04/09/2014

Choosing Test Techniques

LCSAJ – A Line Code Sequence And Jump. 100% coverage implies 100% decision

**Type of System**

Is it safety critical

Is it a finicaial system

Is it web cloud based

**Regulatory Standards**

**Customer/Contractual Requirements**

**The Level of Risk**

- Functional

- Non-Functional

- Structural

- SLA

**Test Objective**

- What are we trying to demonstrate

**Available Documentation**

**Knowledge of the Testers**

**Time and Budget**

**Type of Development Lifecycle**

**Use Case Models**

**Previous Experience of Defects**

Test Management

**Organisation**

Within a project there are many roles that you muct be familiar with and this can ghek naking sure testing is done to it’s highest standard

These are

* Project Managers
* Quality Assurance Managers
* Developers
* Business and Doman Experts (SME, business analyst)
* Infrastructure Personnel (database designers etc)
* IT Operation (Help desk, merge functionality etc)

Test Leader\*

Project Manager

Development Manager

Quality Assurance Manager

Manager of Test Group

Typical tasks include

Co-ordinate and possibly write and review test strategy(for the project\_) or poliy (for the organisation

Plan and negotiate with project managers and other stakeholders

Directs the spec, prep, implementation and execution of tests

Time effort and cost

Report Progress vs Actual

Quality of the work product and the quality of the testing

Ensures the appropriate training has taken place

Make sure the appropriate environments are in place

The role of the tester can be made up of many types of people

Developers

Business Analysts

Users

SMEs

Specialist

Typical Tasks

Review and contribute to the test plans

Review requirements

Test specification and test cases based on the techniques given in the test plan

Prepare test data

Execute test procedure, log, evaluate results and document any deviation

Use test administration, management and monitoring tools

Automate Tests (possibly supported by a developer or automation expert

Review tests developed by others

Independence

“Separation of responsibilities, which encourages the accomplishment of objectives testing”

The effectiveness of finding defects by test and reviews can be improved by using independent testers. It is thought that the software is tested ore thoroughly

This is extremely powerful in situations where an independent tester is used to test, rather than the author of a work product

**There are several options within an organisation**

**-** No independent Testers – Developers test their own code

- Independent Testers within the development team

- Independent test team or group within the organization

- Independent testers from a business or user community

- Independent Test Specialists in usability, security, etc

- Independent Tester external to the organisation

It is possible that may be responsible for defining test processes and rules, however this should only be done if they have a clear directive from management to do so.

**Benefits –**

See defects that others who are closer to the project may not.

They should be unbiased

Can verify assumptions made during the specification and implementation phases

**Drawbacks –**

Can be seen as not part of the project and suffer from isolation

Can be easily blamed for delays and targeted as delivery bottlenecks

Developer may no longer feel responsible for their mistakes.

Estimation

Test Planning Activities

Scope and Risk

What to test

Who will test it

Scheduling

Levels of Details]

Test levels and entry/exit criteri

**Metric Based –** relies on data collected from previous or similar projects. This is a fairly accurate approach when comparing similar sized projects

**Expert Based -** the estimations are based on experience. This could be from Developers, Analysts, SMEs, Test Consultants etc. It can be similar to the Wideband Delphi approach, but not always done in that exact way.

Other methods you may across are

Functional Point Analysis

Use Case/Story Point analysis

Delphi Technique

Expert Judgement

**Progress Monitoring –** Based on the activities and timescale within the Test Plan we need to constantly review actual against planned. This provides imoportant visibility of the project progress

The informationnis also important to measure test coverage and determine if we have reached the exit criteria goal

Common Metrics:

* Percentage of work done
* Number of tests executed
* Defects total and details
* Subjective confidence of release
* Milestones achieved

Dashboard are all the rage at the moment and can be extremely useful to give you high level metrics straight away (as long as the data behind it is accurate)

Test Progress Monitoring and Control

Reporting test status is about effectively communicating our findings to other project stakeholders

Reporting should include (according to IEEE829) –

* Test Summary Identifier
* Summary
* Variances
* Comprehensive Assessment
* Summary of Results
* Evaluation
* Summary of Activities
* Approvals

Metrics should be gathered during and at the end of a test level

By monitoring the progress of the project, we are allowing ourselves to take corrective measures to ensure we stay on target

Test Control Activities include –

* Re-prioritising tests
* Change the test schedule
* Review product risks
* Adjust the scope

Configuration Management (version control)

ISTQB Glossary ^

Configuration Identification – Identification of documents, labelling of hardware, grouping of related items

**Control –** Enure that all changes to a complex system are peformed with the knowledge and consent of management

**Status Accounting –** Status accounting provides the means by which the current state of the development can be judged and the history of the development life cycle can be traced

**Auditing -**  confirms the intertiy of a systems products prio

If configuration Management is not handled correctly then you may find

Multiple people working on the same element at the same time without knowledge of the others work

Not able to match program source to object code

The system being difficult to maintain as the documents are not correct

Configuration also allows fot the identification and reproduction of

Test Items

Test Documents

Tests

Test Harness

Risk

ISTQB - Risk

Risk: A factor that could result in future negative consequences; usually expressed as impact and likelihood

Risk Analysis: The process od assessing identified risks to estimate their impact and probability of occurrence (likelihood)

We can classify risks into following catergoriesL

**Product Rixks –** Factors relatin to what is produced by work, i.e. the thing we are testing

**Project Risk –** Factors relating

Product RiskL A risk directly related to the test objects.

All about the thing we created

Project Risk: A risk related to management and contold of the (test) project, e.g, lack of staffing, strict deadlines, changing requirements etc.

Incident Management

ISTQB Says-

Incident Management: The process of recognising, investigating, takin action and disposing of incidents. It involves logging incident, classifying them and identifying the impact. [After IEEE 1044]

They are raised on incident reports whch can be raised at any time by anyoe with the following objective:

Provide as much information on the problem as possible

Allow the incident to be tracked and easily reported on, helping to supply metrics

Help develop test improvements, Identify how the functionality should be tested next time.