

Spring 2016 CSC 325

Assignment 2. Implement a Binary Search Tree

Due: Thurs. Mar. 11, 11:59pm

1. Review concepts of pointers and addresses.
Review and run three sample C++ programs in the folder
\\eccentric\Class\CSC-325\001_Download\Sample C++ code
 SimpleAddressOfArray.cpp
 SimpleAddressDemo2.cpp
 DemoParameters.cpp
 (use **g++ -std=c++11 SimpleAddressOfArray.cpp** followed by **a** to execute)
The outputs of those programs demonstrate pointer operation and behavior.
2. With no modification at all, the provided code **Assn2_BST_provided.cpp** will put the first word from an input file into the root of a Binary Search Tree.
*(The printed output of the provided code has a partial start to the graphics output. You could change to text-only by changing the code toward the end of **main()**.)*

Use **g++ -std=c++11 Assn2_BST_provided.cpp** followed by a **TinyTest.txt** to execute.
You expect the output to reflect that only a single word has been put into the tree.

Review the design of the Binary Search Tree. For instance, the variable **root** is a pointer to an **BinarySearchTreeNode** object, and each **BinarySearchTreeNode** object contains left and right pointers to other **BinarySearchTreeNode** objects.

Review the operation of the **print()** recursive function. Draw some sample Binary Search Tree and follow the operation of **print()** on that tree.

3. Complete **insert()**, specifically at the points **////////// COMPLETE ME!**
so that the **insert()** function correctly inserts data within the tree.

Now you expect the output to reflect that all words from the input file have been put into the tree and are printed in alphabetical order.

4. The provided **graph()** function draws the edges of a Binary Search Tree.
(Sensible graphic output is only possible when the input file is pretty small – don't expect legible results from a large input file.)

Complete the **graph()** at the points **////////// COMPLETE ME!**
so that the **graph()** function prints the text word as well as the lines for edges.

Use the sequence similar to (your filenames may vary):

```
g++ -std=c++11 Assn2_BST_provided.cpp  
a TinyTest.txt > plotter.dat  
python BearPlot.py plotter.dat
```

Rename your program **Assn2_MyMSUID.cpp** and put it in your [\\eccentric\Class\CSC-325\001\MyMSUID](#) folder.