1. Solve the 8 puzzle problem using the following input and output

Initial state:

1	2	3
8		4
7	6	5

Goal state:

2	8	1
	4	3
7	6	5

Initial state

Goal state

Root:

1	2	3
8		4
7	6	5

RL · LR · UD · DU

1	2	3
8	4	
7	6	5

1	2	3
8		4
7	6	5

1		3
8	2	4
7	6	5

1	2	3
8	6	4
7		5

UD · DU · UD · DU · LR · RL

1	2	
8	4	3
7	6	5

1	2	3
8	4	5
7	6	

	2	3
1	8	4
7	6	5

1	2	3
7	8	4
	6	5

	1	3
8	2	4
7	6	5

	1	3
8	2	4
7	6	5

RL · L

1		2
8	4	3
7	6	5

1	2	3
8	4	5
7		6

2		3
1	8	4
7	6	5

8	1	3
	2	4
7	6	5

1		3
8	2	4
7	6	5

1	2	3
8	6	4
7		5

1	2	3
8	6	4
7		5

DU · RL

1		2
8	4	3
7	6	5

1	2	3
8	4	5
	7	6

8	1	3
2		4
7	6	4

8	1	3
7	2	4
	6	5

1	2	3
8	6	
7	5	4

1	2	3
	6	4
8	7	5

RL · DU · DU

8	1	3
2	6	4
7		

8	1	3
2		4
7	6	5

8		1
2	4	3
7	6	5

LR · DU

8		1
2	4	3
7	6	5

8	1	3
2	4	
7	6	5

LR · DU

2	8	1
	4	3
7	6	5

DU

	8	1
2	4	3
7	6	5

8	4	1
2		3
7	6	5

Goal state

| 2	8	1
	4	3
7	6	5

Goal state
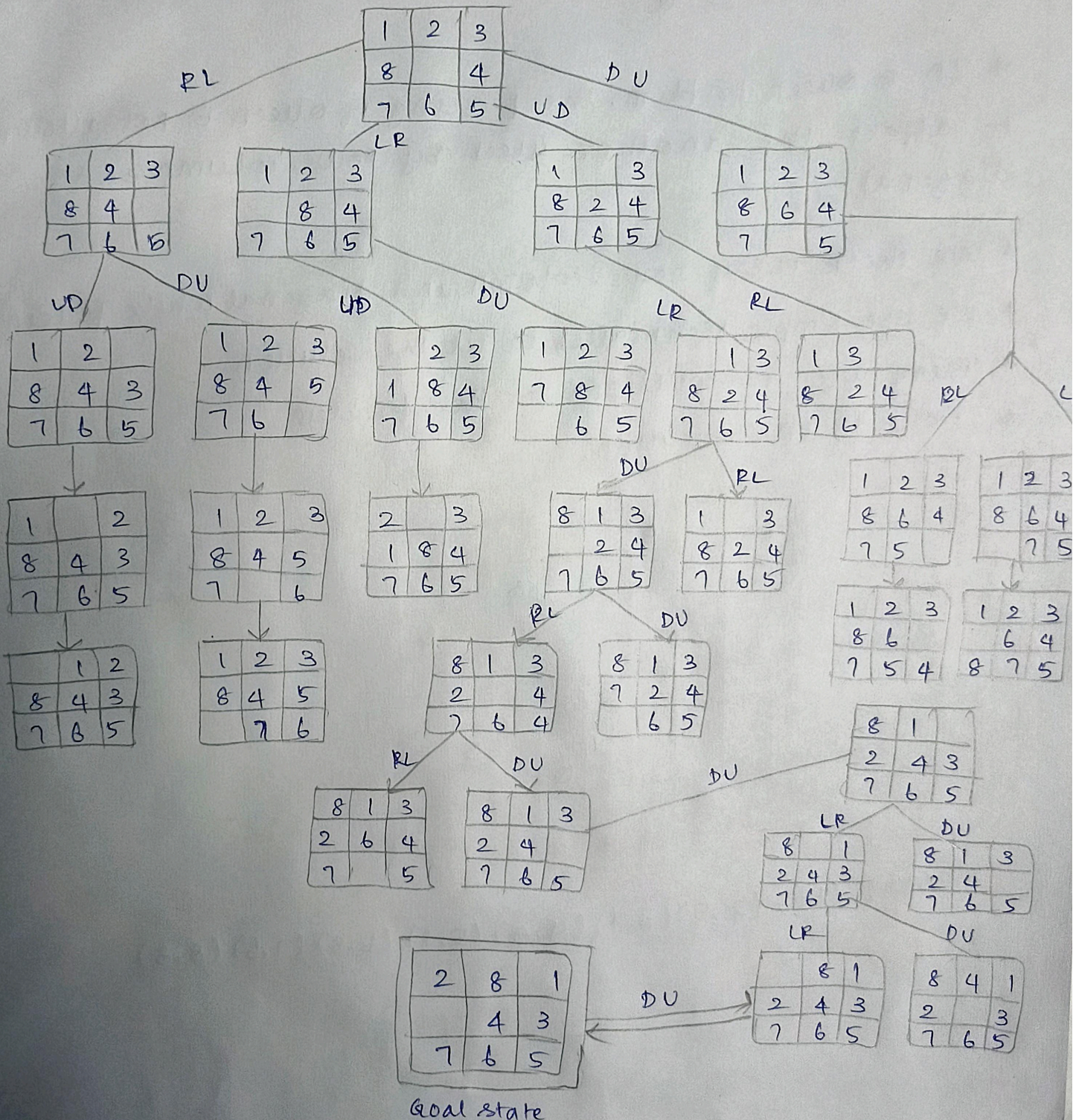
2. Solve the 8 Queen problem using the following Input and output

