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Assignment no: 4

Implement a solution for a Constraint Satisfaction Problem using Branch and Bound and Backtracking for n-queens problem or a graph coloring problem.

Code:

N = int(input("Enter no of queens: "))

# for printing boards

board = [[0]\*N for \_ in range(N)]

def attack(i, j):

    for k in range(0, N):

        if board[i][k] == 1 or board[k][j] == 1:

            return True

    for k in range(0, N):

        for l in range(0, N):

            if (k+l == i+j) or (k-l == i-j):

                if board[k][l] == 1:

                    return True

    return False

def N\_queens(n):

    if n == 0:

        return True

    for i in range(0, N):

        for j in range(0, N):

            if (not (attack(i, j))) and (board[i][j] != 1):

                board[i][j] = 1

                if N\_queens(n-1) == True:

                    return True

                board[i][j] = 0

    return False

N\_queens(N)

for i in board:

    print(i)

output:

