

Laboratory 7

In this lab we will check out some java code from a github repository, then perform some white-box testing on it. We will use a tool called EMMA to instrument the code and measure the coverage of tests.

Attendance/Demo

To receive credit for this lab, you must make reasonable progress towards completing the exercises. When you have finished all the exercises, call your TA, who will review your work. For those who don't finish early, the TA will ask you to show whatever diagrams you have completed, starting at about 15 minutes before the end of the lab period. Finish any exercises that you don't complete on your own time.

Steps

1. Reboot your computer and login under linux (Fedora)
2. Checkout the code from the git repository at: <https://github.com/NMAI-lab/sysc302-lab7/>
3. Open the code in a java IDE. This code is a “toy” Culearn-like system, where you can add courses, view the course list, and register students to these courses.
There are control classes for each use case, and a data manager that simulates a database.
4. Create unit tests for the different use cases, plus a main() method that runs all of them.
Be incremental: start with one or two tests for adding a course, proceed with the rest of the steps, then add more tests, etc.
5. Export your tests to a runnable jar file.
6. Instrument the code using EMMA (the EMMA jar file is provided):
`java -cp emma.jar emmarun -jar [your_jar].jar`

This will also run the main() method of your jar file, and save code coverage statistics in a file called coverage.txt.

7. Open this text file and see the areas of the code that are lacking coverage, try to improve the coverage by adding new tests.

Linux command line basics

See topics 2, 3 and 5 of the tutorial at http://linuxcommand.org/learning_the_shell.php

Git command line basics

The main git commands you may need are:

- | | |
|------------|--|
| git clone | - clone a remote repository |
| git status | - find out the status of your repository |
| git add | - once you've made changes, “stage” these changes for commit. This means |

git commit choosing the files that will be committed. You only commit what you want.
- commit changes to your local repository