

# Feedback — Interview Questions: Balanced Search Trees

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You submitted this homework on **Wed 12 Mar 2014 7:42 AM PDT**. 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  $i^{\text{th}}$  item in the queue.
- Remove the  $i^{\text{th}}$  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  $i^{\text{th}}$  largest integer key in the red-black BST corresponds to the  $i^{\text{th}}$  item in the queue.