



Operating System

Lab 08 Tasks

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Batch: BSCS-5th semester

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Q1.

Write a C/C++ program that uses the fork() function and the logical AND (&&) operator.

Answer:

```

student@student-virtual-machine: ~
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$ chmod 777 programm.cpp
student@student-virtual-machine:~$ g++ -o programm programm.cpp
student@student-virtual-machine:~$ ./programm
HelloHello
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$ ./programm
HelloHello
student@student-virtual-machine:~$ g++ -o programm programm.cpp
student@student-virtual-machine:~$ ./programm
HelloHelloHelloHello
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$

```

```

GNU nano 6.2 programm.cpp
#include<iostream>
#include<unistd.h>
using namespace std;
int main(){
    if(fork() && fork()){
        fork();
        cout<<"Hello";
    }
    return 0;
}

```

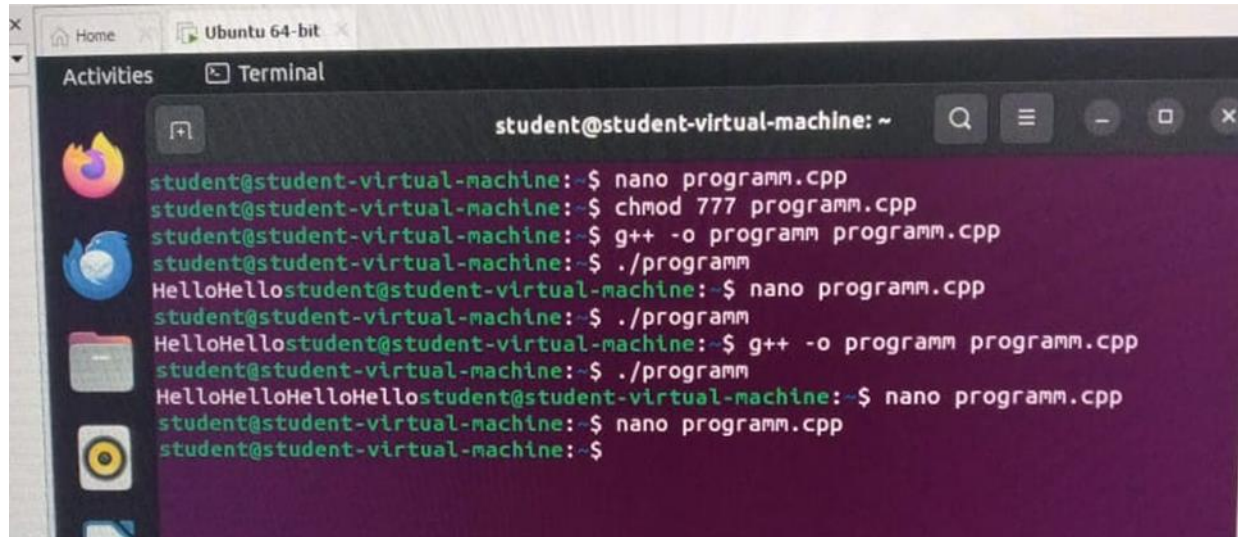
Fork () creates a new process (child process) that runs the same code as the parent process but independently. The && (And) operator means that if both of the fork () calls creates a child process (i.e., returns 0), the condition becomes true. This leads to running the code inside the if block. If the condition is true, a third fork () is called, creating another child process.

else block:

If the condition is false (both fork () calls return 0).

