Operating System

Lab 02 Tasks

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Q1.

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

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

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

Q2.

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.

Answer:

Absolute Path:

An absolute path is the complete path from the root directory to the desired file or directory. It always starts with a / and provides the full location of the file or directory in the system.

```
[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:

A relative path is the path to a file or directory relative to the current directory we are in. It is shorter than an absolute path because it only includes the steps needed to navigate from our current location.

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

Q3.

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:

When I hold down the power button to turn off my computer quickly, it shuts down without going through usual steps.

When I turn it back on, it quickly shows the desktop. The steps it includes are:

- **Quick Check (POST):** Computer checks that everything is working properly.
- **Start-Up (BIOS):** Computer loads the operating system by startup a program which is BIOS. BIOS is basic input/output system which ensures everything is working properly.
- **Loading the System:** Load the main part of operating system in memory. Because I turned off computer directly by power button, it loads the system quickly.
- **Desktop:** After loading the files, computer brings me to login/desktop screen.
