My Leetcode

Tuesday, January 14, 2014

Gas Station (Java)

Leetcode

```
There are N gas stations along a circular route, where the amount of gas at station i is gas[i].

You have a car with an unlimited gas tank and it costs cost[i] of gas to travel from station i to its next station (i+1). You begin the journey

Return the starting gas station's index if you can travel around the circuit once, otherwise return -1.

Note:
The solution is guaranteed to be unique.


Solution:

This question is prrety like the longest consecutive sequence problem.

To check if car can go through the gas stations, we have to check two points,

first, if total gas is enough for total cost, this point can be easily checked by sum all
gas[i]-cost[i].
second point, what is the start point? it is a little bit harder to finish in O (n).
however, we can consider this problem in another angel which is if the gas[i]-cost[i]<0 which
mean the i can not been an start point.

So we assume start point at 0, and we also declare two varibles which are sum and total, sum is used
to record the total   from gas[i]-cost[i], 0<=i<=n, unitl  i position . if sum <0 which mean before i can not be start
point, then we increase start pont one position and sum changed back to 0.

However, at the end , if the final start point is what we want? maybe, it is also decided by the
total valuable. total is the sum of all gas[i]-cost[i]. our final start point is
```

```
29  an valid one  only when total>= 0,  or we should return -1;
30
31
32
33  public class Solution {
34      public int canCompleteCircuit(int[] gas, int[] cost) {
35          if (gas==null|| cost==null||gas.length==0||cost.length==0||gas.length!=cost.length){
36              return -1;
37          }
38
39          int sum=0;
40
41          int start=0;
42
43          int total=0;
44
45          for (int i=0; i<gas.length; i++){
46              sum+=gas[i]-cost[i];
47              total+=sum;
48              if (sum<0){
49                  start=i+1;
50                  sum=0;
51              }
52
53          }
54
55          if (total<0){
56              return -1;
57          }
58
59          return start;
60
61      }
62  }
```

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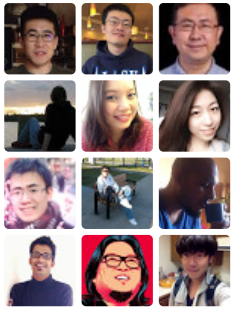

84 have me in circles View all

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