Problem D
Awkward Lights

Input: D.in
Time Limit: 60 seconds

You are working as a night watchman in an office building. Your task is to check whether all the lights in the building are turned off after all the office workers in the building have left the office. If there are lights that are turned on, you must turn off those lights. This task is not as easy as it sounds to be because of the strange behavior of the lighting system of the building as described below. Although an electrical engineer checked the lighting system carefully, he could not determine the cause of this behavior. So you have no option but to continue to rely on this system for the time being.

Each floor in the building consists of a grid of square rooms. Every room is equipped with one light and one toggle switch. A toggle switch has two positions but they do not mean fixed ON/OFF. When the position of the toggle switch of a room is changed to the other position, in addition to that room, the ON/OFF states of the lights of the rooms at a certain Manhattan distance from that room are reversed. The Manhattan distance between the room at (x_1, y_1) of a grid of rooms and the room at (x_2, y_2) is given by $|x_1 - x_2| + |y_1 - y_2|$. For example, if the position of the toggle switch of the room at $(2, 2)$ of a 4×4 grid of rooms is changed and the given Manhattan distance is two, the ON/OFF states of the lights of the rooms at $(1, 1)$, $(1, 3)$, $(2, 4)$, $(3, 1)$, $(3, 3)$, and $(4, 2)$ as well as at $(2, 2)$ are reversed as shown in Figure D.1, where black and white squares represent the ON/OFF states of the lights.

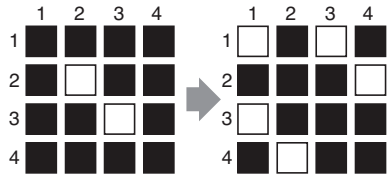


Figure D.1: An example behavior of the lighting system

Your mission is to write a program that answer whether all the lights on a floor can be turned off.

Input

The input is a sequence of datasets. Each dataset is formatted as follows.

$$
\begin{array}{llllll}
m & n & d & & & \\
S_{11} & S_{12} & S_{13} & \ldots & S_{1m} \\
S_{21} & S_{22} & S_{23} & \ldots & S_{2m} \\
\ldots & & & & \\
S_{n1} & S_{n2} & S_{n3} & \ldots & S_{nm}
\end{array}
$$

The first line of a dataset contains three integers. m and n ($1 \leq m \leq 25$, $1 \leq n \leq 25$) are the numbers of columns and rows of the grid, respectively. d ($1 \leq d \leq m + n$) indicates the Manhattan distance. Subsequent n lines of m integers are the initial ON/OFF states. Each S_{ij} ($1 \leq i \leq n$, $1 \leq j \leq m$) indicates the initial ON/OFF state of the light of the room at (i, j): '0' for OFF and '1' for ON.

The end of the input is indicated by a line containing three zeros.

Output

For each dataset, output '1' if all the lights can be turned off. If not, output '0'. In either case, print it in one line for each input dataset.

Sample Input

```
1 1 1
1
2 2 1
1 1
1 1
3 2 1
1 0 1
0 1 0
3 3 1
1 0 1
0 1 0
1 0 1
4 4 2
1 1 0 1
0 0 0 1
1 0 1 1
1 0 0 0
5 5 1
1 1 1 0 1
0 1 0 1 0
1 0 1 0 1
```

```
0 1 0 1 0
1 0 1 0 1
5 5 2
0 0 0 0 0
0 0 0 0 0
0 0 1 0 0
0 0 0 0 0
0 0 0 0 0
11 11 3
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 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 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
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
11 11 3
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 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 1 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 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0
13 13 7
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 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 0 0
0 0 0 0 0 0 1 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 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 0 0 0 0 0 0 0 0
0 0 0
```

Output for the Sample Input

```
1
1
0
1
0
0
1
1
0
1
```