134.gas-station

math question, runtime 82.13 %

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Solution 1:

This question is actually a math question. We have to know this:

If `sum(gas) — sum(cost) > 0`, there must have a start point to travel over the circuit. Otherwise, there is no such start point.

```
class Solution:
    def canCompleteCircuit(self, gas: List[int], cost: List[int]) -
> int:
        if sum(gas) - sum(cost) < 0: return -1
        tank = 0
        start = 0
        total = 0 # accumulate total cost gas

        for i in range(len(gas)):
            tank += gas[i] - cost[i]
            if tank < 0:
                start = i + 1 # reset start only when tank < 0
                total += tank
                tank = 0
        if tank + total < 0:
            return -1
        else:
            return start

#   ✓ 31/31 cases passed (40 ms)
#   ✓ Your runtime beats 82.13 % of python3 submissions
#   ✓ Your memory usage beats 5.13 % of python3 submissions (14 MB)

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```
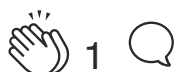
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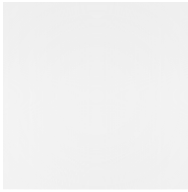Xu LIANG in Towards Data Science

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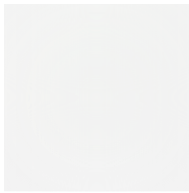Xu LIANG in Towards Data Science

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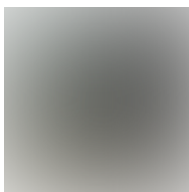**Overlapping sub-problems — Tabulation**
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