SOFTWARE TESTING

Test Management
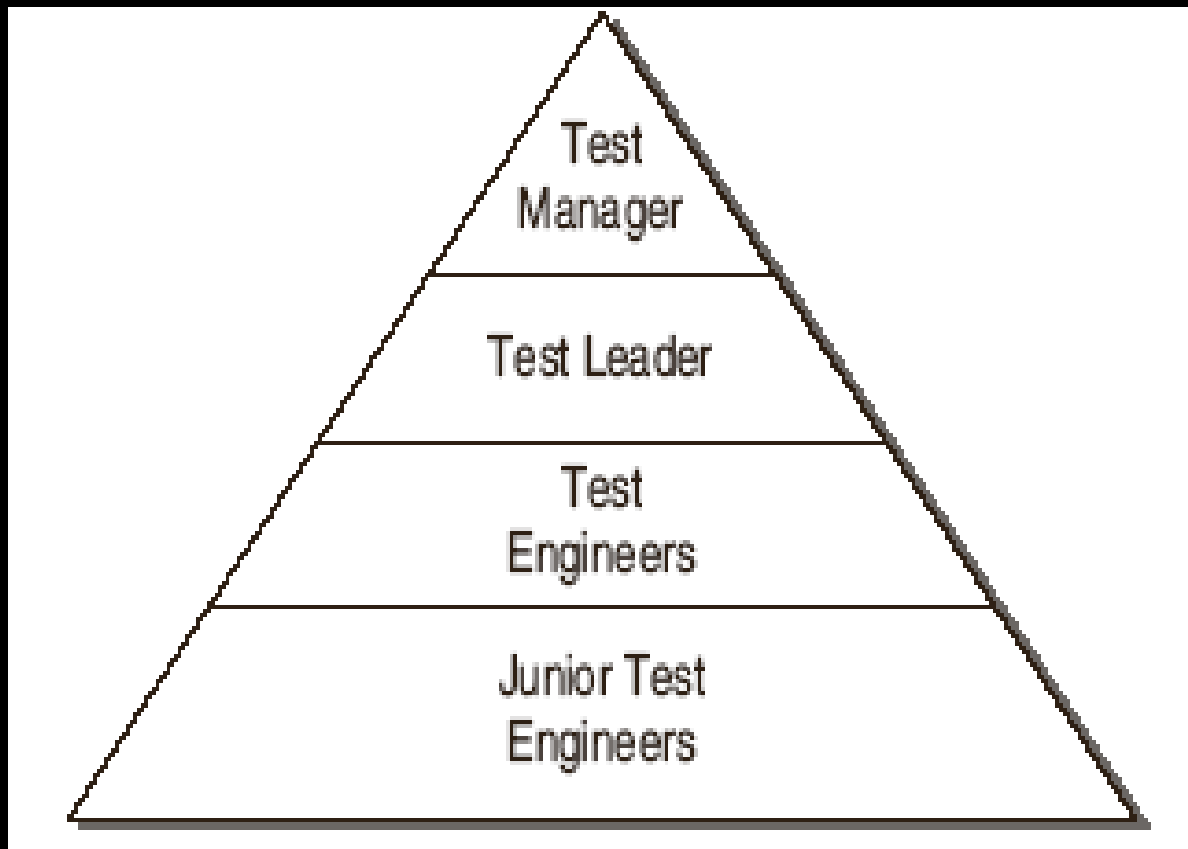
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Test Management

Structure of Testing Group:

Test Manager

Key person in the **testing group** who will interact with **project mgmt**, **quality assurance** and **marketing staff**.

Interacts with **customers** regarding **quality issues**.

Acquires all the **testing resources** including tools.

Monitors the progress of **testing** and **controls** the events.

Participates in all static **verification meetings**.

Test Leader

Lead a team of **test engineers**.

Planning the **testing tasks** given by the test manager.

Assigning and **supervising** test tasks to test engineers.

Helping the test engineers in **test case design**, **execution** and **reporting**.

Providing **tool training**.

Experienced testers

Designing test cases

Set up test laboratories and environment

Maintain the test and defect repositories

Junior Test Engineers

Newly hired testers.

