



Your Minimum Absolute Difference in an Array submission got 15.00 points.

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Minimum Absolute Difference in an Array

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Problem

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Consider an array of integers, $A = a_0, a_1, \dots, a_{n-1}$. We define the **absolute difference** between two elements, a_i and a_j (where $i \neq j$), to be the **absolute value** of $a_i - a_j$.

Given an array of n integers, find and print the minimum absolute difference between any two elements in the array.

Input Format

The first line contains a single integer denoting n (the number of integers).

The second line contains n space-separated integers describing the respective values of a_0, a_1, \dots, a_{n-1} .

Constraints

- $2 \leq n \leq 10^5$
- $-10^9 \leq a_i \leq 10^9$

Output Format

Print the minimum absolute difference between any two elements in the array.

Sample Input 0

```
3
3 -7 0
```

Sample Output 0

```
3
```

Explanation 0

With $n = 3$ integers in our array, we have three possible pairs: $(3, -7)$, $(3, 0)$, and $(-7, 0)$. The absolute values of the differences between these pairs are as follows:

- $|3 - -7| \Rightarrow 10$
- $|3 - 0| \Rightarrow 3$
- $|-7 - 0| \Rightarrow 7$

Notice that if we were to switch the order of the numbers in these pairs, the resulting absolute values would still be the same. The smallest of these possible absolute differences is **3**, so we print **3** as our answer.

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Submissions: 3032

Max Score: 15

Difficulty: Easy

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C#

```
1 using System;
2 using System.Collections.Generic;
3 using System.IO;
4 using System.Linq;
5 class Solution {
6
7     static void Main(String[] args) {
8         int n = Convert.ToInt32(Console.ReadLine());
9         string[] a_temp = Console.ReadLine().Split(' ');
10        int[] a = Array.ConvertAll(a_temp, e => int.Parse(e));
11        // your code goes here
12        Array.Sort(a);
13        int min_dif = int.MaxValue;
14        for (int i = 0; i + 1 < a.Length; i++)
15        {
16            min_dif = Math.Min(min_dif, Math.Abs(a[i] - a[i + 1]));
17        }
18        Console.WriteLine(min_dif);
19    }
20 }
21
```

Line: 18 Col: 40

Upload Code as File

☐ Test against custom input

Run Code

Submit Code

Congrats, you solved this challenge!

✓ Test Case #0

✓ Test Case #1

✓ Test Case #2

✓ Test Case #3

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