Testing Techniques 2016 – 2017
Assignment 2

Model-Based Testing 1

The purpose of this assignment is to apply automated testing and Model-Based Testing (MBT) to your System Under Test (SUT).

The first step will be to automatically execute the manual test cases that you developed in the first assignment. In the second step you will apply the MBT tool TorXakis.

Try to combine both parts as much as possible, i.e., automate your test-execution in part 1 in such a way, that you can reuse large parts of it for MBT in part 2.

1. Automated Test Execution

Automate the execution of your manually developed test cases:

1. Describe, design, and develop an automated test execution environment for your SUT. You may use any additional (test) tools that you think are useful, e.g., search the Web for test execution tools, such as Selenium, JuBuLa, scripting languages, a protocol sniffer, ...
2. Implement the test cases that you developed for manual testing, as scripts, programs, text files, ..., so that they can be executed with your test execution environment.
3. Test your SUT with the automated test scripts and analyse the results.
4. Evaluate your automated test execution environment.

2. Model-Based Testing

Use the MBT tool TorXakis (`http://www.cs.ru.nl/personal/tretmans/torxakis/`) to model and test your SUT:

1. **Modeling Investigation**

   Investigate and study (the behaviour of) your SUT; investigate and argue which parts of your SUT, which interfaces, and which functionality might be tested with TorXakis.

2. **MBT Modeling**

   Make a model for your SUT in the TorXakis modelling language txs. Explain your model (structure, processes, data definitions, ...).

3. **MBT Test Environment**

   Develop a test environment or *test architecture* which will be used for model-based testing of your SUT. Give a sketch of the test architecture, i.e., the positioning of the SUT, test tool(s), adapter(s), logging tool(s), ..., and their connections and interfaces; explain your choices. Try to reuse the test-execution automation environment as much as possible.

4. **MBT Testing**

   Use TorXakis to generate tests, and execute them on your SUT. Explain your observations and analyse the test results.

5. **Deliverable**

   Give the models, code, adapters, etc. in such a way that we can run it; provide a 'README'. Be prepared to give a demo.