LAB REPORT

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SUBMITTED TO

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Operating Systems Lab

1. Troubleshooting

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

Solution:

```
who
```

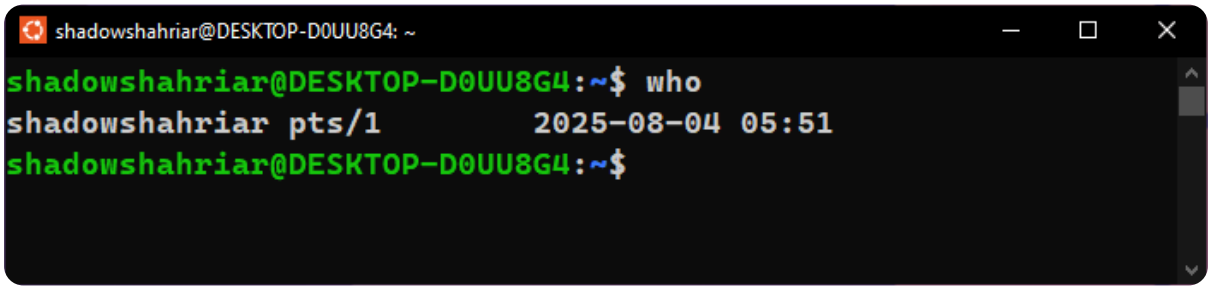

Figure - 1.1. Task 1.1

2. User Management

Task 2.1: Create a new user named **developer1** using the `useradd` command.

Solution:

```
sudo useradd -m developer1
```

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

Solution:

```
sudo passwd
```

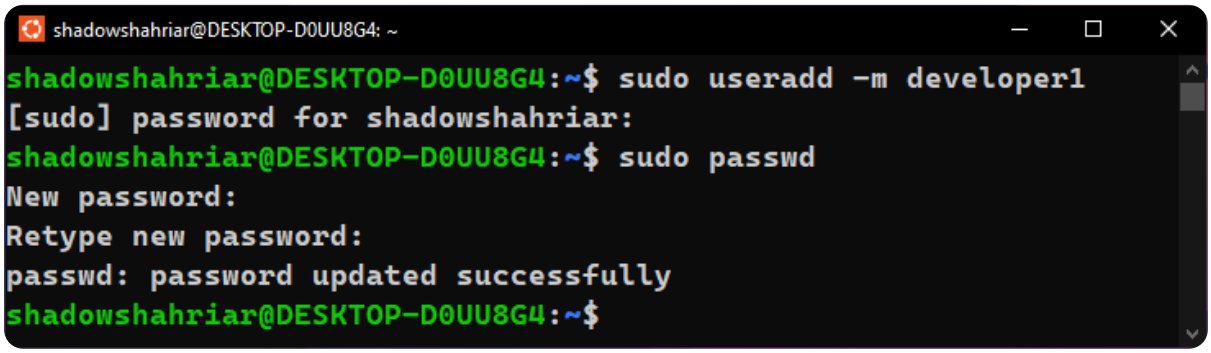

Figure - 1.2. Task 2.1 and 2.2

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

Solution:

```
sudo groupadd development
```

Task 2.4: Add the user **developer1** to the **development** group using the `usermod` command.

Solution:

```
sudo usermod -aG development developer1
```

Task 2.5: Check and display the group memberships of the user **developer1** using the `groups` command.

Solution:

```
groups developer1
```

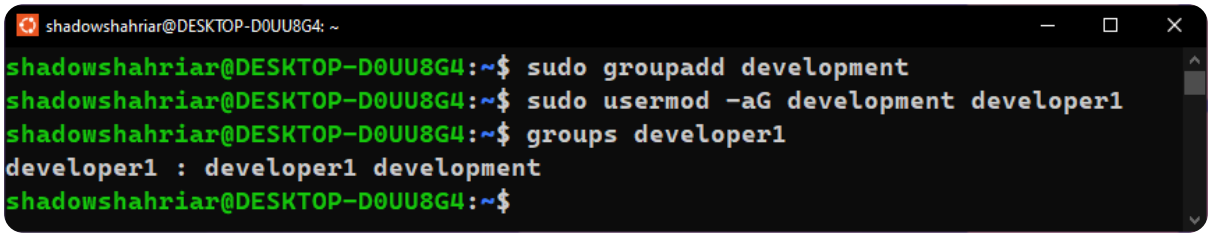

Figure - 1.3. Task 2.3-2.5

3. File Permission Adjustment

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

Solution:

