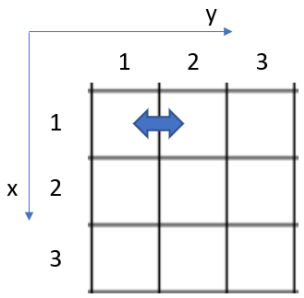
Develop Group Competition 1

Maze

Input：standard input
Output：standard output

There is a maze with n x n rooms, 1≤n≤100. There may or may not be a door between two rooms. The room are indexed by (x,y) 1≤x,y≤n.

For example, the following is a 3 x 3 maze, there is a door between room (1,1) and room (1,2)



Your task is select a room (anyone) as a start point and travel as many rooms as possible through the door, the rule is you can only come into a room once.

Input

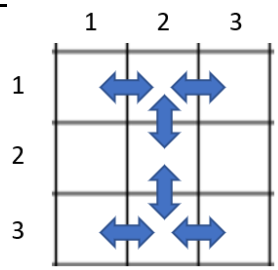
The first line contains one integer n (1≤n≤100)

Each of next 2n-1 lines describe the doors from left to right, 0 means “no door”, 1 means “have a door”.

Output

The rooms in the path, as format (1,1)(1,2)(1,3)…

Example

Input: 3 1 1 0 1 0 0 0 0 1 0 1 1	
Output: (1,1)(1,2)(2,2)(3,2)(3,3)	

Note, the answer is not unique, like (1,3)(1,2)(2,2)(3,2)(3,1) is also travelling 5 rooms, thus as good as the output in above table.