

## CYSE 270: Linux System for Cybersecurity

### Assignment: Lab 4 – User and Group Accounts

#### Goal:

The goal of this lab is to familiarize students with the fundamental tasks of managing user and group accounts in Linux. By completing this lab, students will gain practical experience in creating, modifying, and deleting accounts, as well as managing group memberships and permissions, which are essential skills in system administration and cybersecurity.

#### Submission Instructions:

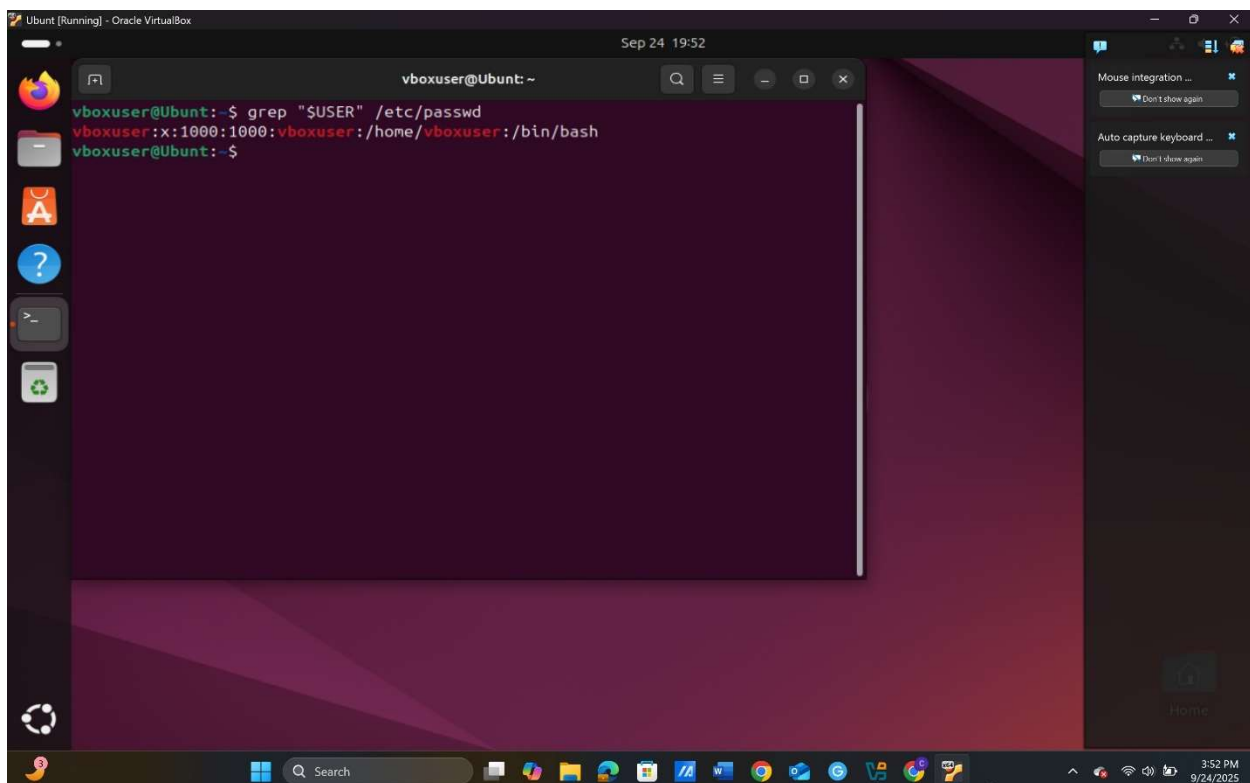
- Complete all tasks in Task A and Task B on your chosen Ubuntu/Kali VM.
- Take screenshots for each step as evidence of successful command execution.
- Save all your screenshots and results in a single PDF or Word document.
- Ensure that all commands are executed correctly and include detailed explanations for each step taken.

## CYSE 270: Linux System for Cybersecurity

In this assignment, you should replace xxxxx with your MIDAS ID in all occurrences.

### Task A – User Account management (8 \* 5 = 40 points)

1. Open a terminal window in VM and execute the correct command to display user account

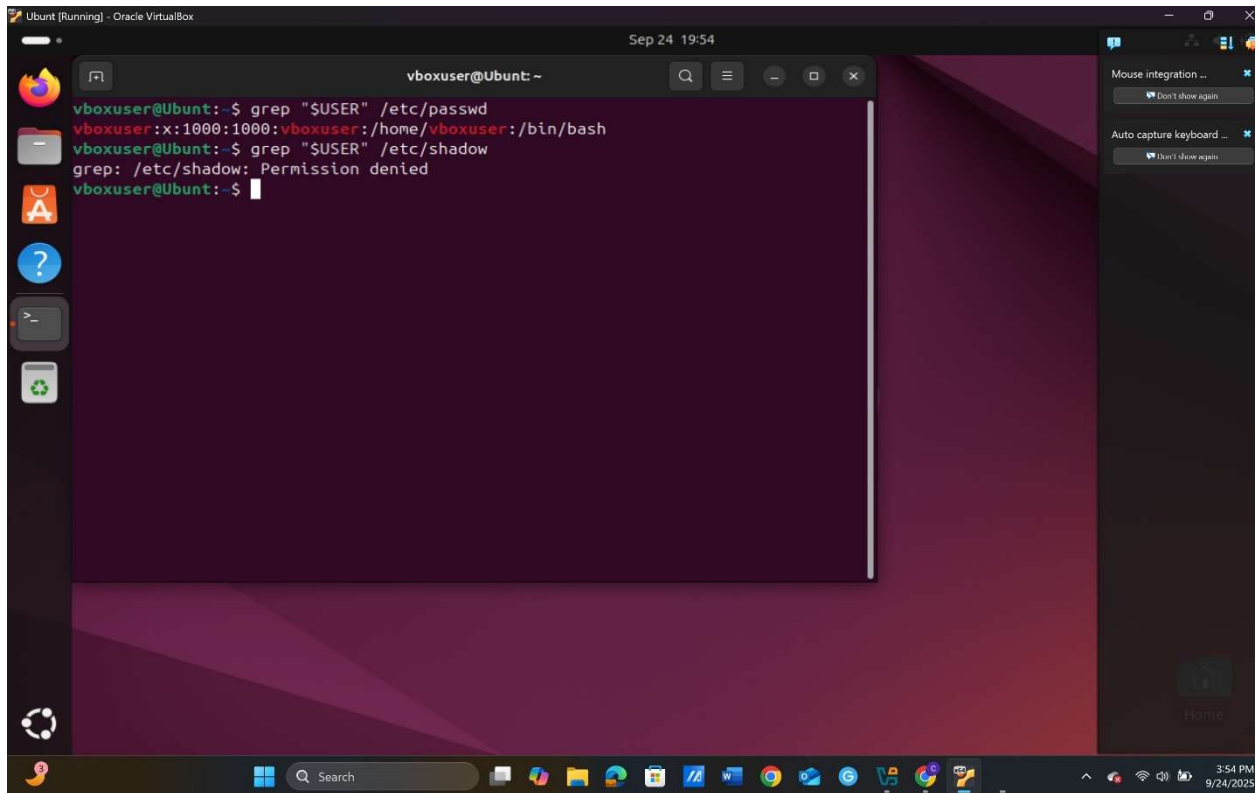


information (including the login shell and home directory) for the current user using grep.

2. Execute the correct command to display user password information (including the

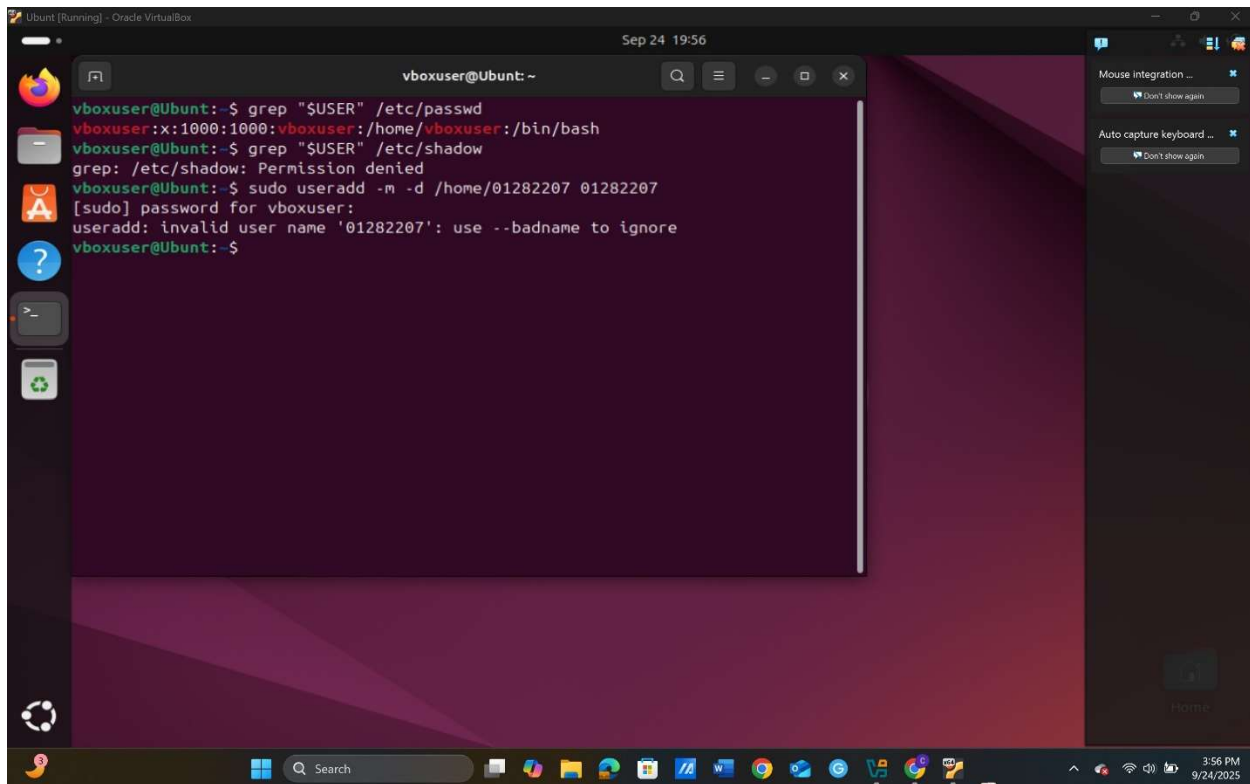
encrypted

password and password aging) for the current user using grep.

