Title

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2 Short requirements

From this description we can deduce that a test approach must at least describe:

- the product that will be tested,
- the controlled environment in which it will be tested,
- the specified procedure following which it will be tested,
- the quality characteristics that will be tested, and
- the specification.

3 Template

3.1 Introduction

State the objectives and overview of the document at a high-level.

3.2 Test Goal

What is the overall goal of the testing effort, what are the final deliverables, who are the stakeholders, i.e., for whom are you doing it, applicable laws and (international) standards.

3.3 The Product

Identification of the SUT: What is the product (SUT System Under Test) being tested, its version, its operation context, required platform, its interfaces, and how is it executed.

3.4 The Specification

What is the test basis, i.e., its specification, and all documentation describing what the SUT shall do. (Do not include specification documents, but refer to them.)

3.5 Risks

What are the risks of the product (at a high level), of the development process, and of the test process. How are risks handled and mitigated.

3.6 Test Environment

What is the (controlled) environment in which experiments are performed, what is the test architecture, i.e., how are SUT and test system positioned and connected, which environment and infrastructure (hardware, software, middleware, databases, libraries, . . .) are required for testing, how to access the SUT and its interfaces, which stubs and drivers are needed, are tests performed in a laboratory, production, or user environment.

3.7 Quality Characteristics

Which quality characteristics are tested (IS 9126 or other quality model: functionality, reli- ability, usability, . . .),

3.8 Levels and Types of Testing

Which levels and types of tests are performed: (V-model: unit, integration, module, sys- tem, acceptance, . . .), which units, components, subsystems, . . . are tested and for what, accessibility (white/black box), verification vs. validation tests, ...

3.9 Who will do the Testing

Who tests what, and what are the roles: developer, (independent) tester, user, alpha, certi- fication, . . .),

3.10 Test Generation Techniques

As far as already known or required, e.g., by applicable standards: black-box (equivalence partitioning, boundary value analysis, error guessing, cause-effect graphing, decision tables, state transitions, use case testing, exploratory testing, . . .), white-box (path, statement, (multiple) condition, decision/branch, function, call, loop, MC/DC coverage, . . .), mutation testing, combinatorial testing, ...

3.11 Test Automation

As far as applicable, which parts of the testing will be automated, which test tools will be used in the various phases of the testing process (planning, preparation, test generation, test execution, completion), which tests are performed manually, what is automated, and which tools have to be obtained or developed.

3.12 Exit Criteria

What are the criteria for going from one test phase to the next, when is testing finished, when is the product considered sufficiently tested, what are the (final) evaluation criteria.

3.13 Testware

Which test products are recorded, consolidated, and kept for reuse.

3.14 Issue Registration

How are issues (defects) registered, analysed, reported, and handled.

4 Observations martijn

4.1 Overall

- Comments only in util/BigFunctions.java

4.2 Expression that crash

should the program CRASH on wrong input?

- $1/0$
- $log(-1)$
- $\phi = 7$
- Using TABS in any expression
- using arrow keys

The program crashes on some but not all wrong input.

- $seven + eight$ does not crash.

4.3 Expression with a wrong result

- $(1/300) * 300 = 0.9999999999999900$. should be 1
- $2^(- 1) = 0$. should be 0.5
- $log(10^1234)$ outputs an intermediate result, then crashes. should output 1234
- 0^0 return 1, is undefined

4.4 Other

- Input reading is primitive, cant go back without deleting.
- $ln(log(10^e))$ throws an error Could not convert bigInteger into long, but still gives the correct answer
- $1Banana\phi = 1$
- Control + \ gives a lot of debugging information
- $x = 7$ $7(x)$ gives 7, not 49
- $f(x) := 7$, works fine $f(x) := f(x) + 1$, work if the function f has previously been defined $f(1)$ crashed due to an infinite loop
- Using 9999 character variable names gives an exception, 999 characters is fine.
- $x(z) := z$ $f(x) := x()$ $f(7)$ crashes
- $f(x) := 1$ $f(x) := f(2)$ $f(3)$, crashes, expected 1
- Equality?, can either return -1,0, or 1
- $z = 7 \neq 7 = z$