CS4215 Programming Language Implementation

Lab task for Week 02
The Language ePL

1. Familiarize yourself with the Eclipse IDE for Java.

2. Download the file
   `http://www.comp.nus.edu.sg/~cs4215/labtasks/week2.zip`, and extract it to the Eclipse workspace folder. (Eclipse allows you to choose the workspace folder when you start it for the first time. You can change the workspace folder using "File", "Switch Workspace".)

   The workspace folder should now contain a file `cs4215`.

3. In Eclipse, go to "File", "New", "Java Project", and choose "cs4215" as "Project name". Press "Finish".

4. Go to "Run", "Run Configurations", "Java Application", press the "+" button. Enter "cs4215" as Project, and "ePLdynamic.epl" as "Main class".

   Under "Arguments" enter a file name, say "test.epl". Place a file "test.epl" into the working directory "workspace/cs4215", whose content is an ePL expression, for example "1 + 2" (without the quotes). Press "Run" and you should see in "Console": "Result of evaluation: 3".

5. Note that the `Evaluator` in `ePLdynamic` can only handle integer operations. Add all operations that deal with boolean values, including the comparison operators.

6. Use the "Run Configurations" to run `eVM.eplc` with a file name as "Program argument". The file name should be a file in the working directory. This compiles the given program to eVML, the machine code language of the lecture. Use the extension `.epl` for the ePL program, for example `test.epl`. The compiler produces a machine code version of the program using the extension `.evml`, for example `test.evml`.

   You can run the virtual machine by running `eVM.epl` with the name of the program, without using the extension. For the example above, your "Program argument" should be `test`.

   The following machine instructions are missing in `VM.java`: `LT`, `GT`, `MINUS`, `DIV`. Add these instructions to the virtual machine. Observe that all other

instructions are commutative. What effect do you observe for the missing non-commutative instructions?

What is your plan for handling division by zero?