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October 17, 2015

CSC 130

AVL Tree vs Red-Black Tree

Ascending(ms) |Descending(ms)|Random(ms)|All(ms)  
ÏÏAVL  
65210.000000 |66395.000000 |48.000000 |131653.000000

62523.000000 |70010.000000 |49.000000 |132582.000000  
ÏÏRedBlack  
23.000000 |26.000000 |5.000000 |54.000000

25.000000 |26.000000 |5.000000 |56.000000

I ran the test with millisecond time to get easier to read and understand numbers, I did this with the assumption that I would lose precision for more readability. Through testing I found that the Red-Black tree outperformed the AVL tree in every aspect of the analysis. It seems due to the fact the Red-Black tree does not have to make recursive calls for height it can insert values significantly faster than the AVL tree. Time was found before insertion but after clearing the trees and the overall value was found by adding all the other time values.

When performing the test I only used 100000 values instead of more quickly outputted. Even in my final test that used 1000000 values the Red-Black still outperformed AVL. I believe Red-black outperformed the AVL because of fewer recursive calls and the fact that red black has to perform fewer rotations when inserting new values.

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