using System;

namespace MyApp

{

internal class Program

{

//Question 01

static void DeleteDuplicate()

{

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

int n = Convert.ToInt32(Console.ReadLine());

int[] duplicate\_array = new int[n];

Console.WriteLine("Write duplicate Numbers array: ");

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

{

duplicate\_array[i] = Convert.ToInt32(Console.ReadLine());

}

Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < duplicate\_array.Length; i++)

{

Console.Write(duplicate\_array[i] + " ");

}

int[] WithOutDuplicate = new int[n];

int k = 0;

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

{

int j;

for (j = 0; j < k; j++)

{

if (duplicate\_array[i] == WithOutDuplicate[j])

break;

}

if (j == k)

{

WithOutDuplicate[k] = duplicate\_array[i];

k++;

}

}

Console.WriteLine("\nArray after removing duplicate numbers: ");

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

{

Console.Write(WithOutDuplicate[i] + " ");

}

Console.WriteLine("\n");

Console.WriteLine(WithOutDuplicate.Length);

}

//Question 02

static void FirstTwoLargeNumbers()

{

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

int n = Convert.ToInt32(Console.ReadLine());

int[] largeNumber\_array = new int[n];

Console.WriteLine("Write Numbers array: ");

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

{

largeNumber\_array[i] = Convert.ToInt32(Console.ReadLine());

}

//Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < largeNumber\_array.Length; i++)

{

Console.Write(largeNumber\_array[i] + " ");

}

int large1 = 0;

int large2 = 0;

int helpingnumber = 0;

large1 = largeNumber\_array[0];

large2 = largeNumber\_array[1];

if (large1 < large2)

{

helpingnumber = large1;

large1 = large2;

large2 = helpingnumber;

}

for (int i = 2; i < n; i++)

{

if (largeNumber\_array[i] > large1)

{

large2 = large1;

large1 = largeNumber\_array[i];

}

else if (largeNumber\_array[i] > large2 && largeNumber\_array[i] != large1)

{

large2 = largeNumber\_array[i];

}

}

Console.WriteLine("\n");

Console.WriteLine($"First largest number: {large1}");

Console.WriteLine($"Second large number: {large2}");

}

//Question 03

static void MoveZeroToEnd()

{

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

int n = Convert.ToInt32(Console.ReadLine());

int[] MoveZeroarray\_array = new int[n];

Console.WriteLine("Write Numbers array: ");

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

{

MoveZeroarray\_array[i] = Convert.ToInt32(Console.ReadLine());

}

//Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < MoveZeroarray\_array.Length; i++)

{

Console.Write(MoveZeroarray\_array[i] + " ");

}

int k = 0;

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

{

if (MoveZeroarray\_array[i] != 0)

MoveZeroarray\_array[k++] = MoveZeroarray\_array[i];

}

while (k < n)

{

MoveZeroarray\_array[k++] = 0;

}

Console.WriteLine("\nAfter Moving Zeros to End Array: ");

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

{

Console.Write(MoveZeroarray\_array[i] + " ");

}

}

//Question 04

static void FirstNonRepeatingCharacter()

{

//Console.Write("Enter word : ");

//string n = (Console.ReadLine());

string NonRepeatingCharacter\_array = "";

Console.WriteLine("Write word: ");

NonRepeatingCharacter\_array = Console.ReadLine();

//for (int i = 0; i < 1; i++)

//{

// NonRepeatingCharacter\_array[i] = Console.ReadLine();

//}

//Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < NonRepeatingCharacter\_array.Length; i++)

{

Console.Write(NonRepeatingCharacter\_array[i]);

}

bool check = true;

for (int i = 0; i < NonRepeatingCharacter\_array.Length; i++)

{

for (int j = 1; j < NonRepeatingCharacter\_array.Length; j++)

{

if (NonRepeatingCharacter\_array[i] == NonRepeatingCharacter\_array[j])

{

check = false;

}

else { check = true; }

}

if (check)

{

Console.WriteLine($"\nFirst Non-Repeating character : {NonRepeatingCharacter\_array[i]}");

break;

}

}

//Question 05

static void SortedArray()

{

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

int n = Convert.ToInt32(Console.ReadLine());

int[] Sorted\_array1 = new int[n];

Console.WriteLine("Write Numbers array: ");

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

{

Sorted\_array1[i] = Convert.ToInt32(Console.ReadLine());

}

//Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < Sorted\_array1.Length; i++)

{

Console.Write(Sorted\_array1[i] + " ");

}

Console.Write("\nEnter size of second array : ");

int m = Convert.ToInt32(Console.ReadLine());

int[] Sorted\_array2 = new int[m];

Console.WriteLine("Write Numbers array: ");

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

{

Sorted\_array2[i] = Convert.ToInt32(Console.ReadLine());

}

//Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < Sorted\_array2.Length; i++)

