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1 #Niranjan.v.2024.aiml@rajalakshmi.edu.in
2 N = 8
3 def print_solution(board):
4     for row in board:
5         print(" ".join("Q" if cell else "." for cell in row))
6     print("\n")
7
8 def is_safe(board, row, col):
9     for i in range(row):
10         if board[i][col] == 1:
11             return False
12     for i, j in zip(range(row, -1, -1), range(col, -1, -1)):
13         if board[i][j] == 1:
14             return False
15     for i, j in zip(range(row, -1, -1), range(col, N)):
16         if board[i][j] == 1:
17             return False
18     return True
19
20 def solve_n_queens(board, row):
21     if row >= N:
22         print_solution(board)
23         return True
24     for col in range(N):
25         if is_safe(board, row, col):
26             board[row][col] = 1
27             if solve_n_queens(board, row + 1):
28                 return True
29             board[row][col] = 0
30     return False
31 def solve():
32     board = [[0] * N for _ in range(N)]
33     if not solve_n_queens(board, 0):
34         print("No solution exists")
35 solve()
```

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Q . . . . .  
. . . . Q . .  
. . . . . . Q  
. . . . Q . .  
. . Q . . . .  
. . . . . Q .  
. Q . . . . .  
. . . Q . . .
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[Program finished]