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CS 152

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HW 5

Scheme Interpreter Part 1

This assignment was relatively challenging, and I must admit that I’m quite intimidated by the assignments to come for this compiler. At least we have come as far as completing this part of the assignment so I’m just hoping that we did it all properly.

To start off, we built the Scanner class. This class is responsible for reading each symbol out of the input file and sticking the characters of each token together. This was done using a bunch of super tiny methods that handle check for possible types of a token. I have a feeling we will need to add to these if we need to do error handling.

Next we have our Parser class which we keep our main method in as the entry point to the program. The parser has a scanner object, and a symbol table, which is a TreeMap. The parser requests all of the tokens from a scanner object that it has, and then uses those tokens to build a parse tree and symbol table. In order to stay in line with the assignment guidelines, we first call a method from here that tells the scanner object to print all of its tokens. Then we build the parse tree and symbol table by creating a ParseTree object, and telling that tree to build itself with our buildSelf() method. This method walks through the tokens and back up to the root of the tree that it is building. Once it finds out that control is back at the root (when the current node ahs no parent), this means that the parse tree is complete. Here we tell the parser to build the tree map with all of the tokens inside the parse tree. As the assignment instructs, at this point we have our backend, or Executor object, print out the tree and the symbol table.

After the necessary items are printed, we clear them with the parsers clearIntCode and clearSymTab methods, and continue to read through the tokens and build the next parse tree and symbol table, and repeat the process again.

In order to run the program successfully, please change the file path to the correct path to the input file on like 85 of Scheme\_Parse.java.