**7 kyu**

**Minimize Sum Of Array (Array Series #1)**

411291% of 30866 of1,413[MrZizoScream](https://www.codewars.com/users/MrZizoScream)

C#

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**Introduction and Warm-up (Highly recommended)**

[**Playing With Lists/Arrays Series**](https://www.codewars.com/collections/playing-with-lists-slash-arrays)

**Task**

***Given*** an ***array of intgers*** , ***Find the minimum sum*** which is obtained *from summing each Two integers product* .

**Notes**

* ***Array/list*** *will contain* ***positives only*** .
* ***Array/list*** *will always has* ***even size***

**Input >> Output Examples**

1- minSum({5,4,2,3}) ==> return (22)

***Explanation***:

* ***The minimum sum*** *obtained from summing each two integers product* , 5\*2 + 3\*4 = 22

2- minSum({12,6,10,26,3,24}) ==> return (342)

***Explanation***:

* ***The minimum sum*** *obtained from summing each two integers product* , 26\*3 + 24\*6 + 12\*10 = 342

3- minSum({9,2,8,7,5,4,0,6}) ==> return (74)

***Explanation***:

* ***The minimum sum*** *obtained from summing each two integers product* , 9\*0 + 8\*2 +7\*4 +6\*5 = 74

[**Playing with Numbers Series**](https://www.codewars.com/collections/playing-with-numbers)

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ALL translations are welcomed

Enjoy Learning !!

**Zizou**

<https://www.codewars.com/kata/5a523566b3bfa84c2e00010b/solutions/csharp>

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace ConsoleApp1

{

class Program

{

static int[] Countsort(int[] arr)

{

int n = arr.Length;

// The output character array that

// will have sorted arr

int[] output = new int[n];

// Create a count array to store

// count of inidividul characters

// and initialize count array as 0

int[] count = new int[arr.Max()+1];

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

count[i] = 0;

// store count of each character

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

++count[arr[i]];

// Change count[i] so that count[i]

// now contains actual position of

// this character in output array

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

count[i] += count[i - 1];

// Build the output character array

// To make it stable we are operating in reverse order.

for (int i = n - 1; i >= 0; i--)

{

output[count[arr[i]] - 1] = arr[i];

--count[arr[i]];

}

// Copy the output array to arr, so

// that arr now contains sorted

// characters

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

arr[i] = output[i];

return output;

}

public static int MinSum(int[] a)

{

if (a.Length == 0) return 0;

a = Countsort(a);

int i = 0;

int j = a.Length - 1;

int sum = 0;

while (i < j)

{

sum += a[i] \* a[j];

i++;

j--;

}

return sum;

}

public static int MinSum(int[] a)

{

Array.Sort(a);

int i = 0;

int j = a.Length - 1;

int sum = 0;

while (i < j)

{

sum += a[i] \* a[j];

i++;

j--;

}

return sum;

}

public static int MinSum(int[] a)

{

int sum = 0;

Array.Sort(a);

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

sum += a[i] \* a[a.Length - 1 - i];

return a.Length % 2 == 0 ? sum : sum + a[a.Length / 2] \* a[a.Length / 2];

}

static void Main(string[] args)

{

Console.WriteLine( MinSum(new int[] { 5, 4, 2, 3 }));

Console.ReadLine();

}

}

}