Line Sweep Algorithm

Concepts & Qns ...

∞ → codestorywithmiK

X → CSwithMIK

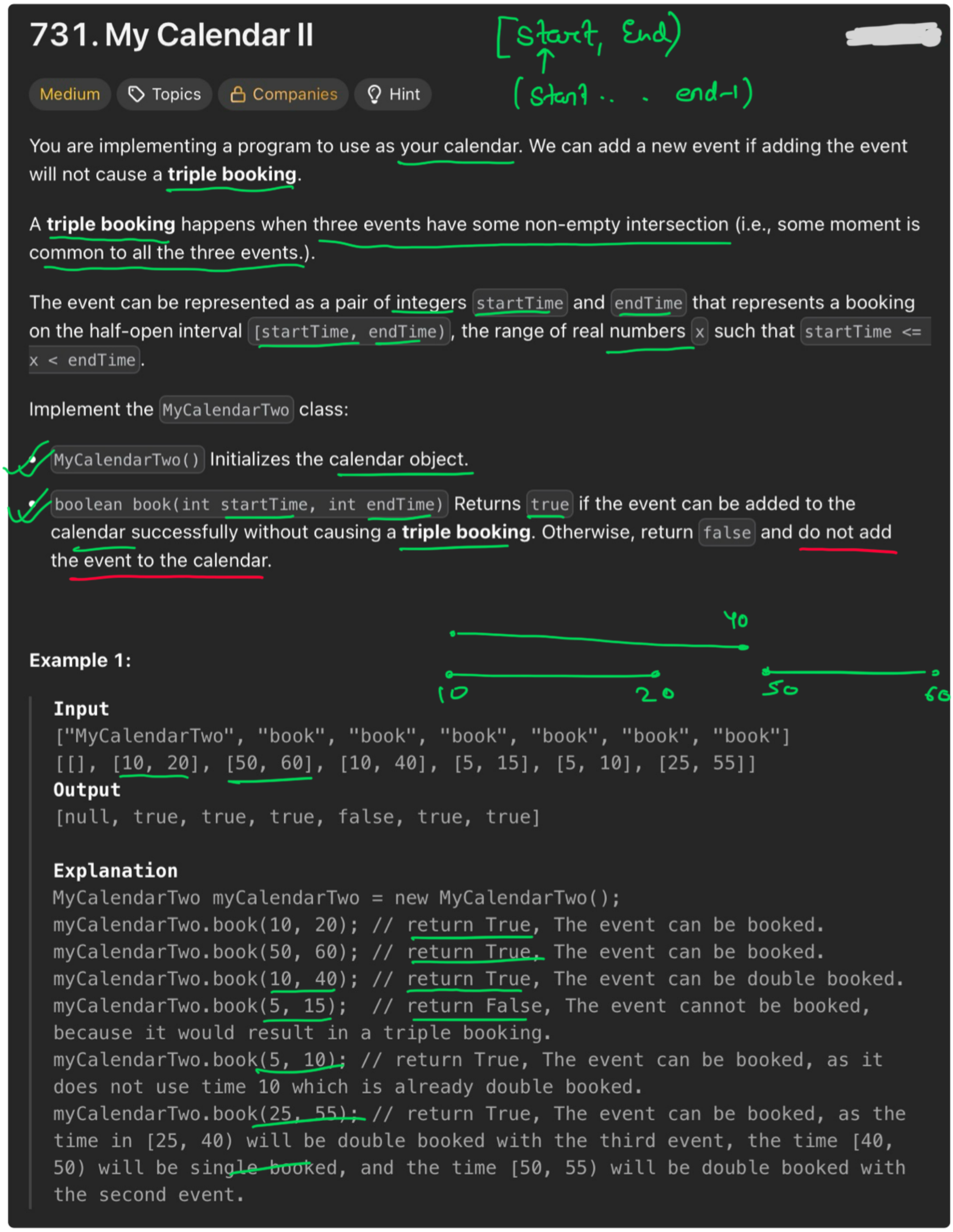
→ codestorywithMIK

Video - 5 ...

Motivation :

Discipline is just choosing between
what you want now
and

MIK...



731. My Calendar II

[redacted]

[Start, End)

(Start .. . end-1)

Medium · Topics · Companies · Hint

You are implementing a program to use as your calendar. We can add a new event if adding the event will not cause a **triple booking**.

