

Homework 1

You have to submit your solutions as announced in the lecture.

Unless mentioned otherwise, all problems are due 2017-02-23

There will be no deadline extensions unless mentioned otherwise in the lecture.

Problem 1.1 *Goto fail*

Points: 10

Consider the ‘goto fail’ example from the lecture notes.

1. Transcribe the faulty function (including the fault) as closely as possible in some programming language. Because we will use testing and code analysis tools, it is good to use a language for which many tools exists, e.g., C or Java.
Replace all types, functions, and variables that are declared outside the code snippet with arbitrary implementations. The only thing you have to ensure is that all three function calls in the body can succeed or fail independently.
2. Write a unit test for your function. The test cases should be such that running your tests executes every line of the tested unit at least once.
3. Setup a code coverage library/tool and use it with your program. Run the tests and see if every line is executed. That should detect the fault.
4. Setup a static code analysis tool and run it on your program. This should be such an unreachable-code-analysis detects the fault.
5. Setup a code style checker (e.g., as part of your IDE). Configure it such that irregular indentation is flagged and the fault is detected.