Castle on the Grid



You are given a grid with both sides equal to N. Rows and columns are numbered from 0 to N-1. There is a *castle* on the intersection of the a^{th} row and the b^{th} column.

Your task is to calculate the minimum number of steps it would take to move the *castle* from its initial position to the goal position (c, d).

It is guaranteed that it is possible to reach the goal position from the initial position.

Note: You can move the *castle* from cell (a,b) to any (x,y) in a single step if there is a straight horizontal line or a straight vertical line between (a,b) and (x,y) that does not contain any forbidden cell. Here, "X" denotes a forbidden cell.

Input Format

The first line contains an integer N, the size of the grid.

The following N lines contains a string of length N that consists of one of the following characters: "X" or ".". Here, "X" denotes a forbidden cell, and "." denotes an allowed cell.

The last line contains a, b, denoting the initial position of the castle, and c, d, denoting the goal position. Here, a, b, c, and d are space separated.

Constraints

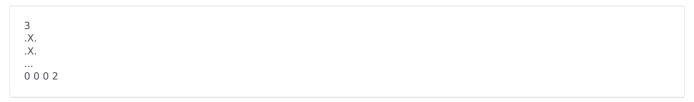
$$1 \le N \le 100$$

 $0 \le a, b, c, d < N$

Output Format

Output a single line: The integer denoting the minimum number of steps required to move the castle to the goal position.

Sample Input



Sample Output

3

Explanation

Here is a path that one could follow in order to reach the destination in 3 steps:

$$(0,0)->(2,0)->(2,2)->(0,2)$$
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