# C# Lab 06.

**Question 06.**

using System;

public class ArrayHelper

{

public int[] CreateArrayWithZeros(int size)

{

int[] arr = new int[size \* 2];

Console.WriteLine("Enter values for the array:");

for (int i = 0; i < size; i++)

{

Console.Write($"Value {i + 1}: ");

arr[i \* 2] = int.Parse(Console.ReadLine());

arr[i \* 2 + 1] = 0;

}

return arr;

}

}

using System;

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the size of the array: ");

int size = int.Parse(Console.ReadLine());

ArrayHelper arrayHelper = new ArrayHelper();

int[] arr = arrayHelper.CreateArrayWithZeros(size);

Console.WriteLine("Values inside the array:");

foreach (int num in arr)

{

Console.Write(num + " ");

}

}

}

**Question 07.**

using System;

public class ArrayOperations

{

public int ScalarSum(int[] arr)

{

int sum = 0;

foreach (int num in arr)

{

sum += num;

}

return sum;

}

public int[] VectorSum(int[] arr1, int[] arr2)

{

if (arr1.Length != arr2.Length)

{

throw new ArgumentException("Both arrays should have the same size for vector sum.");

}

int[] result = new int[arr1.Length];

for (int i = 0; i < arr1.Length; i++)

{

result[i] = arr1[i] + arr2[i];

}

return result;

}

public int[] VectorProduct(int[] arr1, int[] arr2)

{

if (arr1.Length != arr2.Length)

{

throw new ArgumentException("Both arrays should have the same size for vector product.");

}

int[] result = new int[arr1.Length];

for (int i = 0; i < arr1.Length; i++)

{

result[i] = arr1[i] \* arr2[i];

}

return result;

}

public int ScalarProduct(int[] arr1, int[] arr2)

{

if (arr1.Length != arr2.Length)

{

throw new ArgumentException("Both arrays should have the same size for scalar product.");

}

int product = 0;

for (int i = 0; i < arr1.Length; i++)

{

product += arr1[i] \* arr2[i];

}

return product;

}

}

using System;

class Program

{

static void Main(string[] args)

{

Console.Write("Enter the size of the arrays: ");

int size = int.Parse(Console.ReadLine());

int[] arr1 = new int[size];

int[] arr2 = new int[size];

Console.WriteLine("Enter values for the first array:");

for (int i = 0; i < size; i++)

{

Console.Write($"Value {i + 1}: ");

arr1[i] = int.Parse(Console.ReadLine());

}

Console.WriteLine("Enter values for the second array:");

for (int i = 0; i < size; i++)

{

Console.Write($"Value {i + 1}: ");

arr2[i] = int.Parse(Console.ReadLine());

}

ArrayOperations arrayOperations = new ArrayOperations();

int scalarSum = arrayOperations.ScalarSum(arr1);

Console.WriteLine("Scalar Sum: " + scalarSum);

int[] vectorSum = arrayOperations.VectorSum(arr1, arr2);

Console.WriteLine("Vector Sum:");

PrintArray(vectorSum);

int[] vectorProduct = arrayOperations.VectorProduct(arr1, arr2);

Console.WriteLine("Vector Product:");

PrintArray(vectorProduct);

int scalarProduct = arrayOperations.ScalarProduct(arr1, arr2);

Console.WriteLine("Scalar Product: " + scalarProduct);

}

static void PrintArray(int[] arr)

{

foreach (int num in arr)

{

Console.Write(num + " ");

}

Console.WriteLine();

}

}

**Question 08.**

using System;

class Animal

{

public void AnimalMethod()

{

Console.WriteLine("I am an Animal");

}

}

class Dog : Animal

{

public void DogMethod()

{

Console.WriteLine("I have four legs");

}

}

class Program

{

static void Main(string[] args)

{

// Creating an object of the Dog class

Dog myDog = new Dog();

// Calling methods from both classes

myDog.AnimalMethod();

myDog.DogMethod();

// Displaying the desired output

Console.WriteLine("I am an animal and I have four legs");

}

}