

CIIC 4030/ICOM 4036 Programming Languages Assignment #1

Using PLY, design a Lexical Analyzer that recognizes the following valid tokens:

- **IDENTIFIER**: a string beginning with at least one lowercase or uppercase letter followed by combinations of lowercase letters, uppercase letters, digits, underscores, a single quotation, or an empty string.
- **NUMBER**: a string consisting of one or more consecutive digits in the range 0-9
- **STRING**: a double-quoted string. For example, "Hello"
- **Keywords**
 - **IF**: the string (keyword) if
 - **THEN**: the string (keyword) then
 - **ELSE**: the string (keyword) else
 - **LET**: the string (keyword) let
 - **VAL**: the string (keyword) val
 - **FUNC**: the string (keyword) func
 - **END**: the string (keyword) end
 - **IN**: the string (keyword) in
 - **NIL**: the string (keyword) nil
 - **TRUE**: the string (keyword) true
 - **FALSE**: the string (keyword) false
 - **EXEC**: the string (keyword) exec
- **Delimiters**
 - **LPAREN**: the string (
 - **RPAREN**: the string)
 - **LBRACE**: the string [
 - **RBRACE**: the string]
 - **COMMA**: the string ,
 - **ASSIGN**: the string :=
- **Operators**
 - **EQUAL**: the string =
 - **LESS THAN**: the string <
 - **GREATER THAN**: the string >
 - **PLUS**: the string +
 - **MINUS**: the string -
 - **TIMES**: the string *
 - **DIVIDE**: the string /
 - **DOT**: the string .
 - **AND**: the string &
 - **OR**: the string |

- In this assignment, whitespace and comments are irrelevant to the syntactic specification of the programming language. Therefore, they should be removed (ignored)
- A comment is a string `//` followed by any characters and the newline character at the end.
- A whitespace is one of the following characters: tab (ASCII 9, `\t`), newline (ASCII 10, `\n`), carriage return (ASCII 13, `\r`), space (ASCII 32)
- You must use the template code provided (A1_template.py) to implement the scanner.
- You must use the code provided (Program_Test.txt) for testing
- You must submit only your Python code via Moodle.