

Tutorial Week 6

Definition 1. *The longest common prefix of two words x and y is denoted by $\text{lcp}(x, y)$.*

Exercise 1. *Consider the following list of words: ancestor, ancestral, ancestrally, ancestors, ancestral, ancestress, ancestresses, ancestries, ancestry, anchor, anchorable, anchorage, anchorages, anchorate, anchored, anchoress, anchoretical, anchoretish, anchoretism, anchoring, anchorite, anchorites, anchoritess, anchoritic, and.*

Consider a random distribution of this list.:

- a) *Do a sorting of the list with bucket sort.*
- b) *Calculate the lcp of consecutive elements.*
- c) *Using the following Lemma compute the rest of the lcp's.*

Lemma 2. *Let $L_0 \leq L_1 \leq \dots \leq L_{n-1}$ and take the integers d , i , and f , with $-1 < d < i < f < n$. Then $\text{lcp}(L_d, L_f) = \min(\text{lcp}(L_d, L_i), \text{lcp}(L_i, L_f))$.*

- d) *Draw the binary search tree for the previous item.*