Problem B- Array Balancing

Define the *balance* of an array of integers to be the difference between its max and min. Given an array of integers, you are to splice it into two nonempty arrays and compute the balance of each. You have found the *ideal splice point* when the largest balance of the two subarrays is minimized.

Put another way, given an array `A[1..N]`, find the ideal splice point `x`, $1 \leq \texttt{x} < N$, such that $\max(\max(\texttt{A[1..x]}) - \min(\texttt{A[1..x]}), \max(\texttt{A[x+1..N]}) - \min(\texttt{A[x+1..N]}))$ is minimized.

Input Specification:

Each line of input presents a single test case: a positive integer $N \leq 400000$, denoting the size of the array, followed by N positive integers, each less than 2 million. If $N = 1$, then this is a signal that the input has ended; this is not a test case and should not be processed.

Output Specification:

For each test case, determine the value of `x`, the ideal splice point. In the case where several ideal splice points exist, report the smallest index.

Sample Input:

```
4 1 2 4 3
8 5 7 7 8 1 4 10 3
1
```

Sample Output:

```
2
5
```