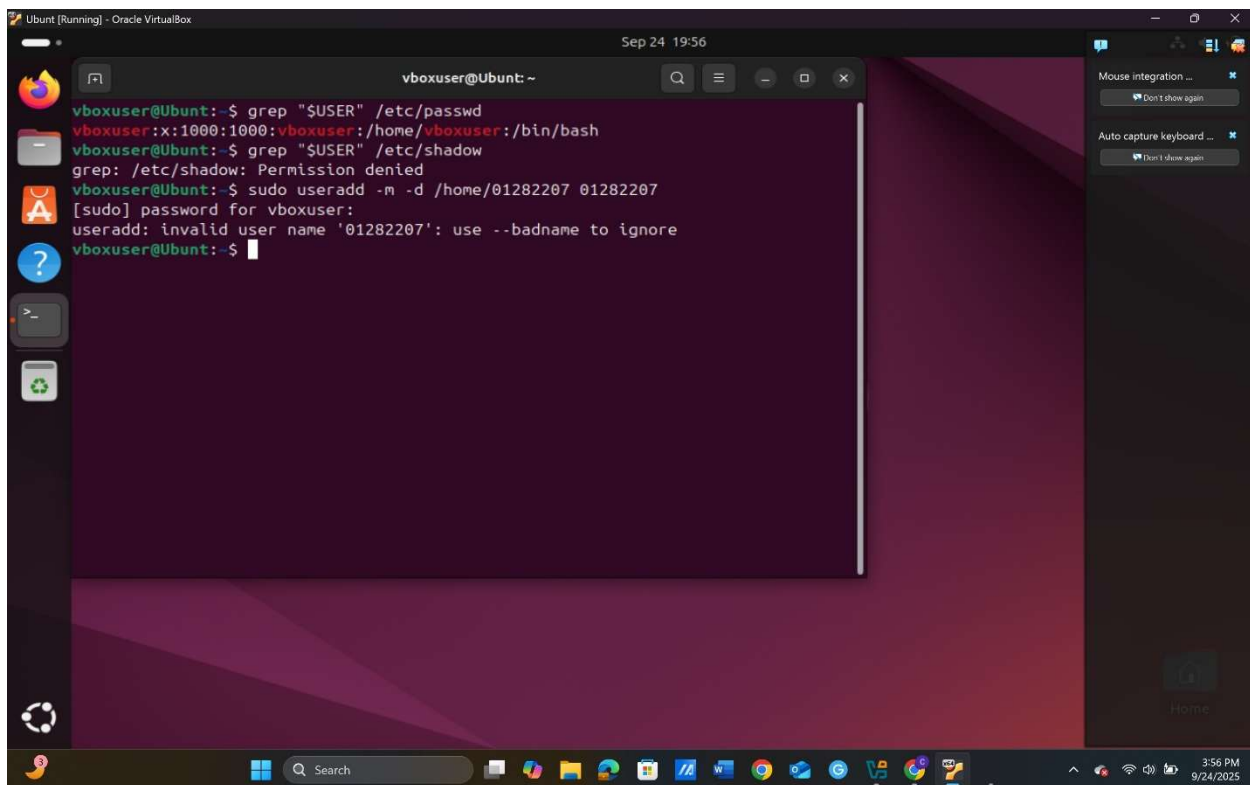


```
vboxuser@Ubuntu: ~  
vboxuser@Ubuntu:~$ grep "$USER" /etc/passwd  
vboxuser:x:1000:1000:vboxuser:/home/vboxuser:/bin/bash  
vboxuser@Ubuntu:~$ grep "$USER" /etc/shadow  
grep: /etc/shadow: Permission denied  
vboxuser@Ubuntu:~$
```

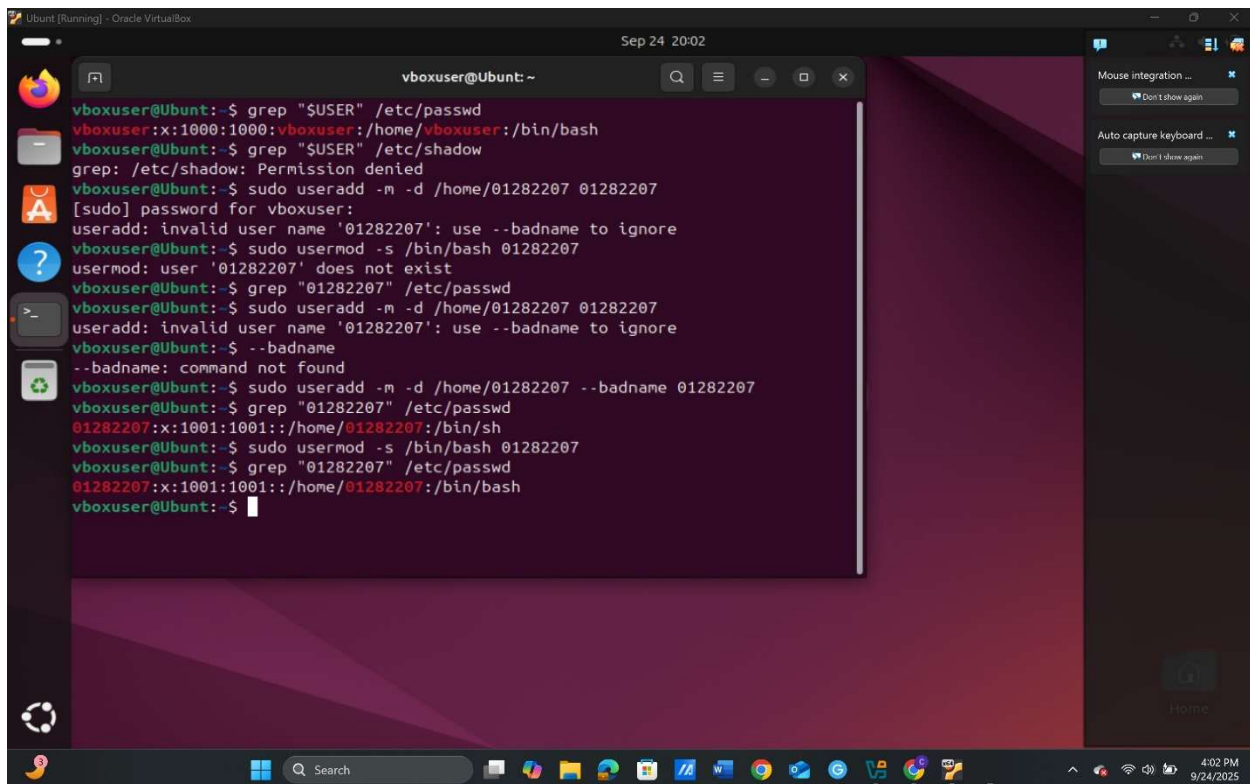
3. Create a new user named xxxxx and explicitly use options to create the home directory /home/xxxxx for this user.



