CMPE 230 Systems Programming

Homework 1 (due Oct. 28th)

(This project can be implemented only in C/C++ or Java)

In this project, you will implement :

a) an interpreter and

b) a compiler that generates A86 code

for an advanced calculator. The advanced calculator (ADVCALC) will accept (i) expressions and (ii) assignment statements. Expressions will be infix expressions involving +,-,*,/ operations. You can assume all values and results of operations will be integer valued. You can also assume that there will be only 52 variables whose names correspond to the letters a-z and A-Z in the English alphabet. Examples of ADVCALC usage are given below:

ADVCALC Interpreter	ADVCALC compiler
%advcalc **>x = 1** **>x*3** **3** **>y=x-4*(x+x)** **>y** **-7** **><ctrl-d>** **%**	Suppose the file **example.ac** contains: **x = 1** **x*3** **y=x-4*(x+x)** **y** **%advcalc example.ac** **example.asm was generated.** **%a86 example.asm** **%example** **3** **-7**

Note you can assume that an undefined variable has value 0.

You should prepare a makefile that compiles your source code. Your project will be graded according to the following criteria:

	Part (a)	Part (b)
Documentation (written document describing how you implemented your project)	8%	8%
Comments in your code	3%	3%
Implementation and tests	39%	39%