{

Console.Write(Sorted\_array2[i] + " ");

}

int[] Sorted\_Array = new int[n + m];

int x = 0, y = 0, k = 0;

while (x < n && y < m)

{

if (Sorted\_array1[x] < Sorted\_array2[y])

Sorted\_Array[k++] = Sorted\_array1[x++];

else

Sorted\_Array[k++] = Sorted\_array2[y++];

}

while (x < n)

{

Sorted\_Array[k++] = Sorted\_array1[x++];

}

while (y < m)

{

Sorted\_Array[k++] = Sorted\_array2[y++];

}

Console.WriteLine("\nArray after merging: ");

for (int i = 0; i < Sorted\_Array.Length; i++)

{

Console.Write(Sorted\_Array[i] + " ");

}

}

//Question 06

static void DistinctNumber()

{

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

int n = Convert.ToInt32(Console.ReadLine());

int[] distinct\_Number = new int[n];

Console.WriteLine("Write Numbers array: ");

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

{

distinct\_Number[i] = Convert.ToInt32(Console.ReadLine());

}

//Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < distinct\_Number.Length; i++)

{

Console.Write(distinct\_Number[i] + " ");

}

int sum = 0;

for (int i = 0; i < distinct\_Number.Length; i++)

{

sum += distinct\_Number[i];

}

int formulae = ((n + 1) \* (n + 2)) / 2;

int final\_result = formulae - sum;

Console.WriteLine($"\nDistinct Number: {final\_result}");

}

//Question 07

static void ArmStrongNumber()

{

Console.Write("Enter value of Number : ");

int number = Convert.ToInt32(Console.ReadLine());

int original = number;

int result = 0;

while (original != 0)

{

int remainder = original % 10;

result = result + (remainder \* remainder \* remainder);

original = original / 10;

}

if (result == number)

{

Console.WriteLine("Given Number is ArmStrong Number");

}

else

{

Console.WriteLine("Given Number is not ArmStrong Number");

}

}

//Question 08

static void LongestPrefix()

{

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

int n = Convert.ToInt32(Console.ReadLine());

string[] longest\_prefix = new string[n];

Console.WriteLine("Write string array: ");

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

{

longest\_prefix[i] = Console.ReadLine();

}

//Console.WriteLine("Array before removing duplicate numbers: ");

for (int i = 0; i < longest\_prefix.Length; i++)

{

Console.Write(longest\_prefix[i] + " ");

}

string result = "";

bool check = false;

for (int i = 0; i < longest\_prefix[0].Length; i++)

{

for (int j = 1; j < longest\_prefix.Length; j++)

{

if (longest\_prefix[j][i] == longest\_prefix[0][i])

{

check = true;

//Console.WriteLine($"\nCommon Prefix {longest\_prefix[0]}");

}

else {

check = false;

// Console.WriteLine("No Common Prefix");

}

}

if (check == true)

{

result += longest\_prefix[0][i];

}

}

Console.WriteLine($"\nLongest common prefix : {result}");

}

//QUESTION 09

static void FibonacciSeries()

{

Console.Write("Enter value of terms : ");

int terms = Convert.ToInt32(Console.ReadLine());

int term1 = 0;

int term2 = 1;

int nextTerm = 0;

for (int i = 1; i <= terms; ++i)

{

if (i == 1)

{

Console.Write($"{term1} ,");

continue;

}

if (i == 2)

{

Console.Write($"{term2} ,");

continue;

}

nextTerm = term1 + term2;

term1 = term2;

term2 = nextTerm;

Console.Write($"{nextTerm} ,");

}

}

//Question 10

static void PositiveNegativeNumbers()

{

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

int n = Convert.ToInt32(Console.ReadLine());

int[] positiveNegative = new int[n];

Console.WriteLine("Write string array: ");

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

{

positiveNegative[i] = Convert.ToInt32(Console.ReadLine());

}

//Console.WriteLine("Array before removing duplicate numbers: ");

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

{

Console.Write(positiveNegative[i] + " ");

}

int pcount = 0;

int ncount = 0;

int total = 0;

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

{

total += positiveNegative[i];

if (positiveNegative[i] >= 0)

{

pcount += 1;

}

else

{

ncount += 1;

}

}

double avg = ((double)total) / n;

Console.WriteLine($"\nPositive number count : {pcount} \nNeagative number count : {ncount}");

Console.WriteLine($"Total : {total} \n Average : {avg}");

}

}

static void Main(string[] args)

{

//DeleteDuplicate();

//FirstTwoLargeNumbers();

//MoveZeroToEnd();

//FirstNonRepeatingCharacter();

//SortedArray();

//DistinctNumber();

//ArmStrongNumber();

//LongestPrefix();

//FibonacciSeries();

//PositiveNegativeNumbers();

//Console.WriteLine("Hello World!");

}

}

}