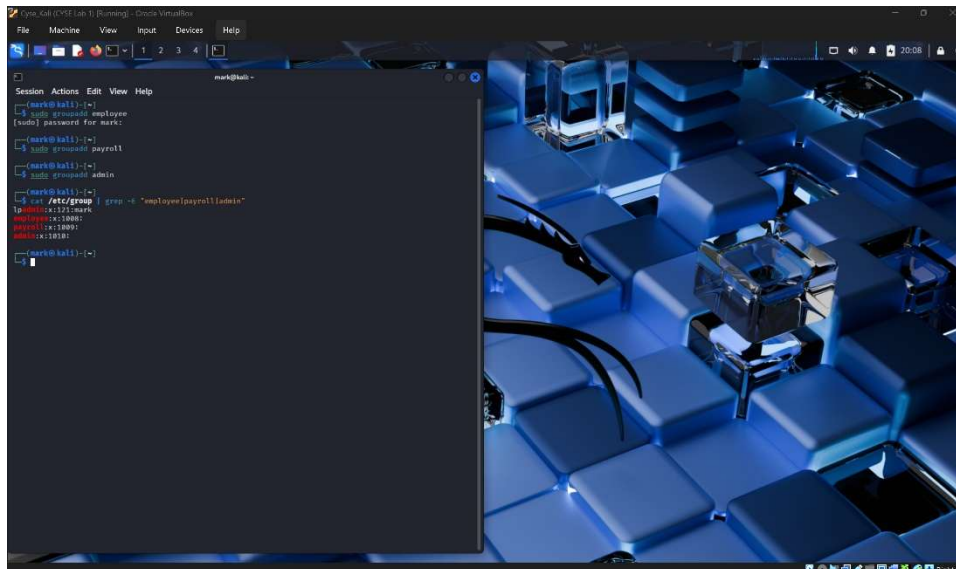CYSE 270 Assignment 6 – File Permissions
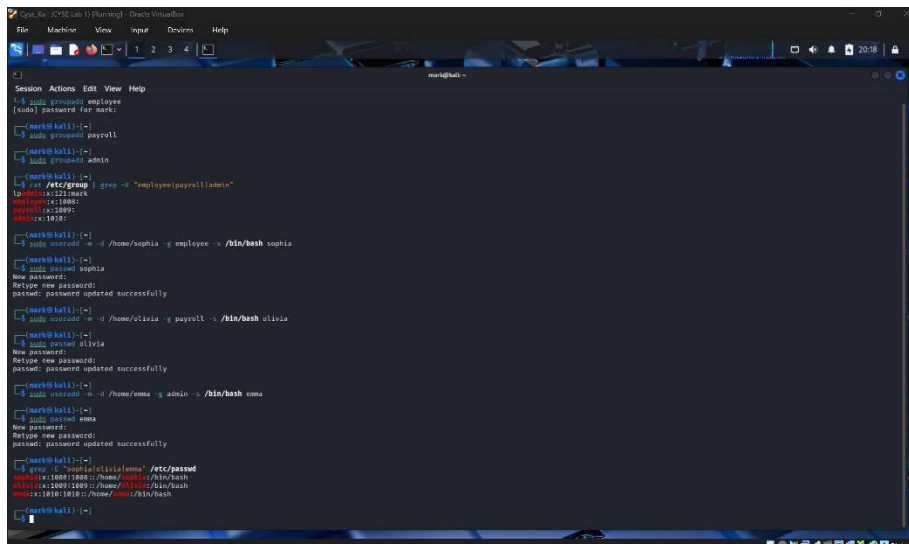
Task A – Step 1 - Create three groups- employee, payroll, and admin. (You may refer to the slides under Module 2 – Group Management)

used sudo groupadd employee

sudo groupadd payroll

sudo groupadd admin then verified.

Step 2 - 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.

