Optimal binary trees in online algorithms

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September 2002
CMU-CS-02-148

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Abstract

Some binary search tree algorithms, such as splay trees, structure the tree in a way that depends on the history of accesses. In this paper we consider what happens if at each point in time the optimal binary search tree (for the access frequencies seen so far) is maintained. We prove lower and upper bounds on the competitive ratio (with respect to the final optimal tree) of such an algorithm.

\footnote{This research was sponsored by National Science Foundation (NSF) grant no. CCR-0122581. The views and conclusions contained in this document are those of the author and should not be interpreted as representing the official policies, either expressed or implied, of the NSF or the US government.}
Keywords: optimal binary trees, online algorithms, competitive analysis