

Diane Gilzow


CYSE 270

March 10, 2025

Assignment 6 - File Permissions

Task A: Get accounts and groups ready

1. Create three groups - employee, payroll, and admin.



```
(student@kali.example.com)-[~]  
$ sudo groupadd employee  
  
(student@kali.example.com)-[~]  
$ sudo groupadd payroll  
  
(student@kali.example.com)-[~]  
$ sudo groupadd admin
```

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.

```
(student@kali.example.com)-[~]
└─$ sudo useradd -m -d /home/Sophia -g employee -s /bin/bash Sophia

(student@kali.example.com)-[~]
└─$ sudo passwd Sophia
New password:
Retype new password:
passwd: password updated successfully

(student@kali.example.com)-[~]
└─$ sudo useradd -m -d /home/Olivia -g payroll -s /bin/bash Olivia

(student@kali.example.com)-[~]
└─$ sudo passwd Olivia
New password:
Retype new password:
passwd: password updated successfully

(student@kali.example.com)-[~]
└─$ sudo useradd -m -d /home/Emma -g admin -s /bin/bash Emma

(student@kali.example.com)-[~]
└─$ sudo passwd Emma
New password:
Retype new password:
passwd: password updated successfully
```

Sophia password - Sophia

Olivia password - Olivia

Emma password - Emma

3. Create a shared group called "your_midas" and set this shared group as the above accounts' secondary group.

```
(student@kali.example.com)-[~]
└─$ sudo groupadd dgilz001

(student@kali.example.com)-[~]
└─$ sudo usermod -aG dgilz001 Sophia
```

```
(student@kali.example.com)-[~]
└─$ sudo usermod -aG dgilz001 Olivia

(student@kali.example.com)-[~]
└─$ sudo usermod -aG dgilz001 Emma
```

```
(student@kali.example.com)-[~]
└─$ groups Sophia
Sophia : employee dgilz001

(student@kali.example.com)-[~]
└─$ groups Olivia
Olivia : payroll dgilz001

(student@kali.example.com)-[~]
└─$ groups Emma
Emma : admin dgilz001
```

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.

```
(student@kali.example.com)-[~]
└─$ sudo mkdir /home/cyse_project

(student@kali.example.com)-[~]
└─$ sudo chgrp dgilz001 /home/cyse_project
```

```
(student@kali.example.com)-[~]
└─$ ls -la /home/cyse_project
total 8
drwxr-xr-x 2 root dgilz001 4096 Mar 11 00:37 .
drwxr-xr-x 8 root root      4096 Mar 11 00:37 ..
```

5. Change the permissions of the /home/syse_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.

```
(student@kali.example.com)-[~]
└─$ sudo chmod 770 /home/cyse_project

(student@kali.example.com)-[~]
└─$ ls -ld /home/cyse_project
drwxrwx--- 2 root dgilz001 4096 Mar 11 00:37 /home/cyse_project
```

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.

```
(student@kali.example.com)-[~]
└─$ sudo su - Sophia
(Sophia@kali)-[~]
└─$ umask 027

(Sophia@kali)-[~]
└─$ touch file

(Sophia@kali)-[~]
└─$ ls -l
total 0
-rw-r----- 1 Sophia employee 0 Mar 11 02:34 file
```

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)-[~]
└─$ vi Sophia_homework

(Sophia@kali)-[~]
└─$ ls -l Sophia_homework
-rw-r----- 1 Sophia employee 13 Mar 11 01:10 Sophia_homework

(Sophia@kali)-[~]
└─$ cat Sophia_homework
Diane Gilzow
```

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 /home/cyse_project/Sophia_homework
-rw-r----- 1 Sophia employee 13 Mar 11 01:12 /home/cyse_project/Sophia_homework
```

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

```
(student@kali.example.com)-[~]
└─$ sudo su - Emma
(Emma@kali)-[~]
└─$ cd /home/cyse_project

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

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

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

(student@kali.example.com)-[~]
└─$
```

Task B: Set SGID permission

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.

```
(student@kali.example.com)-[~]
└─$ sudo chmod g+s /home/cyse_project
```

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

```
(student@kali.example.com)-[~]
└─$ sudo su - Sophia
(Sophia@kali)-[~]
└─$ cp Sophia_homework Sophia_homework2

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

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

```
(student@kali.example.com)-[~]
└─$ sudo su - Emma
(Emma@kali)-[~]
└─$ cd /home/cyse_project

(Emma@kali)-[/home/cyse_project]
└─$ cat Sophia_homework2
Diane Gilzow
```

Task C: Unset SGID permissions

1. Switch to root or 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.

```
(student@kali.example.com)-[~]
└─$ sudo chmod g-s /home/cyse_project
```

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

```
(student@kali.example.com)-[~]  
└─$ sudo su - Sophia  
(Sophia@kali)-[~]  
└─$ cp Sophia_homework Sophia_homework3  
  
(Sophia@kali)-[~]  
└─$ cp Sophia_homework3 /home/cyse_project
```

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

```
(student@kali.example.com)-[~]  
└─$ sudo su - Olivia  
(Olivia@kali)-[~]  
└─$ cd /home/cyse_project  
  
(Olivia@kali)-[/home/cyse_project]  
└─$ cat Sophia_homework3  
cat: Sophia_homework3: Permission denied
```