Lab 15 Guide

Topics of the Day:

- More Trees: DFS/BFS, Binary, Fibonacchi, Experssion

Overview

Brief intro to stacks and queues. Simple concepts. DFS and BFS through the use of an iterator.

Exercises

Iterator

Should only be difficult if students don't understand DFS/BFS or how an iterator works still. Advised approach: use a linked list as the stack/queue, and use the add and removeLast/First() methods to dequeue/pop from the fringe.

Build and check a tree

The code is almost all given. Students should not struggle. Remind them to take advantage of the recursive structure of the tree if they do. It might be worthwhile to suggest using a HashSet instead of an arraylist, for students that understand how dictonaries worked in python.

FibTree

Another carbon copy exercise, should be implemented recursively.

Expr tree

This is a bit tricky if they didn't do the scheme interpreter in 61A. If they did, this should be familiar territory. They key fill-ins are: 1. if there is no expression, return a treenode with the string as is. 2. either increase/decrease the nesting, or if the operator is found, set the opPos 3. return a new treenode with the operator and recursively call on the left and right