Logging into the **developer1** account:

```
sudo su - developer1
```

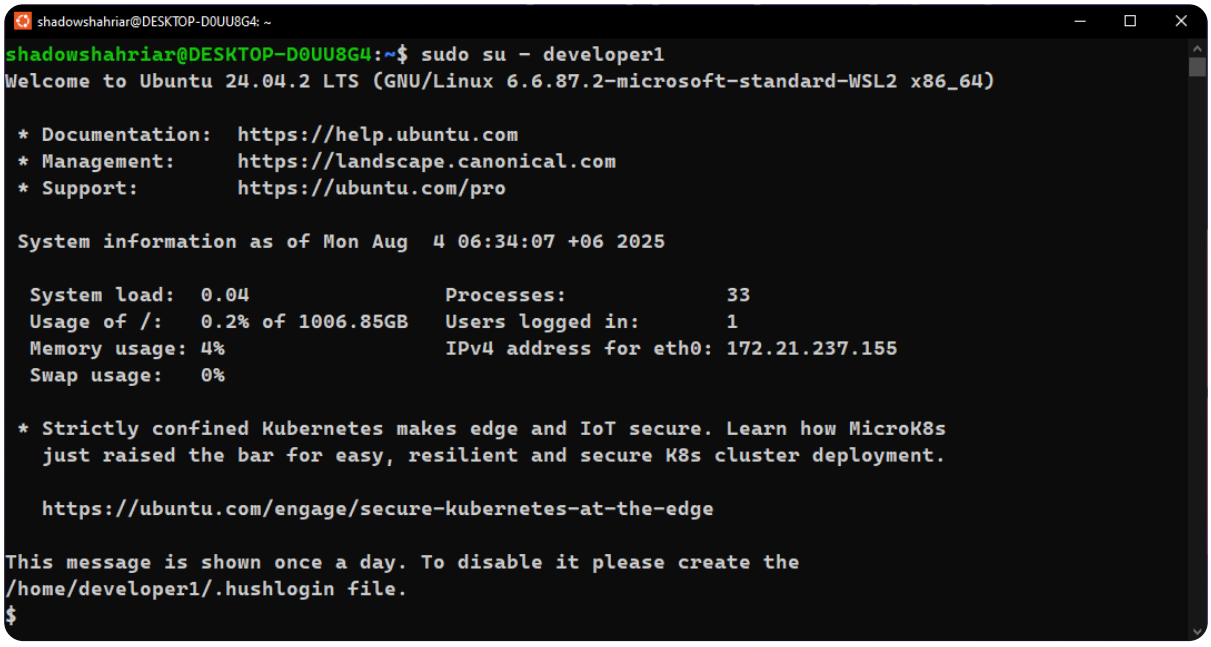

Figure - 1.4. Logging into the newly created account

Verifying that we are logged in as **developer1**:

```
who
whoami
```

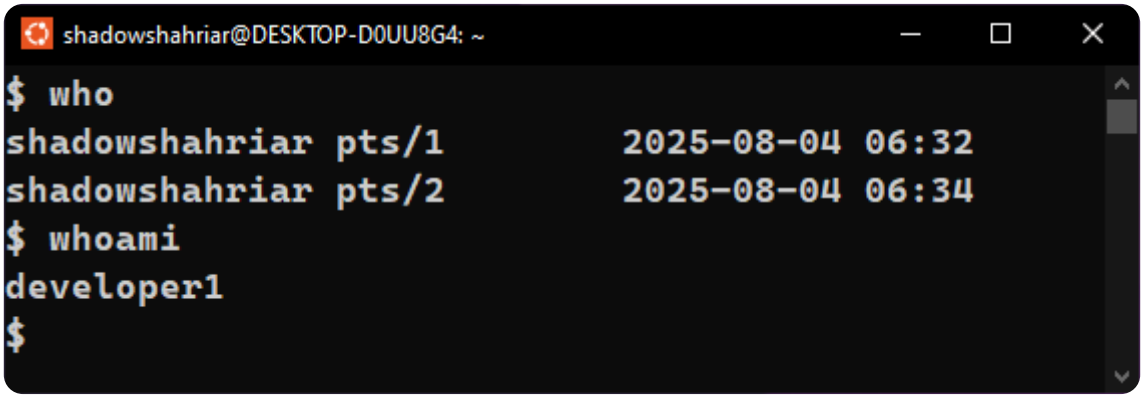

Figure - 1.5. Verifying that we are logged in

Verifying that we are in the correct working directory:

```
pwd
```

Figure - 1.6. Verifying the present working directory

Creating the **project_files** directory:

```
mkdir project_files
```

Task 3.2: Change the ownership of the **project_files** directory to **developer1** and the group to **development** using the `chown` and `chgrp` commands.

