Two Algorithms for Maintaining Order in a List

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Abstract

The *order maintenance problem* is that of maintaining a list under a sequence of *Insert* and *Delete* operations, while answering *Order* queries (determine which of two records comes first in the list). We give two new algorithms for this problem. The first algorithm matches the $O(1)$ amortized time per operation of the best previously known algorithm, and is much simpler. The second algorithm permits all operations to be performed in $O(1)$ *worst-case* time.

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