Rheinische Friedrich-Wilhelms-Universität Bonn
Institut für Informatik III
Prof. Dr. A. B. Cremers

Aspect-Oriented Software Development
Course in the summer semester 2009
Dr. Günter Kniesel, Daniel Speicher

Exercise Sheet 10

Due: Sunday 5.07.2009, 23:59:59 via SVN

For help, contact aosd-staff@lists.iai.uni-bonn.de (staff only) or aosd-course@lists.iai.uni-bonn.de (staff and participants).

Please start working on the exercises early enough so that you can contact us in time in case of problems. Don't expect us to be available during weekend!

Exercise 1: *"AspectJ: Load Time Weaving"* (5 Points)

Load Time Weaving is a technique to apply aspects at load time to already compiled code. In your repository you will find the project **ES10_E01_LoadTimeWeaving**. It contains the file **whatisit.jar** in which some unknown class implements a simple algorithm.

Your assignment is to find out which well-known algorithm it is, by writing a suitable tracing aspect and applying it to the project.

Hint: To run your aspect on the .jar file you have to run the class "Test.java" with the LoadTimeWeaving runtime.

- Right-click on the test class and then choose "Run As" -> "Run Configurations.."
- Double click the "AspectJ Load-Time Weaving"
- Choose the "LTW Aspectpath" tab. With "Add Jars" you now add the "aspectjweaver.jar" that is in the project.
- Then run the configuration.

Hint: Don't let yourself be confused by the fact that the AspectJ development tool decorates your pointcut definitions with marker indicating that the aspect has not been applied. This is because the aspects are woven at load-time and the AJDT cannot statically now if they have been applied.

Exercise 2: *"If-pointcut"* (2 Points)

The project **ES10_E02_Auto** in your repository contains a test class that produces cars. Striving for more environmentally compatible products, you want to extend the output of the test class so that it issues the warning "Consider fitting a smaller engine!" whenever cars are produced that have more than 6 cylinders or a cubic capacity higher than 2500 ccm.

a) Write an aspect that implements the above task.

b) Read the documentation of the "if" pointcut and consider whether and how you could use it to implement the above problem. Discuss why/how it helps you (or why it does not).

(See http://www.eclipse.org/aspectj/doc/released/progguide/semantics-pointcuts.html#pointcut-definition)