

CYSE 270: Linux System for Cybersecurity

Lab 6 – File Permission

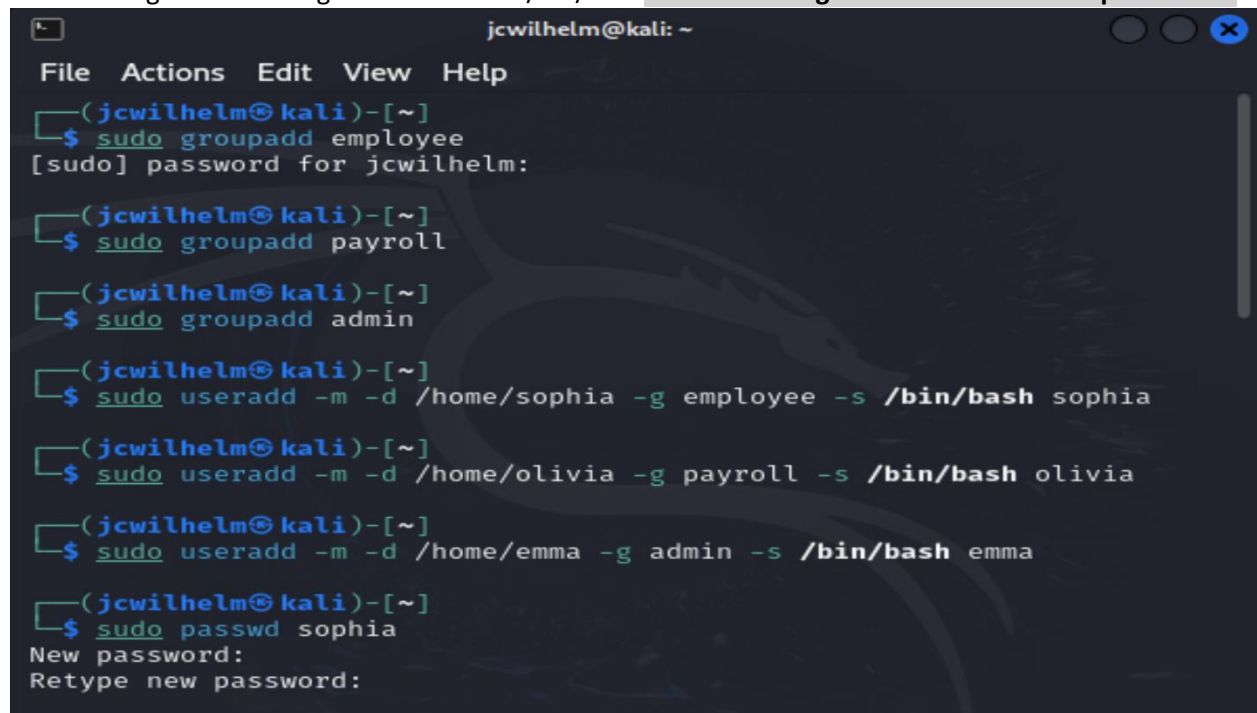
CYSE 270: Linux System for Cybersecurity

You need to configure the system to allow three users to perform the shared folder actions. [Please submit the screenshot for all the steps in a word or pdf file](#)

Task A: Get accounts and groups ready (70 points)

Step 1. Create three groups- **employee**, **payroll**, and **admin**. (You may refer to the slides under Module 2 – Group Management)

