

Problem A. Labyrinth

Time Limit 1000 ms
Mem Limit 524288 kB

You are given a map of a labyrinth, and your task is to find a path from start to end. You can walk left, right, up and down.

Input

The first input line has two integers n and m : the height and width of the map.

Then there are n lines of m characters describing the labyrinth. Each character is `.` (floor), `#` (wall), `A` (start), or `B` (end). There is exactly one `A` and one `B` in the input.

Output

First print "YES", if there is a path, and "NO" otherwise.

If there is a path, print the length of the shortest such path and its description as a string consisting of characters `L` (left), `R` (right), `U` (up), and `D` (down). You can print any valid solution.

Constraints

- $1 \leq n, m \leq 1000$

Example

Input	Output
5 8 ##### #.A#...# #...#B# #.....# #####	YES 9 LDDRRRRRU