.Net Programming Lab-2

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Sec-13

IN-LAB:

1. Write a C# code to implement the Tasks on Looping Statements?

TASK1: For a positive integer *n* calculate the *result* value, which is equal to the sum of the odd numbers in *n*

Example

```
n = 1234   result = 4 (1 + 3)
n = 246    result = 0
```

TASK2: For a positive integer *n* calculate the result value, which is equal to the sum of the "1" in the binary representation of *n*. Example

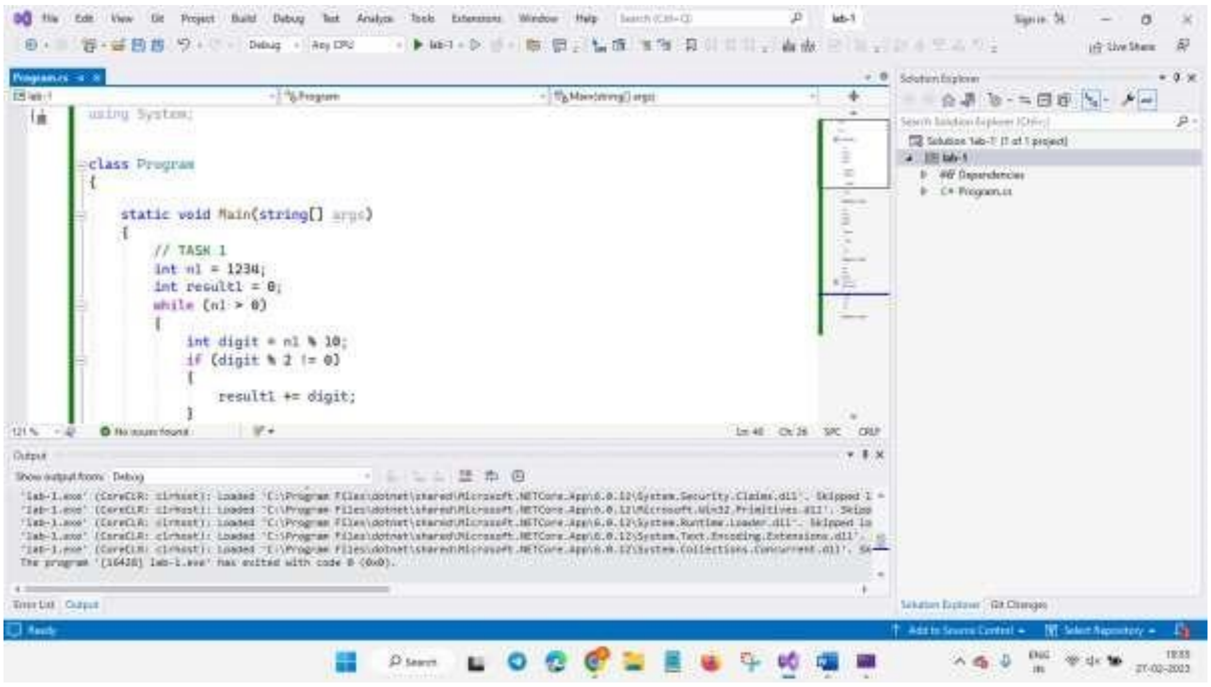
```
n = 14(decimal) = 1110(binary)       result =  3  n
= 128(decimal) = 1000 0000(binary) result  =  1
```

TASK3: For a positive integer *n*, calculate the result value equal to the sum of the first *n* Fibonacci numbers Note: Fibonacci numbers are a series of numbers in which each next number is equal to the sum of the two preceding ones: 0, 1, 1, 2, 3, 5, 8, 13... (F0=0, F1=F2=1, then F(n)=F(n-1)+F(n-2) for n>2) Example

```
n = 8    result = 33  n
= 11   result = 143
```

