CSCI-1200 Data Structures — Spring 2020
Lab 10 — Binary Search Trees & STL Sets

> Reminder: The contents of the lab will not be graded, only whether or not you submit lab-related code. You can safely ignore any requirements that say things like "explain to a TA", though for completeness, you may want to write your answers in a plaintext file (e.g. *.txt*) and submit them as well.

Checkpoint 1

> Checkpoint 1 is available on Submitty under Course Materials as "worksheet.pdf"
> Normally you would have a partner, but since we're remote, this is individual.

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/spring20/csci1200/labs/10_sets/ds_set.h
  http://www.cs.rpi.edu/academics/courses/spring20/csci1200/labs/10_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.