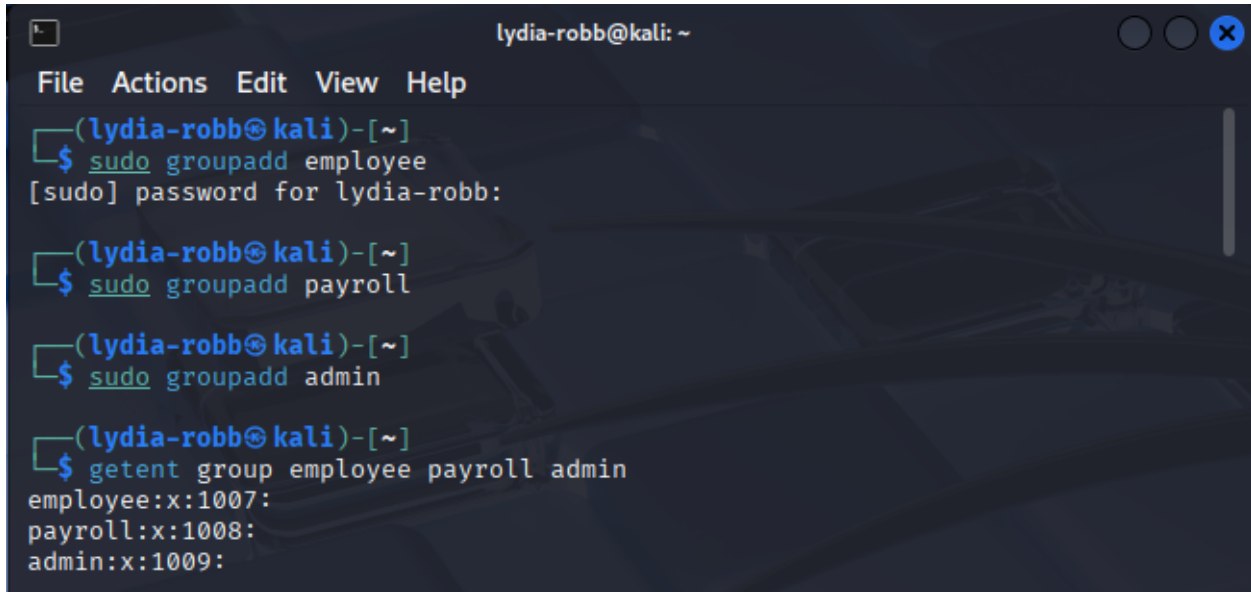


Kali Linux Assignment 6

Task A

Step 1: Create Groups

- sudo groupadd employee
- sudo groupadd payroll
- sudo groupadd admin
- getent group employee payroll admin



```
lydia-robb@kali: ~  
File Actions Edit View Help  
(lydia-robb@kali)-[~]  
└─$ sudo groupadd employee  
[sudo] password for lydia-robb:  
(lydia-robb@kali)-[~]  
└─$ sudo groupadd payroll  
(lydia-robb@kali)-[~]  
└─$ sudo groupadd admin  
(lydia-robb@kali)-[~]  
└─$ getent group employee payroll admin  
employee:x:1007:  
payroll:x:1008:  
admin:x:1009:
```

Step 2: create users (with home dirs, primary groups and /bin/bash shell) and set passwords

- sudo useradd -m -d /home/sophia -s /bin/bash -g employee sophia
- sudo passwd sophia
- sudo useradd -m -d /home/olivia -s /bin/bash -g payroll olivia
- sudo passwd olivia
- sudo useradd -m -d /home/emma -s /bin/bash -g admin emma
- sudo passwd emma
- getent passwd sophia olivia emma
- id sophia
- id olivia
- id emma

