Minimum Absolute Difference in an Array ★

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The absolute difference is the positive difference between two values a and b, is written $|a - b|$ or $|b - a|$ and they are equal. If $a = 3$ and $b = 2$, $|3 - 2| = |2 - 3| = 1$. Given an array of integers, find the minimum absolute difference between any two elements in the array.

Example. $arr = [-2, 2, 4]$

There are 3 pairs of numbers: $[-2, 2]$, $[-2, 4]$ and $[2, 4]$. The absolute differences for these pairs are $|(-2) - 2| = 4$, $|(-2) - 4| = 6$ and $|2 - 4| = 2$. The minimum absolute difference is 2.

Function Description

Complete the minimumAbsoluteDifference function in the editor below. It should return an integer that represents the minimum absolute difference between any pair of elements.

minimumAbsoluteDifference has the following parameter(s):

- int arr[n]: an array of integers

Returns

- int: the minimum absolute difference found

Input Format

The first line contains a single integer n, the size of arr.
The second line contains n space-separated integers, $arr[i]$.

Constraints

- $2 \leq n \leq 10^5$
- $-10^9 \leq arr[i] \leq 10^9$

Sample Input 0

```
3
3 -7 0
```

Sample Output 0

```
3
```

Explanation 0

The first line of input is the number of array elements. The array, $arr = [3, -7, 0]$ There are three pairs to test: $(3, -7)$, $(3, 0)$, and $(-7, 0)$. The absolute differences are:

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

Remember that the order of values in the subtraction does not influence the result. The smallest of these absolute differences is 3.

Sample Input 1

```
10
-59 -36 -13 1 -53 -92 -2 -96 -54 75
```

Sample Output 1

```
1
```

Explanation 1

The smallest absolute difference is $|-54 - -53| = 1$.

Sample Input 2

```
5
1 -3 71 68 17
```

Sample Output 2

```
3
```

Explanation 2

The minimum absolute difference is $|71 - 68| = 3$.

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```
using System.CodeDom.Compiler;
using System.Collections.Generic;
using System.Collections;
using System.ComponentModel;
using System.Diagnostics.CodeAnalysis;
using System.Globalization;
using System.IO;
using System.Linq;
using System.Reflection;
using System.Runtime.Serialization;
using System.Text.RegularExpressions;
using System.Text;
using System;

class Result
{

    /*
     * Complete the 'minimumAbsoluteDifference' function below.
     *
     * The function is expected to return an INTEGER.
     * The function accepts INTEGER_ARRAY arr as parameter.
     */

    public static int minimumAbsoluteDifference(List<int> arr)
    {
        var result = int.MaxValue;
```

Line: 61 Col: 1

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