

CYSE 270: Linux System for Cybersecurity

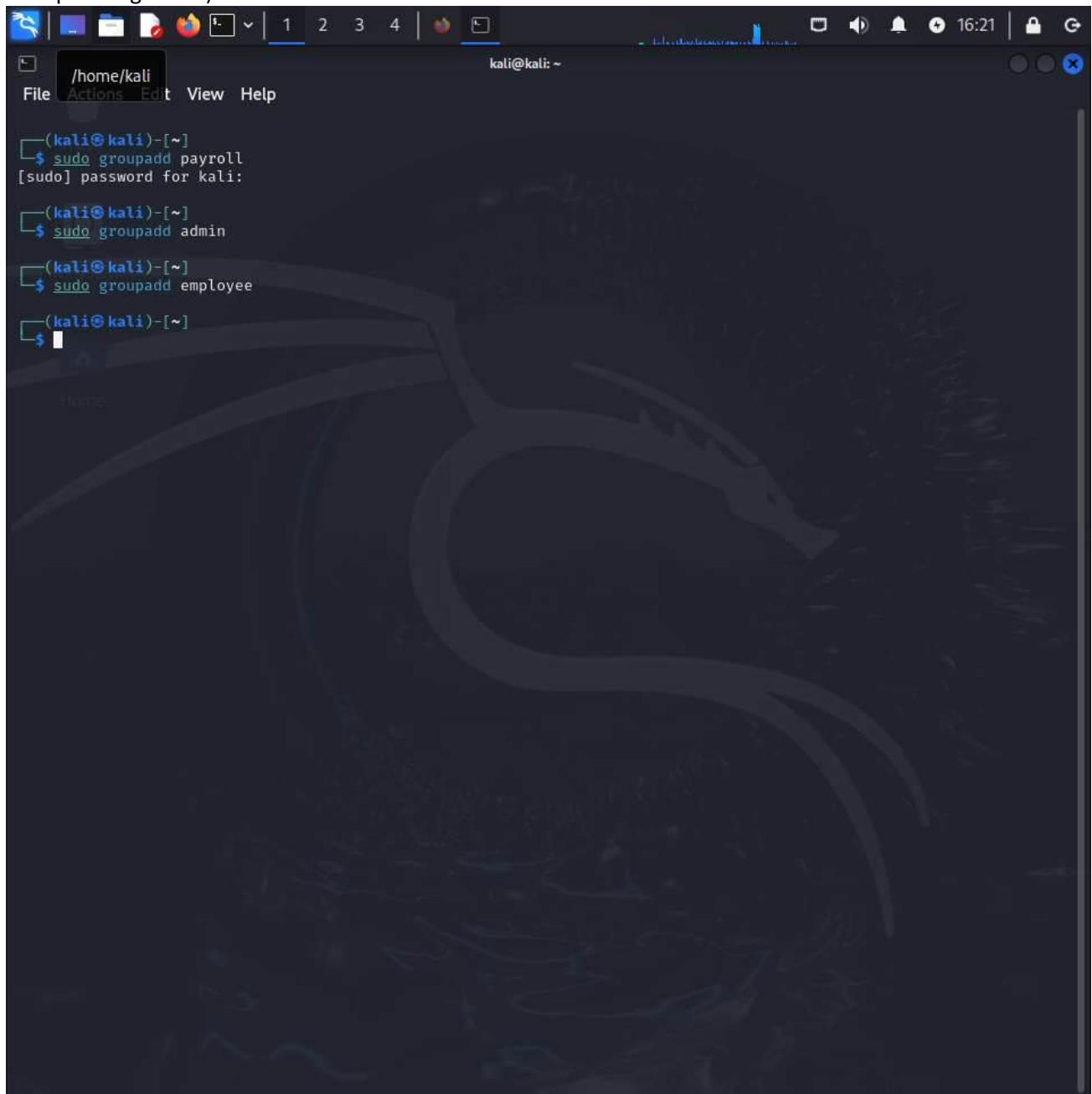
Lab 6 – File Permission

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 for week-4 – Group Management)



```
kali@kali: ~  
File Actions Edit View Help  
└─(kali@kali)-[~]  
└─$ sudo groupadd payroll  
[sudo] password for kali:  
└─(kali@kali)-[~]  
└─$ sudo groupadd admin  
└─(kali@kali)-[~]  
└─$ sudo groupadd employee  
└─(kali@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.**

