Lecture 5

Lexical Analysis

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January 29, 2025

Takeaways from the last class

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- Approaches for implementing lexical analyzer

there are three approaches - Assembly languages, High level languages and Generator tools

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- **Maximal Munch**

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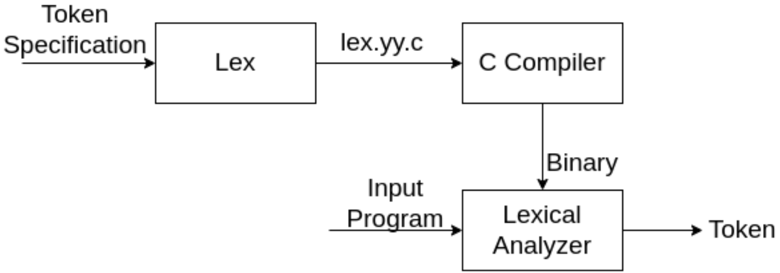

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  %{
  $include < math.h >$
  $int \quad count;$
  %}

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Pattern $\{Action\}$

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- `yyleng`

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C Code, going directly into `lex.yy.c`

Important functions/variables

- `yyin` input stream to take the source program
- `yylex` a function called to perform lexical analysis
- `yytext` lexeme that matches pattern
- `yyerror` It is a function ; It is used for explicit error flagging in the code.
- `yyleng` length of yytext or lexeme
- `yylineno` line number tracking

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for implementation, all the three are required.

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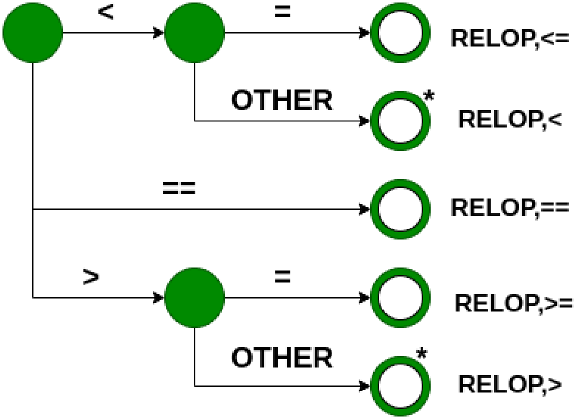
- Lexical definitions consist of **regular definitions, priority rules**, and **maximal munch principle**
- Construct an analyzer that will return $\langle \texttt{token, lexeme} \rangle$ pairs

Transition Diagram for Relational Operator



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- This can be implemented using **lots of** `switch-cases` in C programming language.

see book

Interface to other passes