ACSL

**2007 - 2008** **American Computer Science League** **Contest #3**

**Intermediate Division**
**Petteia**

**PROBLEM**: Petteia is an ancient Roman board game played by two players. The game is played on an 8 x 8 grid. Markers can be placed in any empty grid square and then in turn can be moved either vertically or horizontally.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | X | | | | | | |
| | A | | X | B | X | | |
| | X | | | | | | |
| | | | X | | | | |
| | | X | D | E | X | | |
| | | | F | | | | X |
| | | | X | | | X | C |

Fig. 1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | X | | | | | |
| | | O | | | | | |
| | | X | O | O | X | | |
| | | | | | | | |
| | | | | | | | X |
| | | | | | | X | O |
| | | | | | | X | O |

Fig. 2

The object of the game is to capture the markers of the other player or block them so that no move is possible. The full rules for the game can be found at:

http://ablemedia.com/ctcweb/showcase/boardgameslat1.html

In this program you will be given a board that has a set of X's and O's already in place. The ACSL modified rules of the game are as follows:

1. A single marker is captured when it is between two X's either vertically or horizontally. In Fig. 1, A and B are captured markers.
2. Multiple markers can be captured when a pair of X's brackets a series of adjacent markers either vertically or horizontally. In Fig. 1, D and E and also D and F are captured markers.
3. The edges of the grid can't be used to capture a marker. C is not captured. However, C is blocked since it can't move.

The grid squares are labeled using row-column format with (1,1) in the lower left hand corner. C is in grid square (1,8) and D is in grid square (3,4).

**INPUT:** There will be 7 lines of input. The first line will give the number of O's on the grid followed by their locations. The second line will give the number of X's on the grid followed by their locations. The next 5 lines will give one of the X locations. Fig. 2 above uses the Sample Input below.

**OUTPUT:** For each of the last 5 lines of input, print -in any order- the location of all captured O's caused by the given X. If no O's are captured, then print NONE.

SAMPLE INPUT

1. 5, 1, 8, 2, 8, 5, 4, 5,5, 6 ,3
2. 6, 1, 7, 2, 7, 3, 8, 5, 3, 5, 6, 7, 3
3. 7, 3
4. 5, 6
5. 5, 3
6. 3, 8
7. 1, 7

SAMPLE OUTPUT

1. 6, 3
2. 5, 4 and 5, 5
3. 5, 4 and 5, 5 and 6, 3
4. NONE
5. NONE