

Lab 02: User Management

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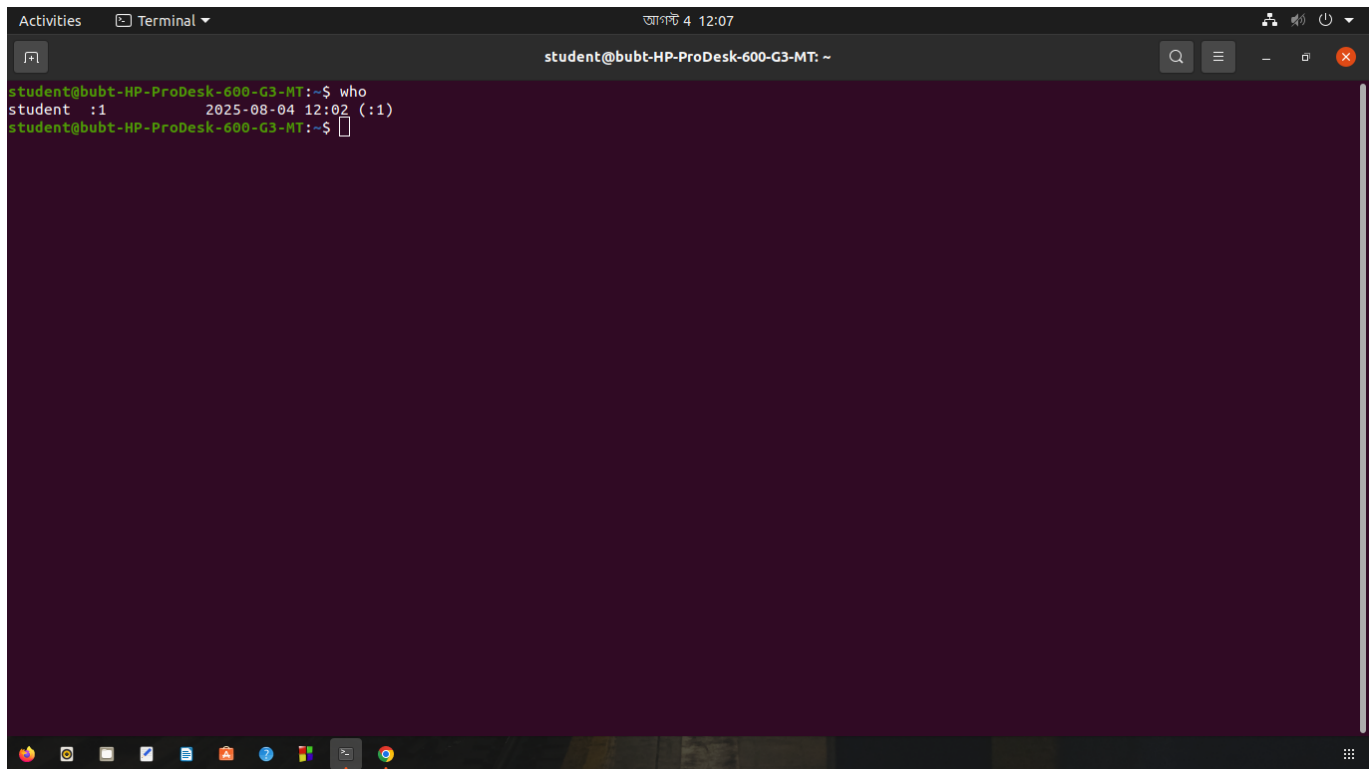
Summary of Commands Used

Command	Description
<code>who</code>	Show currently logged-in users
<code>useradd -m developer2</code>	Create a new user with a home directory
<code>passwd</code>	Set user password
<code>groupadd development2</code>	Create a new group
<code>usermod -aG group user</code>	Add user to group
<code>chown / chgrp</code>	Change ownership and group of a file/dir
<code>chmod 740</code>	Set permissions for owner, group, others
<code>cat</code>	Display file contents
<code>tar -czvf / tar -xzvf</code>	Archive and extract files
<code>ps aux</code>	View running processes
<code>ping google.com</code>	Test network connectivity

1. Troubleshooting

Task 1.1: Use the `who` command to identify the currently logged-in users on the system.

```
who
```

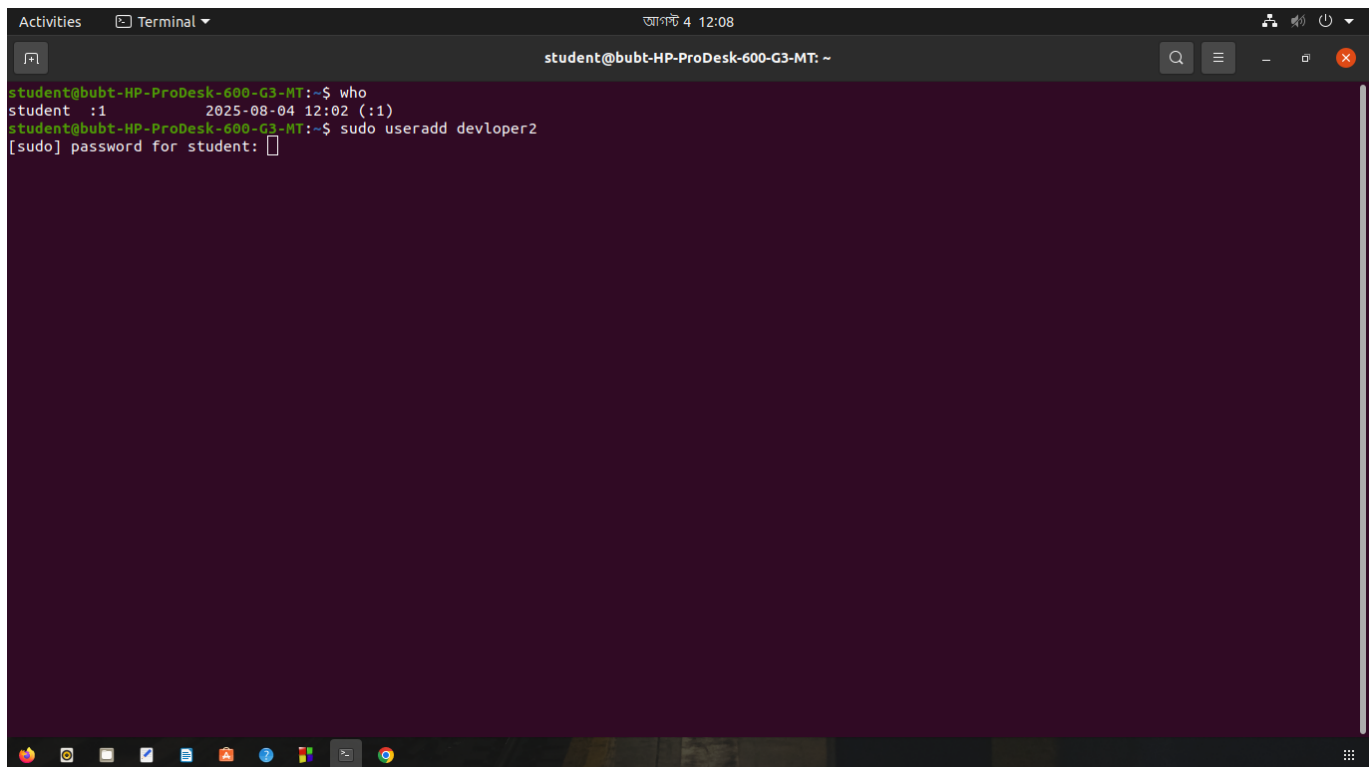


```
student@bubt-HP-ProDesk-600-G3-MT: ~  
student:~$ who  
student  :1          2025-08-04 12:02 (:1)  
student@bubt-HP-ProDesk-600-G3-MT:~$
```

2. User Management

Task 2.1: Create a new user named **developer2** using the **useradd** command.

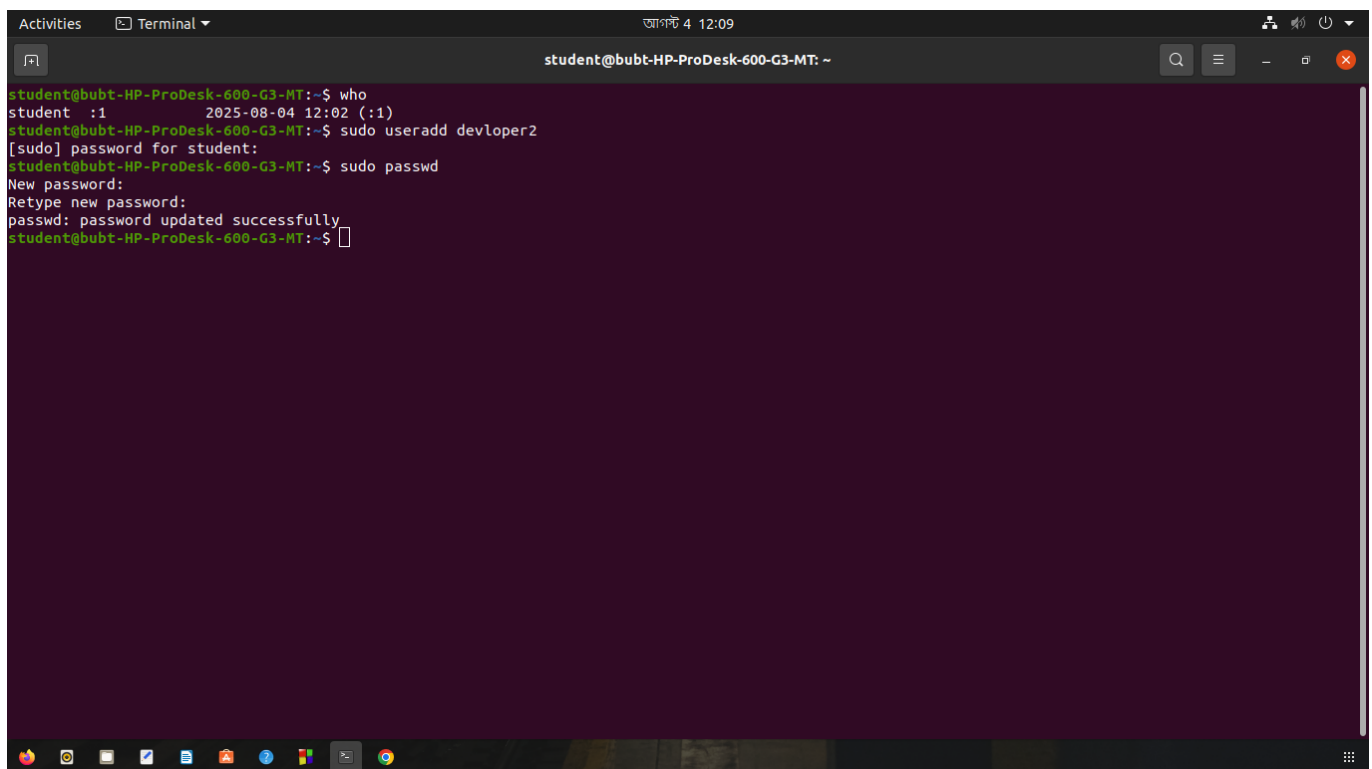
```
sudo useradd -m developer2
```



```
student@bubt-HP-ProDesk-600-G3-MT:~$ who  
student  :1          2025-08-04 12:02 (:1)  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo useradd developer2  
[sudo] password for student:
```

Task 2.2: Set a password for the newly created user using the **passwd** command.

