Check the basic properties of a graph

Cost: 6 | Solved: 104

Memory limit: 256 MBs

Time limit: 1 s

Input: input.txt

Output: output.txt

Task:

You are given a graph.

Check if the graph is:

directed: at least one of its edges has a direction;

weighted: at least one of its edges has a number determining the cost of going from one vertex to another (in this task let this number be equal to anything but 0 and 1);

transitive: a graph is transitive if it's always true that if vertexes **a** and **b**, **b** and **c** are connected, then **a** and **c** are connected as well;

complete: any pair of vertexes has an edge connecting them.

Input:

The first line contains a natural ***n*** ($1 \le n \le 100$) **–** the quantity of the graph's vertexes.

The next ***n*** lines contain ***n*** numbers **–** the adjacency matrix of the graph.

Output:

Four numbers, only one number per line, each is equal to either 1 (if a property is followed) or -1 (if a property is not followed).

*The first line should refer to graph being **directed**, the second – **weighted***, the third **– *transitive***, the fourth **– *complete***.

Example:

Input	Output
3 0 1 1 1 0 1 1 1 0	-1 -1 1 1