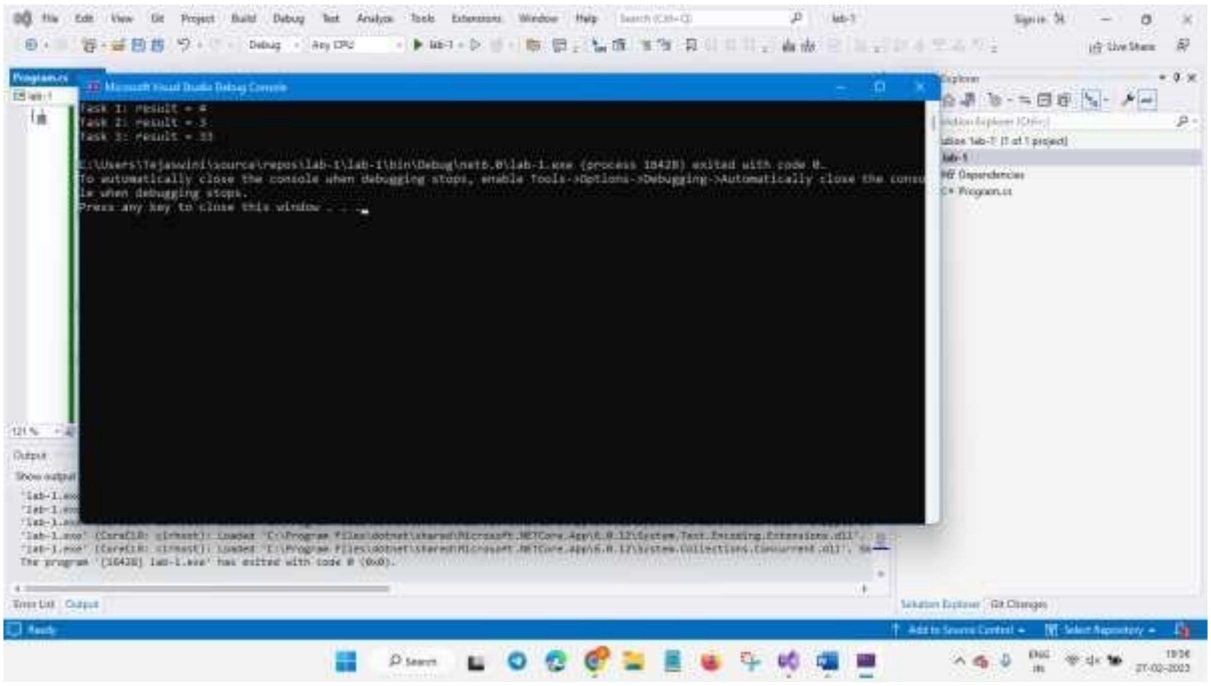
```
Sol:
```

```
using System;

class Program
{
   static void Main(string[] args)
   {
      //   TASK   1
int   n1   =   1234;
int result1 = 0;
      while (n1 > 0)
      {
         int digit = n1 % 10;
         if (digit % 2 != 0)
         {
                result1 += digit;
            }
n1 /= 10;
        }
        Console.WriteLine($"Task 1: result = {result1}");

        //    TASK    2
int n2 = 14;         int
result2 = 0;
        while (n2 > 0)
        {             if ((n2 & 1)
== 1)
            {
result2++;
            }          n2
>>= 1;
        }
        Console.WriteLine($"Task 2: result = {result2}");

        // TASK 3          int n3 =
8;        int result3 = 0;        int
a = 0, b = 1, c = 0;        for (int
i = 0; i < n3; i++)
        {            result3
+= a;             c = a +
b;                 a  =  b;
b = c;
        }
        Console.WriteLine($"Task 3: result = {result3}");
    }
}
```



```
using System;

class Program
{
    static void Main(string[] args)
    {
        // TASK 1
        int n1 = 1234;
        int result1 = 0;
        while (n1 > 0)
        {
            int digit = n1 % 10;
            if (digit % 2 != 0)
            {
                result1 += digit;
            }
```

```
'lab-1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. Skipped l
'lab-1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll'. Skipp
'lab-1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Skipped lo
'lab-1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extensions.dll'.
'lab-1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.dll'. Sk
The program '[16428] lab-1.exe' has exited with code 0 (0x0).
```



```
Task 1: result = 4
Task 2: result = 3
Task 3: result = 33

C:\Users\Tejaswini\source\repos\lab-1\lab-1\bin\Debug\net6.0\lab-1.exe (process 16428) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

2. Write a C# code to implement the Tasks on Arrays?

TASK 1: In a given array of integers ***nums*** swap values of the first and the last array elements, the second and the penultimate etc., if the two exchanged values are even Example

{ 10 , 5, 3, 4}   => {4, 5, 3, 10}
{100, 2, 3, 4, 5}   => {100, 4, 3, 2, 5}

{100, 2, 3, 45, 33, 8, 4, 54} => {54, 4, 3, 45, 33, 8, 2, 100}

TASK 2: In a given array of integers ***nums*** calculate integer ***result*** value, that is equal to the distance between the first and the last entry of the maximum value in the array.

Example

{4, 100!, 3, 4}   result = 0
{5, 50!, 50!, 4, 5}   result = 1 {5, 350!, 350, 4, 350!} result = 3 {10!, 10, 10, 10, 10!}   result = 4

TASK 3: In a predetermined two-dimensional integer array (square matrix) ***matrix*** insert 0 into elements to the left side of the main diagonal, and 1 into elements to the right side of the diagonal.

Example

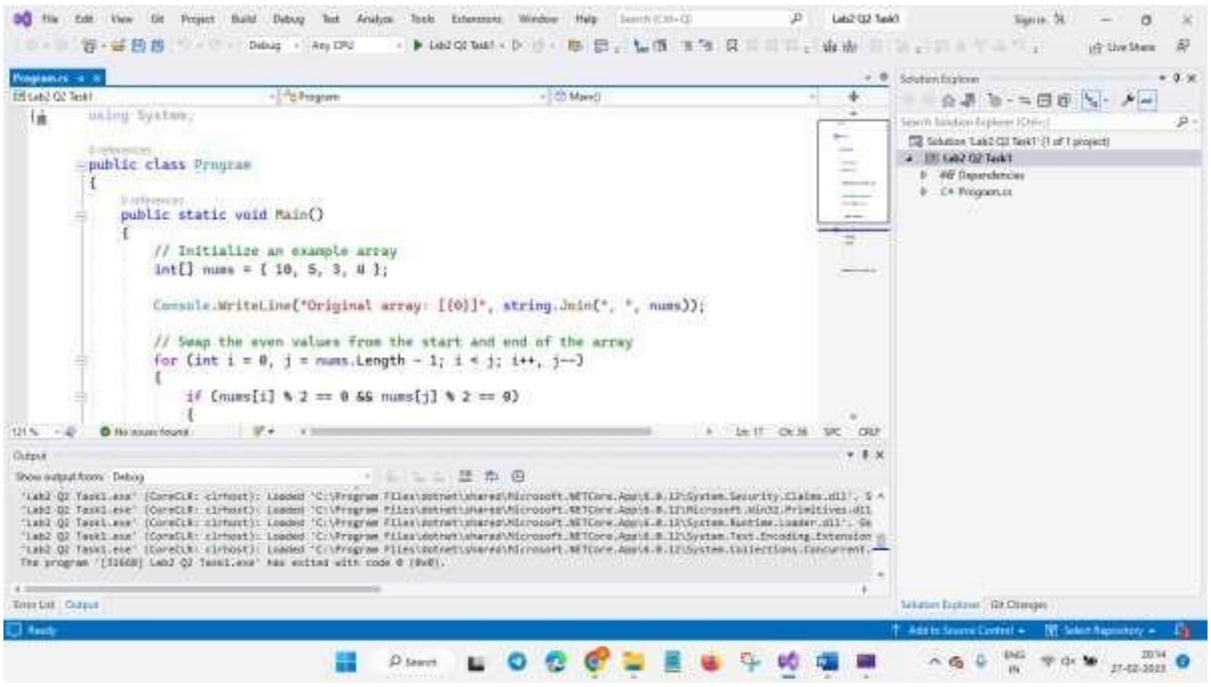
```
{{2, 4, 3, 3},        {{2, 1, 1, 1},
 {5, 7, 8, 5},    =>   {0, 7, 1, 1},
 {2, 4, 3, 3},         {0, 0, 3, 1},
 {5, 7, 8, 5}}         {0, 0, 0, 5}}
```

Solution:

Task-1

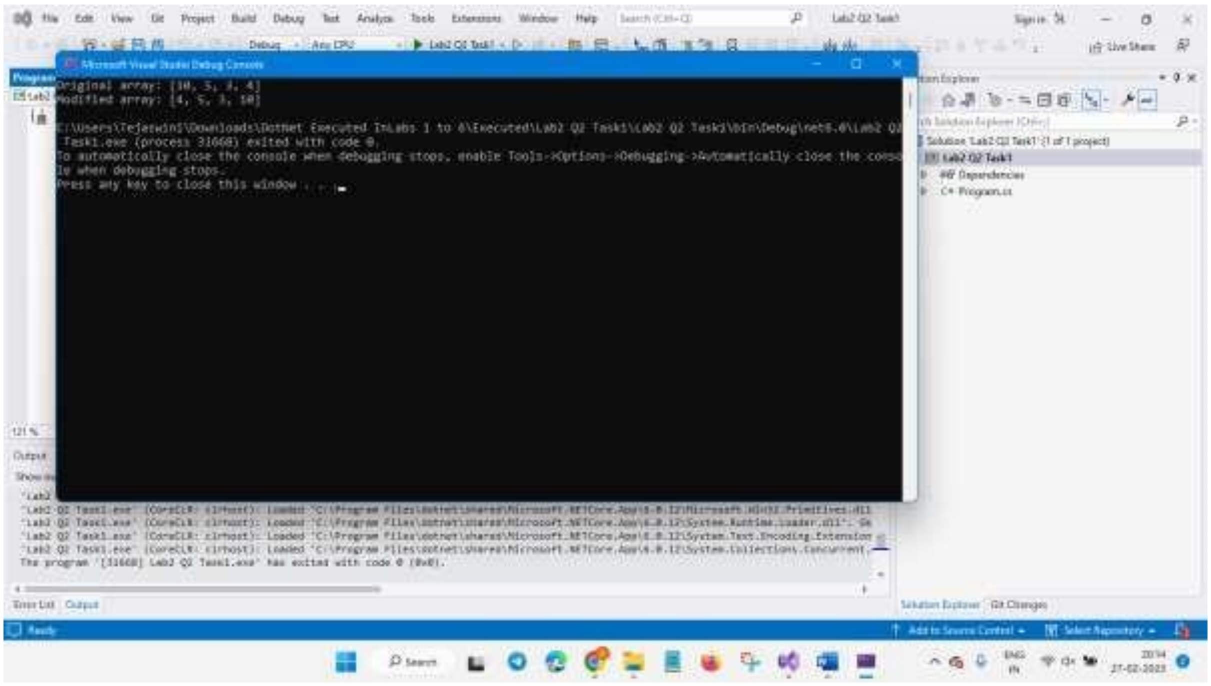
```
using System;

public class Program
{
   public static void Main()
   {
       // Initialize an example array
int[] nums = { 10, 5, 3, 4 };

       Console.WriteLine("Original array: [{0}]", string.Join(", ", nums));

       // Swap the even values from the start and end of the array
for (int i = 0, j = nums.Length - 1; i < j; i++, j--)
       {
           if (nums[i] % 2 == 0 && nums[j] % 2 == 0)
           {
               int     temp     =     nums[i];
nums[i] = nums[j];
```

```
                nums[j] = temp;
            }
        }

        Console.WriteLine("Modified array: [{0}]", string.Join(", ", nums));
    }
}
```



```
using System;

public class Program
{
    public static void Main()
    {
        // Initialize an example array
        int[] nums = { 10, 5, 3, 4 };