```
kali@kali: ~  
File Actions Edit View Help  
  
(kali@kali)-[~]  
└─$ sudo groupadd payroll  
[sudo] password for kali:  
  
(kali@kali)-[~]  
└─$ sudo groupadd admin  
  
(kali@kali)-[~]  
└─$ sudo groupadd employee  
  
(kali@kali)-[~]  
└─$ sudo useradd -m -d /home/Sophia -g employee -s /bin/bash Sophia  
  
(kali@kali)-[~]  
└─$ sudo useradd -m -d /home/Olivia -g payroll -s /bin/bash Olivia  
  
(kali@kali)-[~]  
└─$ sudo useradd -m -d /home/Emma -g admin -s /bin/bash Emma  
  
(kali@kali)-[~]  
└─$ sudo passwd Olivia  
New password:  
Retype new password:  
passwd: password updated successfully  
  
(kali@kali)-[~]  
└─$ sudo passwd Sophia  
New password:  
Retype new password:  
passwd: password updated successfully  
  
(kali@kali)-[~]  
└─$ sudo passwd Emma  
New password:  
Retype new password:  
passwd: password updated successfully  
  
(kali@kali)-[~]  
└─$
```

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.

```
Minimize all open windows and show the desktop
File Actions Edit View Help
kali@kali: ~
passwd: password updated successfully

(kali@kali)-[~]
└─$ sudo groupadd dalle042

(kali@kali)-[~]
└─$ sudo usermod -aG dalle042 Sophia

(kali@kali)-[~]
└─$ sudo usermod -ag dalle042 Olivia
usermod: -a flag is only allowed with the -G flag
Usage: usermod [options] LOGIN

Options:
  -a, --append                append the user to the supplemental GROUPS
                              mentioned by the -G option without removing
                              the user from other groups
  -b, --badname              allow bad names
  -c, --comment COMMENT     new value of the GECOS field
  -d, --home HOME_DIR       new home directory for the user account
  -e, --expiredate EXPIRE_DATE
                              set account expiration date to EXPIRE_DATE
  -f, --inactive INACTIVE   set password inactive after expiration
                              to INACTIVE
  -g, --gid GROUP           force use GROUP as new primary group
  -G, --groups GROUPS       new list of supplementary GROUPS
  -h, --help                display this help message and exit
  -l, --login NEW_LOGIN     new value of the login name
  -L, --lock                lock the user account
  -m, --move-home           move contents of the home directory to the
                              new location (use only with -d)
  -o, --non-unique          allow using duplicate (non-unique) UID
  -p, --password PASSWORD   use encrypted password for the new password
  -P, --prefix PREFIX_DIR   prefix directory where are located the /etc/* files
  -r, --remove              remove the user from only the supplemental GROUPS
                              mentioned by the -G option without removing
                              the user from other groups
  -R, --root CHROOT_DIR     directory to chroot into
  -s, --shell SHELL        new login shell for the user account
  -u, --uid UID             new UID for the user account
  -U, --unlock              unlock the user account
  -v, --add-subuids FIRST-LAST
                              add range of subordinate uids
  -V, --del-subuids FIRST-LAST
                              remove range of subordinate uids
  -w, --add-subgids FIRST-LAST
                              add range of subordinate gids
  -W, --del-subgids FIRST-LAST
                              remove range of subordinate gids
  -Z, --selinux-user SEUSER
                              new SELinux user mapping for the user account
  --selinux-range SERANGE  new SELinux MLS range for the user account

(kali@kali)-[~]
└─$ sudo usermod -aG dalle042 Olivia

(kali@kali)-[~]
└─$ sudo usermod -aG dalle042 Emma
```

```
kali@kali: ~  
File: Simple Text Editor | help  
-b, --badname          allow bad names  
-c, --comment COMMENT new value of the GECOS field  
-d, --home HOME_DIR    new home directory for the user account  
-e, --expiredate EXPIRE_DATE set account expiration date to EXPIRE_DATE  
-f, --inactive INACTIVE set password inactive after expiration to INACTIVE  
  
-g, --gid GROUP        force use GROUP as new primary group  
-G, --groups GROUPS    new list of supplementary GROUPS  
-h, --help             display this help message and exit  
-l, --login NEW_LOGIN  new value of the login name  
-L, --lock             lock the user account  
-m, --move-home        move contents of the home directory to the new location (use only with -d)  
  
