



# 北京大学

## PEKING UNIVERSITY

### JUDGE ONLINE FOR ACM/ICPC



Online Judge	Problem Set	Authors	Online Contests	User
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## Chessboard

Time Limit: 2000MS

Memory Limit: 65536K

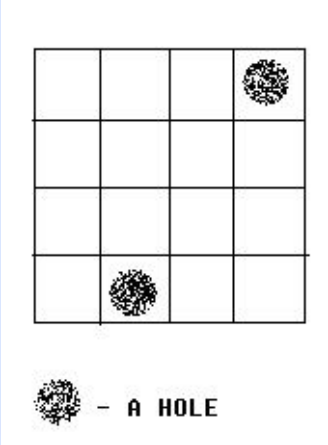
Total Submissions: 20961

Accepted: 6565

Language: Default

### Description

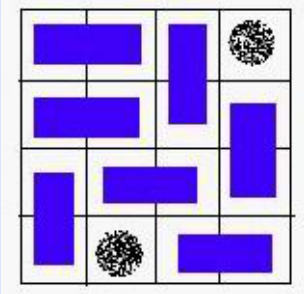
Alice and Bob often play games on chessboard. One day, Alice draws a board with size  $M * N$ . She wants Bob to use a lot of cards with size  $1 * 2$  to cover the board. However, she thinks it too easy to bob, so she makes some holes on the board (as shown in the figure below).



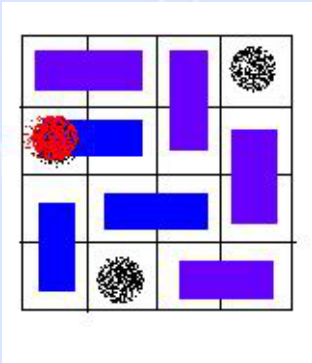
We call a grid, which doesn't contain a hole, a normal grid. Bob has to follow the rules below:

- Any normal grid should be covered with exactly one card.
- One card should cover exactly 2 normal adjacent grids.

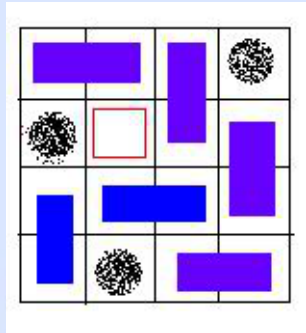
Some examples are given in the figures below:



A VALID solution.



An invalid solution, because the hole of red color is covered with a card.



An invalid solution, because there exists a grid, which is not covered.

Your task is to help Bob to decide whether or not the chessboard can be covered according to the rules above.

Input

There are 3 integers in the first line:  $m, n, k$  ( $0 < m, n \leq 32, 0 \leq k < m * n$ ), the number of rows, column and holes. In the next  $k$  lines, there is a pair of integers  $(x, y)$  in each line, which represents a hole in the  $y$ -th row, the  $x$ -th column.

Output

If the board can be covered, output "YES". Otherwise, output "NO".

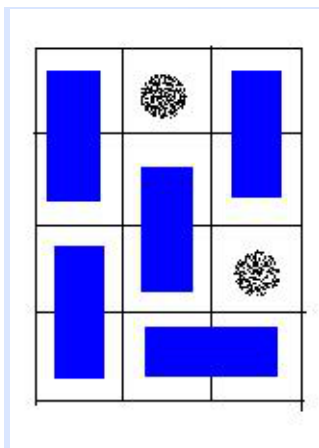
Sample Input

```
4 3 2
2 1
3 3
```

Sample Output

YES

Hint



A possible solution for the sample input.

## Source

POJ Monthly,charlescwp

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