        Console.WriteLine("Original array: [{0}]", string.Join(", ", nums));

        // Swap the even values from the start and end of the array
        for (int i = 0, j = nums.Length - 1; i < j; i++, j--)
        {
            if (nums[i] % 2 == 0 && nums[j] % 2 == 0)
            {
```

```
'Lab2 Q2 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q2 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q2 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q2 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
'Lab2 Q2 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
The program '[31668] Lab2 Q2 Task1.exe' has exited with code 0 (0x0).
```

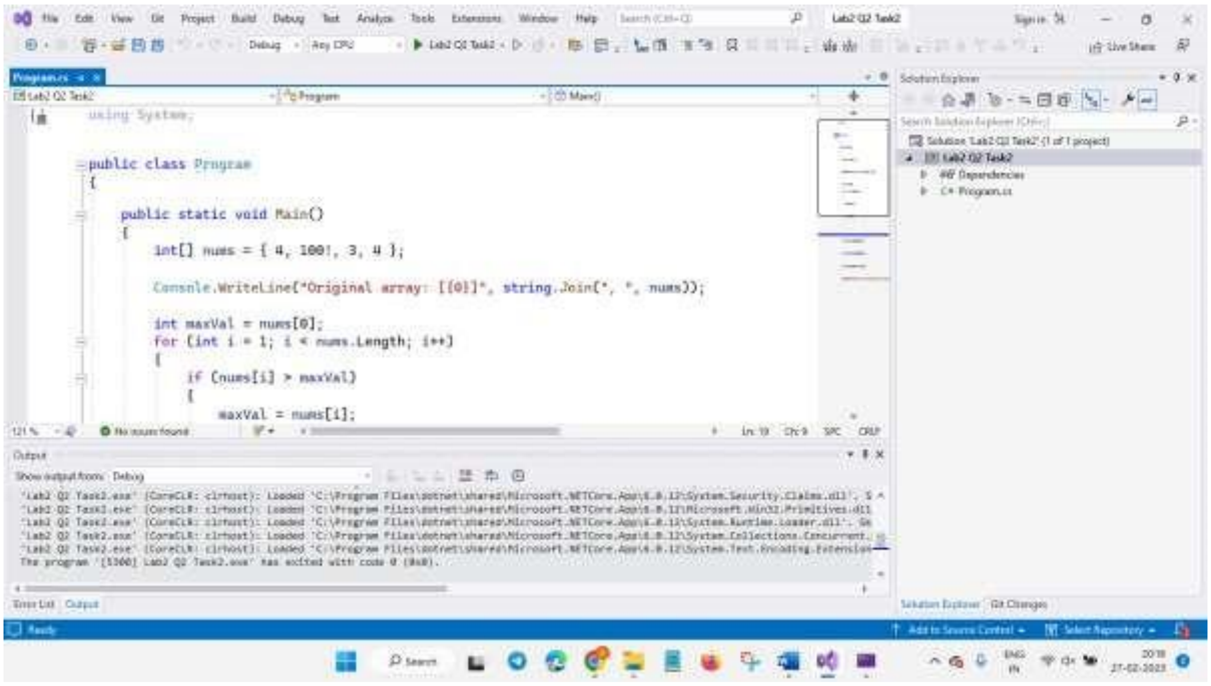


```
Original array: [10, 5, 3, 4]
Modified array: [4, 5, 3, 10]

C:\Users\Tejaswini\Downloads\Dotnet Executed InLabs 1 to 6\Executed\Lab2 Q2 Task1\Lab2 Q2 Task1\bin\Debug\net6.0\Lab2 Q2
 Task1.exe (process 31668) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Task-2

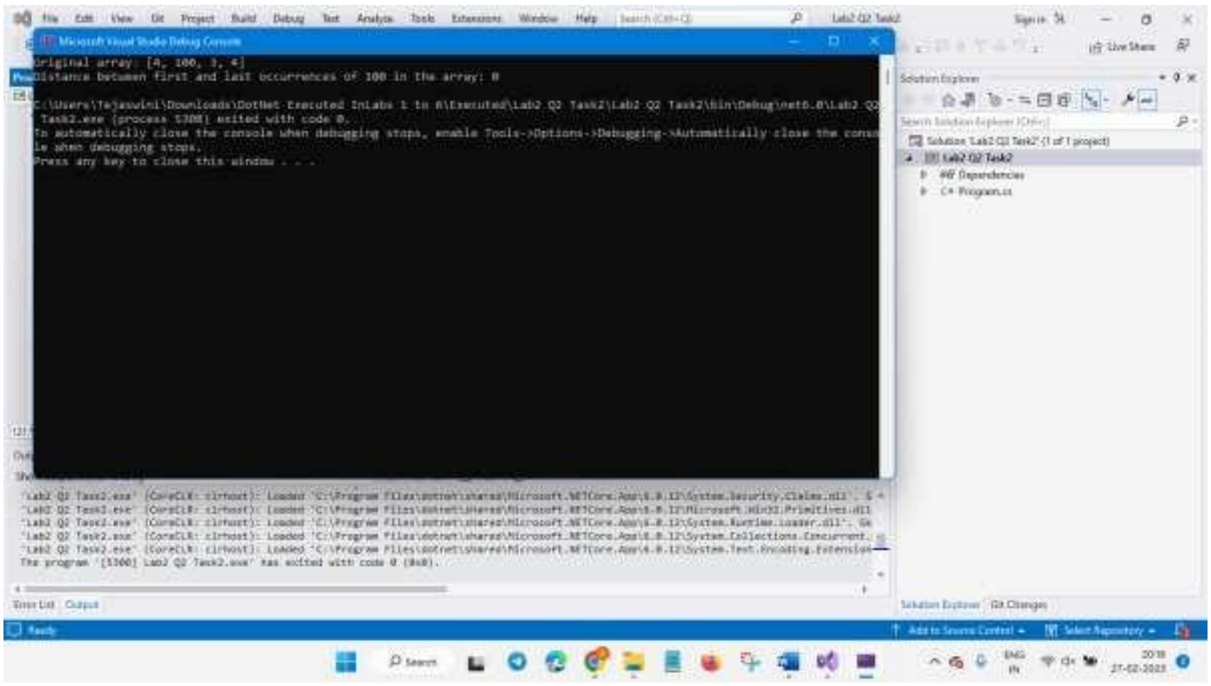
```
using System;
```

```
public class Program
{
    public static void Main()
    {
        int[] nums = { 4, 100!, 3, 4 };

        Console.WriteLine("Original array: [{0}]", string.Join(", ", nums));

        int maxVal = nums[0];
        for (int i = 1; i < nums.Length; i++)
        {
            if (nums[i] > maxVal)
            {
                maxVal = nums[i];
            }
        }

        int firstIndex = Array.IndexOf(nums, maxVal);

        int lastIndex = Array.LastIndexOf(nums, maxVal);

        int distance = Math.Abs(lastIndex - firstIndex);

        Console.WriteLine("Distance between first and last occurrences of {0} in
the array: {1}", maxVal, distance);
    }
}
```



```
using System;

public class Program
{

    public static void Main()
    {
        int[] nums = { 4, 100!, 3, 4 };

        Console.WriteLine("Original array: [{0}]", string.Join(", ", nums));

        int maxVal = nums[0];
        for (int i = 1; i < nums.Length; i++)
        {
            if (nums[i] > maxVal)
            {
                maxVal = nums[i];
```

```
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
The program '[5300] Lab2 Q2 Task2.exe' has exited with code 0 (0x0).
```