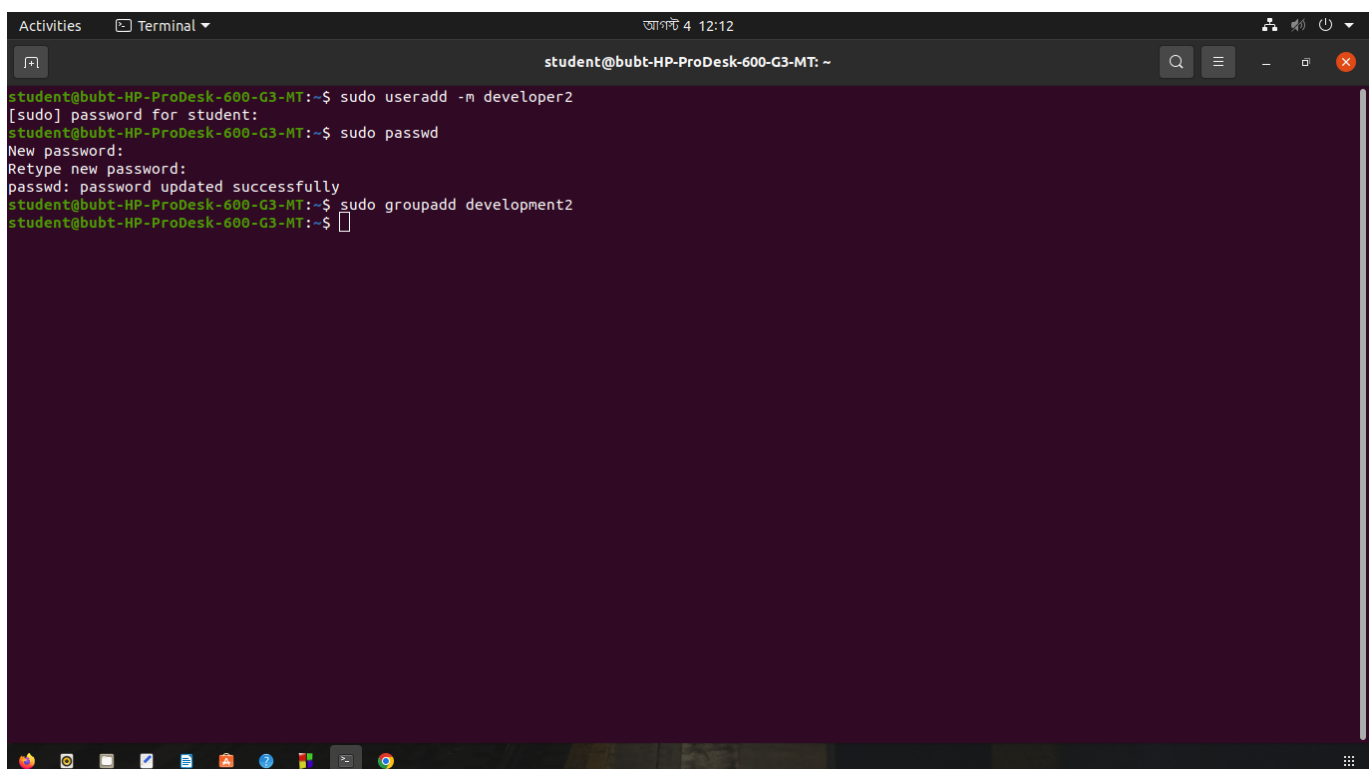
```
sudo passwd
```

A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~' showing the execution of 'sudo passwd'. The user 'student' is prompted for their password, then a new password is set and confirmed. The output shows 'passwd: password updated successfully'.

```
student@bubt-HP-ProDesk-600-G3-MT:~$ who
student  :1          2025-08-04 12:02 (:1)
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo useradd developer2
[sudo] password for student:
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo passwd
New password:
Retype new password:
passwd: password updated successfully
student@bubt-HP-ProDesk-600-G3-MT:~$
```

Task 2.3: Create a new group named **development2** using the **groupadd** command.

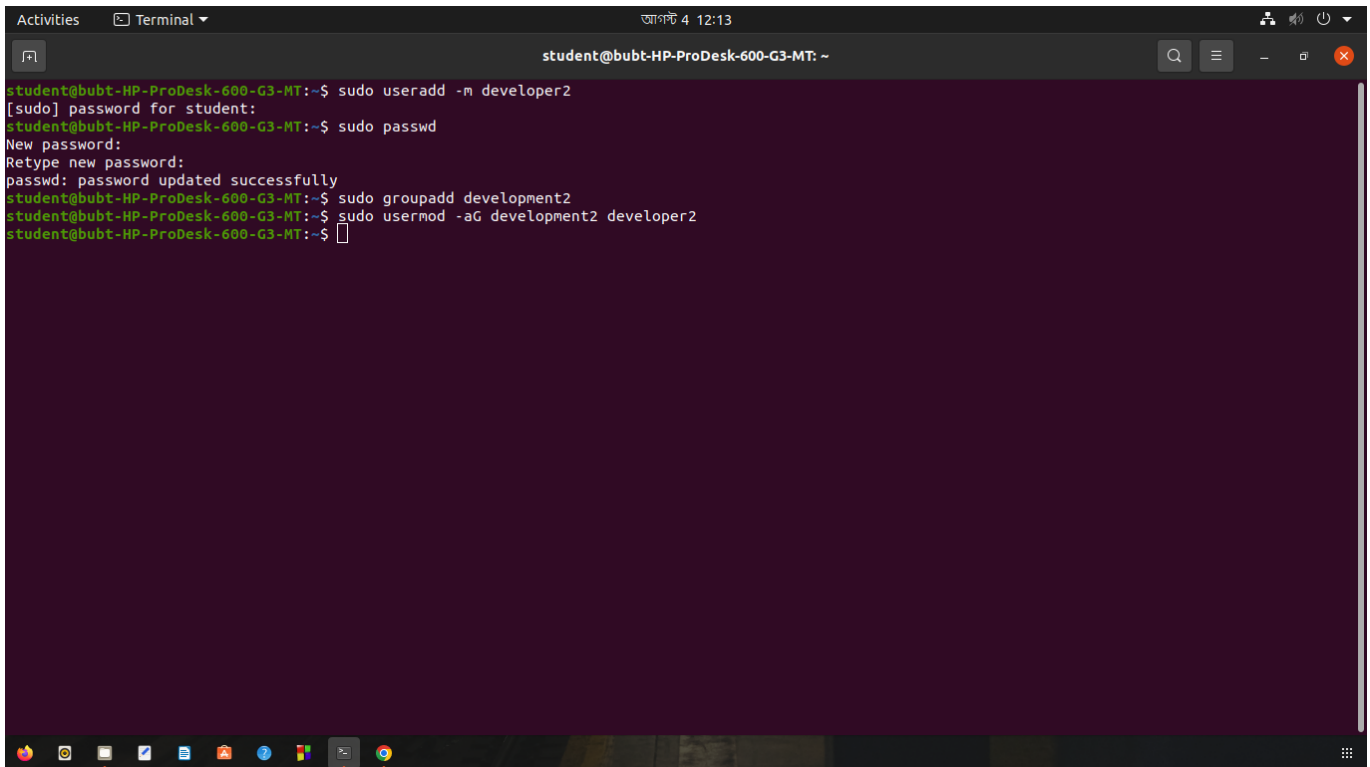
```
sudo groupadd development2
```

A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~' showing the execution of 'sudo useradd -m developer2', 'sudo passwd', and 'sudo groupadd development2'. The user 'student' is prompted for their password, then a new password is set and confirmed. The output shows 'passwd: password updated successfully' and 'groupadd development2'.

```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo useradd -m developer2
[sudo] password for student:
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo passwd
New password:
Retype new password:
passwd: password updated successfully
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo groupadd development2
student@bubt-HP-ProDesk-600-G3-MT:~$
```

Task 2.4: Add the user **developer2** to the **development2** group using the **usermod** command.