used sudo useradd to create users with home directores (-m -d) with primary group (-g), and shell (-s). Passwords were set to 1234 using sudo passwd.
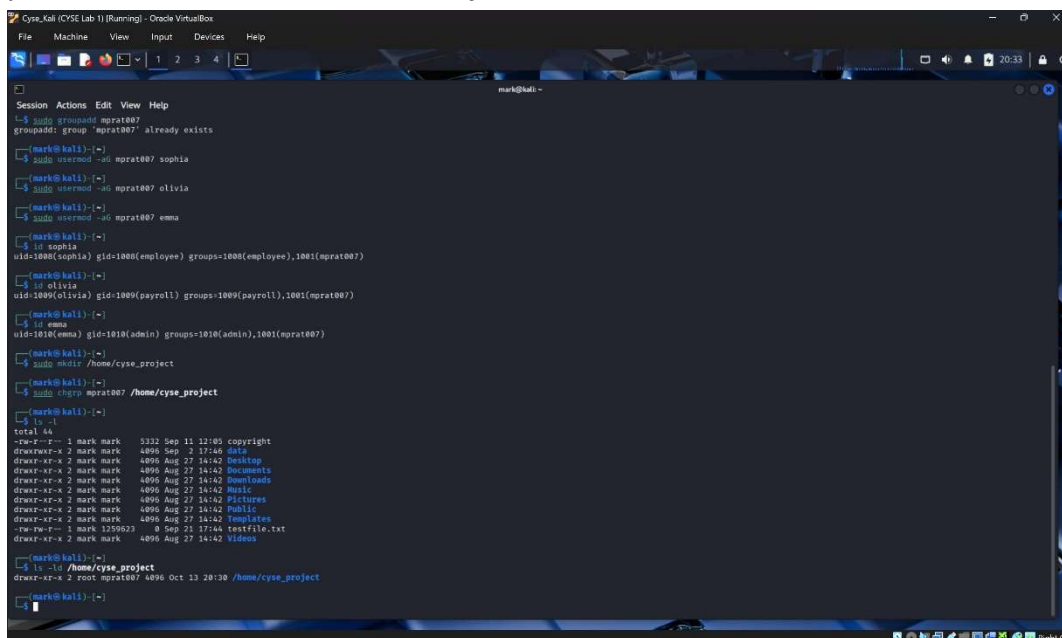
Step 3 - Create a shared group called "mprat007" and set this shared group as the above accounts' secondary group. After this step, remember to check each user's group profile.

used sudo groupadd mprat007, group already existed. Modified Sophia Olivia and Emma using sudo usermod -aG to append users without overwriting existing groups.
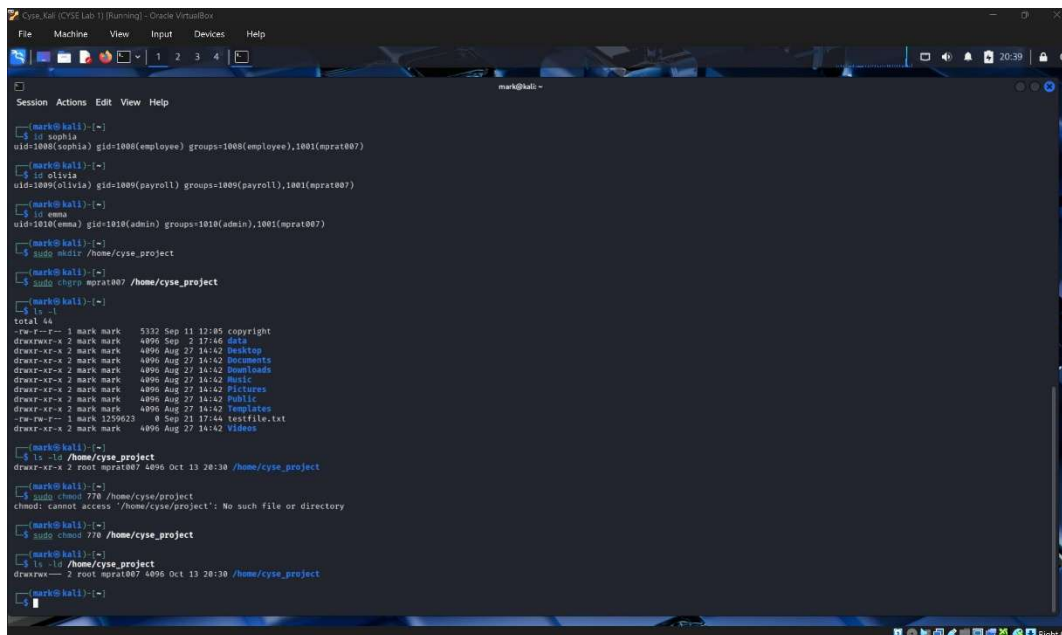
Step 4 - Create a directory named /home/cyse_project, which is to be owned by the "mprat007" group which is a shared group. After this step, remember to check the permission of this shared directory.

made /home/cyse_project directory using mkdir command then changed ownership using chgrp command.

