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 $1 \le x < n$ and $1 \le y < m$, 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 ($2 \le n, m \le 50$).

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 $0 \le k \le 2500$ should hold.

Examples

input Copy

```
3 3
1 1 1
1 1 1
0 1 1
```

output Copy

```
3
1 1
1 2
2 2
```

input Copy

```
3 3
1 0 1
1 0 1
0 0 0
```

output Copy

```
-1
```

input Copy

```
3 2
0 0
0 0
0 0
```

output Copy

```
0
```

- Tutorial #3 (ru)

Note

The sequence of operations in the first example:

$$\begin{matrix}0&0&0\\0&0&0\\0&0&0\end{matrix}\rightarrow\begin{matrix}1&1&0\\1&1&0\\0&0&0\end{matrix}\rightarrow\begin{matrix}1&1&1\\1&1&1\\0&0&0\end{matrix}\rightarrow\begin{matrix}1&1&1\\1&1&1\\0&1&1\end{matrix}$$