

Serie 4 - Reflection

Exercise 1

A security agency has asked us to introduce security measures to monitor the actions of particular users. Whenever the phone number of a particular contact is changed a log in the Transcript should describe the old and the new phone number and state for which contact changed.

Exercise 2

We want to enhance the Mocking capabilities of our system. Develop a class named PluggableMock-Object whose responsibility is to accept any message sent to it answering by executing user provided behavior. With this class we do not require to create a new class for every object that we would like to mock, we just define the messages that we need for a test case and what they should return.

Exercise 3

Read the next snippet from the abstract of *"Counting Messages as a Proxy for Average Execution Time in Pharo"*, Bergel *et al.*: *"Code profilers are used to identify execution bottlenecks and understand the cause of a slowdown. Execution sampling is a monitoring technique commonly employed by code profilers because of its low impact on execution. Regularly sampling the execution of an application estimates the amount of time the interpreter, hardware or software, spent in each method execution time. Nevertheless, this execution time estimation is highly sensitive to the execution environment, making it non-reproductive, non-deterministic and not comparable across platforms."*

In this paper the authors conclude that measuring the number of message sends is more reliable than execution sampling. Develop a profiler which counts the number of message sends for a use case of the address book example classes.

Note: These exercises should be solved with techniques presented at the Reflection lecture. No conditional structures are allowed.

Please hand in by email to ressia@iam.unibe.ch the solutions before the beginning of the next exercise session. The email should have a single attachment (named Assignment[#]-Group[#]) with all the required files. The source code should be provided as a single zip file. The questions should be answered in a text document. Your solutions should be clearly marked with names and matriculation numbers of the team members.