Lab 05

Procedures

1- Write a program to calculate nCr using functions

$$nCr = \frac{n!}{r!\,(n-r)!}$$

```
Module Module1
    Sub Main()
        Console.WriteLine("Enter n")
        Dim n As Integer = Console.ReadLine()
        Console.WriteLine("Enter r")
        Dim r As Integer = Console.ReadLine()
        Dim result As Double = factorial(n) / (factorial(n -
r) * factorial(r))
        Console.WriteLine("Result is: {0} ", result)
    End Sub

    Function factorial(ByVal num) As Integer
        If num = 1 Then
            Return 1
        Else
            Return factorial(num - 1) * num
        End If
    End Function
End Module
```

2- Write a program to input, sort and print an array using procedures (sub or function)

```vbnet
Module Module1
    Sub Main()
        Console.WriteLine("Enter number of elements")
        Dim n As Integer = Console.ReadLine()
        Dim arr(n - 1) As Integer
        InputArray(arr)
        SortArray(arr)
        PrintArray(arr)
    End Sub

    Sub InputArray(ByRef arr() As Integer)
        For i = 0 To arr.Length - 1
            Console.WriteLine("Enter element ({0})", i)
            arr(i) = Console.ReadLine()
        Next
    End Sub

    Sub SortArray(ByRef arr() As Integer)
        Dim temp As Integer
        For i = 0 To arr.Length - 1
            For j = i + 1 To arr.Length - 1
                If arr(i) > arr(j) Then
                    temp = arr(i)
                    arr(i) = arr(j)
                    arr(j) = temp
                End If
            Next
        Next
    End Sub
```

```vb
    Sub PrintArray(ByVal arr() As Integer)
        For i = 0 To arr.Length - 1
            Console.WriteLine(arr(i))
        Next
    End Sub
End Module
```

3- Write a program to enter a string and a character and find how many times that character appears in the string

```vb
Module Module1

    Sub Main()
        Console.WriteLine("Enter A string")
        Dim word = Console.ReadLine()
        Console.WriteLine("Enter a character")
        Dim ch As Char = Char.Parse(Console.ReadLine())
        Dim count = countOccurances(word, ch)
        Console.WriteLine("Character {0} appears in {1} : {2} times", ch, word, count)
    End Sub

    Function countOccurances(ByVal word As String, ByVal ch As Char)
        Dim count = 0
        For Each x In word
            If x = ch Then
                count += 1
            End If
        Next
        countOccurances = count
    End Function


End Module
```

Assignment:

Write a Function or a Sub that takes an array and a position, finds whether the element at this position is greater than its two neighbors

Assignment should be sent to: khaled.3ttia@gmail.com