Bahria University, Islamabad

Department of Software Engineering

Computer Programming Lab

(Fall-2023)

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Lab Journal: 5

Date: 30-10-2023

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				

Lab No: 5 DO-WHILE LOOP

Introduction

Basic concept to use While loop in C++ programming language.

Tools Used

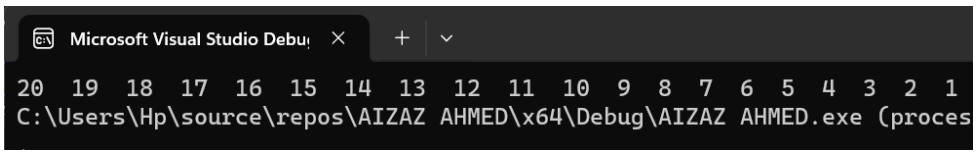
Visual studio.

PROBLEM # 1: 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 n = 20;

	do {

		cout << n << "  ";
	  n--;
	}

	while (n >= 1);

	return 0;
}
```

SCREENSHOT:



PROBLEM #2: 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;
    cout << "Enter a number: ";
    cin >> number;

    if (number < 0) {
        cout << "Factorial is not defined for negative numbers." << endl;
    }
    else {
        int factorial = 1;
        int i = 1;

        do {
            factorial *= i;
            i++;
        } while (i <= number);

        cout << "Factorial of " << number << " is: " << factorial << endl;
    }

    return 0;
}
```

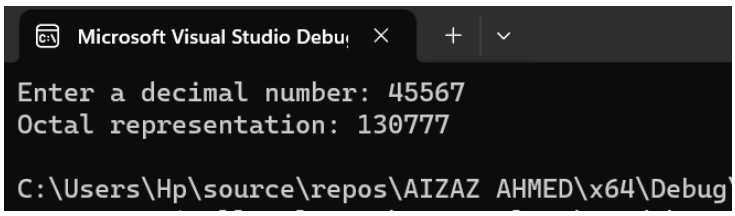
SCREENSHOT:

PROBLEM # 3: 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 decimalNumber;
   cout << "Enter a decimal number: ";
   cin >> decimalNumber;

   if (decimalNumber < 0) {
       cout << "Octal representation is not defined for negative numbers." << endl;
   }
   else {
       int octalNumber = 0;
       int placeValue = 1;

       do {
           int remainder = decimalNumber % 8;
           octalNumber += remainder * placeValue;
           decimalNumber /= 8;
           placeValue *= 10;
       } while (decimalNumber != 0);

       cout << "Octal representation: " << octalNumber << endl;
   }

   return 0;
}
```

SCREENSHOT:

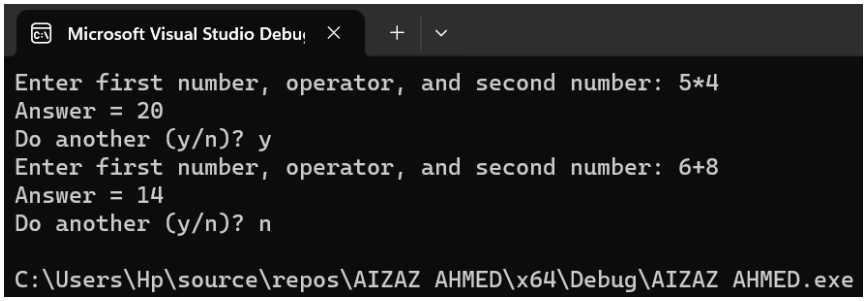


PROBLEM # 4: Create the equivalent of a four-function calculator. The program should request the user to enter a number, an operator, and another number. (Use floating point.) It should then carry out the specified arithmetical operation: adding, subtracting, multiplying, or dividing the two numbers. Use a switch statement to select the operation. Finally, display the result. 31 When it finishes the calculation, the program should ask if the user wants to do another calculation. The response can be 'y' or 'n'. Some sample interaction with the program might look like this:

CODE:

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

int main() {
    char operation;
    float num1, num2;
    char doAnother;

    do {
        cout << "Enter first number, operator, and second number: ";
        cin >> num1 >> operation >> num2;

        switch (operation) {
        case '+':
            cout << "Answer = " << num1 + num2 << endl;
            break;
        case '-':
            cout << "Answer = " << num1 - num2 << endl;
            break;
        case '*':
            cout << "Answer = " << num1 * num2 << endl;
            break;
        case '/':
            if (num2 != 0) {
                cout << "Answer = " << num1 / num2 << endl;
            }
            else {
                cout << "Error: Division by zero" << endl;
            }
            break;
        default:
            cout << "Invalid operator" << endl;
        }

        cout << "Do another (y/n)? ";
        cin >> doAnother;

    } while (doAnother == 'y' || doAnother == 'Y');

    return 0;
}
```

SCREENSHOT:



EXTRA TASKS

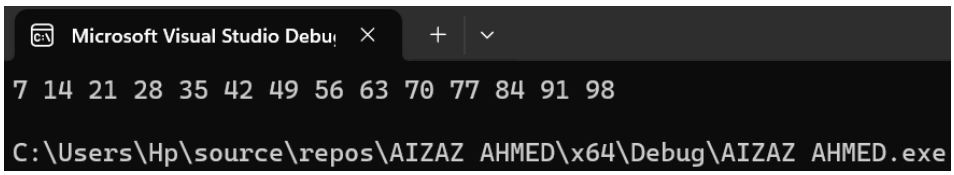
Task 1: Write a program to display the following sequence of numbers using DO WHILE loop :

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

CODE:

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

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

    cout << endl;

    return 0;
}
```

SCREENSHOT:



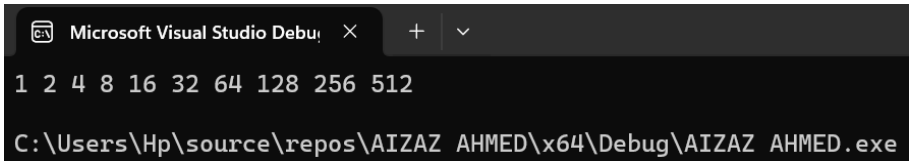
Task 2: Write a program to display the following sequence of numbers using DO WHILE loop :

1 2 4 8 16 32 64 128 256 512

CODE:

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

    do {
        cout << number << " ";
        number *= 2;
    } while (number <= 512);

    cout << endl;

    return 0;
}
```

SCREENSHOT:



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

GET HUB LINK:

https://github.com/aizazahmed01/COMPUTER-PROGRAMMING-LAB.git