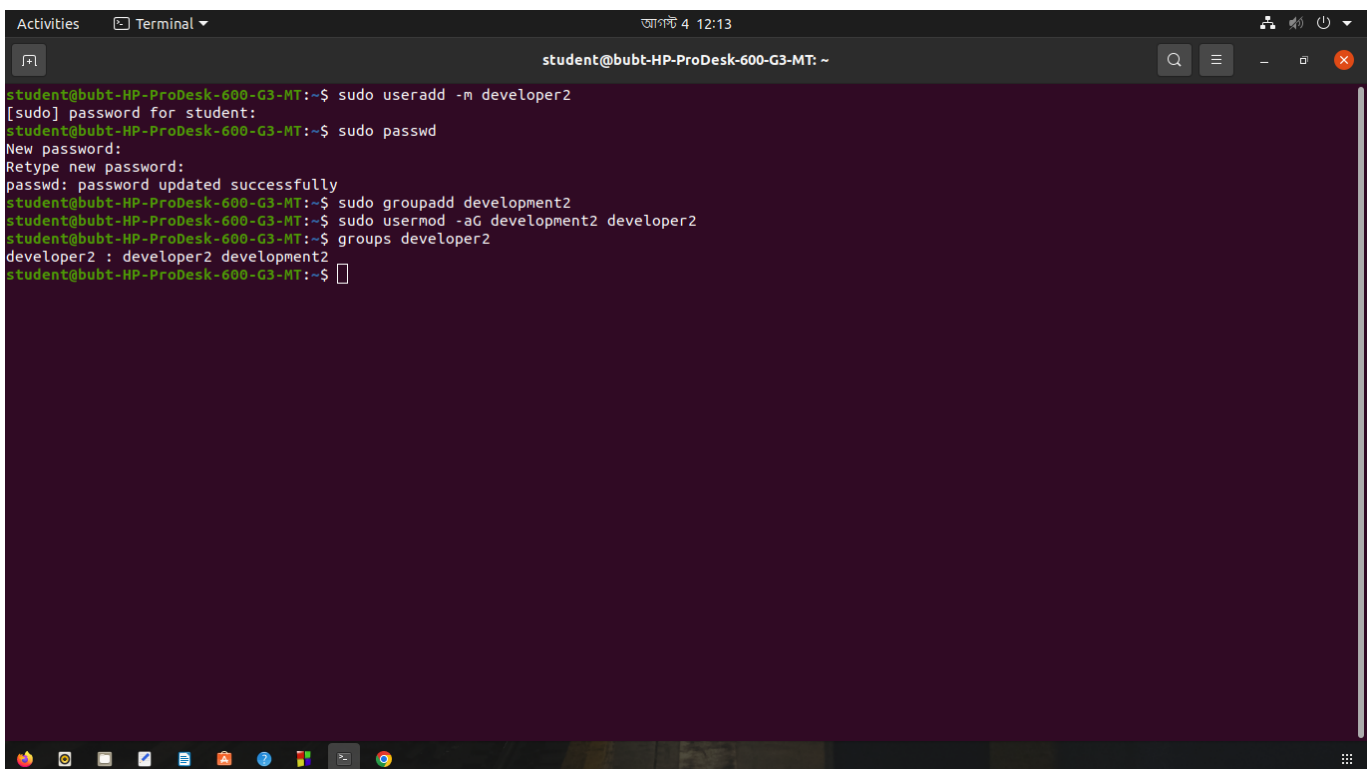
```
sudo usermod -aG development2 developer2
```



```
student@bubt-HP-ProDesk-600-G3-MT: ~  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo useradd -m developer2  
[sudo] password for student:  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo passwd  
New password:  
Retype new password:  
passwd: password updated successfully  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo groupadd development2  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo usermod -aG development2 developer2  
student@bubt-HP-ProDesk-600-G3-MT:~$
```

Task 2.5: Check and display the group memberships of the user **developer2** using the **groups** command.

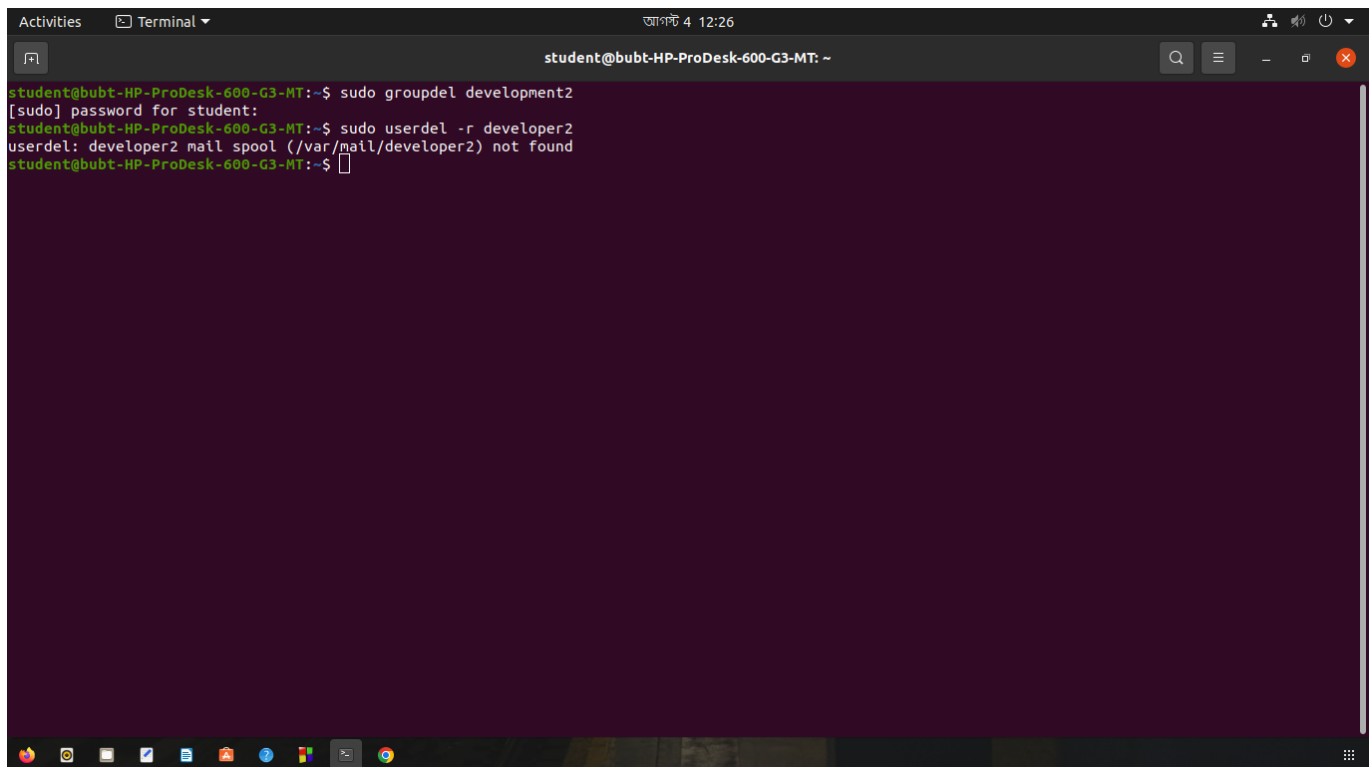
```
groups developer2
```



```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo useradd -m developer2  
[sudo] password for student:  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo passwd  
New password:  
Retype new password:  
passwd: password updated successfully  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo groupadd development2  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo usermod -aG development2 developer2  
student@bubt-HP-ProDesk-600-G3-MT:~$ groups developer2  
developer2 : developer2 development2  
student@bubt-HP-ProDesk-600-G3-MT:~$
```

Task 2.6: Deletion of created group and user **developer2** using the **groupdel** **userdel** command.

```
sudo groupdel development2  
sudo userdel -r developer2
```

A terminal window titled 'Terminal' with a dark background. The prompt is 'student@bubt-HP-ProDesk-600-G3-MT: ~'. The user enters 'sudo groupdel development2', followed by '[sudo] password for student:'. Then they enter 'sudo userdel -r developer2', followed by 'userdel: developer2 mail spool (/var/mail/developer2) not found'. The prompt returns to 'student@bubt-HP-ProDesk-600-G3-MT: ~'.

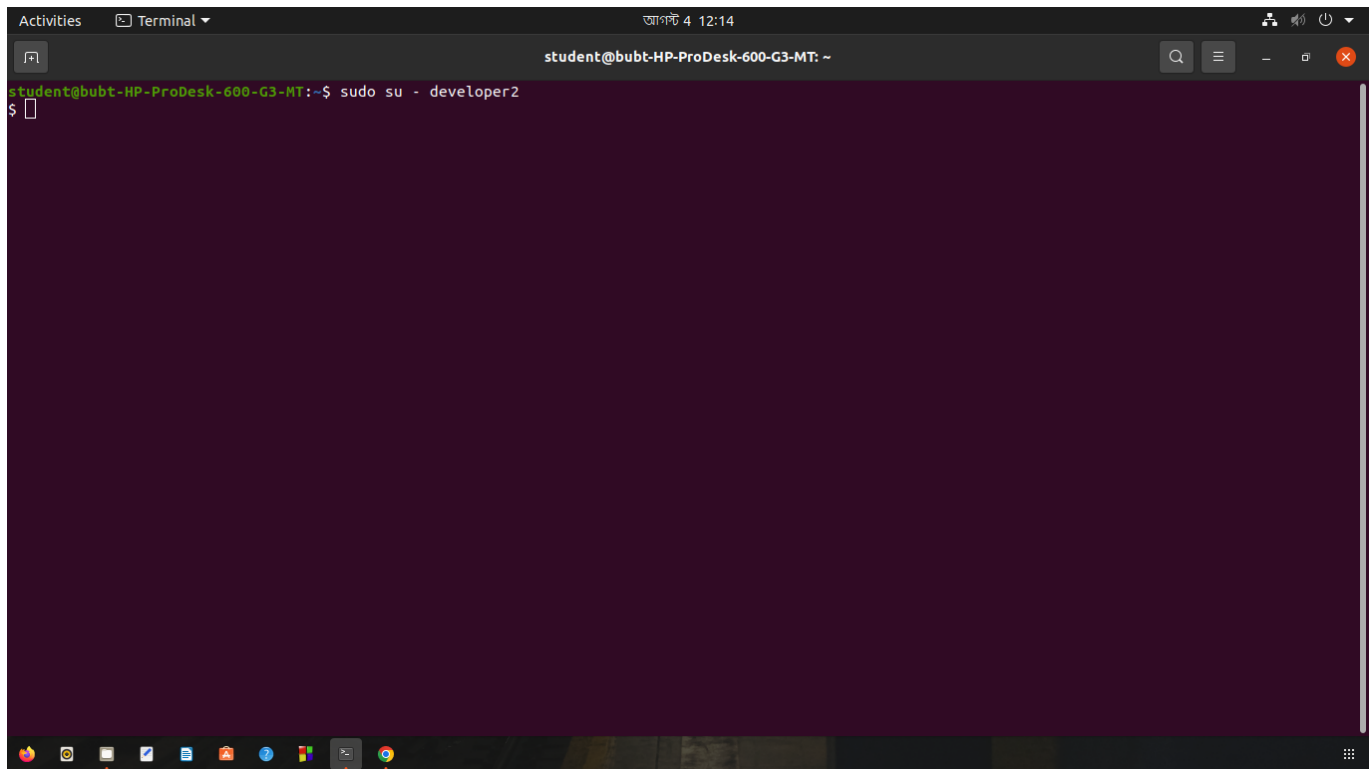
```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo groupdel development2  
[sudo] password for student:  
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo userdel -r developer2  
userdel: developer2 mail spool (/var/mail/developer2) not found  
student@bubt-HP-ProDesk-600-G3-MT:~$
```

3. File Permission Adjustment

Task 3.1: Create a directory named **project_files** in the home directory of **developer1** using the **mkdir** command.

