CSC 413 Project Documentation

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https://github.com/csc413-SFSU-Souza/csc413-p2-MohammadisTired/tree/main/interpreter

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1 Introduction

1.1 This project will be about building a programming language translator for translating a mock programming language with the name X, we will be coding the necessary functions and methods that will be used in the language in java which will then be processed by a machine and interpreter that we've implemented and run programs in the mock language X.

1.2 We are coding an interpreter and virtual machine to translate java bytecode files into a mock programming language with the name X and running different programs to be translated into this program such as factorial and fibonacci examples.

1.3 I've coded the bytecode files and the program, RuntimeStack, VirtualMachine and ByteCodeLoader files but I could not manage to get the dump code to work thus being unable to run the functionsArgsTest.x file.

2 Development Environment

a. java version "14.0.1"
b. IntelliJ IDEA Edu

3 How to Build/Import your Project

1 . Click on the download file link on the github repository and download it either by SSH or HTTPS. It can also be downloaded as a ZIP folder.

2. Open the file in any IDE, the use of intelliJ is highly recommended. Open the project in the IDE, open the interpreter folder that can be found under csc413-p2-MohammadisTired > interpreter. Do NOT go into any other folders, the entire project is under the interpreter folder.

3. Select the Interperter.java file and edit the configuration of the run function to include one of the CLI arguments of the projects (factorial.x.cod, fib.x.cod, functionsArgsTest.cod).

4 How to Run your Project

Clicking the green run button on the interpreter.java file will run the program. But only after editing the configurations.

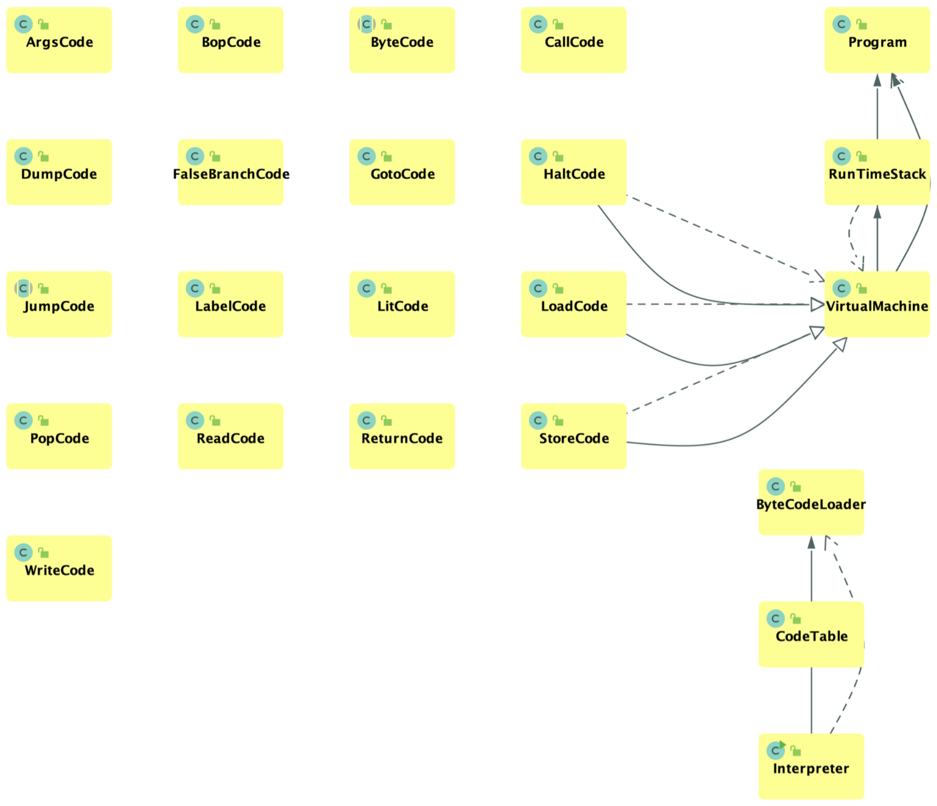
5 Assumption Made

How would I make each ByteCode class? How do I incorporate it into my program? Where should I place functions like pop and peek and push?

6 Implementation Discussion

I was going to use a bunch of If-else statements for my BopCode file but I thought it would be smarter and more scalable for me to use switch cases for each operator. My PopCode file execute functions include a while loop that decrements the values and pops them with each decrement but I wasn't sure how to adjust it to make the error for functionsArgsTest.cod to go away and have it run normal. I was a bit confused on the DumpCode as I didn't know how to turn it in and would I have to do it for each bytecode.

6.1 Class Diagram



7 This project was fun to work on but it was a bit difficult but I probably need to practice more on my implementation skill and understand how things should connect in Java projects better.

8 I learned how to manage imports better but I wish I could make the DumpCode work as I had trouble with that and was a little confused on how it should be done for each ByteCode.