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## *IMPLEMENT EIGHT QUEENS PROBLEM*

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*python.py - C:/Users/admin/AppData/Local/Programs/Python/Python310/python.py (3.10.8)*
File Edit Format Run Options Window Help

import copy
N = 8
def printSolution(board):
    for row in board:
        for i in range(N):
            print("Q" if row[i] else ".", end=" ")
        print()
    print()

def isSafe(board, row, col):
    for i in range(row):
        if board[i][col]:
            return False

    for i, j in zip(range(row - 1, -1, -1), range(col - 1, -1, -1)):
        if board[i][j]:
            return False

    for i, j in zip(range(row - 1, -1, -1), range(col + 1, N)):
        if board[i][j]:
            return False

    return True

def solve(board, row, solutions):
    if row == N:
        solutions.append(copy.deepcopy(board))
        printSolution(board)
        return

    for col in range(N):
        if isSafe(board, row, col):
            board[row][col] = 1
            solve(board, row + 1, solutions)
            board[row][col] = 0

def eightQueens():
    board = [[0 for _ in range(N)] for _ in range(N)]
    solutions = []
    solve(board, 0, solutions)
    print(f"Total solutions found: {len(solutions)}")

eightQueens()
```

```
IDLE Shell 3.10.8
File Edit Shell Debug Options Window Help
Python 3.10.8 (tags/v3.10.8:aaaf517, Oct 11 2022, 16:50:30) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/admin/AppData/Local/Programs/Python/Python310/python.py ==
Q . . . . .
. . . . Q . .
. . . . . Q
. . . . Q . .
. . Q . . . .
. . . . . Q .
. Q . . . . .
. . . Q . . . .

Q . . . . .
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. . . . . Q
. . . Q . . .
. Q . . . . .
. . . . Q . .

Q . . . . .
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Q . . . . .
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. Q . . . .
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Q . . . . .
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Total solutions found: 92

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