House Renovation

Mouse Stofl is in charge of renovating a house. Wanting to have as little effort as possible, he only considers the front wall of the house. Some parts of the wall have holes, and he can either fix those (which is quite dull and tedious) or just tear everything out and make a window out of it (which is quick and is quite fun). It is clearly in the best interest of his customer to have as many windows as possible!

More formally, the front wall is an $n \times m$ grid of 1×1 rectangles and each rectangle is initially either intact or holey. Mouse Stofl can convert an intact 1×1 rectangle to a solid wall, and a holey 1×1 rectangle either to a solid wall or a window. The goal is to have as many windows as possible.

Unfortunately, there's one catch. The structural engineer has told mouse Stofl that he cannot build windows everywhere. Each window needs to have a support beam on both sides. A support beam is a column consisting only of solid wall segments.

Input

The first line of the input contains the integers n and m, the height and the width of the front wall.

Then, n lines follow. Each line contains m integers separated by spaces, each of which is either 0 (holey) or 1 (intact).

Output

Output a single line with a single integer: the maximum area of windows you can put in the front wall according to the rules above.

Limits

There are two test groups.

- The first test group is worth 25 points. $1 \leq n, m \leq 15$
- The second group is worth 75 points. $1 \leq n, m \leq 10^6$ and $n \times m \leq 10^6$

Examples

Input	Output
3 5 1 0 1 0 0 0 1 1 1 0 1 0 0 1 1	3

Building windows in the second and fourth columns gives us 3 windows, which is optimal.

Input	Output
3 2 0 1 0 1 1 1	0

You cannot build any windows, because you could not build support beams on both sides.

Input	Output
2 5 0 0 0 0 1 1 0 0 0 1	4

It is optimal to build support beams in the first, third and fifth columns, and put windows in the second and fourth column.