

# Artificial Intelligence LAB-3

N-QUEEN PROBLEM

Date:8-2-22

-Source Code:

global N

N = 4

```
def printSolution(board):
    for i in range(N):
        for j in range(N):
            print (board[i][j], end = " ")
        print()
```

```
def isSafe(board, row, col):
```

```
    for i in range(col):
        if board[row][i] == 1:
            return False
```

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

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

```
    return True
```

```
def solveNQUtil(board, col):
```

```

if col >= N:
    return True

for i in range(N):

    if isSafe(board, i, col):

        board[i][col] = 1

        if solveNQUtil(board, col + 1) == True:
            return True

        board[i][col] = 0

    return False

def solveNQ():
    board = [ [0, 0, 0, 0],
               [0, 0, 0, 0],
               [0, 0, 0, 0],
               [0, 0, 0, 0] ]

    if solveNQUtil(board, 0) == False:
        print ("Solution does not exist")
        return False

    printSolution(board)
    return True

solveNQ()

```

**Output**

C:\Windows\System32\cmd.exe

Microsoft Windows [Version 10.0.19044.1466]

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F:\College materials\Sem 6\AI\Practical\Lab3>python Lab3\_N\_Queen.py

0 0 1 0

1 0 0 0

0 0 0 1

0 1 0 0

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