CYSE Lab #6

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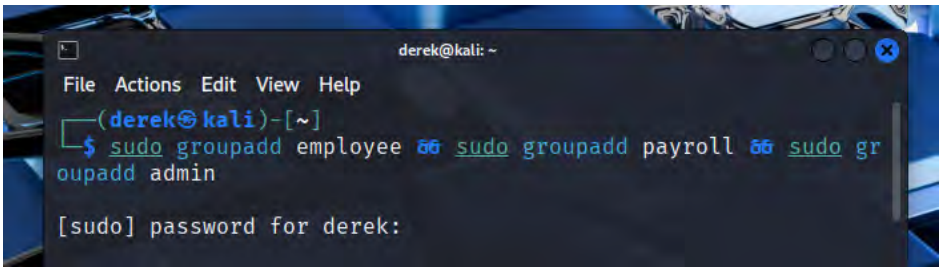
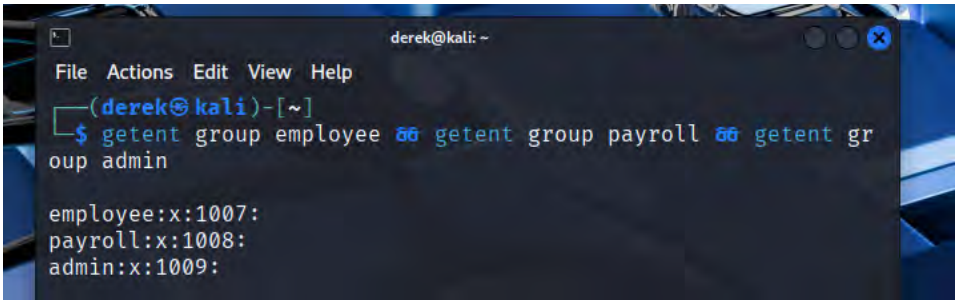
Task A

Task A Step 1.) Create three groups-e**mployee**, **payroll**, and **admin**

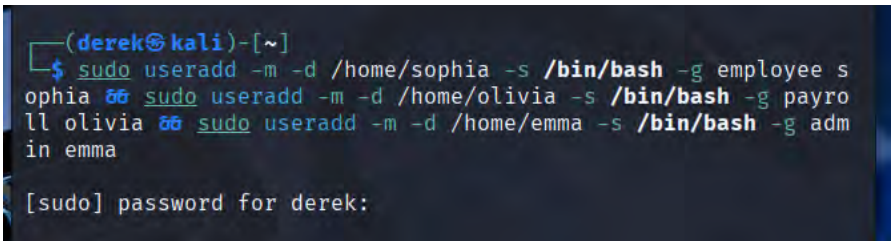


I executed **getent** to verify the creation of the groups.



Task A 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

I created and added the users to the respective groups.



I then created different passwords for the users.

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```
┌──(derek㉿kali)-[~]
└─$ sudo passwd sophia &&
sudo passwd olivia &&
sudo passwd emma

New password:
Retype new password:
passwd: password updated successfully
New password:
Retype new password:
passwd: password updated successfully
New password:
Retype new password:
passwd: password updated successfully
```

Verified the creation of the users and their home directories.

```
┌──(derek㉿kali)-[~]
└─$ grep -E 'sophia|olivia|emma' /etc/passwd

sophia:x:1007:1007::/home/sophia:/bin/bash
olivia:x:1008:1008::/home/olivia:/bin/bash
emma:x:1009:1009::/home/emma:/bin/bash
```

Task A Step 3.) Create a shared group called “dhill036" and set this shared group as the above accounts' secondary group. After this step, remember to check each user's group profile.

Created shared group.

```
┌──(derek㉿kali)-[~]
└─$ sudo groupadd dhill036
```

Added users to the new group.

```
┌──(derek㉿kali)-[~]
└─$ sudo usermod -aG dhill036 sophia && sudo usermod -aG dhill
036 olivia && sudo usermod -aG dhill036 emma
```

I then verified the users profile.

```
┌──(derek㉿kali)-[~]
└─$ id sophia && id olivia && id emma

uid=1007(sophia) gid=1007(employee) groups=1007(employee),1010
(dhill036)
uid=1008(olivia) gid=1008(payroll) groups=1008(payroll),1010(d
hill036)
uid=1009(emma) gid=1009(admin) groups=1009(admin),1010(dhill03
6)
```

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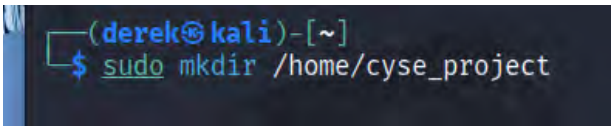
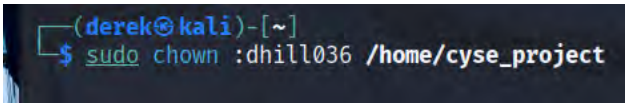
Task A Step 4.) Create a directory named /home/cyse_project, which is to be owned by the "dhill036" group which is a shared group). After this step, remember to check the permission of this shared directory.

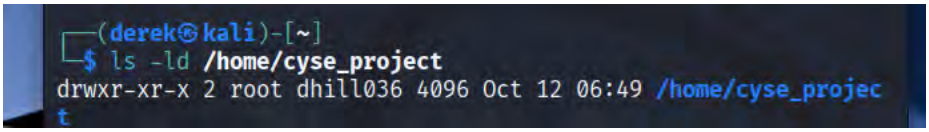
Created the directory.



Changed ownership to **dhill036**.

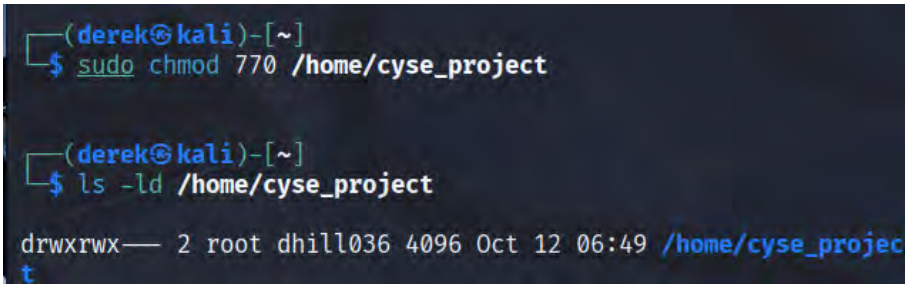


Verified its creation and ownership.



Task A 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.

Changed the permissions as instructed and verified its ownership.



Task A 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

Switched to Sophia, changed the umask value to 026, changed it to the default value for the account and then verified its change.

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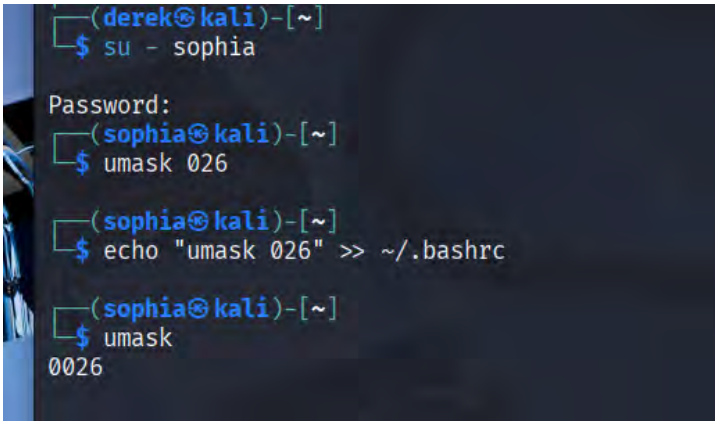
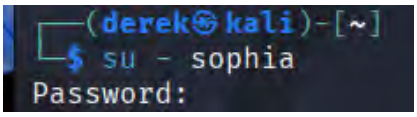
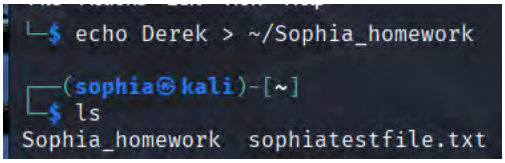


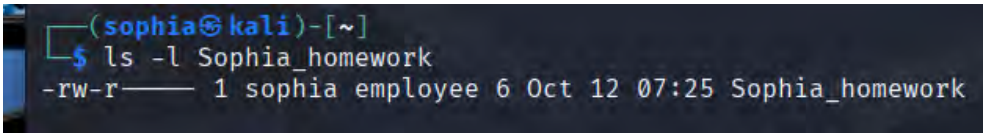
Task A Step 7.) Create a new file called "Sophia_homework" in the home directory of Sophia and put your name in the file as content. After this step, remember to check the content and the permission of the new file. (ls -l Sophia_homework)

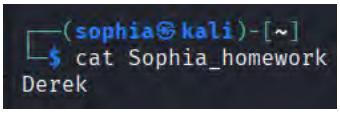
Switched to Sophia.



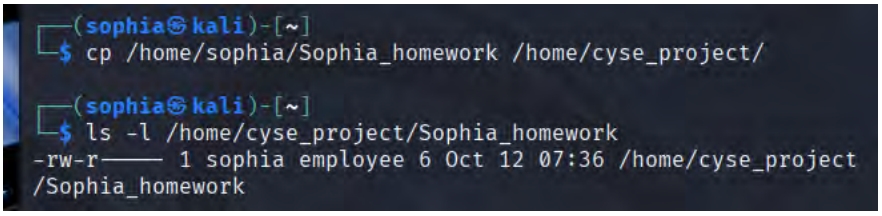
Created the file , added the text **“Derek”** and verified the creation of the file along with its permissions.







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



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

Switched to user Emma and tried to concatenate the contents of the file but received a Permission denied error. This is as expected since the file is owned by the user Sophia.

