



**Bahria University, Islamabad**

**Department of Software Engineering**

**Computer Programming Lab**

**(Fall-2023)**

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**Lab Journal: 05**

**Date: 11/1/2023**

Task No:	Task Wise Marks		Documentation Marks		Total Marks (20)
	Assigned	Obtained	Assigned	Obtained	
1	3		5		
2	3				
3	3				
4	3				
5	3				

**Comments:**

**Signature**

## Lab No: 06 - Lab Title Do\_while loop

### Introduction

Do while loop is using to first run one part of code then if condition become true the rest part will also execute and if become false remaining part won't run.

### Tools Used

Dev C++, Visual Studio 2022

**Extra Task 1:** It is necessary for the program to display the following sequence of numbers: (7 14 21 28 35 42 49 56 63 70 77 84 91 98)

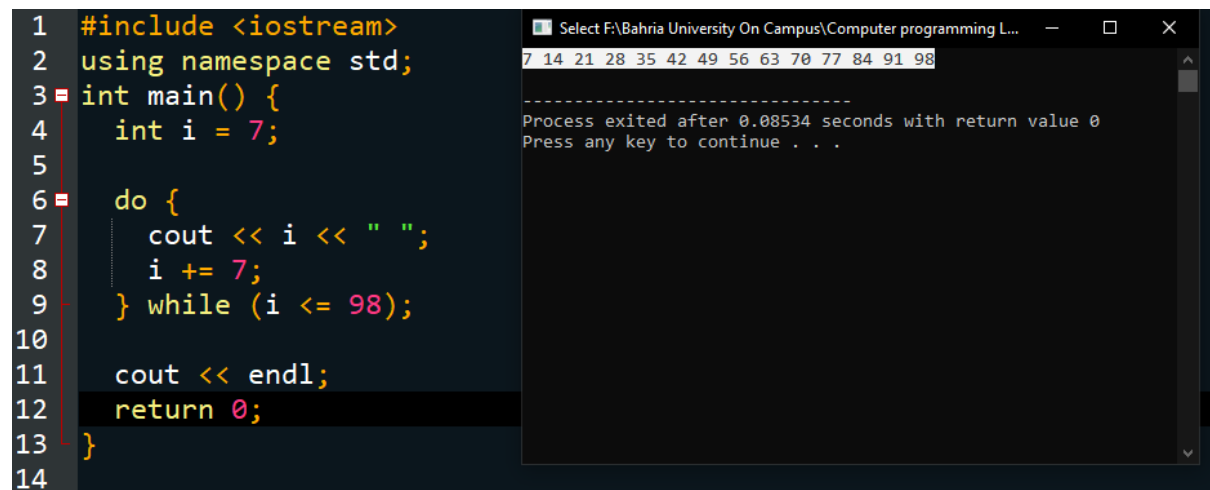
### Code

```
#include <iostream>
using namespace std;
int main() {
    int i = 7;

    do {
        cout << i << " ";
        i += 7;
    } while (i <= 98);

    cout << endl;
    return 0;
}
```

### Screenshot



```
1 #include <iostream>
2 using namespace std;
3 int main() {
4     int i = 7;
5
6     do {
7         cout << i << " ";
8         i += 7;
9     } while (i <= 98);
10
11     cout << endl;
12     return 0;
13 }
14
```

7 14 21 28 35 42 49 56 63 70 77 84 91 98

Process exited after 0.08534 seconds with return value 0  
Press any key to continue . . .

**Extra Task 2:** It is necessary to display the following sequence of numbers: (1 2 4 8 16 32 64 128 256 512)

**Code**

```
#include <iostream>
using namespace std;
int main() {
    int i = 1;

    do {
        cout << i << " ";
        i *= 2;
    } while (i <= 512);
    cout << endl;
    return 0;
}
```

**Screenshot**



```
1 #include <iostream>
2 using namespace std;
3 int main() {
4     int i = 1;
5
6     do {
7         cout << i << " ";
8         i *= 2;
9     } while (i <= 512);
10    cout << endl;
11    return 0;
12 }
13
```

