Project 4 Binary Trees

By: Alexander J Sanna

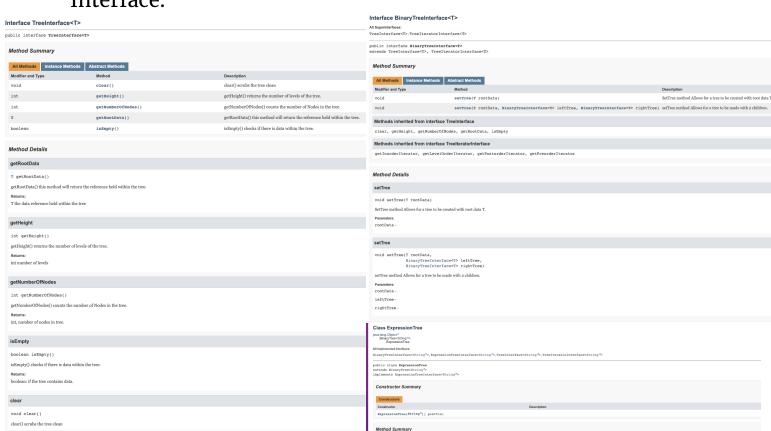
Due: December 2nd, 2022

Computer Science 2400 - 002

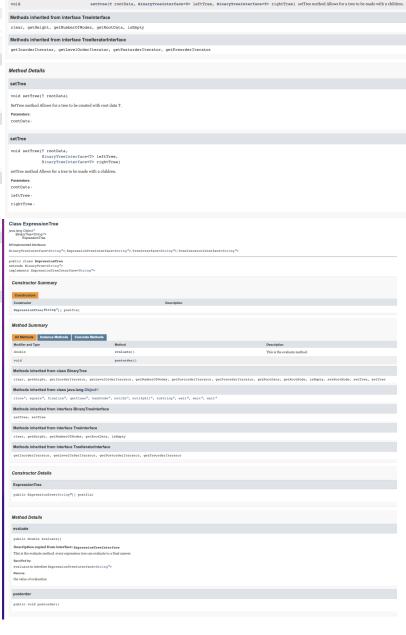
015193607

Project Specification:

This Project required the implementation of 4 separate interfaces. However, the BinaryTreeInterface extended both the Tree Interface as well as the Tree Iterator Interface. Below are the JavaDoc files for all three of these, along with Expression Tree Interface, an extension of Binary Tree Interface.



All of these methods Specified by the interfaces were implemented in the classes described in the Following section.



Testing and Implementation:

For the implementation I ran with a Binary Node class, a binary tree class and an Expression tree class. The binary node served as the implementation of the binary tree class as it held references to the data of each binary tree as well as a reference to the tree's children. For the expression Tree, i had to utilize a stack to ensure that the constructor performed correctly and did its job in storing the correct data in the correct spot of the tree. This made the postorder method and the evaluate method that much easier.

What I learned?

I learned a lot about the tree adt as well as recursion, which was not at all easy for me. The recursive methods in this project easily took me over 10 hours to understand and implement, I just could not wrap my head around this.

However, in the end, it all worked out and I am really proud of how this project turned out.