**Team Project 3A: Binary Tree Infix Expression Parser**

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CPT-287-R82 Intro to Data Struct. With Java

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**System Design**

Our system starts with the main method in the Driver class which uses the toBinaryTree method in the ExpToBT class to convert a current expression into a binary expression tree. The toBinaryTree method in the ExpToBT class uses the build method in the same class to build and return binary tree nodes. The toBinaryTree method also uses the precedence method in the same class to assign and return the precedence of operators. \*INCOMPLETE: talk about Evaluator class, expression parser\*

Our system used the stack, binary tree, and array list data structures. Stacks were used in the toBinaryTree and build methods of the ExpToBT class in order to hold the operators of the expression as well as the binary tree nodes that the expression was being converted to. Binary tree nodes were defined in the BTNode class and were used across the Driver and ExpToBT classes. As previously stated, the ExpToBT class uses the binary tree data structure to create a binary tree of an expression, and the Driver class is only provided with the root node of the resulting tree. The Driver class also uses an array list to store each expression taken from the input file. \*INCOMPLETE: talk about expression parser\*

**UML Diagram**

**Test Cases**

**Contributions**

Rawan Alhachami:

Ollie Peel: Wrote code for the Driver class which reads data from an input file and uses the ExpToBT.toBinaryTree method. Wrote the BTNode class, Evaluator class, and ExpToBT class. Also created a sample input file called Expressions.txt and set up the layout for the project report as well as worked on a few sections.

**Improvements**