```python
# Dinesh Rathod (TA57) - N-Queen

N = 8
def printSolution(board):
    for i in range(N):
        for j in range(N):
            if board[i][j] == 1:
                print('Q', end=" ")
            else:
                print('.', end=" ")
        print()

def isSafe(row, col, slashCode, backslashCode, rowLookup, slashCodeLookup,
backslashCodeLookup):
    if (
        slashCodeLookup[slashCode[row][col]]
        or backslashCodeLookup[backslashCode[row][col]]
        or rowLookup[row]
    ):
        return False
    return True

def solveNQueensUtil(board, col, slashCode, backslashCode, rowLookup, slashCodeLookup,
backslashCodeLookup):
    if col >= N:
        return True
    for i in range(N):
        if isSafe(i, col, slashCode, backslashCode, rowLookup, slashCodeLookup,
backslashCodeLookup):
            board[i][col] = 1
            rowLookup[i] = True
            slashCodeLookup[slashCode[i][col]] = True
            backslashCodeLookup[backslashCode[i][col]] = True
            if solveNQueensUtil(board, col + 1, slashCode, backslashCode, rowLookup,
slashCodeLookup, backslashCodeLookup):
                return True
```

```python
            board[i][col] = 0
            rowLookup[i] = False
            slashCodeLookup[slashCode[i][col]] = False
            backslashCodeLookup[backslashCode[i][col]] = False
    return False


def solveNQueens():
    board = [[0 for i in range(N)] for j in range(N)]
    slashCode = [[0 for i in range(N)] for j in range(N)]
    backslashCode = [[0 for i in range(N)] for j in range(N)]
    rowLookup = [False] * N
    x = 2 * N - 1
    slashCodeLookup = [False] * x
    backslashCodeLookup = [False] * x

    for rr in range(N):
        for cc in range(N):
            slashCode[rr][cc] = rr + cc
            backslashCode[rr][cc] = rr - cc + 7

    if solveNQueensUtil(board, 0, slashCode, backslashCode, rowLookup, slashCodeLookup,
backslashCodeLookup) == False:
        print("Solution does not exist")
        return False
    printSolution(board)
    return True


solveNQueens()
```

Output:

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PS F:\5th Sem\AI\Practicales> & "C:/Program Files/Python311/python.exe" "f:/5th Sem/AI/Practi
cales/AI_2.py"
Q . . . . . . .
. . . . . . Q .
. . . . Q . . .
. . . . . . . Q
. Q . . . . . .
. . . Q . . . .
. . . . . Q . .
. . Q . . . . .
PS F:\5th Sem\AI\Practicales> []
```