Spring 2014 - CS 4/510 - Topics in Software Testing

Due: April 25 2014

Project 1: Automated Testing and Coverage

Command Line Interface Calculator (CLIC), as its name says, is an open-source, easy-to-use command-line based calculator. Currently, CLIC is in beta release. Therefore there may be bugs in CLIC. In the source code release, there are no tests associated with it. Your job is to help this project to build a test framework. The goals of this project is to help you get familiar with command-line based testing framework, and developing tests to achieve high coverage.

You can download

- CLIC at: http://sourceforge.net/projects/clic/
- Readme at http://iweb.dl.sourceforge.net/project/clic/readme

In this project, you need to

- use DejaGnu to build the test framework;
- write your own tests;
- compute the coverage of your tests;
- improve the tests to achieve desired coverage result.

Demo of this project

1. Demo DejaGnu test framework is working on CLIC project.
2. Show us the test cases that you wrote
3. Show us the summary (generated by DejaGnu) of your test
4. Demo gcov and lcov are working on CLIC project.
5. Show us function/branch/line coverage results generated by gcov/lcov
6. This project is graded based on the “Grading sheet” on the next page.

References

- DejaGnu
    - http://www.gnu.org/software/dejagnu/
    - http://www.scarpaz.com/Documents/dejagnu.pdf
- Coverage related references
    - http://gcc.gnu.org/onlinedocs/gcc/Gcov.html
    - http://ltp.sourceforge.net/coverage/lcov.php

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Project 1: Grading sheet

No.	Feature	%	Grade
1	Compile and run CLIC	10	
2	Install **DejaGnu**, and run **DejaGnu** on this project	10	
3	Demo a passed test case	10	
4	Demo a failed test case	10	
5	Demo a test case with bugs in CLIC	10	
6	Modify Makefile, and run **gcov** on this project	10	
7	Install **lcov**, and run **lcov** on this project	10	
8	Achieve more than 78% function coverage	10	
9	Achieve more than 70% line coverage	10	
10	Achieve more than 62% branch coverage	10	
Extra	Demo how to run **gcov/lcov** on a kernel module	10	
Total			