9.0-Introduction to Arrays

Program

```
using System;

class Program
{
    public void Run()
    {
        Console.Write("Enter the number of elements in the array: ");
        int n = int.Parse(Console.ReadLine());

        int[] arr = new int[n];

        for (int i = 0; i < n; i++)
        {
            Console.Write($"Enter element {i + 1}: ");
            arr[i] = int.Parse(Console.ReadLine());
        }

        int sum = FindSum(arr);
        double average = FindAverage(arr);

        Console.WriteLine($"Sum of the numbers in the array: {sum}");
        Console.WriteLine($"Average of the numbers in the array: {average}");
    }
```

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

        foreach (int num in array)
        {
            sum += num;
        }

        return sum;
    }

    public double FindAverage(int[] array)
    {
        double sum = FindSum(array);
        return sum / array.Length;
    }

    static void Main()
    {
        Program program = new Program();
        program.Run();
    }
}
```

Exercise

Write a C# program that Prompt the user to enter the number of elements in an array.

Read the elements entered by the user into an integer array.

Calculate the sum of all elements in the array.

Calculate the average of all elements in the array.

Display the sum and average of the elements.

The program should consist of a Run() method that handles the above steps, along with helper methods FindSum() and FindAverage() to calculate the sum and average, respectively. The Main() method should create an instance of the Program class and call its Run() method to execute the program logic.

Hint

This C# program calculates the sum and average of elements in an array.

The Run() method prompts the user to input the number of elements in the array (n), creates an array of size n, and then reads each element into the array.

The FindSum() method iterates through the array and calculates the sum of all elements.

The FindAverage() method calculates the average of the elements by dividing the sum obtained from FindSum() by the length of the array.

In the Main() method, an instance of the Program class is created, and its Run() method is called to execute the program, which then displays the sum and average of the entered numbers.

Explanation

The program is designed to calculate the sum and average of a set of numbers provided by the user. It begins by prompting the user to input the number of elements in the array. Then, it iterates through each element, allowing the user to input values one by one. After collecting the input, the program calculates the sum of all the numbers in the array by iterating through each element and adding it to a running total. It then calculates the average by dividing the sum by the total number of elements in the array. Finally, the program displays both the sum and average to the user. Overall,

the program provides a simple and effective way to compute these basic statistical measures for a given set of numbers entered by the user.