Compiler Architecture

The architecture we decided to use in our project is a Pipe-filter pattern.

Pipe-filter pattern

This pattern can be used to structure systems which produce and process a stream of data. Each processing step is enclosed within a **filter** component. Data to be processed is passed through **pipes**. These pipes can be used for buffering or for synchronization purposes. (Mallawaarachchi, 2017)

Usage

- Compilers. The consecutive filters perform lexical analysis, parsing, semantic analysis, and code generation.

Reference

- Mallawaarachchi, Vijini. (2017, September 4). 10 Common Software Architectural Patterns in a nutshell. https://towardsdatascience.com/10-common-software-architectural-patterns-in-a-nutshell-a0b47a1e9013

TOKENS

SOURCE PROGRAM

Constants —— Identifiers
Operators —— Special Symbols
Keywords —— Strings

Token

AST

DECORATED AST

Get next token

SCANNER

PARSER

SEMANTIC ANALYZER

CODE GENERATOR

LINKER

Error Message Stream