Subject: Concept Review: SB Trees (Part 1)
Posted by davidmccoy on Fri, 10 Feb 2017 15:58:52 GMT

This thread is part of the proposed schedule for study for the first exam. Discuss the practice problems here.
View questions here: http://beastie.cs.ua.edu/concepts/cs/al/sbtrees.html
This thread covers questions 1-26 of SB trees.

Work together on the proposed answers to questions on this shared Google Doc (comment reasoning/arguments behind answers)

Full schedule

Subject: Re: Concept Review: SB Trees (Part 1)
Posted by davidmccoy on Mon, 13 Feb 2017 17:33:12 GMT

Not sure how to derive the number of red nodes vs black nodes from the properties of a RB tree. Help?

Subject: Re: Concept Review: SB Trees (Part 1)
Posted by davidmccoy on Mon, 13 Feb 2017 17:39:24 GMT

I have a feeling it's L=2S-1, but not that confident; also not sure why I have this feeling.

Subject: Re: Concept Review: SB Trees (Part 1)
Posted by lusth on Tue, 14 Feb 2017 13:49:23 GMT

The shortest path has only one red node (the origin). The longest is the shortest plus as many red nodes stuffed in as possible. For these, do an example, say black-height of 4.
Should we assume that the book’s answer of never performing more than two rotations is correct for their pseudocode as well as theirs?

"Consider inserting the following numbers, in the order given, into an empty BST and then coloring the root black and the other nodes such that no red node has a red parent: each node:
  0 4 3 8 1 2 6 5 9 7
What is the minimum / maximum number of red nodes possible?"

Can someone help with this one?

Are rotations allowed, or do you just keep the unbalanced tree?

bhpauken wrote on Sat, 18 February 2017 13:50"Consider inserting the following numbers, in the order given, into an empty BST and then coloring the root black and the other nodes such that no red node has a red parent: each node:
  0 4 3 8 1 2 6 5 9 7
What is the minimum / maximum number of red nodes possible?"

Can someone help with this one?

Are rotations allowed, or do you just keep the unbalanced tree?

I believe you just keep the unbalanced tree. It is a regular BST, after all. (with the exception of the property in the question)
I mentioned in class that this was not a good question, since the resulting bst does not have the correct shape for a red-black tree.