Compiler Design and Construction

Project (Phase-1) **FALL (2022)**

Submission Before: 6:00 PM - 1-12-2022
(Late will be penalty of deduction of 2 absolute marks per day)

MiniC Compiler:

This is a subset of a language name “WhatLanguage”. Description of the language as follow:

#	Lexeme Types	Detail	Notes
1	Reserve words	CONST , FLOAT , INT , BREAK , CONTINUE , ELSE , FOR , SWITCH , VOID , CASE , CHAR ,DO , IF , WHILE	
2	Identifiers	All identifiers must start with @ symbol. Identifier cannot contain any other special character. Identifier cannot contain consecutive _(underscore). Any number of digits, letter or _ can come after @ sign.	
3	Numeric literals	example (123,223, 23.5, 0.45,2.4^7 etc) ^ sign is used for exponential notation	
4	Operators	<,>, <> (Not equal), := (Assignment), ==, *, +, /,-, ++, +=, -=, --, &&, ||, >>> (for input), <<< (for output)	
7	Punctuations	[,{,(,),},], ,(comma)	
8	Comments	<comment>, </comment>	

Assignment Description:

For this assignment, you have to implement a **lexical analyzer**, also called a scanner. This assignment includes following parts:

	PARTS	Output	Marks
1	Generate complete DFA for all token types.	Document	10
2	Generate Transition Table As discussed in class	Excel File	10
3	Implement Lexical Analyser using transition Table generated in step 2. You Must Use double buffering to load and operate data from file.	Cpp file	10
	Total		30

Rules:

1. This is an individual assignment. Each student has to submit his/her assignment work.
2. Group discussion is allowed but don't share code and other part of assignment with other student.
3. Plagiarism is not tolerable in any of its form. Minimum penalty would be **ZERO** marks in the Assignment/ Project module.

Note: Student cannot use built-in data structure. Student can use his own data structure Hash Table, Linked List which he/she developed in data structure course. In this case student has to show me the code before using it.

Evaluating Criteria:

1. Source code should reflect the detail given in documents (other parts).
2. A text file with valid source code will be input of the scanner and Token file will be output of the scanner tool.
3. All points discussed in the class related to scanner implementation should reflect in the assignment.
4. Application should not do which is not supposed to do.

Tools:

C++, MS – WORD or Microsoft Visio, Excel