N Queen Problem
— by Backtracking

4

row
column   2
diagonal   4

1   2   3   4

Q_1

Q_2

4×4

(2, 3)
row   col

(1, 1)   2 + 3 = 5
= 2   (1, 4) = 1 + 4 = 5
= 0
                 2 - 3 = -1
                 (1, 2) = -1

mirror image

$\Leftarrow$

4×4
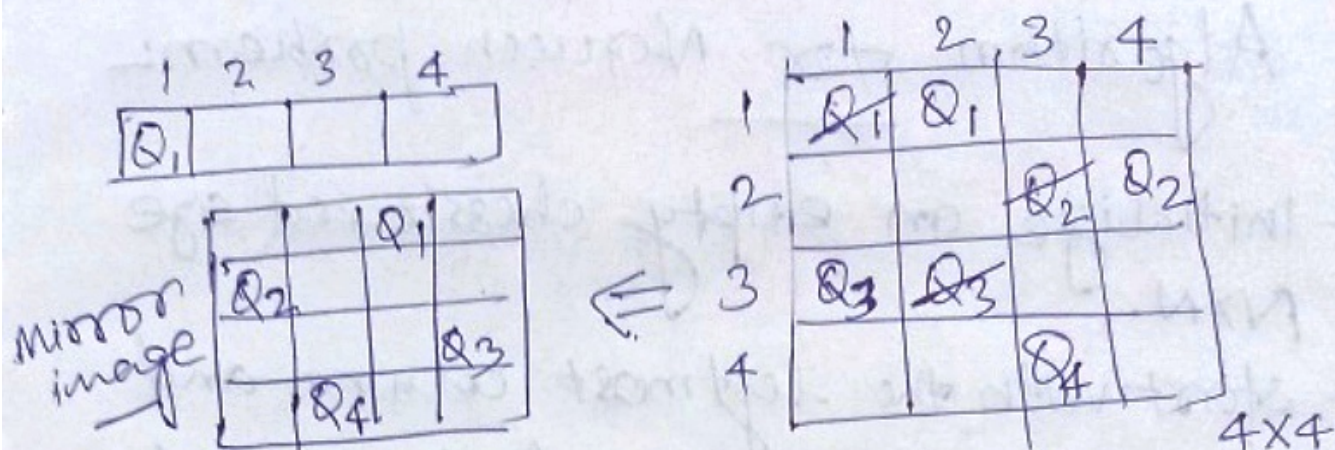
S.S.T. (state space tree)
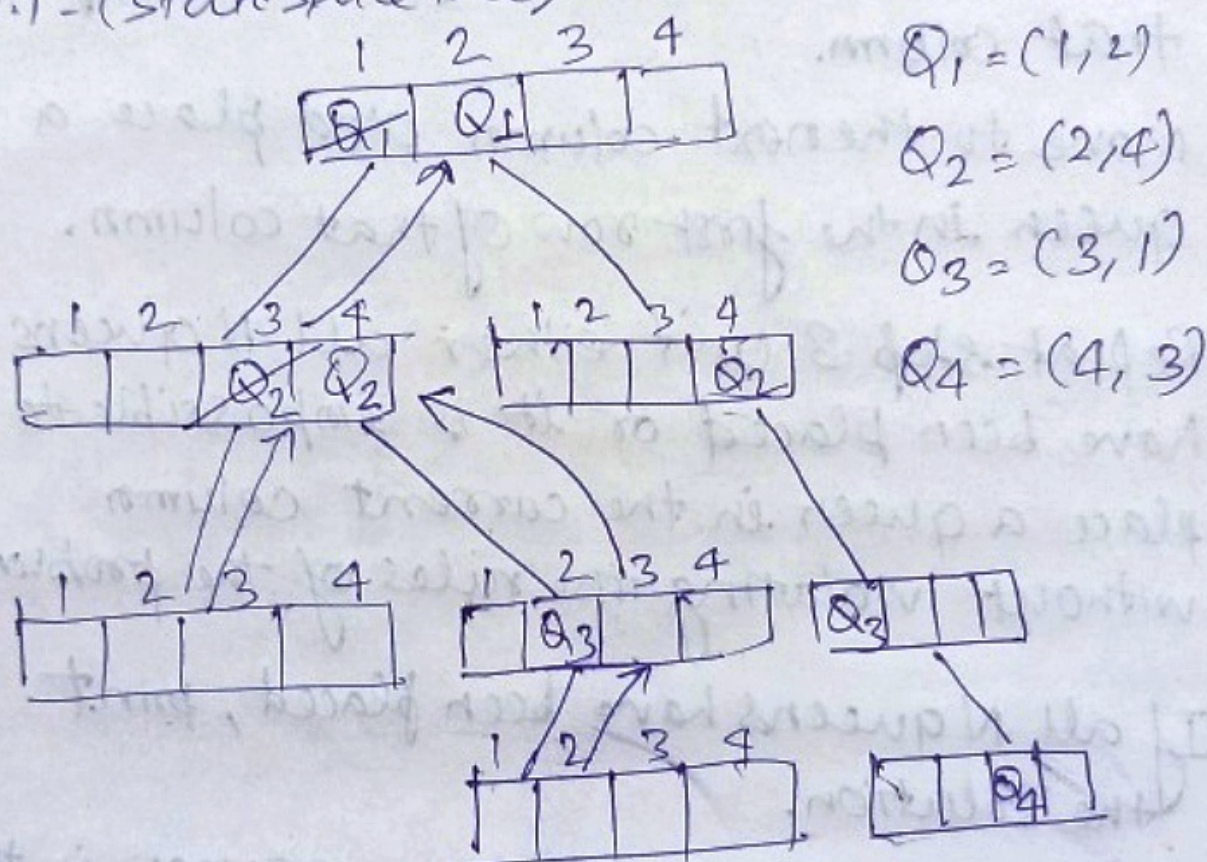
$Q_1 = (1, 2)$

$Q_2 = (2, 4)$

$Q_3 = (3, 1)$

$Q_4 = (4, 3)$

Algorithm for N queen problem

1. Initialize an empty chessboard size N×N.

2. Start with the leftmost column and place a queen in the first row of that column.

3. Move to the next column and place a queen in the first row of that column.

4. Repeat step 3 unit either all N queens have been placed or it is impossible to place a queen in the current column without violating the rules of the problem.

5. If all N queens have been placed, print the solution.

6. If it is not possible to place a queen in the current column without violating the rules of the problem, backtrack to previous column.

7. Remove the queen from the previous column and move it down one row

- Repeat steps 4-7 untilt all possible configur -ations have been tried.