ROIgold's blog

Help with Segment Tree problem, please!

By **ROIgold**, history, 13 hours ago,

In this -> 375D - Tree and Queries problem:
Given *tree* of n vertices, each vertex has its color, c_v
Given q queries of type: (v, k), $1 \le v \le n$, $1 \le k \le 10^5$
For each query print: number of colors with occurrence **at least** k, in **subtree** of v
$2 \le n \le 10^5$
$1 \le q \le 10^5$
$1 \le c_v \le n$

My Solution:
First, let's represent our tree as binary tree (segment tree), where v - th element represents color of v - th vertex, by using Euler's tour.
Now, for each vertex, we can store occurrences of colors in its **subtree**.
Notice, that it'll take $O(Nlog_2N)$ memory, (by using *std::map*), because on each level we store n elements and we have log_2n levels.

Then, since we don't need colors themselves, we can just store their occurrences (by using *std::vector*) in sorted order.
Then the query can be represented as follows:
Find number of elements from tin_v to $tout_v$, which are **greater or equal** than k.

Here we use **Segment Tree**.
Let's assume that we're on some vertex v, which responds for some segment l, r.
Then, if $tin_v \le l$ and $r \le tout_v$, *then, we return*:
$Elements[v].end() - lower_{bound}(Elements.begin(), Elements.end(), k)$, which's count of elements from l to r which are **greater or equal** than k.

I have **WA** in 6th test, which's size is too big and I can't find a mistake.
Please, tell me in comments if my solution or implementation is wrong, and if it is, then, where's error.
My implementation: 38001155.

Sorry for bad formatting, how to make tabs?
And additional, not related to this topic question: If I know Russian, should I write in Russian, or continue writing in English?
Sorry for my English, there might be some mistakes!

segment tree, euler tour, binary search, help me

+2 ROIgold 13 hours ago 2

Comments (2)

Write comment?


Kallaseldor

5 hours ago, # | ← Rev. 2 0

The problem with this solution is that when you query your segment tree, you might count a single color twice if it occurs more than K times on different branches of the segment tree.

EDIT: This test case fails for the same reason:

4 1

1 1 1 1

1 2

2 3

3 4

2 1

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ROIgold

2 hours ago, # ^ | ☆ +3

Thank You very much, I'll think about how to solve it!

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