

# Sudoku solver

↳ 9x9 board

(1-9) →

(1-9) →

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(1-9) →

(1-9) →

(1-9) →

(1-9) →

	0	1	2	3	4	5	6	7	8
0	3	8	6	2	3	8	4	7	9
1	5	2	0	0	0	0	0	0	7
2	0	8	7	0	0	0	0	3	1
3	0	0	3	0	1	0	0	8	0
4	9	0	0	8	6	3	0	0	5
5	0	5	0	0	0	0	6	0	0
6	1	3	0	0	0	0	2	5	0
7	0	0	0	0	0	0	0	7	4
8	0	0	5	2	0	6	3	0	0

→ 1) Every row contains no. (1-9)

→ 2) No repetition allowed

a) in each row

b) in each column

c) in 3x3 grid

$$\frac{\text{row}}{3} \neq 3$$

where  $\text{matrix}[i][j] \neq 0$

row = 1  
col = 1

row = 2  
col = 2

row = 5

col = 9

temp row =  $\frac{5}{3} \neq 3$

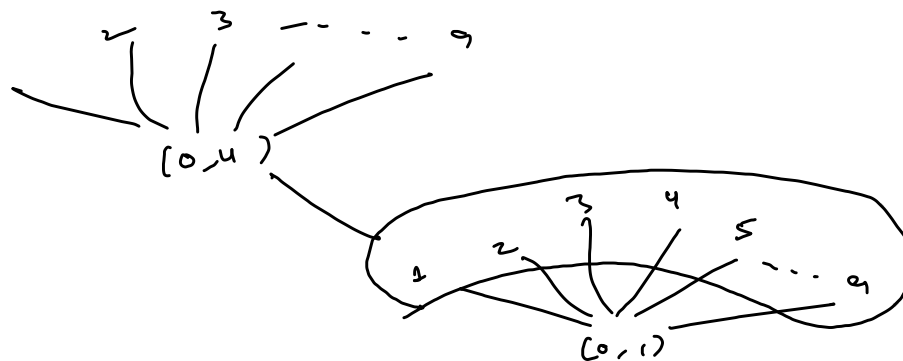
→ 1 ≠ 3

temp col =  $\frac{4}{3} \neq 3$

→ 3

temp row =  $\frac{\text{row}}{3} \neq 3 \Rightarrow \frac{2}{3} \neq 3 \Rightarrow 0$

temp col =  $\frac{\text{col}}{3} \neq 3 \Rightarrow \frac{2}{3} \neq 3 \Rightarrow 0$

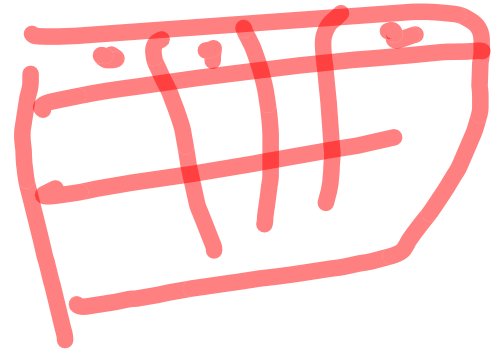


# → Requirements

↳ Player

↳ Board → (a \* 9)

↳ Game → logic



①

Player

→

name

→

email

→

contact

→

5-10 mins

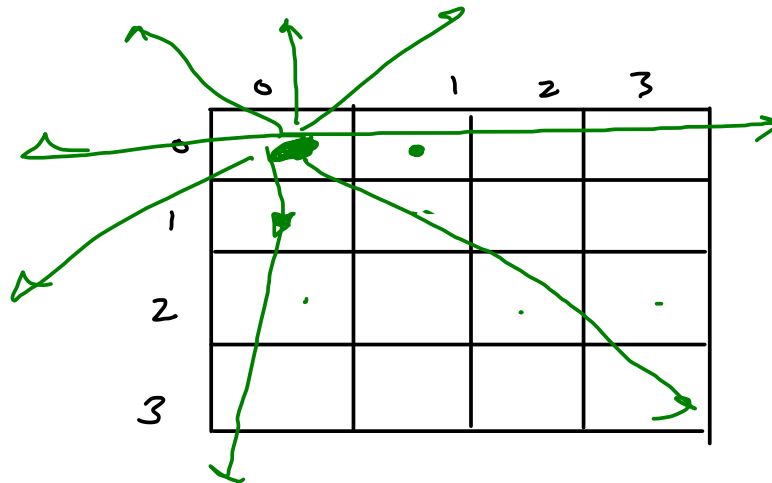
///

$$\frac{\text{mat}_{\text{rx}}(i)(j) = 0}{\hookrightarrow}$$



# N Queen

$N = 4$   $\rightarrow$   $N \times N$  board.



