Lab # 02

Operating System

Name: Samreen Bibi

Sap Id:46484

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Submitted to: Kausar Nasreen

Question 01:

To begin, you need to set up a structured directory layout in your home directory. Start by creating two directories named **OS_Course** and **OS_Lab**. These directories will serve as the main folders for organizing your OS Lab tasks. After creating these directories, switch to the **OS_Lab** directory. Within OS_Lab, create three more directories named **LAB_Class_Task, LAB_Activities, and Lab_Practice**. Each of these directories will help you categorize different aspects of your lab work. Once you have created these directories, go into the **Lab_Practice** directory and create a file named example.cpp. This file should be empty and will be used for practice later. Finally, move back to your home directory. Make sure to take screenshots of each step, including the creation of directories, the file creation, and your navigation commands to document your process.
Note: Include screenshots, where required to illustrate your explanation.

```
[root@localhost ~]# mkdir OS_Lab
[root@localhost ~]# mkdir OS_Course
[root@localhost ~]# ls
bench.py  hello.c  OS_Course  OS_Lab
[root@localhost ~]#
```

```
[root@localhost ~]# cd OS_Lab
[root@localhost OS_Lab]# mkdir Lab_Class_Task
[root@localhost OS_Lab]# mkdir Lab_Activities
[root@localhost OS_Lab]# mkdir Lab_Practice
[root@localhost OS_Lab]# ls
Lab_Activities  Lab_Class_Task  Lab_Practice
[root@localhost OS_Lab]#
```

```
[root@localhost OS_Lab]# cd Lab_Practice
[root@localhost Lab_Practice]# touch example.cpp
[root@localhost Lab_Practice]# ls
example.cpp
[root@localhost Lab_Practice]#
```

```
[root@localhost Lab_Practice]# cd ..
[root@localhost OS_Lab]#
```

Question 02:

Finally, you need to understand the concepts of absolute and relative paths. Explain the difference between these two types of paths and provide an example of each. This will help you navigate directories more effectively. If you are currently in the Lab_`Practice` directory, describe the relative path to access the **`LAB_Activities`** directory. This will test your understanding of how to move between directories using relative paths.
Note: Include screenshots, where required to illustrate your explanation.

Absolute path:

The complete path from the root directory, always starting with `/`.

```
[root@localhost Lab_Practice]# pwd
/root/OS_Lab/Lab_Practice
[root@localhost Lab_Practice]# cd /root/OS_Lab/Lab_Activities
[root@localhost Lab_Activities]#
```

Relative path:

The path based on your current location, without starting with `/`.

```
[root@localhost Lab_Practice]# pwd
/root/OS_Lab/Lab_Practice
[root@localhost Lab_Practice]# cd ../Lab_Activities
[root@localhost Lab_Activities]#
```

Question 03:

Imagine you're working on your computer when you suddenly need to turn it off quickly. You press and hold the power button until the computer shuts down completely. After an hour, you turn the computer back on, and it quickly shows the login screen or desktop.
Why does your computer start up smoothly and quickly after being turned off? Describe the process that happens between powering off the computer and seeing the login or desktop screen. What steps does the computer go through to get everything ready in a short amount of time?
Answer:

Here’s a simple rundown of what happens when you turn your computer off and then back on:

Shutdown: Pressing and holding the power button makes the computer turn off quickly. All temporary data in memory is cleared.

Power Up: When you turn the computer back on, electricity flows to its parts.

Self-Check: The computer checks if everything (like the CPU and memory) is working correctly.

Load Boot Program: The computer finds and runs a small program that starts the operating system.

Load Operating System: The operating system’s main files are loaded into the computer’s memory.