Verifying N-Queens

ZPRAC-16-17-Lab7

[40 Points]
Verifying N-Queens

ANNOUNCEMENT: Up to 20% marks will be allotted for good programming practice. These include
- Comments for non trivial code
- Indentation: align your code properly
- Modularity of code (using functions)

You are given a version of the famous nQueens problem.
Given an integer N, you have a chess board of size NxN
and k (k<=N) queens on the board.

(A queen can move across a chess board horizontally, vertically
and diagonally by any number of steps)

Two queens can hit each other if one of them can move to the
other's position in one move.

A board is valid if no queen can hit another. Your job is to
figure out if a given board is valid or not.

Input

An integer N and k, followed by k lines each containing x y,
which is the position of the queen on the board.

Output

VALID if the board is valid, INVALID, otherwise

Constraints
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0 < N < 100
0 < k < N

Example

Input:
3 2
0 0
2 1

Output:
VALID

Input:
4 2
0 0
2 2

Output:
INVALID