Solution:

```
chown developer1 project_files
chgrp development project_files
```

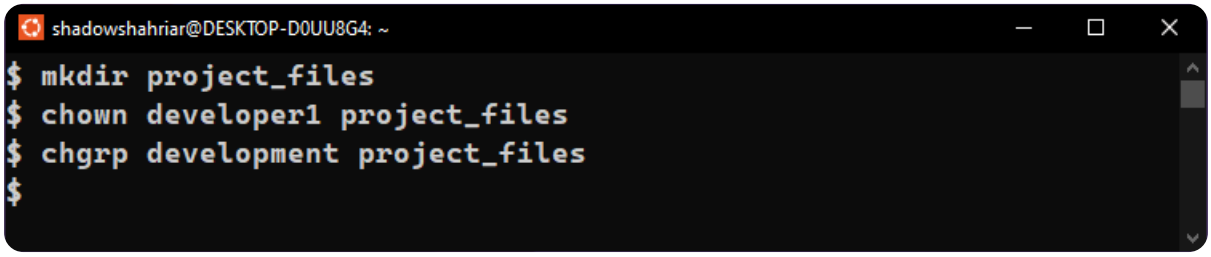

Figure - 1.7. Task 3.1 and 3.2

Task 3.3: Ensure that only the owner (**developer1**) has write permissions in the **project_files** directory.

Solution:

```
chmod ua+w project_files
```

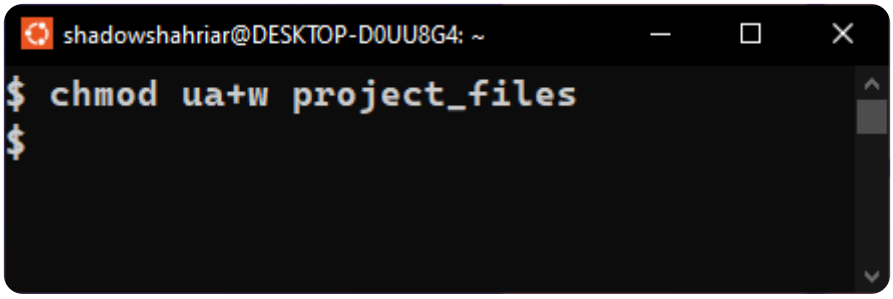

Figure - 1.8. Task 3.3

4. Additional Tasks

Task 4.1: Concatenate **file1.txt** and **file2.txt** to make a **file3.txt** with all the contents of **file1.txt** and **file2.txt**.

Solution:

Creating a subdirectory named **shahriar408** in the **home directory** and navigating into it:

```
mkdir shahriar408
cd shahriar408
```

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
```

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
```

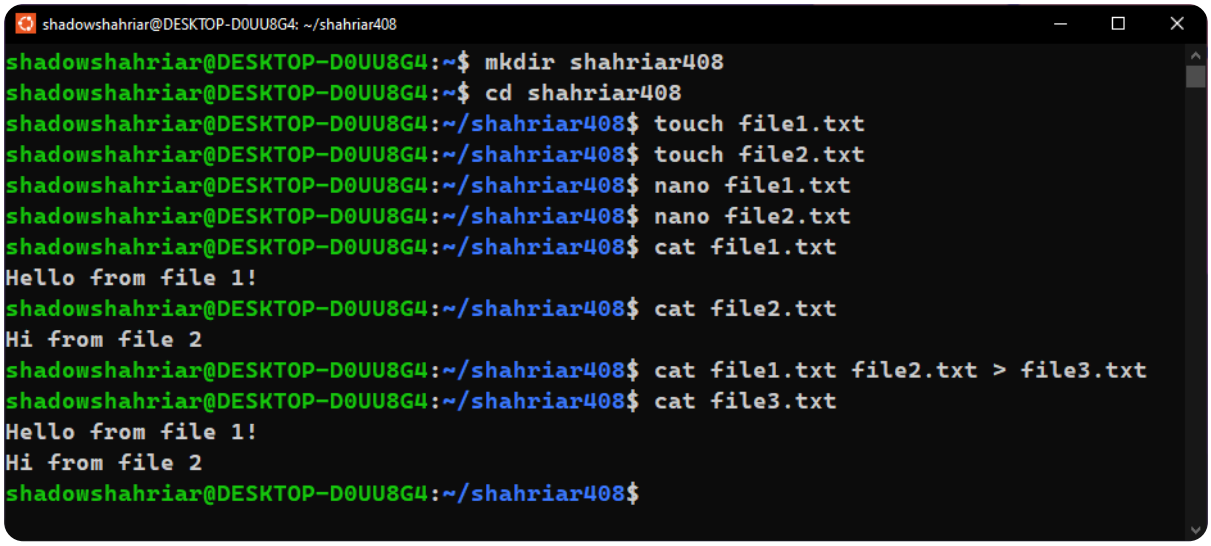

Figure - 1.9. Task 4.1

Task 4.2: Show the list of all running processes.

