CSCI 220 -- PA 8

Trees & Traversals

Feel free to discuss and help each other out but does not imply that you can give away your code or your answers! Make sure to read all instructions before attempting this lab.

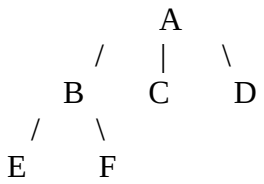
New: You can work with a lab partner and each one must submit the same PDF file (include both names in the submission file). Each person must include a brief statement about your contribution to this assignment.

You must use an appropriate provided template from Canvas or my website (zeus.mtsac.edu/~tvo) and output "Author: Your Name(s)" for all your programs. If you are modifying an existing program, use "Modified by: Your Name(s)".

Exercise 1: Provide pseudocode for either preorder traversal or post-order traversal for general trees **without recursion** (*hint: use a stack*). Trace your algorithm for the following tree to confirm that it is working correctly:

Preorder: A B E F C D

Post-order: E F B C D A

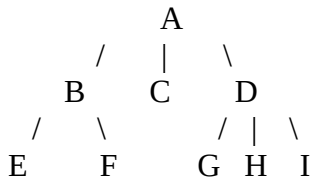


Exercise 2: Provide pseudocode for breadth-first (level order) traversal for general trees (*hint: use a data structure that you studied before*). Trace your algorithm for the tree in exercise 1 to confirm that it is working correctly:

Level order: A B C D E F

Question 1: What are the running times for the two algorithms in exercises 1 and 2?

Question 2: Provide preorder traversal, post-order traversal, and level-order traversal for the following tree.



Extra Credit: Provide pseudocode for either preorder traversal or post-order traversal for general trees without recursion that you have not provided in exercise 1. Trace your algorithm for tree in exercise 1 to confirm that it is working correctly.

Fill out and turn in the PA submission file for this assignment (save as PDF format).