4. Set a password for the new user.

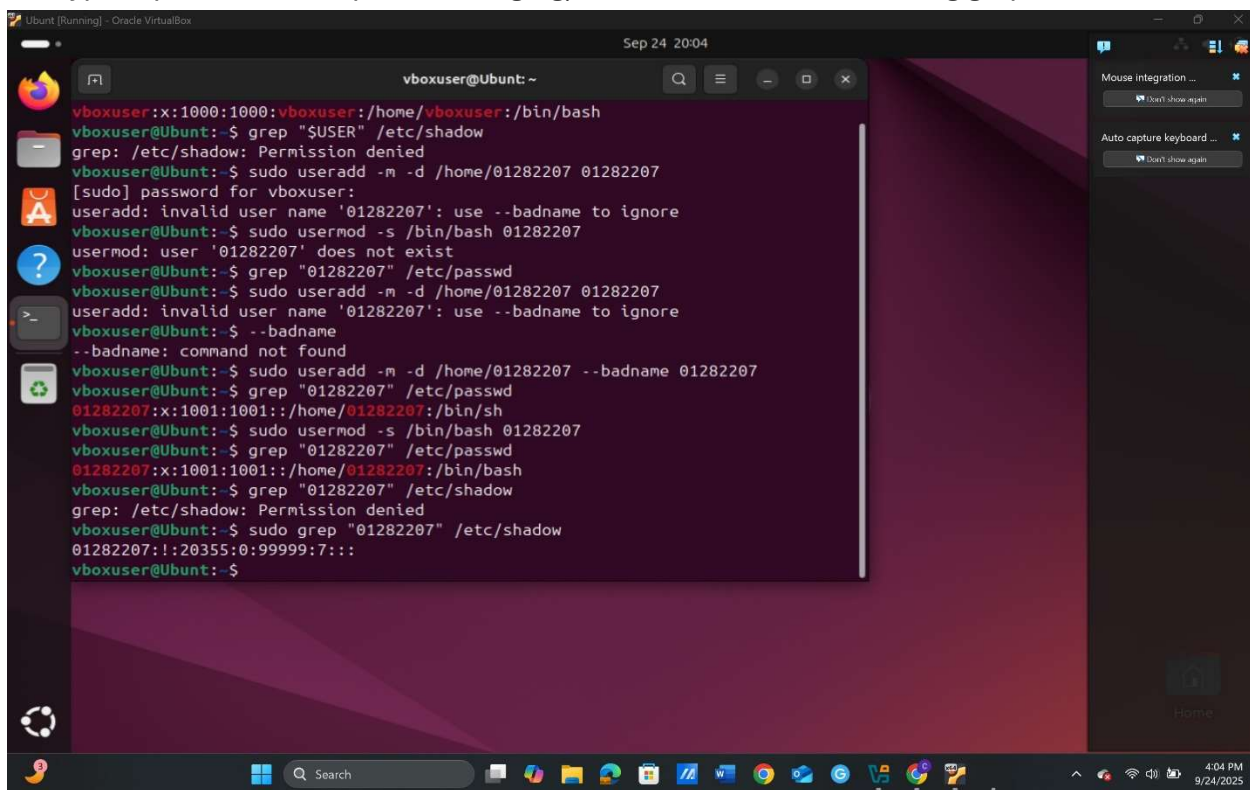


5. Set bash shell as the default login shell for the new user xxxxx, then verify the change.



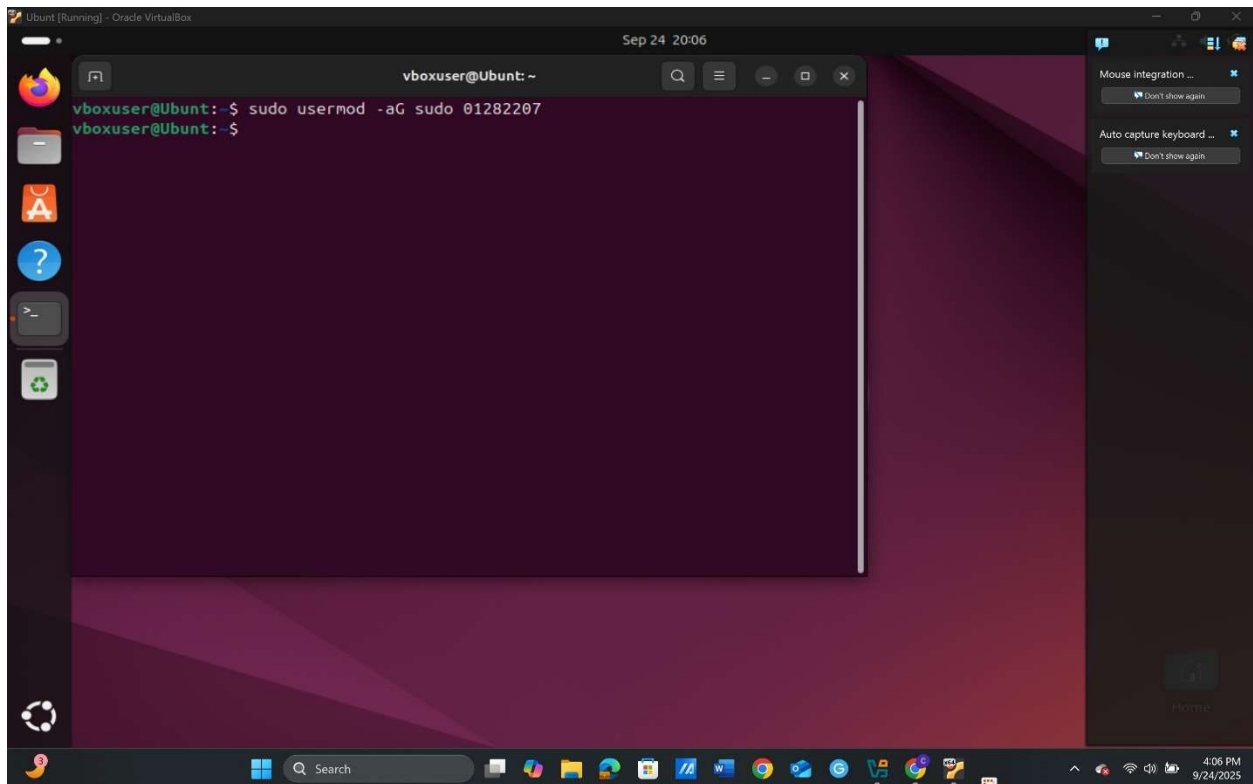
```
vboxuser@Ubuntu:~$ grep "$USER" /etc/passwd
vboxuser:x:1000:1000:vboxuser:/home/vboxuser:/bin/bash
vboxuser@Ubuntu:~$ grep "$USER" /etc/shadow
grep: /etc/shadow: Permission denied
vboxuser@Ubuntu:~$ sudo useradd -m -d /home/01282207 01282207
[sudo] password for vboxuser:
useradd: invalid user name '01282207': use --badname to ignore
vboxuser@Ubuntu:~$ sudo usermod -s /bin/bash 01282207
usermod: user '01282207' does not exist
vboxuser@Ubuntu:~$ grep "01282207" /etc/passwd
vboxuser@Ubuntu:~$ sudo useradd -m -d /home/01282207 01282207
useradd: invalid user name '01282207': use --badname to ignore
vboxuser@Ubuntu:~$ --badname
--badname: command not found
vboxuser@Ubuntu:~$ sudo useradd -m -d /home/01282207 --badname 01282207
vboxuser@Ubuntu:~$ grep "01282207" /etc/passwd
01282207:x:1001:1001::/home/01282207:/bin/sh
vboxuser@Ubuntu:~$ sudo usermod -s /bin/bash 01282207
vboxuser@Ubuntu:~$ grep "01282207" /etc/passwd
01282207:x:1001:1001::/home/01282207:/bin/bash
vboxuser@Ubuntu:~$
```

6. Execute the correct command to display user password information (including the encrypted password and password aging) for the new user xxxxx using grep.

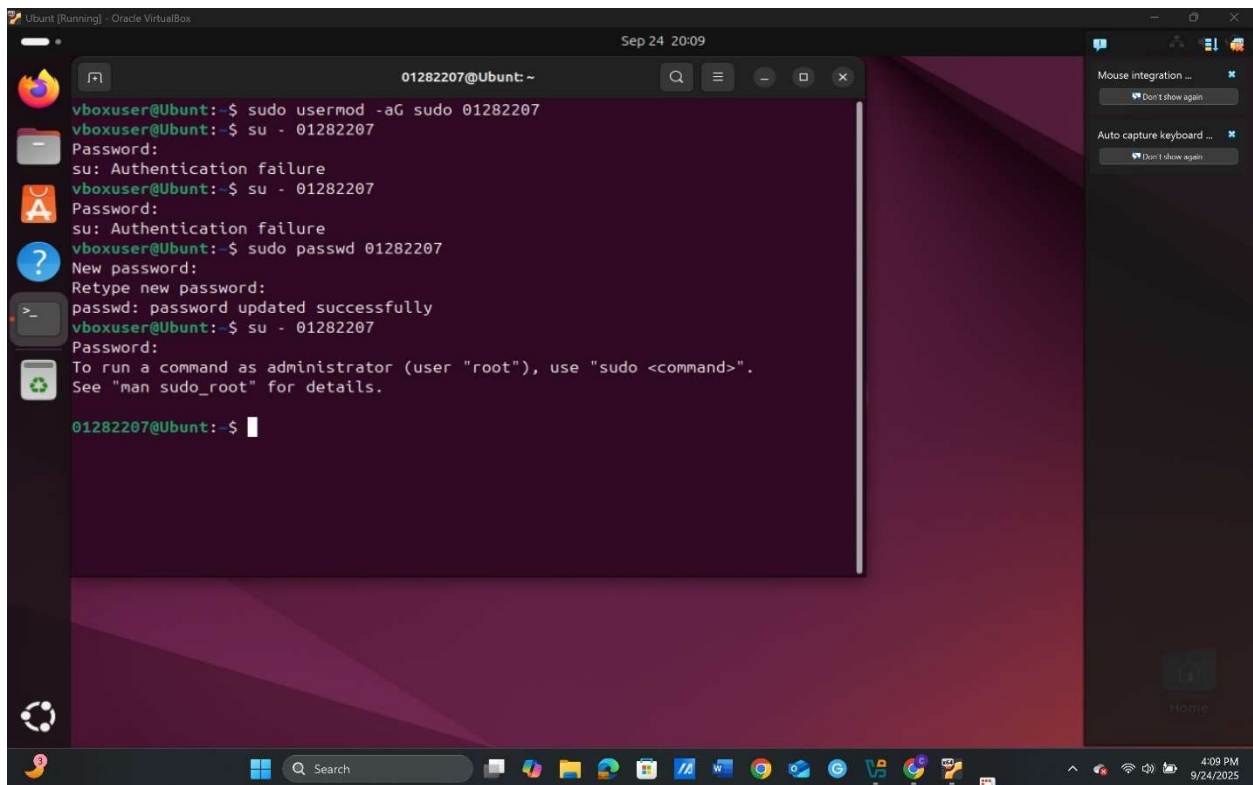


```
vboxuser@Ubuntu:~$ grep "$USER" /etc/shadow
grep: /etc/shadow: Permission denied
vboxuser@Ubuntu:~$ sudo useradd -m -d /home/01282207 01282207
[sudo] password for vboxuser:
useradd: invalid user name '01282207': use --badname to ignore
vboxuser@Ubuntu:~$ sudo usermod -s /bin/bash 01282207
usermod: user '01282207' does not exist
vboxuser@Ubuntu:~$ grep "01282207" /etc/passwd
vboxuser@Ubuntu:~$ sudo useradd -m -d /home/01282207 01282207
useradd: invalid user name '01282207': use --badname to ignore
vboxuser@Ubuntu:~$ --badname
--badname: command not found
vboxuser@Ubuntu:~$ sudo useradd -m -d /home/01282207 --badname 01282207
vboxuser@Ubuntu:~$ grep "01282207" /etc/passwd
01282207:x:1001:1001::/home/01282207:/bin/sh
vboxuser@Ubuntu:~$ sudo usermod -s /bin/bash 01282207
vboxuser@Ubuntu:~$ grep "01282207" /etc/passwd
01282207:x:1001:1001::/home/01282207:/bin/bash
vboxuser@Ubuntu:~$ grep "01282207" /etc/shadow
grep: /etc/shadow: Permission denied
vboxuser@Ubuntu:~$ sudo grep "01282207" /etc/shadow
01282207:!:20355:0:99999:7:::
vboxuser@Ubuntu:~$
```

