UIT-ALGOBOOTCAMP

BALL GAME

BALL GAME (1s, 512M)

You are commissioned to write a new mobile game of balls. The game is designed to be played on an infinite grid each cell in the grid is addressed with Cartesian coordinate system. When the game load, a bunch of balls will appear on the grid, each cell contains at most one ball. Then the player is given the integer k with the gold to take all the balls of the grid by doing the following:

First, they will poke k holes in the grid, one hole puncture one cell. They can poke holes in cells already contin balls, which make the balls fall of the grid immediately. If there are balls still on the grid after that, players can move a ball into its adjacency cells. there are four adjacency cells to each cell. Balls can move into empty cell or cell with hole, push ball into cell with hole make it falls off the grid.

The goal is to push all the balls of the grid in as few moves as possible.

INPUT

The firs line contains two integer n and k ($2 \le n \le 12$)

n lines that follow, each contains two integer, the coordinate for one ball, each coordinate shall not exceed 1 million units.

OUTPUT

The minimum number of moves required to push all balls off the grid

EXAMPLE

INPUT	OUTPUT
5 1 0 0 0 4 4 0	16

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2 2

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C++ (1s, 500MB)

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