```
┌──(derek㉿kali)-[~]
└─$ su - emma
Password:
┌──(emma㉿kali)-[~]
└─$ cat /home/cyse_project/Sophia_homework
cat: /home/cyse_project/Sophia_homework: Permission denied
```

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

Out of habit I had previously logged out of Sophia's account before initially moving to Emma's account. Below only reflects me exiting Emma's account.

```
┌──(emma㉿kali)-[~]
└─$ exit
logout
```

Task B

Task B 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.

Switched to root, performed long list on the instructed directory, changed ownership of the file and verified the changes.

```
┌──(derek㉿kali)-[~]
└─$ sudo -i
┌──(root㉿kali)-[~]
└─# ls -ld /home/cyse_project

drwxrwx--- 2 root dhill036 4096 Oct 12 07:36 /home/
cyse_project

┌──(root㉿kali)-[~]
└─# sudo chmod 2770 /home/cyse_project


┌──(root㉿kali)-[~]
└─# ls -ld /home/cyse_project

drwxrws--- 2 root dhill036 4096 Oct 12 07:36 /home/
cyse_project
```

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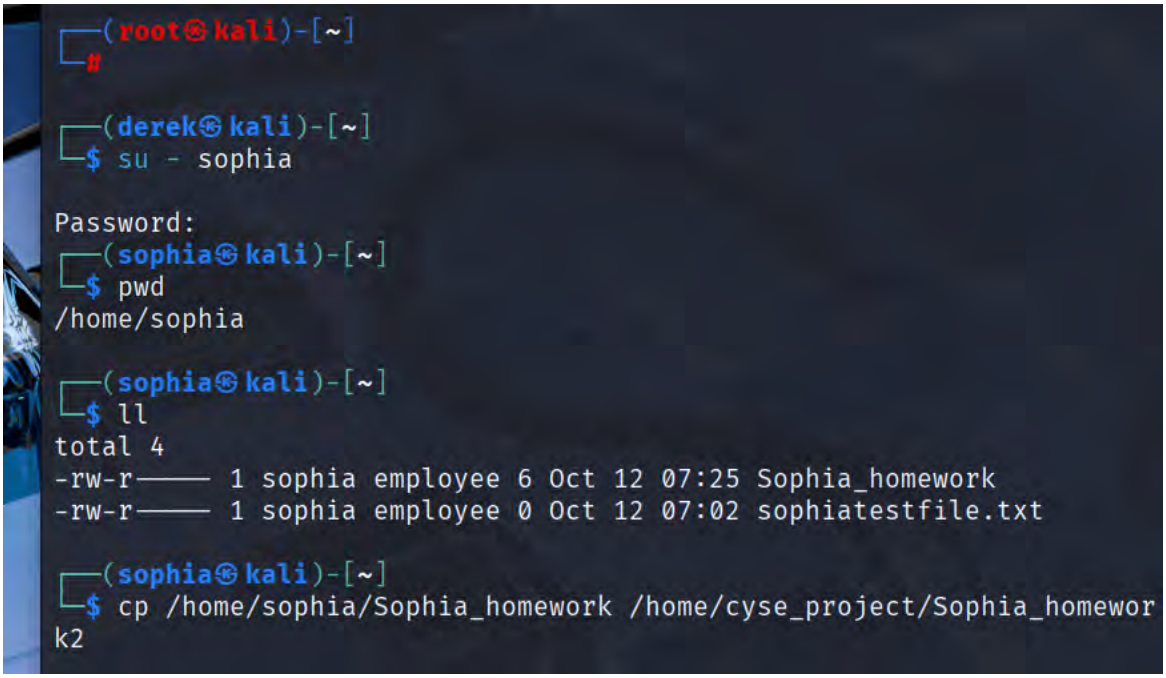
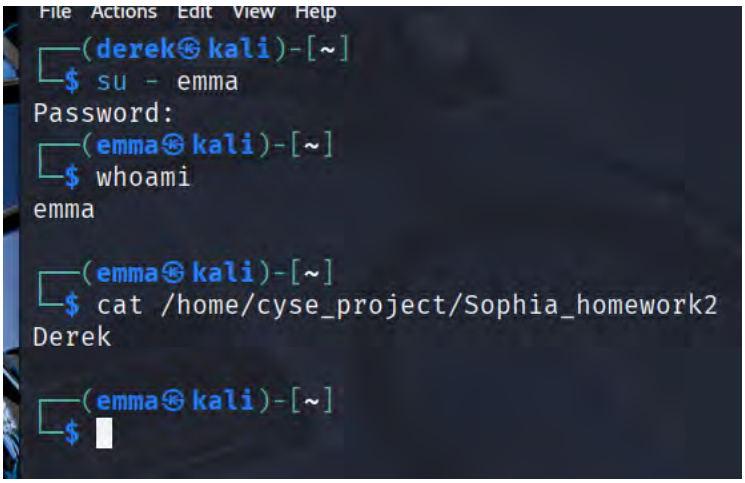
Task B Step 2.) Switch to Sophia's account. Copy "Sophia_homework" to the /home/cyse_project directory as "Sophia_homework2".



Task B Step 3.) Switch to Emma's account. Try to read "Sophia_ homework2" in the /home/cyse_project directory.

Switched to user Emma, verified active user account and concatenated the instructed file.

I can view this file due to the shared permissions I had given it in a previous step.



Task C

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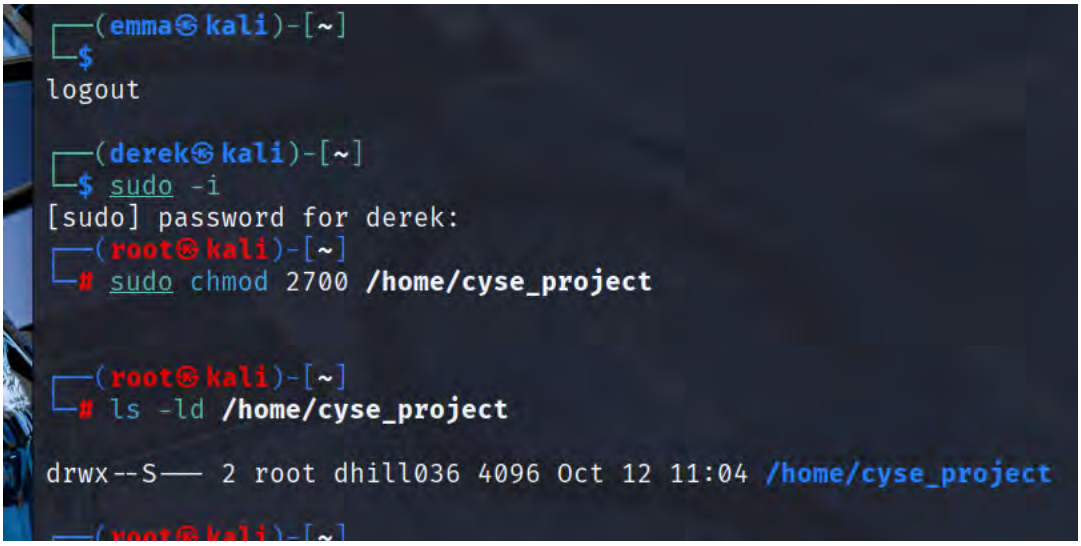
Task C Step 1.) Switch to root the regular user's account. To disallow group members to access the files in the shared folder, you need to fix the sharing issue by setting the correct SGID group values to /home/cyse_project directory to remove the group user read permission.