7. Add the new user xxxxx to sudo group without overriding the existing group membership.



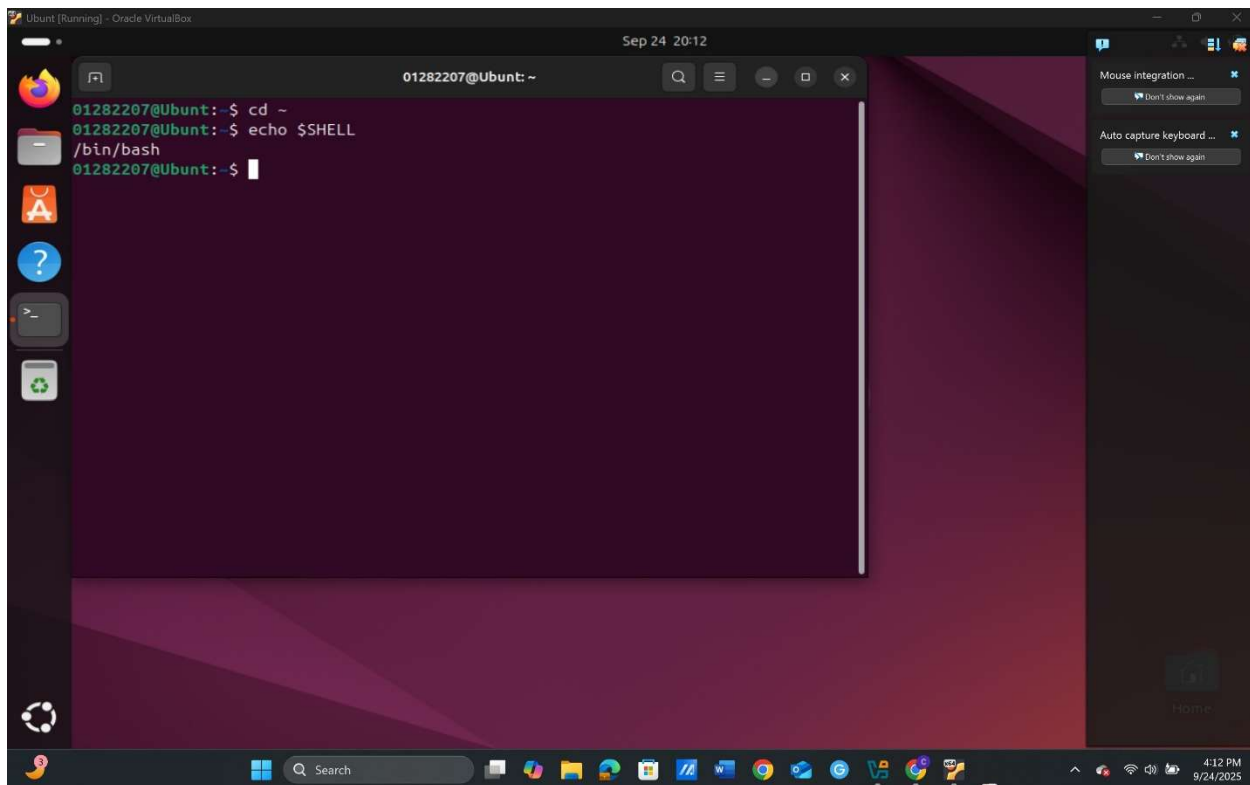
8. Switch to the new user's account.



Task B – Group account management (12 \* 5 = 60 points)

Use Linux commands to execute the following tasks:

1. Return to your home directory and determine the shell you are using.

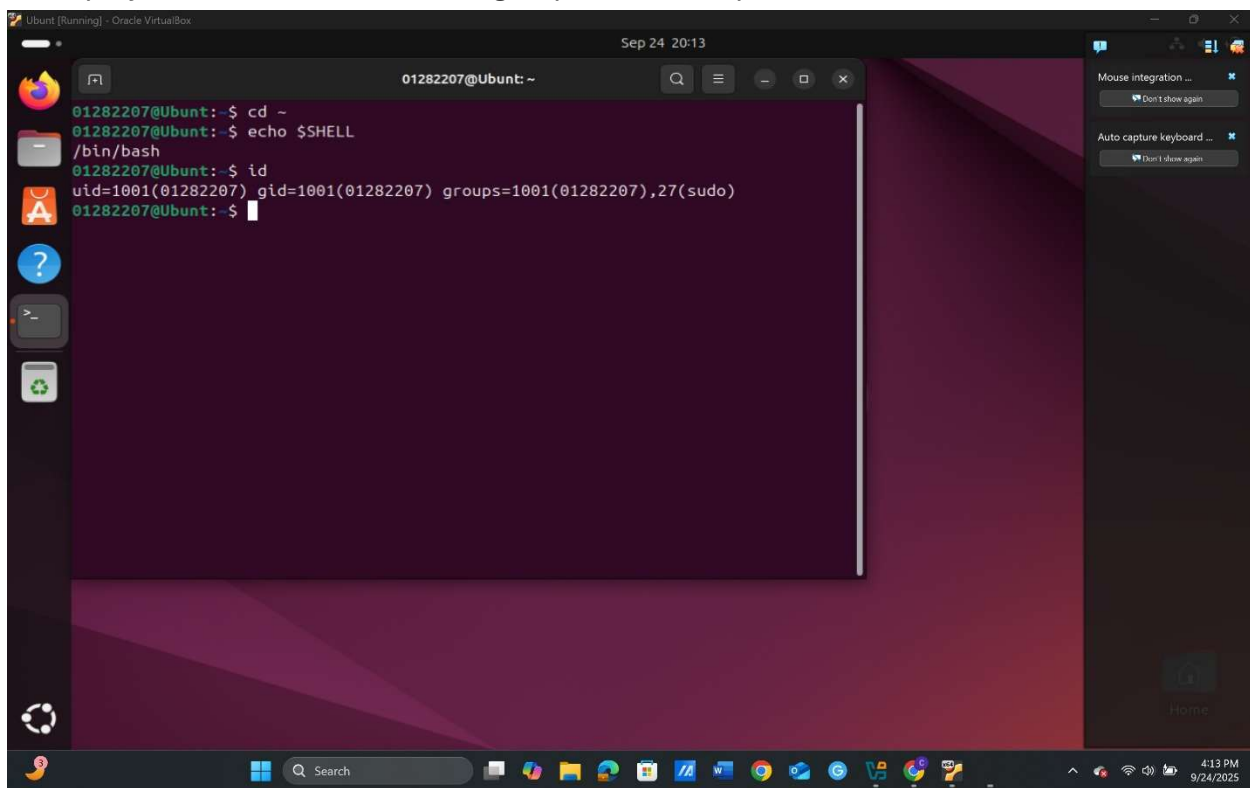


The screenshot shows a terminal window titled '01282207@Ubuntu: ~' with the following commands and output:

```
01282207@Ubuntu:~$ cd ~
01282207@Ubuntu:~$ echo $SHELL
/bin/bash
01282207@Ubuntu:~$
```

The terminal is running on an Ubuntu desktop environment. The desktop has a dark purple background, a sidebar with application icons (Firefox, Files, Applications, Dash, Home, Recycle Bin), and a top bar with system status and a search bar. The system clock shows 'Sep 24 20:12'.