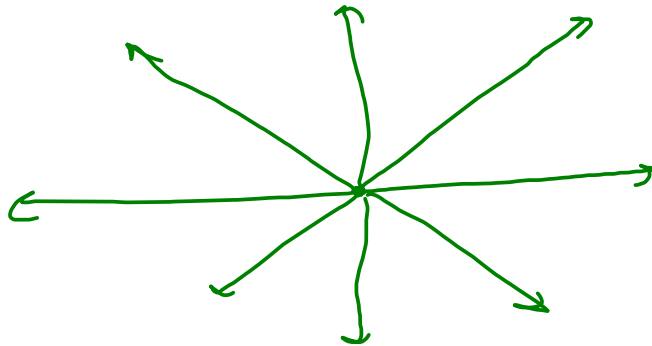
no two queens attack  
each other  
attack -

$\hookrightarrow$  same row

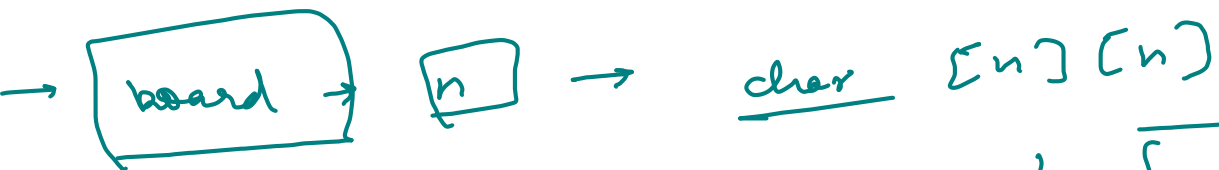
$\hookrightarrow$  same col

$\hookrightarrow$  diagonal

$\hookrightarrow$  anti-diagonal



→ Player



↓

→ size  
→ char [n][n]

→

↳

-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

↳ 5-10 min ↗  
↘

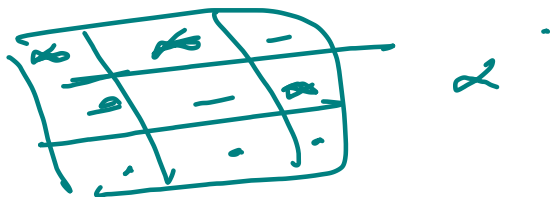
$$n=1$$



$$n=2$$



$$n=3$$

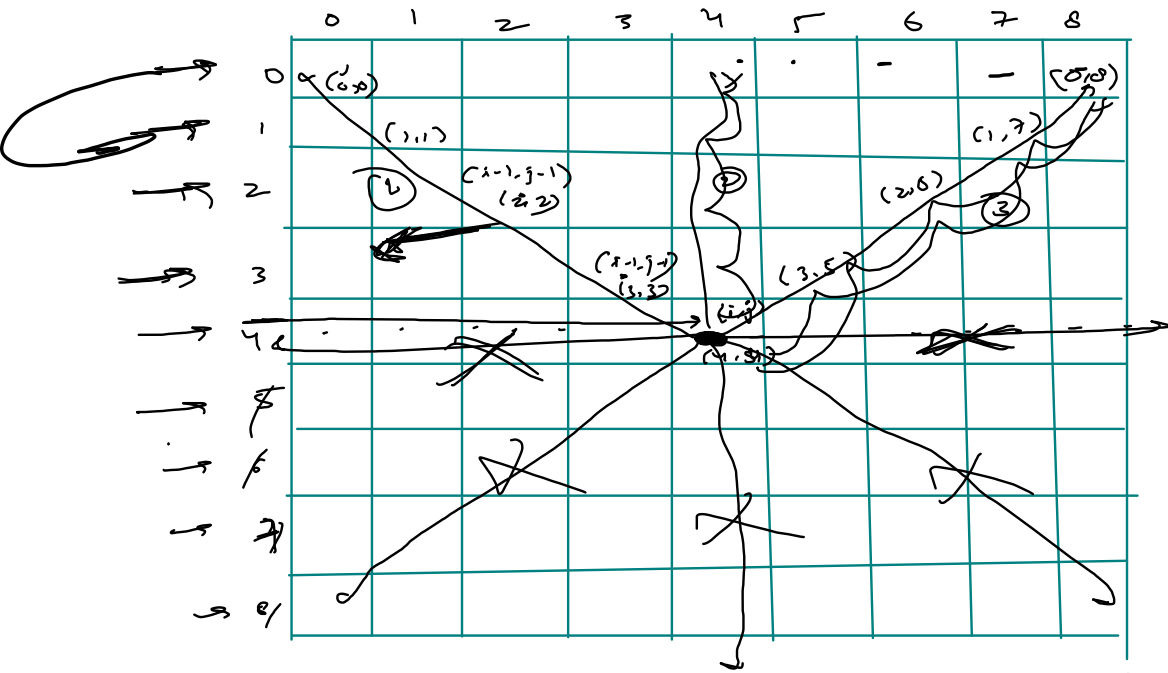


$$n=4$$



← class work

board(i)(j) = -1



1 row = 1 queen

~~all 8 diagonals~~

Out of 8 diagonals

↓

3 diagonals

for main diagonal  $\rightarrow (i-1, j-1)$

for 2nd dia  $\rightarrow (i-1, j)$

for 3rd dia  $\rightarrow (i-1, j+1)$

↳ 10 - 15 mins