Triangulation

Monotone Decomposition

- Analysis

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❖ All vertices can be sorted into the event queue in $\boxed{O(n\log n)}$ time

❖ If S is implemented as a dictionary,

each operation (insert | remove | search | pred | succ)

can be evaluated in $\boxed{O(\log n)}$ time

❖ On the other hand, observe that there are altogether $\boxed{n}$ events,

each of which costs a $\boxed{\text{constant}}$ number of operations

❖ Hence we have

A simple $\boxed{n}$-gon can be partitioned into monotone pieces

in $\boxed{O(n\log n)}$ time