

Assignment 2

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Batch: K9

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In [12]: import random
         from array import array
```

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In [13]: board = [[0,0,0,0,0,0,0,0],[0,0,0,0,0,0,0,0],[0,0,0,0,0,0,0,0],[0,0,0,0,0,0,0,0],[0,
neighbour = [[0,0,0,0,0,0,0,0],[0,0,0,0,0,0,0,0],[0,0,0,0,0,0,0,0],[0,0,0,0,0,0,0,0]
queens = [0,0,0,0,0,0,0,0]
```

```
In [14]: def collision_count(column,row):
         coll = 0

         for j in range(8):
             if j == row:
                 continue
             if board[column][j] == 1 :
                 coll += 1

         while(column < 7 and row < 7):
             row += 1
             column +=1
             if board[column][row] == 1:
                 coll += 1

         while(column > 0 and row > 0):
             row -= 1
             column -=1
             if board[column][row] == 1:
                 coll += 1

         while(column > 0 and row < 7):
             row += 1
             column -=1
             if board[column][row] == 1:
                 coll += 1

         while(column < 7 and row > 0):
             row -= 1
             column +=1
             if board[column][row] == 1:
                 coll += 1

         return coll
```

```
In [15]: def totalcoll():
         totcoll = 0
         for i in range(8):
             totcoll += collision_count(i,queens[i])
         return totcoll
```

In [16]:

```
while True:

    for i in range(8):
        queens[i] = random.randrange(0,8)
        board[i][queens[i]] = 1

    totalcollision = totalcoll()

    while True:
        for i in range(8):
            oldqueen = queens[i]
        for j in range(8):
            queens[i] = j
            neighbour[i][j] = totalcoll()
        queens[i] = oldqueen
        min = neighbour[0][0]
        minqueencol = 0
        minqueenrow = 0
        for i in range(8):
            for j in range(8):
                if(neighbour[i][j]<min):
                    min = neighbour[i][j]
                    minqueenrow = j
                    minqueencol = i

        if min<totalcollision:
            totalcollision = min
            queens[minqueencol] = minqueenrow
        else:
            break

    if totalcollision == 0:
        break

for i in range(8):
    for j in range(8):
        print(board[i][j], end=" ")
    print()
```

```
0 0 0 1 0 0 0 0
0 0 0 1 0 0 0 0
0 1 0 0 0 0 0 0
0 0 0 0 0 0 1 0
0 0 0 1 0 0 0 0
0 0 0 1 0 0 0 0
0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 1
```

In []: