

2158. Amount of New Area Painted Each Day Premium

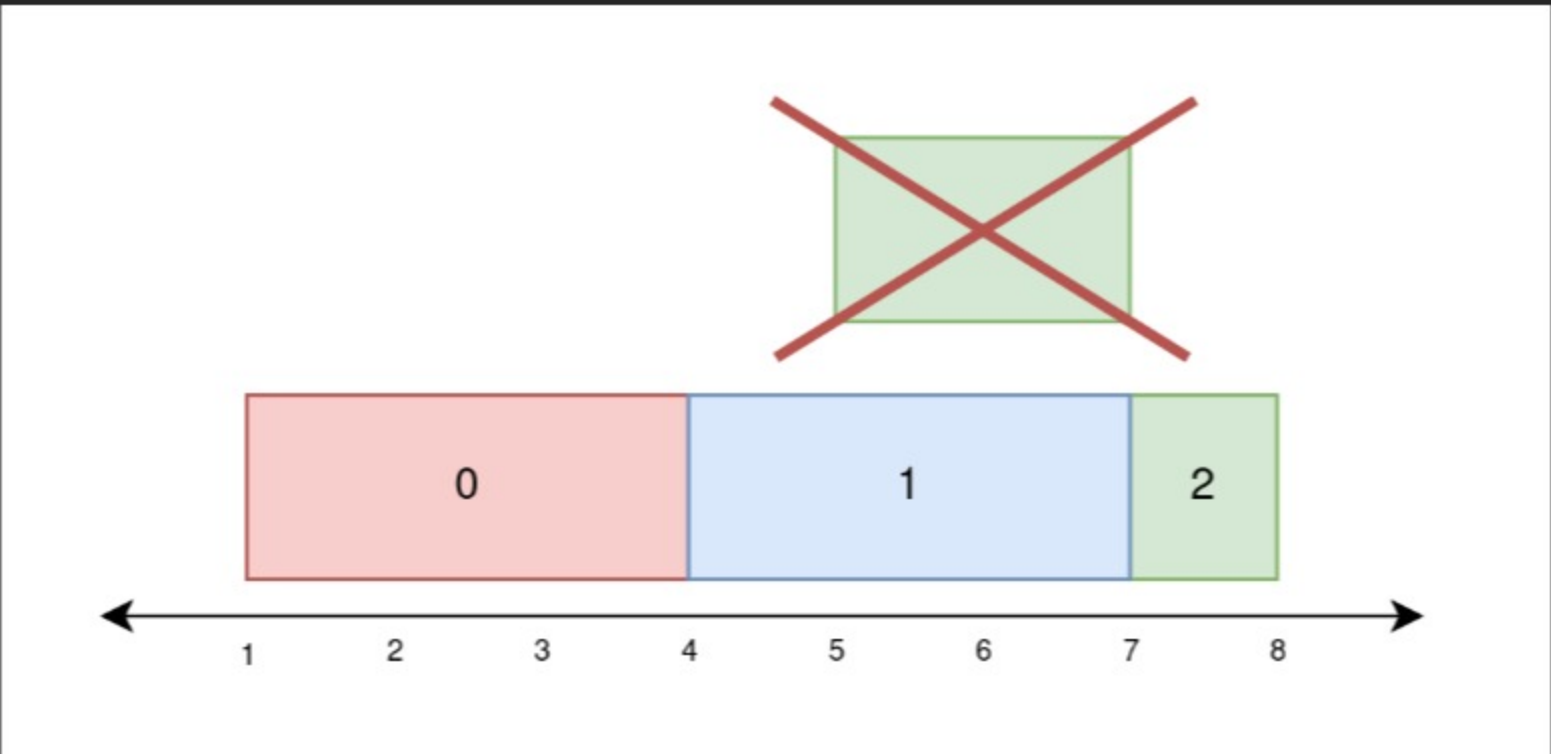
Hard Topics Companies Hint

There is a long and thin painting that can be represented by a number line. You are given a **0-indexed** 2D integer array `paint` of length `n`, where `paint[i] = [starti, endi]`. This means that on the `ith` day you need to paint the area **between** `starti` and `endi`.