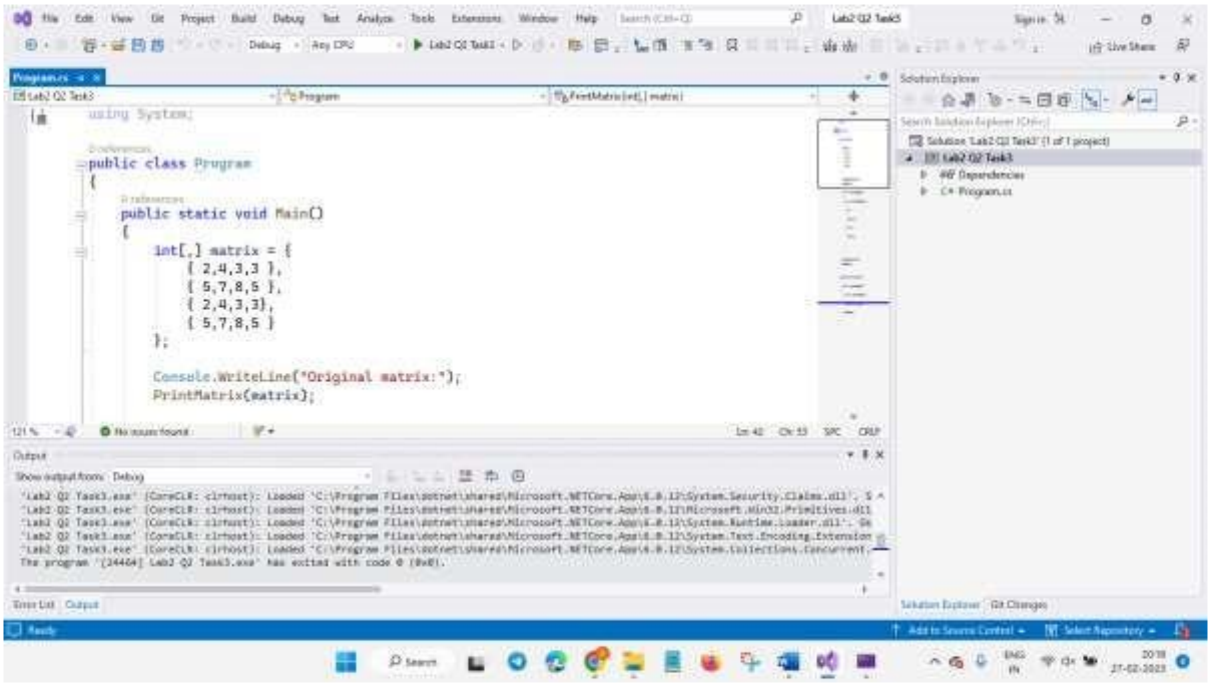


```
Original array: [4, 100, 3, 4]
Distance between first and last occurrences of 100 in the array: 0

C:\Users\Tejaswini\Downloads\DotNet Executed InLabs 1 to 8\Executed\Lab2 Q2 Task2\Lab2 Q2 Task2\bin\Debug\net6.0\Lab2 Q2
 Task2.exe (process 5308) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

```
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
'Lab2 Q2 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
The program '[5308] Lab2 Q2 Task2.exe' has exited with code 0 (0x0).
```

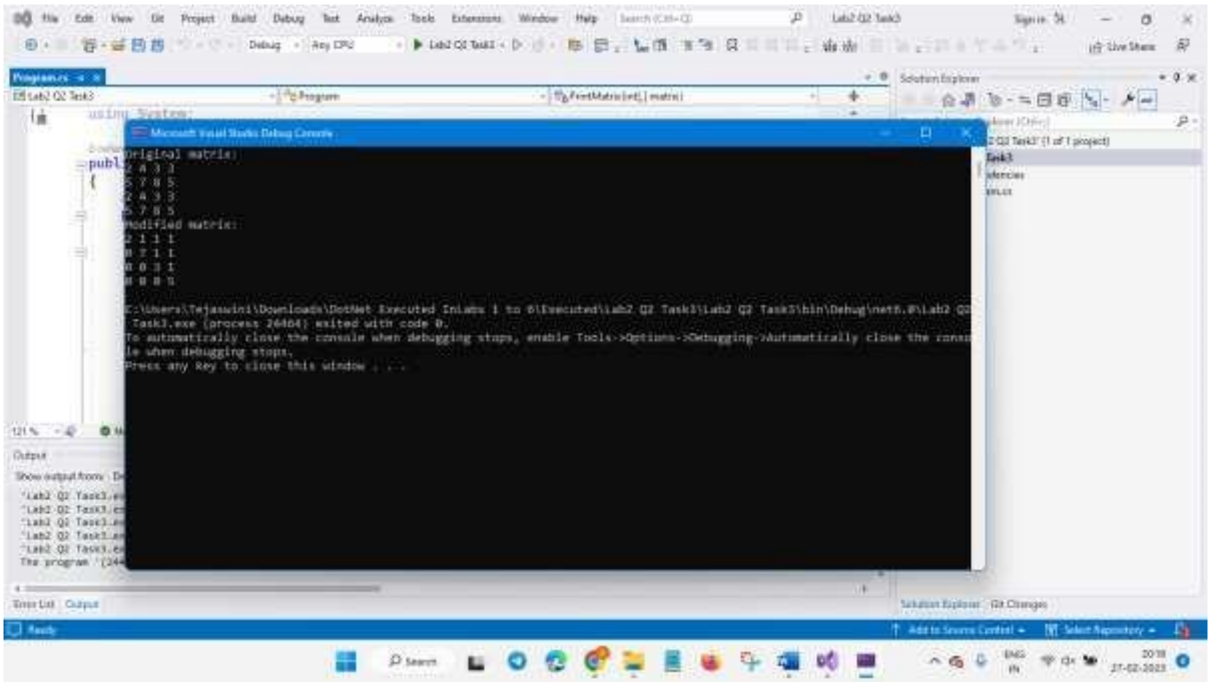
Task-3

```
using System;

public class Program
{
    public static void Main()
    {
        int[,] matrix = {
{ 2,4,3,3 },
            { 5,7,8,5 },
            { 2,4,3,3},
            { 5,7,8,5 }
        };

        Console.WriteLine("Original matrix:");
        PrintMatrix(matrix);

        for (int i = 0; i < matrix.GetLength(0); i++)
        {
            for (int j = 0; j < matrix.GetLength(1); j++)
            {
                if (j < i)
                {
                    matrix[i, j] = 0;
                }
                else if (j > i)
                {
                    matrix[i, j] = 1;
                }
            }
        }

        Console.WriteLine("Modified matrix:");
        PrintMatrix(matrix);
    }
    private static void PrintMatrix(int[,] matrix)
    {
        for (int i = 0; i < matrix.GetLength(0); i++)
        {
            for (int j = 0; j < matrix.GetLength(1); j++)
            {
                Console.Write("{0} ", matrix[i, j]);
            }
            Console.WriteLine();
        }
    }
}
```



```
using System;

public class Program
{
    public static void Main()
    {
        int[,] matrix = {
            { 2,4,3,3 },
            { 5,7,8,5 },
            { 2,4,3,3},
            { 5,7,8,5 }
        };

        Console.WriteLine("Original matrix:");
        PrintMatrix(matrix);
```

```
'Lab2 Q2 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q2 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q2 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q2 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
'Lab2 Q2 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
The program '[24464] Lab2 Q2 Task3.exe' has exited with code 0 (0x0).
```



```
Original matrix:
2 4 3 3
5 7 8 5
2 4 3 3
5 7 8 5
Modified matrix:
2 1 1 1
0 7 1 1
0 0 3 1
0 0 0 5

C:\Users\Tejaswini\Downloads\DotNet Executed InLabs 1 to 6\Executed\Lab2 Q2 Task3\Lab2 Q2 Task3\bin\Debug\net6.0\Lab2 Q2
 Task3.exe (process 24464) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

1. Write a C# code to implement the Tasks on Functions?

TASK 1: **Create function *IsSorted*, determining whether a given *array* of integer values of arbitrary length is sorted in a given *order* (the order is set up by enum value *SortOrder*). Array and sort order are passed by parameters. Function does not change the array**

TASK 2: Create function ***Transform***, replacing the value of each element of an integer *array* with the sum of this element value and its index, only if the given *array* is sorted in the given *order* (the order is set up by enum value *SortOrder*). Array and sort order are passed by parameters. To check, if the array is sorted, the function *IsSorted* from the Task 1 is called.

