CSC 413 Project Documentation

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CSC413.02

https://github.com/csc413-02-FA2020/csc413-p1-Wameedh.git

Table of Contents

1 Introduction

1.1 Project Overview

The assignment was given to us for the purpose of practicing and learning Object Oriented Programing (OOP). We were given a starter code were most of the project had been already done for us. The project is an advance calculator where we are required to take into consideration the priority of mathematical operators when our program evaluate a given expiration.

1.2 Technical Overview

The project contains three main modules. Those are:

- Evaluator
- Operators
- Exceptions

We have three main classes:

- Operand.java
- Evaluator.java
- Operators.java (Is an abstract class)

The following classes extend from the Operators class:

- AddOperator
- SubtractOperator
- DivideOperator
- MultiplyOperator
- PowerOperator
- LeftParenthesis
- RightParenthesis

The EvaluatorUI extends JFrame and it implements action listener. This the part of our program code that contains all the user interface code. In this part I implemented the actionPerformed() function not as efficient as I would like it to be but for the sake of time I just used many if statements.

1.3 Summary of Work Completed

All required tasks have been completed and tested by the unite test, provided. I implemented the following classes, extended of the super class Operators.java:

- AddOperator.java

- SubtractOperator.java
- DivideOperator.java
- MultiplyOperator.java
- PowerOperator.java
- LeftParenthesis.java
- RightParenthesis.java

And modified the following files/classes:

- Operand.java
- Evaluator.java
- Operators.java

2 Development Environment

The development environment I used is IntelliJ IDEA on a MacBook Air laptop with macOD Catalina with Java version 13

3 How to Build/Import your Project

To import the project clone it from GitHub then make sure you follow the inspections provided in the file A1Import.pdf. After importing the project successfully you can bullied the calculator as instructed in the next section.

4 How to Run your Project

For testing run the java file in the path calculator/src/test/java.

For the complete project with the user interface run the EvaluatorUI.java and the path is calculator/src/main/java/edu/csc413/calculator/evaluator/EvaluatorUI.java

5 Assumption Made

The calculator does not evaluate the root of any number and it does not evaluate complex mathematical expressions such as functions and graphs. In general everything the calculator is supposed to do I assumed that the unite test take care of that so as long as my program pass that then it is good.

6 Implementation Discussion

6.1 Class Diagram

7 Project Reflection

The project started a little bit Overwhelming however as I dove in and started to implement the simple code first, I got the hang of it and everything was a matter of time to be implemented. However, it was challenging to take care of the parentheses in terms of priority in in calculating mathematical expressions.

8   Project Conclusion/Results

In conclusion the project worked 100% and passed all the unite tests provided. Next time I should start working on a project as early as possible so that I can submit on time without rushing.