L3-popl

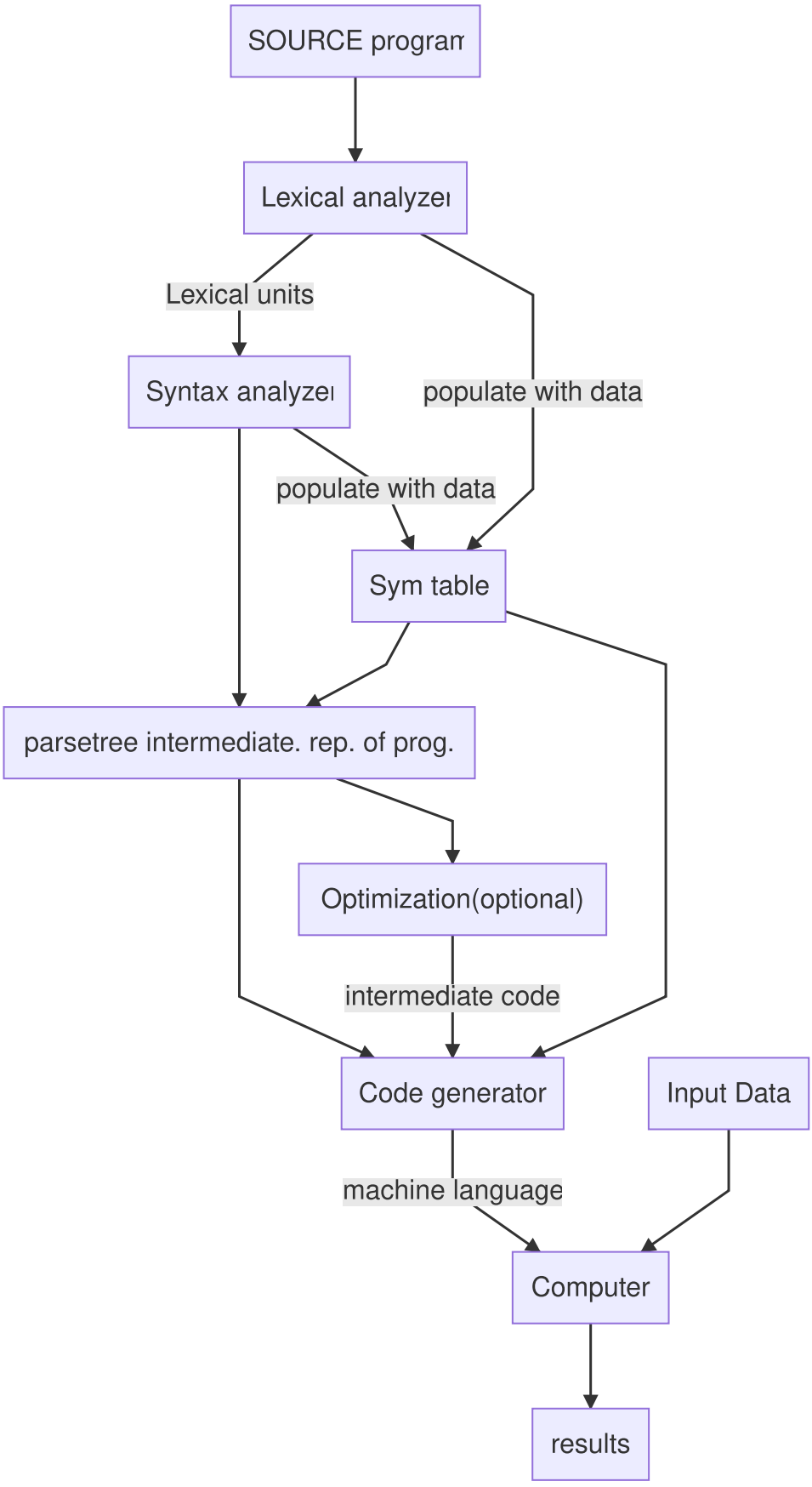
Types of implementation of language

