02/09/14

**Test Development and Test Design**

Objecyives

Understand why we have a test design techniques and what a test basis document is used for

Differentiate between a test design/test case/ and test procedure

Compare the terms test condition, test case and test procedure

Evaluate the quality of t

Test Basis Document (taken from the ISTQB glossary) –

All documents from which the requirements of a component or system can be inferred

The documentation on which the test cases are based. If I document can amended only by way of formal amendment procedure, then the test basis is called frozen test basis.

Something to remember through this session – In reality, there is no right or wrong way of defining tests, there are better and worse ways.

Why do we rely on established test design techniques?

> They help us achieve a given level of acceptance and confidence in the software

What would happen if we didn’t use these techniques?

> The amount of testing we do could spiral out of control and we would have unreliable ways of recognising test progress

Test Design Techniques help us identify

Test Conditions

> The areas, these are conditions to be met to sign of

Test Cases

> How what

Test Data

You must consider the context (environment) within which the tests are taking place:

The organisation

The maturity of the development and testing process

Time constraints

Safety or regulatory requirements

The people involved

Test Design

Test Base -> Analysis -> Test Conditions -> Analysis -> Test Cases – Analysis -> Test Procedure

Ie, requirements and Specification

->

What is it we are testing, what are it functions etc. Allow us to understand what we need to test and how to test it.

->

The test cass included the information to ecectyre te=he test I.r environmental needs, expected outputs

->

A robust resource of the thest scripts to do the testing

Test Design Pt2

The process of transoirminf genera testing onjevtive into tangnigiblr test condions and test cases

Identify Test Conditions (Create Test Design Specification)

Specify Test Cases (Create test cause specification

SPECIFY Test Procedure (create test procedure

Test Analysis

The test basis document is analysed in order to determine the test condition

During this period the test approach is implemented to select the test design techniques to use i.e.

Specification Based/Black Box

Structure Based/White box, Experience/Exploration Based

Test Condition

An item or even of a component or system that could be verified by one or more test cases, eg a function, transaction, feature, quality attribute or structural element

i.e. Signing into a website would be an test condition, but so would being a state of overdrawn at the local bank

Important Items to think about

Traceability from test conditions back to specifications and requirements must be in place

It enables both effective impact analysis when requirements change, and determining requirements coverage for a set of tests

Test Design Specification

A document specifying the test conditions

(coverage items) for a test item, the detailed test approach and identifying the associated high level test cases.

Example

Test Design Specification Identifyer

Featerures to be tested

Approach Refinement

Test Identification

Pass/Fail Criteria

Test Cases

Now that we understand the conditions, we can create the Test Cases.

These consists 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

The objective of compiling the test case specifications is to specify in detail each test case listed in the test design specification.

Example:

Test Case Specification Identifier *Unique Identifier*

Test Items

Input Specifications

Expected output

Environmental Needs

Special Procedural Requirements

Inter-case dependencies

Test Case Template

<http://cdn2.softwaretestinghelp.com/wp-content/qa/uploads/2012/12/Test-case-example.jpg>

Ways you might tackle Test Cases

**Functional** – Test each function

**Domain** – Test by portioning different sets of values

**Specification Based** – Test against the specification

**Risk Based** – Imagine a way in which a program could fail and then design tests to check whether the program will actually fail (Priority of most important functions)

**User** – How the user will approach the system

**Scenario/Use Case** – Based on actors/users and a set of actions they are likely to perform in real life

**Exploratory** – The tester actively controls the design of tests as those tests are performed and uses information gained while testing to design new and better tests.

Expected Results

- The most important part of executing tests is knowing why are doing them in the first place

- Expected results should be a produced as part of the specification of a test case

- If expected results have not been defined, then an incorrect result may be interpreted as the correct one. It reduces the overall possibility of incorrect results

Test Procedure Specification (Scripts)

Once the Test Case Specification has been created then the next and final step is to specify the steps for executing the test case and the process for determining whether the software passed or failed the test.

He will Quiz

Writing Procedure

Get Familiar

Get as much information about the application as possible

Available documentation (requirement specs, user guides)

Tutorials, or by exercising the software itself. Familiarity is great!

Determine a list of features and different user roles

Try to become “in tune” with the end users if the system

Standardise an approach for test case writing

Identify and Split Test Cases by sections, such as features or functions (such as browser specifics, UI, Security, etc), or user roles

Check entire user flow

If a particular feature has a lot of input combinations, separate the test into subtests, e.g. verify how the registration feature works with invalid input, write a sub tests for different values

Test Case Name

The name should be unique, useful and in indication as to what the test is.

Test Design Spefication brings together 3 elemnets, each giving you a slightly more ggranular look at what you wan to achieve –

> Test Conditions – Wat will be gtested, with what method

> Test Cases – Objectives, actions, outcome>

> Test Procedures

Objectives:

Turn on Computer.

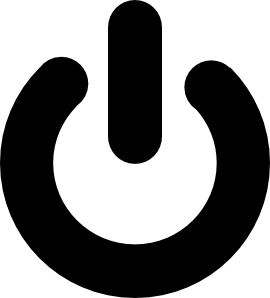
Log into profile.

Pre Conditons: Laptop Turned off

Username/Password Given

Expected: Loggo

1. Locate Power Button for Computer and Press the button.



* 1. Once light turns On, stop pressing button

1. Wait for the PC to boot up onto the Splash Screen. Finished Loading
2. Press Spacebar to remove splash screen and bring up Login Profiles
3. Look for profile called “Academy8”
4. Using the mouse, drag and Left Click on “Academy8” Profile
5. Using the mouse, drag and Left Click within the Password Textbox
6. Type In the Password “Acad3my1”
7. Press Enter Button

Expected: Login

Traceability

ISTQB

**Horizontal Traceability: The tracing of requirements for a test level through the layers of test documentation (e.g. test plan, test design specification, test case specification and test procesdure specification or test script)**

**Vertical Traceability**

Download the IEEE 829.

Master Test Plan  
  
Scheduling

One the procedures are complete the test cses can be formed I nta a test execution schedule

This defines the order in which the various test procedures are executed

The test execution

Test Execution Schedule aka Test Plan

Most important tests must be executed at the earliest to make sure that even when time is shortened, we have still tested the top priority functionality

Take into consideration logical order of execution and technical dependencies

Highest priority is always run first (possibly taking the opportunity to test and dependencies

Test plans must be highly dynamic due to

>Changing priorities

>Defects

>Resources

Test Coverage

Quantitative measure are extremely important to help stakeholder to understand how much of the system has been tested

Compare these two statements

-We have tested for two weeks

-80% of the system has been tested

>Agree how much needs to be tested

Coverage might make up part of the completion criteria defined in the test plan. It can also be used to tell us when to stop testing.