

Merge the Rectangles

Input file: `standard input`
Output file: `standard output`
Time limit: 2 seconds
Memory limit: 512 megabytes

There is a rectangular grid with n rows and m columns, where some edges inside the grid have been removed. This table satisfies the property that every closed shape inside it is a rectangle, and there are no additional edges inside each rectangle, as shown in the following figure.



You can perform the following operation: select two rectangles that, when combined, will form another rectangle (meaning the bottom side of one rectangle is the same as the top side of the other, or the right side of one rectangle is the same as the left side of the other), and merge them into a single rectangle (meaning the overlapping side between them is removed).

Can you perform a sequence of operations such that only one rectangle with height n and width m remains, meaning there are no more edges inside the whole grid?

Input

The first line contains two integer, n, m ($3 \leq n, m \leq 1500$), denoting the size of the rectangular gris.

The $n - 1$ lines follow, each containing a binary string of length m . The j -th character of the i -th line represents whether there exists an edge between the cell in row i , column j and the cell in row $i + 1$, column j (0 for no, 1 for yes).

The n lines follow, each containing a binary string of length $m - 1$. The j -th character of the i -th line represents whether there exists an edge between the cell in row i , column j and the cell in row i , column $j + 1$ (0 for no, 1 for yes).

Output

If there exists a sequence of operations such that only one rectangle with height n and width m remains, output “YES” (without the quotes) in a line, otherwise, output “NO” (without the quotes) in a line.

Examples

standard input	standard output
3 4 0000 0111 101 101 110	YES
3 3 110 011 01 11 10	NO