A board solitaire game   P74425_en
Vint-i-dosè Concurs de Programació de la UPC - Semifinal (2024-06-27)

You have an $n \times m$ board. Some positions have objects that, when pressed, start moving in the direction painted on them, until they leave the board. The painted directions are '>' for rightwards, '<' for leftwards, '^' for upwards and 'v' for downwards. Note, you are only allowed to press an object if its path is currently free from other objects. The goal of the game is to empty the board. Can you win?

Input

Input consists of several cases, each with n and m, followed by n lines with m characters each. Periods indicate empty cells. Assume that both n and m are between 1 and 100, and that there is at least one object on the board.

Output

Print a line for each case. If there is no solution, print "NO". Otherwise, print "YES" followed by all the positions of the objects (row and column, the upper left position is (1, 1)), in the order that they should be pressed. If there is more than one solution, you can print any one. Follow strictly the format of the sample output.

Sample input

```
1 4
>>>>

3 3
>.v
...
^.<

2 3
^.>
.<v

2 3
^.>
.<v

2 4
<^>^
>>v<
```

Sample output

```
YES 1 4 1 3 1 2 1 1
NO
YES 1 1 1 3 2 2 2 3
YES 2 3 1 3 2 2 1 1
NO
```

Problem information

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