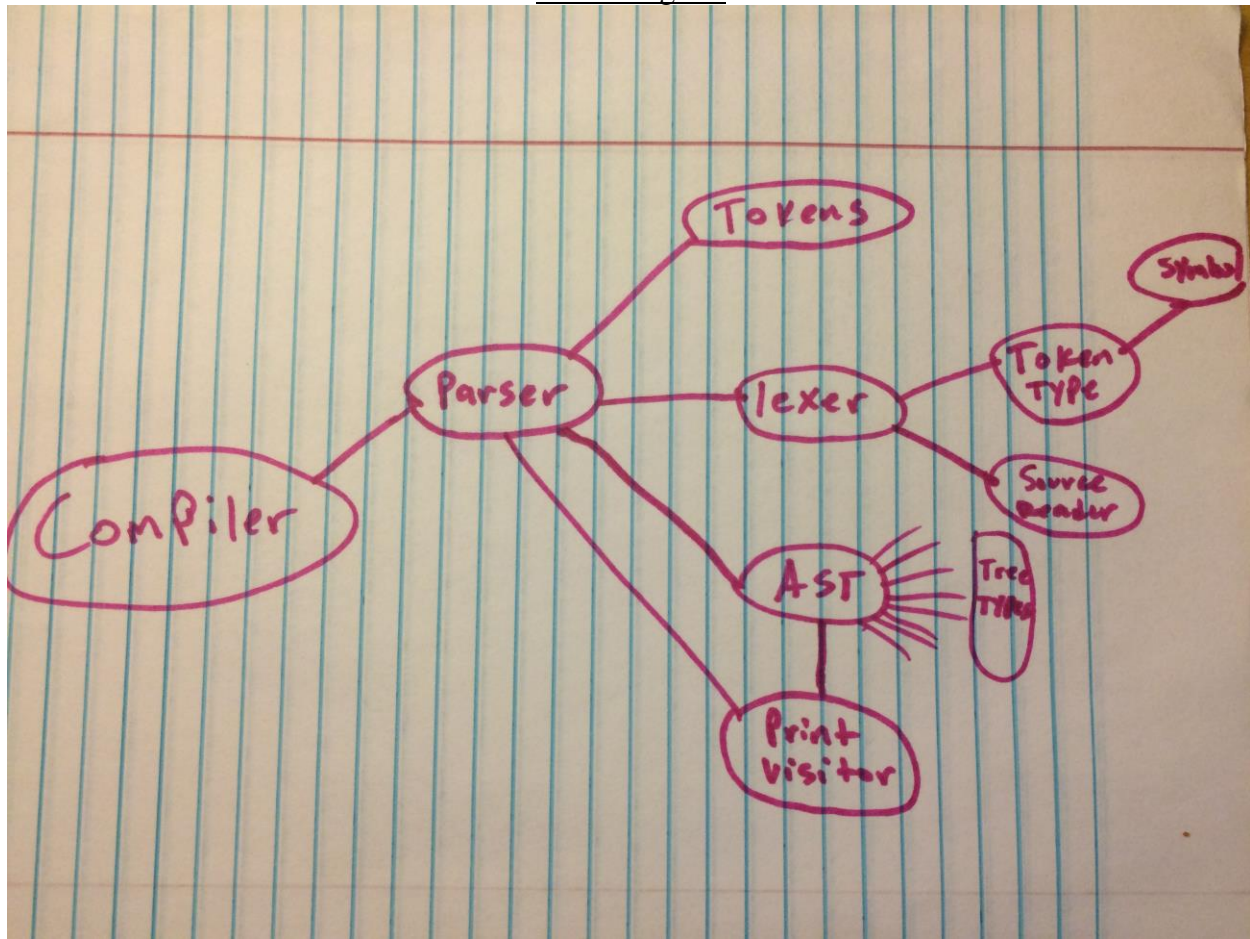


Documentation

Class Diagram



Compiler Class – The Compiler class contains the main program for compiling a source program to bytecodes. It gets up to 1 argument for the file the user wants to scan. It sends it to Parser.java where it gets scanned and checked for syntactical errors. It then uses PrintVisitor.java to print out the text AST Tree.

Parser Class – The Parser class performs recursive-descent parsing; as a by-product it will build the Abstract Syntax Tree representation for the source program. It uses the Grammar we learned in class to check the file provided is syntactically correct, if not an exception is thrown. This class uses Lexer.java to scan the tokens and get info on them such as position, kind, type etc. to build the respected AST tree.

ASTVisitor Class – ASTVisitor class is the root of the Visitor hierarchy for visiting various AST's; each visitor asks each node in the AST it is given to accept its visit; each subclass must provide all of the visitors mentioned in this class; after visiting a tree the visitor can return any

Object of interest. For example when the constrainer visits an expression tree it will return a reference to the type tree representing the type of the expression.

PrintVisitor Class – PrintVisitor is used to visit an AST and print it using appropriate indentation. It also holds objects of each type of tree and what they must print out.

Lexer Class – This class is used to scan a given file and returns tokens within it. The SourceReader class reads a given position in the given file then returns it to lexer class. The lexer class repeats this multiple steps to see if a series of given chars makes up a token.

SourceReader Class – This class reads off the file provided in the lexer class. It reads each character in the file then sends it back to the lexer class. This class also returns position number, line number.

Symbol Class – This class is used to store all user strings along with an indication of the kind of strings they are.

Token Class – The Token class records the information for a token such as the Symbol that describes the characters in the token, the starting column in the source file of the token and the ending column in the source file of the token

Tokens Class – This class contains the enumeration of all of the tokens

TokenType – This class contains the table of mappings from token constants to their Symbols

TokenSetup – TokenSetup class is used to read the tokens from file tokens and automatically build the 2 classes TokenType.java and Symbol.java