Logging into the **developer2** account:

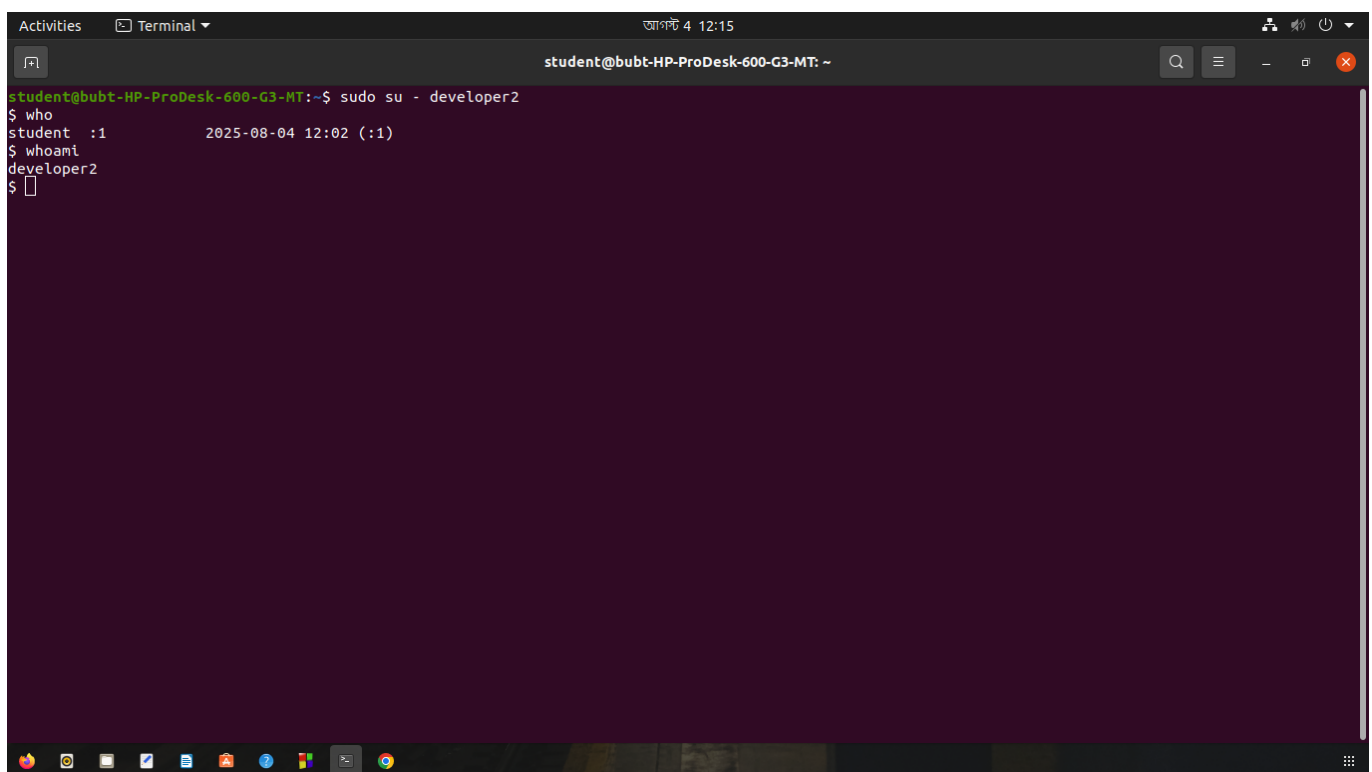
```
sudo su - developer2
```

A terminal window titled 'Terminal' with a dark background. The prompt is 'student@bubt-HP-ProDesk-600-G3-MT: ~'. The command 'sudo su - developer2' has been entered and executed. The prompt has changed to '\$' on a new line, indicating a successful switch to the 'developer2' user.

```
student@bubt-HP-ProDesk-600-G3-MT: ~  
$ sudo su - developer2  
$
```

Verifying that we are logged in as **developer2**:

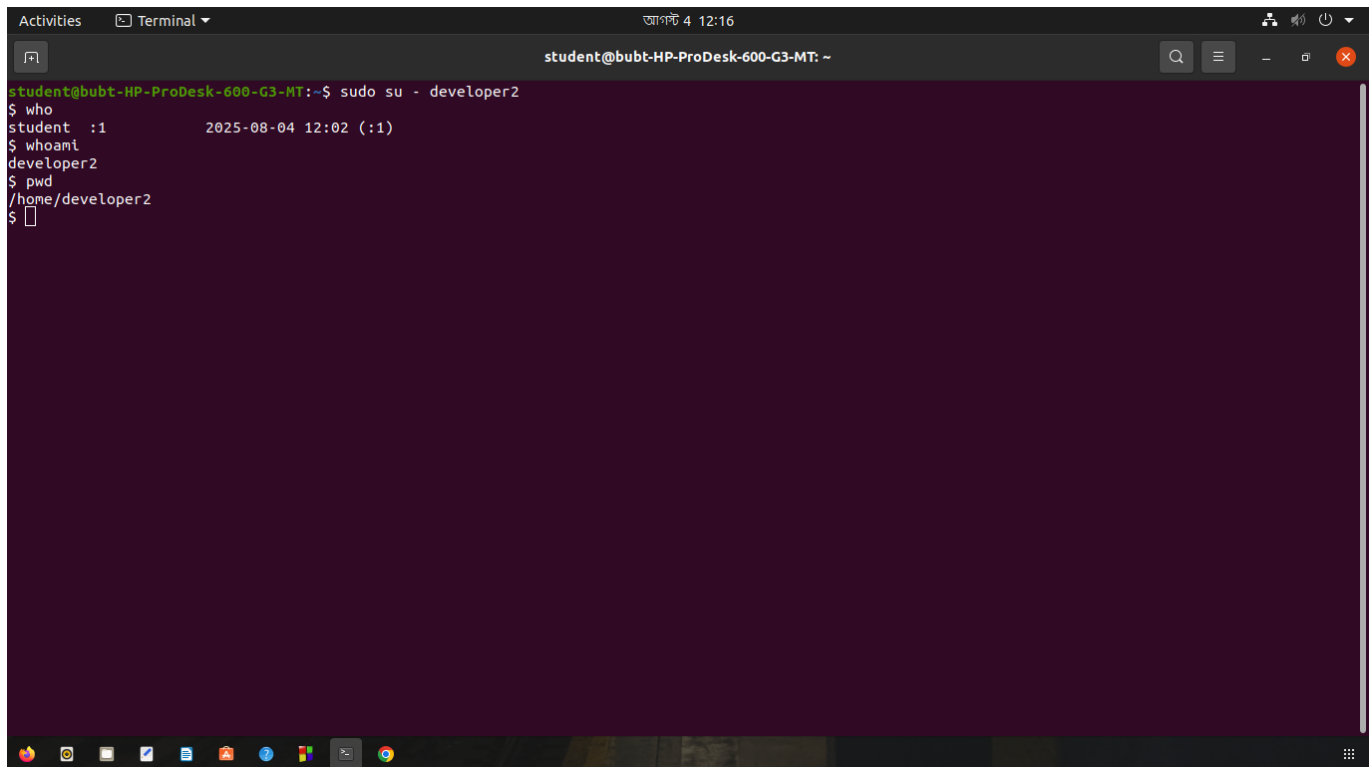
```
who  
whoami
```

A terminal window showing the output of the 'who' and 'whoami' commands. The prompt is 'student@bubt-HP-ProDesk-600-G3-MT: ~'. The command 'sudo su - developer2' was executed. Then 'who' was entered, showing 'student :1 2025-08-04 12:02 (:1)'. Then 'whoami' was entered, showing 'developer2'. The prompt is now '\$' on a new line.

```
student@bubt-HP-ProDesk-600-G3-MT: ~  
$ sudo su - developer2  
$ who  
student :1 2025-08-04 12:02 (:1)  
$ whoami  
developer2  
$
```

Verifying that we are in the correct working directory:

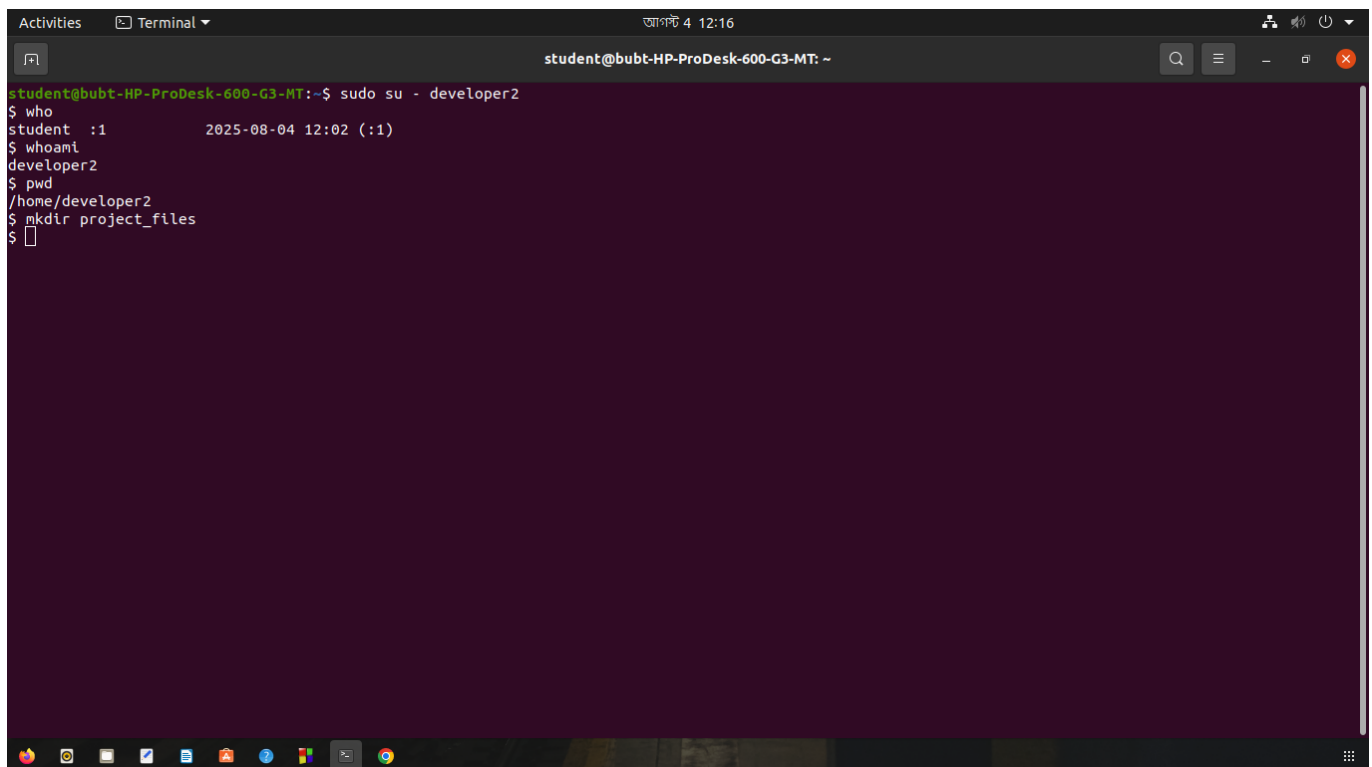
```
pwd
```

A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~' showing a user switch from 'student' to 'developer2' using 'sudo su - developer2'. The 'who' command shows the user is 'student' on '2025-08-04 12:02 (:1)'. The 'whoami' command returns 'developer2'. The 'pwd' command returns '/home/developer2'.

```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo su - developer2
$ who
student :1          2025-08-04 12:02 (:1)
$ whoami
developer2
$ pwd
/home/developer2
$
```

Creating the **project_files** directory:

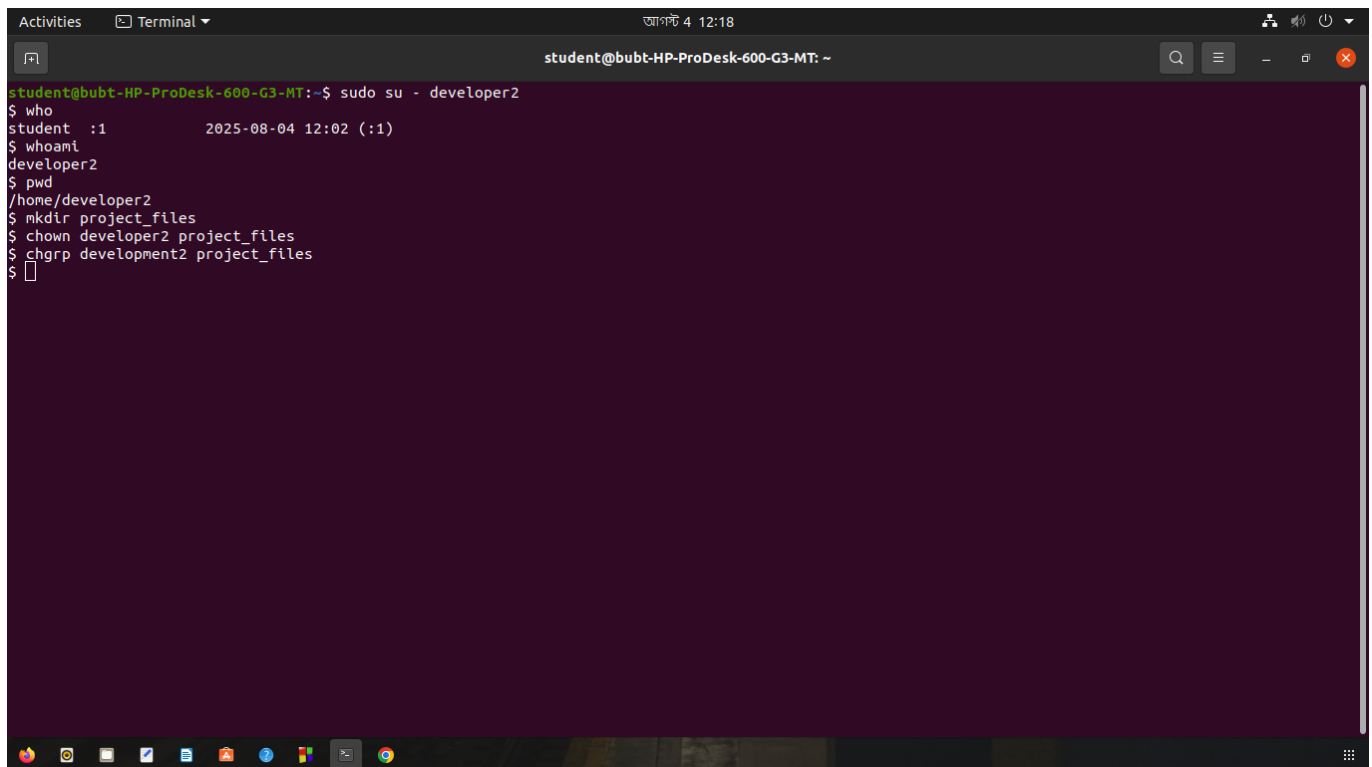
```
mkdir project_files
```

A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~' showing the same user switch as the previous screenshot. The 'mkdir project_files' command is entered and executed successfully.

```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo su - developer2
$ who
student :1          2025-08-04 12:02 (:1)
$ whoami
developer2
$ pwd
/home/developer2
$ mkdir project_files
$
```

Task 3.2: Change the ownership of the **project_files** directory to **developer2** and the group to **development2** using the **chown** and **chgrp** commands.

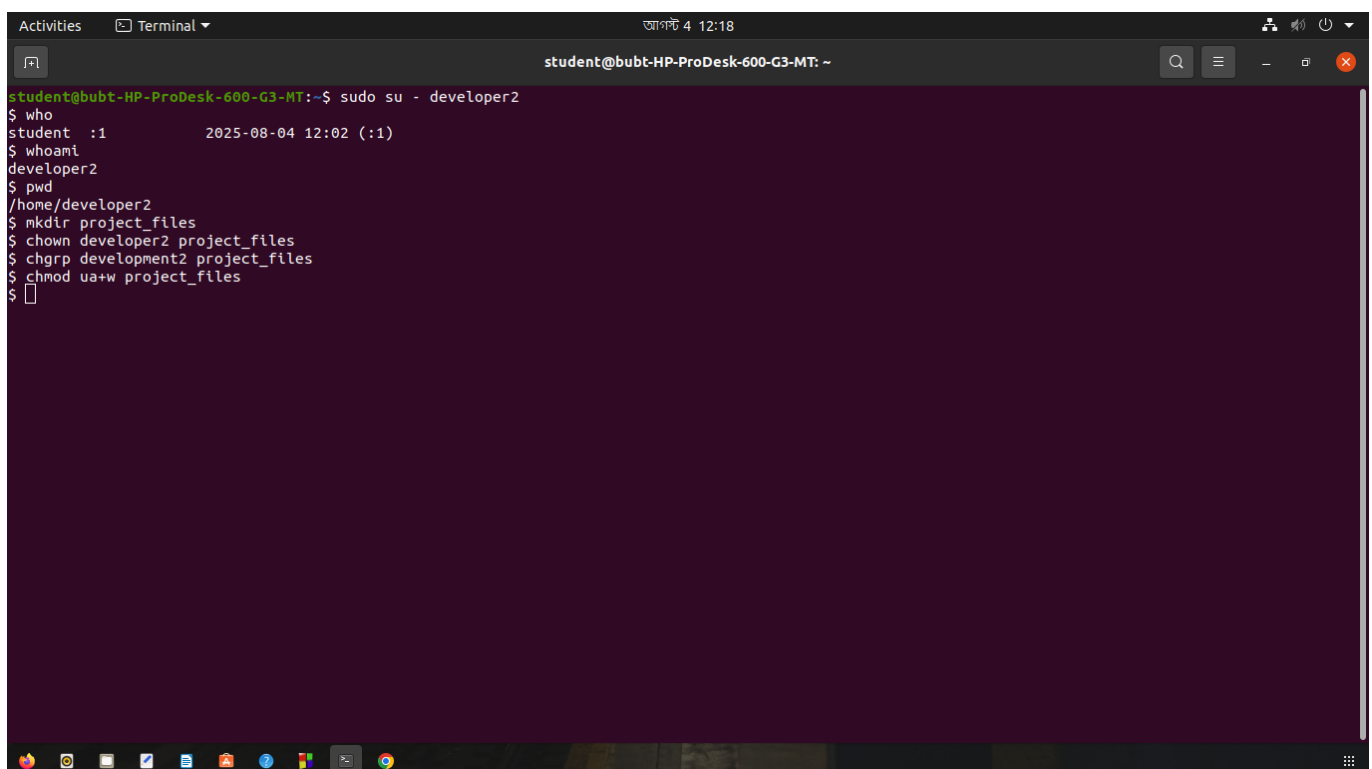
```
chown developer2 project_files
chgrp development2 project_files
```



```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo su - developer2
$ who
student :1          2025-08-04 12:02 (:1)
$ whoami
developer2
$ pwd
/home/developer2
$ mkdir project_files
$ chown developer2 project_files
$ chgrp development2 project_files
$
```

