Windowing Query

Segment Tree

- Query Time

Junhui DENG

deng@tsinghua.edu.cn

θ8-J-16

👁 Only [one] node is visited per level,

altogether [$\mathcal{O}(\log n)$] nodes

👁 At each node v
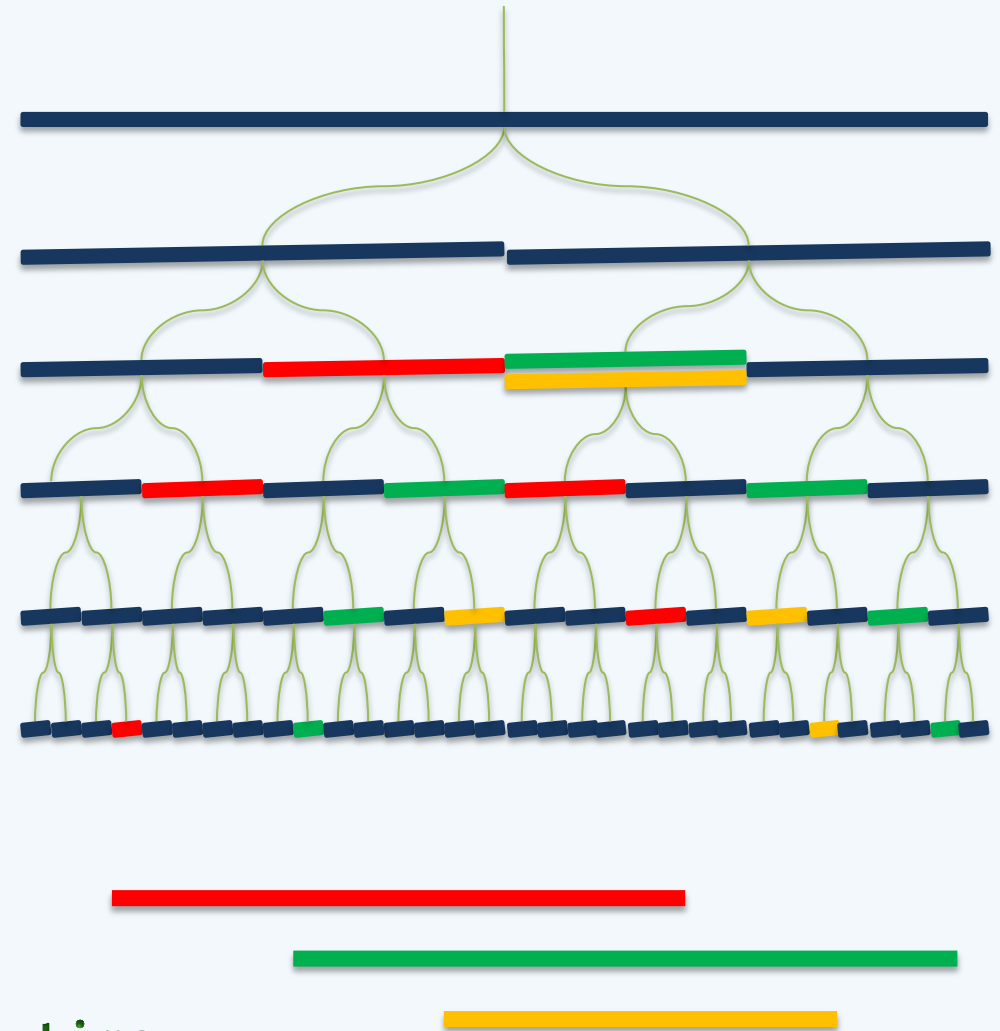
  - the [CS] [Int(v)] is reported

  - in time

$$1 + |Int(v)| = \boxed{\mathcal{O}(1 + r_v)}$$

∴ Reporting all the intervals costs $\mathcal{O}(r)$ time

❖ For a set of n intervals,

- a segment tree of size $O(n\log n)$

- can be built in $O(n\log n)$ time

- which reports all intervals

  containing a query point

  in $O(r + \log n)$ time