

CSCI-1200 Data Structures — Fall 2010

Lab 10 — Sets and Sudoku

Checkpoint 1

For the first checkpoint, we will explore the implementation of the `ds_set` class, along with the use of recursive functions to manipulate binary search trees. Download and examine the files:

```
http://www.cs.rpi.edu/academics/courses/fall10/ds/labs/10\_sets/ds\_set.h  
http://www.cs.rpi.edu/academics/courses/fall10/ds/labs/10\_sets/test\_ds\_set.cpp
```

The former contains the implementation discussed in Lecture 16, including the functions implemented in lecture as exercises. The latter contains code for testing the implementation. Some of this has been commented out because not all of the functions have been implemented.

The implementation of `find` provided in `ds_set.h` is recursive. Implement and test a non-recursive replacement for this function.

To complete this checkpoint: Show one of the TAs your new code. Be prepared to discuss the running time for the two different versions of `find` for various inputs.

Checkpoint 2

The implementation of the copy constructor and the assignment operator is not yet complete because each depends on a private member function called `copy_tree`, the body of which has not yet been written. Write `copy_tree` and then test to see if it works by “uncommenting” the appropriate code from the main function.

To complete this checkpoint: Show one of the TAs your new code and some new test cases you’ve written to exercise the copy constructor, the assignment operator, and the destructor.