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.

usded sudo chmod 770 /home/cyse_project to change to permissions to "rwxrwx"

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.
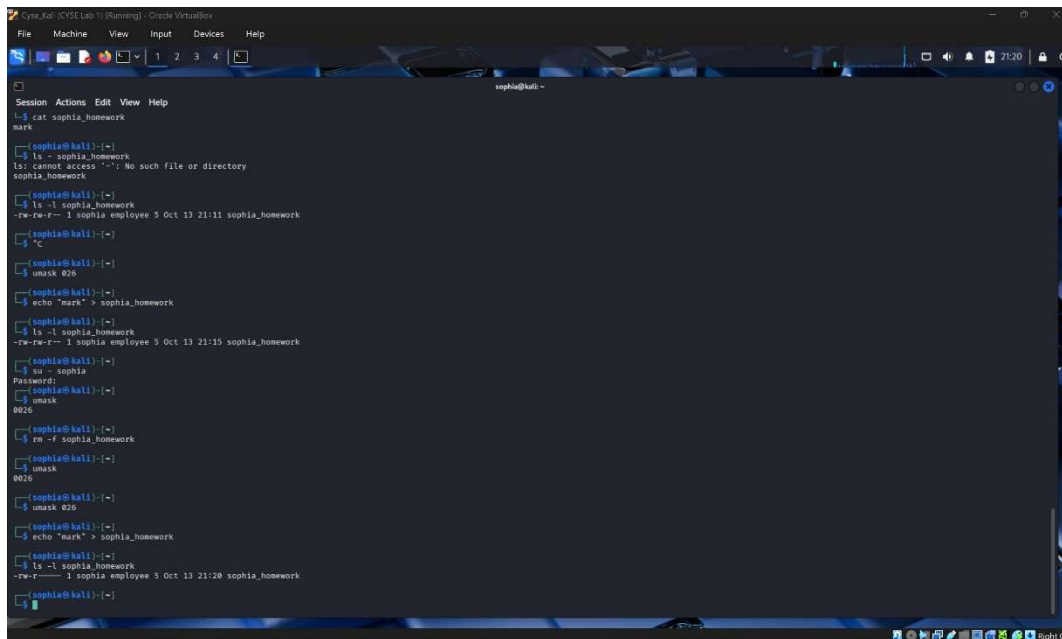
used 'su – Sophia to switch to sophia's account, used umask 026 to set umask value to 026, used touch to create 'newfile' to verify the change. Used exit to end session with Sophia.

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)

started session using su – sophia, used umask 026 to subtract write permission for group and all for others. Created file using echo "mark" Sophia_homework. Initially I had trouble getting the correct permissions for Sophia_homework so had to remove the file and start again. Used ls -l Sophia_homework to verify the fix and it shows correct permissions.

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.
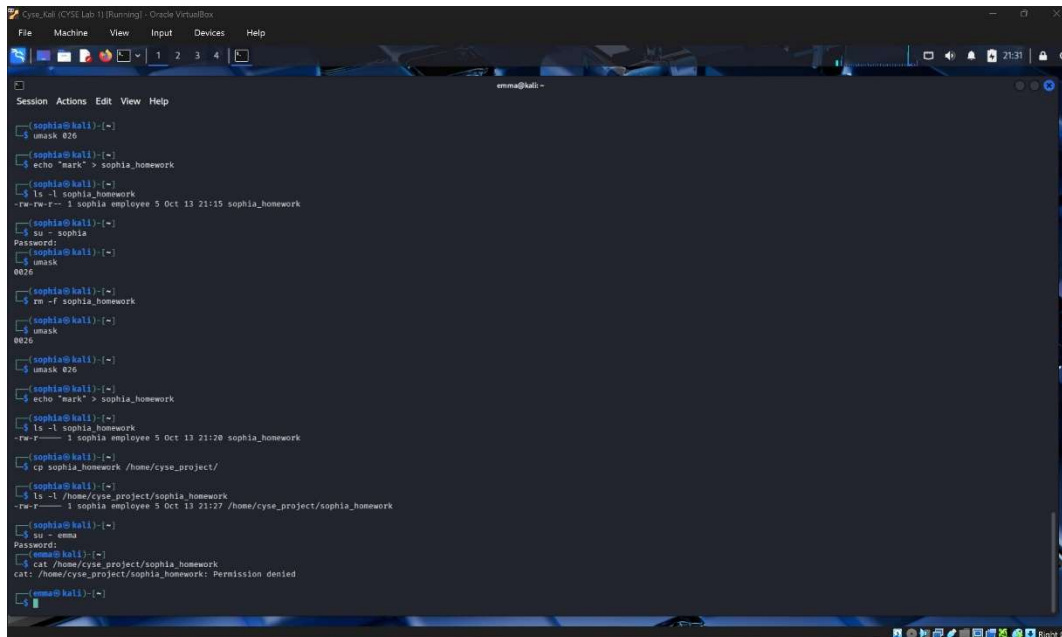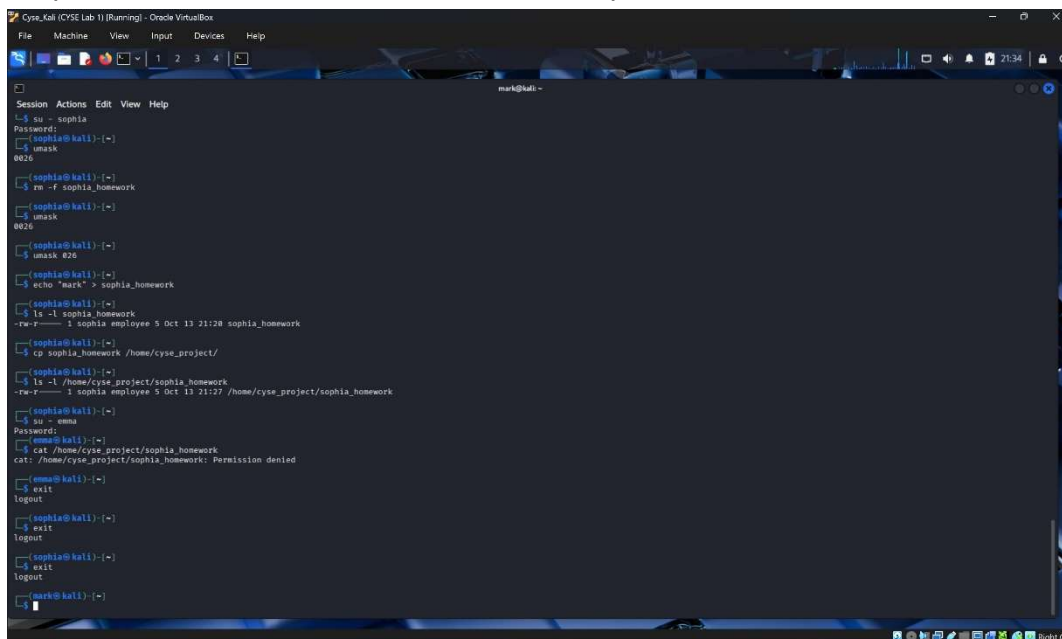