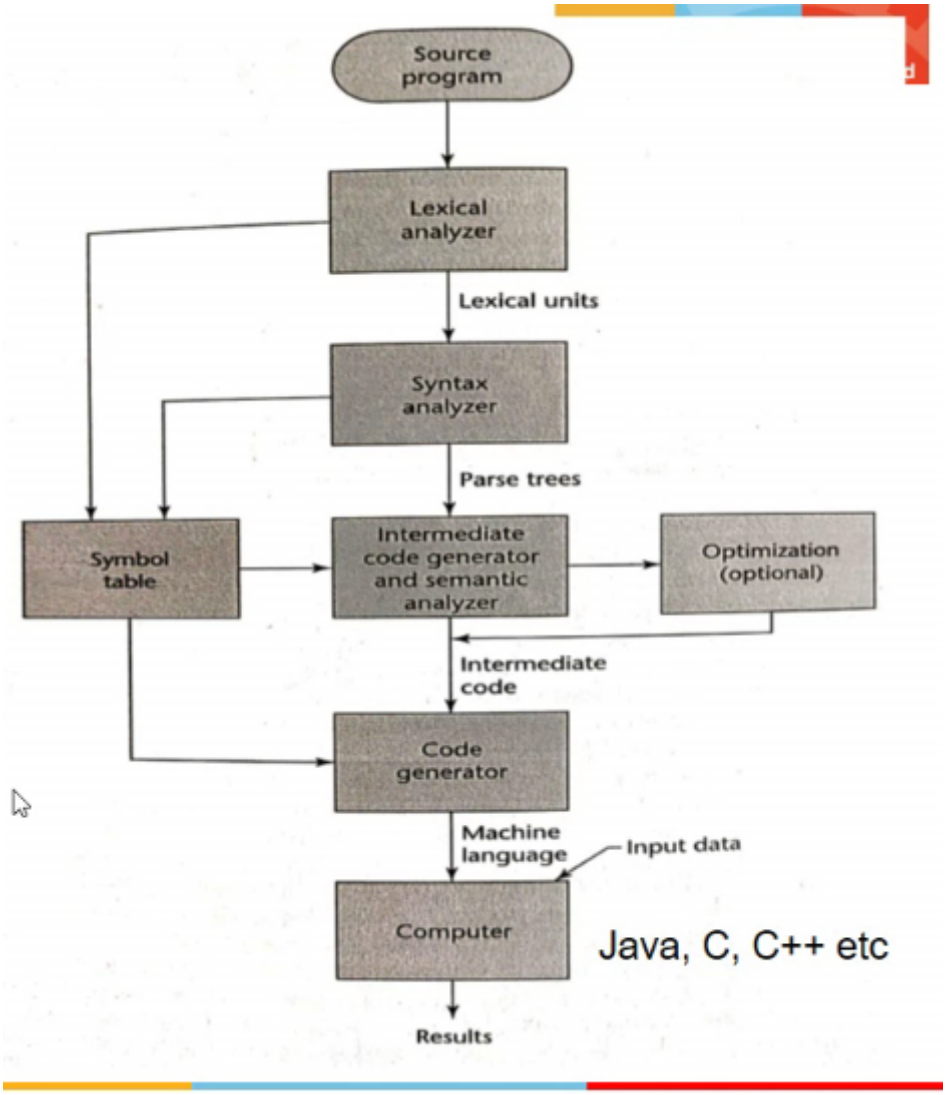
- Compile time
- Interpreted
- Hybrid
- Preprocessed