A **triple booking** happens when three events have some non-empty intersection (i.e., some moment is common to all the three events.).

The event can be represented as a pair of integers `startTime` and `endTime` that represents a booking on the half-open interval `[startTime, endTime)`, the range of real numbers `x` such that `startTime <= x < endTime`.

Implement the `MyCalendarTwo` class:

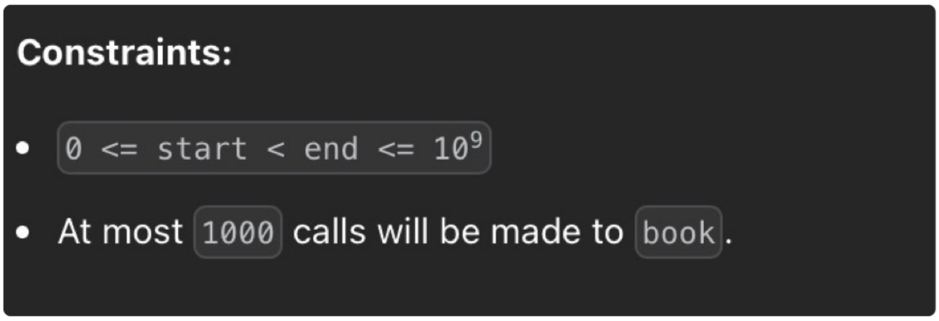
- `MyCalendarTwo()` Initializes the calendar object.
- `boolean book(int startTime, int endTime)` Returns `true` if the event can be added to the calendar successfully without causing a **triple booking**. Otherwise, return `false` and do not add the event to the calendar.

Example 1:

```
Input
["MyCalendarTwo", "book", "book", "book", "book", "book", "book"]
[[], [10, 20], [50, 60], [10, 40], [5, 15], [5, 10], [25, 55]]
Output
[null, true, true, true, false, true, true]

Explanation
MyCalendarTwo myCalendarTwo = new MyCalendarTwo();
myCalendarTwo.book(10, 20); // return True, The event can be booked.
myCalendarTwo.book(50, 60); // return True, The event can be booked.
myCalendarTwo.book(10, 40); // return True, The event can be double booked.
myCalendarTwo.book(5, 15);  // return False, The event cannot be booked,
because it would result in a triple booking.
myCalendarTwo.book(5, 10); // return True, The event can be booked, as it
does not use time 10 which is already double booked.
myCalendarTwo.book(25, 55); // return True, The event can be booked, as the
time in [25, 40) will be double booked with the third event, the time [40,
50) will be single booked, and the time [50, 55) will be double booked with
the second event.
```

Constraints Analysis :-

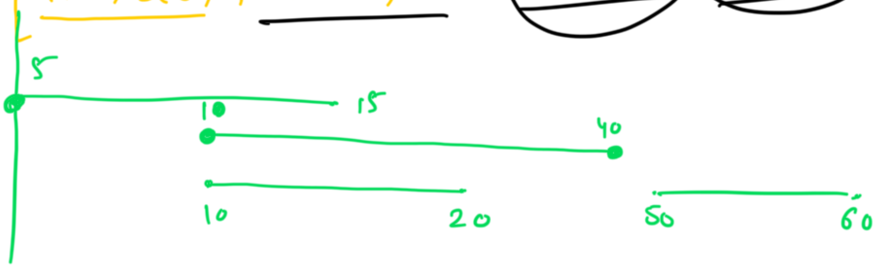


Constraints:

- `0 <= start < end <= 10^9`
- At most `1000` calls will be made to `book`.

Thought Process ....

[(10,20), (50,60), (10,40), (5,15), (5,10), (25, 55)]



events = {(10, +1), (20,-1) . . . . }

sort event.

map:- (Sorted)

5 → 0

10 → +1+1

Sorted.

15 → 0

20 → -1

40 → -1

50 → +1

60 → -1

Count = 1 + 2 = 3

>2

ret fals.

map

```
book ( s , e ) {
    mp[s] += 1
    mp[e] -1 = 1

    int count = 0;
    for ( auto & it : map) {

        count += it.second;
        if (count >2) {
            mp[s] -= 1;
            mp[e] += 1;   ret fals;
        }
    }

    ret tu;
}
```

Line Sweep: