Project Team 2
Project-3A

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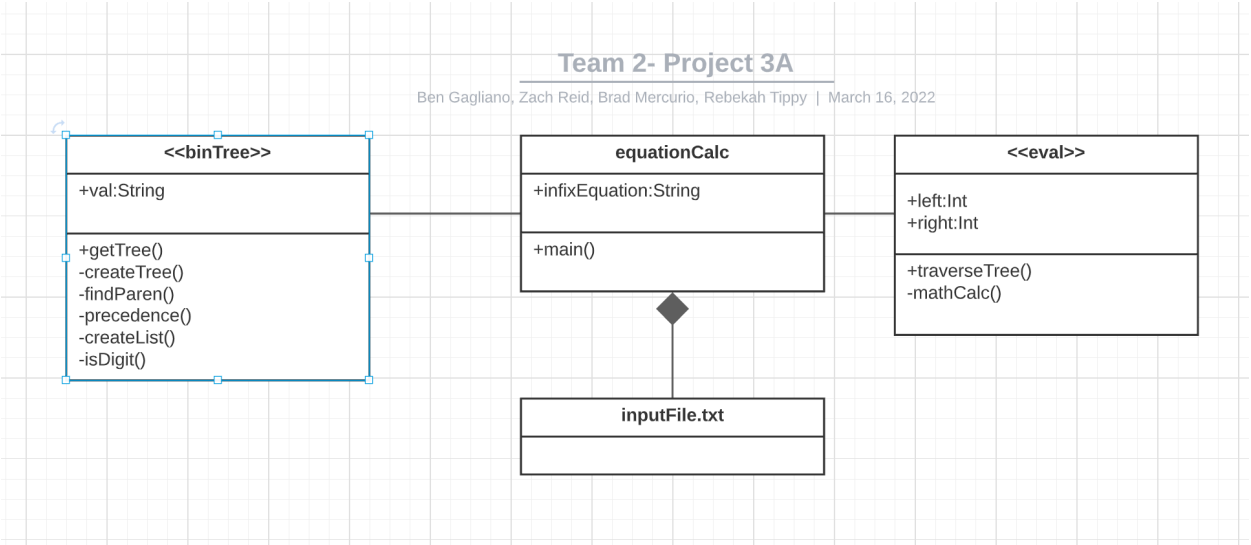
System Design

The program created is a calculator that takes a .txt file and outputs all the equations solved by utilizing a binary tree that reads and calculates the elements input file. The calculator allows the user to input the supplied .txt file, to solve arithmetic and logical equations.

The main class is equationCalc, consisting of the main method to call methods to calculate and output the answers. The binTree class provides the required methods to calculate the equations in the system. The eval class provides the methods used to read the equations in the .txt file and calculate the equations.

The data structure used is a binary tree that is utilized by the methods calculating the equations and some array lists to store data to be printed.

UML Class Diagram



Test Results and Analysis

Expected Results:

1+2*3 = 7
2+2^2*3 = 14
1==2 = 0
1+3>2 = 1
(4>=4)&&0 = 0
(1+2)*3 = 9
2%2+2^2-5*(3^2) = -41
2^3 = 8
6*2 = 12
6-2 = 4
6>5 = 1
6!=5 = 1
6>5&&4>5 = 0
1||0 = 1
(3+4)||1 = 1
(2>3)-2 = -2
5^2%7&&(4-4) = 0
/ by zero

Test 1:

1+2*3
2+2^2*3
1==2
1+3 > 2
(4>=4) && 0
(1+2)*3
2%2+2^2-5*(3^2)
2 ^ 3
6 * 2
6 - 2
6 > 5
6 != 5
6 > 5 && 4 > 5
1 || 0
(3 + 4) || 1
(2 > 3) - 2
5 ^ 2 % 7 && (4 - 4)
3 / (6 * 5 - 30)

Results of test 1:

1+2*3 = 7

2+2^2*3 = 14

1==2 = 0

1+3>2 = 1

(4>=4)&&0 = 0

(1+2)*3 = 9

2%2+2^2-5*(3^2) = -41

2^3 = 8

6*2 = 12

6-2 = 4

6>5 = 1

6!=5 = 1

6>5&&4>5 = 0

1||0 = 1

(3+4)||1 = 1

(2>3)-2 = -2

5^2%7&&(4-4) = 0

/ by zero

Test 2:

1+5*3
2+3^3*2
3==3
5+3 > 9
(7>=4) && 0
(1+2)*3
2 % 2 + 2^2 - 5 *(3^2)
3 ^ 3
5 * 2
7 - 2
3 > 5
5 != 5
6 > 5 && 7 > 5
1 || 0
(3 + 4) || 1
(2 > 3) - 2
5 ^ 2 % 7 && (4 - 4)
3 / (6 * 2 - 12)

Results test 2:

1+5*3 = 16

2+3^3*2 = 56

3==3 = 1

5+3>9 = 0

(7>=4)&&0 = 0

(1+2)*3 = 9

2%2+2^2-5*(3^2) = -41

3^3 = 27

5*2 = 10

7-2 = 5

3>5 = 0

5!=5 = 0

6>5&&7>5 = 1

1||0 = 1

(3+4)||1 = 1

(2>3)-2 = -2

5^2%7&&(4-4) = 0

/ by zero

Analysis:

The program runs as expected. All statements returned their expected results, even the divide by zero. The program reads lines from the input text file and outputs them to the console.

Project Conclusion

This was the most efficient and organized project yet. We equally divided up the work, utilizing each other's strengths to effectively complete the project in a timely manner. There isn't really much more to add to the code,other than creating a working GUI and allowing the user to input equations and quit the program. We learned from the past two projects to create a final optimized project.

Team Member Contribution

Ben Gagliano - Team Lead

- Project Management
- UML Design(Report)
- Report Design
- equationCalc Class
- Structure System Skeleton

Zach Reid - Programmer

- binTree Class
- Program Editor

Brad Mercurio - Data Analyst

- Analysis and Test Results
- .txt File Design

Rebekah Tippy - Programmer

- Eval Class
- Program Editor