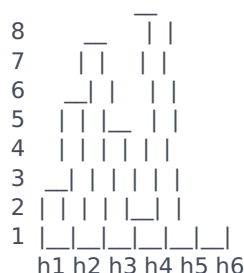


# John and Fences

John's house has bizarre fencing. There are  $N$  fences. Though the contiguous fences have the constant width of 1 unit but their height varies. Height of these fences is represented by array  $H = [h_1, h_2 \dots h_N]$ .

John loves his fences but has to finally bow down to his wife's repeated requests of replacing them with the regular fences. Before taking them down, John wants to keep some part of the fences as souvenir. He decides to carve out the largest rectangular area possible where the largest rectangle can be made of a number of contiguous fence. Note that sides of the rectangle should be parallel to  $X$  and  $Y$  axis.

Let's say there are 6 fences, and their height is,  $H = [2, 5, 7, 4, 1, 8]$ . Then they can be represented as



Some possible carvings are as follow:

- If we carve rectangle from  $h_1$ ,  $h_2$  and  $h_3$  then we can get the max area of  $2 \times 3 = 6$  units.
- If we carve rectangle from  $h_3$ ,  $h_4$ ,  $h_5$  and  $h_6$ , then max area is  $4 \times 1 = 4$  units.
- If we carve rectangle from  $h_2$ ,  $h_3$  and  $h_4$ , then max area is  $4 \times 3 = 12$ , which is also the most optimal solution for this case.

## Input

First line will contain an integer  $N$  denoting the number of fences. It will be followed by a line containing  $N$  space separated integers,  $h_1 h_2 \dots h_N$ , which represents the height of each fence.

## Output

Print the maximum area of rectangle which can be carved out.

## Note

### Constraints

$$1 \leq N \leq 10^5$$

$$1 \leq h_i \leq 10^4$$

## Sample Input

```
6
2 5 7 4 1 8
```

## Sample Output

```
12
```

## Explanation

John can carve a rectangle of height 4 from fence #2, #3 and #4, whose respective heights are 5, 7 and 4.

So this will lead to a rectangle of area  $3 \times 4 = 12$  units.

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