Extra credits (2.5 points in the final grade)

 Post-order traversal of Binary Tree

Objective: Programming for fun and credits

Overview

As you did in homework 2, the combine information from pre-order and in-order traversal of a binary tree can be used to determine the tree structure. Let each node in a binary tree be represented by a letter as shown in the following example. The pre-order and in-order traversals of the tree yield strings:

A

B

C

I

H

E

D

J

F

G

Pre-order string: ABDEFGCHJI

In-order string: DBEFGAHJCI

From the pre-order and in-order traversal strings, one can define the tree and perform the post-order traversal on it. This is the task of this program.

A tree can be represented by its pre-order string and in-order string. In the example, the tree with pre-order string=ABDEFGCHJI and in-order string=DBEFGAHJCI can be represented as

Tree(preorder=”ABDEFGCHJI”, inorder=”DBEFGAHJCI”).

Tree(preorder=”ABDEFGCHJI”, inorder=”DBEFGAHJCI”) has a root ‘A’, the left-subtree tree(preorder=”BDEFG”, inorder=”DBEFG”) and the right sub-tree of tree(preorder=”CHJI”, inorder=”HJCI”).

Submission

The latest time to get extra points for this program is November 13, 2021. 11:59pm. Put everything in one file, name it yourlastname\_firstinitial\_extra4.cpp, and submit the file on canvas (you need to implement one function printPostOrderString()).

Grading

The program that passes all testing cases will be awarded at most 2.5 points in the final course numerical grade that can be applied either as the programming assignment points or exam points.