Lexical Analysis

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Just-in-time (JIT) Compiler

At Compile Time

SourceCode.java ⟶ Compiler ⟶ ByteCode

At Run Time

Native Machine Code ⟵ JIT Compiler
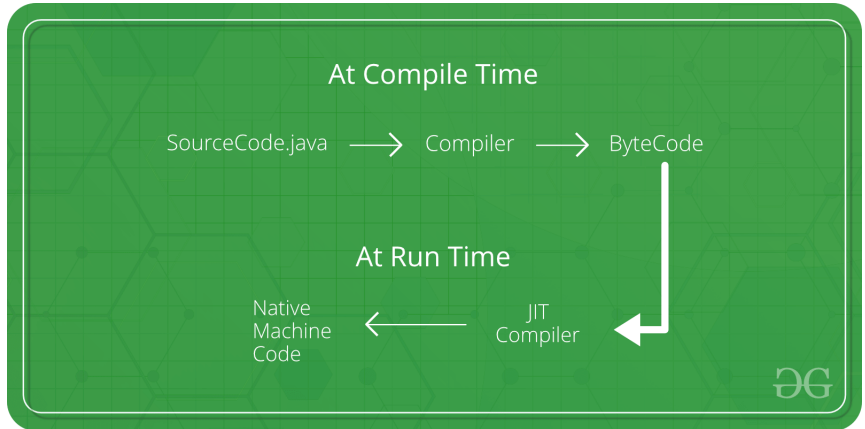
Picture courtesy : GeeksforGeeks

JIT Compiler

- Traditional bytecode interpreter is fast and it takes more memory
- Just-in-time (JIT) compilation is a way of executing computer code that involves compilation during execution of a program
  - Dynamic compilation strategy
- Continuously analyses the code being executed, identifies parts of the code where the speedup gained from compilation or recompilation would outweigh the overhead of compiling that code
- Performs optimizations

Specification of Token

- Regular expressions are an important notations for specifying patterns for lexemes
  - $letter \rightarrow A|B|\cdots|Z|a|\cdots|z$
  - $digit \rightarrow [0-9]$
  - $digits \rightarrow digit^+$
  - $number \rightarrow digits(.digits)?(E[+-]?digits)?$
  - $id \rightarrow letter(letter|digit)^*$
  - $if \rightarrow if$
  - $then \rightarrow then$
  - $else \rightarrow else$
  - $relop \rightarrow < | > | \leq | \geq | = | <>$

Specification of tokens

- A regular expression is a sequence of characters that define a search pattern.
- It is converted to finite automata for accepting the lexemes