2. Display the current user's ID and group membership.



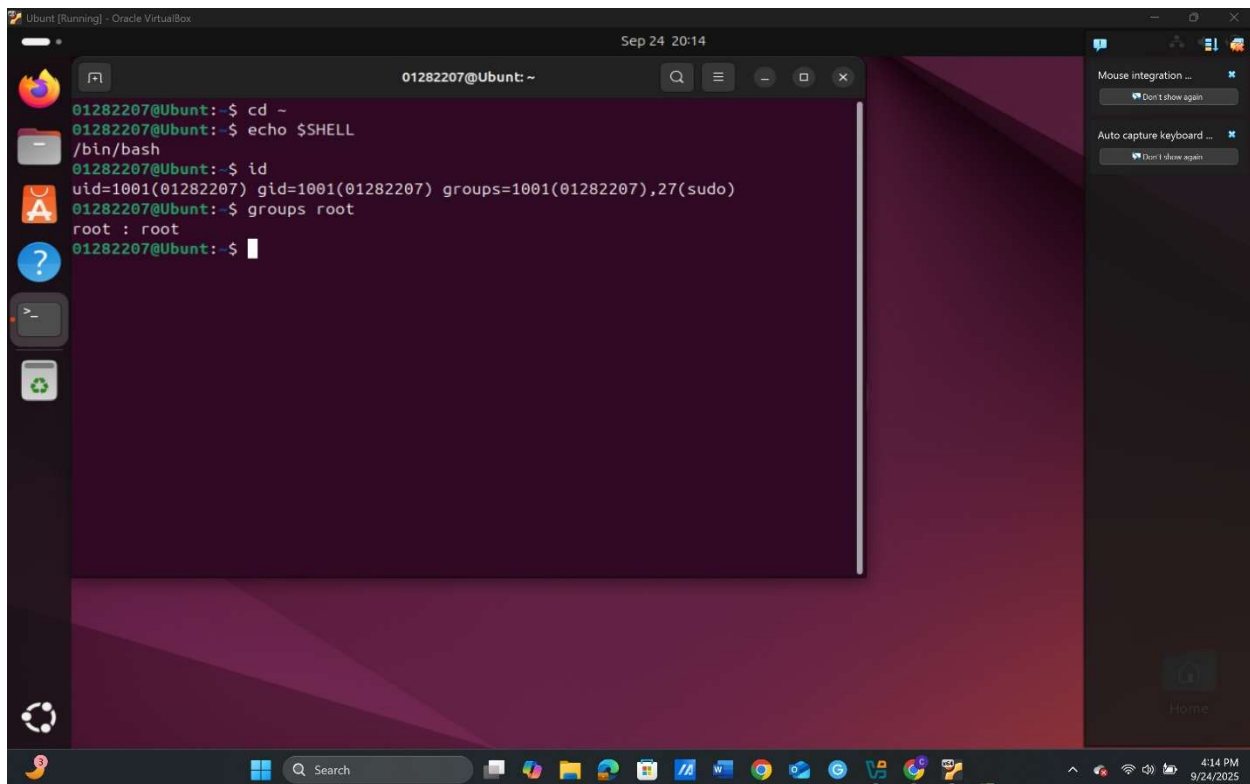
The screenshot shows the same terminal window as before, but with an additional command and output:

```
01282207@Ubuntu:~$ id
uid=1001(01282207) gid=1001(01282207) groups=1001(01282207),27(sudo)
01282207@Ubuntu:~$
```

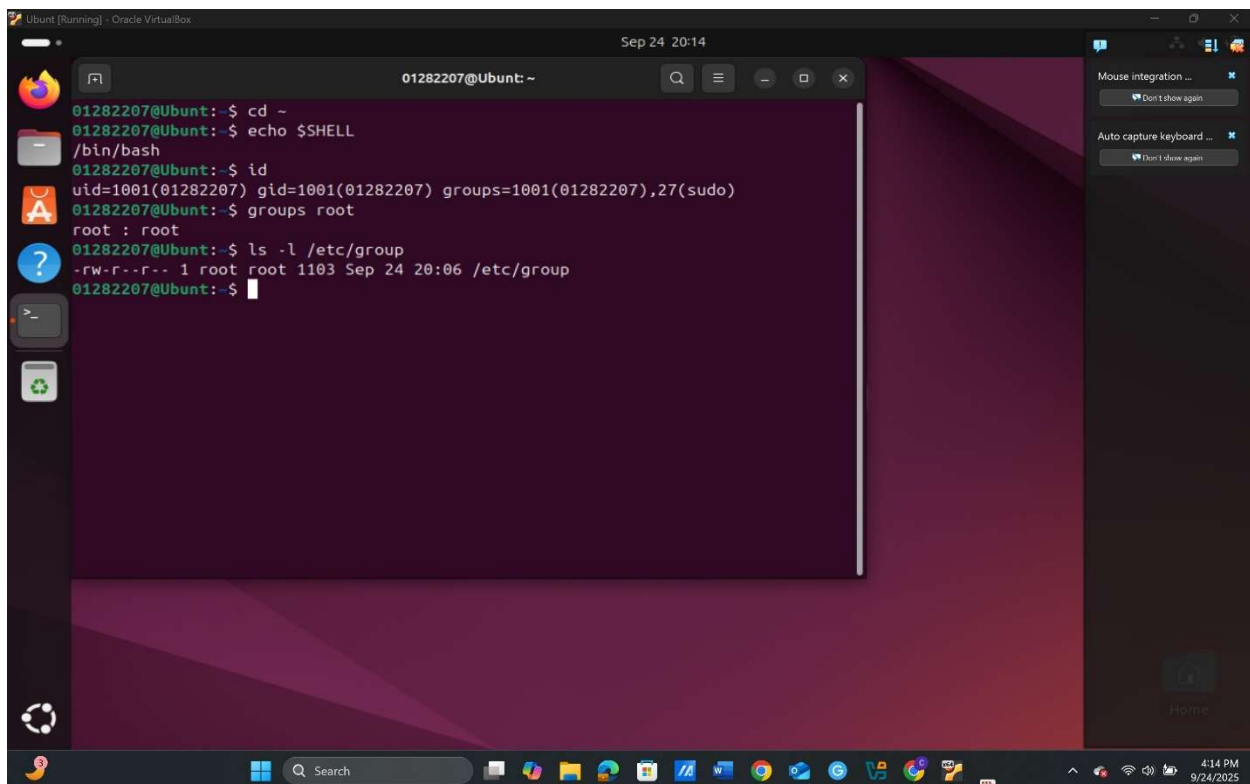
The terminal is running on the same Ubuntu desktop environment. The system clock now shows 'Sep 24 20:13'.

