

Given an $n \times n$ chessboard, a Knight's Tour is the series of moves whereby each square is 'visited' once and only once in a piece performing legal (chess) Knight moves. In the following diagram, the Knight (1) can move to any one of the squares numbered 1 through 8.

| | | | | |
|---|---|---|---|---|
| | 8 | | 1 | |
| 7 | | | | 2 |
| | | K | | |
| 6 | | | | 3 |
| | 5 | | 4 | |

Obviously, a Knight near an edge or corner of the board has fewer potential moves available.

This problem requires the generation of one of the correct Knight's tours on a 5×5 board. The Initial starting location for each game will be provided as a set of integers (i, j) where i is right justified in column 1 and is right justified in column 2. A zero in column 1 and 2 indicates a termination of the problem.

Output should be a 5×5 integer array of numbers representing the moves from square to square. Also, the output above should be followed by the word 'open' or the word 'closed' (a closed Knight's tour is where the starting and ending positions are a Knight's move apart; otherwise the tour is open) as appropriate.

Sample input might be: 33 with one of the possible outputs:

| | | | | |
|---|----|----|----|----|
| Sample input might be: 33 with one of the possible outputs: | | | | |
| 25 | 8 | 3 | 14 | 19 |
| 2 | 13 | 18 | 9 | 4 |
| 7 | 24 | 1 | 20 | 15 |
| 12 | 17 | 22 | 5 | 10 |
| 23 | 6 | 11 | 16 | 21 |
| OPEN | | | | |