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Class: CSC413
Semester: Summer 23
A link to the repo: https://github.com/csc413-SFSU-Souza/csc413-p1-ChristineLoveCoding

2. Introduction

a. Project Overview

This is a simple calculator, which allows users to do Addition, subtraction, multiplication and division, exponent operations.

b. Technical Overview

The parent class is Operator, then We have five child classes AddOperator, SubtractOperator, DivideOpertor, MultiplyOpertaor and PowerOperator.

Evaluator class uses two Stacks to track Operands and Operators, so that higher priority operators will execute first. We use a recursive Algorithm to deal with nested parentheses.

c. Summary of work completed

I finished implementations of the operators, child of operator, evaluator and I have run all test cases in the test folder. I built a GUI that invoked the evaluator from the action handler. When the user input “C”, it will clear all data on the input screen. When the user input”CE”, the last integer will be removed.

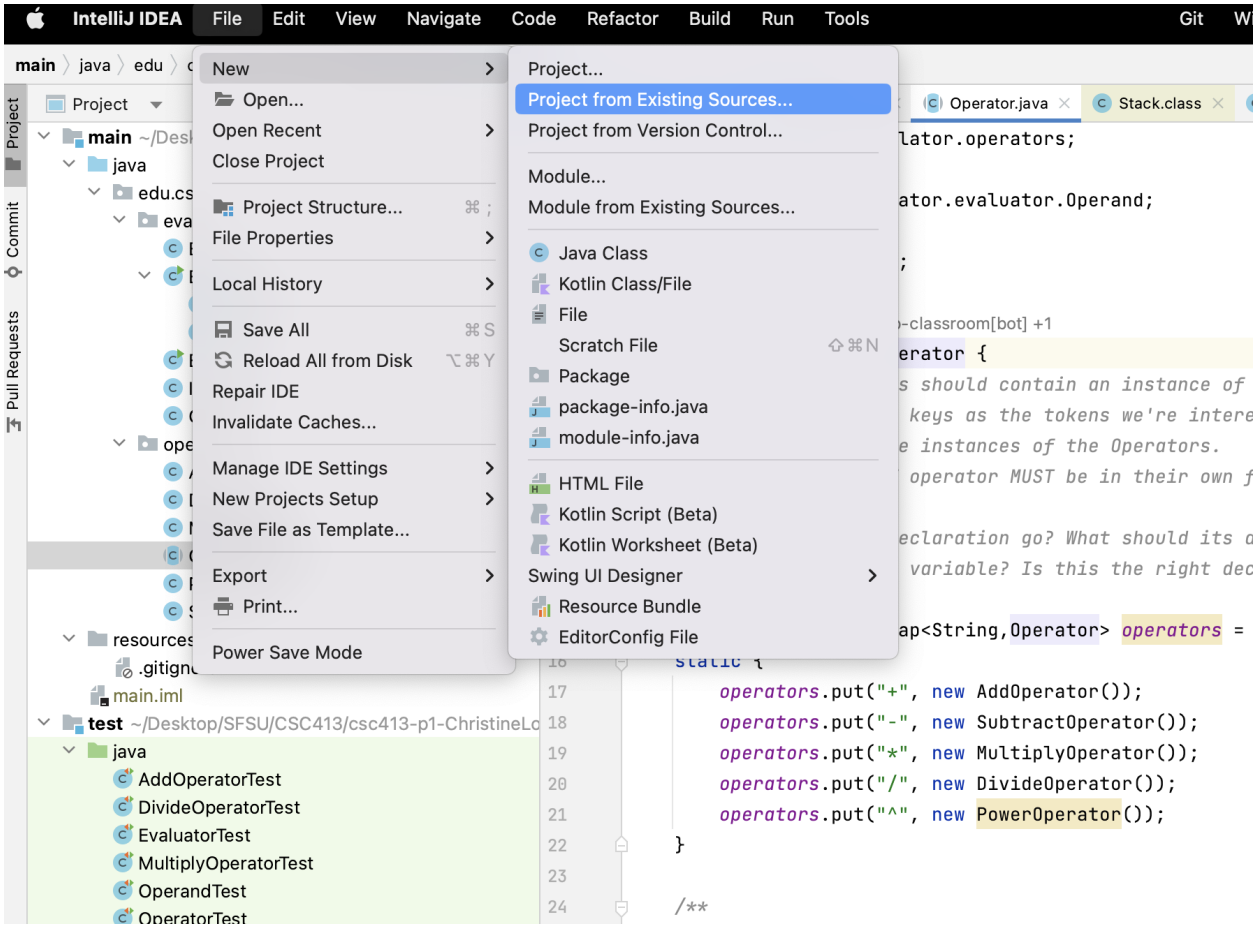
3. Development environment.

