

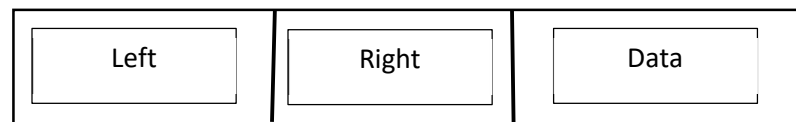
Cosc 2P12

Assignment 4

(Due date for assignment is Monday November 29th ,4:00 p.m. est., Late date Thursday December. 2nd, Noon.est)

Part A:

You will find a MIPS assembly program BinaryTree.asm as downloadable code. You can assemble and run this program. It will prompt you to enter integers until a 0 is entered, terminating the input. These integers are stored in Input. The call to BuildTree will build a Binary Search Tree from Input, where Root points to the root node of the tree. Each Node is laid out in the following format:



A node consumes 12 bytes, i.e. 3 words. The first 2 words hold pointers to other nodes in the tree while the last word will hold the integer payload. Note: that null is represented as -1 in the nodes, and non null values are addresses in the heap space. You can inspect the heap and see the structure of the tree.

Write the procedure InOrder which will traverse the tree yielding an InOrder output of the data values. This procedure will be recursive and must comply with the standards as taught in class.

Each recursive call will need an activation record. These should be created and destroyed using the conventions set out in lecture. Following convention is important to show your understanding of activation records.

Be sure to properly document your code.

Test your solution with multiple inputs. At the very least show that the following input 66 44 75 21 57 79 39 24 will produce an InOrder output.

Submission

This submission will be submitted electronically as a MIPS assembly file.

The TA will be running your program to ensure it is fully functional. Make the marker happy!!!

For the electronic submission, use Sakai, an assignment 4 submission will be available.

The End