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, $-10^9 \le A_i \le 10^9$.

Subtask 1 [40%]

 $2 \le N \le 1000$

Subtask 2 [60%]

 $2 \le N \le 10^6$

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