1 2 4 8 16 32 64 128 256 512

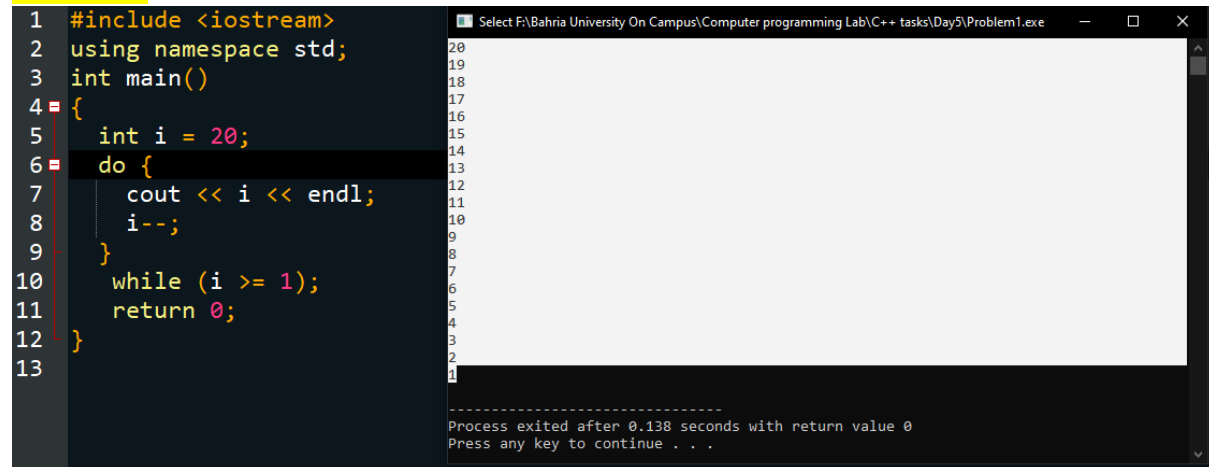
-----  
Process exited after 0.119 seconds with return value 0  
Press any key to continue . . .

**Problem1:** Write a program to print in the descending order first twenty natural numbers on the computer screen by using “do-while” loop.

**Code:**

```
#include <iostream>
using namespace std;
int main()
{
    int i = 20;
    do {
        cout << i << endl;
        i--;
    }
    while (i >= 1);
    return 0;
}
```

### Screenshot



The screenshot shows a C++ program in a code editor. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3 int main()
4 {
5     int i = 20;
6     do {
7         cout << i << endl;
8         i--;
9     }
10    while (i >= 1);
11    return 0;
12 }
13
```

The output window shows the numbers 20 through 1 printed on separate lines. Below the output, it says: "Process exited after 0.138 seconds with return value 0. Press any key to continue . . ."

**Problem2:** Write a program to compute and print the factorial of the given number using the “do-while” loop.

### Code

```
#include <iostream>
using namespace std;
int main() {
    int number, factorial = 1;

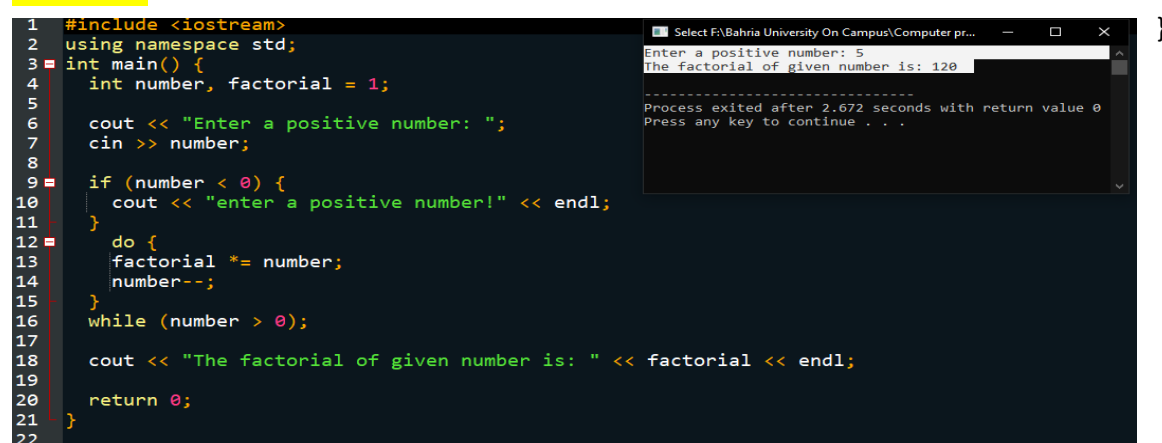
    cout << "Enter a positive number: ";
    cin >> number;