used cp Sophia_homework /home/cyse_project/ to copy file then ls -l /home/cyse_project/Sophia_homework to verify correct permissions.

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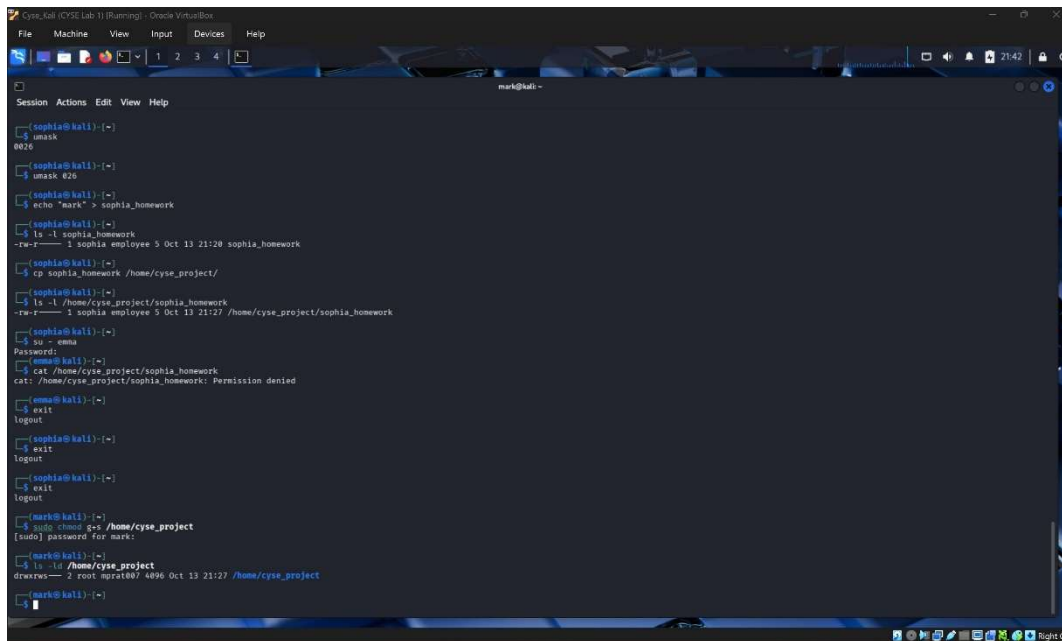

switched to emmas account using su – emma. Tried to read sophia's homework using cat /home/cyse_project/Sophia_homework. Permission was denied as expected.