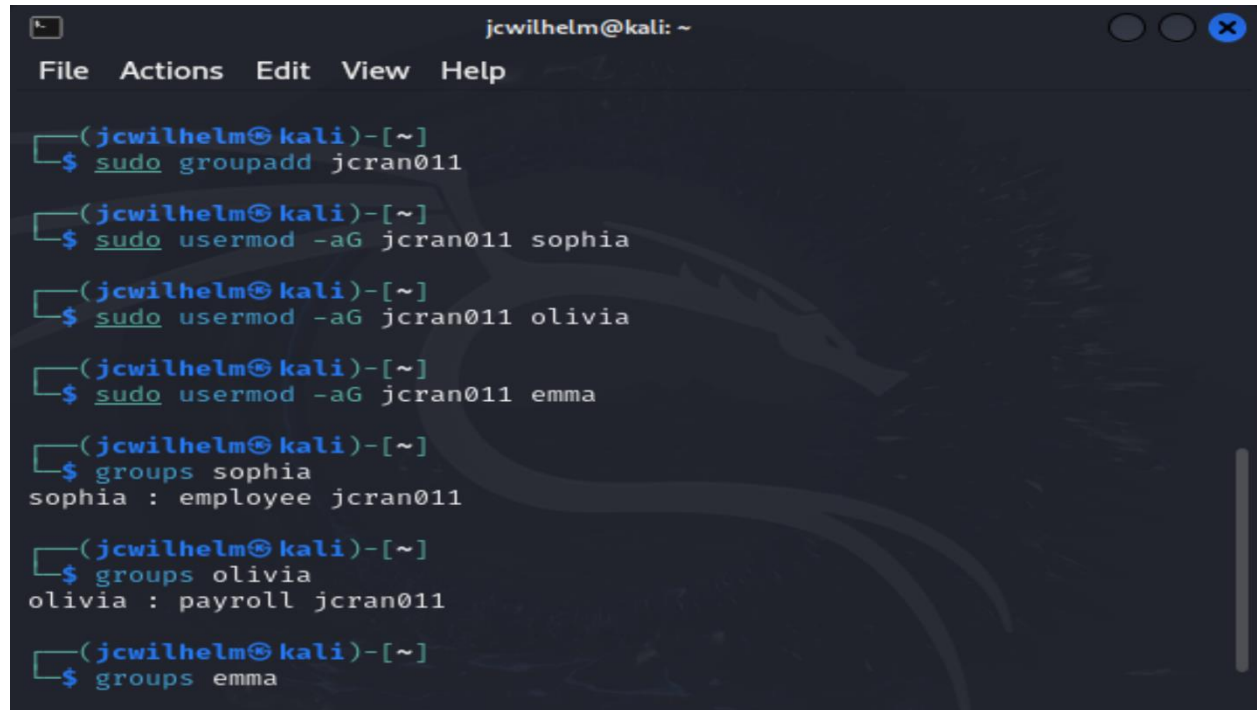
Step 2. Create three user accounts with a specified home directory for **Sophia**, **Olivia**, and **Emma**. Set the primary group for Sophia, Olivia, and Emma to "employee", "payroll", and "admin", respectively. And change their login shell to /bin/bash. **Don't forget to set their passwords.**



```
jcwilhelm@kali: ~  
File Actions Edit View Help  
(jcwilhelm@kali)-[~]  
$ sudo groupadd employee  
[sudo] password for jcwilhelm:  
(jcwilhelm@kali)-[~]  
$ sudo groupadd payroll  
(jcwilhelm@kali)-[~]  
$ sudo groupadd admin  
(jcwilhelm@kali)-[~]  
$ sudo useradd -m -d /home/sophia -g employee -s /bin/bash sophia  
(jcwilhelm@kali)-[~]  
$ sudo useradd -m -d /home/olivia -g payroll -s /bin/bash olivia  
(jcwilhelm@kali)-[~]  
$ sudo useradd -m -d /home/emma -g admin -s /bin/bash emma  
(jcwilhelm@kali)-[~]  
$ sudo passwd sophia  
New password:  
Retype new password:
```

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.

