Lab 5

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GITHUB LINK : https://github.com/AntonioSuciu/FLCD/tree/main/Labs

Assignment for a team of 2 students!

Statement: Implement a parser algorithm

1. One of the following parsing methods will be chosen (assigned by teaching staff):

1.b. ll(1)

2. The representation of the parsing tree (output) will be (decided by the team):

2.a. productions string (max grade = 8.5)

2.b. derivations string (max grade = 9)

2.c. table (using father and sibling relation) (max grade = 10)

PART 1: Deliverables

1. *Class Grammar* (required operations: read a grammar from file, print set of nonterminals, set of terminals, set of productions, productions for a given nonterminal, CFG check)
2. Input files: *g1.txt* (simple grammar from course/seminar), *g2.txt* (grammar of the minilanguage - syntax rules from Lab 1b)

Class GRAMMAR:

N: set of nonterminals

Sigma: set of terminals

P: production rules, map between the nonterminal and its productions

S: starting symbol

readFromFile(): reads the grammar from the file

CFGcheck(): checks whether the grammar is context-free:

- Verifies if the starting symbol is part of the left-hand side
- If not => not a cfg
- For each left-hand side, if there is more than one symbol => not a cfg
- For each right-hand side, if the symbol is not a nonterminal / part of the alphabet / epsilon => not a cfg