NAME = S.H.R.Akarsha

ID = 24549

C# LAB 06

Question 06

1.

```
using System;

public class ArrayOperations
{
   public int[] CreateArray(int size)
   {
      int[] array = new int[size];

      // Prompt the user to enter values for the array.
      for (int i = 0; i < size; i++)
      {
         Console.WriteLine("Enter a value for the array at index {0}: ", i);
         array[i] = Convert.ToInt32(Console.ReadLine());

         // Add a value of 0 after each user input value.
         array[i + 1] = 0;
      }

      return array;
   }
}

public class Program
{
   public static void Main(string[] args)
   {
      // Declare variables to store the array and the results of the operations.
      int[] array;
      int size;

      // Prompt the user to enter the size of the array.
      Console.WriteLine("Enter the size of the array: ");
      size = Convert.ToInt32(Console.ReadLine());

      // Create an array of the specified size.
```

```
        array = ArrayOperations.CreateArray(size);

        // Display the contents of the array.
        Console.WriteLine("The array is: ");
        for (int i = 0; i < array.Length; i++)
        {
            Console.WriteLine("{0}", array[i]);
        }
    }
}
```

Question 07

1.

```
using System;

public class ArrayOperations
{
    public int[] CreateArray(int size)
    {
        int[] array = new int[size];

        // Prompt the user to enter values for the array.
        for (int i = 0; i < size; i++)
        {
            Console.WriteLine("Enter a value for the array at index {0}: ", i);
            array[i] = Convert.ToInt32(Console.ReadLine());
        }

        return array;
    }

    public int ScalarSum(int[] array)
    {
        int sum = 0;

        for (int i = 0; i < array.Length; i++)
        {
            sum += array[i];
        }

        return sum;
    }

    public int[] VectorSum(int[] array1, int[] array2)
```

```
    {
        int[] vectorSum = new int[array1.Length];

        for (int i = 0; i < array1.Length; i++)
        {
            vectorSum[i] = array1[i] + array2[i];
        }

        return vectorSum;
    }

    public int[] VectorProduct(int[] array1, int[] array2)
    {
        int[] vectorProduct = new int[array1.Length];

        for (int i = 0; i < array1.Length; i++)
        {
            vectorProduct[i] = array1[i] * array2[i];
        }

        return vectorProduct;
    }

    public int ScalarProduct(int[] array1, int[] array2)
    {
        int product = 0;

        for (int i = 0; i < array1.Length; i++)
        {
            product += array1[i] * array2[i];
        }

        return product;
    }

    public void DisplayResults(int scalarSum, int[] vectorSum, int[] vectorProduct, int scalarProduct)
    {
        Console.WriteLine("The scalar sum is {0}.", scalarSum);
        Console.WriteLine("The vector sum is {0}.", vectorSum);
        Console.WriteLine("The vector product is {0}.", vectorProduct);
        Console.WriteLine("The scalar product is {0}.", scalarProduct);
    }
}

public class Program
```

```
    {
    public static void Main(string[] args)
    {
        // Declare variables to store the arrays and the results of the operations.
        int[] array1, array2;
        int scalarSum, vectorSum, vectorProduct;

        // Prompt the user to enter the size of the arrays.
        Console.WriteLine("Enter the size of the first array: ");
        int size1 = Convert.ToInt32(Console.ReadLine());
        Console.WriteLine("Enter the size of the second array:");
        int size2 = Convert.ToInt32(Console.ReadLine());

        // Create the arrays.
        array1 = ArrayOperations.CreateArray(size1);
        array2 = ArrayOperations.CreateArray(size2);

        // Find the scalar sum, vector sum, vector product, and scalar product.
        scalarSum = ArrayOperations.ScalarSum(array1);
        vectorSum = ArrayOperations.VectorSum(array1, array2);
        vectorProduct = ArrayOperations.VectorProduct(array1, array2);
        scalarProduct = ArrayOperations.ScalarProduct(array1, array2);

        // Display the results of the operations.
        ArrayOperations.DisplayResults(scalarSum, vectorSum, vectorProduct, scalarProduct);
    }
}
```

Question 08

2.

```
using System;

public class Animal
{
    public void IAnimal()
    {
        Console.WriteLine("I am Animal");
    }
}

public class Dog : Animal
{
```

```
    public void IHaveFourLegs()
    {
        Console.WriteLine("I have four legs");
    }
}

public class Program
{
    public static void Main(string[] args)
    {
        // Create an object of the Dog class.
        var dog = new Dog();

        // Call the IAnimal() and IHaveFourLegs() methods.
        dog.IAnimal();
        dog.IHaveFourLegs();

        // Display the message "I am an animal I have four legs".
        Console.WriteLine("I am an animal I have four legs");
    }
}
```