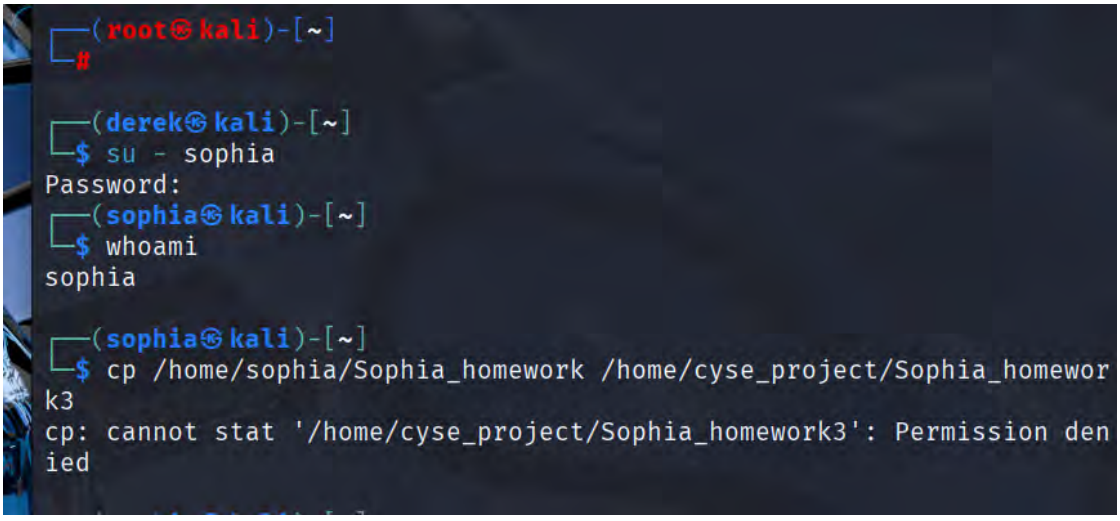
Logged out of the Emma user, switched to root, changed/modified the file and verified the changes.



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

Logged out out of the root account, switched to Sophia, verified active shell and attempted to copy file but received a permission denied error.

This error is as expected since the Sophia account doesn't have permissions to copy to the instructed folder. That folder is owned by the root user.



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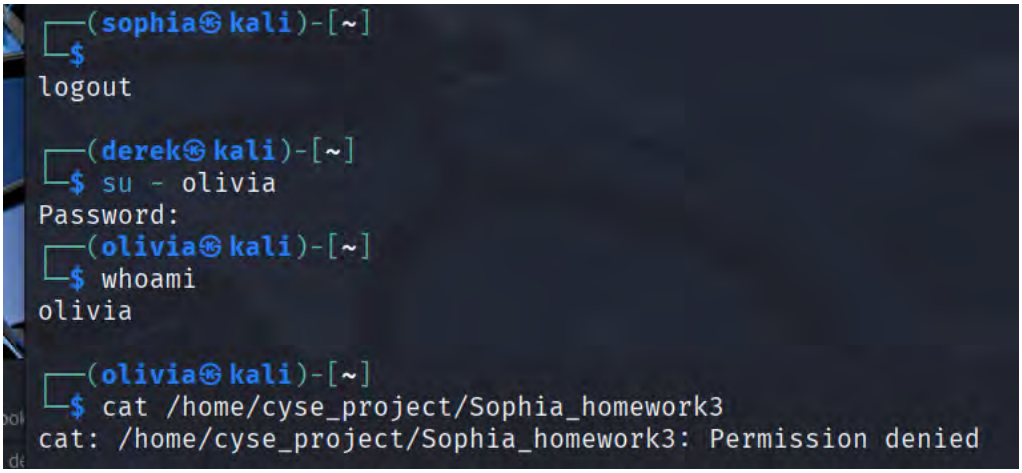
Task A Step 3.) Switch to Olivia's account. Try to read "Sophia_home3" in the /home/cyse_project directory.

Switched to Sophias account, verified active shell and attempted to concatenate the file but received a permission denied error.

