

Tutorial 06: Feb 26

1. MTF/Transpose

Consider a linked list with the keys k_1, k_2, \dots, k_n in that order. Give a sequence of n searches such that the Move-To-Front Heuristic uses $O(n)$ comparisons, while the Transpose Heuristic uses $\Omega(n^2)$ comparisons.

2. Interpolation

Suppose we have an array \mathcal{A} of numbers such that $\mathcal{A}[i] = t\sqrt{i}$ for $0 \leq i \leq n - 1$ and some positive number t . Show that, using interpolation search, searching for t in \mathcal{A} takes $O(\log \log n)$ time.

3. Skip List Practice

Insert the numbers 12, 11, 13, 10, 20 into an empty skip-list using the coin flips HHTHTHTTHHHT. Then delete the keys 13 and 20.