Task 3.3: Ensure that only the owner (**developer2**) has write permissions in the **project_files** directory.

```
chmod ua+w project_files
```



```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo su - developer2
$ who
student :1          2025-08-04 12:02 (:1)
$ whoami
developer2
$ pwd
/home/developer2
$ mkdir project_files
$ chown developer2 project_files
$ chgrp development2 project_files
$ chmod ua+w project_files
$
```

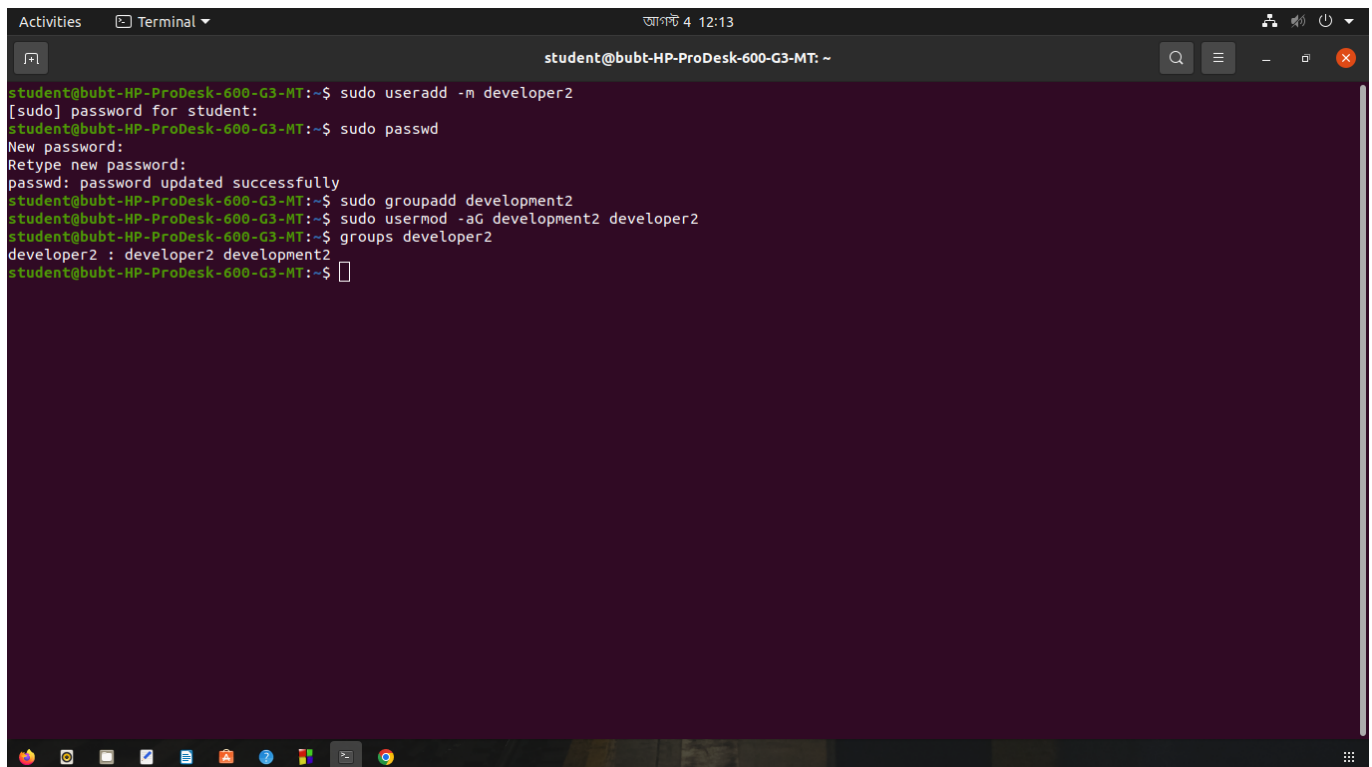

4. Conclusion

Task 4.1: Summarize your troubleshooting findings and the actions taken to resolve any issues.

During the setup process, commands such as `useradd`, `groupadd` and `usermod` required administrative access. To execute these commands, we used `sudo` along with the user's password to gain the necessary privileges.

```
sudo groupdel development2
sudo userdel -r developer2
```

Task 4.2: Confirm that the new user `developer1` has been successfully created, added to the `development` group, and that file permissions are set correctly.

A screenshot of a Linux terminal window. The window title is "Terminal" and the current user is "student@bubt-HP-ProDesk-600-G3-MT: ~". The terminal shows the following commands and output:

```
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo useradd -m developer2
[sudo] password for student:
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo passwd
New password:
Retype new password:
passwd: password updated successfully
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo groupadd development2
student@bubt-HP-ProDesk-600-G3-MT:~$ sudo usermod -aG development2 developer2
student@bubt-HP-ProDesk-600-G3-MT:~$ groups developer2
developer2 : developer2 development2
student@bubt-HP-ProDesk-600-G3-MT:~$
```

5. Additional Tasks

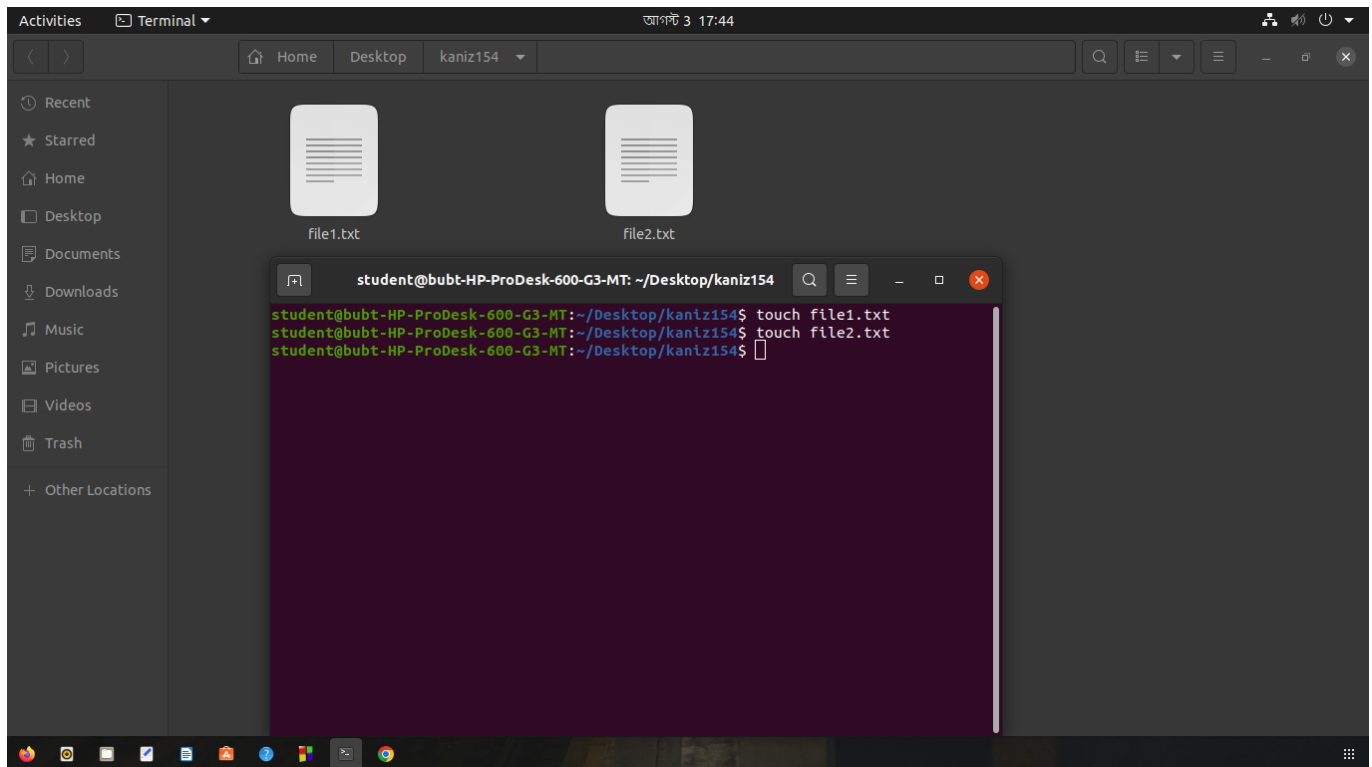
Task 5.1: Concatenate `file1.txt` and `file2.txt` to make a `file3.txt` with all the contents of `file1.txt` and `file2.txt`.

