

Sticks

Ivancho has had a strange dream last night. He dreamt being in a square sandbox where there were sticks lying on the ground. Each one of them is either perpendicular or parallel to another stick. Some of them form rectangles which we can call frames. Each one of them is parallel to a wall of the sandbox.

Ivancho wants to know what the dream means. So he is trying to find the largest area of a rectangle formed by a frame but there are just too many sticks for him to calculate without a computer. Now he is turning towards you to help him by writing a program called **sticks**, which by a given sandbox size and positions of the sticks tells the size of the area that Ivancho is looking for.

Input: The first row of the input file **sticks.in** contains a number **N** – the size of the sandbox. On the following rows contain an **N x N** matrix consisting of either 1 or 0. 1 stands for having a stick and 0 for absence of one.

Remark: Reading from a file and writing to a file can be done by using the appropriate statement. You can use the `freopen` statement after including the `fstream` library and then add the following two lines at the beginning of your main function:

```
freopen ("sticks.in", "r", stdin);  
freopen ("sticks.out", "w" , stdout);
```

Output: The output file **sticks.out** should contain exactly one number – the largest area of a rectangle formed by a frame.

Limits:

$5 \leq N \leq 50$

Time limit: 0.3 sec

Memory limit: 256 MB

Preliminary tests: 4

Final tests: 10

Sample test:

| sticks.in | sticks.out |
|--|-------------------|
| 5 1 1 1 0 0 1 1 1 1 1 1 1 1 0 1 0 1 0 0 1 0 1 1 1 1 | 9 |

Explanation:

If the matrix is 0-indexed, the biggest frame will have a top left corner (1,1) and a bottom right one – (4,4). The area of the rectangle formed by the frame is $3 \times 3 = 9$ because the 1s only show the positions of the sticks (the borders).