Minimum Absolute Difference in an Array

Consider an array of integers, $A = a[0], a[1], \ldots, a[n-1]$. 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 integers, find and print the minimum absolute difference between any two elements in the array. For example, given the array $A = [-2, 2, 4]$ we can create 3 pairs of numbers: $[-2, 2]$, $[-2, 4]$ and $[2, 4]$. The differences for these pairs are $|(-2) - 2| = 4$, $|(-2) - 4| = 6$ and $|2 - 4| = 2$. The minimum absolute difference is 2.

Input Format

Complete the function $minimumAbsoluteDifference$ in the editor below. The code stub reads the input at passes it to the function. Inputs are in the following format:

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

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.