start state
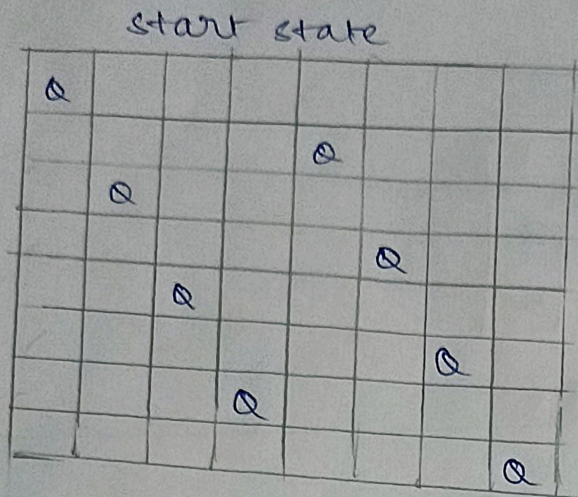
* In 8 Queen problem, the placing of queen is not allowed to affect the another queen by Rows, column and diagonal.

* We check every rows, column and diagonal while placing

* We use simple techniques to get the solution

* There are 92 solutions for this problem.

* Here is one solution,
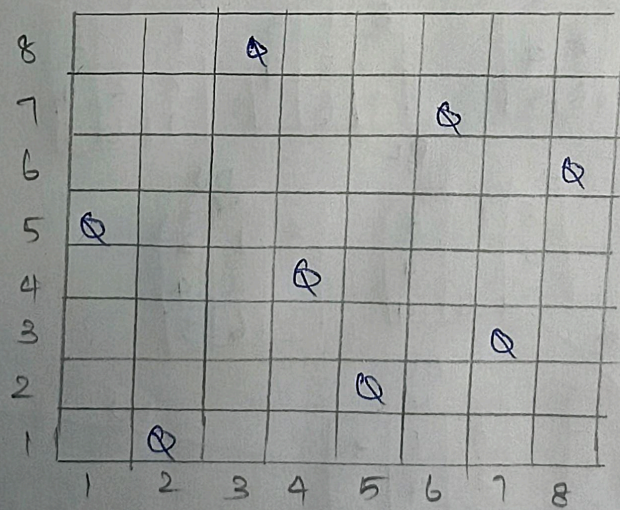
Ans: (1,2) (2,5) (3,7) (4,4) (5,1) (6,8) (7,6) (8,3)

3. Solve waterjug problem using the following Input and output

| 12 liters | 8 litres | 5 litres |
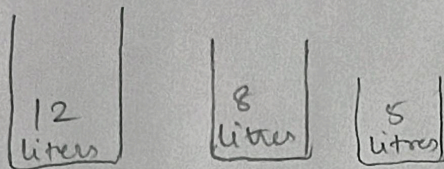
Solution

Given : (12,0,0)

Goal state : (6,6,0)

① → [4L] [8L] [0L] → Pour from 12 into 8L

② → [4L] [3L] [5L] → Pour from 8 into 5L

③ → [9L] [3L] [0L] → Pour from 5 into 12L

④ → [9L] [0L] [3L] → Pour from 8 into 5L

⑤ → [1L] [8L] [3L] → Pour from 12 into 8L

⑥ → [1L] [6L] [5L] → Pour from 8 into 5L

⑦ → [6L] [6L] [0L] → Pour from 5 into 12L

The final solution is (6,6,0)