**CS 4620/6620 Exercise 3 — Simple expression scanner, parser, and interpreter**

**September 20, 2018**

**Introduction**

In this assignment you'll complete a scanner, parser, and interpreter for a simple expression language. The grammer for this language is as follows:

program ::= stmts | ε

stmts ::= stmts stmt | stmt

stmt ::= PRINT exp SEMI

exp ::= exp TIMES exp | exp PLUS exp | exp MINUS exp | NUMBER

**Getting Started**

To get started download the source code available [here](http://www.cs.colostate.edu/~cs453/yr2012/Recit/CS453PA0.tar.gz). Unpack the .tar.gz and build the code it contains using 'make':

>unzip ./CS4620-6620PA0.zip

> cd CS4620-6620PA0/src

> make

You can test the interpreter by executing:

> java -classpath java-cup-11a-runtime.jar:. parser ../infile

You should have the following output:

exp val

exp val

**Steps to complete assignment**

The parser and interpreter are defined in PA0.cup; the scanner is defined in PA0.lex. Your goal in assignment is to complete PA0.lex and PA0.cup so that you have a working interpreter for a simple expression language. To accomplish this you'll have to do the following:

* update PA0.lex so that the scanner produces tokens for PLUS and MINUS.
* update PA0.cup so that:
  + when the print statement is interpreted it outputs the value of the expression.
  + number, times, plus, and minus expressions parse and evaluate correctly.

**Grading**

Once finished show your interpreter to the TA so it can be graded and sign the sheet.