

# CSC402/502 - Assignment #1

Due Sunday 9/24/17

## Problem:

The idea is to write a reader for our `exp0` language. The reader should read *valid* programs written in `exp0` and output the number of print statements (p statements) found in the program. (**Hint:** a reader is a language processor that consists of a syntax analysis block and that constructs an intermediate representation. The intermediate representation here is very simple: a counter for the number of p statements.)

1. Write a hand-coded LL(1) parser for the `exp0` language defined in class (you can use the code `exp0_recdesc.py` as a starting point. This code is available in the 'code' folder of the Plipy book).
2. Extend the parser with the necessary code in order to count the statements, i.e., turn the parser into a reader.
3. Demonstrate that your reader works by processing the following programs:

```
s x 1;  
s y 2;  
p (+ x y);
```

and

```
s x 1;  
p x;  
s y 2;  
p y;  
p (+ x y);
```

4. Your reader should reject the following program:

```
s x 1;  
s y 2;  
p (+ x p);
```

**Note:** just counting p characters in a program does not work, you have to write a full parser that performs syntactic analysis in order to reject invalid programs.

The reader should be written in Python. Hand in your source code together with a Jupyter Notebook that shows that your program works. To submit your work create a zip file of your sources and the notebook and submit it through Sakai. Assignments submitted in formats other than Jupyter Notebooks will not be graded and a failing grade will be recorded.