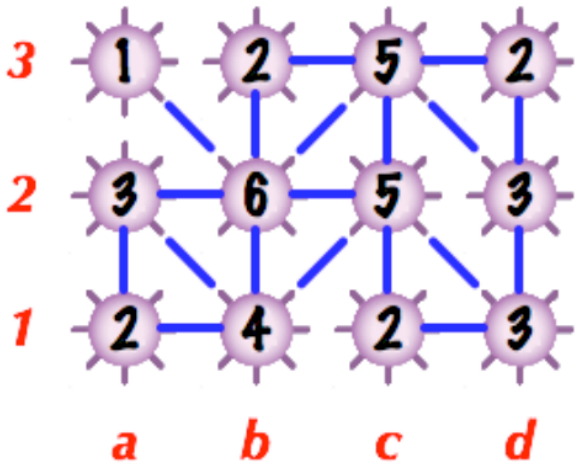
4175 Lost Blueprint

Super-agent 00X had a narrow escape, and he even lost the blueprint of the multiconnected planar neuron computer which he was supposed to bring back to Mother! All he has left in his photogenic memory is the arrangement of the neurons and the number of sockets that were in use at each neuron. He distinctly remembers that neurons were arranged on a simple grid labeled in the style of algebraic chess notation, that they could only be connected to their (up to 8) immediately adjacent neurons, and that the connections between neurons never crossed.



Your assignment is to write a program which 00X will submit to his trusty Quälgeist Pro computer in order to recover the blueprint and please Mother.

Input

Input to your program consists of lines with numbers, separated by white space as follows:

line	content	example	comment
1	*rows cols*	`3 4`	dimension of a rectangle, up to 9×9

2..	$n_1\ n_2\ \ldots\ n_{cols}$	`1 2 5 2`
		`3 6 5 3`
		`2 4 2 3`
			number of sockets in use at a neuron, 0 to 8

Output

The output is '`SORRY MOM`' if you cannot restore the blueprint at all, or a series of connections, one connection per line. Each connection consists of the column and row of the neuron where the connection starts and then the column and row of the neuron where the connection ends, separated by white space. There is no particular order and every connection is listed only once.

Sample Input

```
3 4
1 2 5 2
3 6 5 3
2 4 2 3
```

Sample Output

```
a3 b2
b3 b2
b3 c3
c3 b2
c3 c2
```

```
c3 d2
c3 d3
d3 d2
a2 a1
a2 b1
a2 b2
b2 b1
b2 c2
c2 b1
c2 c1
c2 d1
d2 d1
a1 b1
c1 d1
```