First Unique Character in a String

Given a string s, find the first non-repeating character in it and return its index. If it does not exist, return -1.

Example 1:
Input: s = "leetcode"
Output: 0

Example 2:
Input: s = "loveleetcode"
Output: 2

Example 3:
Input: s = "aabb" Output: -1

Number of Recent Calls

You have a RecentCounter class which counts the number of recent requests within a certain time frame.

Implement the RecentCounter class:

`RecentCounter()` Initializes the counter with zero recent requests.

`int ping(int t)` Adds a new request at time t, where t represents some time in milliseconds, and returns the number of requests that has happened in the past 3000 milliseconds (including the new request). Specifically, return the number of requests that have happened in the inclusive range [t - 3000, t].

It is guaranteed that every call to ping uses a strictly larger value of t than the previous call.

Number of Recent Calls Example

Input
["RecentCounter", "ping", "ping", "ping", "ping"] [[], [1], [100], [3001], [3002]]

Output
[null, 1, 2, 3, 3]

Number of Students Unable to Eat Lunch

The school cafeteria offers circular and square sandwiches at lunch break, referred to by numbers 0 and 1 respectively. All students stand in a queue. Each student either prefers square or circular sandwiches.

The number of sandwiches in the cafeteria is equal to the number of students. The sandwiches are placed in a stack. At each step:

If the student at the front of the queue prefers the sandwich on the top of the stack, they will take it and leave the queue.

Otherwise, they will leave it and go to the queue's end.

This continues until none of the queue students want to take the top sandwich and are thus unable to eat.

Number of Students Unable to Eat Lunch Continued

You are given two integer arrays students and sandwiches where sandwiches[i] is the type of the i^{th} sandwich in the stack (i = 0 is the top of the stack) and students[j] is the preference of the j^{th} student in the initial queue (j = 0 is the front of the queue).

Return the number of students that are unable to eat.

Example 1:

Input:
students = [1,1,0,0],
sandwiches = [0,1,0,1]

Output: 0

Time Needed to Buy Tickets

There are n people in a line queuing to buy tickets, where the 0th person is at the front of the line and the (n - 1)th person is at the back of the line.

You are given a 0-indexed integer array tickets of length n where the number of tickets that the ith person would like to buy is tickets[i].

Each person takes exactly 1 second to buy a ticket. A person can only buy 1 ticket at a time and has to go back to the end of the line (which happens instantaneously) in order to buy more tickets. If a person does not have any tickets left to buy, the person will leave the line.

Return the time taken for the person at position k (0-indexed) to finish buying tickets.

Time Needed to Buy Tickets Example

Example 1:
Input: tickets = [2,3,2], k = 2
Output: 6

Example 2:
Input: tickets = [5,1,1,1], k = 0
Output: 8

Dota2 Senate

In the world of Dota2, there are two parties: the Radiant and the Dire.
The Dota2 senate consists of senators coming from two parties. Now the Senate wants to decide on a change in the Dota2 game. The voting for this change is a round-based procedure. In each round, each senator can exercise one of the two rights:

Ban one senator's right: A senator can make another senator lose all his rights in this and all the following rounds.

Announce the victory: If this senator found the senators who still have rights to vote are all from the same party, he can announce the victory and decide on the change in the game.

Given a string senate representing each senator's party belonging. The character 'R' and 'D' represent the Radiant party and the Dire party. Then if there are n senators, the size of the given string will be n.

Dota2 Senate Continued

The round-based procedure starts from the first senator to the last senator in the given order. This procedure will last until the end of voting. All the senators who have lost their rights will be skipped during the procedure. Suppose every senator is smart enough and will play the best strategy for his own party. Predict which party will finally announce the victory and change the Dota2 game. The output should be "Radiant" or "Dire".

Example 1:

Input:
senate = "RD"

Output:
"Radiant"

Dota2 Senate Discussion

There are some persons, sitting in the order, have to participate in the voting. The person that will have the turn will cancel the right of any person (from other party) from this turn and in all next turns. See the example:

DDRRR The D will cancel R on the third person and come to the right side for next turn, and we have next status:

DRRD Again, the D will cancel the second and come to the right side for next turn, and we have next status:

RDD Now, the R will cancel the second and come to the right side for next turn, and we have next status:

DR Now D will cancel the R and D will win.

I will share the further idea about solution later.