a. Version of Java Used : Java 17

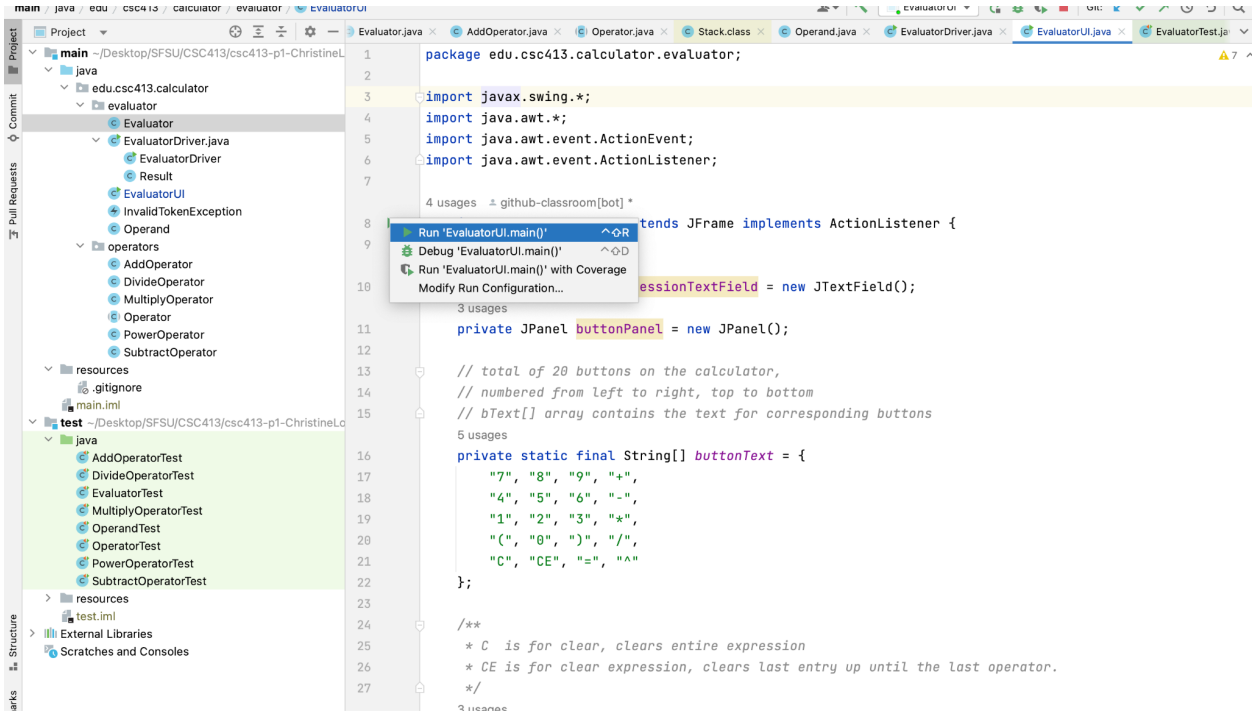
b. IDE Used : IntelliJ

4. How to build or import your game in the IDE you used.

Firstly, get into any project, click file and right click new, then select Import from Existing Sources. See this screenshot.



5. How to run your project



6. Assumptions Made when designing and implementing your project

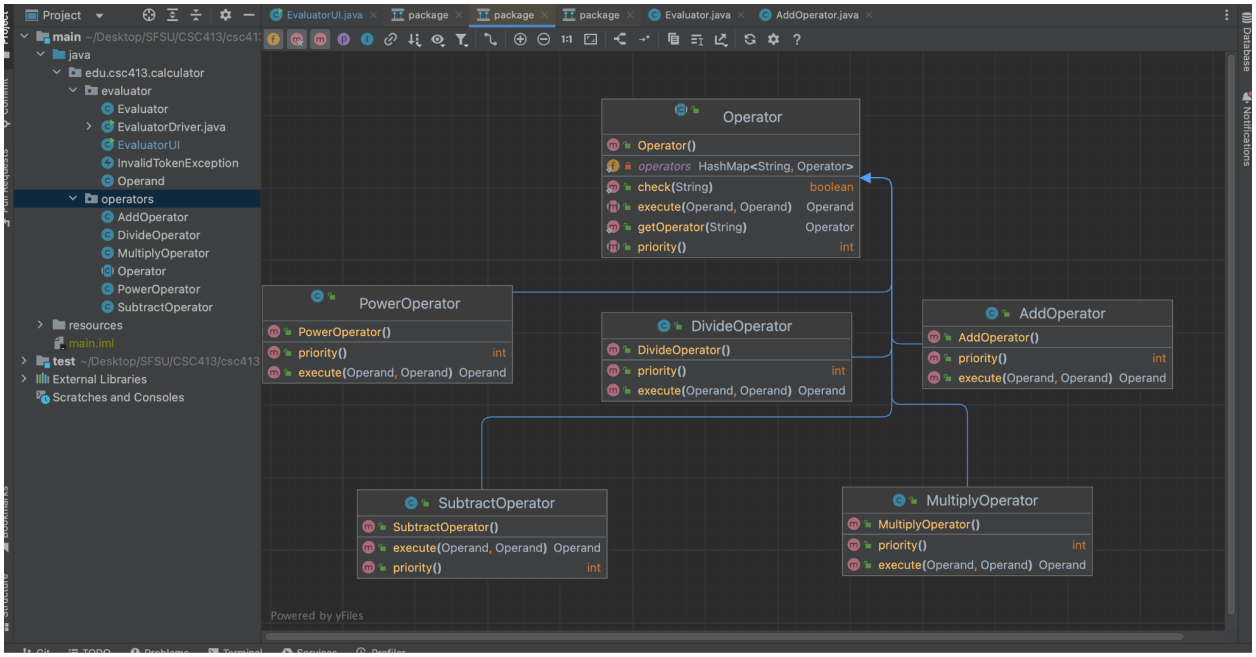
At first sight, I would use hashmap and stack to implement the operator class.

