

Assignment 2 - Holey N-Queens, Coloring Socks, Radio Commercials

COMP 321 - Programming Challenges

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Date: February 15, 2020

Due date: February 16, 2020

Prof. David Meger

Winter 2020

Question 1: Holey N-Queens

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ID	DATE	PROBLEM	STATUS	CPU	LANG
TEST CASES					
5331627	14:29:05	Holey N-Queens (Batman)	✓ Accepted	3.02 s	Python 3
✓✓					

Submission contains 1 file: [download zip archive](#)


FILENAME	FILESIZE	SHA-1 SUM	
holeynqueensbatman.py	2112 bytes	34c0062d094bc3b36c93da444a5d097afb995a51	download

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holeynqueensbatman.py

```
1 import sys
2
3 def holeynqueens(n, holes):
4     # Counter for solutions, as list to pass by reference
5     # because ints can only be passed as value
6     count = [0]
7
8     # Represent board as 3 1-D arrays: columns, 2 diagonals
9     col, diag1, diag2 = [0]*n, [0]*(2*n-1), [0]*(2*n-1)
10
11     # Represent hole coordinates as hashmap (dictionary)
12     # instead of list of pairs
13     holes = to_dict_holes(holes)
14
15     # Inner function as recurrence step of pruned search
16     def _n_queens(r):
17         if r == n:
18             count[0] += 1
19             return
20
```

Question 2: Coloring Socks

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Question 3: Radio Commercials

Submission

ID	DATE	PROBLEM	STATUS	CPU	LANG
TEST CASES					
5332441	18:05:17	Radio Commercials	✓ Accepted	0.09 s	Python 3
<div> <div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div> <div>✓</div> </div>					

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FILENAME	FILESIZE	SHA-1 SUM	
commercials.py	1398 bytes	9bb017d035939f2144b0220948fad3c08fe38bc1	<input type="button" value="download"/>

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commercials.py

```

1 import sys
2
3
4 Kattis: https://open.kattis.com/problems/commercials
5
6 Of course, Onid Pizza has to pay a fixed amount every time the commercial
7 is played. The radio has a commercial break every 15 minutes. Unfortunately,
8 Onid can choose only one continuous sequence of commercial breaks, for example
9 all breaks from 5 pm to 8 pm. Help them to choose a continuous sequence of
10 commercial breaks such that their profit is maximal.
11
12 def commercials(profits):
13     """
14     Return max profit
15     Parameters:
16     ... profits: profits (revenue - cost) of all commercial breaks as int list
17
18     max_profit = 0
19
20     for i in range(1, len(profits)):

```