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

```
lydia-robb@kali: ~  
File Actions Edit View Help  
  
(lydia-robb@kali)-[~]  
└─$ sudo useradd -m -d /home/emma -s /bin/bash -g admin emma  
  
(lydia-robb@kali)-[~]  
└─$ sudo passwd emma  
New password:  
Retype new password:  
passwd: password updated successfully  
  
(lydia-robb@kali)-[~]  
└─$ getent passwd sophia olivia emma  
sophia:x:1007:1007::/home/sophia:/bin/bash  
olivia:x:1008:1008::/home/olivia:/bin/bash  
emma:x:1009:1009::/home/emma:/bin/bash  
  
(lydia-robb@kali)-[~]  
└─$ id sophia  
uid=1007(sophia) gid=1007(employee) groups=1007(employee)  
  
(lydia-robb@kali)-[~]  
└─$ id olivia  
uid=1008(olivia) gid=1008(payroll) groups=1008(payroll)  
  
(lydia-robb@kali)-[~]  
└─$ id emma  
uid=1009(emma) gid=1009(admin) groups=1009(admin)
```

Step 3: create shared group (lrobb005) and add as secondary group for each user

- sudo groupadd lrobb005
- sudo usermod -aG lrobb005 sophia
- sudo usermod -aG lrobb005 olivia
- sudo usermod -aG lrobb005 emma
- id sophia
- id olivia
- id emma

```
lydia-robb@kali: ~  
File Actions Edit View Help  
(lydia-robb@kali)-[~]  
└─$ id emma  
uid=1009(emma) gid=1009(admin) groups=1009(admin)  
  
(lydia-robb@kali)-[~]  
└─$ sudo groupadd lrobb005  
  
(lydia-robb@kali)-[~]  
└─$ sudo usermod -aG lrobb005 sophia  
  
(lydia-robb@kali)-[~]  
└─$ sudo usermod -aG lrobb005 olivia  
  
(lydia-robb@kali)-[~]  
└─$ sudo usermod -aG lrobb005 emma  
  
(lydia-robb@kali)-[~]  
└─$ id sophia  
uid=1007(sophia) gid=1007(employee) groups=1007(employee),1010(lrobb005)  
  
(lydia-robb@kali)-[~]  
└─$ id olivia  
uid=1008(olivia) gid=1008(payroll) groups=1008(payroll),1010(lrobb005)  
  
(lydia-robb@kali)-[~]  
└─$ id emma  
uid=1009(emma) gid=1009(admin) groups=1009(admin),1010(lrobb005)
```

Step 4: create shared directory and set group owner

- sudo mkdir -p /home/cyse_project
- sudo chown root:replace_with_midas /home/cyse_project
- ls -ld /home/cyse_project

```
lydia-robb@kali: ~
File Actions Edit View Help

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

(lydia-robb@kali)-[~]
└─$ sudo chown root:lrobb005 /home/cyse_project

(lydia-robb@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxr-xr-x 2 root lrobb005 4096 Oct  9 15:54 /home/cyse_project

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

(lydia-robb@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxrwx--- 2 root lrobb005 4096 Oct  9 15:54 /home/cyse_project
```

Step 5: set directory permissions to rwxrwx---

- sudo chmod 0770 /home/cyse_project
- ls -ld /home/cyse_project

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

(lydia-robb@kali)-[~]
└─$ sudo chown root:lrobb005 /home/cyse_project

(lydia-robb@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxr-xr-x 2 root lrobb005 4096 Oct  9 15:54 /home/cyse_project
```

Step 6: switch to Sophia and set umask so new files are rw-r----- (640)

- sudo -i -u sophia bash
- umask 026
- umask
- touch ~/umask_test_file
- ls -l ~/umask_test_file
- rm ~/umask_test_file

```
lydia-robb@kali: ~
File Actions Edit View Help
└─$ sudo chmod 770 /home/cyse_project

(lydia-robb@kali)-[~]
└─$ ls -ld /home/cyse_project
drwxrwx--- 2 root lrobb005 4096 Oct  9 15:54 /home/cyse_project

