# Exercise 1

using System;

using System.Collections.Generic;

namespace Ex1\_

{

class Program

{

static int InputInt(string s)

{

while (true)

{

try

{

Console.Write(s);

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

return rs;

}

catch (Exception ex)

{

Console.Write("Invalid input, try again! Please input an integer. \n");

}

}

}

static List<int> InputListInt()

{

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

int n = InputInt("Number of element: ");

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

{

int a = InputInt("Element " + i + " : ");

list.Add(a);

}

return list;

}

static void ShowList(List<int> list)

{

Console.Write("\t");

for (int i = 0; i < list.Count; i++)

{

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

}

}

static List<int> SumAdj(List<int> list)

{

List<int> result = new List<int>();

int j = 0;

for (int i = 0; i < list.Count; i++)

{

int temp = list[i];

int index = j;

while (i < list.Count - 1 && temp == list[i + 1])

{

i++;

temp += list[i];

while (j > 0 && temp == result[j - 1])

{

temp += result[j - 1];

j--;

}

}

if (j ==index)

{

if (j == result.Count) result.Add(temp);

else result[index] = temp;

j++;

}

else

{

result[j] = temp;

j++;

}

}

while (j + 1 < result.Count)

{

result.RemoveAt(j + 1);

}

return result;

}

static void Main(string[] args)

{

Console.WriteLine("List: ");

List<int> list = InputListInt();

Console.WriteLine("\n-------------------------------");

Console.WriteLine("Result: ");

ShowList(list);

Console.Write("\t=>");

List<int> result = SumAdj(list);

ShowList(result);

Console.ReadLine();

}

}

}

# Exercise 2

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Ex2\_

{

class Program

{

static int InputInt(string s)

{

while (true)

{

try

{

Console.Write(s);

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

return rs;

}

catch (Exception ex)

{

Console.Write("Invalid input, try again! Please input an integer. \n");

}

}

}

static List<int> InputListInt()

{

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

int n = InputInt("Number of element: ");

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

{

int a = InputInt("Element " + i + " : ");

list.Add(a);

}

return list;

}

static void ShowList(List<int> list)

{

Console.Write("\t");

for (int i = 0; i < list.Count; i++)

{

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

}

}

static List<int> SumFirstLast(List<int> list)

{

List<int> result = new List<int>();

int len = list.Count;

int n = (len + 1) / 2;

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

{

int temp = (list[i]+list[len-i-1]);

result.Add(temp);

}

if (len % 2 != 0)

{

result[n-1] = result[n-1] / 2;

}

return result;

}

static void Main(string[] args)

{

Console.WriteLine("Input list: ");

List<int> list=InputListInt();

List<int> result = SumFirstLast(list);

Console.WriteLine("\n-------------------------------");

Console.WriteLine("Result: ");

ShowList(list);

Console.Write("\t=>");

ShowList(result);

Console.ReadLine();

}

}

}

# Exercise 3

using System;

using System.Collections.Generic;

namespace Ex3\_

{

class Program

{

static int InputInt(string s)

{

while (true)

{

try

{

Console.Write(s);

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

return rs;

}

catch (Exception ex)

{

Console.Write("Invalid input, try again! Please input an integer. \n");

}

}

}

static List<int> InputListInt()

{

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

int n =InputInt("Number of element: ");

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

{

int a = InputInt("Element " + i +" : ");

list.Add(a);

}

return list;

}

static void ShowList(List<int> list)

{

Console.Write("\t");

for(int i = 0; i < list.Count; i++)

{

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

}

}

static List<int> MergeList(List<int> list1, List<int> list2)

{

List<int> result = new List<int>();

if (list1.Count > list2.Count)

{

for (int i = 0; i < list2.Count; i++)

{

result.Add(list1[i]);

result.Add(list2[i]);

}

for (int i = list2.Count; i < list1.Count; i++)

result.Add(list1[i]);

}

else

{

for (int i = 0; i < list1.Count; i++)

{

result.Add(list1[i]);

result.Add(list2[i]);

}

for (int i = list1.Count; i < list2.Count; i++)

result.Add(list2[i]);

}

return result;

}

static void Main(string[] args)

{

List<int> list1, list2, list3;

Console.WriteLine("Input elements of List 1: ");

list1 = InputListInt();

Console.WriteLine("Input elements of List 2: ");

list2 = InputListInt();

Console.WriteLine("\n-------------------------------");

Console.WriteLine("Result: ");

Console.WriteLine("\n\tList 1: ");

ShowList(list1);

Console.WriteLine("\n\tList 2: ");

ShowList(list2);

Console.WriteLine("\n\tResult:");

list3 = MergeList(list1, list2);

ShowList(list3);

Console.ReadLine();

}

}

}