

Assignment 2

Task 1: "An Introduction to Applied Dendrology" 3

Implement a binary tree-based container for say integers. Draw a large set of random keys. Empirically compare the cumulative running times for inserting the keys into:

- a) a binary tree, in the original random order,
- b) a binary tree, in the best-case order of, e.g. building consecutive levels of the tree downwards. Root, its children, grandchildren ... (requires rearranging the keys beforehand),

Explanation: the goal is to obtain a perfectly balanced tree, thus no node can be inserted before its parent in the balanced version of the tree. You may assume that you have $n=2^m - 1$ keys.

- c) a library solution, say `std::set`.

Task 2: "Pruning the bushes" 4

Include in Task 1 a comparison of key removal times for the two data structures, say, in original random order.