Tutorial – 1

1. Write a C program to print “Hello World” on the output screen.

```
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q1
    {
        public static void Main(string[] a)
        {
            Console.WriteLine("Hello world");
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q1
Hello world
```

2 : Design your profile page as given below.

```
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q2
    {
        public static void Main(string[] a)
        {
            Console.WriteLine(@"
                    Name: Dharmraj sodha
                    DOB: kiyu batavu
                    Address:Jamnager,
                            India
```

```
                    City: Jamnagar
                    Pincode:361001
                    State: Gujarat
                    Country: India
                    Mail: Mymail@mail.com");
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q2

                    Name: Dharmraj sodha
                    DOB: 01/01/2000
                    Address:Jamnager,
                            India
                    City: Jamnagar
                    Pincode:361001
                    State: Gujarat
                    Country: India
                    Mail: Mymail@mail.com
```

3 : Find out whether the given number is odd or even.

```
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q3
    {
        public static void Main(string[] a)
        {
            Console.Write("Enter Number: ");
            int number = Convert.ToInt32(Console.ReadLine());
            if (number % 2 == 0
                Console.WriteLine($"{number} is even");
            else
                Console.WriteLine($"{number} is odd");
```

```
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q3
Enter Number: 5
5 is odd
```

4 : Rearrange the given code to correct the program. The resultant program will be to input a number and print whether the given number is odd or even.

```
using System;
namespace ConsoleApplication1

{
    class Q4

    {
        static void Main(string[] args)
        {
            int x;
            Console.WriteLine("Enter Number : ");
            string str = Console.ReadLine();
            x = Convert.ToInt32(str);
            if (x % 2 == 0)
                Console.WriteLine("Number is Odd");
            else
                Console.WriteLine("Number is Even");
            Console.Read();
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q4
Enter Number :
5
Number is Even
```

5 : Write output of the program. Also write comment for each line for the following code.

```
using System;  // Importing the System namespace for basic
input/output operations

// Declaring a namespace to group related classes
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    // Class definition
    class Q5
    {
        // Main method - entry point of the program
        static void Main(string[] args)
        {
            int n, fact = 1; // Declare variables: n for input
number, fact to store factorial result

            // Prompt user to enter a number
            Console.WriteLine("Enter Number : ");

            // Read user input as string
            string str = Console.ReadLine();

            // Convert the input string to an integer
            n = Convert.ToInt32(str);

            // Calculate factorial using a for loop
            for (int i = 1; i <= n; i++)
            {
                fact = fact * i; // Multiply current value of fact by
i
            }

            // Display the calculated factorial
            Console.WriteLine("Factorial : {0}", fact);
```

```
            // Keep the console window open until a key is pressed
            Console.Read();
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q5
Enter Number :
5
Factorial : 120
```

6.Write missing statement to get the desired output.

```
using System;

namespace _24SOECE13043_Dharmraj_sodha.LAB1

{

    class Q6

    {

        static void Main(string[] args)

        {
            int a, b, c, result;

            Console.Write("Enter Number   1: ");

            string str = Console.ReadLine();

            a = Convert.ToInt32(str);
```

```
            Console.Write("Enter Number  2 : ");

            str = Console.ReadLine();

            b = Convert.ToInt32(str);



            Console.Write("Enter Number   3 : ");
            str = Console.ReadLine()
            c = Convert.ToInt32(str);
            result = Sum(a, b, c);

            Console.Write($"Sum of above numbers is: {result}");
            Console.Read();

        }

        static int Sum(int x, int y, int z)

        {

            int res;

            res = x + y + z;

            return res;

        }

    }

}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q6
Enter Number   1: 50
Enter Number  2 : 20
Enter Number   3 : 30
Sum of above numbers is: 100
```

7 : Predict and write the output of the given code.

```
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q7
    {
        public static void Main(string[] a)
        {
            int num1, res, i;

            Console.WriteLine("Enter a number");
            num1 = Convert.ToInt32(Console.ReadLine());


            i = 1; //Initialization

            //Check whether condition matches or not
            while (i <= 10)
            {
                res = num1 * i;
                Console.WriteLine("{0} x {1} = {2}", num1, i, res);


                i++; //Increment by one
            }
            Console.ReadLine();
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q7
Enter a number
5
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

8 Write a program to convert given name in upper characters.
INPUT : John F Kennedy
OUTPUT: JOHN F KENNEDY

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q8
    {
        public static void Main(string[] a)
        {
            Console.Write("Enter your String: ");
            string str = Console.ReadLine();
            //A -65to90 and a-97to122
            foreach (char c in str)
            {
                int unicode = c;
                if (unicode >= 97 && unicode <= 122)
                {
                    unicode -= 32;
                    Console.Write(((char)unicode));
                }
```

```
                else
                {
                    Console.Write(((char)unicode));
                }
            }

        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q8
Enter your String: Dharmaj
DHARMAJ
```

