Practice Assignment 01 (EVEN)
Writing a Lexical Analyzer

Consider the tokens described in the table. Write a (F)lex specification and construct a lexical analyzer that takes an input string and outputs the tokens that appear in the input string.

Token Descriptions

Token	Example	Description
Div_4*	4, 96	All sequences of digits making a number divisible by 4 but having a length of at most 4 characters
Signed	+6, -12	All sequences of digits starting with **+** or **–**
Decimal	10.541, 45.02	Includes a decimal point and at least one digit to the left and right of the point
Scientific	-10e-01, -43E+10	**Signed or Decimal** followed by **e** or **E** and a **Signed** number
Hex	0x04, 0xAB	**0x** prefixed numbers with Hex digits but having a length no more than 4 digits, without the 0x.
Overflow	44444	All digit (excluding hex digits) sequence of length more than 4 characters
Id	Aa1	Strings that start with a letter followed by a sequence of letters and digits
AssignOp	=	The assignment operator
AddOp	+	The addition operator
MultOP	*	The multiplication operator
Relop	<, >=	All the relational operators.

You have to write a lex specification file (named myLexer.l file), compiler it with the lex tool. And then compile the c file that it produced by the lex tool to get an executable file named myLexer.o. The executable file should read the contents of a file called input.in. You can simply redirect the standard input to read from the file. The lexer should produce the token name and the lexeme matched with it in each separate line. If there are any illegal characters or white spaces or newlines in the input should be simply ignored. I have uploaded the flex & bison book to piazza. Check out chapter 2 of the book - it contains sample programs and directions on how to compile.

Sample Input

a1 = -10e-2& <= 33333

Sample Output

Id a1

AssignOP =

Scientific -10e-2

Relop <=

Overflow 33333

SUBMISSION: Create a zip file named PA1_id_name (here is you roll number and after that your name). This should contain your lex file, the mylexer.o file. It should also contain a sample input file (input.in) and the corresponding sample output file (ouput.out). You should also have a readme file (readme.txt) containing (1) the commands required to compile and run your program and (2) description of the sample input and output files (2) any errors that your program has. Send the zip file attached to a private note sent to me in piazza.

Please mention your roll, and name and assignment no in the note.

I will not consider your submission if the filenames are incorrectly written.

Submission Deadline: 1/24 Tuesday 11:59pm