3. Display the group membership of the root account.

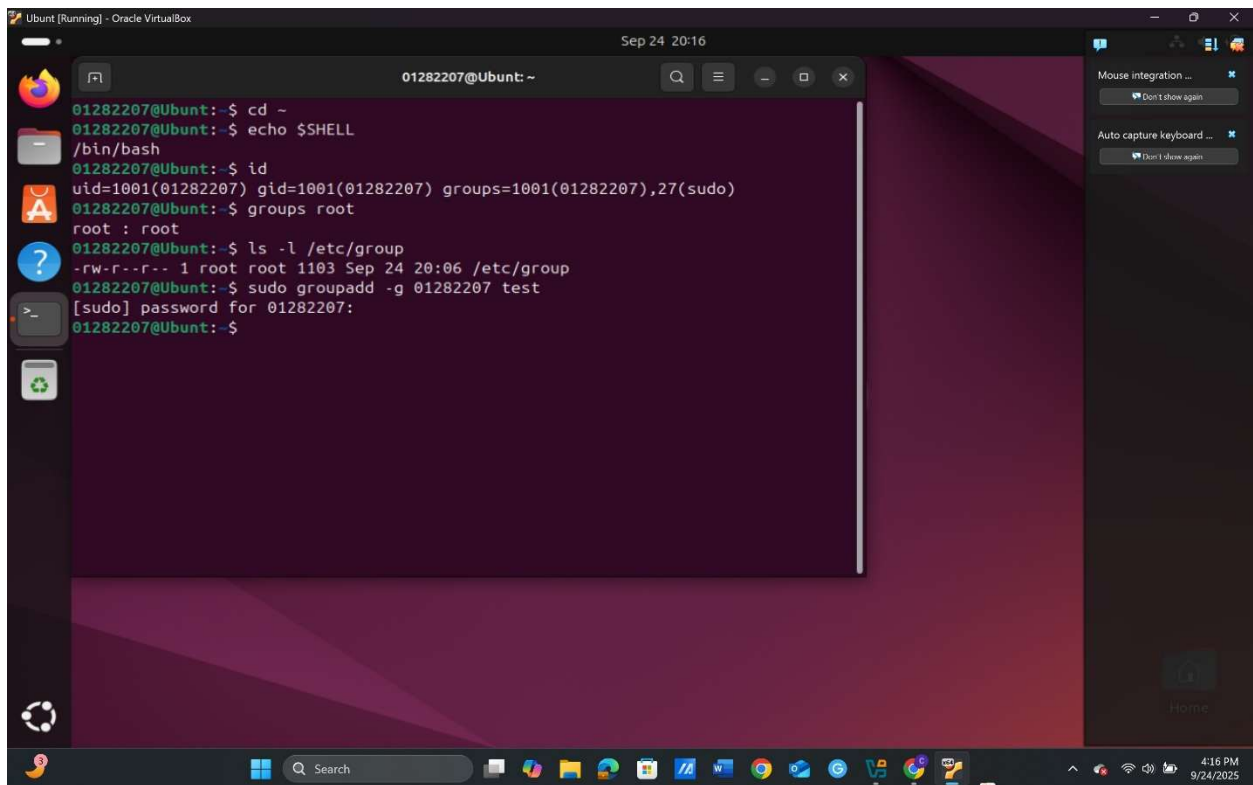




4. Run the correct command to determine the user owner and group owner of the /etc/group file.



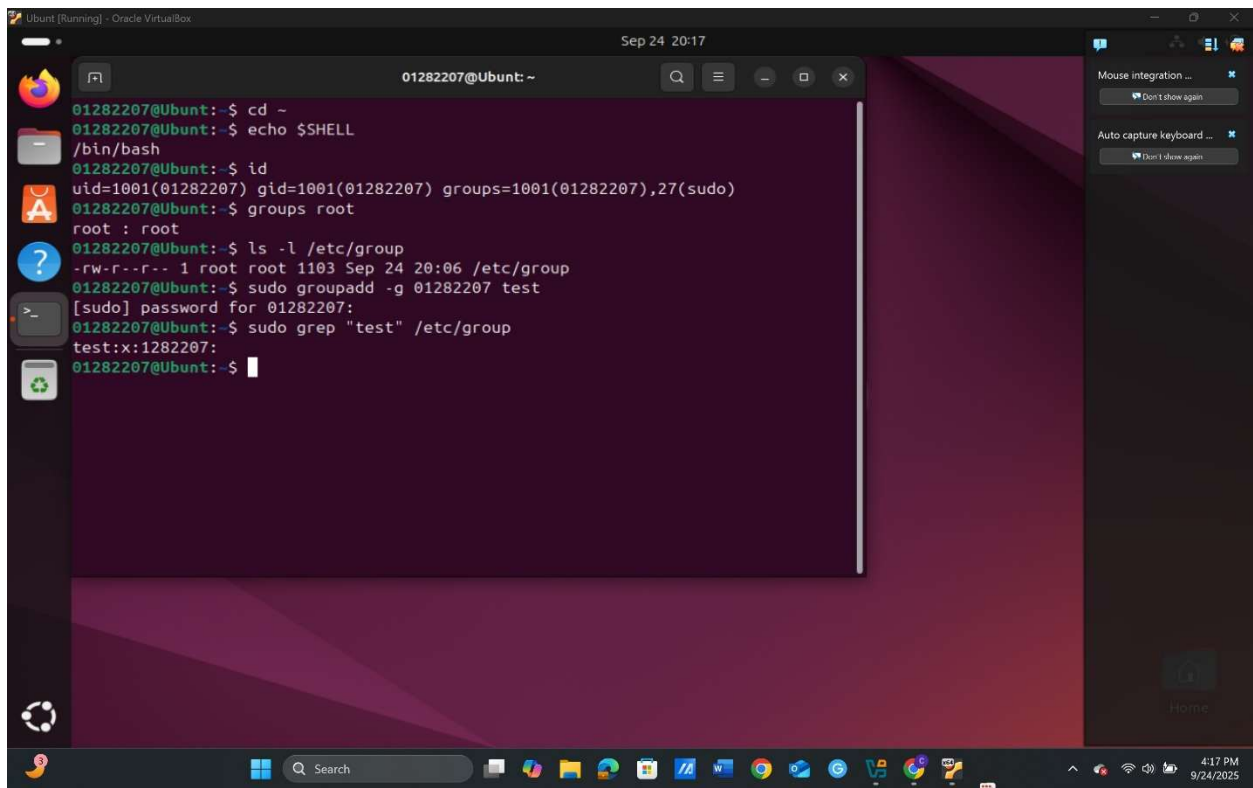
5. Create a new group named test and use your UIN as the GID.



The screenshot shows a terminal window titled '01282207@Ubuntu: ~' with the following commands and output:

```
01282207@Ubuntu:~$ cd ~
01282207@Ubuntu:~$ echo $SHELL
/bin/bash
01282207@Ubuntu:~$ id
uid=1001(01282207) gid=1001(01282207) groups=1001(01282207),27(sudo)
01282207@Ubuntu:~$ groups root
root : root
01282207@Ubuntu:~$ ls -l /etc/group
-rw-r--r-- 1 root root 1103 Sep 24 20:06 /etc/group
01282207@Ubuntu:~$ sudo groupadd -g 01282207 test
[sudo] password for 01282207:
01282207@Ubuntu:~$
```

6. Display the group account information for the test group using grep.

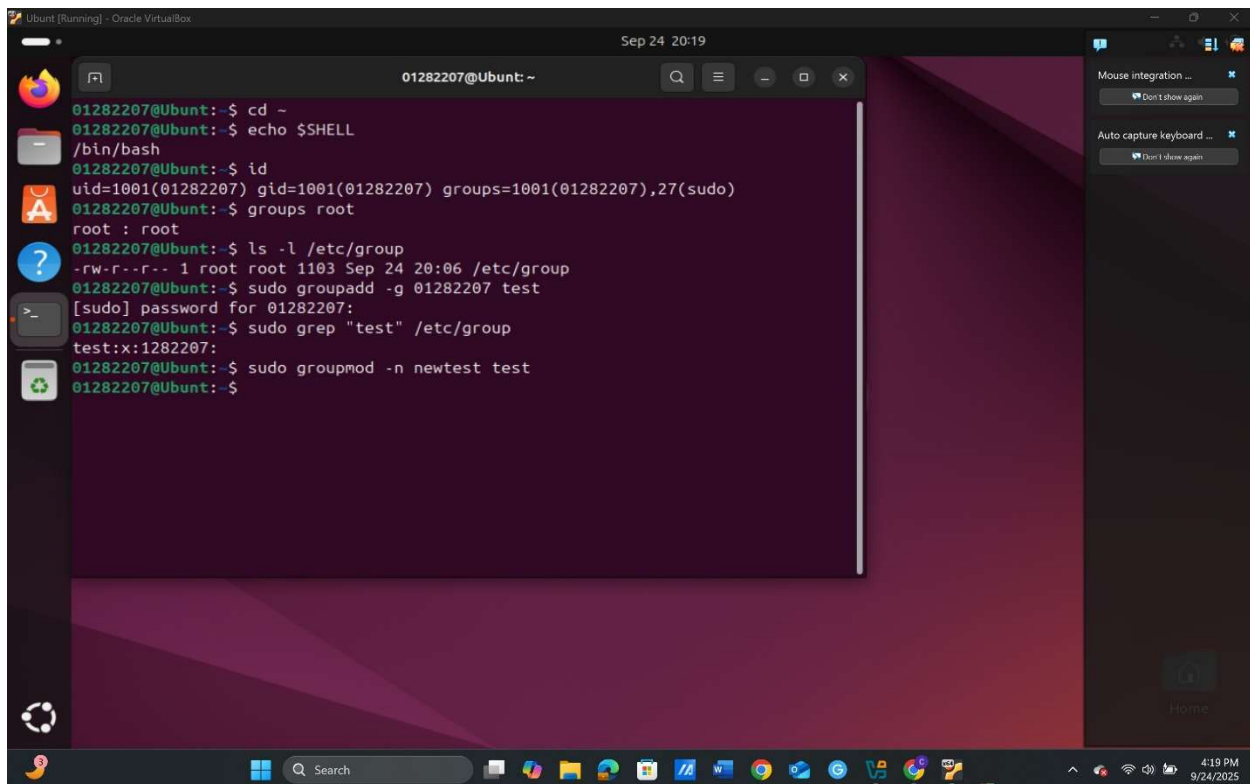


The screenshot shows a terminal window titled '01282207@Ubuntu: ~' with the following commands and output:

```
01282207@Ubuntu:~$ cd ~
01282207@Ubuntu:~$ echo $SHELL
/bin/bash
01282207@Ubuntu:~$ id
uid=1001(01282207) gid=1001(01282207) groups=1001(01282207),27(sudo)
01282207@Ubuntu:~$ groups root
root : root
01282207@Ubuntu:~$ ls -l /etc/group
-rw-r--r-- 1 root root 1103 Sep 24 20:06 /etc/group
01282207@Ubuntu:~$ sudo groupadd -g 01282207 test
[sudo] password for 01282207:
01282207@Ubuntu:~$ sudo grep "test" /etc/group
test:x:1282207:
01282207@Ubuntu:~$
```

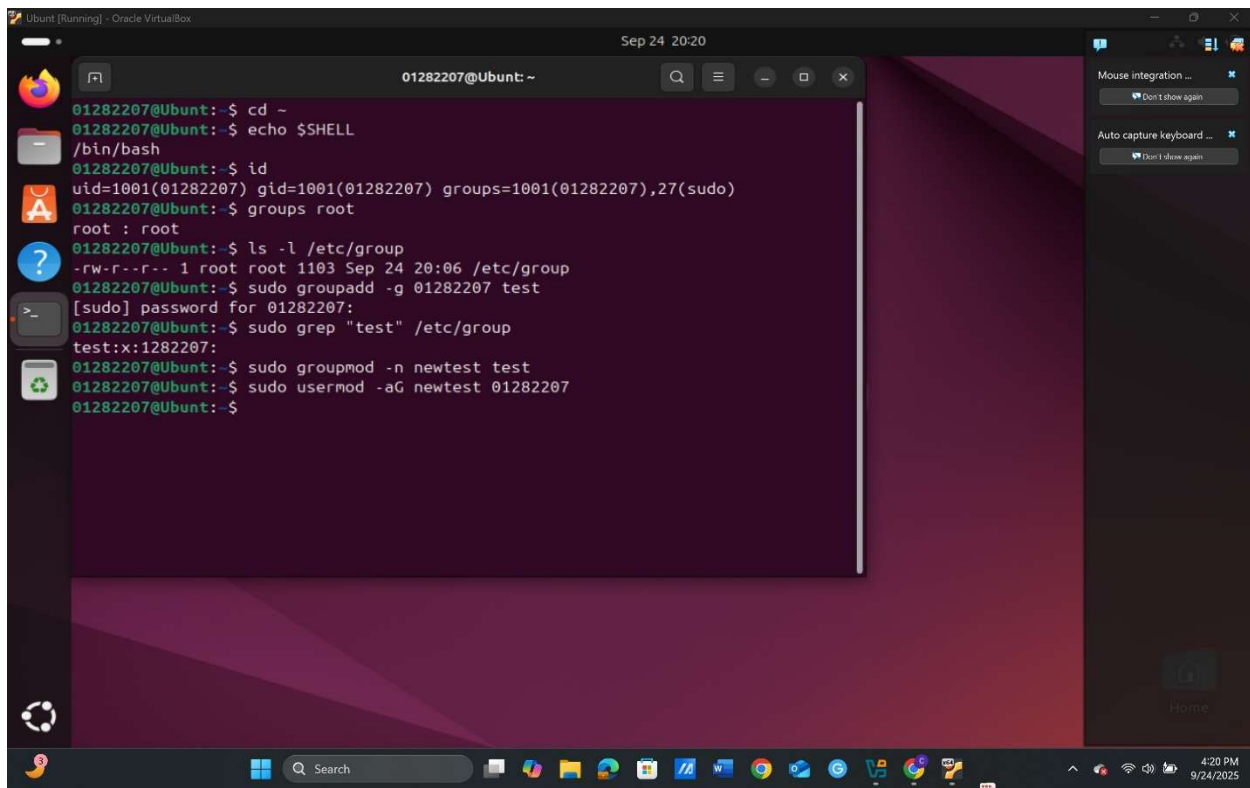
7. Change the group name of the test group to newtest.