9 Write a Program to convert given name in toggle case.
INPUT : JoHn F kEnNedy
OUTPUT: jOhN f KeNneDY

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q9
    {
        public static void Main(string[] a)
        {
            Console.Write("Enter your String: ");
            string str = Console.ReadLine();
            //A -65to90 and a-97to122
            foreach (char c in str)
            {
                int unicode = c;
                if (unicode >= 97 && unicode <= 122)
                {
                    unicode -= 32;
```

```
                }
                else if (unicode >= 65 && unicode <= 90)
                {
                    unicode += 32;

                }
                    Console.Write(((char)unicode));

            }

        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q9
Enter your String: DhArMrAj
dHaRmRaJ
```

10 Write a Program which accepts mobile no as a string from the user and converts the last 5 digits into X.
INPUT : 1234567890
OUTPUT: 12345XXXXX

```
using System;

namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q10
    {
        public static void Main(string[] a)
        {
            Console.Write("Enter your Phone number: ");
            string str = Console.ReadLine();

            string[] myArray = new string[str.Length];
```

```
            for (int i = 0; i < str.Length; i++)
            {
                myArray[i] = str[i].ToString();
                if (i >= 5) {
                    myArray[i] = "X";
                }
            }
            Console.WriteLine(string.Join("",myArray));
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q10
Enter your Phone number: 9669800299
96698XXXXX
```

11 Write a Program which accepts name and gender from the user. Here, gender may have only 1 character, M or F.
Based on the gender prefix the name Mr. & Ms.
NAME : Ms. Hillary Clinton
GENDER : F

```
using System;

namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q11
    {
        public static void Main(string[] a)
        {
            Console.Write("Enter your Good Name: ");
            string name = Console.ReadLine();
            Console.WriteLine($"Name: {name}");
            name = name.ToLower();
```

```
            if (!(name.StartsWith("mr") || name.StartsWith("ms")))
                Console.WriteLine("Gender: not mention");
            if (name.StartsWith("mr"))
                Console.WriteLine("Gender: Male");
            else
                Console.WriteLine("Gender: Famale");


        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q11
Enter your Good Name: Ms.Amrita
Name: Ms.Amrita
Gender: Famale
```

12 Write a Program which accepts name from the user and prints the same
INPUT : Winston Churchill
OUTPUT: Winston Churchill

```
using System;

namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q12
    {
        public static void Main(string[] a)
        {   Console.Write("INPUT: ");
            string str = Console.ReadLine();
            Console.WriteLine($"Output: {str}");
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q12
INPUT: how are you ?
Output: how are you ?
```

13 Write a Program to prints the following series
0 1 1 2 3 5 8 13 21 34 55

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q13
    {
        public static void Main(string[] ar)
        {
            int a = 0,b = 1;
            Console.Write($"{a} {b} ");
            while(b != 55)
            {
                Console.Write($"{b = a + (a = b)} ");
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q13
0 1 1 2 3 5 8 13 21 34 55
```

14 Write a Program which accepts no from the user and print the same in words.
INPUT : 98732
OUTPUT: Nine Eight Seven Three Two

```
using System;
using System.Collections.Generic;

namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q14
    {
        public static void Main(string[] args)
        {
            Console.Write("Enter a number: ");
            string input = Console.ReadLine();

            Dictionary<char, string> digitWords = new
Dictionary<char, string>()
            {
                { '0', "Zero" },
                { '1', "One" },
                { '2', "Two" },
                { '3', "Three" },
                { '4', "Four" },
                { '5', "Five" },
                { '6', "Six" },
                { '7', "Seven" },
                { '8', "Eight" },
                { '9', "Nine" }
            };

            if (!long.TryParse(input, out _))
            {
                Console.WriteLine("Invalid input! Please enter digits
only.");
                return;
            }
```

```
            foreach (char digit in input)
            {
                Console.Write(digitWords[digit] + " ");
            }

            Console.WriteLine()
        }

    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q14
Enter a number: 999785
Nine Nine Nine Seven Eight Five
```

