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Hamiltonian Paths

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Hamiltonian Paths

0.0/2.0 points (graded)

Input file:	hamiltonian.in
Output file:	hamiltonian.out
Time limit:	10 seconds
Memory limit:	256 megabytes

You are given a small unweighted directed graph. For every ordered pair of distinct vertices (A, B), check whether there is a Hamiltonian path from A to B. If there is such path, output it.

Input

The first line of the input file contains N ($2 \leq N \leq 25$), the number of vertices in the graph.

The following N lines contain strings of length N . Every string consists of characters "0" and "1". If i -th of these lines contains "1" at the position j , it means that there is an edge from vertex i to vertex j . If this character is "0", then there is no edge from i to j .

Output

If there are no Hamiltonian paths at all, print "No paths".

Otherwise, for each pair of vertices (A, B), $A \neq B$, such that a Hamiltonian path from A to B exists, print the path itself on its own line. The path must contain exactly N different vertices, separated by: a whitespace, a minus sign, a greater-than sign, a whitespace – which together constitute an arrow (" -> "). Kindly refer to the first example test for how it looks like.

The order of the paths does not matter. For every pair (A, B), only one path should be printed, even if there is more than one path from A to B.

Examples

hamiltonian.in	hamiltonian.out
3	1 -> 3 -> 2
111	2 -> 3 -> 1
001	1 -> 2 -> 3
110	3 -> 1 -> 2
2	No paths
00	
00	

No file chosen

Runtime error, test #9

You have used 6 of 200 attempts

Discussion

Topic: 08: 4th Week Problems / Hamiltonian Paths

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