# SOFTWARE DESIGN DOCUMENT

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**MINI-PASCAL COMPILER**

**Version 0.1**

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# PROJECT OVERVIEW

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## Introduction

This project, written in Java 8, is a compiler which parses Mini-Pascal code to generate MIPS assembly code. Please refer to the “Project Structure” section for clarity on the files used in the project.

## Module 1: Scanner

The scanner module reads a Mini-Pascal text file and scans each line. Keywords and symbols which are recognized as valid (listed below) by the scanner are converted into “tokens”, which will later be handled by the parser module.

Scanner.java is a file which has been generated by JFlex, a lexical analyzer (scanner) generator. The generator uses a specified set of token types, expected patterns, and lexical rules to create a deterministic finite automata (DFA) which is used to construct the aforementioned token stream.

Token.java defines a token object containing the token lexeme and type.

TokenType.java enumerates the list of valid keywords and symbols.

Valid keywords:

**AND ARRAY BEGIN DIV DO ELSE END FUNCTION IF INTEGER MOD NOT OF OR PROCEDURE PROGRAM REAL THEN VAR**

Valid symbols (token type is listed first, followed by the symbol itself):

**SEMI ; COMMA , PERIOD . COLON : LBRACE [ RBRACE ] LPAREN ( RPAREN ) PLUS + MINUS - EQUAL = NOTEQ <> LTHAN < LTHANEQ <= GTHAN > GTHANEQ >= ASTERISK * FSLASH / ASSIGN :=**

# Project Structure

- MorkCompiler
  - documentation
    - SDD.pdf
    - User Manual.pdf
  - src
    - pascal
      - simple.pas
      - simplest.pas
    - scanner
      - Scanner.flex
      - Scanner.java
      - Token.java
      - TokenType.java
  - .gitignore
  - README.md

# Master Changelog

| Commit ID | Commit Tag | Version | Description | Date |
|---|---|---|---|---|
| Initial commit | | | | |
| 5B22F20 | N/A | 0.0.0 | | 1/17/2018 |
| Initial commit (remote) | | | | |
| 6A7EEAD | N/A | 0.0.0 | | 1/27/2018 |
| Initialized files for module 1 - scanner | | | | |
| 46D4E1D | N/A | 0.0.1 | | 1/27/2018 |
| Imported old files | | | | |
| 98ED5E0 | N/A | 0.0.1 | | 1/27/2018 |
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