(lydia-robb@kali)-[~]
└─$ sudo -i -u sophia bash
(sophia@kali)-[~]
└─$ umask 026

(sophia@kali)-[~]
└─$ umask
0026

(sophia@kali)-[~]
└─$ touch ~/umask_test_file

(sophia@kali)-[~]
└─$ ls -l ~/umask_test_file
-rw-r----- 1 sophia employee 0 Oct  9 16:04 /home/sophia/umask_test_file

(sophia@kali)-[~]
└─$ rm ~/umask_test_file

(sophia@kali)-[~]
└─$ echo "Lydia Robb" > ~/sophia_homework
```

Steps 7-8: create Sophia_homework in Sophia's home with your name inside and copy Sophia_homework to the shared directory and check permissions

- echo "Your Full Name Here" > ~/Sophia_homework
- cat ~/Sophia_homework
- ls -l ~/Sophia_homework
- cp ~/Sophia_homework /home/cyse_project/
- ls -l /home/cyse_project/Sophia_homework
- ls -l /home/cyse_project | grep Sophia_homework

```
(sophia@kali)-[~]
└─$ echo "Lydia Robb" > ~/sophia_homework

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

(sophia@kali)-[~]
└─$ ls -l ~/sophia_homework
-rw-r----- 1 sophia employee 11 Oct  9 16:06 /home/sophia/sophia_homework

(sophia@kali)-[~]
└─$ cp ~/sophia_homework /home/cyse_project/

(sophia@kali)-[~]
└─$ ls -l /home/cyse_project/sophia_homework
-rw-r----- 1 sophia employee 11 Oct  9 16:08 /home/cyse_project/sophia_homework

(sophia@kali)-[~]
└─$ ls -l /home/cyse_project | grep sophia_homework
-rw-r----- 1 sophia employee 11 Oct  9 16:08 sophia_homework
```

Step 9-10: switch to Emma and try to read the file and exit Emma and Sophia accounts

- exit
- sudo -i -u emma bash
- cat /home/cyse_project/Sophia_homework
- exit

```
(sophia@kali)-[~]
└─$ ls -l /home/cyse_project | grep sophia_homework
-rw-r----- 1 sophia employee 11 Oct  9 16:08 sophia_homework

(sophia@kali)-[~]
└─$ exit
exit

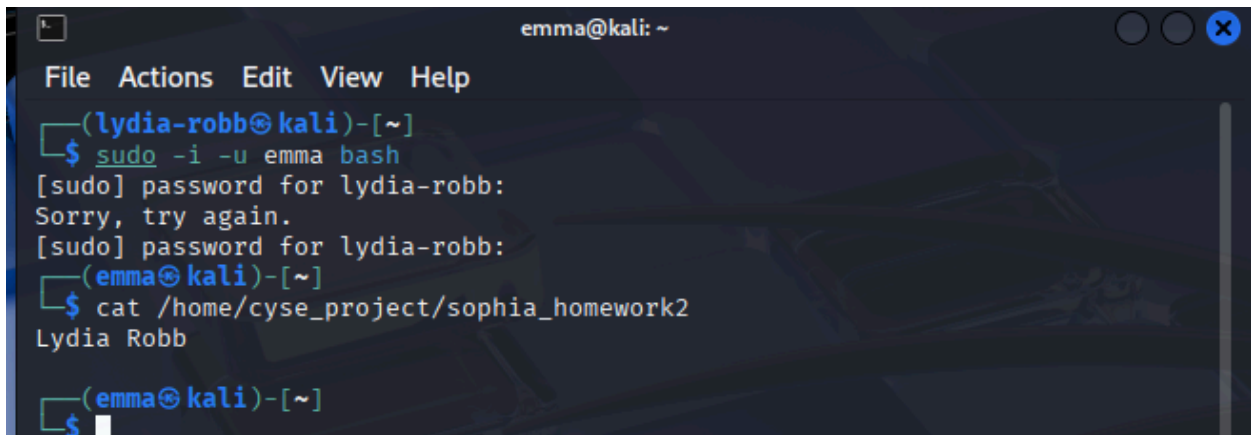
(lydia-robb@kali)-[~]
└─$ sudo -i -u emma bash
(emma@kali)-[~]
└─$ cat /home/cyse_project/sophia_homework
cat: /home/cyse_project/sophia_homework: Permission denied

