Project

1. Function Introduction

Use Flex and Bison to do lexical analysis and syntactic analysis for a C-like programming language, which is SPL. I have specified the regular expressions and grammar rules, they are:

- Identify lexical errors and print them out if there are
- Identify syntax errors and print then out if there are
- If there are no errors, print the syntax tree

2. Project structure and Usage

- Project structure
    - Makefile
    - act.h : Define the type of tree node and some functions in act.c
    - act.c : Achieve the functions that new a tree node and preorder-print tree
    - syntax.y : Achieve grammatical analysis
    - lex.l : Achieve lexical analysis
- Usage

    ```
    Under the root dir
    1. make splc
    2. bin/splc test.spl > test.out
    ```

3. Implementation

- Lexical Analysis
    - Use specific identifiers to do the match
    - If there are some unmatched cases, there will be some lex errors
- Syntax Analysis
    - Write the grammar/syntax specification, and the action for each production
- Tree Printing
    - The recursive algorithm is used to realize the preorder printing of the tree

4. Test

- Passed the basic 12 tests and 5 self-writen tests