

### How to Solve the 4 Queen Problem?

To solve this problem, we will use a backtracking algorithm. Backtracking is a technique where we explore all possible solutions by incrementally building the solution and backtracking whenever we find that the current solution is invalid.

Each Queen should be in different Row, different column and different diagonal.

	1	2	3	4
1				
2				
3				
4				

$$Q_1 = \text{Row 1}$$

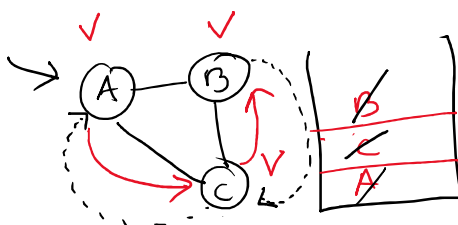
$Q_0 = \text{Row } 2$

$$Q_3 = \text{Row } 3$$

$Q_4 = \text{Row 4.}$

A 4x4 grid with handwritten numbers 1-4 in the top and left margins. The grid contains several handwritten 'X' marks and a central circle, likely representing a mathematical or logical puzzle.

$$4 \times 3 \times 2 \times 1 = 4!$$



DFS Prozess - A C B -

Total combinations =

Valid Combinations:

Each Queen should be in different Row, different Column, and different diagonal.

	1	2	3	4
1			$Q_1$	
2	$Q_2$		.	
3		.	.	$Q_3$
4	.	$Q_4$		

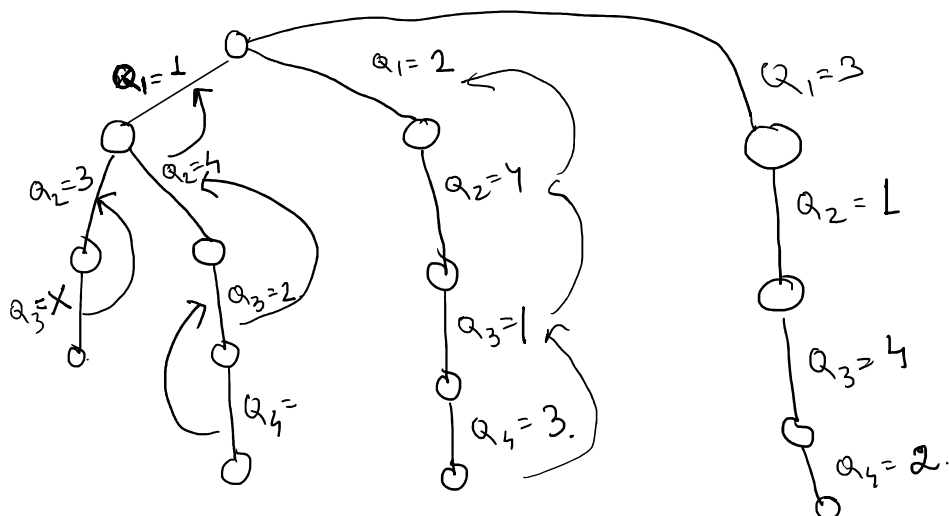
$$Q_1 = \text{row 1}$$

$Q_2 = \text{Row } 2$

$$Q_3 = \text{Row } 3$$

$Q_4 = \text{Row 4.}$

Solution:



2 4 1 3  
1 2 3 4

3	1	4	2
1	2	3	4

① DP vs Greedy.

② 2. ... Krummheit.

- ① DP vs Greedy.
- ② Prim's vs Kruskal.
- ③ Dijkstra vs Floyd Warshall.
- ④ Short Notū → what, why, How?  
TC, SC.