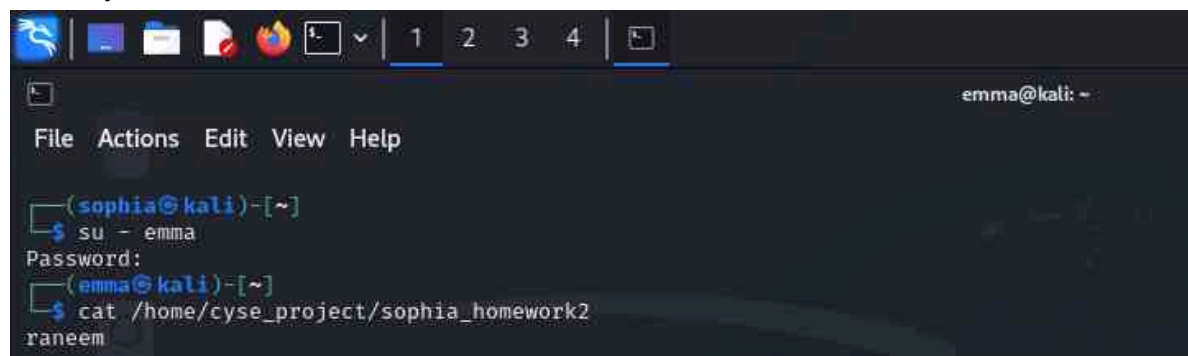
Step 2: Switch to Sophia's account. Copy "Sophia_homework" to the /home/cyse_project directory as "Sophia_homework2"



```
(sophia@kali)-[~]
└─$ su - sophia
Password:
(sophia@kali)-[~]
└─$ cp ~/sophia_homework /home/cyse_project/sophia_homework2

(sophia@kali)-[~]
└─$ ls -l /home/cyse_project/sophia_homework2
-rw-r— 1 sophia ralar002 8 Jun 22 12:07 /home/cyse_project/sophia_homework2
(sophia@kali)-[~]
└─$
```

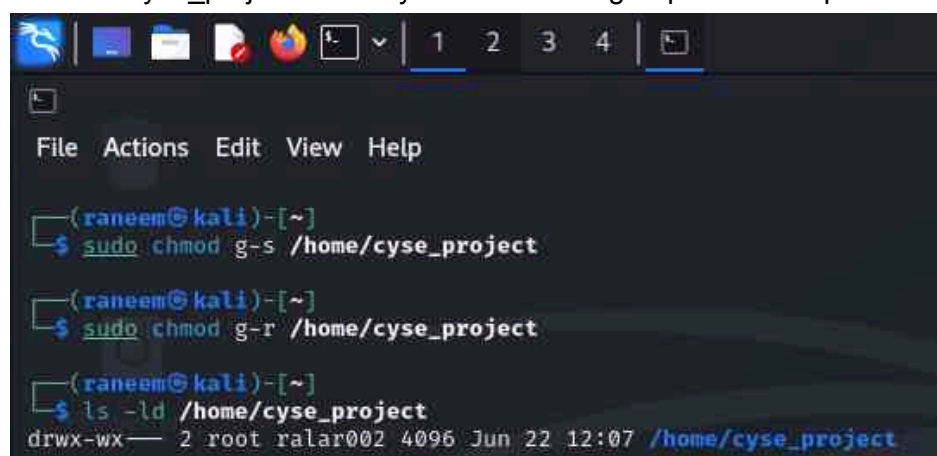
Step 3: Switch to Emma's account. Try to read "Sophia_homework2" in the /home/cyse_project directory



```
emma@kali: ~  
File Actions Edit View Help  
(sophia@kali)-[~]  
└─$ su - emma  
Password:  
(emma@kali)-[~]  
└─$ cat /home/cyse_project/sophia_homework2  
raneem
```

