

AI Robot Optimized Path Challenge

Problem ID: a

You are part of a development team building software for an AI-powered robot. The robot must navigate through a 100×100 grid, starting at point (x_1, y_1) and moving to (x_2, y_2) using an optimized path. The robot can move in eight directions: up, down, left, right, and diagonally (up-right, up-left, down-right, down-left). The objective is to determine the number of steps the robot took and the total energy used to reach the destination.

At each step, the robot evaluates both horizontal (x-axis) and vertical (y-axis) differences between its current position and the target. If both horizontal and vertical differences are non-zero, the robot can choose to move diagonally to minimize both differences simultaneously. If either horizontal or vertical difference is zero, the robot moves in the direction that reduces the remaining distance the most (up, down, left, or right).

Moving horizontally or vertically costs 1 energy, while moving diagonally costs 2 energy. Both types of movement take 1 step. This process is repeated until the robot reaches the target intersection.

Input

The input consists of a single line containing four integers: x_1, y_1, x_2 , and y_2 where $1 \leq x_1, y_1, x_2, y_2 \leq 100$. These integers represent the starting coordinates (x_1, y_1) and the target coordinates (x_2, y_2) on the grid.

Output

The output should contain a single line displaying both the total number of steps and the total energy consumed in the format "X Y", where X is the number of steps and Y is the energy consumed.

Sample Input 1

2 2 5 4

Sample Output 1

3 5