    if (number < 0) {
        cout << "enter a positive number!" << endl;
    }
    do {
        factorial *= number;
        number--;
    }
    while (number > 0);

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

    return 0;
}
```

### Screenshot



The screenshot shows a C++ program in a code editor. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3 int main() {
4     int number, factorial = 1;
5
6     cout << "Enter a positive number: ";
7     cin >> number;
8
9     if (number < 0) {
10        cout << "enter a positive number!" << endl;
11    }
12    do {
13        factorial *= number;
14        number--;
15    }
16    while (number > 0);
17
18    cout << "The factorial of given number is: " << factorial << endl;
19
20    return 0;
21 }
22
```

The output window shows the input "5" and the output "The factorial of given number is: 120". Below the output, it says: "Process exited after 2.672 seconds with return value 0. Press any key to continue . . ."

**Problem3:** Write a program to convert the given decimal number into octal number using the “do-while” loop.

**Code**

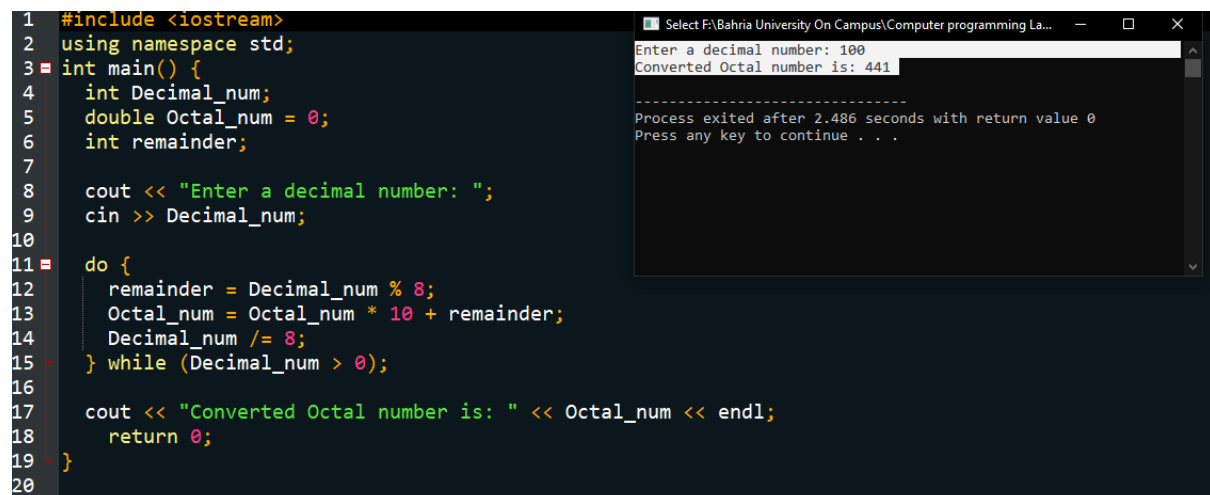
```
#include <iostream>
using namespace std;
int main() {
    int Decimal_num;
    double Octal_num = 0;
    int remainder;

    cout << "Enter a decimal number: ";
    cin >> Decimal_num;

    do {
        remainder = Decimal_num % 8;
        Octal_num = Octal_num * 10 + remainder;
        Decimal_num /= 8;
    } while (Decimal_num > 0);

    cout << "Converted Octal number is: " << Octal_num << endl;
    return 0;
}
```