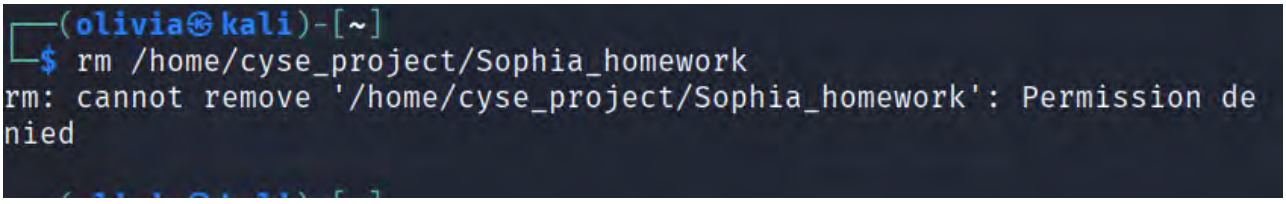
This error is as expected because Olvia doesn't have permissions for files created by the Sophia user.



Extra Credit

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

Switched to Olivia and then tried to delete the instructed file but received a permission denied error.



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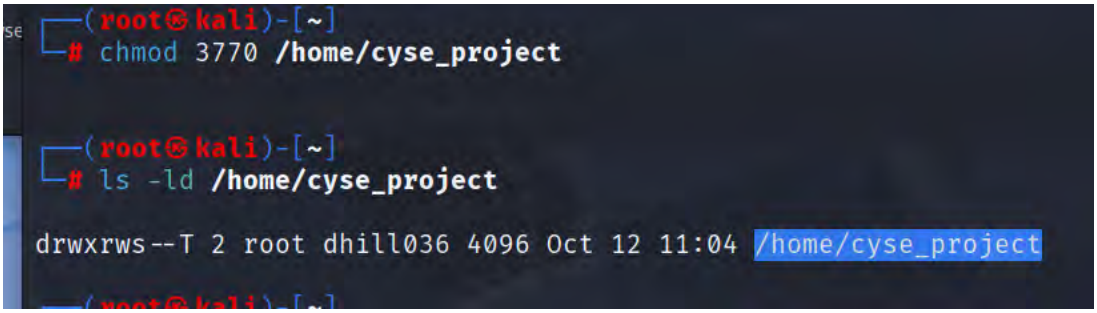
Extra Credit Step 2.) Switch to root account. Set the sticky bit permission, to make files can only be removed by the owner of the file



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

Switched to Olivia and tried to delete the file but received an operation not permitted error.

This error is as expected because in the previous step we placed the sticky bit back in effect on the directory. With the sticky bit set only the directory owner, file owner (Sophia) or root can delete this file.