Creating a subdirectory named `kaniz154` in the **home directory** and navigating into it:

```
mkdir kaniz154
cd kaniz154
```

Creating two new files:

```
touch file1.txt
touch file2.txt
```

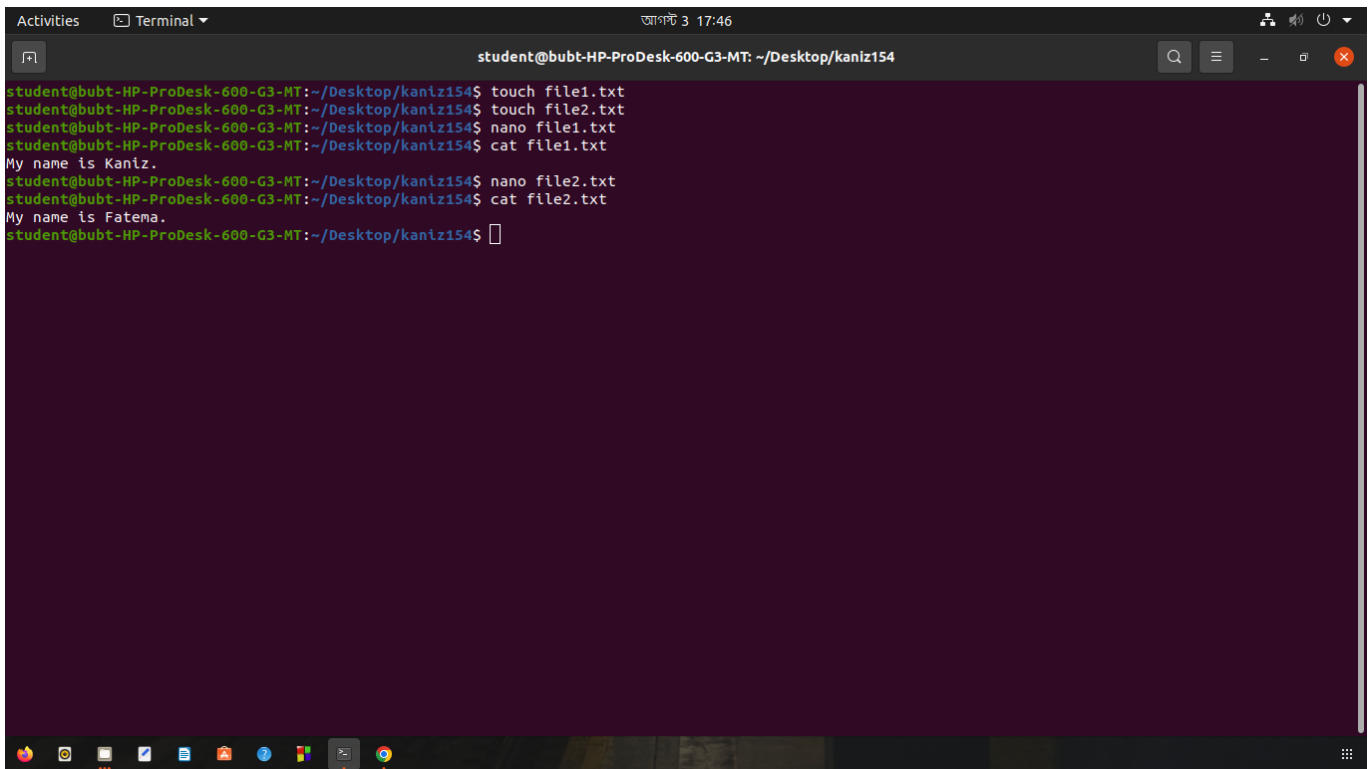


Adding contents to the newly created files using **nano**:

```
nano file1.txt
nano file2.txt
```

Verifying the contents of **file1.txt** and **file2.txt**:

```
cat file1.txt
cat file2.txt
```

A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154' with a dark purple background. The terminal shows a series of commands: 'touch file1.txt', 'touch file2.txt', 'nano file1.txt', 'cat file1.txt' (output: 'My name is Kaniz.'), 'nano file2.txt', 'cat file2.txt' (output: 'My name is Fatema.'). The prompt is currently at 'student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154\$'. The window has standard Ubuntu window controls and a top bar showing 'Activities', 'Terminal', and the date/time 'আগস্ট 3 17:46'.

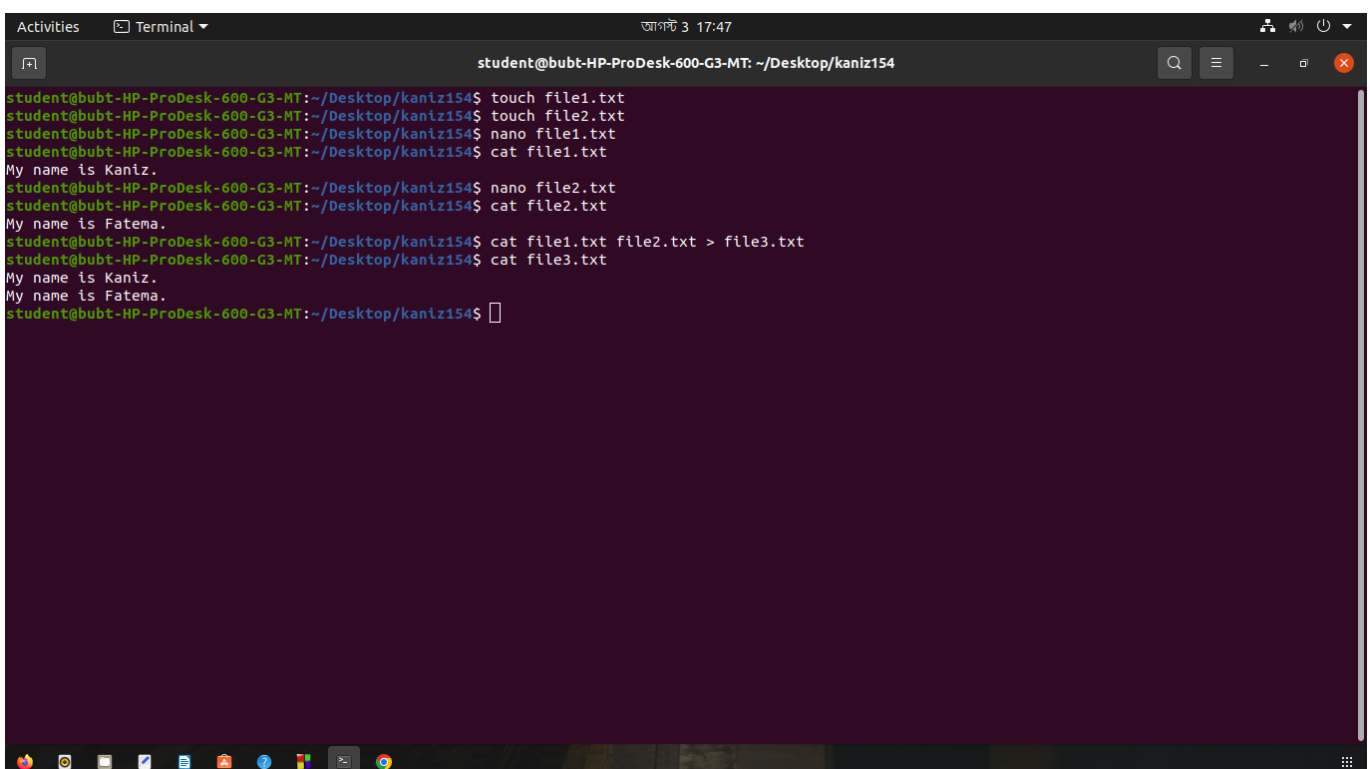
```
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ touch file1.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ touch file2.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ nano file1.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ cat file1.txt
My name is Kaniz.
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ nano file2.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ cat file2.txt
My name is Fatema.
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$
```

Concatenate the contents of these two files into **file3.txt**:

```
cat file1.txt file2.txt > file3.txt
```

Verifying the contents of **file3.txt**:

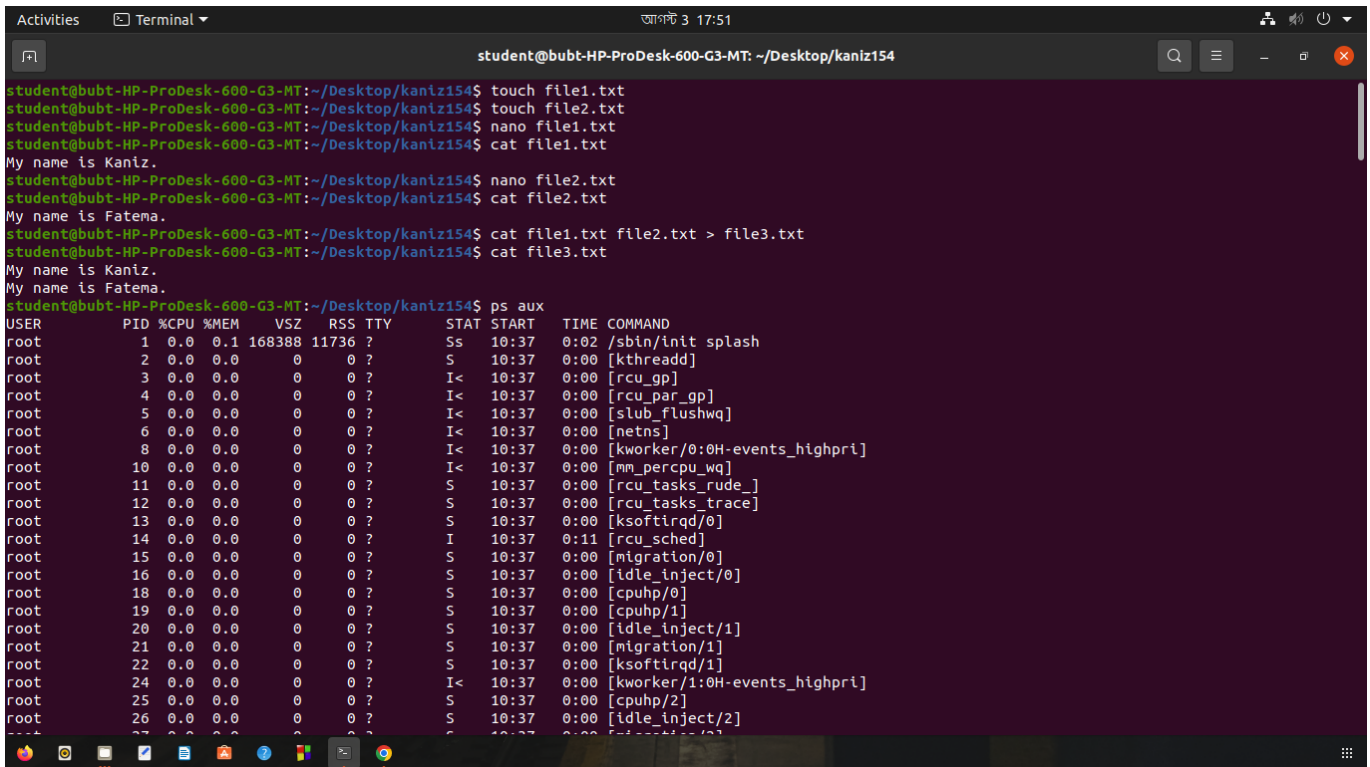
```
cat file3.txt
```

A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154' with a dark purple background. This screenshot shows the continuation of the previous steps. It includes the same initial commands as the first screenshot, plus 'cat file1.txt file2.txt > file3.txt' and 'cat file3.txt' (output: 'My name is Kaniz. My name is Fatema.'). The prompt is currently at 'student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154\$'. The window has standard Ubuntu window controls and a top bar showing 'Activities', 'Terminal', and the date/time 'আগস্ট 3 17:47'.

```
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ touch file1.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ touch file2.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ nano file1.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ cat file1.txt
My name is Kaniz.
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ nano file2.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ cat file2.txt
My name is Fatema.
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ cat file1.txt file2.txt > file3.txt
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$ cat file3.txt
My name is Kaniz.
My name is Fatema.
student@bubt-HP-ProDesk-600-G3-MT:~/Desktop/kaniz154$
```