-o, --non-unique       allow using duplicate (non-unique) UID  
-p, --password PASSWORD use encrypted password for the new password  
-P, --prefix PREFIX_DIR prefix directory where are located the /etc/* files  
-r, --remove           remove the user from only the supplemental GROUPS mentioned by the -G option without removing the user from other groups  
  
-R, --root CHROOT_DIR directory to chroot into  
-s, --shell SHELL     new login shell for the user account  
-u, --uid UID          new UID for the user account  
-U, --unlock           unlock the user account  
-v, --add-subuids FIRST-LAST add range of subordinate uids  
-V, --del-subuids FIRST-LAST remove range of subordinate uids  
-w, --add-subgids FIRST-LAST add range of subordinate gids  
-W, --del-subgids FIRST-LAST remove range of subordinate gids  
-Z, --selinux-user SEUSER new SELinux user mapping for the user account  
--selinux-range SERANGE new SELinux MLS range for the user account  
  
(kali@kali)-[~]  
└─$ sudo usermod -aG dalle042 Olivia  
  
(kali@kali)-[~]  
└─$ sudo usermod -aG dalle042 Emma  
  
(kali@kali)-[~]  
└─$ groups Sophia  
Sophia : employee dalle042  
  
(kali@kali)-[~]  
└─$ groups Olivia  
Olivia : payroll dalle042  
  
(kali@kali)-[~]  
└─$ groups Emma  
Emma : admin dalle042  
  
(kali@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.

```
kali@kali: ~  
File Edit View Settings Help  
Text Editor  
Simple Text Editor: /p  
-R, --root CHROOT_DIR      directory to chroot into  
-s, --shell SHELL          new login shell for the user account  
-u, --uid UID              new UID for the user account  
-U, --unlock               unlock the user account  
-v, --add-subuids FIRST-LAST add range of subordinate uids  
-V, --del-subuids FIRST-LAST remove range of subordinate uids  
-w, --add-subgids FIRST-LAST add range of subordinate gids  
-W, --del-subgids FIRST-LAST remove range of subordinate gids  
-Z, --selinux-user SEUSER  new SELinux user mapping for the user account  
--selinux-range SERANGE   new SELinux MLS range for the user account  
  
(kali@kali)-[~]  
└─$ sudo usermod -aG dalle042 Olivia  
  
(kali@kali)-[~]  
└─$ sudo usermod -aG dalle042 Emma  
  
(kali@kali)-[~]  
└─$ groups Sophia  
Sophia : employee dalle042  
  
(kali@kali)-[~]  
└─$ groups Olivia  
Olivia : payroll dalle042  
  
(kali@kali)-[~]  
└─$ groups Emma  
Emma : admin dalle042  
  
(kali@kali)-[~]  
└─$ sudo mkdir /home/cyse_project  
  
(kali@kali)-[~]  
└─$ sudo chown dalle042 /home/cyse_project  
chown: invalid user: 'dalle042'  
  
(kali@kali)-[~]  
└─$ sudo chgrp dalle042 /home/cyse_project  
  
(kali@kali)-[~]  
└─$ sudo ls -l /home/cyse_project  
total 0  
  
(kali@kali)-[~]  
└─$ ls /home/cyse_project  
  
(kali@kali)-[~]  
└─$ ls -ld /home/cyse_project  
drwxr-xr-x 2 root dalle042 4096 Nov  5 16:37 /home/cyse_project  
  
(kali@kali)-[~]  
└─$
```

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.

```
File: [redacted] Simple Text Editor [redacted]
-w, --del-subgids FIRST LAST  remove range of subordinate gids
-Z, --selinux-user SEUSER    new SELinux user mapping for the user account
--selinux-range SERANGE     new SELinux MLS range for the user account

(kali@kali)-[~]
└─$ sudo usermod -aG dalle042 Olivia

(kali@kali)-[~]
└─$ sudo usermod -aG dalle042 Emma

(kali@kali)-[~]
└─$ groups Sophia
Sophia : employee dalle042

(kali@kali)-[~]
└─$ groups Olivia
Olivia : payroll dalle042

(kali@kali)-[~]
└─$ groups Emma
Emma : admin dalle042

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

(kali@kali)-[~]
└─$ sudo chown dalle042 /home/cyse_project
chown: invalid user: 'dalle042'

(kali@kali)-[~]
└─$ sudo chgrp dalle042 /home/cyse_project

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

(kali@kali)-[~]
└─$ ls /home/cyse_project

(kali@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxr-xr-x 2 root dalle042 4096 Nov  5 16:37 /home/cyse_project

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

(kali@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxrwx--- 2 root dalle042 4096 Nov  5 16:37 /home/cyse_project

(kali@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.**

