Convex Curve

A curve is said to be *convex* if the line segment between any two points on the graph of the function lies above or on the graph. Well-known examples of convex functions include the quadratic function x^2 and the exponential function e^x for any real number x.

A convex curve can be defined by a sequence of strictly decreasing integer numbers followed by another sequence of strictly increasing integer numbers. Any of them may be empty.

Our purpose is to develop an efficient iterative algorithm that finds the position in which the curve changes from decreasing to increasing.

In addition to coding the solution, you have to specify the algorithm, write the invariant and termination function of your loops and calculate the complexity of your algorithm.

Input

Each curve is described in two lines. The first one contains the number of points that describe the convex curve, while the second contains the y coordinate for each point (with a maximum of 1.000.000 points of type **long long int**).

The input ends when a curve has 0 points (and it must not be processed).

Output

The output of each curve is an independent line saying the position of the minimum and its value.

Sample input

```
5
7 5 3 8 9
8
9 8 7 6 5 4 3 2
1
2
2
3 5
10
34 25 12 10 9 8 7 6 5 9
0
```

Sample output

```
2 3
7 2
0 2
0 3
8 5
```

Notes

This exercise must be understood in the context of the *Data Structures and Algorithms* course, FDI-UCM 2016/2017 (prof. Gonzalo Méndez). Therefore, the only valid solutions are those that use the concepts studied in this course. Additional remarks may be provided in class.