Problem A. Knight's Tour

Time limit 1000 ms
Mem limit 524288 kB

Given a starting position of a knight on an 8×8 chessboard, your task is to find a sequence of moves such that it visits every square exactly once.

On each move, the knight may either move two steps horizontally and one step vertically, or one step horizontally and two steps vertically.

Input

The only line has two integers x and y: the knight's starting position.

Output

Print a grid that shows how the knight moves (according to the example). You can print any valid solution.

Constraints

- $1 \leq x, y \leq 8$

Example

Input	Output
2 1	8 1 10 13 6 3 20 17 11 14 7 2 19 16 23 4 26 9 12 15 24 5 18 21 49 58 25 28 51 22 33 30 40 27 50 59 32 29 52 35 57 48 41 44 37 34 31 62 42 39 46 55 60 63 36 53 47 56 43 38 45 54 61 64