Task 4.2: Show the list of all running processes.

```
ps aux
```

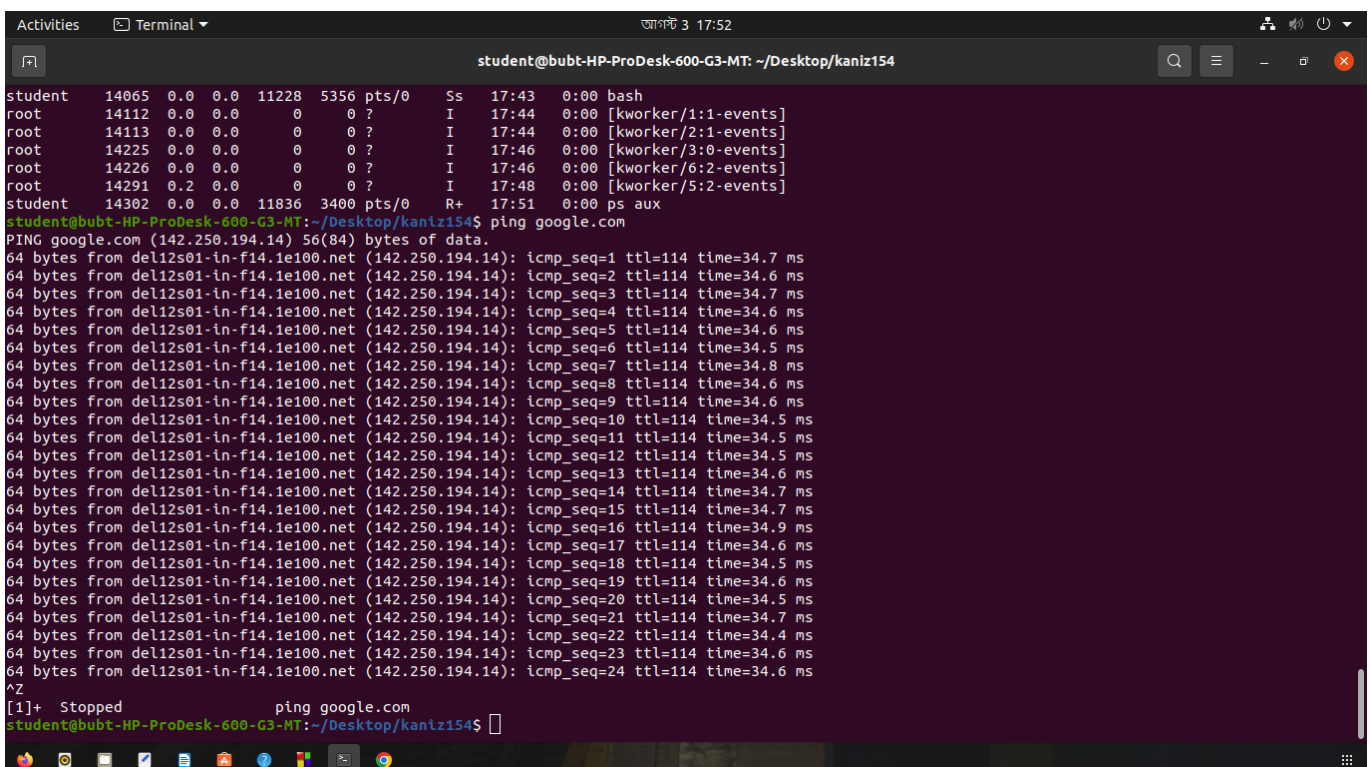


A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154' showing the output of the 'ps aux' command. The output is a table with columns: USER, PID, %CPU, %MEM, VSZ, RSS, TTY, STAT, START, TIME, and COMMAND. It lists various system processes like /sbin/init splash, [kthreadd], [rcu_gp], [rcu_par_gp], [slub_flushwq], [netns], [kworker/0:0H-events_highpri], [mm_percpu_wq], [rcu_tasks_rude_], [rcu_tasks_trace], [ksoftirqd/0], [rcu_sched], [migration/0], [idle_inject/0], [cpuhp/0], [cpuhp/1], [idle_inject/1], [migration/1], [ksoftirqd/1], [kworker/1:0H-events_highpri], [cpuhp/2], and [idle_inject/2].

```
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ touch file1.txt
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ touch file2.txt
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ nano file1.txt
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ cat file1.txt
My name is Kaniz.
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ nano file2.txt
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ cat file2.txt
My name is Fatema.
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ cat file1.txt file2.txt > file3.txt
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ cat file3.txt
My name is Kaniz.
My name is Fatema.
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ ps aux
USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1   0.0  0.1 168388 11736 ?        Ss   10:37   0:02 /sbin/init splash
root         2   0.0  0.0      0     0 ?        S    10:37   0:00 [kthreadd]
root         3   0.0  0.0      0     0 ?        I<   10:37   0:00 [rcu_gp]
root         4   0.0  0.0      0     0 ?        I<   10:37   0:00 [rcu_par_gp]
root         5   0.0  0.0      0     0 ?        I<   10:37   0:00 [slub_flushwq]
root         6   0.0  0.0      0     0 ?        I<   10:37   0:00 [netns]
root         8   0.0  0.0      0     0 ?        I<   10:37   0:00 [kworker/0:0H-events_highpri]
root        10   0.0  0.0      0     0 ?        I<   10:37   0:00 [mm_percpu_wq]
root        11   0.0  0.0      0     0 ?        S    10:37   0:00 [rcu_tasks_rude_]
root        12   0.0  0.0      0     0 ?        S    10:37   0:00 [rcu_tasks_trace]
root        13   0.0  0.0      0     0 ?        S    10:37   0:00 [ksoftirqd/0]
root        14   0.0  0.0      0     0 ?        I    10:37   0:11 [rcu_sched]
root        15   0.0  0.0      0     0 ?        S    10:37   0:00 [migration/0]
root        16   0.0  0.0      0     0 ?        S    10:37   0:00 [idle_inject/0]
root        18   0.0  0.0      0     0 ?        S    10:37   0:00 [cpuhp/0]
root        19   0.0  0.0      0     0 ?        S    10:37   0:00 [cpuhp/1]
root        20   0.0  0.0      0     0 ?        S    10:37   0:00 [idle_inject/1]
root        21   0.0  0.0      0     0 ?        S    10:37   0:00 [migration/1]
root        22   0.0  0.0      0     0 ?        S    10:37   0:00 [ksoftirqd/1]
root        24   0.0  0.0      0     0 ?        I<   10:37   0:00 [kworker/1:0H-events_highpri]
root        25   0.0  0.0      0     0 ?        S    10:37   0:00 [cpuhp/2]
root        26   0.0  0.0      0     0 ?        S    10:37   0:00 [idle_inject/2]
----
```

Task 5.3: Ping google.com.

```
ping google.com
```



A terminal window titled 'student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154' showing the output of the 'ping google.com' command. It displays the IP address 142.250.194.14 and 24 successful ping results with times ranging from 34.5 ms to 34.9 ms.

```
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ ps aux
student  14065   0.0   0.0  11228  5356 pts/0    Ss   17:43   0:00 bash
root     14112   0.0   0.0      0     0 ?        I    17:44   0:00 [kworker/1:1-events]
root     14113   0.0   0.0      0     0 ?        I    17:44   0:00 [kworker/2:1-events]
root     14225   0.0   0.0      0     0 ?        I    17:46   0:00 [kworker/3:0-events]
root     14226   0.0   0.0      0     0 ?        I    17:46   0:00 [kworker/6:2-events]
root     14291   0.2   0.0      0     0 ?        I    17:48   0:00 [kworker/5:2-events]
student  14302   0.0   0.0  11836  3400 pts/0    R+   17:51   0:00 ps aux
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$ ping google.com
PING google.com (142.250.194.14) 56(84) bytes of data:
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=1 ttl=114 time=34.7 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=2 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=3 ttl=114 time=34.7 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=4 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=5 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=6 ttl=114 time=34.5 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=7 ttl=114 time=34.8 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=8 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=9 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=10 ttl=114 time=34.5 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=11 ttl=114 time=34.5 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=12 ttl=114 time=34.5 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=13 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=14 ttl=114 time=34.7 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=15 ttl=114 time=34.7 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=16 ttl=114 time=34.9 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=17 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=18 ttl=114 time=34.5 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=19 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=20 ttl=114 time=34.5 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=21 ttl=114 time=34.7 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=22 ttl=114 time=34.4 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=23 ttl=114 time=34.6 ms
64 bytes from del12s01-in-f14.1e100.net (142.250.194.14): icmp_seq=24 ttl=114 time=34.6 ms
^Z
[1]+  Stopped                  ping google.com
student@bubt-HP-ProDesk-600-G3-MT: ~/Desktop/kaniz154$
```

Task 5.4: Create an archive of the created folder.

```
tar -czvf archive.tar.gz *
```

Task 5.5: Decompress the archived folder.

```
tar -xzf archive.tar.gz
```

