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Class: T.E. Comp

Div: 4

Batch: T16

#### Assignment 4

class Solution:

```
def solveNQueens(self, n: int):
```

```
    col = set()
```

```
    posDiag = set() # r+c
```

```
    negDiag = set() # r-c
```

```
    res = []
```

```
    board = [['0'] * n for i in range(n)]
```

```
def backtrack(r): # row
```

```
    if r == n: # means that we were able to find a valid solution
```

```
        copy = ["".join(row) for row in board]
```

```
        res.append(copy)
```

```
        return
```

```
    for c in range(n):
```

```
        if c in col or r + c in posDiag or r - c in negDiag: # These place cannot be used
```

```
            continue
```

```
        # as the above place cannot be used so add it to the set
```

```
        col.add(c)
```

```
        posDiag.add(r + c)
```

```
        negDiag.add(r - c)
```

```
        board[r][c] = "1" # update the board
```

```
        backtrack(r + 1)
```

```
col.remove(c)

posDiag.remove(r + c)

negDiag.remove(r - c)

board[r][c] = "0" # after backtracking
```

```
backtrack(0)
```

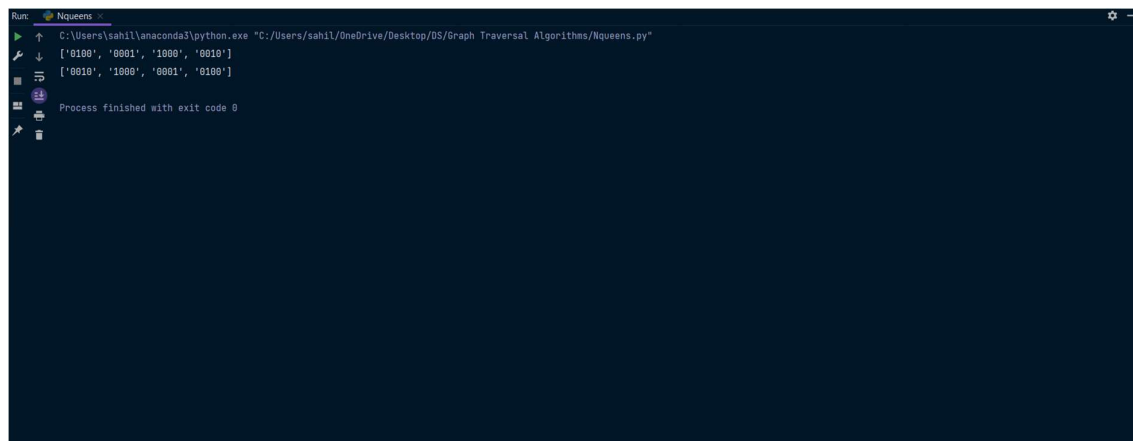
```
for i in res:
```

```
    print(i)
```

```
s = Solution()
```

```
s.solveNQueens(4)
```

output:



```
Run: Nqueens
C:\Users\sahil\anaconda3\python.exe "C:/Users/sahil/OneDrive/Desktop/DS/Graph Traversal Algorithms/Nqueens.py"
['0100', '0001', '1000', '0010']
['0010', '1000', '0001', '0100']
Process finished with exit code 0
```