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.**

A terminal window titled 'jcwilhelm@kali: ~' with a menu bar (File, Actions, Edit, View, Help). The terminal shows a series of commands and their outputs. The background has a faint Kali Linux dragon logo.

```
(jcwilhelm@kali)-[~]
$ sudo groupadd jcran011

(jcwilhelm@kali)-[~]
$ sudo usermod -aG jcran011 sophia

(jcwilhelm@kali)-[~]
$ sudo usermod -aG jcran011 olivia

(jcwilhelm@kali)-[~]
$ sudo usermod -aG jcran011 emma

(jcwilhelm@kali)-[~]
$ groups sophia
sophia : employee jcran011

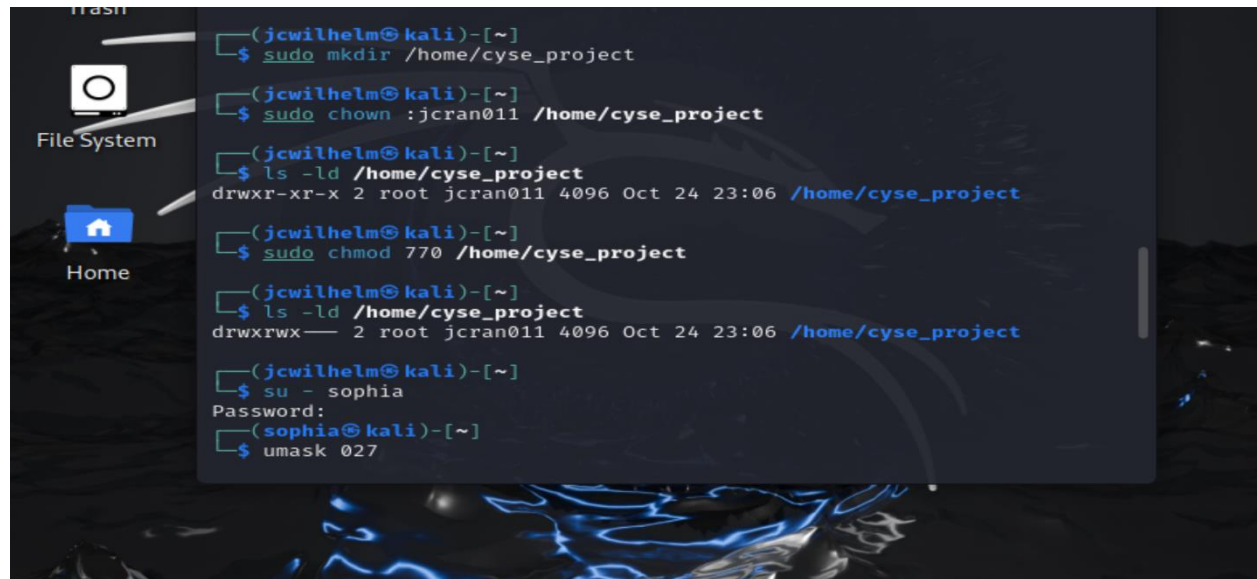
(jcwilhelm@kali)-[~]
$ groups olivia
olivia : payroll jcran011

(jcwilhelm@kali)-[~]
$ groups emma
```

Step 5. Change the permissions of the `/home/cyse_project` directory to "`rw-rwx---`" 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.**

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**

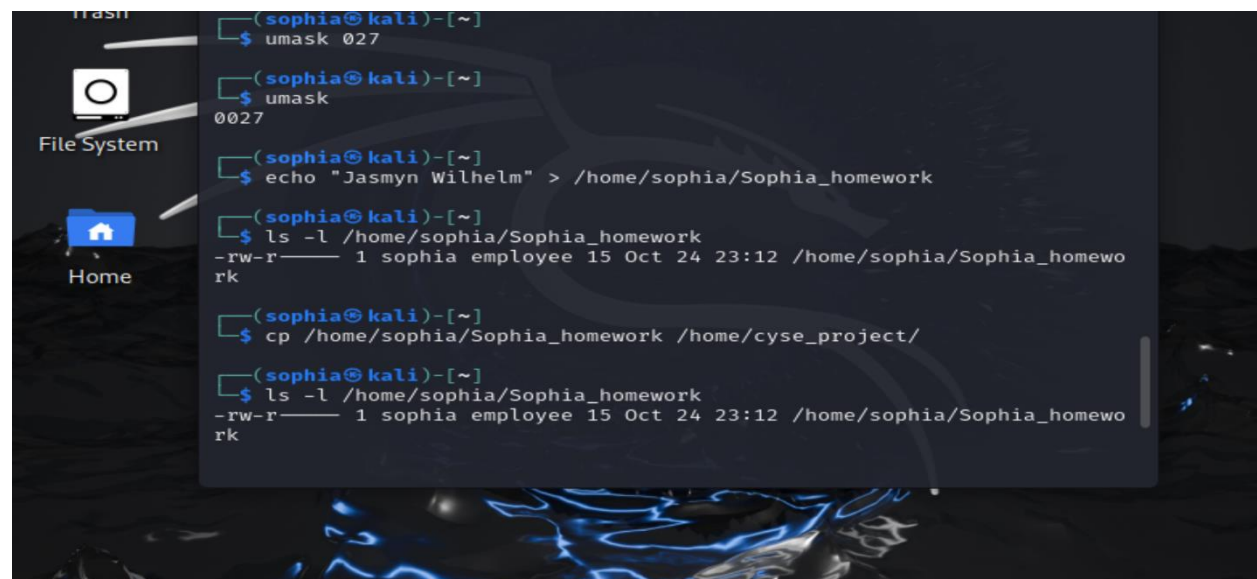
permission of a new file after this step.



```
(jcwilhelm@kali)-[~]
$ sudo mkdir /home/cyse_project
(jcwilhelm@kali)-[~]
$ sudo chown :jcran011 /home/cyse_project
(jcwilhelm@kali)-[~]
$ ls -ld /home/cyse_project
drwxr-xr-x 2 root jcran011 4096 Oct 24 23:06 /home/cyse_project
(jcwilhelm@kali)-[~]
$ sudo chmod 770 /home/cyse_project
(jcwilhelm@kali)-[~]
$ ls -ld /home/cyse_project
drwxrwx--- 2 root jcran011 4096 Oct 24 23:06 /home/cyse_project
(jcwilhelm@kali)-[~]
$ su - sophia
Password:
(sophia@kali)-[~]
$ umask 027
```

