

Quiz

CSC301 Algorithms and Data Structures

31 March 2015

1. A binary search within an ordered array requires logarithmic time. A search in a binary search tree that has been constructed by adding random values also requires logarithmic time.
 - (a) Which kind of search is faster?
 - (b) Insertions are faster on which kind of data structure?
2. What does the `floor()` method for the binary search tree (shown on page 407) accomplish?
3. How are the `rank()` and `select()` methods for the binary search tree (shown on page 409) related?
4. What do the authors of our textbook have to say about the relative merits of using loops versus recursion in our definitions of the methods of the binary search tree class?
5. There are two easy and one hard case for deletion of a node from a binary search tree. What is the hard case?
6. The authors of our textbook introduce us to binary search trees, 2–3 trees, and red-black trees, in that order.
 - (a) What advantage do 2–3 trees offer over binary search trees?
 - (b) How are red-black trees related to 2–3 trees? to binary search trees?