```
Sophia@kali: /home/kali
Text Editor
File: Simple Text Editor.plp
(kali@kali) ~
$ sudo ls -l /home/cyse_project
total 0
(kali@kali) ~
$ ls /home/cyse_project
(kali@kali) ~
$ ls -ld /home/cyse_project
drwxr-xr-x 2 root dalle042 4096 Nov  5 16:37 /home/cyse_project
(kali@kali) ~
$ sudo chmod 770 /home/cyse_project
(kali@kali) ~
$ ls -ld /home/cyse_project
drwxrwx--- 2 root dalle042 4096 Nov  5 16:37 /home/cyse_project
(kali@kali) ~
$ su Sophia
Password:
(Sophia@kali) ~
$ umask 027
(Sophia@kali) ~
$ sudo touch newfile.txt
[sudo] password for Sophia:
Sophia is not in the sudoers file.
(Sophia@kali) ~
$ su kali
Password:
(kali@kali) ~
$ sudo adduser Sophia sudo
info: Adding user `Sophia' to group `sudo' ...
(kali@kali) ~
$ su Sophia
Password:
(Sophia@kali) ~
$ sudo touch newfile.txt
[sudo] password for Sophia:
(Sophia@kali) ~
$ ls -l newfile.txt
ls: cannot access 'newfile.txt': Permission denied
(Sophia@kali) ~
$ sudo ls -l newfile.txt
-rw-r----- 1 root root 0 Nov  5 16:49 newfile.txt
(Sophia@kali) ~
$
```

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: /home/kali
Text Editor
File: Simple Text Editor | help

(Sophia@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ sudo adduser Sophia sudo
info: Adding user `Sophia' to group `sudo' ...

(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo touch newfile.txt
[sudo] password for Sophia:

(Sophia@kali)-[/home/kali]
└─$ ls -l newfile.txt
ls: cannot access 'newfile.txt': Permission denied

(Sophia@kali)-[/home/kali]
└─$ sudo ls -l newfile.txt
-rw-r----- 1 root root 0 Nov  5 16:49 newfile.txt

(Sophia@kali)-[/home/kali]
└─$ sudo touch Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ ls -l Sophia_homework
ls: cannot access 'Sophia_homework': Permission denied

(Sophia@kali)-[/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 0 Nov  5 17:00 Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ vi Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ vi Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ sudo vi Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ sudo cat Sophia_homework
David Allen

(Sophia@kali)-[/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:03 Sophia_homework

(Sophia@kali)-[/home/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: /home/kali
Text Editor
File: Simple Text Editor.plp
$ sudo touch newfile.txt
[sudo] password for Sophia:
(Sophia@kali)-[~/home/kali]
└─$ ls -l newfile.txt
ls: cannot access 'newfile.txt': Permission denied
(Sophia@kali)-[~/home/kali]
└─$ sudo ls -l newfile.txt
-rw-r--r-- 1 root root 0 Nov  5 16:49 newfile.txt
(Sophia@kali)-[~/home/kali]
└─$ sudo touch Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ ls -l Sophia_homework
ls: cannot access 'Sophia_homework': Permission denied
(Sophia@kali)-[~/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r--r-- 1 root root 0 Nov  5 17:00 Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ vi Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ vi Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ sudo vi Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ sudo cat Sophia_homework
David Allen
(Sophia@kali)-[~/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r--r-- 1 root root 12 Nov  5 17:03 Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project
(Sophia@kali)-[~/home/kali]
└─$ ls -l /home/cyse_project
total 4
-rw-r--r-- 1 root root 12 Nov  5 17:07 Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ ls -l /home/cyse_project/Sophia_homework
-rw-r--r-- 1 root root 12 Nov  5 17:07 /home/cyse_project/Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$
```