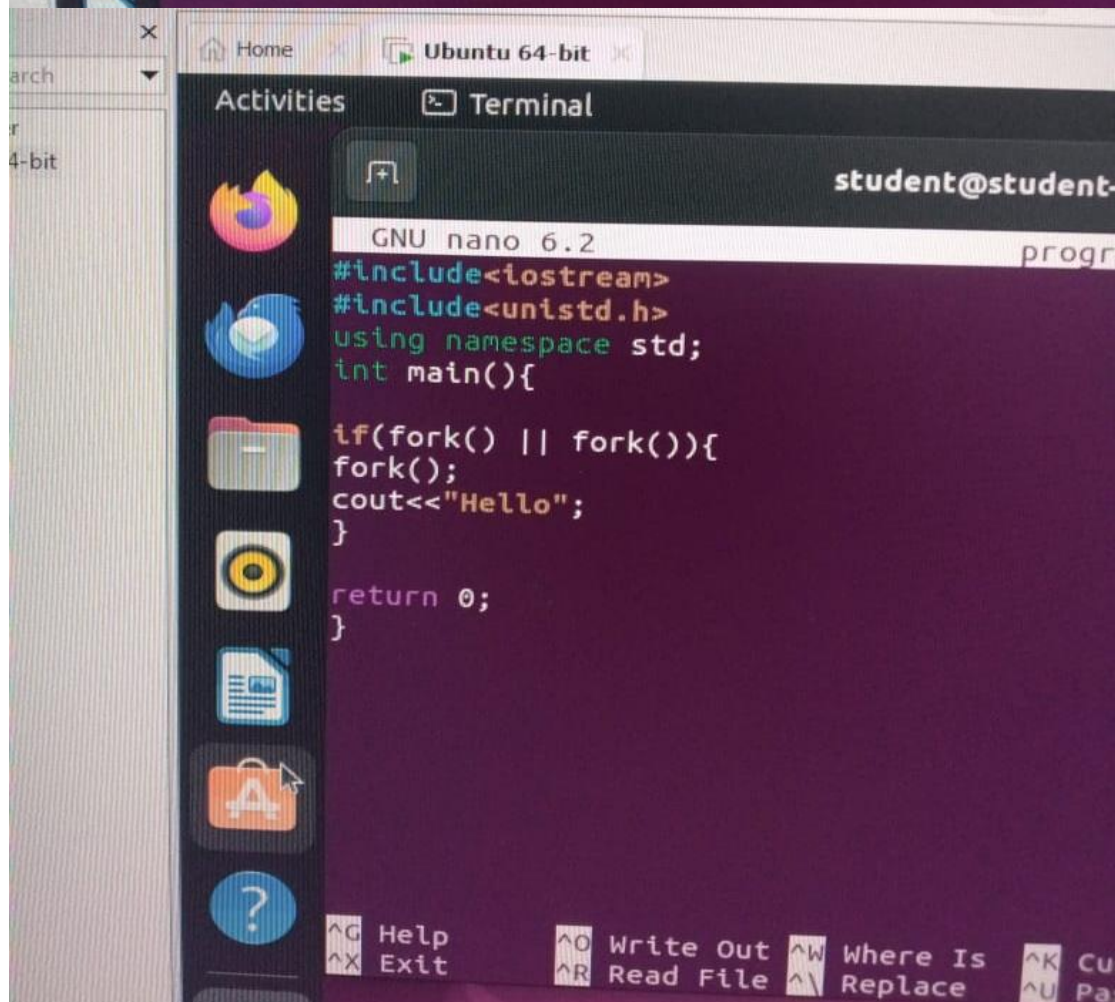
Q2.

Write a C/C++ program that uses the fork() function and the logical OR (||) operator.

Answer:

A terminal window titled 'Ubuntu 64-bit' showing the execution of a C++ program. The user enters the following commands:

```
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$ chmod 777 programm.cpp
student@student-virtual-machine:~$ g++ -o programm programm.cpp
student@student-virtual-machine:~$ ./programm
HelloHello
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$ ./programm
HelloHello
student@student-virtual-machine:~$ g++ -o programm programm.cpp
student@student-virtual-machine:~$ ./programm
HelloHelloHello
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$ nano programm.cpp
student@student-virtual-machine:~$
```



A terminal window titled 'Ubuntu 64-bit' showing the source code of the C++ program in the nano editor. The code is as follows:

```
GNU nano 6.2 programm.cpp
#include<iostream>
#include<unistd.h>
using namespace std;
int main(){
    if(fork() || fork()){
        fork();
        cout<<"Hello";
    }
    return 0;
}
```

At the bottom of the terminal, there are keyboard shortcuts: `^G Help`, `^X Exit`, `^O Write Out`, `^R Read File`, `^W Where Is`, `^_ Replace`, `^K Cut`, and `^U Pas`.