Solution:

```
ps aux
```

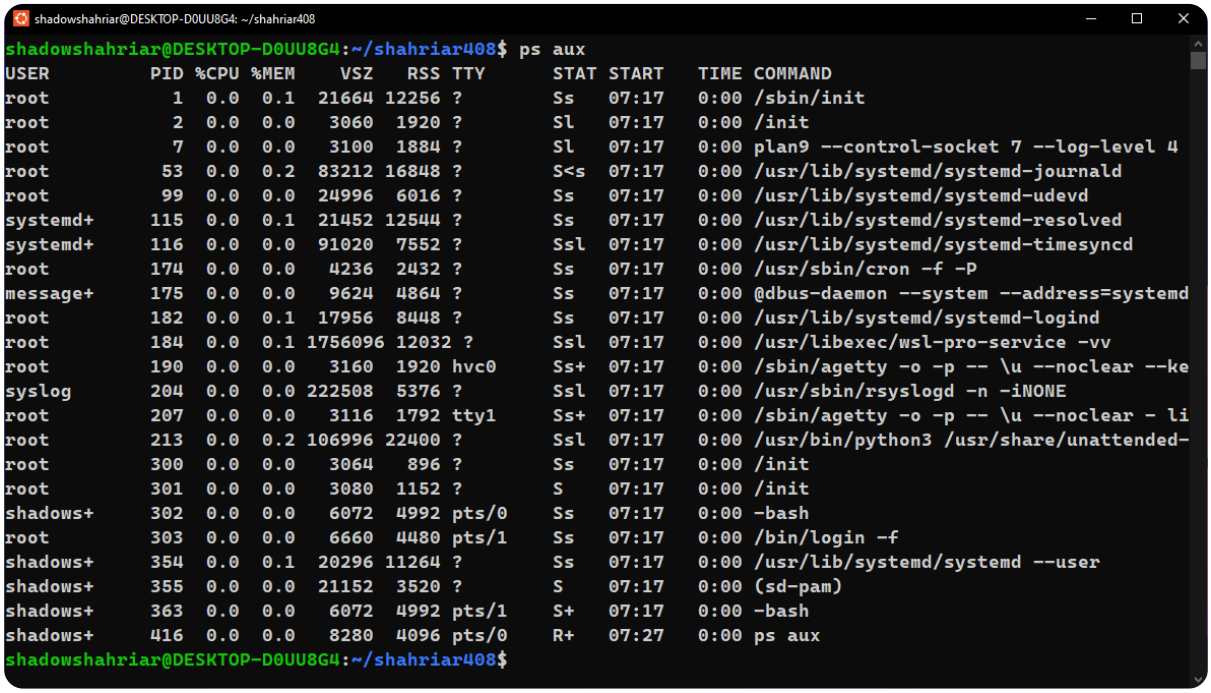

Figure - 1.10. Task 4.2

Task 4.3: Ping google.com.

