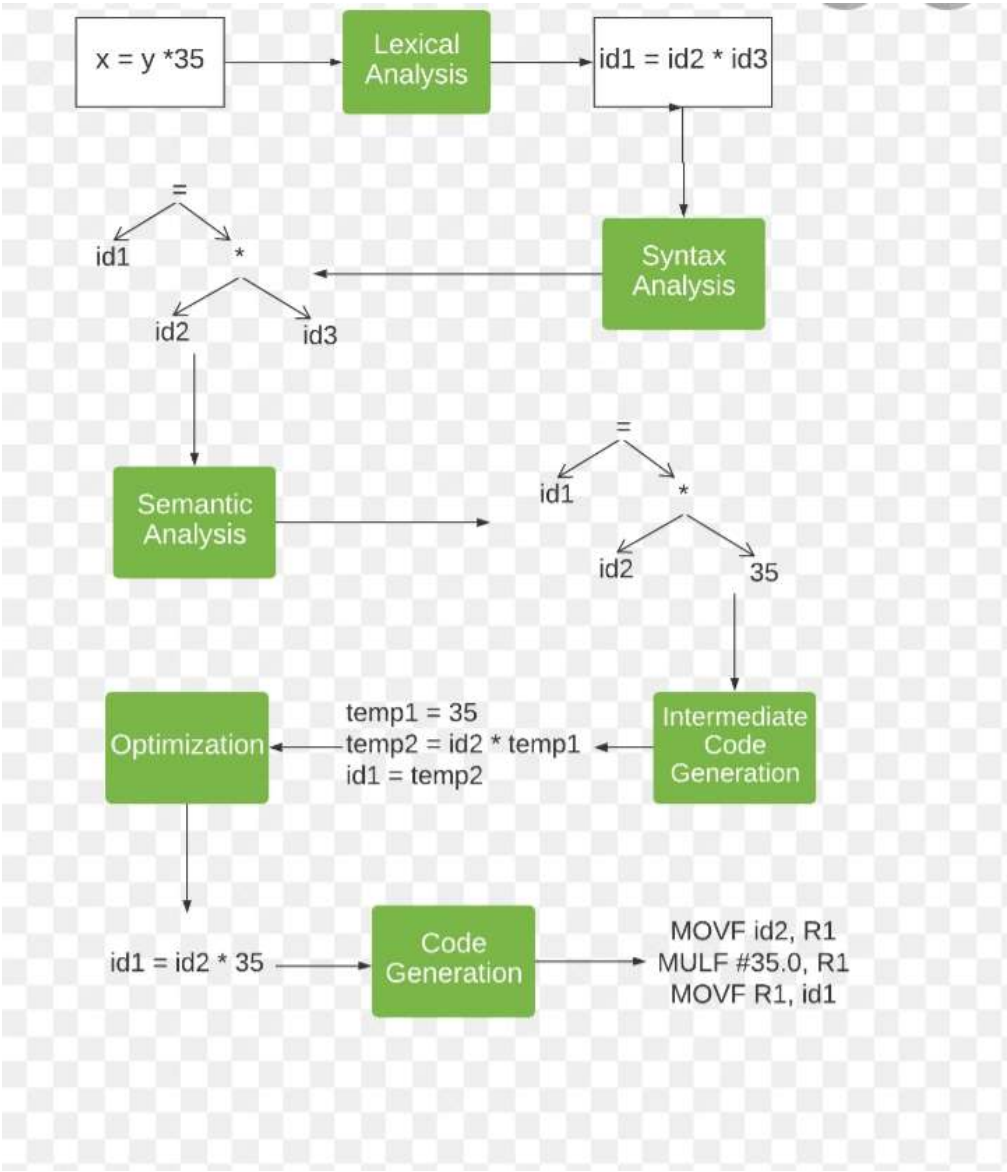
Example for phases of compiler

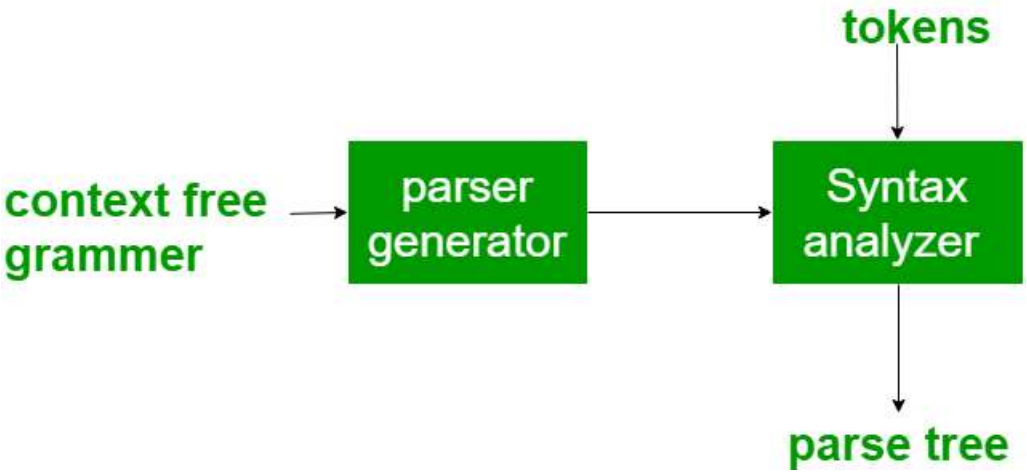


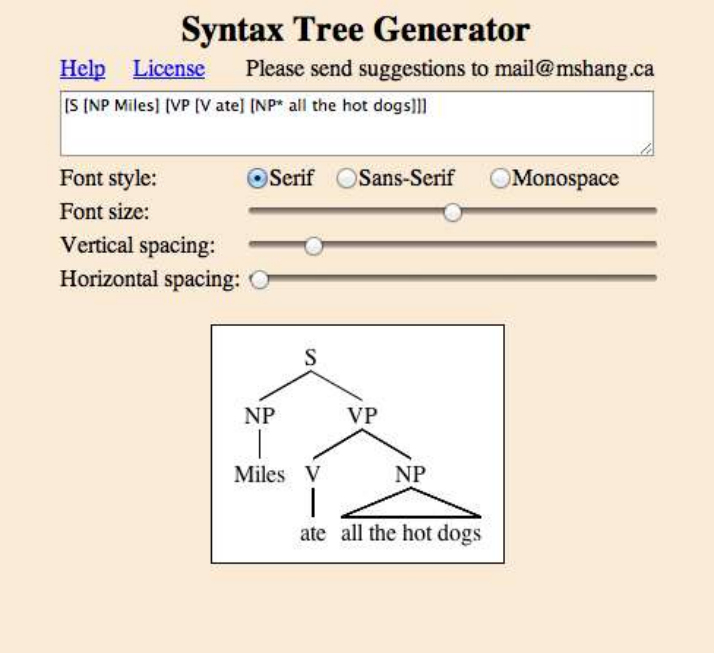
Compiler Construction Tool

- Compiler tool → implementing the phases of compiler
- Creation of compiler
- Tools
  - Parser generator
  - Scanner generator
  - Syntax-directed Translation Engines
  - Automatic code generator
  - Data-Flow Analysis Engine
  - Compiler Construction Toolkits