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)**

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)-[~]
$ umask 027
(sophia@kali)-[~]
$ umask 0027
(sophia@kali)-[~]
$ echo "Jasmyn Wilhelm" > /home/sophia/Sophia_homework
(sophia@kali)-[~]
$ ls -l /home/sophia/Sophia_homework
-rw-r----- 1 sophia employee 15 Oct 24 23:12 /home/sophia/Sophia_homework
(sophia@kali)-[~]
$ cp /home/sophia/Sophia_homework /home/cyse_project/
(sophia@kali)-[~]
$ ls -l /home/sophia/Sophia_homework
-rw-r----- 1 sophia employee 15 Oct 24 23:12 /home/sophia/Sophia_homework
```

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

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

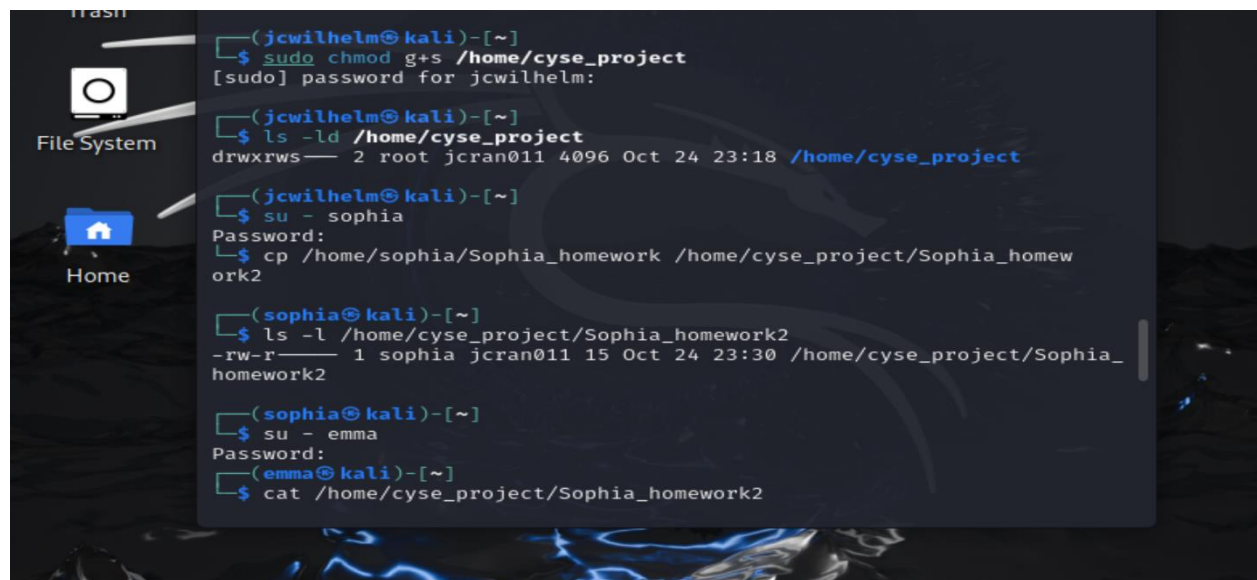
Step 10. Exit out of Emma's account and Sophia's account.

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.

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

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



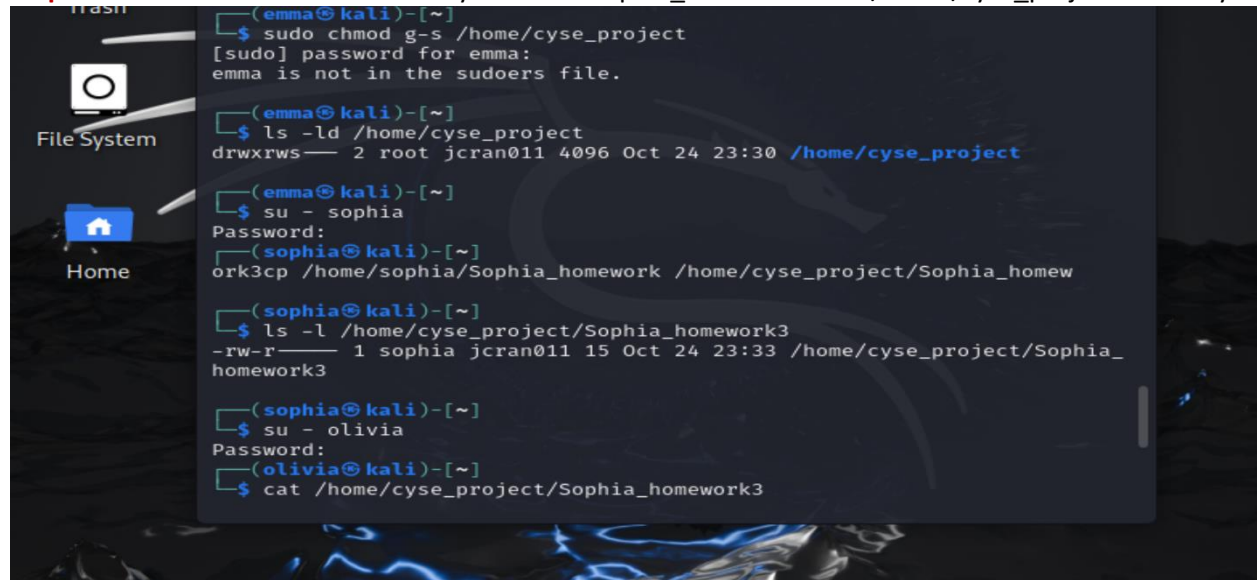
```
(jcwilhelm@kali)-[~]  
$ sudo chmod g+s /home/cyse_project  
[sudo] password for jcwilhelm:  
(jcwilhelm@kali)-[~]  
$ ls -ld /home/cyse_project  
drwxrws— 2 root jcran011 4096 Oct 24 23:18 /home/cyse_project  
(jcwilhelm@kali)-[~]  
$ su - sophia  
Password:  
$ cp /home/sophia/Sophia_homework /home/cyse_project/Sophia_homework2  
(sophia@kali)-[~]  
$ ls -l /home/cyse_project/Sophia_homework2  
-rw-r— 1 sophia jcran011 15 Oct 24 23:30 /home/cyse_project/Sophia_homework2  
(sophia@kali)-[~]  
$ su - emma  
Password:  
(emma@kali)-[~]  
$ cat /home/cyse_project/Sophia_homework2
```

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.

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

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



