CS 535 Homework 6
Due: March 8 (Th), in class.

Please answer problems 1, 2, 3.

1. R-3.15. For a, b, and c, do the first 5 keys only.

2. (Based on C-3.1.) Let $S$ and $T$ be ordered dictionaries implemented using sorted arrays. Suppose both contain $n$ items each.
   
   a. Design an $O(\log n)$ algorithm that finds the lower and upper median keys in the union of the keys from $S$ and $T$. Assume there are no duplicate keys.
   
   b. Suppose we now wish to find the $k$th smallest key in the union of the keys from $S$ and $T$. For example, we might be interested in the tenth smallest number or the $\lfloor n/4 \rfloor$th smallest number. Given $k$, describe how you can use the algorithm in part a to solve this new problem.

3. C-3.11. For this problem, assume each node $v$ has the field $v.size$. 