

SER 502 Team - 18

MOWA Programming Language

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Overview



Features of language



Tools used



Tools installation



Flow of language



Grammar of the language



Future Scope & Limitations

Features of language

- MOWA is an imperative language.
- It supports unary, arithmetic, relational & logical operations. It accepts datatypes like integer, strings and boolean.

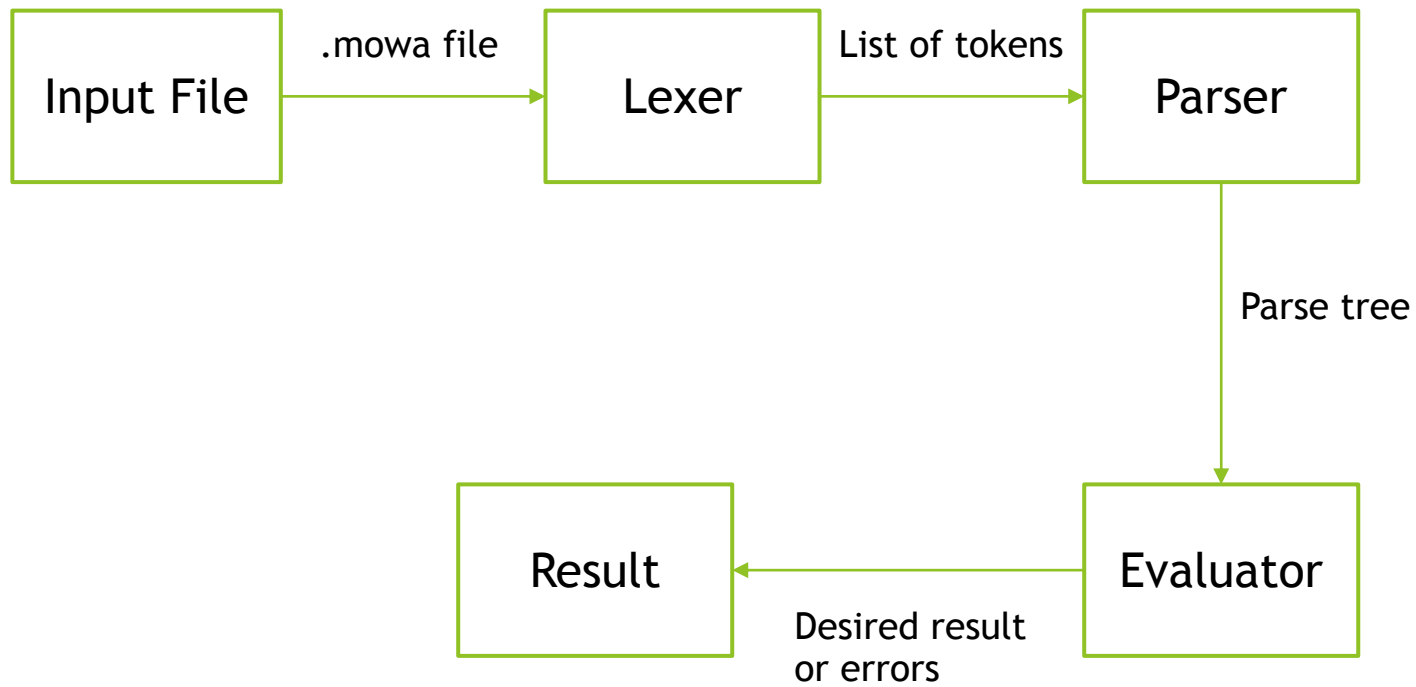
Tools used

- **Python** is used to build lexer.
- Parser & Evaluator are designed with the help of SWI **Prolog**.
- **PySwip** library is used to interface python with prolog.
- For lexical analysis, **Sly** library of python is used.

Tools installation

- Install python3 on your machine and set environment variable called PATH.
- Install SWI-Prolog of version 8.2 or above.
- Use python command to install pip, then use pip command to install the necessary libraries like PySwip, Sly.

Flow of language



Grammar of language

Source code:

- It is the program written by user and given as input to lexer for analysis. It has .mowa as the extension of file.

Lexer:

- To perform lexical analysis, we will use SLY library of python. This is the phase where program is taken as input & generates a list of tokens.
- It returns errors if found any and ignores blank or new lines, spaces and comments.

Grammar of language

Parser:

- Parser will take list of tokens from lexer as input and will generate a parse tree. It will check for syntax and produces a tree structure.

Evaluator:

- This will check the semantics of the grammar, will the evaluate to give an output. If it encounters an error, then those will be displayed.

Output:

- After semantic analysis, the output for that program is generated. Output can be desired result or errors that are occurred.

Grammar of language

Data Types:

- Integers
- Strings
- Boolean

Operators:

- Arithmetic - $*$, $/$, $+$, $-$ (represented by \rightarrow)
- Unary - $++$, $--$
- Relational - $<$, $>$, $<=$, $>=$, $==$, $\sim=$
- Logical - \wedge (and), \vee (or), \sim (not)

Grammar of language

Looping Statements:

- For loop
- While loop
- For in range

Printing Statements:

- `show()`

Comments:

- Single line comment - `#`
- Multiline comment - `## ##`

Future Scope & Limitations

- Integers - num
- Strings - ntr
- Boolean - bool

showln()

Comments:

- Single line comment - #
- Multiline comment - ## ##