Assignment 3

CSE 4313 3.0 Software Engineering Testing, Winter 2014

Due: Wednesday, March 19, 2:30pm.

Format: Individual.

Path Testing

The purpose of this assignment is to give you experience applying path testing approaches and measuring coverage. Your task will be to create a test suite in JUnit for the BORG Calendar, produce bug reports (if any), and submit a written report describing your testing.

What to do

Continue with the development environment you created for Assignment 2.

Install the EclEmma plugin for Eclipse (link on the course website). Measure coverage for the test cases you created for Assignment 2. Make note of the coverage measurements as you will need them for your report.

Based on the coverage results, add more test cases to your test suite to bring the coverage as close as possible to 100%.

Derive the Control Flow Graph for one of the methods you have tested. Calculate the number of paths in the method (use Boundary Value Analysis in the case of loops). Estimate the percentage of paths that your test suite covers. What other test cases that would not improve statement coverage would you like to add based on this? Implement as many as you can.

If you believe that the additional test cases have revealed new bugs, create bug reports.

What to Submit

Before the deadline, submit electronically the test code package you created. To submit, navigate to the directory that contains the working directory (i.e. `winter2014`), and give a command like the following:

`submit 4313 a3 winter2014`

You also need to submit a written report. This report must include:

- The statement coverage measurements for your Assignment 2 test suite.

- A description of the test cases you added to improve statement coverage. The marker will not read your code in order to see what you tested. You have to describe it.

- The statement coverage measurements for your final submission. If your coverage is not 100%, include a discussion of why that is.

- The Control Flow Graph you created. Indicate the segments clearly (you will probably need to include the code for this).

- The path coverage discussion described in the What To Do section.

- The bug reports you created.

- An appendix with the specification of the methods you are testing (copied from Assignment 2)

To submit your written report, give:

`submit 4313 a3 a3.pdf`

where `a3.pdf` is your report.

Presenting your thought processes in English is an important skill for a software professional. If you have trouble writing English, have somebody proof-read and correct your prose. You might find the services offered by The English as a Second Language Open Learning Centre useful: `http://www.yorku.ca/eslolc`