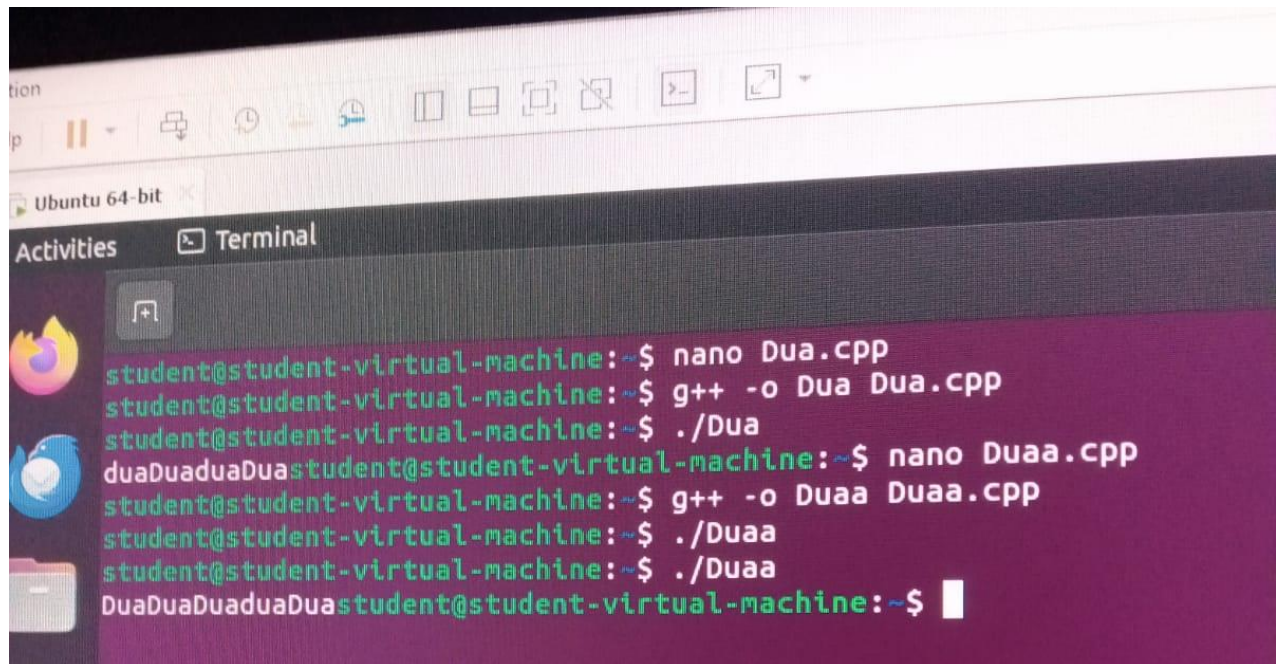
Fork () creates a new process (child process) that runs the same code as the parent process but independently. The || (OR) operator means that if either of the fork () calls creates a child process (i.e., returns 0), the condition becomes true. This leads to running the code inside the if block. If the condition is true, a third fork () is called, creating another child process. else block:

If the condition is false (both fork () calls return 0).

