Minimum Absolute Difference in an Array in Algorithm | HackerRank Programming Solutions | HackerRank Problem Solving Solutions in Java [💯Correct]

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Hello **Programmers/Coders,** Today we are going to share **solutions of Programming problems of HackerRank, *Algorithm* Solutions of Problem Solving Section in Java**. At Each Problem with Successful submission with **all Test Cases Passed,** you will get an score or marks. And after solving maximum problems, you will be getting stars. This will highlight your profile to the recruiters.

In this post, you will find the solution for **Minimum Absolute Difference in an Array in Java-HackerRank Problem**. We are providing the **correct and tested solutions** of coding problems present on **HackerRank**. If you are not able to solve any problem, then you can take help from our Blog/website.

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Introduction To Algorithm

The word **Algorithm** means "a process or set of rules to be followed in calculations or other problem-solving operations". Therefore Algorithm refers to a set of rules/instructions that step-by-step define how a work is to be executed upon in order to get the expected results.

Advantages of Algorithms:

- It is easy to understand.
- Algorithm is a step-wise representation of a solution to a given problem.
- In Algorithm the problem is broken down into smaller pieces or steps hence, it is easier for the programmer to convert it into an actual program.

Link for the Problem – Minimum Absolute Difference in an Array – Hacker Rank Solution

Minimum Absolute Difference in an Array – Hacker Rank Solution

Problem:

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 $|71 - 68| = 3$.

Minimum Absolute Difference in an Array – Hacker Rank Solution

```
1.  import java.io.*;
2.  import java.util.*;
3.  import java.text.*;
4.  import java.math.*;
5.  import java.util.regex.*;
6.
7.  public class Solution {
8.
9.      public static void main(String[] args) {
10.         Scanner in = new Scanner(System.in);
11.         int n = in.nextInt();
12.         int[] a = new int[n];
13.         for(int a_i=0; a_i < n; a_i++){
14.             a[a_i] = in.nextInt();
15.         }
16.         Arrays.sort(a);
17.         int min = 2000000000;
```

```
            for (int i = 1; i < n; i++) {
                min = Math.min(Math.abs(a[i]-a[i-1]), min);
            }
            System.out.println(min);
        }
    }
```

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