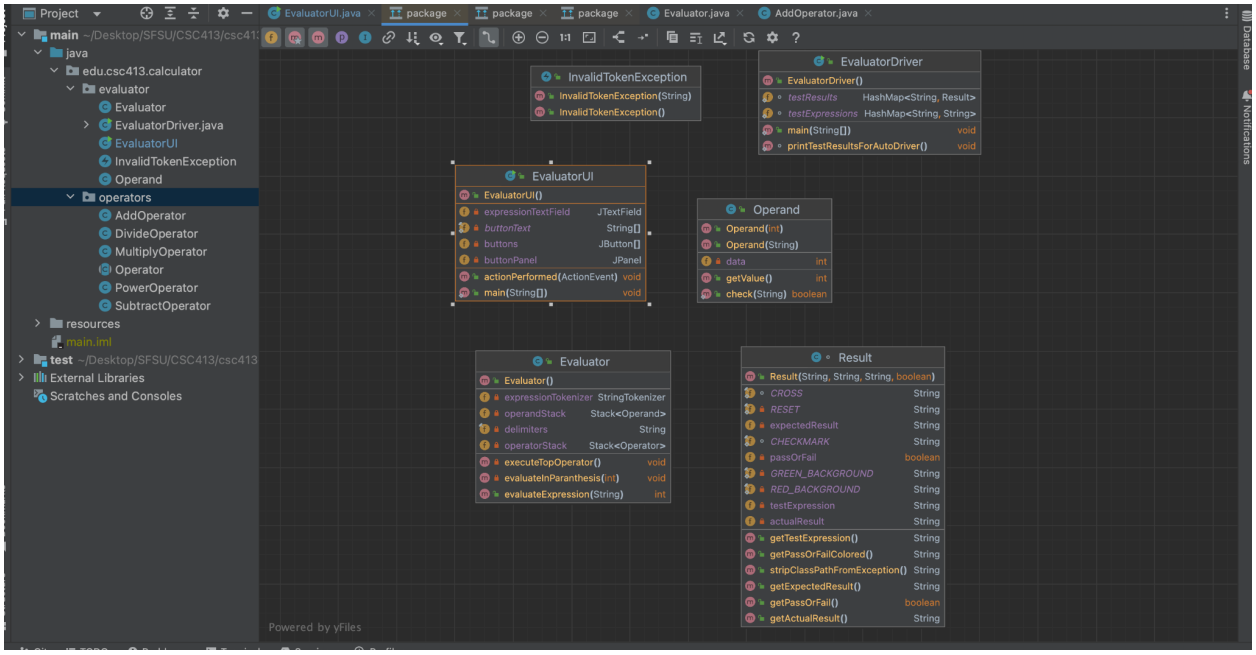
7. Implementation Discussion

a. Discuss design choices made while implementing your assignment.

After explorations, I decided to use recursion to handle nested parentheses. The skeleton uses an abstract Operator class to hide the Evaluator from knowing the details of each operator.

b. Please include a UML diagram of your assignment. Files related to testing do not need to be included.





8. Project reflection

Testing is great and it really helps me understand the requirements of the class.The test covered the all the cases

And the ability to solve new problems is very important. Official online Java Doc really helps me understand things.

9. Project Conclusion and Results.

In the end, I finished the projects successfully. The most difficult part is how to deal with the nested parentness. I tried so many ways, and finally I achieved it by using a recursion Algorithm.