Point Location

Performance Of Trapezoidal Map

- Size Of Search Structure

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E[|SS(S)|] = $O(n)$

❖ Claim:

the size of SS(S) is **expected-$O(n)$**, where

the expectation depends **only**

on the insertion **order**

❖ Observation:

#(new nodes added to SS(S) with each new segment)

$\propto$

#(newly created trapezoids)

E[|SS(S)|] = $\mathcal{O}(n)$

- We have just showed that

  with each new insertion,

  the expected number of trapezoids that were created

  was $\boxed{\mathcal{O}(1)}$

- Therefore

  - $\boxed{\text{expected-}\mathcal{O}(1)}$ new nodes were added to SS(S)

    with each insertion, and

  - the total size of SS(S) is $\boxed{\text{expected-}\mathcal{O}(n)}$