Example

```
For {5, 17, 24, 88, 33, 2} and "ascending" sort order values in the
array do not change;
For {15, 10, 3} and "ascending" sort order values in the array do not
change;
For {15, 10, 3} and "descending" sort order the values in the array
change to {15, 11, 5}
```

TASK 3: Create function *MultArithmeticElements*, which determines the multiplication of a given number of first *n* elements of arithmetic progression of real numbers with a given initial element of progression *a(1)* and progression step *t*. a(n) is calculated by the formula a(n+1) = a(n) + t. Example

```
For a(1) = 5, t = 3, n = 4  multiplication equals to 5*8*11*14 = 6160
```

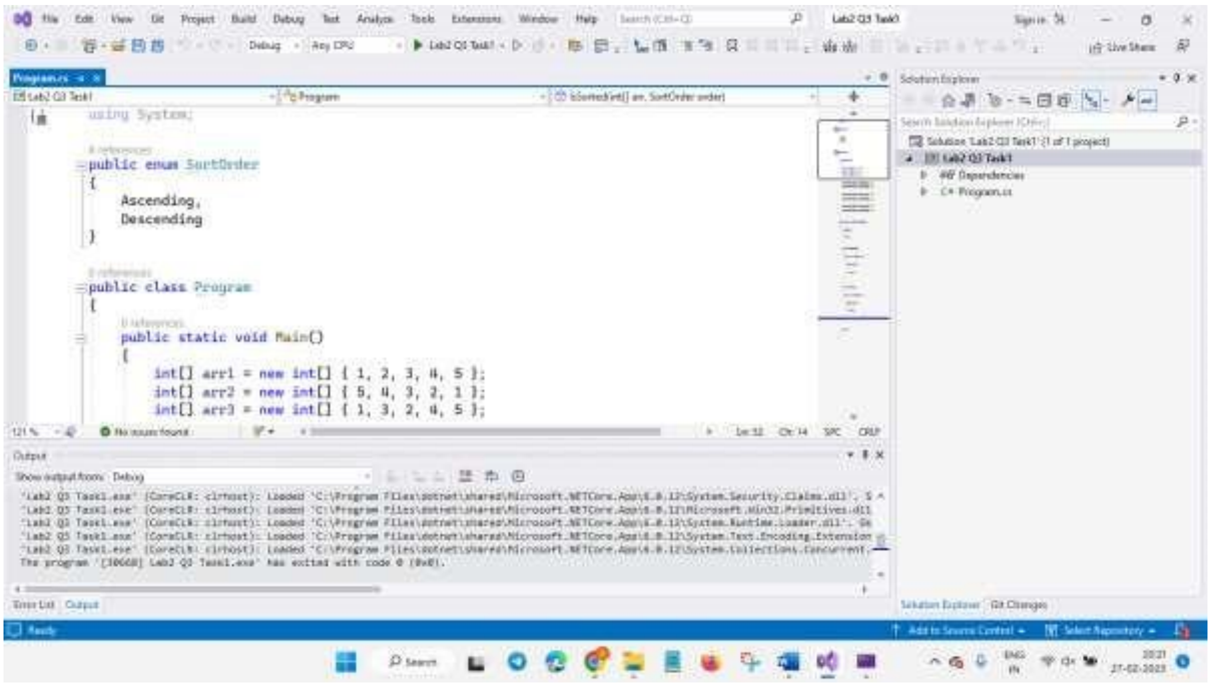
TASK 4: Create function *SumGeometricElements*, determining the sum of the first elements of a decreasing geometric progression of real numbers with a given initial element of a progression *a(1)*) and a given progression step *t*, while the last element must be greater than a given *alim*. an is calculated by the formula a(n+1) = a(n) * t, 0<t<1. Example

```
For a progression, where a(1) = 100, and t = 0.5, the sum of the
first
elements, grater than alim = 20, equals to 100+50+25 =
175
```

Solution:

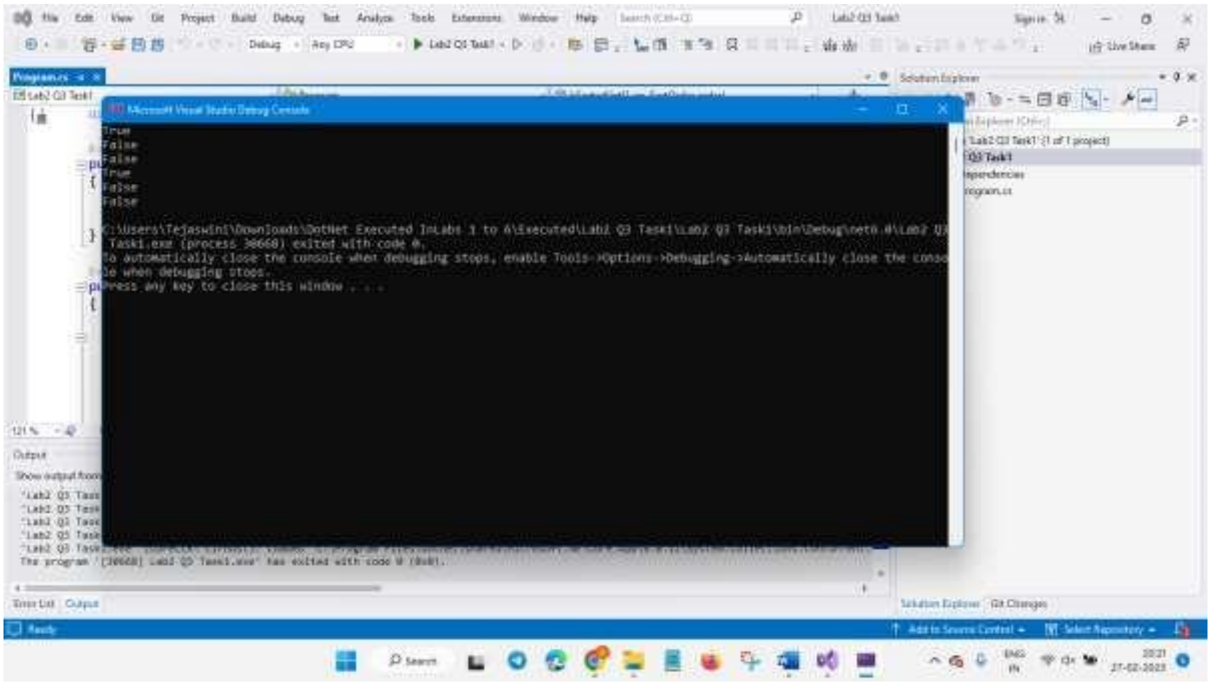
Task-1

```
using System;

public enum SortOrder
{
    Ascending,
    Descending
}
public class Program
{
    public static void Main()
    {
        int[] arr1 = new int[] { 1, 2, 3, 4, 5 };
int[] arr2 = new int[] { 5, 4, 3, 2, 1 };         int[]
arr3 = new int[] { 1, 3, 2, 4, 5 };

        Console.WriteLine(IsSorted(arr1, SortOrder.Ascending)); // true
        Console.WriteLine(IsSorted(arr1, SortOrder.Descending)); // false
        Console.WriteLine(IsSorted(arr2, SortOrder.Ascending)); // false
        Console.WriteLine(IsSorted(arr2, SortOrder.Descending)); // true

        Console.WriteLine(IsSorted(arr3, SortOrder.Ascending)); // false
        Console.WriteLine(IsSorted(arr3, SortOrder.Descending)); // false
    }
    public static bool IsSorted(int[] arr, SortOrder order)
    {
        if (arr.Length == 0)
        {
            return true;
        }

        if (order == SortOrder.Ascending)
        {
            for (int i = 0; i < arr.Length - 1; i++)
            {
                if (arr[i] > arr[i + 1])
                {
                    return false;
                }
            }
        }
        else // SortOrder.Descending
        {
            for (int i = 0; i < arr.Length - 1; i++)
            {
                if (arr[i] < arr[i + 1])
                {
                    return false;
                }
            }
        }
        return true;
    }
}
```



```
using System;

public enum SortOrder
{
    Ascending,
    Descending
}

public class Program
{
    public static void Main()
    {
        int[] arr1 = new int[] { 1, 2, 3, 4, 5 };
        int[] arr2 = new int[] { 5, 4, 3, 2, 1 };
        int[] arr3 = new int[] { 1, 3, 2, 4, 5 };
```

```
'Lab2 Q3 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q3 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q3 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q3 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
'Lab2 Q3 Task1.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
The program '[30668] Lab2 Q3 Task1.exe' has exited with code 0 (0x0).
```

