

Place the Numbers I

Little Chucha is having a lot of fun with her new computer game. She is given a $N \times N$ board which she has to fill with the numbers 1 to N^2 , no repetitions allowed. The computer calculates the sum of distances for each pair of consecutive numbers, that is, 1 \rightarrow 2, 2 \rightarrow 3, ..., $N^2 \rightarrow$ 1. The goal is to make that sum as short as possible.

Input

Input consists of a single integer number $1 \leq N \leq 100$, the size of the board.

Output

Output one possible placing of the numbers. You are to write N lines, N space separated integers each.

Example

Input:

3

Output:

1 2 3

4 5 6

7 8 9

Score:

Score for the example is:

Distance 1 \rightarrow 2 : 1

Distance 2 \rightarrow 3 : 1

Distance 3 \rightarrow 4 : 3

Distance 4 \rightarrow 5 : 1

Distance 5 \rightarrow 6 : 1

Distance 6 \rightarrow 7 : 3

Distance 7 \rightarrow 8 : 1

Distance 8 \rightarrow 9 : 1

Distance 9 \rightarrow 1 : 4

Sum of distances (SOD): 16, Min SOD: 10, Score: $1+16-10=7$ points.