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

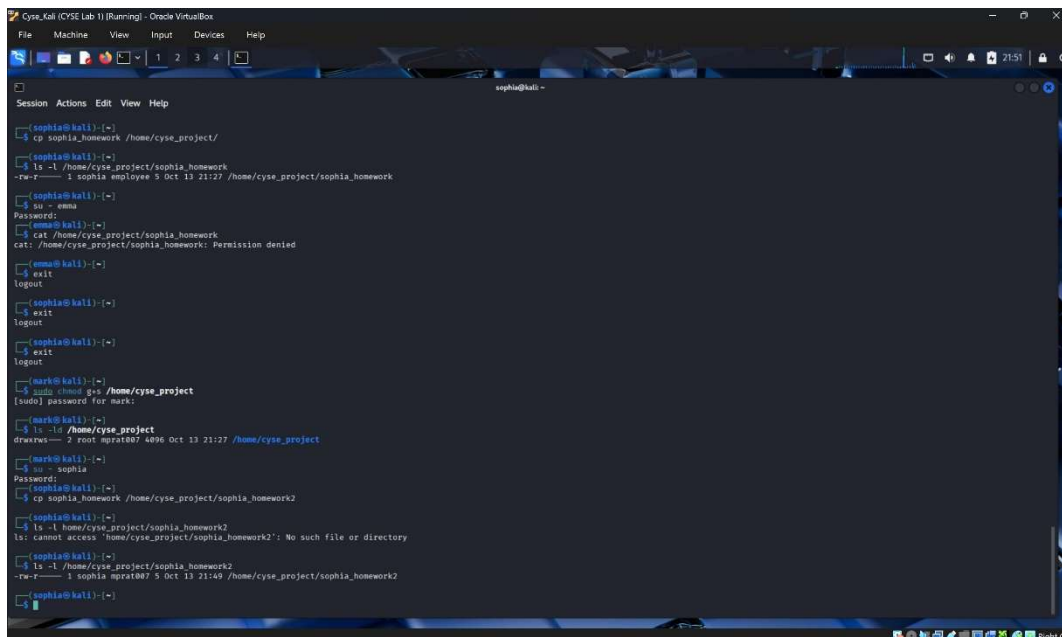exited out of all sessions of Sophia and emma using the exit command.

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.

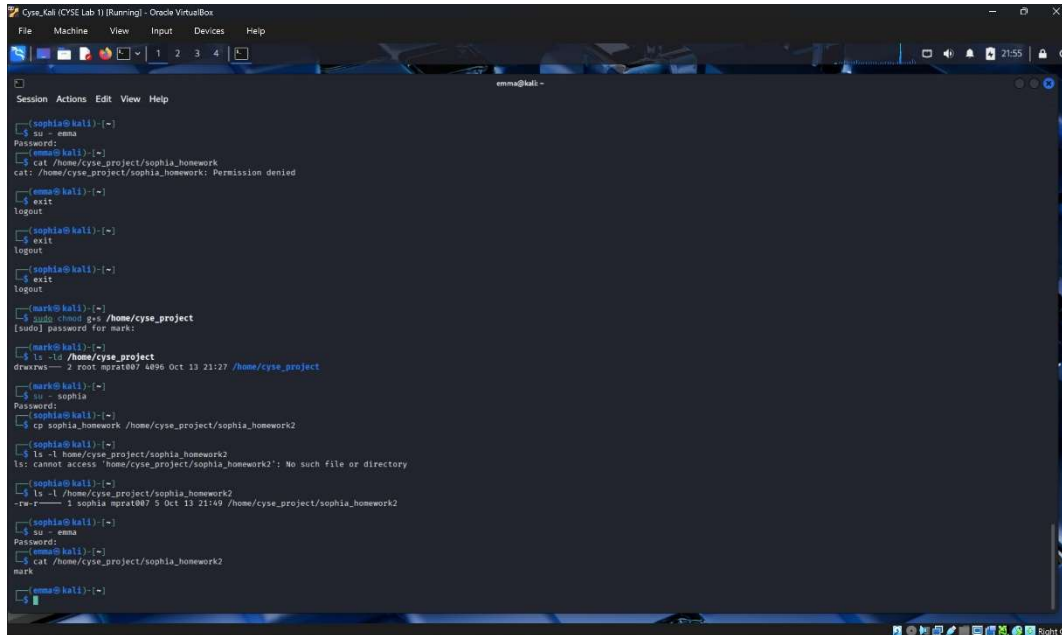used sudo chmod g+s so directory files inherit group permissions. Verified using ls – ld /home/cyse_project.

