using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace C\_lab1\_Asssignment

{

internal class Program

{

static int SumOfElements(int[] arr)

{

int sum = 0;

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

{

sum += arr[i];

}

return sum;

}

static float AverageOfElements(float[] arr)

{

float avg = 0;

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

{

avg += arr[i];

}

avg /= arr.Length;

return avg;

;

}

static int LargestElement(int[] arr)

{

int max = int.MinValue;

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

{

if (arr[i] > max)

{

max = arr[i];

}

}

return max;

}

static int[] NumOfEvenAndOdd(int[] arr)

{

int[] c = new int[2];

int even = 0;

int odd = 0;

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

{

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

{

even++;

}

else

{

odd++;

}

}

c[0] = even;

c[1] = odd;

return c;

;

}

static int[] SearchHistory(int[] arr)

{

for (int i = 0; i < arr.Length / 2; i++)

{

int temp = arr[i];

arr[i] = arr[arr.Length - 1 - i];

arr[arr.Length - 1 - i] = temp;

}

return arr;

}

static int[] MultipleByFactor(int[] arr, int k)

{

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

{

arr[i] \*= k;

}

return arr;

}

static int SearchBook(int[] arr, int k)

{

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

{

if (arr[i] == k)

{

return i;

}

}

return -1;

}

static int SecondSmallest(int[] arr)

{

for (int i = 0; i < arr.Length - 1; i++)

{

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

{

if (arr[i] > arr[j])

{

int temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

return arr[1];

}

static LinkedList<int> RemoveDuplicate(int[] arr)

{

LinkedList<int> list = new LinkedList<int>();

for (int i = 0; i < arr.Length - 1; i++)

{

if (!list.Contains(arr[i]))

{

list.AddLast(arr[i]);

}

}

return list;

}

static LinkedList<int> SameElementInBothArray(int[] a1, int[] a2)

{

LinkedList<int> list = new LinkedList<int>();

for (int i = 0; i < a1.Length; i++)

{

for (int j = 0; j < a1.Length; j++)

{

if (a1[i] == a2[j])

{

list.AddLast(a1[i]);

}

}

}

return list;

}

static void Main(string[] args)

{

Console.WriteLine("Sum of element of array = " + SumOfElements(new int[] { 200, -150, 340, 500, -100 }));

Console.WriteLine("Average of elements of array = " + AverageOfElements(new float[] { 85.5f, 90.3f, 78.4f, 88.9f, 92.1f }));

Console.WriteLine("Largest element of array = " + LargestElement(new int[] { 1500, 2300, 999, 3200, 1750 }));

int[] a = NumOfEvenAndOdd(new int[] { 102, 215, 324, 453, 536 });

Console.WriteLine("Number of Males: " + a[0] + " and number of Females: " + a[1]);

int[] b = SearchHistory(new int[] { 101, 202, 303, 404, 505 });

Console.WriteLine("Reverse search history: " + string.Join(", ", b));

Console.WriteLine("Array Elements after the multiple by factor : " + string.Join(", ", MultipleByFactor(new int[] { 2, 4, 6, 8 }, 3)));

Console.WriteLine("Book is at: " + SearchBook(new int[] { 101, 203, 304, 405, 506 }, 304));

Console.WriteLine("Second smallest element of array: " + SecondSmallest(new int[] { 56, 78, 89, 45, 67 }));

Console.WriteLine("Removing element from array " + string.Join(", ", RemoveDuplicate(new int[] { 102, 215, 102, 324, 215 })));

Console.WriteLine("Common elements in both array = " + string.Join(", ", SameElementInBothArray(new int[] { 1, 2, 3, 4, 5 }, new int[] { 3, 4, 5, 6, 7 })));

}

        }

    }