Programming Assignment 2

First, set up your development environment using the VirtualBox VM. You can use the same VM as you used for the first assignment, so you probably won't need to do anything for this. Please see the page **Getting started with the VM.PDF** for instructions.

Next, download the **PA2.PDF**. In addition to the assignment requirements, It has information about how to get the starter code up and running.

IMPORTANT NOTES:

- **The submission instructions have now been added at the end of this page.**
- **The assignment numbers are offset by 1. Even though this is assignment 2, the directory that you will get the starter code from is named "PA3" for the C++ version and "PA3J" for the Java version.**
- **If you are using C++, once you run the make command that checks out the starter code, you will need to make one slight change to our code before it will link. Please comment out line 29 of the file parser-phase.cc (which you should not otherwise modify), so that it looks like:**

```
//int curr_lineno;              // needed for lexical analyzer
```

Here are some more useful resources:

- **The Cool Reference Manual.PDF**
- **A Tour of the Cool Support Code.PDF** In particular, look at section 6 "Abstract Syntax Trees".
- Some additional **Other Project Resources.PDF**, including **manuals for bison and CUP** as well as other documentation

As with assignment 1, the examples are in the directory /usr/class/cs143/examples. Please copy these into your project directory if you wish to use them.

The correct version of spim is at /usr/class/cs143/bin/spim. This directory has been added to the PATH environment variable, so you don't need to type the whole path.

Once your parser works, you should be able to compile the examples using your parser and run them. As an example, the following should work (some output omitted):

```
$ make parser
...
$ cp /usr/class/cs143/examples/hello_world.cl .
$ ./mycoolc hello_world.cl
$ /usr/class/cs143/bin/spim hello_world.s
SPIM Version 6.5 of January 4, 2003
Copyright 1990-2003 by James R. Larus (larus@cs.wisc.edu).
All Rights Reserved.
See the file README for a full copyright notice.
Loaded: /usr/class/cs143/lib/trap.handler
Hello, World.
COOL program successfully executed
Stats -- #instructions : 154
#reads : 27 #writes 22 #branches 28 #other 77
```

How to Submit

1. Download the grading script from here and put it in the directory in which you are doing the assignment (where the cool.y or cool.cup file is). The easiest way to do so is to go to your assignment directory, and run in the VM:

   ```
   wget
   https://lagunita.stanford.edu/assets/courseware/v1/9334
   cd3f5353fabc5cc62247b2ae0a1d/c4x/Engineering/Compilers/
   asset/pa2-grading.pl
   ```

   This will save the script (pa2-grading.pl) in your assignment directory.

2. Run the script by typing

   ```
   perl pa2-grading.pl
   ```

   Note that you can also make the script executable by running `chmod a+x pa2-grading.pl` first, and then running it directly as `./pa2-grading.pl`

3. The script will give you a grade at the end, as well as a submission code. If you want to figure out why your parser is failing certain tests, the tests will be put in

the ./grading subdirectory. The output from your code will be in the ./grading/test-output directory.

4. Once you are satisfied with your grade, click on the arrow above or beneath to go to the "Programming Assignment 2 Submission" quiz. You can use this link to go directly to the quiz. Copy-and-paste the code from the script (to copy from the terminal in VirtualBox, use ctrl+shift+c) into the "Submission code:" box. Once you submit the quiz, your score should appear for the quiz. You can also resubmit the quiz if you wish to update your grade.