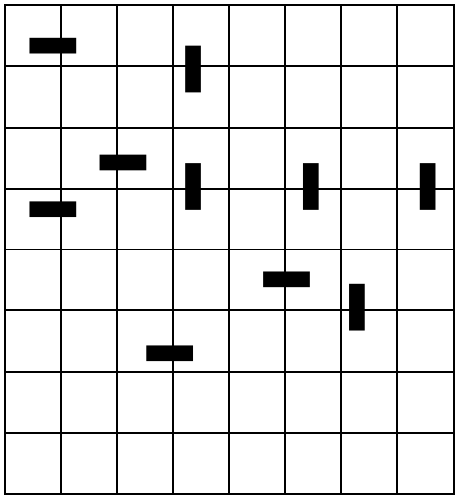
2003-2004

American Computer Science League

Contest #2

Intermediate Division

ACSL STOPGATE



PROBLEM: This game is from the book "On Numbers and Games" by John Conway. The game is played on an 8 x 8 grid as shown at the left. The first player can place a marker in an up-down position or in a left-right position over any two adjacent, unoccupied squares. All markers of the first player must now be played in the same direction as the first marker. The second player places markers on the grid in the direction not selected by the first player. The object of the game is to place the last marker on the grid so that the other player can't place a marker on the grid.

The grid locations will be labeled with row 1 and column 1 (1,1) in the lower left corner. (8,8) is located in the upper right corner.
Up-down markers will be identified by their lower grid location. The upper most up-down marker in the grid is identified by location (7,4).
Left-right markers will be identified by their left most grid location. The upper most left-right marker is identified by location (8,1).

INPUT: There will be 5 input lines. Each line will contain in order the following information:
1. The first player's marker direction (U or L)
2. How many markers each player has on the grid
3. A series of row-column pairs giving the location of each marker.

Sample input #1 gives the grid above. The first player placed the first marker in the left-right position. Both players have 5 markers on the board. The first 5 row-column pairs give the positions of the first player's markers and the second 5 row-column pairs give the positions of the second player's markers. It is now the first player's turn to place a marker on the board.

OUTPUT: For each input line, print the number of possible moves for the first player.

SAMPLE INPUT	SAMPLE OUTPUT
1. L, 5, 3, 3, 4, 5, 5, 1, 6, 2, 8, 1, 3, 7, 5, 4, 5, 6, 5, 8, 7, 4	1. 27
2. U, 8, 6, 1, 6, 3, 6, 5, 6, 7, 3, 1, 3, 3, 3, 5, 3, 7, 2, 1, 5, 1, 5, 3, 5, 5, 5, 7, 8, 2, 8, 4, 8, 6	2. 18
3. L, 8, 2, 1, 5, 1, 5, 3, 5, 5, 5, 7, 8, 2, 8, 4, 8, 6, 6, 1, 6, 3, 6, 5, 6, 7, 3, 1, 3, 3, 3, 5, 3, 7	3. 12