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

```
Emma@kali: /home/kali
Text Editor
File Simple Text Editor |lp
(Sophia@kali)-[~/home/kali]
└─$ sudo ls -l newfile.txt
-rw-r----- 1 root root 0 Nov  5 16:49 newfile.txt
(Sophia@kali)-[~/home/kali]
└─$ sudo touch Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ ls -l Sophia_homework
ls: cannot access 'Sophia_homework': Permission denied
(Sophia@kali)-[~/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 0 Nov  5 17:00 Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ vi Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ vi Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ sudo vi Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ sudo cat Sophia_homework
David Allen
(Sophia@kali)-[~/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:03 Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project
(Sophia@kali)-[~/home/kali]
└─$ ls -l /home/cyse_project
total 4
-rw-r----- 1 root root 12 Nov  5 17:07 Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ ls -l /home/cyse_project/Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:07 /home/cyse_project/Sophia_homework
(Sophia@kali)-[~/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[~/home/kali]
└─$ cat /home/cyse_project/Sophia_homework
cat: /home/cyse_project/Sophia_homework: Permission denied
(Emma@kali)-[~/home/kali]
└─$
```

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

```
Applications
File Actions Edit View Help
kali@kali: ~
└─$ sudo ls -l newfile.txt
-rw-r----- 1 root root 0 Nov  5 16:49 newfile.txt

(Sophia@kali)-[/home/kali]
└─$ sudo touch Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ ls -l Sophia_homework
ls: cannot access 'Sophia_homework': Permission denied

(Sophia@kali)-[/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 0 Nov  5 17:00 Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ vi Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ vi Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ sudo vi Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ sudo cat Sophia_homework
David Allen

(Sophia@kali)-[/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:03 Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project

(Sophia@kali)-[/home/kali]
└─$ ls -l /home/cyse_project
total 4
-rw-r----- 1 root root 12 Nov  5 17:07 Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ ls -l /home/cyse_project/Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:07 /home/cyse_project/Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework
cat: /home/cyse_project/Sophia_homework: Permission denied

(Emma@kali)-[/home/kali]
└─$ su kali
Password:
```

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.

```
kali@kali: ~  
File Actions Edit View Help  
└─(Sophia@kali)-[/home/kali]  
└─$ vi Sophia_homework  
└─(Sophia@kali)-[/home/kali]  
└─$ vi Sophia_homework  
└─(Sophia@kali)-[/home/kali]  
└─$ sudo vi Sophia_homework  
└─(Sophia@kali)-[/home/kali]  
└─$ sudo cat Sophia_homework  
David Allen  
└─(Sophia@kali)-[/home/kali]  
└─$ sudo ls -l Sophia_homework  
-rw-r-- 1 root root 12 Nov  5 17:03 Sophia_homework  
└─(Sophia@kali)-[/home/kali]  
└─$ sudo cp Sophia_homework /home/cyse_project  
└─(Sophia@kali)-[/home/kali]  
└─$ ls -l /home/cyse_project  
total 4  
-rw-r-- 1 root root 12 Nov  5 17:07 Sophia_homework  
└─(Sophia@kali)-[/home/kali]  
└─$ ls -l /home/cyse_project/Sophia_homework  
-rw-r-- 1 root root 12 Nov  5 17:07 /home/cyse_project/Sophia_homework  
└─(Sophia@kali)-[/home/kali]  
└─$ su Emma  
Password:  
└─(Emma@kali)-[/home/kali]  
└─$ cat /home/cyse_project/Sophia_homework  
cat: /home/cyse_project/Sophia_homework: Permission denied  
└─(Emma@kali)-[/home/kali]  
└─$ su kali  
Password:  
└─(kali@kali)-[~]  
└─$ logout Sophia  
logout: not login shell  
└─(kali@kali)-[~]  
└─$ sudo chmod g+s /home/cyse_project  
[sudo] password for kali:  
└─(kali@kali)-[~]  
└─$ sudo ls -ld /home/cyse_project  
drwxrws 2 root dalle042 4096 Nov  5 17:07 /home/cyse_project  
└─(kali@kali)-[~]  
└─$
```