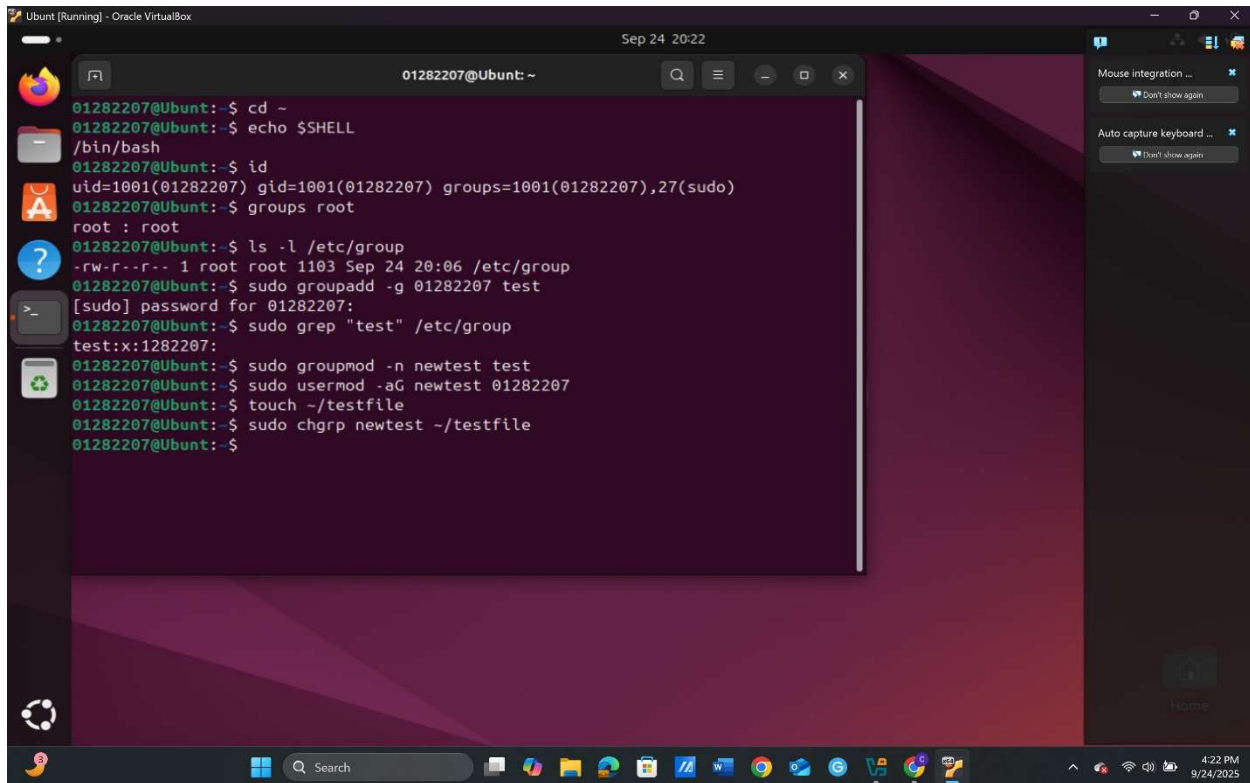
```
01282207@Ubuntu: ~  
01282207@Ubuntu:~$ cd ~  
01282207@Ubuntu:~$ echo $SHELL  
/bin/bash  
01282207@Ubuntu:~$ id  
uid=1001(01282207) gid=1001(01282207) groups=1001(01282207),27(sudo)  
01282207@Ubuntu:~$ groups root  
root : root  
01282207@Ubuntu:~$ ls -l /etc/group  
-rw-r--r-- 1 root root 1103 Sep 24 20:06 /etc/group  
01282207@Ubuntu:~$ sudo groupadd -g 01282207 test  
[sudo] password for 01282207:  
01282207@Ubuntu:~$ sudo grep "test" /etc/group  
test:x:1282207:  
01282207@Ubuntu:~$ sudo groupmod -n newtest test  
01282207@Ubuntu:~$
```

8. Add the current account (xxxxx) as a secondary member of the newtest group without overriding this user's current group membership.



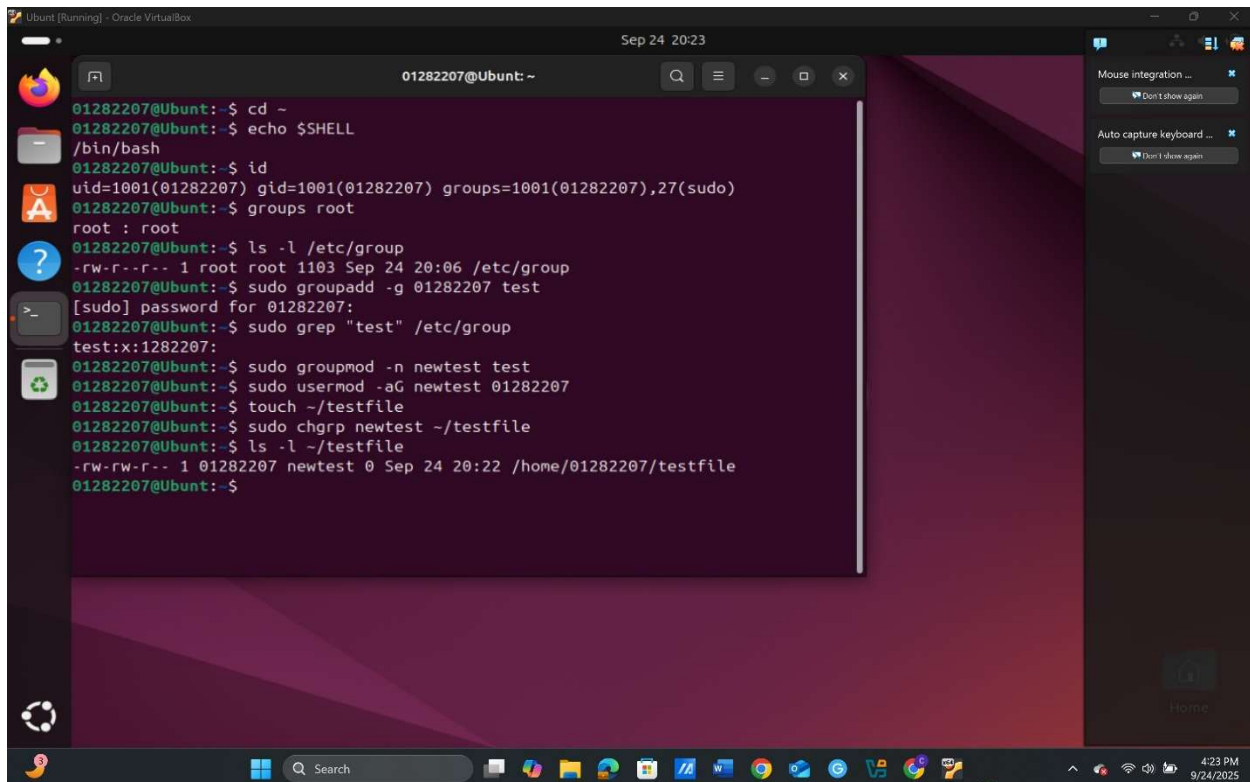
```
01282207@Ubuntu: ~  
01282207@Ubuntu:~$ cd ~  
01282207@Ubuntu:~$ echo $SHELL  
/bin/bash  
01282207@Ubuntu:~$ id  
uid=1001(01282207) gid=1001(01282207) groups=1001(01282207),27(sudo)  
01282207@Ubuntu:~$ groups root  
root : root  
01282207@Ubuntu:~$ ls -l /etc/group  
-rw-r--r-- 1 root root 1103 Sep 24 20:06 /etc/group  
01282207@Ubuntu:~$ sudo groupadd -g 01282207 test  
[sudo] password for 01282207:  
01282207@Ubuntu:~$ sudo grep "test" /etc/group  
test:x:1282207:  
01282207@Ubuntu:~$ sudo groupmod -n newtest test  
01282207@Ubuntu:~$ sudo usermod -aG newtest 01282207  
01282207@Ubuntu:~$
```

