

## Codes

1 second, 128MB

You are given a sequence of  $N$  integers ( $3 \leq N \leq 100,000$ ); the integers in the sequence are between 0 and 20,000. You know that a spy has modified the sequence so that it contains a hidden secret integer code for launching an attack against a particular country.

The secret is planted in the sequence in such a way that if you try to find the differences between consecutive numbers (the  $i$ -th and  $(i+1)$ -th numbers) and also the differences between the  $i$ -th and  $(i+2)$ -th integers in the sequence, the secret is the most frequent absolute value that you see.

Consider the following example. If you are given a sequence with 6 integers

10, 5, 2, 100, 7, 0

The differences between consecutive integers are 5, 3, 98, 93, and 7. The differences between the  $i$ -th and  $(i+2)$ -th integers are 8, 95, 5, and 100. The number you see most frequently is 5 so the secret is 5.

If there are more than one most frequent integers, you should answer the smallest.

## Input

The first line contains one integer  $N$ . ( $3 \leq N \leq 100,000$ ). The next  $N$  lines contain the sequence.

## Output

The output contains one line with one integer representing the secret in the sequence.

## Example

| Input                              | Output |
|------------------------------------|--------|
| 6<br>10<br>5<br>2<br>100<br>7<br>0 | 5      |