

Lecture Exercise #3 Testing and SCM

Intended Learning Outcome

After passing this exercise, the student shall be able to:

- construct test cases based on equivalence class testing techniques
- discuss the differences between unit, integration, system, and acceptance testing
- discuss different Git workflows

Problem description

One part of the “Molvo” system is responsible for scanning the grades (integers 1-5) of passengers and car owners and – if necessary – send a warning to the administrator for further investigation. Your colleague has now coded the module sending these warnings and your task is to test it. The specification is:

1. If the average grade is 2 or higher, no action is taken.
2. If the average grade is below 2 and the average is based on less than 10 grades, no action is taken.
3. If the average grade is below 2 and there are 10 grades or more in total, then a warning message with the phone-number of the passenger or car owner is sent to the administrator if:

$$\frac{\text{average grade}}{\text{number of grades}} < 0.1$$

4. If this was not the first time a warning was sent, the system sends the warning message, phone-number, and a link to the entire grading history.

Task

- a) Specify the input parameters, output parameters, and equivalence classes (might be invalid). Motivate why you made your choices. Use the entire input space when creating the equivalence classes, not just one input parameter at the time. Combinations of input parameters can be necessary.
- b) Create a table of test cases for testing the system using equivalence class testing based on the **valid** equivalence classes in task a). Each test case shall contain test-case number, input, expected output, and what equivalence class the test-case belongs to.
- c) What level of testing did you create the test cases in task b) for? Unit, integration, system, or acceptance testing? Motivate your answer.
- d) The entire development team has 8 members and are creating the first release within four months, mostly from scratch. Which workflow would you use in Git: Centralized workflow or Feature branch workflow? Motivate your choice and write some pros and cons of the selected workflow.

Report

Written answers to each of the tasks. Max 1-2 A4 page(s) in total. The test case table for task b) can be on a separate page.

Grading criteria

Precise and well-motivated answers to all questions at each task: a) inputs, outputs and equivalence classes, b) test table and test cases, c) test level, and d) SCM workflow.