Assignment
CSE425/CSE325 - Programming Language Concepts
Marks - 15
Due Date: 28/08/2018

Submission Instructions:

Softcopy: Create a zip file with the assignment material and email the file to me at nabeel.mohammed@northsouth.edu before 5pm of the due date. Please make sure you write the following in the subject line

CSE425/CSE325 Assignment Submission {ID number} {Section Number}

Hardcopy: Submit hard copy of the Regular Expressions, Grammar and Source code to my office (SAC917) by 5pm on the due date.

Assignment Description:

You are required write a simplified interpreter for a still fictitious language called BottleCap. In BottleCap statements can be of the following types:

Print {expression}
Add {expression} with {expression}
Subtract {expression} from {expression}
Multiply {expression} by {expression}
Divide {expression} by {expression}
Assign {variable_name} to {value}

- The *Print* statement returns the value of the expression it has just printed.
- The *Assign* statement returns the value assigned to the variable
- Expressions can be a mathematical expression in reverse polish notation or be nested expressions that resolve to a value. E.g Add 2 3 + with 2 5 *, Add Add 2 with 3 with Multiply 3 by 2. There is not theoretical limit the the level at which expressions can be nested.
- Variable names can be used within expressions, only after they have been assigned
- A *value* is either an expression or a constant value

Write a small interpreter that interprets a BottleCap program. If it encounters a *Print* statement, it should print the value to standard output. The interpreter should also print the value of the last expression to standard output, if it is not a *Print* statement.

There are formal submissions required for this assignment. These are:

- You must decide on which regular expressions to you in the lexical analysis phase and submit the regular expression both in softcopy and hardcopy
- You must define a CFG to parse the input program and submit both hardcopy and softcopy.
- You must have a working interpreter written using flex & Bison or PyLex. Both softcopy and hardcopy of the working interpreter must be submitted.