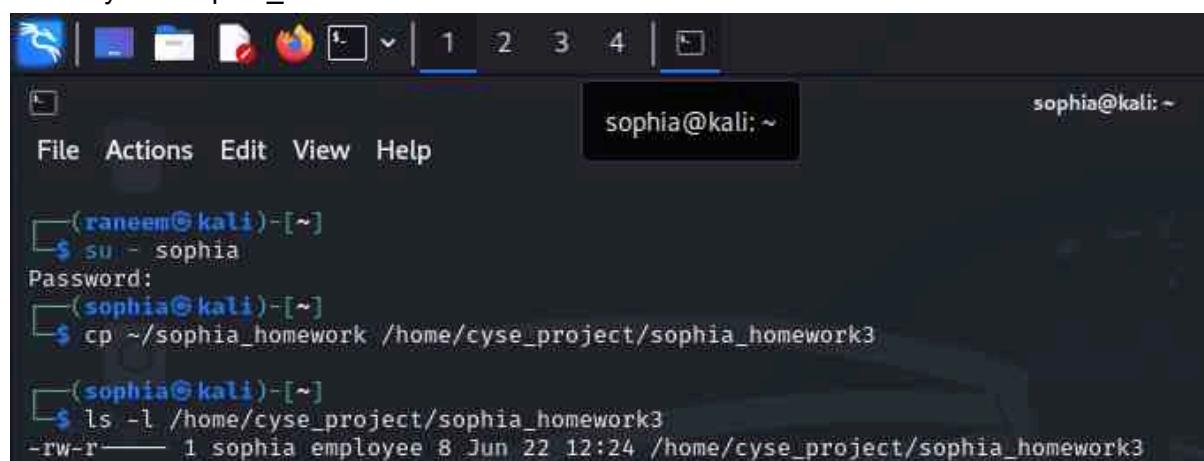
TASK C – Unset SGID Permissions

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



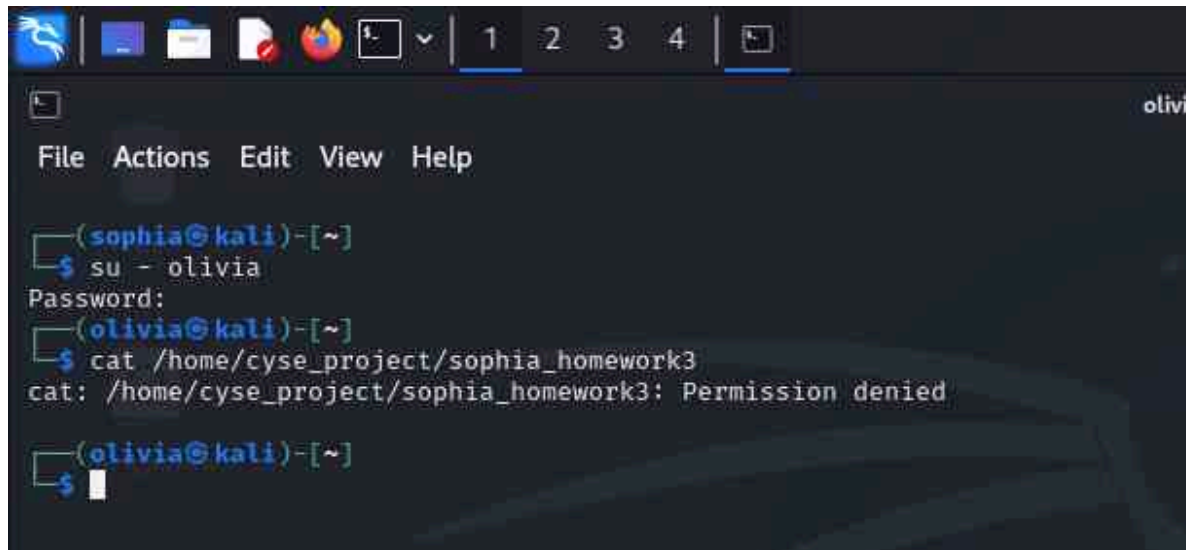
```
(raneem@kali)-[~]  
└─$ sudo chmod g-s /home/cyse_project  
  
(raneem@kali)-[~]  
└─$ sudo chmod g-r /home/cyse_project  
  
(raneem@kali)-[~]  
└─$ ls -ld /home/cyse_project  
drwx-wx-- 2 root ralar002 4096 Jun 22 12:07 /home/cyse_project
```

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



```
sophia@kali: ~  
File Actions Edit View Help  
(raneem@kali)-[~]  
└─$ su - sophia  
Password:  
(sophia@kali)-[~]  
└─$ cp ~/sophia_homework /home/cyse_project/sophia_homework3  
  
(sophia@kali)-[~]  
└─$ ls -l /home/cyse_project/sophia_homework3  
-rw-r----- 1 sophia employee 8 Jun 22 12:24 /home/cyse_project/sophia_homework3
```

Step 3: Switch to Olivia's account. Try to read "Sophia_home3" in the /home/cyse_project directory



```
File Actions Edit View Help

(sophia@kali)-[~]
└─$ su - olivia
Password:
(olivia@kali)-[~]
└─$ cat /home/cyse_project/sophia_homework3
cat: /home/cyse_project/sophia_homework3: Permission denied

(olivia@kali)-[~]
└─$
```