



# NUST

NATIONAL UNIVERSITY  
OF SCIENCES & TECHNOLOGY

Lab Manual-4

Fundamentals of Programming

Me-15-C

Ahsan Kamran(481898)

# LAB TASKS

## TASK-1

```
#include <iostream>

using namespace std;

int main() {

    int sum = 0;

    int number;

    cout << "Please enter 10 natural numbers:" << endl;

    for (int n = 0; n < 10; n++) {

        cin >> number;

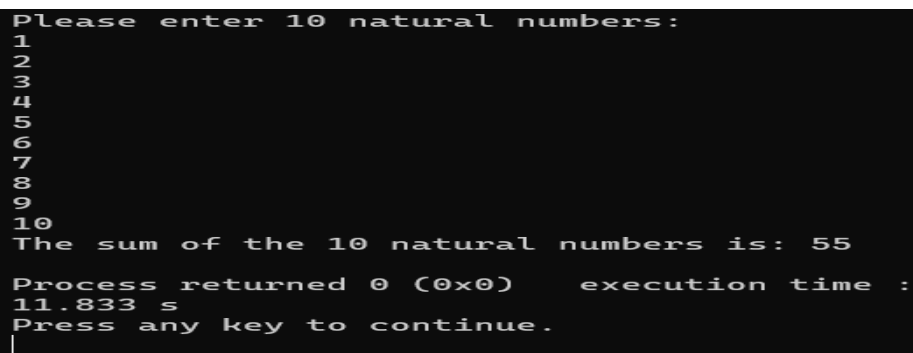
        sum += number;

    }

    cout << "The sum of the 10 natural numbers is: " << sum << endl;

    return 0;

}
```



A screenshot of a terminal window showing the execution of a C++ program. The program prompts the user to enter 10 natural numbers. The user enters the numbers 1 through 10. The program then outputs the sum of these numbers, which is 55. Below the sum, the program displays the process return code (0) and execution time (11.833 s). The prompt 'Press any key to continue.' is shown at the bottom, with a cursor visible.

```
Please enter 10 natural numbers:
1
2
3
4
5
6
7
8
9
10
The sum of the 10 natural numbers is: 55
Process returned 0 (0x0)    execution time :
11.833 s
Press any key to continue.
|
```

## TASK-2

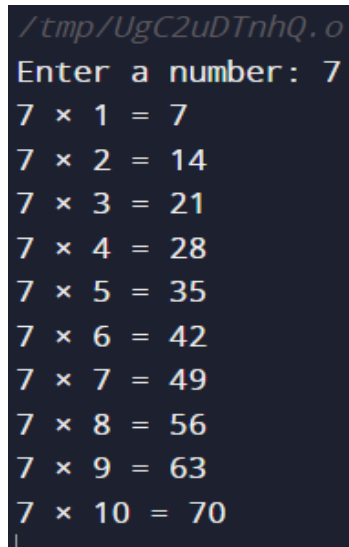
```
#include <iostream>

int main() {
    int number;

    std::cout << "Enter a number: ";
    std::cin >> number;

    for (int n = 1; n <= 10; n++) {
        int result = number * n;
        std::cout << number << " x " << n << " = " << result << std::endl;
    }

    return 0;
}
```



```
/tmp/UgC2uDThQ.o
Enter a number: 7
7 x 1 = 7
7 x 2 = 14
7 x 3 = 21
7 x 4 = 28
7 x 5 = 35
7 x 6 = 42
7 x 7 = 49
7 x 8 = 56
7 x 9 = 63
7 x 10 = 70
|
```

## TASK-3

```
#include <iostream>

int main() {
    int number;

    int factorial = 1;

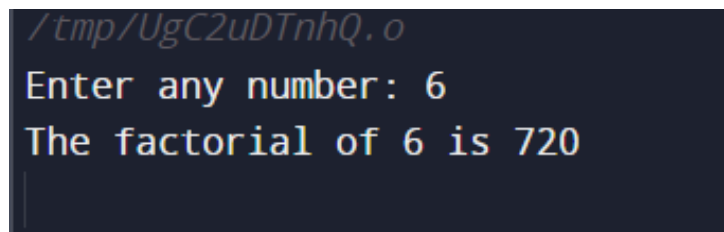
    std::cout << "Enter any number: ";

    std::cin >> number;

    for (int n = 1; n <= number; n++) {
        factorial *= n;
    }

    std::cout << "The factorial of " << number << " is " << factorial << std::endl;

    return 0;
}
```

A screenshot of a terminal window with a dark background. The prompt is `/tmp/UgC2uDTnhQ.o`. The user has entered the number 6, and the program has output the factorial of 6, which is 720.

```
/tmp/UgC2uDTnhQ.o
Enter any number: 6
The factorial of 6 is 720
```

## TASK-4

```
#include <iostream>
```

```
int main() {
```

```
    int limit;
```

```
    std::cout << "Enter the limit: ";
```

```
    std::cin >> limit;
```

```
    int first = 0;
```

```
    int second = 1;
```

```
    std::cout << "Fibonacci sequence up to " << limit << " is: ";
```

```
    std::cout << first << " " << second << " ";
```

```
    while (first + second <= limit) {
```

```
        int next = first + second;
```

```
        std::cout << next << " ";
```

```
        first = second;
```

```
        second = next;
```

```
    }
```

```
    std::cout << std::endl;
```

```
    return 0;
```

```
}
```

```
/tmp/UgC2uDtnhQ.o
Enter the limit: 32
Fibonacci sequence up to 32 is: 0 1 1 2 3 5 8 13 21
```

## **HOME TASKS**