ISQTB – Chapter 4

Test Design Specification

1. Test Conditions – What will be tested, with what method
2. Test Cases – Objective, actions, outcomes.
3. Test Procedures – The step by step guide on how to complete the action.

TEST PLAN

Test Base 🡪 Test Condition 🡪 Test Cases 🡪 Test Procedures

Test Cases:

Once conditions known, test cases can be created.

These consist of a set of input values:

* Execution preconditions
* Expected Results
* Execution post-conditions

They are developed to cover a certain test objective or test condition.

Traceability:

**Definition:** The ability to identify related items in documentation and software such as requirements with associated tests.

* Ability to trace test conditions to specs and requirements
* Allows impact analysis when the requirements change
* Ensures requirement test coverage can be determined for sets of tests.

Horizontal Traceability: The tracing of requirements for a test level through the latest of test documentation

Test Techniques:

**Functional - Specification Based - (Black-Box)**

* Equivalence Partitioning
* Decision Tables
* State Transition
* Boundary Value Analysis
* Use Case Testing

Examines the functionality of an application without knowledge off its internal structures

It is based entirely on the software requirements and specifications.

Equivalence Partitioning(Classes)

Defining partitions into values that are valid and not valid. (Site regard age >=18, valid are 18+, invalid are string, NaN, Negative).

Thus, reducing the number of test cases needed to be written.

* Rather than trying to test infinite amounts of inputs, we strategically sample them.
* Divides a set of test conditions into partitions that can be considered the same
* At least one value is test from all classes.

Boundary Value Analysis:

Simply means to select values near the boundaries of the classes.

0 ------Invalid------25------Valid------50---------Invalid----------100

So the boundaries we would test would be 0, 25, 50 and 100.

00:00 ------06:00-----08:00-----------------------18:00---------19:00-----------------23:59

Boundary Values

00:00, 05:59, 06:00, 07:59, 08:00, 17:59,1 8:00, 18:59, 19:00, 23:59

Decision Table Testing:

Specifications that contain business rules that defines a set of actions that should be taken as a result.

Four Quadrants

Conditions Sets of Conditions

Actions Action Entries

**Sets of Conditions** are Boolean values (True/False) that make up the different possible combinations of conditions.

**Action Entries** are check-marks, representing which of the actions in a given column are to be performed.

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Infeasibility:

Certain combinations of condition that are logically impossible

State Transition Testing:

* Double circle start of transition

Experience Based Testing:

Error Guessing

A test design technique where the experience of the test is used to anticipate what defects might be present in the component tor system under test as a results or errors made, and to design test specifically to expose them

Defect and Failure lists

Can help identify areas that are susceptible to problems.

Fault Attack

This approach is to list possible errors and design test around that list.

Exploratory Testing

An informal test design technique where the tester actively controls the design of the test as those tests are performed and uses information gained while testing to design new and better tests.(Ad-hod)

**Advantages:**

* Doesn’t require much preparation
* Testers report a large proportion of bugs via this method

**Disadvantage:**

* There is no review of testing planning an experience user of the system may no be an experienced tester
* Testers have to remember the exact steps they took to create a defect – otherwise reproduction may be difficult.

**Structural Testing (White-Box)**

* Statement Coverage
* Decision Coverage