Histogram

Time limit: 2 sec.
Memory limit: 512MB

Description

A histogram is a polygon composed of a sequence of rectangles aligned at a common base line. The rectangles have equal widths but may have different heights. For example, the left side of Figure 1 shows the histogram that consists of rectangles with the heights 2, 1, 4, 5, 1, 3, 3, measured in units where 1 is the width of the rectangles.

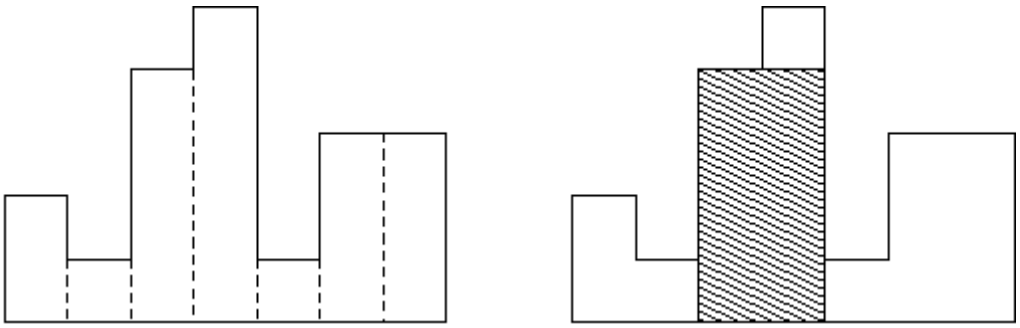

Figure 1) An example of histogram and largest aligned rectangle

Usually, histograms are used to represent discrete distributions, e.g., the frequencies of characters in texts. Note that the order of the rectangles, i.e., their heights, is important. Calculate the area of the largest rectangle in a histogram that is aligned at the common base line, too. The right side of Figure 1 shows the largest aligned rectangle for the depicted histogram.

Input

The first line contains an integer n, the number of rectangles it is composed of. (1 ≤ n ≤ 100,000). The second line contains n integers h1, ..., hn, the heights of the rectangles of the histogram in left-to-right order. (0 ≤ hi ≤ 1,000) The width of each rectangle is 1.

Output

Print the area of the largest rectangle in the specified histogram, in one line. Remember that this rectangle must be aligned at the common base line.

Sample I/O

Input(s)	Output(s)
7 2 1 4 5 1 3 3	8
4 1000 1000 1000 1000	4000