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

```
Sophia@kali: /home/kali
Minimize all open windows and show the desktop
File Actions Edit View Help
└─$ sudo vi Sophia_homework
(Sophia@kali)-[/home/kali]
└─$ sudo cat Sophia_homework
David Allen
(Sophia@kali)-[/home/kali]
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:03 Sophia_homework
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project
(Sophia@kali)-[/home/kali]
└─$ ls -l /home/cyse_project
total 4
-rw-r----- 1 root root 12 Nov  5 17:07 Sophia_homework
(Sophia@kali)-[/home/kali]
└─$ ls -l /home/cyse_project/Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:07 /home/cyse_project/Sophia_homework
(Sophia@kali)-[/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework
cat: /home/cyse_project/Sophia_homework: Permission denied
(Emma@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ logout Sophia
logout: not login shell
(kali@kali)-[~]
└─$ sudo chmod g+s /home/cyse_project
[sudo] password for kali:
(kali@kali)-[~]
└─$ sudo ls -ld /home/cyse_project
drwxrws--- 2 root dalle042 4096 Nov  5 17:07 /home/cyse_project
(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework2
[sudo] password for Sophia:
(Sophia@kali)-[/home/kali]
└─$
```

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

```
Applications Emma@kali: /home/kali
File Actions Edit View Help
└─$ sudo ls -l Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:03 Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project

(Sophia@kali)-[/home/kali]
└─$ ls -l /home/cyse_project
total 4
-rw-r----- 1 root root 12 Nov  5 17:07 Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ ls -l /home/cyse_project/Sophia_homework
-rw-r----- 1 root root 12 Nov  5 17:07 /home/cyse_project/Sophia_homework

(Sophia@kali)-[/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework
cat: /home/cyse_project/Sophia_homework: Permission denied

(Emma@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ logout Sophia
logout: not login shell

(kali@kali)-[~]
└─$ sudo chmod g+s /home/cyse_project
[sudo] password for kali:

(kali@kali)-[~]
└─$ sudo ls -ld /home/cyse_project
drwxrws--- 2 root dalle042 4096 Nov  5 17:07 /home/cyse_project

(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework2
[sudo] password for Sophia:

(Sophia@kali)-[/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework2
David Allen

(Emma@kali)-[/home/kali]
└─$
```

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.

```
kali@kali: ~  
└─$ ls -l /home/cyse_project/Sophia_homework  
-rw-r----- 1 root root 12 Nov  5 17:07 /home/cyse_project/Sophia_homework  
  
└─$ su Emma  
Password:  
└─$ cat /home/cyse_project/Sophia_homework  
cat: /home/cyse_project/Sophia_homework: Permission denied  
  
└─$ su kali  
Password:  
└─$ logout Sophia  
logout: not login shell  
  
└─$ sudo chmod g+s /home/cyse_project  
[sudo] password for kali:  
  
└─$ sudo ls -ld /home/cyse_project  
drwxrws--- 2 root dalle042 4096 Nov  5 17:07 /home/cyse_project  
  
└─$ su Sophia  
Password:  
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework2  
[sudo] password for Sophia:  
  
└─$ su Emma  
Password:  
└─$ cat /home/cyse_project/Sophia_homework2  
David Allen  
  
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework  
[sudo] password for Emma:  
Emma is not in the sudoers file.  
  
└─$ su kali  
Password:  
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework  
  
└─$
```

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

```
Sophia@kali: /home/kali
File Actions Edit View Help
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework
cat: /home/cyse_project/Sophia_homework: Permission denied

(Emma@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ logout Sophia
logout: not login shell

(kali@kali)-[~]
└─$ sudo chmod g+s /home/cyse_project
[sudo] password for kali:

(kali@kali)-[~]
└─$ sudo ls -ld /home/cyse_project
drwxrws— 2 root dalle042 4096 Nov  5 17:07 /home/cyse_project

(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework2
[sudo] password for Sophia:

(Sophia@kali)-[/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework2
David Allen

(Emma@kali)-[/home/kali]
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework
[sudo] password for Emma:
Emma is not in the sudoers file.

(Emma@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework

(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework3

(Sophia@kali)-[/home/kali]
└─$
```

