

# Exhibition Hall

Input file: `stdin`  
Output file: `stdout`  
Time limit: 6 seconds  
Memory limit: 256 megabytes

King of Lemuria Julian XCIX is very proud of his collection of paintings by famous abstract artists. These paintings covered every inch of one wall in his former palace. When Julian moved to the new palace, he ordered to move this collection too. Paintings were removed from the wall, carefully packed and transported to the new palace where the wall of exactly the same size was prepared for them.

And now there is a problem — to hang paintings on the wall. The wall is rectangular, with height  $H$  inches and width  $W$  inches. Every painting is rectangular too. Paintings should cover the whole wall and should not overlap.

Your task is to find locations for all paintings. Nobody knows what side of painting is top or bottom, left or right, so you should not care about orientation. Just print coordinates of left bottom and right top corners of every painting.

## Input

First line of the input contains one integer — number of paintings  $N$  ( $1 \leq N \leq 11$ ).

In the second line there are two integers  $W$  and  $H$  — dimensions of the wall ( $1 \leq W, H \leq 10^6$ ).

$N$  following lines contain pairs of integers  $a_i$  and  $b_i$  that give size of each painting ( $1 \leq a_i, b_i \leq 10^6$ ).

## Output

Print  $N$  lines. Each line should contain four space-separated integers: the coordinates of bottom left corner  $x_1, y_1$  and the coordinates of top right corner  $x_2, y_2$  that give the location of some painting ( $0 \leq x_1 < x_2 \leq W, 0 \leq y_1 < y_2 \leq H$ ). The order of lines may be arbitrary.

It is guaranteed that at least one solution exists.

## Examples

stdin	stdout
3	0 0 2 5
5 8	2 0 5 5
2 5	0 5 5 8
3 5	
3 5	
5	0 0 1 7
10 10	1 0 10 2
1 7	1 2 6 7
4 8	6 2 10 10
3 6	0 7 6 10
2 9	
5 5	