Github Link: https://github.com/916RasnitaRadu/SEM5-FLCD/tree/main/Lab5

Documentation

Grammar

The Grammar class implements the grammar for a formal language. It has a field for each (N, E, P, S) set of the grammar and those are: *non-terminals*, *terminals*, *productions* and *the starting symbol*. The starting symbol is kept as a map between, where the key is the left-hand side of the production and the value is the right-hand side of the production represented as a list of strings.

Most of the methods are for parsing, such as:

* parseLine(String line ) – parse a line of the file and return a list of words
* fromFile(String fileName) – read the input grammar file, creates the (N, E, P, S) tuple and verifies if the grammar is context free by calling the validate() function
* parseRules(List<String> rules) – takes the set of the productions and creates the map from the class

There are also other methods:

* validate(List<String> N, List<String> E, Map<String, List<String>> P, String S) – checks if the grammar is context free
* isNonTerminal(String value)
* isTerminal(String value)
* getProductionsFor(String nonterminal) – returns the list of productions for a non-terminal