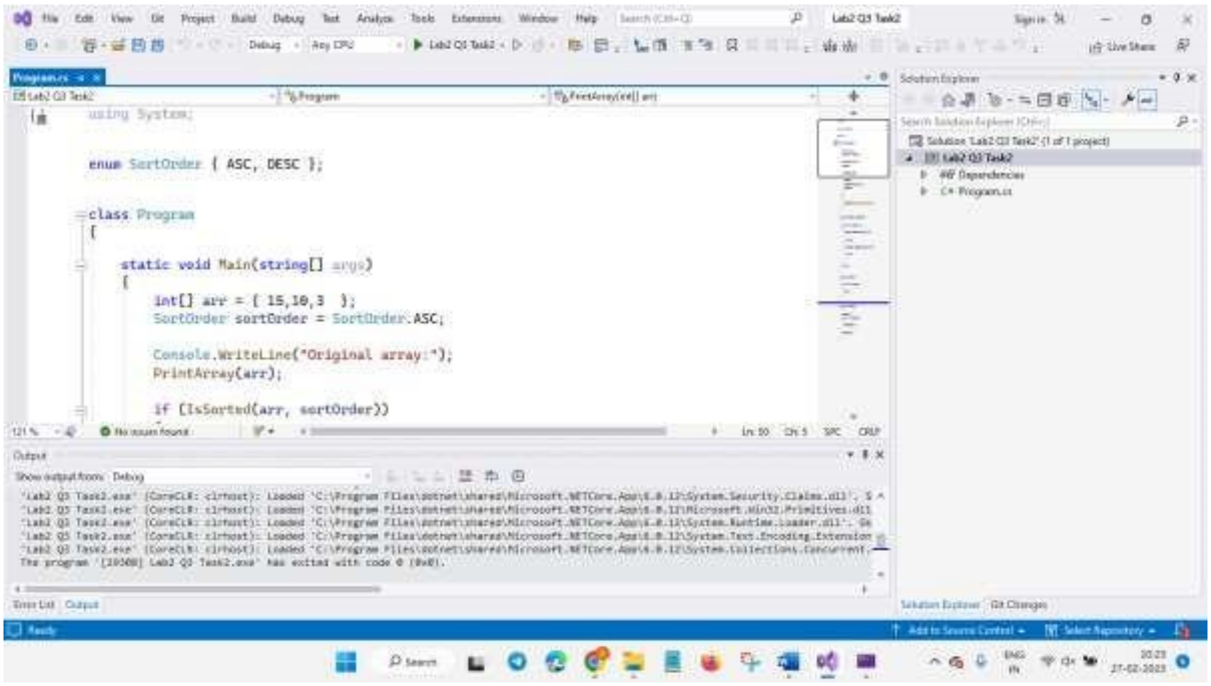


```
True
False
False
True
False
False

C:\Users\Tejaswini\Downloads\DotNet Executed InLabs 1 to 6\Executed\Lab2 Q3 Task1\Lab2 Q3 Task1\bin\Debug\net6.0\Lab2 Q3
 Task1.exe (process 30668) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Task-2

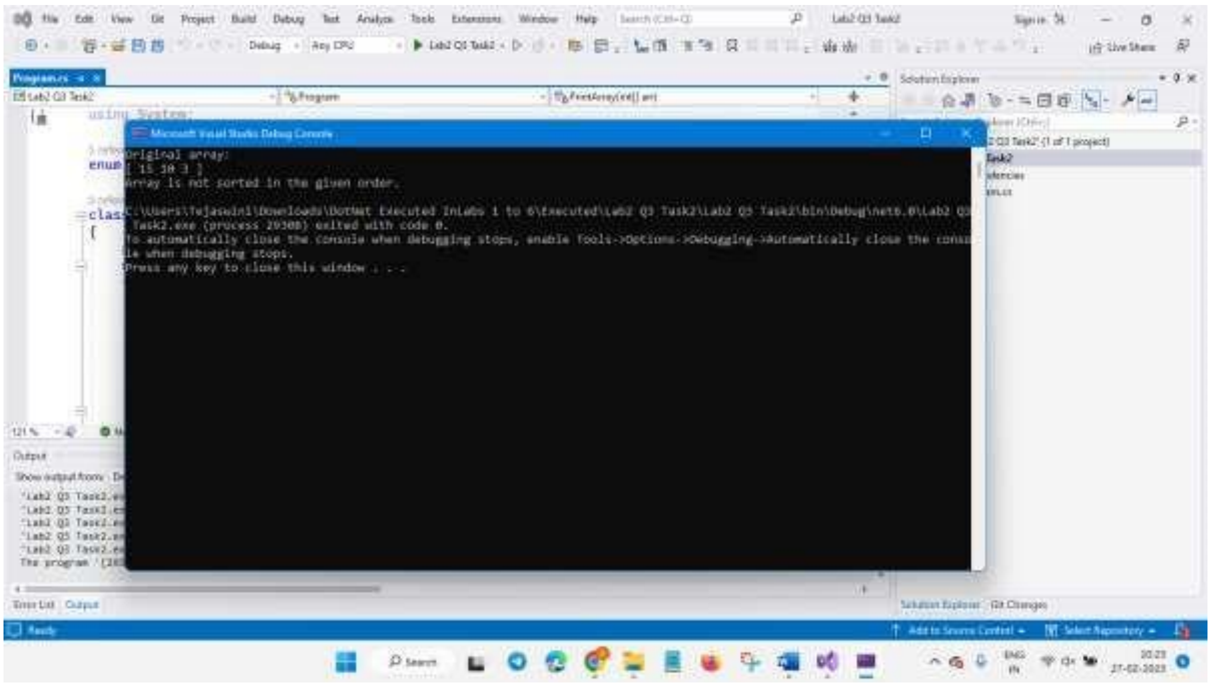
```
 using
System;

enum SortOrder { ASC, DESC };

class Program
{
    static void Main(string[] args)
    {
        int[] arr = { 15,10,3  };
        SortOrder sortOrder = SortOrder.ASC;
```

```csharp
            Console.WriteLine("Original array:");
            PrintArray(arr);

            if (IsSorted(arr, sortOrder))
            {
                Transform(arr);
                Console.WriteLine("Transformed array:");
                PrintArray(arr);
            }
    else
            {
                Console.WriteLine("Array is not sorted in the given order.");
            }
        }
        static bool IsSorted(int[] arr, SortOrder sortOrder)
        {
            for (int i = 0; i < arr.Length - 1; i++)
            {
                if (sortOrder == SortOrder.ASC && arr[i] > arr[i + 1])
                {
                    return false;
                }
                else if (sortOrder == SortOrder.DESC && arr[i] < arr[i + 1])
                {
                    return false;
                }
    }         return
    true;
        }
        static void Transform(int[] arr)
        {
            for (int i = 0; i < arr.Length; i++)
            {
                arr[i] += i;
            }
        }

        static void PrintArray(int[] arr)
        {
            Console.Write("[ ");
            for (int i = 0; i < arr.Length; i++)
            {
                Console.Write(arr[i] + " ");
            }
            Console.WriteLine("]");
        }
    }
```



