GIT Department of Computer Engineering
CSE 222/505
Spring 2013
Homework 04

Lists, Stacks and Expression Evaluation
Due date: April 8th 2013 23:59

In this homework, you will use a number of data structures that we learned in the class. You will implement a simple interpretive language (GIT language) that can do arithmetic expressions with variables. You will read your expressions from a given file. For example, if a file named **program.git** contains

```
int a
int b
a = 2 * ( 11 / 2)
b = a / 3
print b
float c
c = 6.5 / 2.0
print c
```

and if you run your program on this file
Gitlanguage program.git

you will see
```
3
3.25
```

on the screen. Here are the rules for this simple language
- Operators: +, -, *, /, =, ^ (power) for integers and floats. They are all binary operators
- There are only two variable types: int and float
- No mixed arithmetic between int and float
- Variables can be regular Java variable names other than reserved names int, float, print
- If there is an error in the expressions then you should print it clearly such as
  - Undefined variables
  - Uninitialized variables
  - Mixed type expressions
  - Unknown operators
  - Unmatched parenthesis, etc
  - No Lvalue, etc

Here is how you should design your language
- Each variable has a class and you keep the variables in a linked list. When you see a new variable, make a search to find the variable in the list to see its value
- You may use any classes that we developed in the lectures or any Java class that we have used during the lectures.

In your submission, show your work for software engineering phases. You should use EA as much as possible.

Provide at least 5 test programs and their outputs. Finally, do not forget to follow the homework submission rules.