

# CSCI-1200 Data Structures — Spring 2019

## Lab 9 — Binary Search Trees & STL Sets

### Checkpoint 1

Checkpoint 1 will be available at the start of Wednesday's lab.

### Checkpoint 2

*estimate: 15-30 minutes*

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/spring19/csci1200/labs/09\\_sets/ds\\_set.h](http://www.cs.rpi.edu/academics/courses/spring19/csci1200/labs/09_sets/ds_set.h)

[http://www.cs.rpi.edu/academics/courses/spring19/csci1200/labs/09\\_sets/test\\_ds\\_set.cpp](http://www.cs.rpi.edu/academics/courses/spring19/csci1200/labs/09_sets/test_ds_set.cpp)

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 3

*estimate: 15-30 minutes*

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:** Present your solution to one of the TAs.