

leftward. In such case, moving downward has higher priority than moving leftward. If G, in such case, is unable to move downward due to some other blocks, then its direction changes leftward. While block G is moving left-downward its upper-left corner point (or its lower-right corner point) may hit another block's corner points as shown in Figure J.2 (Note that block F and block C hit block G at their corner points during the first phase movement.) In such case, block G continues moving in the same direction since it has not been blocked by the corner points.

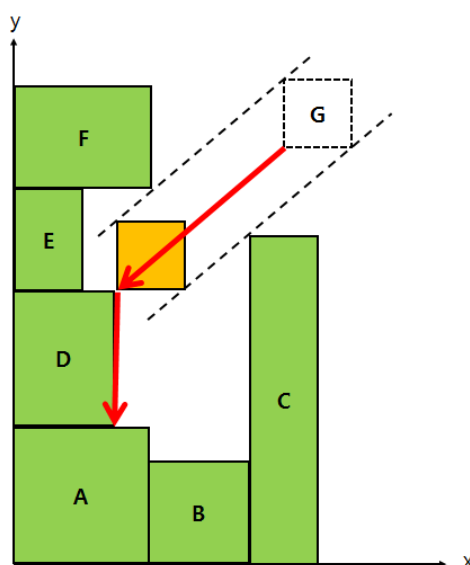


Figure J.2

The movement rules can be summarized as follows:

1. Each block begins move at the given location along the given direction. The direction is always left-downward.
2. A moving block changes its direction when it is blocked either by the x-axis, by the y-axis, or by another block.
3. The moving block keeps moving by changing directions until it can no longer move.

For each block, following information is given as shown in <Fig. 3>.

1. The width and height w , h of the block.
2. The starting location (x, y) at which the block begins move.
3. $(\Delta x, \Delta y)$ to indicate the direction of the first movement (see the red line in Figure J.3). Each block begins move from location (x, y) toward $(x - \Delta x, y - \Delta y)$.

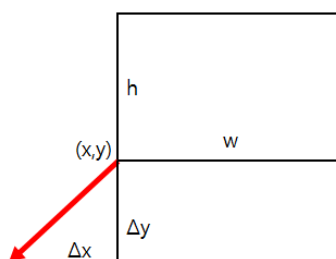


Figure J.3

Given information on n rectangular blocks, write a program which finds the location of the last block after moving every block one by one according to the movement rules.

You may assume that the i^{th} ($2 \leq i \leq n$) block at its the starting location is overlapped with none of the previous blocks (i.e., blocks of indices between 1 and $(i - 1)$) and that some block may not move at the very starting location since it is blocked by other blocks.

Input

Your program is to read from standard input. The input starts with a line containing an integer, n ($1 \leq n \leq 1,000$), where n is the number of blocks. Each of the following n line contains information on each block. Each block information consists of 6 integers. The first two integers w, h ($1 \leq w, h \leq 100,000$) indicate the size of it. Next two integers (x, y) ($0 \leq x, y \leq 10^8$) indicate the starting location of it. Next two integers $(\Delta x, \Delta y)$ ($1 \leq \Delta x, \Delta y \leq 10^5$) represent the direction for the first movement as explained above.

Output

Your program is to write to standard output. Print exactly one line which contains two integers x and y , where (x, y) is the location of the last block after moving every block one by one according to the movement rules.

The following shows sample input and output for two test cases. (Note that the first sample corresponds to Figure J.1 and the second to Figure J.2)

Sample Input 1	Output for the Sample Input 1
<pre> 8 12 2 100 100 1 1 3 5 100 1 1 1 5 8 100 1 1 1 2 4 0 100 1 1 6 3 0 100 1 1 13 2 1 100 100 1 15 2 1 100 100 1 2 3 18 10 1 1 </pre>	<pre> 2 2 </pre>
Sample Input 2	Output for the Sample Input 2
<pre> 7 4 4 1000 1 1 1 3 3 1000 1 1 1 2 10 1000 1 1 1 3 4 1 100 1 1 2 3 0 100 1 1 4 3 0 100 1 1 2 2 10 15 1 1 </pre>	<pre> 3 4 </pre>