**Screenshot**

The screenshot shows a code editor on the left and a terminal window on the right. The code in the editor is a C++ program that takes a decimal number as input and converts it to octal using a do-while loop. The terminal window shows the program's execution: it prompts for a decimal number, the user enters 100, the program outputs the converted octal number 441, and then displays a message indicating the process exited after 2.486 seconds with a return value of 0, followed by a prompt to press any key to continue.

```
1 #include <iostream>
2 using namespace std;
3 int main() {
4     int Decimal_num;
5     double Octal_num = 0;
6     int remainder;
7
8     cout << "Enter a decimal number: ";
9     cin >> Decimal_num;
10
11     do {
12         remainder = Decimal_num % 8;
13         Octal_num = Octal_num * 10 + remainder;
14         Decimal_num /= 8;
15     } while (Decimal_num > 0);
16
17     cout << "Converted Octal number is: " << Octal_num << endl;
18     return 0;
19 }
20
```

Enter a decimal number: 100  
Converted Octal number is: 441  
-----  
Process exited after 2.486 seconds with return value 0  
Press any key to continue . . .

**Problem4:** Create the equivalent of a four-function calculator. The program should request the user to enter a number, an operator, and another number. (Use floating point.)

**Code:**

```
#include <iostream>
using namespace std;

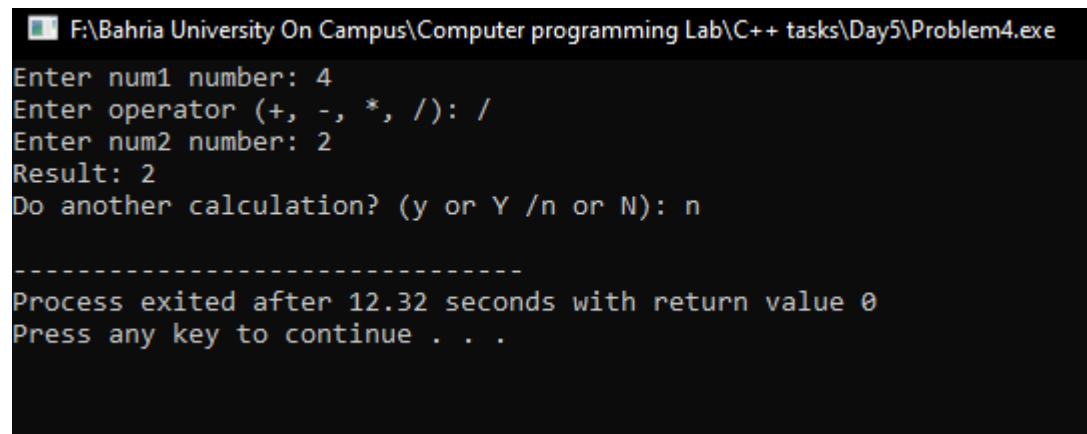
int main() {
    char choice;
    do {
        float num1, num2, result;
        char operation;

        cout << "Enter num1 number: ";
        cin >> num1;
        cout << "Enter operator (+, -, *, /): ";
        cin >> operation;
        cout << "Enter num2 number: ";
        cin >> num2;

        switch (operation) {
            case '+':
                result = num1 + num2;
                break;
            case '-':
                result = num1 - num2;
                break;
            case '*':
                result = num1 * num2;
                break;
            case '/':
                if (num2 != 0) {
                    result = num1 / num2;
                } else {
                    cout << "can't divide by 0!" << endl;
                    continue;
                }
                break;
            default:
                cout << "operator not available" << endl;
                continue;
        }

        cout << "Result: " << result <<
endl;
        cout << "Do another calculation? (y or Y /n or
N): ";
        cin >> choice;
    } while (choice == 'y' || choice == 'Y');
    return 0;
}
```

## Screenshot



```
F:\Bahria University On Campus\Computer programming Lab\C++ tasks\Day5\Problem4.exe
Enter num1 number: 4
Enter operator (+, -, *, /): /
Enter num2 number: 2
Result: 2
Do another calculation? (y or Y /n or N): n

-----
Process exited after 12.32 seconds with return value 0
Press any key to continue . . .
```

## Conclusion

Understanding of basic concept of do-while loop. In “do-while” loop, the body of loop comes before the test condition. The body of the loop is executed and then the condition is tested