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

switched to sophia's account using su – Sophia, used cp Sophia_homework /home/cyse_project/Sophia_homework2 to copy into Sophia_homework2.
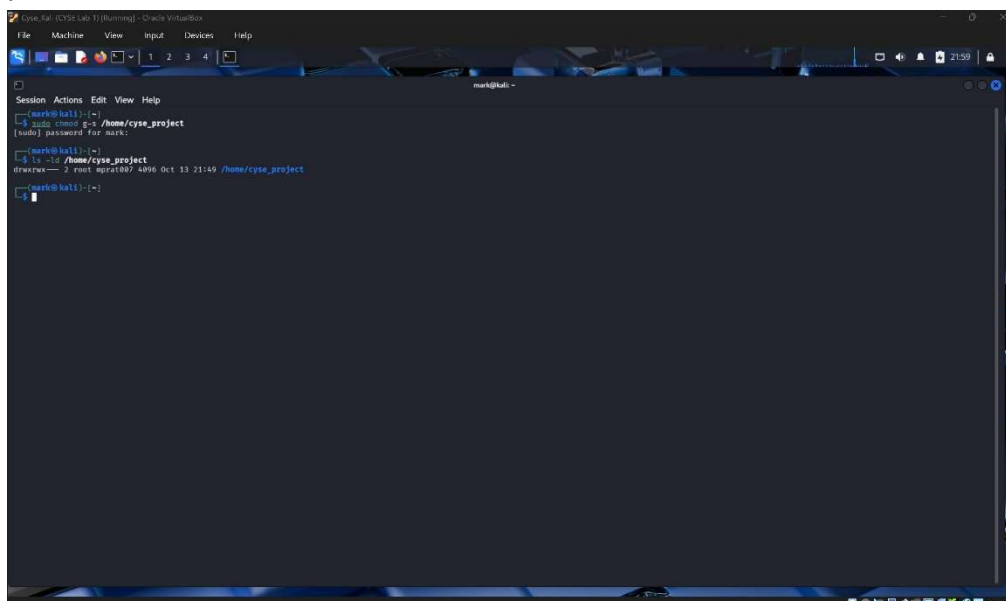
Step 3 - Switch to Emma's account. Try to read "Sophia_ homework2" in the /home/cyse_project directory.

switched to emma's account using su – emma, read homework2 file successfully using cat /home/cyse_project_homework2.
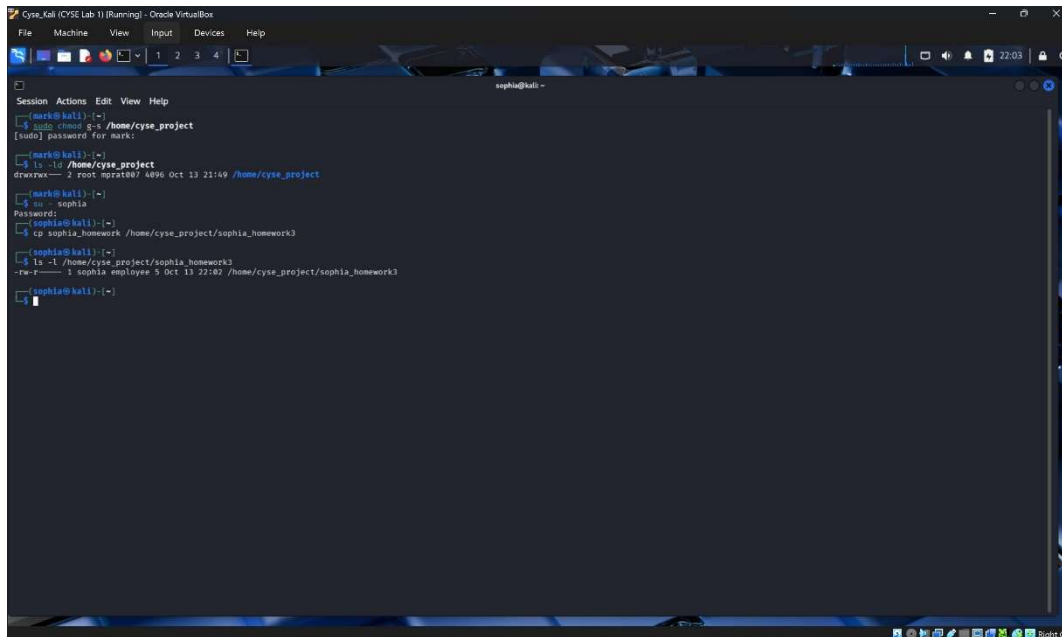
Task C Step 1 - Switch to root the regular user's account. To disallow group members to access the files in the shared folder, you need to fix the sharing issue by setting the correct SGID group values to /home/cyse_project directory to remove the group user read permission.

