1.Write program to demonstrate the working of C# SDK.

Program

```
 using System;

class Program
{
   static void Main()
   {
      Console.WriteLine("C# SDK is working correctly!");
   }
}
```

OUTPUT

C# SDK is working correctly!

2. Write program to show the use of various data types available in C#.

Program

```
using System;

class DataTypesDemo
{
   static void Main()
   {
      int num = 10;
      double pi = 3.14159;
      char letter = 'A';
      string name = "Aditya";
      bool isTrue = true;
      float price = 99.99f;
      long largeNum = 9876543210;
      decimal money = 199.99m;

      Console.WriteLine($"Integer: {num}");
      Console.WriteLine($"Double: {pi}");
      Console.WriteLine($"Char: {letter}");
      Console.WriteLine($"String: {name}");
      Console.WriteLine($"Boolean: {isTrue}");
      Console.WriteLine($"Float: {price}");
      Console.WriteLine($"Long: {largeNum}");
      Console.WriteLine($"Decimal: {money}");
   }
}
```

OUTPUT

```
Integer: 10
Double: 3.14159
Char: A
String: Aditya
Boolean: True
Float: 99.99
Long: 9876543210
Decimal: 199.99
```

3. Write programs to understand the use of Control statements.

Program

a. If-Else Statement

```
using System;

class ControlDemo
{
   static void Main()
   {
      int num = 20;

      if (num > 10)
      {
         Console.WriteLine("Number is greater than 10");
      }
      else
      {
         Console.WriteLine("Number is 10 or less");
      }
   }
}
```

OUTPUT

```
Number is greater than 10
```

b. Switch Case Statement

```
using System;

class SwitchDemo
{
   static void Main()
   {
      int day = 3;

      switch (day)
      {
         case 1:
            Console.WriteLine("Monday");
            break;
         case 2:
```

```
            Console.WriteLine("Tuesday");
            break;
        case 3:
            Console.WriteLine("Wednesday");
            break;
        default:
            Console.WriteLine("Invalid day");
            break;
    }
  }
}
```

OUTPUT

Wednesday

c. For Loop

```
using System;

class ForLoopDemo
{
  static void Main()
  {
    for (int i = 1; i <= 5; i++)
    {
      Console.WriteLine($"Iteration: {i}");
    }
  }
}
```

OUTPUT

Iteration: 1
Iteration: 2
Iteration: 3
Iteration: 4
Iteration: 5

d. While Loop

```
using System;

class WhileLoopDemo
```

```
{
   static void Main()
   {
      int i = 1;
      while (i <= 5)
      {
         Console.WriteLine($"Count: {i}");
         i++;
      }
   }
}
```

OUTPUT

```
Count: 1
Count: 2
Count: 3
Count: 4
Count: 5
```

4. Write programs to understand the use of library functions.

Program

```
using System;

class LibraryFunctionsDemo
{
   static void Main()
   {
      Console.WriteLine("Square root of 25: " + Math.Sqrt(25));
      Console.WriteLine("Absolute value of -10: " + Math.Abs(-10));
      Console.WriteLine("Ceiling of 4.3: " + Math.Ceiling(4.3));
      Console.WriteLine("Lowercase: " + "HELLO".ToLower());
      Console.WriteLine("Random Number: " + new Random().Next(1, 100));
   }
}
```

OUTPUT

```
Square root of 25: 5
Absolute value of -10: 10
Ceiling of 4.3: 5
Lowercase: hello
Random Number: (varies between 1 and 100)
```

5. Write a program to demonstrate the use of various arithmetic, unary, logical, bit-wise, assignment and conditional operators.

Program

```
using System;

class OperatorsDemo
{
   static void Main()
   {
      int a = 10, b = 5;

      // Arithmetic Operators
      Console.WriteLine($"Addition: {a + b}");
      Console.WriteLine($"Subtraction: {a - b}");
      Console.WriteLine($"Multiplication: {a * b}");
      Console.WriteLine($"Division: {a / b}");
      Console.WriteLine($"Modulus: {a % b}");

      // Unary Operators
      Console.WriteLine($"Increment: {++a}");
      Console.WriteLine($"Decrement: {--b}");

      // Logical Operators
      Console.WriteLine($"AND (true && false): {true && false}");
      Console.WriteLine($"OR (true || false): {true || false}");
      Console.WriteLine($"NOT (!true): {!true}");

      // Bitwise Operators
      Console.WriteLine($"Bitwise AND (5 & 3): {5 & 3}");
      Console.WriteLine($"Bitwise OR (5 | 3): {5 | 3}");
      Console.WriteLine($"Bitwise XOR (5 ^ 3): {5 ^ 3}");

      // Assignment Operators
      int c = 10;
      c += 5;
      Console.WriteLine($"Assignment (c += 5): {c}");

      // Conditional Operator
      string result = (a > b) ? "a is greater" : "b is greater";
      Console.WriteLine($"Conditional Operator: {result}");
   }
}
```

OUTPUT

```
Addition: 15
Subtraction: 5
Multiplication: 50
Division: 2
Modulus: 0
Increment: 11
Decrement: 4
AND (true && false): False
OR (true || false): True
NOT (!true): False
Bitwise AND (5 & 3): 1
Bitwise OR (5 | 3): 7
Bitwise XOR (5 ^ 3): 6
Assignment (c += 5): 15
Conditional Operator: a is greater
```

6. Write a program to store 10 elements in an array and display the array elements in increasing order.
7. Demonstrate the use of pass by value and pass by reference by writing a program.
8. Write a program to implement recursion.
9. Write programs to implement one dimensional and two dimensional arrays.
10. Write programs to understand the working of predefined string functions like Compare( ), CompareTo( ),
Concat( ),
a. Copy( ) and Join().