```
(emma@kali)-[~]
$ sudo chmod g-s /home/cyse_project
[sudo] password for emma:
emma is not in the sudoers file.

(emma@kali)-[~]
$ ls -ld /home/cyse_project
drwxrws— 2 root jcran011 4096 Oct 24 23:30 /home/cyse_project

(emma@kali)-[~]
$ su - sophia
Password:
(sophia@kali)-[~]
ork3cp /home/sophia/Sophia_homework /home/cyse_project/Sophia_homew

(sophia@kali)-[~]
$ ls -l /home/cyse_project/Sophia_homework3
-rw-r— 1 sophia jcran011 15 Oct 24 23:33 /home/cyse_project/Sophia_
homework3

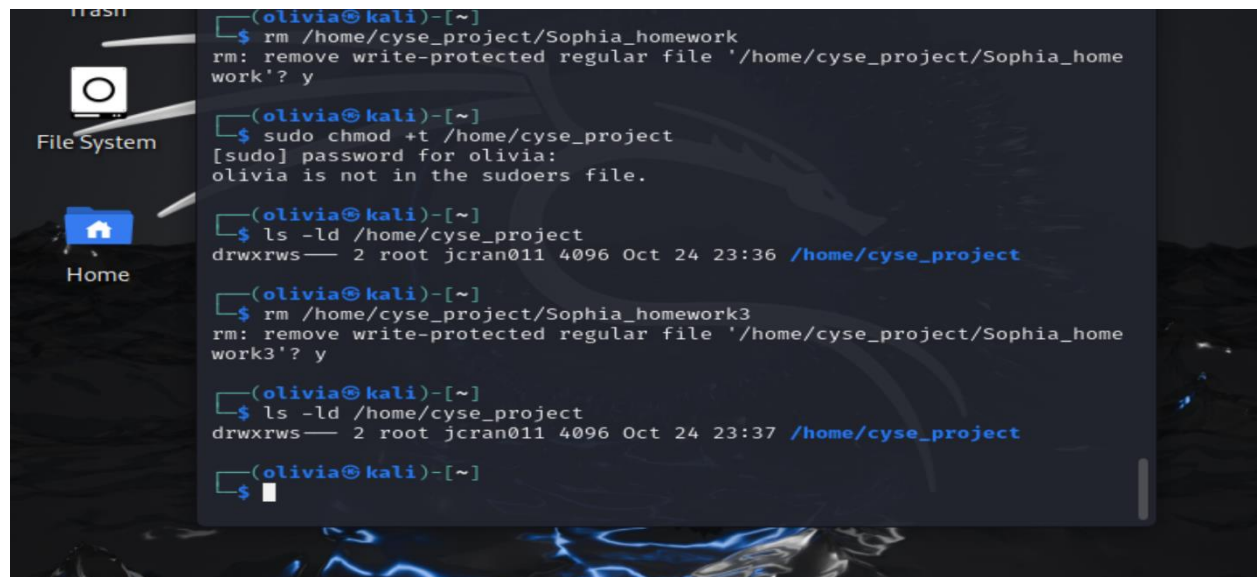
(sophia@kali)-[~]
$ su - olivia
Password:
(olivia@kali)-[~]
$ cat /home/cyse_project/Sophia_homework3
```

Extra credit: Sticky Bit (10 points)

Step 1. Switch to Olivia' account. Delete "Sophia_ homework" in the /home/cyse_project directory.

Step 2. Switch to root account. Set the sticky bit permission, to make files can only be removed by the owner of the file.

Step 3. Switch to Olivia' account. Try to delete "Sophia_ homework3" in the /home/cyse_project directory. Can you delete it this time? Why?



```
(olivia@kali)-[~]
$ rm /home/cyse_project/Sophia_homework
rm: remove write-protected regular file '/home/cyse_project/Sophia_ho
mework'? y

(olivia@kali)-[~]
$ sudo chmod +t /home/cyse_project
[sudo] password for olivia:
olivia is not in the sudoers file.

(olivia@kali)-[~]
$ ls -ld /home/cyse_project
drwxrws— 2 root jcran011 4096 Oct 24 23:36 /home/cyse_project

(olivia@kali)-[~]
$ rm /home/cyse_project/Sophia_homework3
rm: remove write-protected regular file '/home/cyse_project/Sophia_ho
mework3'? y

(olivia@kali)-[~]
$ ls -ld /home/cyse_project
drwxrws— 2 root jcran011 4096 Oct 24 23:37 /home/cyse_project

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


CYSE 270: Assignment 6 - File Permissions

24 October 24

Student ID: 01155323

Task A:

1. Sudo groupadd employee
Sudo groupadd payroll
Sudo groupadd admin
2. Sudo useradd -m -d /home/sophia -g employee -s /bin/bash sophia
passwd olivia Payroll olivia
emana admin emma
3. Sudo groupadd jcrano11
Sudo usermod -aG jcrano11 sophia [olivia ; emma]
4. Sudo mkdir /home/cyse_project
Sudo chown :jcrano11 /home/cyse_project
5. Sudo chmod 770 /home/cyse_project
6. Su - sophia
Unmask 027
7. echo "Jasmyrn wilhelm" > /home/sophia/sophia_homework
8. Cp /home/sophia/sophia_homework /home/cyse_project/
9. Su - emma
Cat /home/cyse_project/sophia_homework
10. exit x 2

- ## Task B
1. Sudo chmod g+s /home/cyse_project
 2. Su - sophia
Cp /home/sophia/sophia_homework /home/cyse_project/sophia_homework2
 3. Su - emma ; Cat /home/cyse_project/sophia_homework2

- ## Task C
1. Sudo chmod g-s /home/cyse_project
 2. Su - sophia
Cp /home/sophia/sophia_homework /home/cyse_project/sophia_homework3
 3. Su - olivia ; Cat /home/cyse_project/sophia_homework3

1. Su - olivia
rm /home/cyse_project/sophia_homework
2. Sudo chmod +t /home/cyse_project [ls -ld /home/cyse_project]
3. Su - olivia
rm /home/cyse_project/sophia_homework3