

# DMPG '17 S1 - Molly and Difference

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Molly loves subtraction. She also loves non-negative numbers. For her birthday, Molly received an array  $A_1, A_2, \dots, A_N$  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

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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

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Line 1: An integer,  $N$ .

Line 2:  $N$  space separated integers, the array  $A_1, A_2, \dots, A_N$ .

## Output Specification

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The minimum value of  $d$ .

## Sample Input

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

## Sample Output

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```
3
```