

# CS4215 Programming Language Implementation

## Lab task for Week 04

### Type Checker for simPL

1. Download the file <http://www.comp.nus.edu.sg/~cs4215/labtasks/week4.zip>, and extract it to the Eclipse workspace folder. The workspace folder should now contain a file `cs4215_week_4`.
2. In Eclipse, go to “File”, “New”, “Project”, “Java Project”, “Next”, and choose “`cs4215_week_4`” as “Project name”. Press “Finish”.
3. Use the “Run Configurations” to run `simPLstatic.typecheck` with a file name as “Program argument”. The file name should be a simPL file in the “Working directory”.

Note that the type checker `typecheck` in `simPLstatic` cannot handle conditionals, applications, binary primitive applications, function definitions and recursive function definitions. Add the method `check` that deals with these constructs.

Your implementation needs to return the correct type  $t$  for an expression  $E$  if and only if  $E : t$  holds for any type  $t$ . Throw `TypeError` whenever a type error is detected, and include a reasonable error message. Our testing environment will not care about the exact error message, but requires that a `TypeError` is raised, in case  $E$  is not well-typed.

4. Submit the resulting files
  - `If.java`
  - `Fun.java`
  - `RecFun.java`
  - `BinaryPrimitiveApplication.java`
  - `Application.java`

from your folder `simPL` in the IVLE workbook “Week 4”.

Make sure that you do not change any other files when you test your programs.

Suggestion: When you are done with the solution, save your four files in a secure place. Then download a fresh copy of the lab task, and place your three files into that copy. Then re-do your tests.