DMPG '17 S1 - Molly and Difference

Molly loves subtraction. She also loves non-negative numbers. For her birthday, Molly received an array $A_1, A_2, \ldots, A_N$ of integers. To make up for the fact that you forgot to bring her a present, you decide to tell her the minimum value of d such that $d = |A_i - A_j|$, such that $1 \leq i, j \leq N$.

Subtasks

For all subtasks, $-10^9 \leq A_i \leq 10^9$.

Subtask 1 [40%]

$2 \leq N \leq 1\,000$

Subtask 2 [60%]

$2 \leq N \leq 10^6$

Input Specification

Line 1: An integer, N.
Line 2: N space separated integers, the array $A_1, A_2, \ldots, A_N$.

Output Specification

The minimum value of d.

Sample Input

```
5
21 -10 7 3 18
```

Sample Output

```
3
```