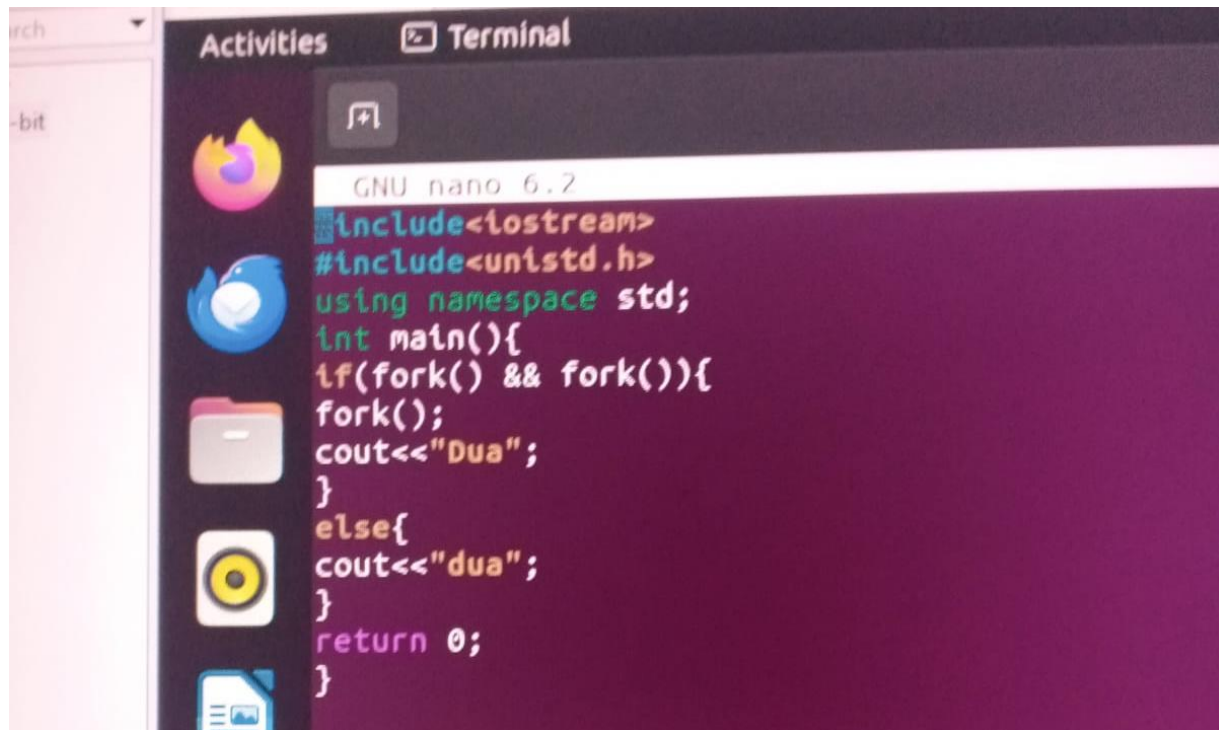
Q3.

Write a C++ program that uses fork() to create a child process. Use an if-else statement.

Answer:



```
student@student-virtual-machine:~$ nano Dua.cpp
student@student-virtual-machine:~$ g++ -o Dua Dua.cpp
student@student-virtual-machine:~$ ./Dua
DuaDua
student@student-virtual-machine:~$ nano Duaa.cpp
student@student-virtual-machine:~$ g++ -o Duaa Duaa.cpp
student@student-virtual-machine:~$ ./Duaa
DuaDua
student@student-virtual-machine:~$ ./Duaa
DuaDuaDuaDua
student@student-virtual-machine:~$
```

A screenshot of a Linux desktop environment. The top panel shows the 'Activities' button and a 'Terminal' window icon. The terminal window is open, displaying the GNU nano 6.2 editor. The code in the editor is a C++ program that uses the fork() system call. The code is as follows:

```
GNU nano 6.2
#include<iostream>
#include<unistd.h>
using namespace std;
int main(){
    if(fork() && fork()){
        fork();
        cout<<"Dua";
    }
    else{
        cout<<"dua";
    }
    return 0;
}
```

Fork () creates a new process (child process) that runs the same code as the parent process but independently. The || (OR) operator means that if either of the fork () calls creates a child process (i.e., returns 0), the condition becomes true. This leads to running the code inside the if block. If the condition is true, a third fork () is called, creating another child process.

else block:

If the condition is false (both fork () calls return 0).
