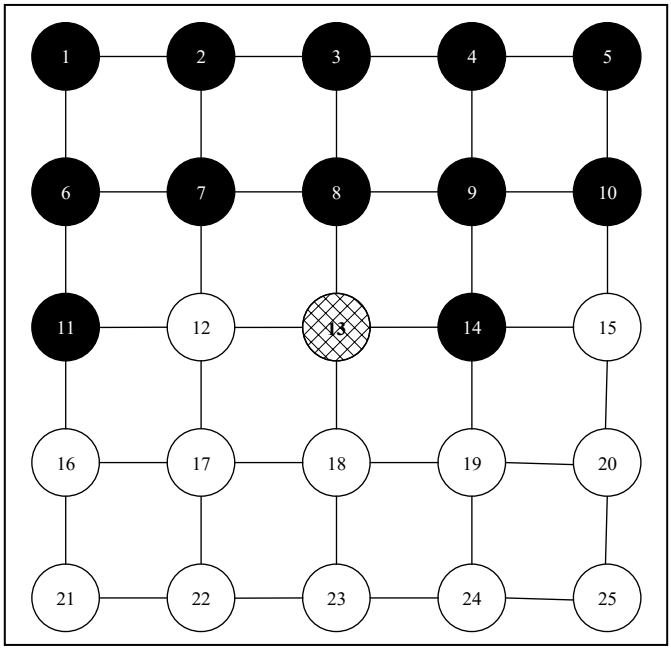
ACSL

American Computer Science League

2013 - 2014 **Contest #3**

ACSL Fanorona
Junior Division



PROBLEM: ACSL Fanorona is a board game for two players. It is played with black and white pieces placed on a board. The board is a rectangular grid of five lines by five lines.

The picture above shows the board at the start of the game. The two players each have 12 pieces of their color on the board. The pieces are placed where the gridlines cross, as shown. The piece marked 13 is used here to show an empty space.

White moves first, then black, and so on with the players taking turns. To win the game, you have to ***take all*** your opponent's pieces or leave a position where they ***can't move***. If neither player manages to win, then the game is a draw.

A piece moves ***one space only*** along the lines of the board. Pieces can only move onto empty spaces, they cannot land on top of another piece. Whenever you make a move, you ***must*** make a capturing move if you can. You capture a single piece or line of pieces by moving directly ***towards*** them, so that your piece ends up next to them, or else by moving directly ***away*** from them, if your piece was already standing next to them.

Suppose that you are white in this game. You can move your piece marked 18 in the picture above one space to the empty space marked 13. Then it has moved directly towards the black pieces marked 8 and 3 and ended up next to them. So they are both captured. You can capture any ***unbroken*** line of black pieces in this way.

An example of an away move, starting with the original board, is to move the piece marked 12 to the empty space marked 13 and capture the black piece marked 11. This is an example of moving away.

INPUT: There will be 5 lines of input. Each line will contain the number of white pieces on the board and their location numbers followed by the number of black pieces on the board and their location numbers.

OUPUT: It will always be white's turn to move. For each input line print the location numbers of the black pieces captured. The situation where there are two possible moves will not be tested. If no pieces can be captured print NONE.

SAMPLE INPUT	SAMPLE OUTPUT
1. 3, 12, 17, 22, 3, 9, 14, 10	1. 14
2. 3, 12, 17, 22, 3, 9, 14, 15	2. 14, 15
3. 3, 12, 17, 22, 3, 16, 9, 5	3. 16
4. 3, 12, 17, 22, 3, 5, 15, 20	4. NONE
5. 3, 12, 17, 22, 3, 3, 18, 19	5. 18, 19

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TEST INPUT	TEST OUTPUT
1. 3, 9, 17, 21, 3, 2, 23, 25	1. 23
2. 3, 9, 16, 18, 3, 2, 23, 25	2. 23
3. 4, 9, 13, 16, 18, 4, 2, 5, 23, 25	3. NONE
4. 4, 9, 13, 18, 21, 4, 2, 5, 23, 24	4. 23, 24
5. 3, 8, 9, 22, 3, 23, 24, 25	5. 23, 24, 25