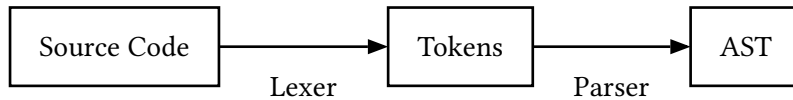# 1. Definition

An interpreter is a computer program that directly executes instructions written in a programming or scripting language, without requiring them previously to have been compiled into a machine language program.

2. Architecture

Source code is tansformed into tokens using a lexer and AST using a parser.

```
┌──────────────┐         ┌──────────┐         ┌───────┐
│ Source Code  │────────▶│  Tokens  │────────▶│  AST  │
└──────────────┘         └──────────┘         └───────┘
        Lexer                   Parser
```

2.1. Source Code

Plain text program written in a specific programming language

2.2. Tokens

```
┌─────┐  ┌─────┐  ┌─────┐  ┌─────┐  ┌─────┐  ┌─────┐  ┌─────┐
│ let │  │  x  │  │  =  │  │  5  │  │  +  │  │  5  │  │  ;  │
└─────┘  └─────┘  └─────┘  └─────┘  └─────┘  └─────┘  └─────┘
```
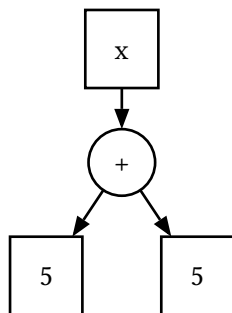
- *Identifiers*: Identify variables, functions, classes, or other entities in code ⇒ `x, y, z`
- *Literals*: Fixed values that represent data directly ⇒ `5`, `"Hello"`, `false`
- *Keywords*: Reserved words in a that have special meanings ⇒ `if, let, for`

2.3. AST

Data structure used to represent the structure of a program or code snippet.

```
┌─────┐
│  x  │
└─────┘
    │
    ▼
   (+)
  ╱    ╲
 ▼      ▼
┌───┐  ┌───┐
│ 5 │  │ 5 │
└───┘  └───┘
```

3. Glossary

AST Abstract Syntax Tree