Painting the same area multiple times will create an uneven painting so you only want to paint each area of the painting at most **once**.

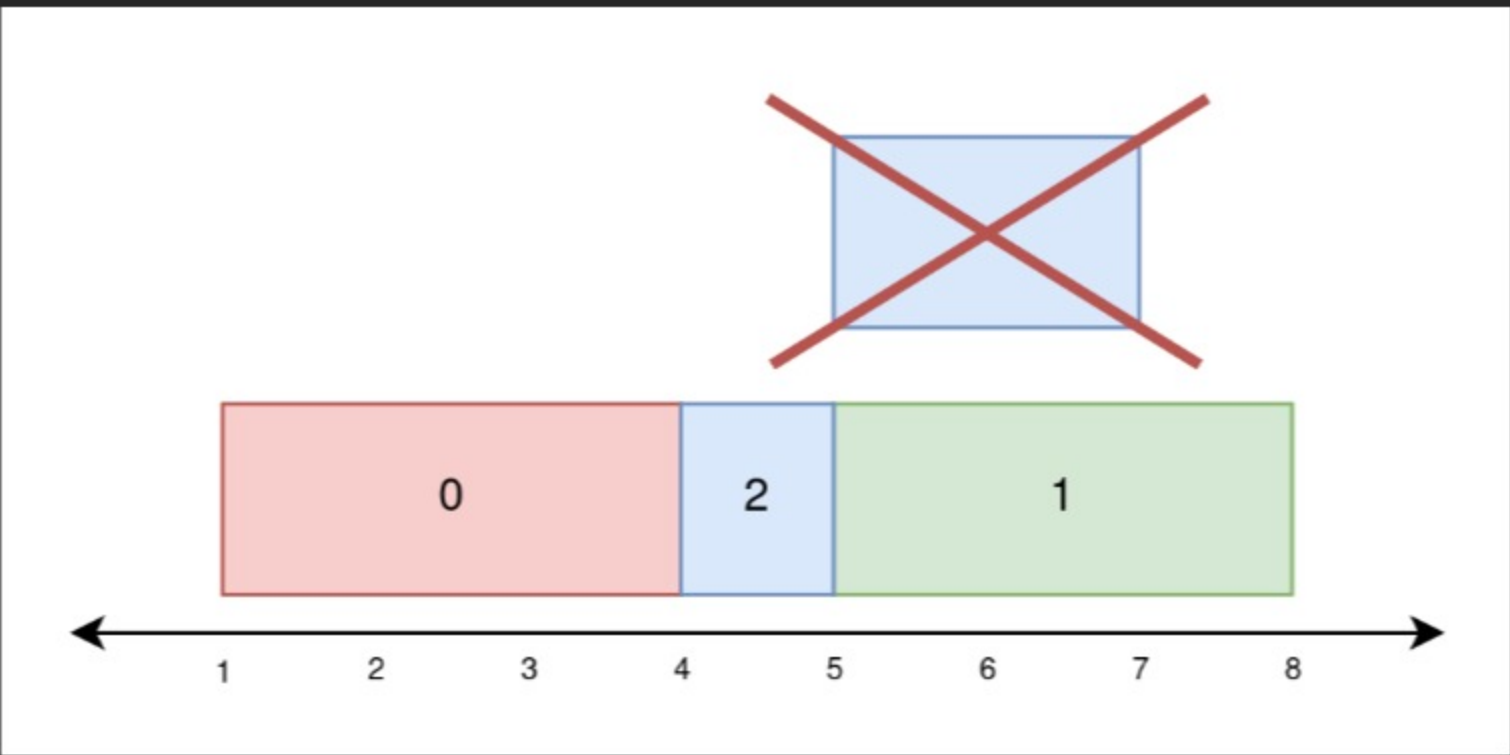
Return *an integer array* `worklog` *of length* `n`, *where* `worklog[i]` *is the amount of* **new** *area that you painted on the* `ith` *day*.

