BST

The experiment involved plotting the relationship between height and insertion time in a binary search tree (BST). This trend mostly assumes linear behavior, as prescribed in Big-O notation, with the insertion time increasing linearly with the growth of the tree's height. However, the relationship observed is not always consistent if taken to be linear, given other contributing factors to the issue, like sample size limitation and differences in randomness. Theoretical Big-O notation suggests O(h) for insertion, where h is height, and on average, O(log n), where n is the number of nodes. In practical application, this is not true, since there might be other factors such as tree structure and value distribution. The graph of the two clearly shows a trend: the tree is getting higher with the insertion of elements. However, it doesn't clearly seem to show linearity with the relationship between height and time of insertion. Add a small sample size and lack of information about the balance in the tree, and you have further difficulty analyzing it. Thus, this experiment pretty much followed the expected behavior of BST, even though it did not give enough evidence to arrive at a viable worst-case time for its solution. A screenshot of a computer

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