Problem 58

Ryan Burmeister

March 4, 2016

The expected worst case cost of insertion or search for a randomized binary search tree is $O(logn)$ as the height is expected to be somewhere on the order of the lg of the number of inputs. Search can be performed in the same manner as is done for an AVL or 2-3-4 tree. The algorithm is shown below.

```
1: Start at root node
2: while node ! = null and node.value ! = searchValue do
3:     if searchValue > node.value then
4:         node = node.rightChild
5:     else if searchValue < node.value then
6:         node = node.leftChild
7:     else
8:         return node.value
9:     end if
10: end while
11: print "Value not in RBST"
```