Solution:

```
ping google.com
```

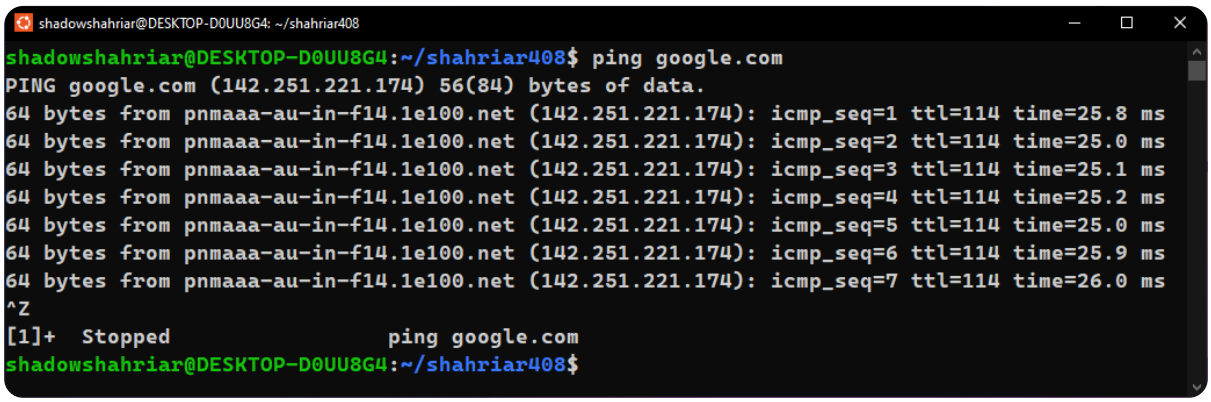

Figure - 1.11. Task 4.3

Task 4.4: Create an archive of the created folder.

Solution:

```
tar -czvf archive.tar.gz shahriar408
```

Task 4.5: Decompress the archived folder.

Solution:

```
tar -xzvf archive.tar.gz
```

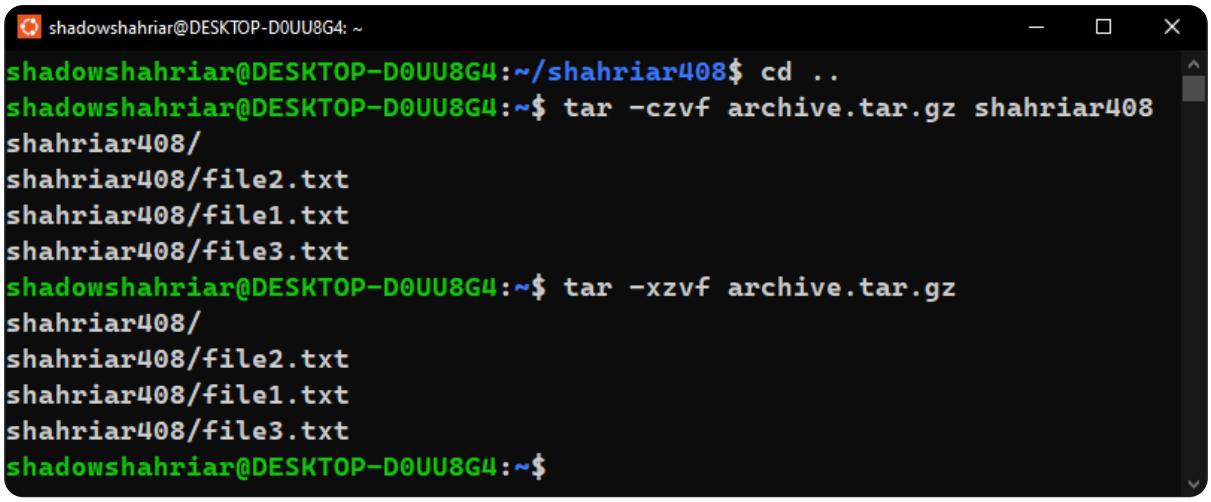

Figure - 1.12. Task 4.4 and 4.5

5. Conclusion

Task 5.1: Summarize your troubleshooting findings and the actions taken to resolve any issues.

Solution:

Some of the low-level commands like `useradd`, `groupadd`, `usermod` required administritive permissions. Therefore, we had to use the `sudo` command and enter the password of the user account. We can delete the newly created user and group using the following commands:

```
sudo groupdel development
sudo userdel -r developer1
```

Task 5.2: Confirm that the new user developer1 has been successfully created, added to the development group, and that file permissions are set correctly.

Solution:

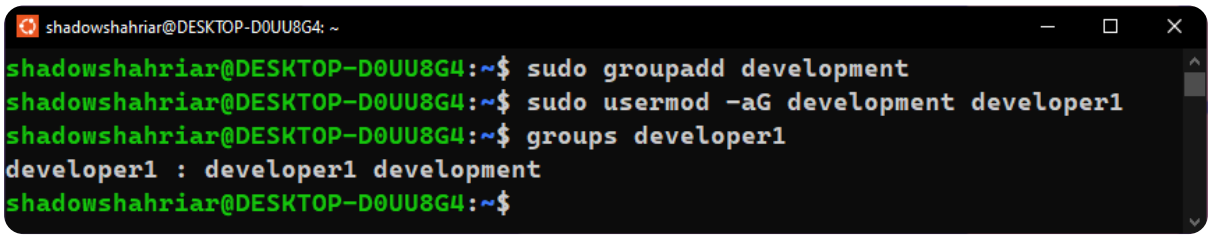

Figure - 1.13. Task 5.2