**1.Write a C# program to find the sum of all elements in an integer array using a loop.**

using System;

class Program

{

static void Main(string[] args)

{

int[] nums = { 10, 20, 30, 40, 50 };

int sum = 0;

foreach (int num in nums)

{

sum += num;

}

Console.WriteLine("Sum of array elements: " + sum);

}

}

**2.Create a C# program that calculates the average of values in a floating-point array using a loop.**

using System;

namespace Array

{

class Program

{

static void Main(string[] args)

{

float[] values = { 2.5f, 3.7f, 1.2f, 4.0f, 5.8f };

float sum = 0;

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

{

sum += values[i];

}

float average = sum / values.Length;

Console.WriteLine($"The average of the values is: {average}");

}

}

}

**3.Develop a C# program that finds the largest element in an integer array using a loop and if-else statements.**

using System;

namespace Largest

{

class Program

{

static void Main(string[] args)

{

int[] nums = { 10, 3, 45, 27, 8, 50 };

int large = nums[0];

for (int i = 1; i < nums.Length; i++)

{

if (nums[i] > large)

{

large = nums[i];

}

}

Console.WriteLine($"The largest element in the array is: {large}");

}

}

}

**4. Write a C# program that counts the number of even and odd elements in an integer array using a loop and if-else statements.**

using System;

namespace EvenOdd

{

class Program

{

static void Main(string[] args)

{

int[] numbers = { 10, 3, 45, 27, 8, 50};

int evenCount = 0;

int oddCount = 0;

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

{

if (numbers[i] % 2 == 0)

{

evenCount++;

}

else

{

oddCount++;

}

}

Console.WriteLine($"Number of even elements: {evenCount}");

Console.WriteLine($"Number of odd elements: {oddCount}");

}

}

}

**5. Implement a C# program that reverses the elements of an integer array using a loop.**

using System;

namespace ArrayReverse

{

class Program

{

static void Main(string[] args)

{

int[] numbers = { 10, 3, 45, 27, 8, 50 };

int startIndex = 0;

int endIndex = numbers.Length - 1;

while (startIndex < endIndex)

{

int temp = numbers[startIndex];

numbers[startIndex] = numbers[endIndex];

numbers[endIndex] = temp;

startIndex++;

endIndex--;

}

Console.WriteLine("Reversed array:");

foreach (int num in numbers)

{

Console.Write(num + " ");

}

}

}

}

**6.Create a C# program that multiplies each element in an integer array by a specified factor using a loop.**

using System;

namespace Array

{

class Program

{

static void Main(string[] args)

{

int[] numbers = { 10, 3, 45, 27, 8, 50 };

int factor = 2;

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

{

numbers[i] \*= factor;

}

Console.WriteLine("Modified array:");

foreach (int num in numbers)

{

Console.Write(num + " ");

}

}

}

}

**7. Write a C# program that searches for a specific value in an integer array using a loop and returns its index if found.**

using System;

namespace ArraySearch

{

class Program

{

static void Main(string[] args)

{

int[] numbers = { 10, 3, 45, 27, 8, 50 };

int targetValue = 27;

int index = -1;

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

{

if (numbers[i] == targetValue)

{

index = i;

break;

}

}

if (index != -1)

{

Console.WriteLine($"Value found at index {index}");

}

else

{

Console.WriteLine($"Value not found in the array");

}

}

}

}

**8. Develop a C# program that finds the second smallest element in an integer array using loops and sorting techniques.**

using System;

namespace Second

{

class Program

{

static void Main(string[] args)

{

int[] numbers = { 10, 3, 45, 27, 8, 50 };

Array.Sort(numbers);

int secondSmallest = -1;

for (int i = 1; i < numbers.Length; i++)

{

if (numbers[i] != numbers[i - 1])

{

secondSmallest = numbers[i];

break;

}

}

if (secondSmallest != -1)

{

Console.WriteLine($"The second smallest element is: {secondSmallest}");

}

else

{

Console.WriteLine("No second smallest element found in the array.");

}

}

}

}

**9. Create a C# program that removes all duplicates from an integer array using loops and additional data structures.**

using System;

using System.Collections.Generic;

namespace RemoveDupli

{

class Program

{

static void Main(string[] args)

{

int[] numbers = { 10, 3, 45, 27, 8, 50, 3, 10, 27 };

HashSet<int> uniqueNumbers = new HashSet<int>();

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

{

uniqueNumbers.Add(numbers[i]);

}

int[] resultArray = new int[uniqueNumbers.Count];

uniqueNumbers.CopyTo(resultArray);

Console.WriteLine("Array without duplicates:");

foreach (int num in resultArray)

{

Console.Write(num + " ");

}

}

}

}

**10.Write a C# program that finds the common elements between two integer arrays using loops.**

using System;

namespace Common

{

class Program

{

static void Main(string[] args)

{

int[] array1 = { 10, 3, 45, 27, 8, 50 };

int[] array2 = { 27, 8, 12, 3, 35 };

Console.WriteLine("Common elements:");

foreach (int num1 in array1)

{

foreach (int num2 in array2)

{

if (num1 == num2)

{

Console.Write(num1 + " ");

break;

}

}

}

}

}

}