```
using System;

enum SortOrder { ASC, DESC };

class Program
{
    static void Main(string[] args)
    {
        int[] arr = { 15,10,3  };
        SortOrder sortOrder = SortOrder.ASC;

        Console.WriteLine("Original array:");
        PrintArray(arr);

        if (IsSorted(arr, sortOrder))
```

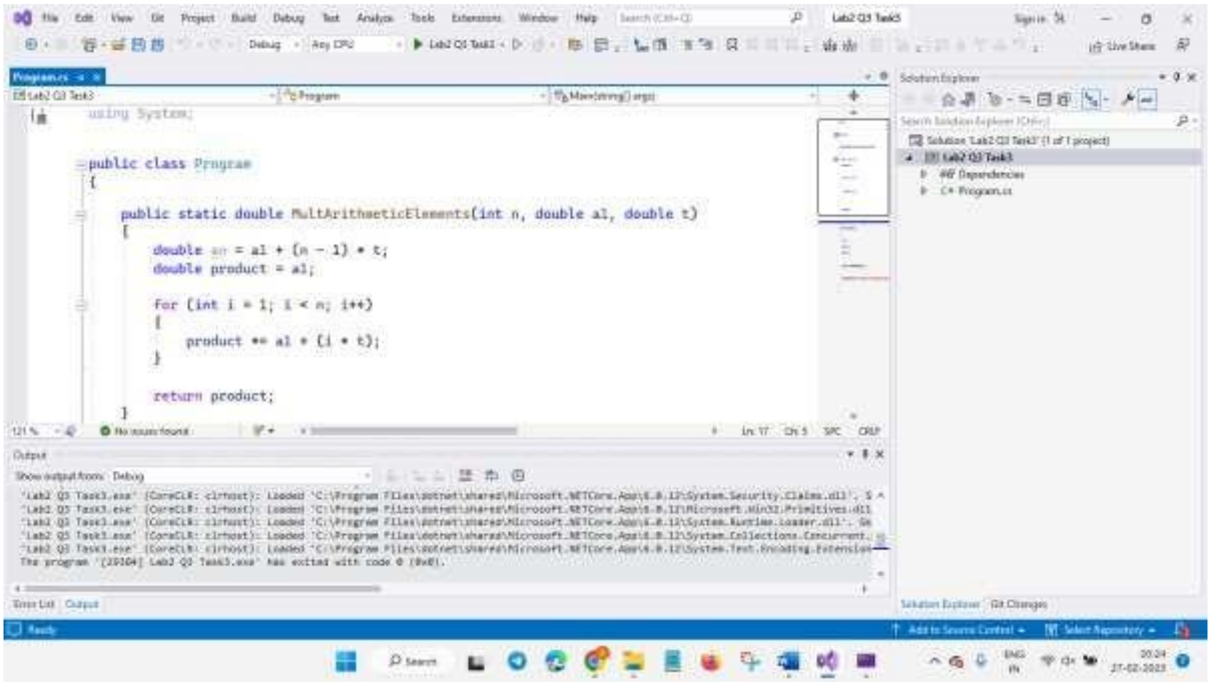
```
'Lab2 Q3 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q3 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q3 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q3 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
'Lab2 Q3 Task2.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
The program '[20308] Lab2 Q3 Task2.exe' has exited with code 0 (0x0).
```



```
Original array:
[ 15 10 3 ]
Array is not sorted in the given order.

C:\Users\Tejaswini\Downloads\DotNet Executed InLabs 1 to 6\Executed\Lab2 Q3 Task2\Lab2 Q3 Task2\bin\Debug\net6.0\Lab2 Q3
 Task2.exe (process 20308) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

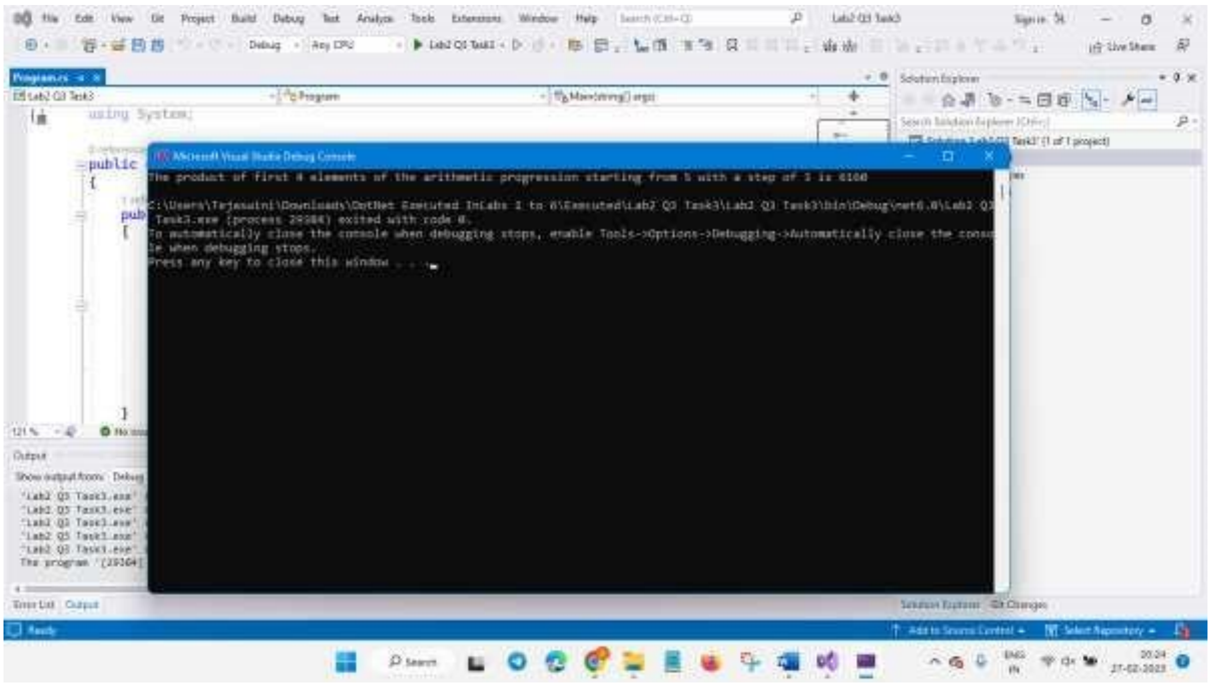
Task-3

```
 using
System;

public class Program
{
    public static double MultArithmeticElements(int n, double a1, double t)
    {
        double an = a1 + (n - 1) * t;
double product = a1;

        for (int i = 1; i < n; i++)
        {
            product *= a1 + (i * t);
        }

        return product;
    }
    static void Main(string[] args)
    {          int n = 4;
double a1 = 5.0;
double t = 3.0;

        double product = MultArithmeticElements(n, a1, t);

        Console.WriteLine($"The product of first {n} elements of the arithmetic
progression starting from {a1} with a step of {t} is {product}");
    }
}
```