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

```
Olivia@kali: /home/kali
File Actions Edit View Help
Password:
(kali@kali)-[~]
└─$ logout Sophia
logout: not login shell

(kali@kali)-[~]
└─$ sudo chmod g+s /home/cyse_project
[sudo] password for kali:

(kali@kali)-[~]
└─$ sudo ls -ld /home/cyse_project
drwxrws— 2 root dalle042 4096 Nov  5 17:07 /home/cyse_project

(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework2
[sudo] password for Sophia:

(Sophia@kali)-[/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework2
David Allen

(Emma@kali)-[/home/kali]
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework
[sudo] password for Emma:
Emma is not in the sudoers file.

(Emma@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework

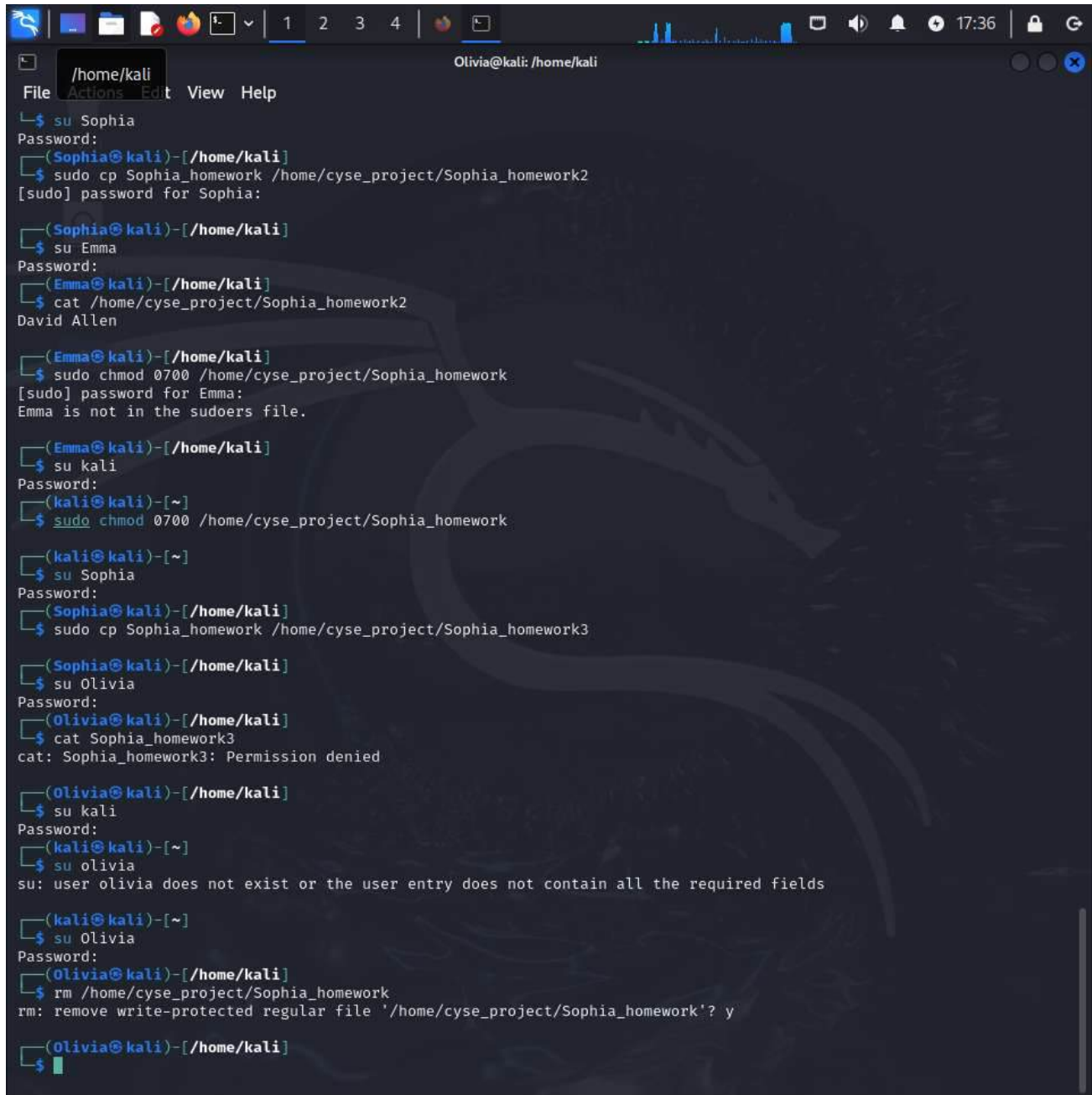
(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework3

(Sophia@kali)-[/home/kali]
└─$ su Olivia
Password:
(Olivia@kali)-[/home/kali]
└─$ cat Sophia_homework3
cat: Sophia_homework3: Permission denied

(Olivia@kali)-[/home/kali]
└─$ █
```

Extra credit: Sticky Bit (10 points)