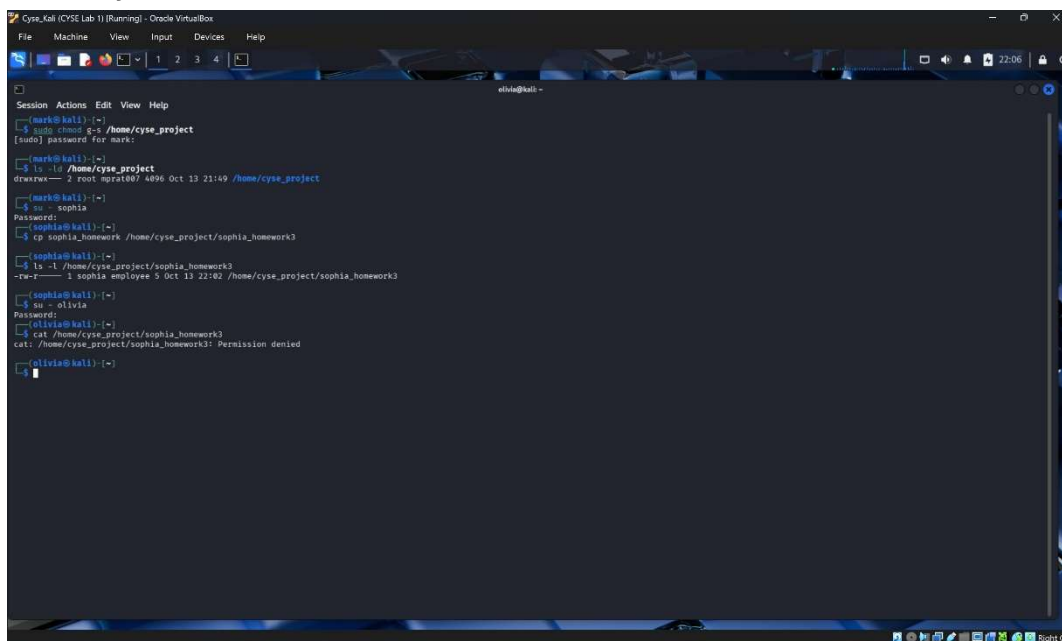used sudo chmod g-s /home/cyse_project to remove sgid so new files won't inherit group read permission.

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

switched to Sophias account using su – Sophia, used cp Sophia_homwork /home/cyse_project/Sophia_homework3 to copy the homework over to a new directory.
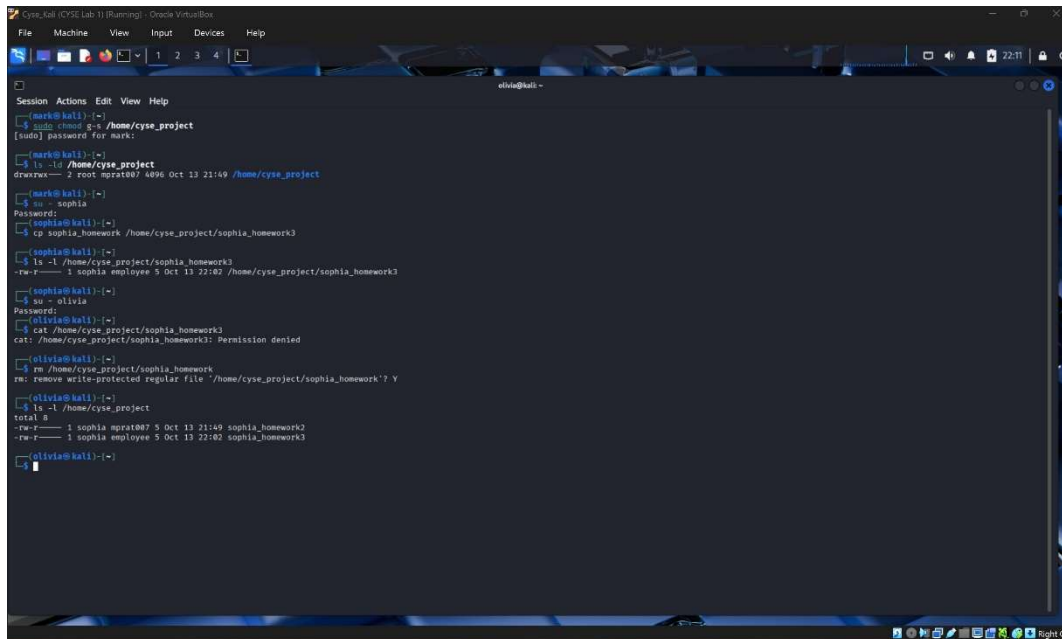
Step 3 - switch to Olivia's account. Try to read "Sophia_home3" in the /home/cyse_project directory.

switched to Olivias account using su – Olivia, tried to read the homework3 file using cat /home/cyse_project/Sophia_homework3 with permission denied as expected.

