Homework 2

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**Instructions**

In this homework assignment you will be creating the lexical and syntax analyzer for a programming language that will be defined in this assignment. This language will be able to calculate basic mathematic operations and relational operations for **integers** and **floating point** numbers, as well as **variables** that can be either.

This program should be able to not only recognize the following **operations** but have a proper **evaluation order** that conforms to the real life principles of mathematics for in order operations:

* Addition
* Subtraction
* Multiplication
* Division
* Module
* Less than
* Greater than
* Equal To
* Not Equal To
* Assignment

(there must also be a way to break precedence, this is usually done with the use of parenthesis)

Each program should have a clear beginning and end as well as a way to separate multiple statements.

Your assignment is 4 fold:

1. Define the rules for recognizing all lexemes as their proper token
2. Define production rules for implementing the mathematical syntax of  operators and operands
   1. Make sure it conforms to the standard of an**LL Grammar**
   2. Make sure it properly enforces the correct**precedence rules**
   3. Make sure it is not ambiguous in creating parses
3. Write a program that recognizes all tokens in a file
4. Write a program or an extension to the above program that determines if the tokens conform to the correct syntax.