

B. Square Filling

time limit per test: 1 second
 memory limit per test: 256 megabytes
 input: standard input
 output: standard output

You are given two matrices A and B . Each matrix contains exactly n rows and m columns. Each element of A is either 0 or 1; each element of B is initially 0.

You may perform some operations with matrix B . During each operation, you choose any submatrix of B having size 2×2 , and replace every element in the chosen submatrix with 1. In other words, you choose two integers x and y such that $1 \leq x < n$ and $1 \leq y < m$, and then set $B_{x,y}$, $B_{x,y+1}$, $B_{x+1,y}$ and $B_{x+1,y+1}$ to 1.

Your goal is to make matrix B equal to matrix A . Two matrices A and B are equal if and only if every element of matrix A is equal to the corresponding element of matrix B .

Is it possible to make these matrices equal? If it is, you have to come up with a sequence of operations that makes B equal to A . Note that you don't have to minimize the number of operations.

Input

The first line contains two integers n and m ($2 \leq n, m \leq 50$).

Then n lines follow, each containing m integers. The j -th integer in the i -th line is $A_{i,j}$. Each integer is either 0 or 1.

Output

If it is impossible to make B equal to A , print one integer -1 .

Otherwise, print any sequence of operations that transforms B into A in the following format: the first line should contain one integer k — the number of operations, and then k lines should follow, each line containing two integers x and y for the corresponding operation (set $B_{x,y}$, $B_{x,y+1}$, $B_{x+1,y}$ and $B_{x+1,y+1}$ to 1). The condition $0 \leq k \leq 2500$ should hold.

Examples

input	Copy
<pre>3 3 1 1 1 1 1 1 0 1 1</pre>	
output	Copy
<pre>3 1 1 1 2 2 2</pre>	

input	Copy
<pre>3 3 1 0 1 1 0 1 0 0 0</pre>	
output	Copy
<pre>-1</pre>	

input	Copy
<pre>3 2 0 0 0 0 0 0</pre>	
output	Copy

Educational Codeforces Round 71 (Rated for Div. 2)

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++11 5.1.0

Choose file: 未选择任何文件





Submit

→ Problem tags

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No tag edit access

→ Contest materials

- Announcement #1 (en) 
- Announcement #2 (ru) 
- Tutorial #1 (en) 
- Tutorial #2 (en) 

Note

The sequence of operations in the first example:

$$\begin{array}{ccccccc} 0 & 0 & 0 & & 1 & 1 & 0 & & 1 & 1 & 1 & & 1 & 1 & 1 \\ 0 & 0 & 0 & \rightarrow & 1 & 1 & 0 & \rightarrow & 1 & 1 & 1 & \rightarrow & 1 & 1 & 1 \\ 0 & 0 & 0 & & 0 & 0 & 0 & & 0 & 0 & 0 & & 0 & 1 & 1 \end{array}$$

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