

Feedback — Interview Questions: Balanced Search Trees

You submitted this homework on **Sun 24 Mar 2013 2:29 PM PDT -0700**. You will be able to view your score after the deadline passes.

These interview questions are for your own enrichment and are not assessed. If you click the *Submit Answers* button, you will get a hint.

Question 1

Red-black BST with no extra memory. Describe how to save the memory for storing the color information when implementing a red-black BST.

Your Answer	Score	Explanation
Total	0.00 / 0.00	

Question Explanation

Hint: modify the structure of the BST to encode the color information.

Question 2

Document search. Design an algorithm that takes a sequence of N document words and a sequence of M query words and find the shortest interval in which the M query words appear in the document in the order given. The length of an interval is the number of words in that interval.

Your Answer	Score	Explanation
Total	0.00 / 0.00	

Question Explanation

Hint: for each word, maintain a sorted list of the indices in the document in which that word appears. Scan through the sorted lists of the query words in a judicious manner.

Question 3

Generalized queue. Design a generalized queue data type that supports all of the following operations in logarithmic time (or better) in the worst case.

- Create an empty data structure.
- Append an item to the end of the queue.
- Remove an item from the front of the queue.
- Return the i^{th} item in the queue.
- Remove the i^{th} item from the queue.

Your Answer	Score	Explanation
Total	0.00 / 0.00	

Question Explanation

Hint: create a red-black BST where the keys are integers and the values are the items such that the i^{th} largest integer key in the red-black BST corresponds to the i^{th} item in the queue.