CS 308: Large Applications Practicum

In-Class Activity 8: Scanning and Parsing Text with Flex and Bison, 9th April, 2014

In this activity, we'll try a scanner and parser program. Please install flex and bison utilities on your Ubuntu prompt or Cygwin prompt (the utility is already available on the desktop computers in the lab).

Step 1: Please write down the code given in the lecture slides in .y and .l files and write a Makefile to compile the calculator. Now, try the code with different values provided to the calculator. Please do understand how the code works as the TAs are likely to ask you questions while evaluating your code.

Step 2: Now, please implement the following: power and $\log_{10}$ as operations to extend the calculator. Please define the precedence appropriately.

This power operator works as follows:
2^3 = 8
2^2^2 = 2^4 = 16 (this operator is right associative)

Also, the log works as follows:

$\text{Log}_{10}(10) = 1$ and $\text{Log}_{10}(100) = 2$ (only on inputs that are multiple of 10)

Please treat the precedence of Log_{10} to be highest and followed by the precedence of power and other already existing operators ('+','-','/','*').

Step 3: Bonus Part:

Please modify the parser to read an input file on the command line with the file containing statements of the form:
3+4
3+4*5
3^3 + log 100
3++
The parser's output should be:
7
23
29
Error