Practical No 15

VIII. Resources required (Additional)

→ If any web resources required.

X. Resources used (Additional)

→ https://docs.microsoft.com/en-us/dotnet/visual-basic/programming-guide/language-features/procedures/sub-procedures

→ https://docs.microsoft.com/en-us/dotnet/visual-basic/programming-guide/language-features/procedures/procedure-parameters-and-arguments

XI. Program Code

1. **Write a program using sub procedure and parameterized sub procedure**

➢

```
Module Module1

    Sub Main()
        displaymsg()
        Dim a, b As Integer
        Console.WriteLine("Enter Value")
        a = Console.ReadLine()
        b = Console.ReadLine()
        Add(a, b)
        Console.ReadLine()
    End Sub
    Sub displaymsg()
        Console.WriteLine("Use of sub-procedure")
    End Sub
    Sub Add(ByVal a As Integer, ByVal b As Integer)
        Console.WriteLine("Addition = " & a + b)
    End Sub

End Module
```

XII. Results (output of the program)

```
Use of sub-procedure
Enter Value
10
10
Addition = 20
```

XIII. Practical related Questions

1. **Differentiate between ByVal and ByRef keywords in parameter passing of Sub Procedure.**

- ByVal and ByRef in VB .NET. When you pass arguments over to Subs and Function you can do so either By Value or By Reference. By Value is shortened to ByVal and By Reference is shortened to ByRef. ByVal means that you are passing a copy of a variable to your Subroutine.

2. **Write the program using Recursion. (Factorial of Number)**

-
```
Module Module1

    Sub Main()
        Dim num As Integer
        Console.WriteLine("Enter a Number")
        num = Console.ReadLine()
        factorial(num)
        Console.ReadLine()
    End Sub
    Sub factorial(ByVal num As Integer)
        ' local variable declaration */
        Dim i, factorial As Integer
        factorial = 1
        For i = 1 To num
            factorial = factorial * i
        Next i
        Console.WriteLine("Factorial=" & factorial)
        Console.ReadLine()
    End Sub
End Module
```

OUTPUT:

Enter a Number

5

Factorial=120

XIV. Exercise

1. **Develop a program to calculate the Fibonacci Series of Give Number.**

➢
```
Module Module1

    Sub Main()
        Fibonacci(10)
        Console.ReadLine()
    End Sub
    Sub Fibonacci(ByVal n As Integer)
        Dim a As Integer = 0
        Dim b As Integer = 1
        Dim i As Integer
        For i = 0 To n - 1
            Dim temp As Integer
            temp = a
            a = b
            b = temp + b
            Console.WriteLine(a)
        Next
    End Sub
End Module
```

OUTPUT:

1
1
2
3
5
8
13
21
34
55

2. **Develop a program to print the reverse of any number using Sub procedure.**

➢
```
Module Module1
    Sub Main()
        Dim num As Integer
        Console.WriteLine("Enter Number")
        num = Console.ReadLine()
        reverse(num)
        Console.ReadLine()
    End Sub
    Sub reverse(ByVal num As Integer)
        Dim number = num
        Dim result As Integer
        While number > 0
```

```
            num = number Mod 10
            result = result * 10 + num
            number = number \ 10
        End While
        Console.WriteLine("" & result)
    End Sub
End Module
```

OUTPUT:

Enter Number

123

Reverse Number =321