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Minimum Loss

locked

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Problem

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Lauren has a chart of projected prices for a house over the next n years, where the price of the house in the i^{th} year is p_i . She wants to purchase and resell the house at a minimal loss according to the following rules:

- The house cannot be sold at a price greater than or equal to the price it was purchased at (i.e., it must be resold at a loss).
- The house cannot be resold within the same year it was purchased.

Find and print the *minimum* amount of money Lauren must lose if she buys the house and resells it within the next n years.

Note: It's guaranteed that a valid answer exists.

Input Format

The first line contains an integer, n , denoting the number of years of house data.

The second line contains n space-separated long integers describing the respective values of p_1, p_2, \dots, p_n .

Constraints

- $2 \leq n \leq 2 \times 10^5$
- $1 \leq p_i \leq 10^{16}$
- It's guaranteed that a valid answer exists.

Subtasks

- $2 \leq n \leq 1000$ for 50% of the maximum score.

Output Format

Print a single integer denoting the minimum amount of money Lauren must lose if she buys and resells the house within the next n years.

Sample Input 0

```
3
5 10 3
```

Sample Output 0

```
2
```

Explanation 0

Lauren buys the house in year 1 at price $p_1 = 5$ and sells it in year 3 at $p_3 = 3$ for a minimal loss of $5 - 3 = 2$.

Sample Input 1

```
5
20 7 8 2 5
```

Sample Output 1

```
2
```

Explanation 1

Lauren buys the house in year **2** at price $p_2 = 7$ and sells it in year **5** at $p_5 = 5$ for a minimal loss of $7 - 5 = 2$.

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Submissions: 1451

Max Score: 35

Difficulty: Medium

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C#



```
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Text;
5
6 class Solution {
7     static void Main(string[] args)
8     {
9         int n = int.Parse(Console.ReadLine());
10        long[] p = Array.ConvertAll(Console.ReadLine().Split(' '), e => long.Parse(e));
11
12        int[] indices = Enumerable.Range(0, n + 1).ToArray();
13        Array.Sort(p, indices);
14
15
16        long min_dif = int.MaxValue;
17        for (int i = 1; i < n; i++)
18            if (indices[i - 1] > indices[i])
19                min_dif = Math.Min(min_dif, p[i] - p[i - 1]);
20
21        Console.WriteLine(min_dif);
22
23    }
24 }
25
```

Line: 24 Col: 10

 [Upload Code as File](#)☐ Test against custom input[Run Code](#)[Submit Code](#)Testcase 0 Testcase 1 **Congratulations, you passed the sample test case.**Click the [Submit Code](#) button to run your code against all the test cases.**Input (stdin)**

```
3
5 10 3
```

Your Output (stdout)

```
2
```

Expected Output

```
2
```

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