(emma@kali)-[~]
└─$ exit
exit
```

Task B

Step 1-3: set the directory SGID so files created inside inherit directory group, then switch to Sophia and copy Sophia_homework as Sophia_homework2, then switch to Emma and try to read the new copy

- sudo chmod 2770 /home/cyse_project
- ls -ld /home/cyse_project
- sudo -i -u sophia bash
- cp ~/Sophia_homework /home/cyse_project/Sophia_homework2
- ls -l /home/cyse_project/Sophia_homework2
- exit
- sudo -i -u emma bash
- cat /home/cyse_project/Sophia_homework2



```
emma@kali: ~  
File Actions Edit View Help  
(lydia-robb@kali)-[~]  
└─$ sudo -i -u emma bash  
[sudo] password for lydia-robb:  
Sorry, try again.  
[sudo] password for lydia-robb:  
(emma@kali)-[~]  
└─$ cat /home/cyse_project/sophia_homework2  
Lydia Robb  
(emma@kali)-[~]  
└─$
```

Task C

Step 1: ensure `acl` is available and set a default ACL that denies the group read/execute on newly created files

- sudo apt update
- sudo apt install -y acl
- sudo chmod 2770 /home/cyse_project
- sudo chown root:lrobb005 /home/cyse_project
- sudo setfacl -d -m g::--- /home/cyse_project
- getfacl /home/cyse_project

```
olivia@kali: ~  
File Actions Edit View Help  
(lydia-robb@kali)-[~]  
└─$ sudo setfacl -d -m g::— /home/cyse_project  
[sudo] password for lydia-robb:  
  
(lydia-robb@kali)-[~]  
└─$ getfacl /home/cyse_project  
getfacl: Removing leading '/' from absolute path names  
# file: home/cyse_project  
# owner: root  
# group: lrobb005  
# flags: -s-  
user::rwx  
group::rwx  
other::—  
default:user::rwx  
default:group::—  
default:other::—
```

Step 2: switch to Sophia and copy Sophia_homework as Sophia_homework3

- sudo -i -u sophia bash
- cp ~/Sophia_homework /home/cyse_project/Sophia_homework3
- ls -l /home/cyse_project/Sophia_homework3
- getfacl /home/cyse_project/Sophia_homework3

```
(lydia-robb@kali)-[~]  
└─$ sudo -i -u sophia bash  
(sophia@kali)-[~]  
└─$ cp ~/sophia_homework /home/cyse_project/sophia_homework3  
  
(sophia@kali)-[~]  
└─$ ls -l /home/cyse_project/sophia_homework3  
-rw----- 1 sophia lrobb005 11 Oct 10 09:38 /home/cyse_project/sophia_homework3  
  
(sophia@kali)-[~]  
└─$ getfacl /home/cyse_project/sophia_homework3  
getfacl: Removing leading '/' from absolute path names  
# file: home/cyse_project/sophia_homework3  
# owner: sophia  
# group: lrobb005  
user::rw-  
group::—  
other::—
```

Step 3: switch to Olivia and try to read Sophia_homework3

- exit
- sudo -i -u olivia bash
- cat /home/cyse_project/Sophia_homework3

```
(sophia@kali)-[~]
└─$ exit
exit

(lydia-robb@kali)-[~]
└─$ sudo -i -u olivia bash
(olivia@kali)-[~]
└─$ cat /home/cyse_project/sophia_homework3
cat: /home/cyse_project/sophia_homework3: Permission denied

(olivia@kali)-[~]
└─$ █
```

Result: permission denied