Algorithms and data structures
Dynamic data structures

In this exercise the differences between linear and non linear data structures in regard to data storage were presented. Ordered list is a linear data structure, which means that it can be traversed only in one direction. It is definitely the most intuitive data structure, but the least time efficient when it comes to searching for a specific element (time complexity is $O(n)$ since whole list needs to be iterated), Each element is linked to previous one, so when inserting a new element in the list there is only a need to create a new link. BST and BBST are a part of non linear data structures that are less intuitive, but more time efficient. The average time complexity of operations on BBST is $O(logn)$, which is smaller than the ordered list, but in order to achieve that rotations must be introduced.
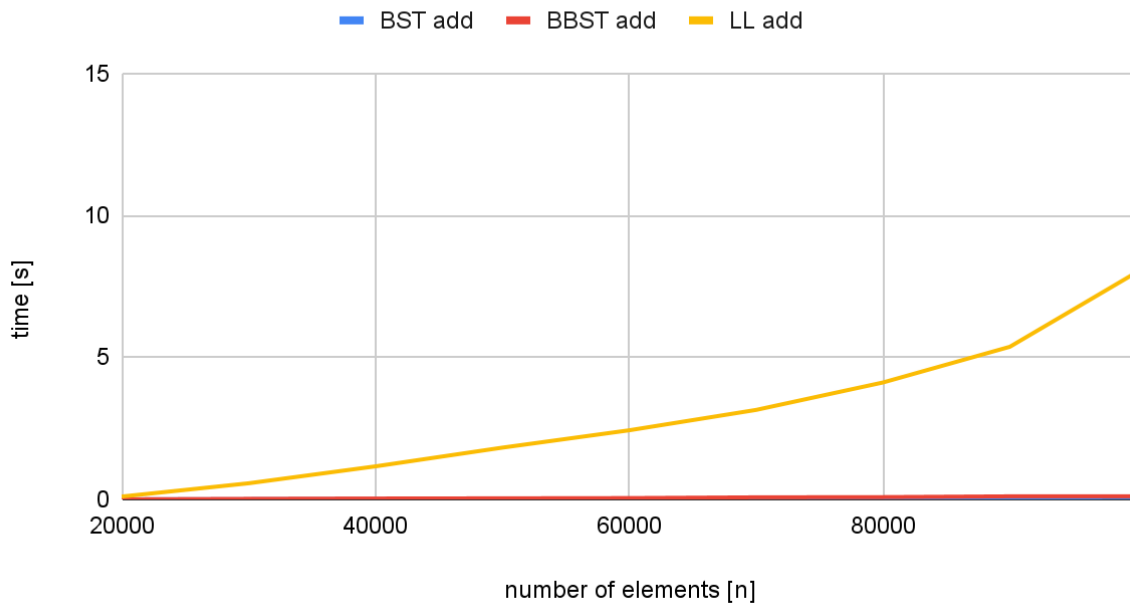
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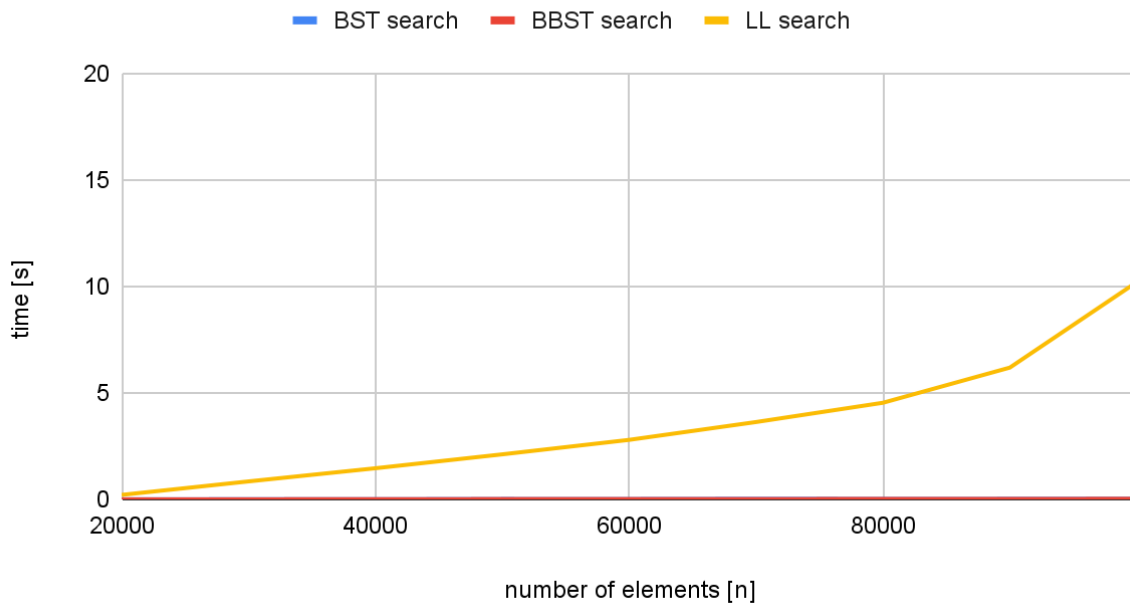
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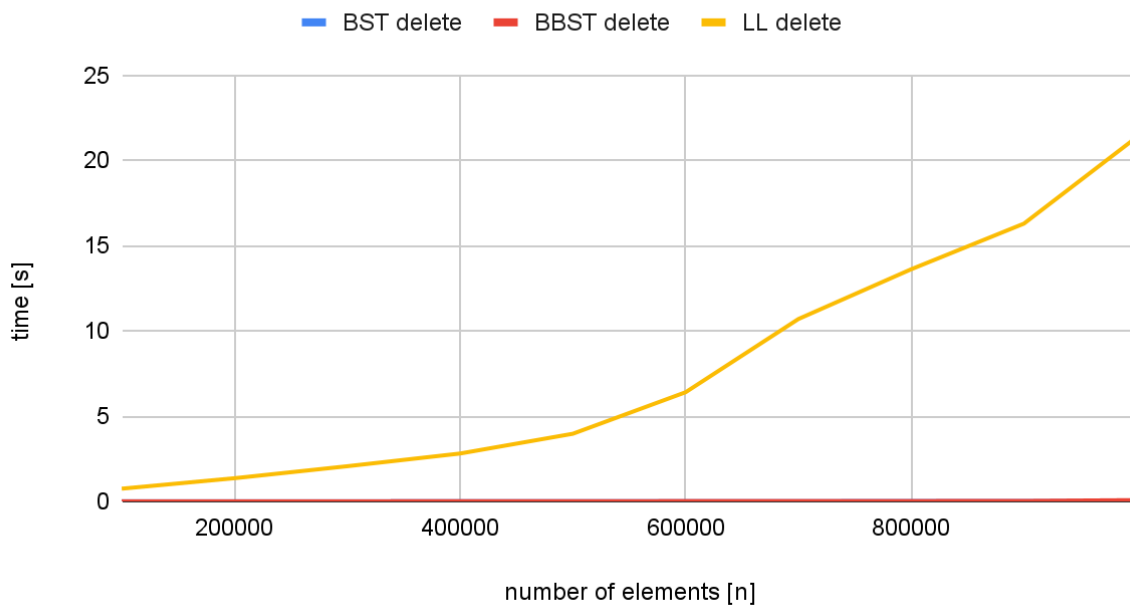
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In worst case scenario Binary Search Tree has the same time and space complexity as the ordered list, therefore to avoid it, a Balanced BST was introduced. It eliminates extreme cases of BST by adding a constraint that the difference in length of tree branches cannot exceed be greater than 1 or smaller than (-1).

BST vs BBST