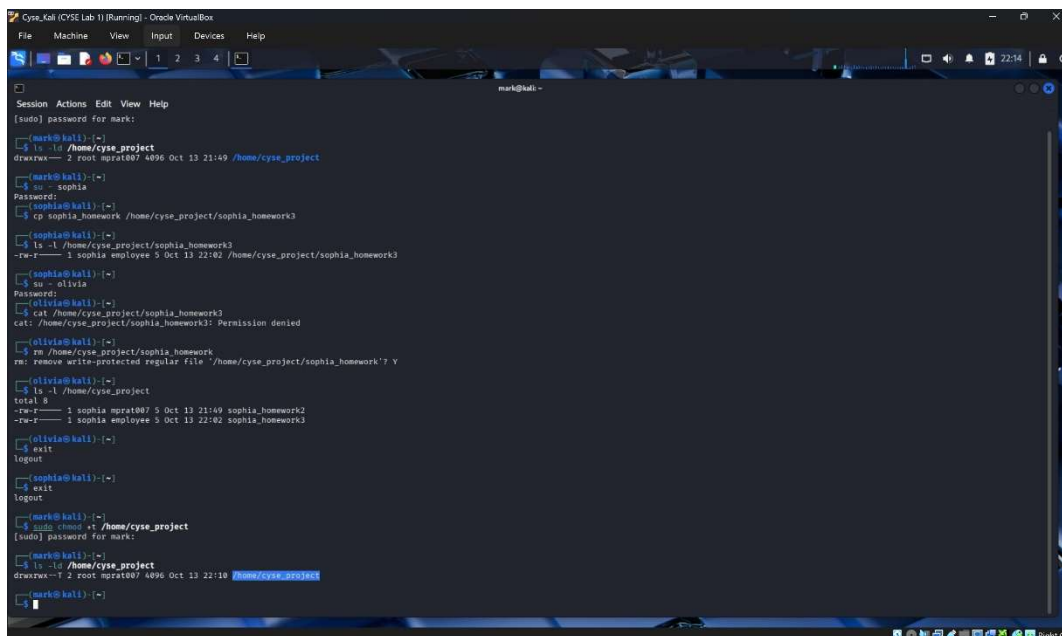Task D Step 1 - Switch to Olivia' account. Delete "Sophia_ homework" in the /home/cyse_project directory.

deleted Sophia_homework using rm /home/cyse_project/shopia_homework file successfully deleted group allows write permissions.

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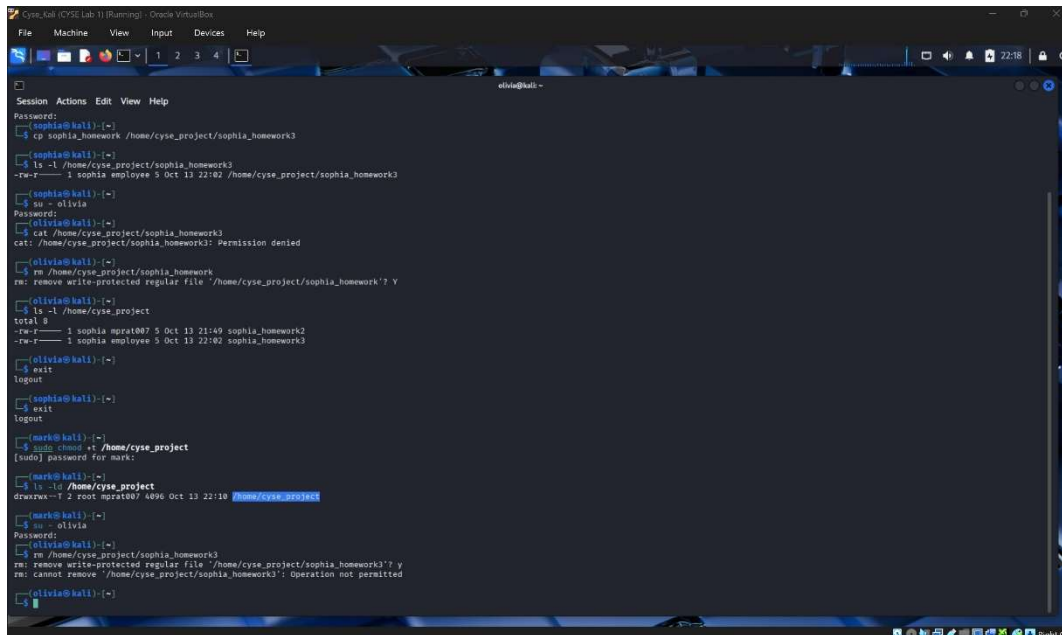

used sudo chmod +t /home/cyse_project using sticky bit t director chmod +t dir so only owner can delete.

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's account using su – Olivia, used rm /home/cyse_project/Sophia_homework3 to attempt to delete the file. Permission denied because sticky bit prevents deletion to owner which is Sophia or root.