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Solution for Problem O373

We observe that any $(n-1)\times(n-1)$ square in a $n\times n$ always contains the central $(n-2)\times(n-2)$ square,that is the square which remains if we delete all those 1×1 squares whose sides are part of the perimeter of the $n\times n$ square.

Thus,whenever we increase the entries of a $(n-1)\times(n-1)$ square by ± 1,all the entries in the central square always remain the same because the initial entries were all equal (to 0).

If we want all numbers from 1 to n^2 in the $n\times n$ square,then at least in the final stage the entries in the $(n-2)\times(n-2)$ square should be different from each other.

But,as shown above,that's not possible.

Thus,it's impossible to obtain all numbers from 1 to n^2 in the $n\times n$ square after a finite number of operations.