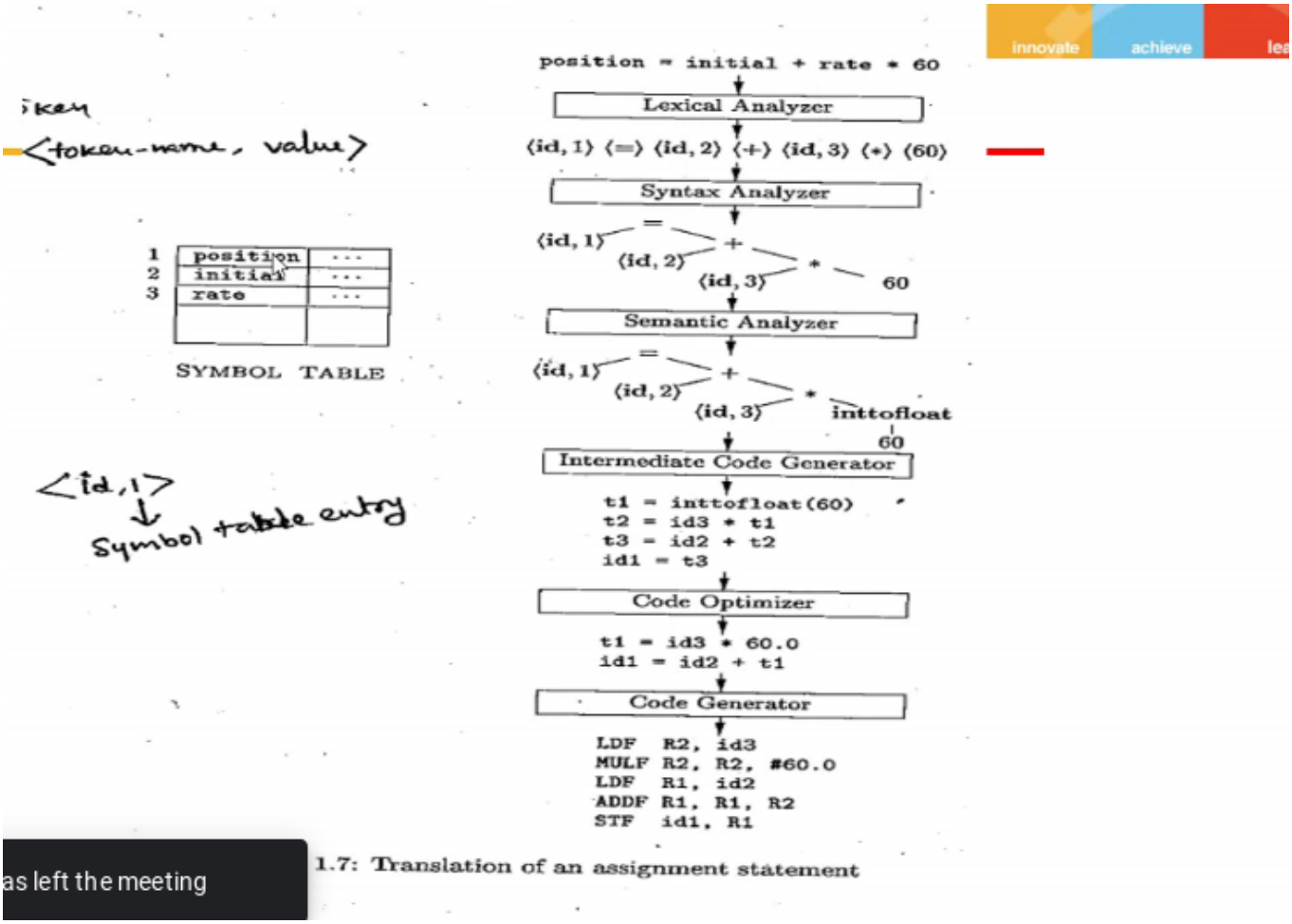
Language processors

- compiler: program that reads a program written in one language (source language) and translates it into another language (target language)

Compilation


SOURCE program
Lexical analyzer
Lexical units
Syntax analyzer
populate with data
populate with data
Sym table
parsetree intermediate. rep. of prog.
Optimization(optional)
intermediate code
Code generator
Input Data
machine language
Computer
results


Source program
Lexical analyzer
Lexical units
Syntax analyzer
Parse trees
Symbol table
Intermediate code generator and semantic analyzer
Optimization (optional)
Intermediate code
Code generator
Machine language
Input data
Computer
Results
Java, C, C++ etc



1.7: Translation of an assignment statement

Interpreter

- Directly executes the operations specified in the source programs, on input supplied by user and produces output
- Programs are interpreted by another program called interpreter
- Simulates machine whose fetch decode exec instructions deals with high level program statements rather than machine instructions
- SW simulations provides a VM for the language,Debugging is easy, but is slow as you need to interpret every time you need to run
  - advantages: portability, debugging
  - disadvantage : slow

Hybrid

- JVM: source compiles to bytecode, which is interpreted by JVM

Design tradeoffs

- check slides

Programming Environments

- Jbuilder (old)

- .NET
- UNIX (isn't that a kernel?)
- Netbeans

$That's all, folks$