**Question 06.**

**Create a Console application with two classes (Main class + another class). Inside the main class take a user input which is the size of the array. Pass the user inserted size as a parameter to the added class method. Inside the method create an integer array based on passed value from main method. Then take user inputs for the created array inside the separate class. Every user input value should be followed by value 0 inside the array.**

**Eg. Assume array size is 9 and it should as follows.**

****

using System;

namespace ArrayInputApplication

{

public class ArrayInputHandler

{

public void TakeUserInputArray(int size)

{

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

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

{

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

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

inputArray[i \* 2] = inputValue;

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

}

Console.WriteLine("Array with user inputs and 0s:");

PrintArray(inputArray);

}

private void PrintArray(int[] arr)

{

Console.Write("[");

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

{

Console.Write(arr[i]);

if (i < arr.Length - 1)

{

Console.Write(", ");

}

}

Console.WriteLine("]");

}

}

class Program

{

static void Main(string[] args)

{

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

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

ArrayInputHandler arrayHandler = new ArrayInputHandler();

arrayHandler.TakeUserInputArray(size);

Console.ReadLine(); // This will pause the program until you press Enter key

}

}

}

**Question 07.**

**Declare two single dimensional array with the size given by the user and find. Display the following,**

**Scalar Sum (Adding values of each element of an array)**

**Vector Sum (Adding values of each relative elements of an array and store them in third array)**

**Vector Product (Multiply values of each relative elements of an array and store them in third array)**

**Scalar Product (Multiply values of each relative elements of an array and store them in third array. After placing the values in third array add all the values)**

using System;

namespace ArrayOperations

{

class Program

{

static void Main(string[] args)

{

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

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

int[] array1 = new int[size];

int[] array2 = new int[size];

int[] resultArray = new int[size];

Console.WriteLine("Enter values for array1:");

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

{

array1[i] = int.Parse(Console.ReadLine());

}

Console.WriteLine("Enter values for array2:");

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

{

array2[i] = int.Parse(Console.ReadLine());

}

// Scalar Sum

int scalarSum = 0;

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

{

scalarSum += array1[i] + array2[i];

}

Console.WriteLine($"Scalar Sum: {scalarSum}");

// Vector Sum

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

{

resultArray[i] = array1[i] + array2[i];

}

Console.WriteLine("Vector Sum:");

PrintArray(resultArray);

// Vector Product

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

{

resultArray[i] = array1[i] \* array2[i];

}

Console.WriteLine("Vector Product:");

PrintArray(resultArray);

// Scalar Product

int scalarProduct = 1;

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

{

resultArray[i] = array1[i] \* array2[i];

scalarProduct \*= resultArray[i];

}

Console.WriteLine($"Scalar Product: {scalarProduct}");

Console.ReadLine(); // This will pause the program until you press Enter key

}

static void PrintArray(int[] arr)

{

Console.Write("[");

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

{

Console.Write(arr[i]);

if (i < arr.Length - 1)

{

Console.Write(", ");

}

}

Console.WriteLine("]");

}

}

}

**Question 08.**

**Create a Console application with two added classes called “Animal” and “Dog”. “Dog” is the derived class of ‘Animal Class’ (Base Class). Inside the ‘Animal Class’ Create a method which for ‘Dog’ Class. Inside the method print “I am Animal”. Inside the “Dog Class” Create a method and display “I have four legs”. Inside the main method create relevant class object and Display as follows. “I am an animal I have four legs”.**

public class Animal

{

public void PrintAnimal()

{

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

}

}

public class Dog : Animal

{

public void PrintDog()

{

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

}

}

class Program

{

static void Main(string[] args)

{

Dog dog = new Dog();

dog.PrintAnimal();

dog.PrintDog();

Console.ReadLine(); // This will pause the program until you press Enter key

}

}

}