9. Create a new file testfile in the account's home directory, then change the group owner to newtest.



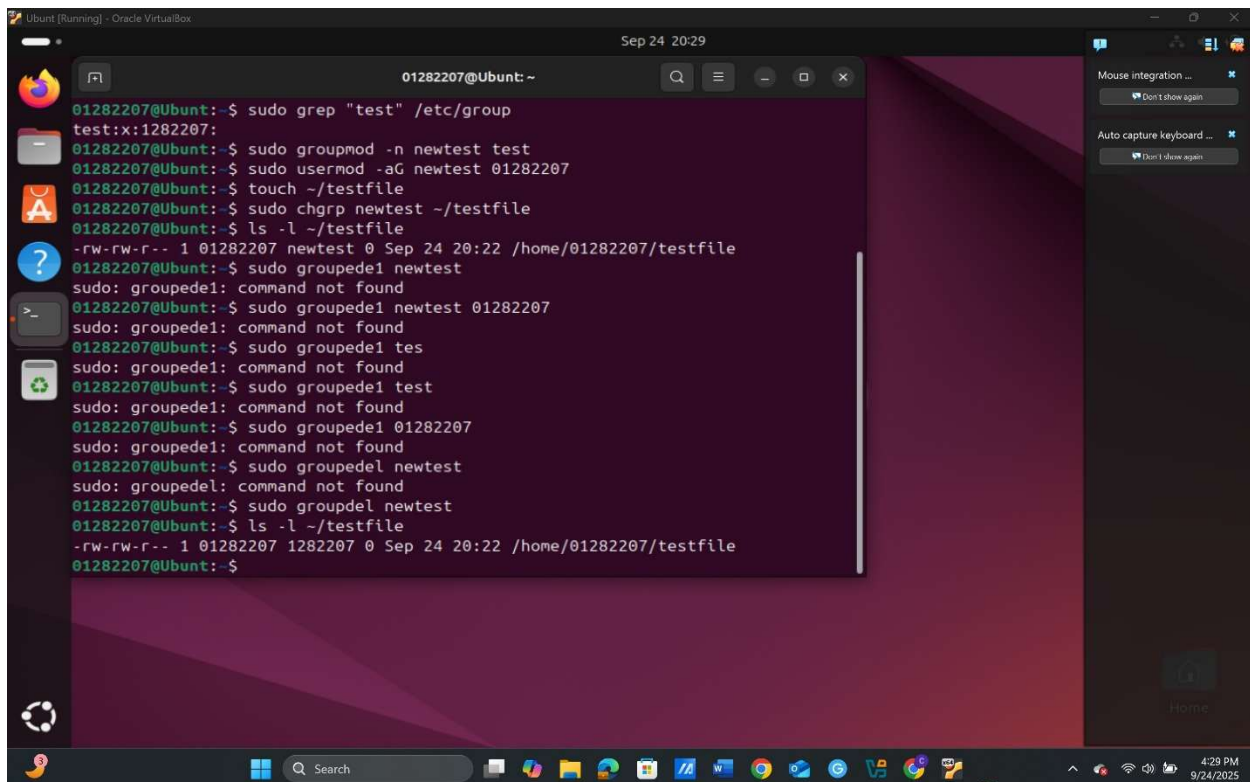
```
01282207@Ubuntu:~$ cd ~
01282207@Ubuntu:~$ echo $SHELL
/bin/bash
01282207@Ubuntu:~$ id
uid=1001(01282207) gid=1001(01282207) groups=1001(01282207),27(sudo)
01282207@Ubuntu:~$ groups root
root : root
01282207@Ubuntu:~$ ls -l /etc/group
-rw-r--r-- 1 root root 1103 Sep 24 20:06 /etc/group
01282207@Ubuntu:~$ sudo groupadd -g 01282207 test
[sudo] password for 01282207:
01282207@Ubuntu:~$ sudo grep "test" /etc/group
test:x:1282207:
01282207@Ubuntu:~$ sudo groupmod -n newtest test
01282207@Ubuntu:~$ sudo usermod -aG newtest 01282207
01282207@Ubuntu:~$ touch ~/testfile
01282207@Ubuntu:~$ sudo chgrp newtest ~/testfile
01282207@Ubuntu:~$
```

10. Display the user owner and group owner information of the file testfile.



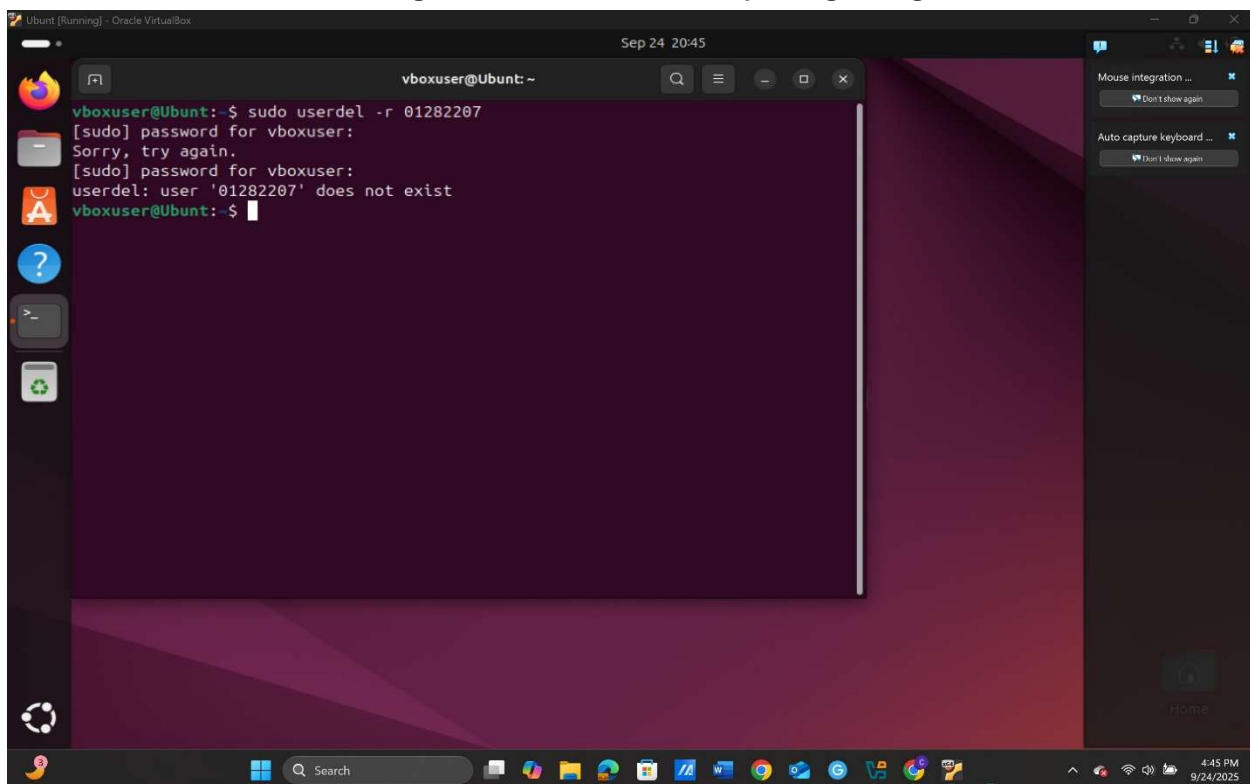
```
01282207@Ubuntu:~$ cd ~
01282207@Ubuntu:~$ echo $SHELL
/bin/bash
01282207@Ubuntu:~$ id
uid=1001(01282207) gid=1001(01282207) groups=1001(01282207),27(sudo)
01282207@Ubuntu:~$ groups root
root : root
01282207@Ubuntu:~$ ls -l /etc/group
-rw-r--r-- 1 root root 1103 Sep 24 20:06 /etc/group
01282207@Ubuntu:~$ sudo groupadd -g 01282207 test
[sudo] password for 01282207:
01282207@Ubuntu:~$ sudo grep "test" /etc/group
test:x:1282207:
01282207@Ubuntu:~$ sudo groupmod -n newtest test
01282207@Ubuntu:~$ sudo usermod -aG newtest 01282207
01282207@Ubuntu:~$ touch ~/testfile
01282207@Ubuntu:~$ sudo chgrp newtest ~/testfile
01282207@Ubuntu:~$ ls -l ~/testfile
-rw-rw-r-- 1 01282207 newtest 0 Sep 24 20:22 /home/01282207/testfile
01282207@Ubuntu:~$
```

11. Delete the newtest group, then repeat the previous step. What do you find?



```
01282207@Ubuntu: ~  
01282207@Ubuntu:~$ sudo grep "test" /etc/group  
test:x:1282207:  
01282207@Ubuntu:~$ sudo groupmod -n newtest test  
01282207@Ubuntu:~$ sudo usermod -aG newtest 01282207  
01282207@Ubuntu:~$ touch ~/testfile  
01282207@Ubuntu:~$ sudo chgrp newtest ~/testfile  
01282207@Ubuntu:~$ ls -l ~/testfile  
-rw-rw-r-- 1 01282207 newtest 0 Sep 24 20:22 /home/01282207/testfile  
01282207@Ubuntu:~$ sudo groupdel newtest  
sudo: groupdel: command not found  
01282207@Ubuntu:~$ sudo groupdel newtest 01282207  
sudo: groupdel: command not found  
01282207@Ubuntu:~$ sudo groupdel tes  
sudo: groupdel: command not found  
01282207@Ubuntu:~$ sudo groupdel test  
sudo: groupdel: command not found  
01282207@Ubuntu:~$ sudo groupdel 01282207  
sudo: groupdel: command not found  
01282207@Ubuntu:~$ sudo groupdel newtest  
sudo: groupdel: command not found  
01282207@Ubuntu:~$ ls -l ~/testfile  
-rw-rw-r-- 1 01282207 1282207 0 Sep 24 20:22 /home/01282207/testfile  
01282207@Ubuntu:~$
```

12. Delete the user xxxxx along with the home directory using a single command.



```
vboxuser@Ubuntu: ~  
vboxuser@Ubuntu:~$ sudo userdel -r 01282207  
[sudo] password for vboxuser:  
Sorry, try again.  
[sudo] password for vboxuser:  
userdel: user '01282207' does not exist  
vboxuser@Ubuntu:~$
```