Problem C
Crane Balancing
Time Limit: 1 second

Wherever there is large-scale construction, you will find cranes that do the lifting. One hardly ever thinks about what marvelous examples of engineering cranes are: a structure of (relatively) little weight that can lift much heavier loads. But even the best-built cranes may have a limit on how much weight they can lift.

The Association of Crane Manufacturers (ACM) needs a program to compute the range of weights that a crane can lift. Since cranes are symmetric, ACM engineers have decided to consider only a cross section of each crane, which can be viewed as a polygon resting on the x-axis.

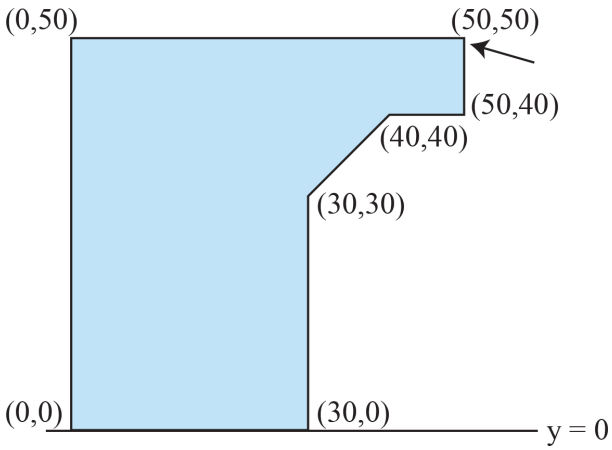


Figure C.1: Crane cross section

Figure C.1 shows a cross section of the crane in the first sample input. Assume that every 1×1 unit of crane cross section weighs 1 kilogram and that the weight to be lifted will be attached at one of the polygon vertices (indicated by the arrow in Figure C.1). Write a program that determines the weight range for which the crane will not topple to the left or to the right.

Input

The input consists of a single test case. The test case starts with a single integer n ($3 \leq n \leq 100$), the number of points of the polygon used to describe the crane's shape. The following n pairs of integers x_i, y_i ($-2\,000 \leq x_i \leq 2\,000, 0 \leq y_i \leq 2\,000$) are the coordinates of the polygon points in order. The weight is attached at the first polygon point and at least two polygon points are lying on the x-axis.

Output

Display the weight range (in kilograms) that can be attached to the crane without the crane toppling over. If the range is $[a, b]$, display $\lfloor a \rfloor$ `..` $\lceil b \rceil$. For example, if the range is $[1.5, 13.3]$, display `1 .. 14`. If the range is $[a, \infty)$, display $\lfloor a \rfloor$ `.. inf`. If the crane cannot carry any weight, display `unstable` instead.

Sample Input 1	Sample Output 1
7 50 50 0 50 0 0 30 0 30 30 40 40 50 40	0 .. 1017

Sample Input 2	Sample Output 2
7 50 50 0 50 0 0 10 0 10 30 20 40 50 40	unstable