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



```
Olivia@kali: /home/kali
File Actions Edit View Help
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework2
[sudo] password for Sophia:

(Sophia@kali)-[/home/kali]
└─$ su Emma
Password:
(Emma@kali)-[/home/kali]
└─$ cat /home/cyse_project/Sophia_homework2
David Allen

(Emma@kali)-[/home/kali]
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework
[sudo] password for Emma:
Emma is not in the sudoers file.

(Emma@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework

(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework3

(Sophia@kali)-[/home/kali]
└─$ su Olivia
Password:
(Olivia@kali)-[/home/kali]
└─$ cat Sophia_homework3
cat: Sophia_homework3: Permission denied

(Olivia@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ su olivia
su: user olivia does not exist or the user entry does not contain all the required fields

(kali@kali)-[~]
└─$ su Olivia
Password:
(Olivia@kali)-[/home/kali]
└─$ rm /home/cyse_project/Sophia_homework
rm: remove write-protected regular file '/home/cyse_project/Sophia_homework'? y

(Olivia@kali)-[/home/kali]
└─$
```

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

```
kali@kali: ~  
└─$ su Emma  
Password:  
(Emma@kali)-[/home/kali]  
└─$ cat /home/cyse_project/Sophia_homework2  
David Allen  
  
(Emma@kali)-[/home/kali]  
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework  
[sudo] password for Emma:  
Emma is not in the sudoers file.  
  
(Emma@kali)-[/home/kali]  
└─$ su kali  
Password:  
(kali@kali)-[~]  
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework  
  
(kali@kali)-[~]  
└─$ su Sophia  
Password:  
(Sophia@kali)-[/home/kali]  
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework3  
  
(Sophia@kali)-[/home/kali]  
└─$ su Olivia  
Password:  
(Olivia@kali)-[/home/kali]  
└─$ cat Sophia_homework3  
cat: Sophia_homework3: Permission denied  
  
(Olivia@kali)-[/home/kali]  
└─$ su kali  
Password:  
(kali@kali)-[~]  
└─$ su olivia  
su: user olivia does not exist or the user entry does not contain all the required fields  
  
(kali@kali)-[~]  
└─$ su Olivia  
Password:  
(Olivia@kali)-[/home/kali]  
└─$ rm /home/cyse_project/Sophia_homework  
rm: remove write-protected regular file '/home/cyse_project/Sophia_homework'? y  
  
(Olivia@kali)-[/home/kali]  
└─$ su kali  
Password:  
(kali@kali)-[~]  
└─$ sudo chmod +t /home/cyse_project  
  
(kali@kali)-[~]  
└─$
```

Step 3. Switch to Olivia' account. Try to delete "Sophia_homework3" in the /home/cyse_project directory. Can you delete it this time? Why?

Can't delete because Olivia doesn't have permission due to sticky bit; only the owner can delete the file

```
Olivia@kali: /home/kali
Terminal Emulator
File Action Use the command line
└─$ su kali
Password:
(kali@kali)-[~]
└─$ sudo chmod 0700 /home/cyse_project/Sophia_homework
(kali@kali)-[~]
└─$ su Sophia
Password:
(Sophia@kali)-[/home/kali]
└─$ sudo cp Sophia_homework /home/cyse_project/Sophia_homework3
(Sophia@kali)-[/home/kali]
└─$ su Olivia
Password:
(Olivia@kali)-[/home/kali]
└─$ cat Sophia_homework3
cat: Sophia_homework3: Permission denied
(Olivia@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ su olivia
su: user olivia does not exist or the user entry does not contain all the required fields
(kali@kali)-[~]
└─$ su Olivia
Password:
(Olivia@kali)-[/home/kali]
└─$ rm /home/cyse_project/Sophia_homework
rm: remove write-protected regular file '/home/cyse_project/Sophia_homework'? y
(Olivia@kali)-[/home/kali]
└─$ su kali
Password:
(kali@kali)-[~]
└─$ sudo chmod +t /home/cyse_project
(kali@kali)-[~]
└─$ su Olivia
Password:
su: Authentication failure
(kali@kali)-[~]
└─$ su Olivia
Password:
(Olivia@kali)-[/home/kali]
└─$ rm /home/cyse_project/Sophia_homework3
rm: remove write-protected regular file '/home/cyse_project/Sophia_homework3'? y
rm: cannot remove '/home/cyse_project/Sophia_homework3': Operation not permitted
(Olivia@kali)-[/home/kali]
└─$ █
```