UESTC 2016 Summer Training #4 Div.2

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C - (๑´Д`ก)

Time Limit:2000MS **Memory Limit:**262144KB **64bit IO Format:**%I64d & %I64u

Submit Status

Description

standard input/output
Announcement
Statements

Vitaly works at the warehouse. The warehouse can be represented as a grid of $n \times m$ cells, each of which either is free or is occupied by a container. From every free cell it's possible to reach every other free cell by moving only through the cells sharing a side. Besides that, there are two robots in the warehouse. The robots are located in different free cells.

Vitaly wants to swap the robots. Robots can move only through free cells sharing a side, moreover, they can't be in the same cell at the same time or move through each other. Find out if the swap can be done.

Input

The first line contains two positive integers n and m $(2 \le n \cdot m \le 200000)$ — the sizes of the warehouse.

Each of the next n lines contains m characters. The j-th character of the i-th line is «.» if the corresponding cell is free, «#» if there is a container on it, «1» if it's occupied by the first robot, and «2» if it's occupied by the second robot. The characters «1» and «2» appear exactly once in these lines.

Output

Output «YES» (without quotes) if the robots can be swapped, and «NO» (without quotes) if that can't be done.

Sample Input

Input

```
5 3

###

#1#

#.#

#2#
```

###
Output
NO

Input
3 5 #...# #1.2# #####
Output
YES