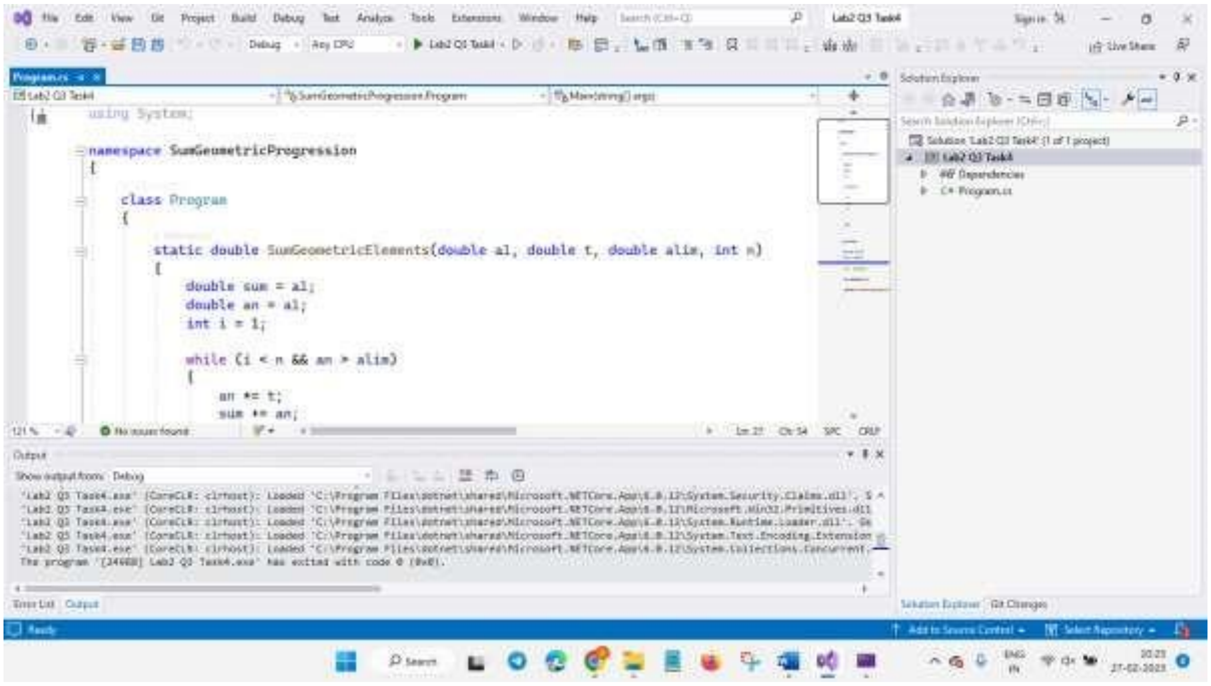
```
using System;

public class Program
{

    public static double MultArithmeticElements(int n, double a1, double t)
    {
        double an = a1 + (n - 1) * t;
        double product = a1;

        for (int i = 1; i < n; i++)
        {
            product *= a1 + (i * t);
        }

        return product;
    }
```

```
'Lab2 Q3 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q3 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q3 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q3 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
'Lab2 Q3 Task3.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
The program '[29304] Lab2 Q3 Task3.exe' has exited with code 0 (0x0).
```



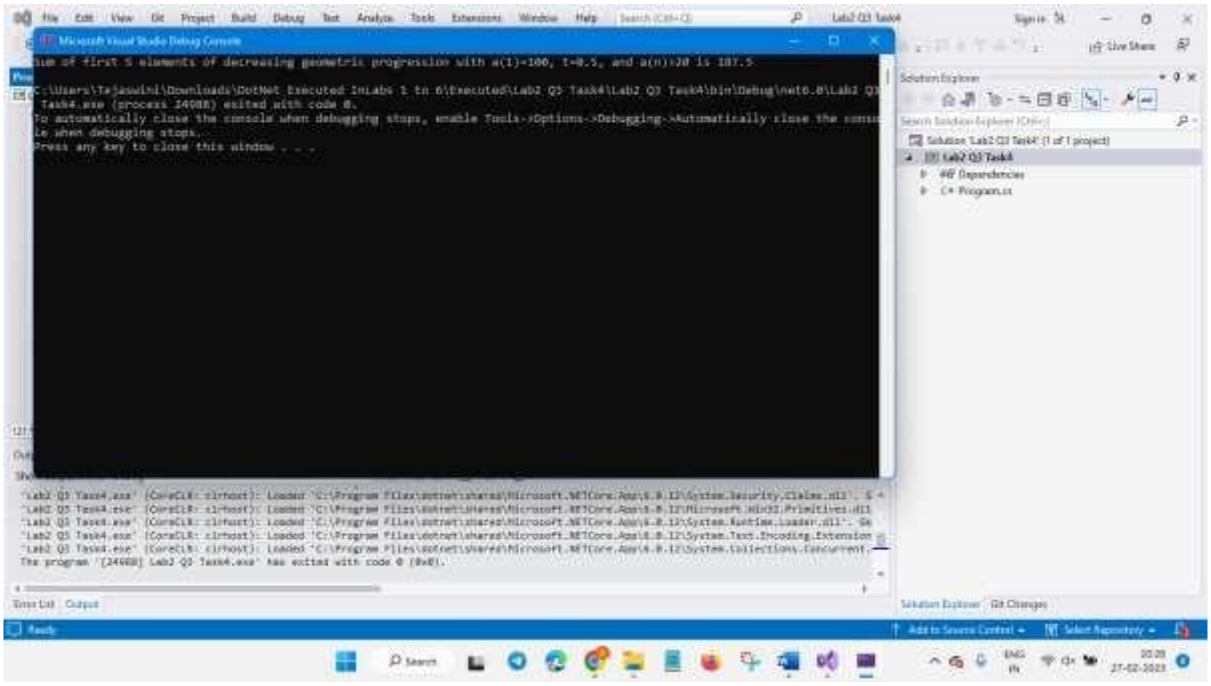
```
The product of first 4 elements of the arithmetic progression starting from 5 with a step of 3 is 6160

C:\Users\Tejaswini\Downloads\DotNet Executed InLabs 1 to 6\Executed\Lab2 Q3 Task3\Lab2 Q3 Task3\bin\Debug\net6.0\Lab2 Q3
 Task3.exe (process 29384) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Task-4
```
 using
System;

namespace SumGeometricProgression
{
    class Program
    {
        static double SumGeometricElements(double a1, double t, double alim, int
n)          {
            double sum = a1;
double an = a1;                int
i = 1;

            while (i < n && an > alim)
            {
an *= t;
sum += an;
i++;
            }

            return sum;
        }
        static void Main(string[] args)
        {
            double a1 = 100.0;   // initial element
double t = 0.5;    // progression step              double
alim = 20.0; // last element limit             int n = 5;
// number of elements to sum

            double sum = SumGeometricElements(a1, t, alim, n);

            Console.WriteLine($"Sum of first {n} elements of decreasing geometric
progression with a(1)={a1}, t={t}, and a(n)>{alim} is {sum}");
        }
    }
}
```



```
using System;

namespace SumGeometricProgression
{
    class Program
    {
        static double SumGeometricElements(double a1, double t, double alim, int n)
        {
            double sum = a1;
            double an = a1;
            int i = 1;

            while (i < n && an > alim)
            {
                an *= t;
                sum += an;
```

```
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
The program '[24088] Lab2 Q3 Task4.exe' has exited with code 0 (0x0).
```



```
Sum of first 5 elements of decreasing geometric progression with a(1)=100, t=0.5, and a(n)>20 is 187.5

C:\Users\Tejaswini\Downloads\DotNet Executed InLabs 1 to 6\Executed\Lab2 Q3 Task4\Lab2 Q3 Task4\bin\Debug\net6.0\Lab2 Q3
 Task4.exe (process 24088) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

```
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Security.Claims.dll'. S
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\Microsoft.Win32.Primitives.dll
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Runtime.Loader.dll'. Sk
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Text.Encoding.Extension
'Lab2 Q3 Task4.exe' (CoreCLR: clrhost): Loaded 'C:\Program Files\dotnet\shared\Microsoft.NETCore.App\6.0.12\System.Collections.Concurrent.
The program '[24088] Lab2 Q3 Task4.exe' has exited with code 0 (0x0).
```