15 Write a Program to check whether the given no is Armstrong no or not.

```
using System;
using System.Numerics;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q15
    {
        public static void Main(string[] args)
        {
            int number=0, len=0,sum=0,clone;
            Console.Write("Enter a decimal number: ");
            clone = number = Convert.ToInt32( Console.ReadLine());
            len = number.ToString().Length;

            while (number > 0)
            {
                sum += Convert.ToInt32(Math.Pow((number % 10), len));
```

```
                number /= 10;
            }
            Console.WriteLine($"{clone} is{(clone==sum ? "":" not")}
armstrong ");
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q15
Enter a decimal number: 153
153 is armstrong

C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q15
Enter a decimal number: 152
152 is not armstrong
```

16 Write a program to display a pattern like a right angle triangle using an asterisk

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q16
    {
        public static void Main(string[] args)
        { for (int i = 1; i <= 5; i++)
            {
                for (int j = 1; j <= i; j++)
                {
                    System.Console.Write('*');
                }
                System.Console.WriteLine();
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q16
*
**
***
****
*****
```

17. Write a Program to generate following output.

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q17
    {
        public static void Main(string[] args)
        {
            for (int i = 1; i < 5; i++)
            {
                for (int j = 1; j <= i; j++)
                {
                    System.Console.Write(j+" ");
                }
                System.Console.WriteLine();
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q17
1
1 2
1 2 3
1 2 3 4
```

18 Write a program to make such a pattern like a right angle triangle with the number increased by 1.

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q18
    {
        public static void Main(string[] args)
        {
            int m = 1;
            for (int i = 1; i < 5; i++)
            {
                for (int j = 1; j <= i; j++)
                {
                    System.Console.Write(m++ + " ");
                }
                System.Console.WriteLine();
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q18
1
2 3
4 5 6
7 8 9 10
```

19. Write a program to make such a pattern as a pyramid with an asterisk.

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q19
    {
        public static void Main(string[] args)
```

```
        {
            int m = 3;
            for (int i = 1; i < 5 ; i++)
            {
                for (int j = m; j >= 1; j--)
                {
                    System.Console.Write(" ");
                }
                m--;
                for (int j = 1; j <= i; j++)
                {
                    System.Console.Write("* ");
                }
                System.Console.WriteLine();
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q19
   *
  * *
 * * *
* * * *
```

20. Write a program to make a pyramid pattern with numbers increased by 1.

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q20
    {
        public static void Main(string[] args)
        {
            int m = 3;
            int a = 1;
```

```
            for (int i = 1; i < 5; i++)
            {
                for (int j = m; j >= 1; j--)
                {
                    System.Console.Write(" ");
                }
                m--;
                for (int j = 1; j <= i; j++)
                {
                    System.Console.Write(a+" ");
                    a++;
                }
                System.Console.WriteLine();
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q20
   1
  2 3
 4 5 6
7 8 9 10
```

21. Write a program to find the sum of the series 5 +55 + 555 + 5555 + .. n terms.
Test Data :
Input the number of terms : 4

Input number : 5
Expected Output :
5 + 55 + 555 + 5555
The Sum is : 6170

```
using System;


namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q21
    {
        public static void Main(string[] args)
        {

            int sum=0,n=0;
            string og, t;
            try
            {
                Console.Write("Enter N term : ");
                n = Convert.ToInt32(Console.ReadLine());
                Console.Write("Input number: ");
                t = og = Console.ReadLine();
                while (n>0)
                {
                    sum += Convert.ToInt32(t);
                    t += og;
                    n--;
                }
                Console.WriteLine(sum);
            } catch {
                Console.WriteLine("Invalid input! Please enter a
valid number.");
                return;
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q21
Enter N term : 4
Input number: 5
6170
```

22. Write a program to display a pattern like a diamond.

```
using System;
namespace _24SOECE13043_Dharmraj_sodha.LAB1
{
    internal class Q22
    {
        public static void Main()
        {
            int n = 5;
            for (int i = 1; i <= 2 * n - 1; i++)
            {
                int spaces = Math.Abs(n - i);
                int stars = 2 * (n - spaces) - 1;

                Console.Write(new string(' ', spaces));
                Console.WriteLine(new string('*', stars));
            }
        }
    }
}
```

Output:

```
C:\Users\dharm\source\repos\24SOECE13043_Dharmraj_sodha\LAB1>Q22
    *
   ***
  *****
 *******
*********
 *******
  *****
   ***
    *
```