4867 - Maximum Square

North America - Southeast - 2010/2011

Given an N x M matrix of all `1`s and `0`s, find the largest submatrix which is a square containing all `1`s.

Input

There will be several test cases in the input. Each test case will begin with two integers, N and M ($1 \leq N, M \leq 1,000$) indicating the number of rows and columns of the matrix. The next N lines will each contain M space-separated integers, guaranteed to be either `0` or `1`. The input will end with a line with two `0`s.

Output

For each test case, print a single integer, indicating the width (and height) of the largest square of all `1`s, or `0` if there are no `1`s. Print no extra spaces, and do not print any blank lines between answers.

Sample Input

```
4 5
0 1 0 1 1
1 1 1 1 1
0 1 1 1 0
1 1 1 1 1
3 4
1 1 1 1
1 1 1 1
1 1 1 1
6 6
0 0 0 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
0 0
```

Sample Output

```
3
3
0
```

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