134. Gas Station

Initial thoughts:

1. Could not get the context of the problem…referring solution to save time

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

   You have a car with an unlimited gas tank and it costs `cost[i]` of gas to travel from the ith station to its next $(i + 1)^{th}$ station. You begin the journey with an empty tank at one of the gas stations.

   Given two integer arrays `gas` and `cost`, return *the starting gas station's index if you can travel around the circuit once in the clockwise direction, otherwise return* `-1`. If there exists a solution, it is **guaranteed** to be **unique**
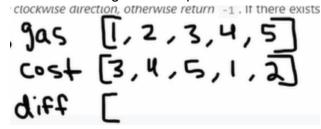
   Example 1:

   ```
   Input: gas = [1,2,3,4,5], cost = [3,4,5,1,2]
   Output: 3
   Explanation:
   Start at station 3 (index 3) and fill up with 4 unit of gas. Your tank = 0 + 4 = 4
   Travel to station 4. Your tank = 4 - 1 + 5 = 8
   Travel to station 0. Your tank = 8 - 2 + 1 = 7
   Travel to station 1. Your tank = 7 - 3 + 2 = 6
   Travel to station 2. Your tank = 6 - 4 + 3 = 5
   Travel to station 3. The cost is 5. Your gas is just enough to travel back to
   station 3.
   Therefore, return 3 as the starting index.
   ```
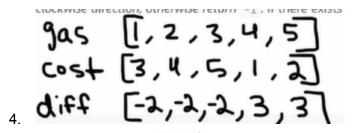2.

Solution

1. Lets look at the given example and understand the sol

   clockwise direction, otherwise return `-1`. If there exists

   gas [1,2,3,4,5]
   cost [3,4,5,1,2]
   diff [
2.
3. Now we will find the diff between gas and cost….which tells us whether it can reach to next station or not.

gas $[1,2,3,4,5]$

cost $[3,4,5,1,2]$

4. diff $[-2,-2,-2,3,3]$

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5. So if we start here ...the gas is 1 but the cost is the 3…so we cannot go to next stop

6. For the brute force method..we find diff for the every positions and proceed with the positive value diff in the diff list

7. Now if we start at pos (4,1) we'll be having 3 for going to next station..and in next station we'll be having 3+3 for going to the next station

jue gas $[1,2,3,4,5]$

cost $[3,4,5,1,2]$

diff $[-2,-2,-2,3,3]$

3,4,5], cost = [3,4, 1 2]

6

(index 3) and fill up with 4 unit of gas. Your tank = 0 4

4. Your tank = 4 - 1 + 5 = 8

0. Your tank = 8 - 2 + 1 = 7

1. Your tank = 7 - 3 + 2 = 6

8. If we go to pos(1,3)...then we'll be having 4 left in our gas…similarly at the end of circuit..we'll be having 0…so this path will be our sol ..and we return our starting index 3

9.