Puzzle and PC

Mom has to go to work and she doesn't want little Johnny to get bored. So she gives him a simple puzzle to solve. She also tells him that he can play a PC game only if he solves this problem. Johnny loves PC games and wants to solve this puzzle quickly. So he asks you for help.

You are given a square *NxN* board divided into single cells, where *N* is always a power of 2. You are also given an infinite number of L-shaped trominoes:

Note that each tromino can covers three cells.

The board has one special cell *S* on which you are not allowed to place any tromino. Your task is to cover the whole board with trominoes in such a way that any two trominoes don't overlap, and every cell (except cell *S*) is covered by some tromino.

Indexing starts from 1, and top-left cell is indexed (1, 1).

Input

In the first line, there is an integer M. $N = 2^M$ denotes the size of the board.
In the second line, there are two integers, *r c*, denoting the row and the column of cell *S*.

Output

For every tromino placed, print one line containing 6 space separated numbers, denoting the coordinates (in row major form) of 3 cells covered by this block.

Constraints

- $1 \leq M \leq 9$
- $1 \leq r, c \leq 2^M$

Note

- You are also allowed to rotate the trominoes.
- There may be multiple solution for a case. All valid solutions will be considered correct.

Sample Input #00

```
1
2 2
```

Sample Output #00

```
1 1 1 2 2 1
```

Sample Input #01

```
2
1 1
```

Sample Output #01

```
2 3 3 2 3 3
1 2 2 1 2 2
1 3 1 4 2 4
3 1 4 1 4 2
3 4 4 3 4 4
```

Explanation #00

Sample Case #00: Since you are not allowed to cover bottom-right cell, you will cover points (1,1), (1,2) & (2,1) with a single tromino.

```
  1  2
1 | 1 | 1 |
2 | 1 | x |
```

Sample Case #01: Since $N = 2^2 = 4$, board is of size $4x4$ and you are not allowed cover top-left cell. You will need 5 trominoes to cover whole board, except cell (1, 1).

1. `2 3 3 2 3 3`: This tromino will cover points (2, 3), (3, 2), (3, 3).
2. `1 2 2 1 2 2`: This tromino will cover points (1, 2), (2, 1), (2, 2).
3. `1 3 1 4 2 4`: This tromino will cover points (1, 3), (1, 4), (2, 4).
4. `3 1 4 1 4 2`: This tromino will cover points (3, 1), (4, 1), (4, 2).
5. `3 4 4 3 4 4`: This tromino will cover ponits (3, 4), (4, 3), (4, 4).

.

```
  1  2  3  4
1 | x | 2 | 3 | 3 |
2 | 2 | 2 | 1 | 3 |
3 | 4 | 1 | 1 | 5 |
4 | 4 | 4 | 5 | 5 |
```

Note that there can be multiple configurations to this input, and all will be considered correct

---

Tested by Wanbo