Example 1:



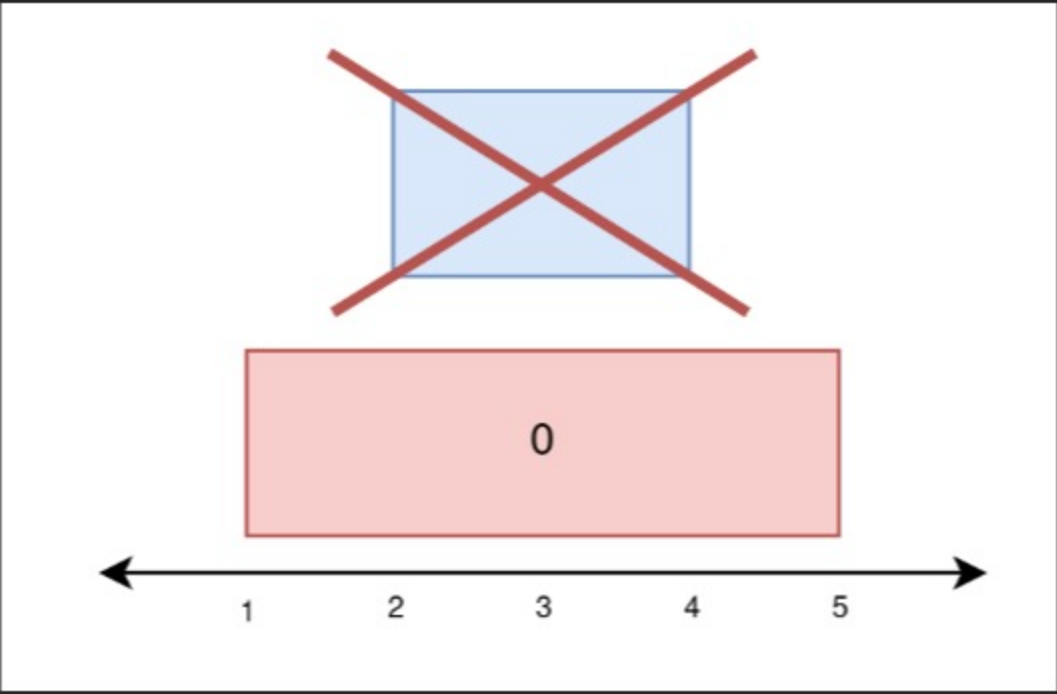
Input: `paint = [[1,4],[4,7],[5,8]]`
Output: `[3,3,1]`
Explanation:
On day 0, paint everything between 1 and 4.
The amount of new area painted on day 0 is $4 - 1 = 3$.
On day 1, paint everything between 4 and 7.
The amount of new area painted on day 1 is $7 - 4 = 3$.
On day 2, paint everything between 7 and 8.
Everything between 5 and 7 was already painted on day 1.
The amount of new area painted on day 2 is $8 - 7 = 1$.

Example 2:



Input: `paint = [[1,4],[5,8],[4,7]]`
Output: `[3,3,1]`
Explanation:
On day 0, paint everything between 1 and 4.
The amount of new area painted on day 0 is $4 - 1 = 3$.
On day 1, paint everything between 5 and 8.
The amount of new area painted on day 1 is $8 - 5 = 3$.
On day 2, paint everything between 4 and 5.
Everything between 5 and 7 was already painted on day 1.
The amount of new area painted on day 2 is $5 - 4 = 1$.

Example 3:



Input: `paint = [[1,5],[2,4]]`
Output: `[4,0]`
Explanation:
On day 0, paint everything between 1 and 5.
The amount of new area painted on day 0 is $5 - 1 = 4$.
On day 1, paint nothing because everything between 2 and 4 was already painted on day 0.
The amount of new area painted on day 1 is 0.

Constraints:

- `1 <= paint.length <= 105`
- `paint[i].length == 2`
- `0 <= starti < endi <= 5 * 104`

Seen this question in a real interview before? 1/5

Yes No

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Hint 1

What's a good way to keep track of intervals that you have already painted?

Hint 2

Create an array of all 1's, and when you have painted an interval, set the values in that interval to 0.

Hint 3

Using this array, how can you quickly calculate the amount of new area that you paint on a given day?

Hint 4

Calculate the sum of the new array in the interval that you paint.

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