Parser Generator

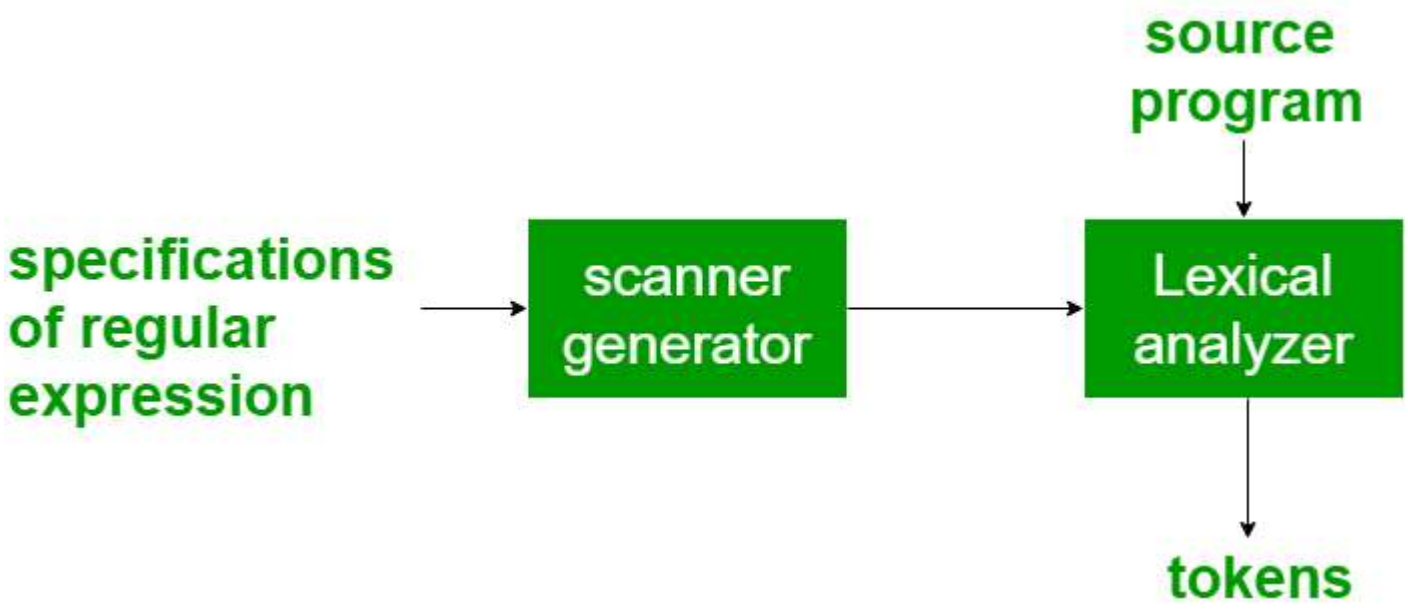
- Input → grammatical description of a programming language
- Output → Syntax Analyzers
- Example:PIC,EQM





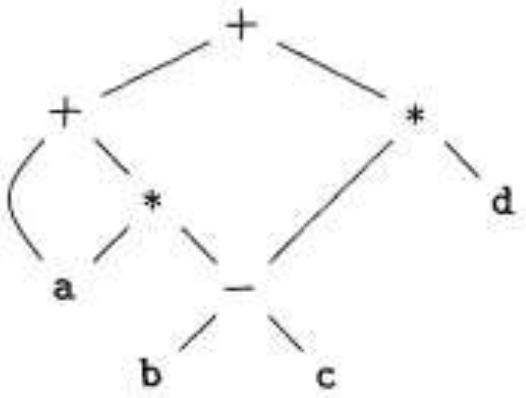
Scanner Generator

- **Input:** Regular expression description of the tokens of a language
  Output: Lexical analyzers.



Syntax-directed Translation Engines

- Intermediate code (Three Address Format)
- Input: Parse tree.
- Output: Intermediate code.



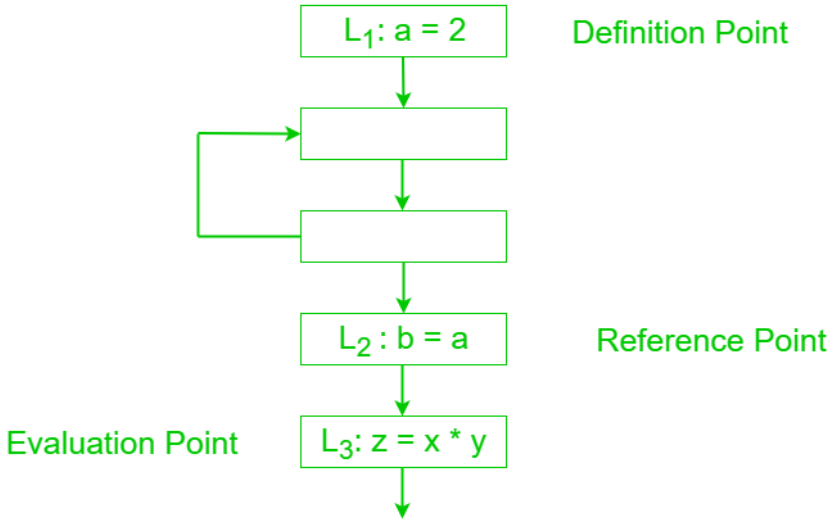
$t_1 = b - c$
$t_2 = a * t_1$
$t_3 = a + t_2$
$t_4 = t_1 * d$
$t_5 = t_3 + t_4$

Automatic code generator

- Input: Intermediate language.
- Output: Machine language.
- Rules → Target code

Data-Flow Analysis Engine

- Key part of code optimization
- Information – value transferred from one part to other part of the program



Compiler Construction Toolkits

- Integrated set of routines – phases of compiler