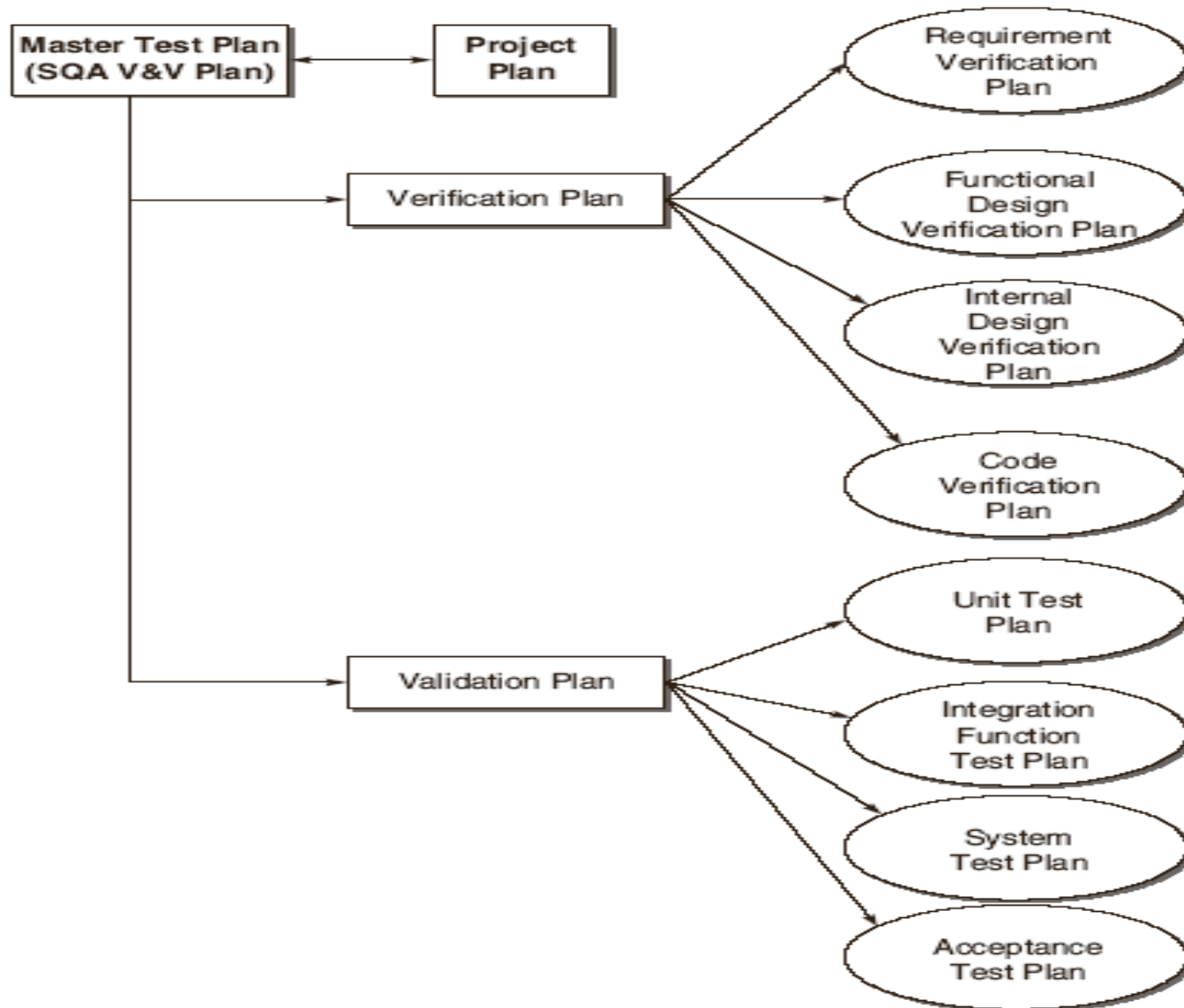**Trained** about test strategy, test process and testing tools.

Participate in test design and execution with experienced test engineers.

Test Plan Components

Test Plan Components

- Test Plan Identifier
- Introduction
- Test-Item to be tested
- Features to be tested
- Features not to be tested
- Approach
- Item Pass/Fail Criteria
- Suspension criteria and resumption requirements
- Test deliverables
- Testing tasks
- Environmental needs
- Responsibilities
- Staffing and training needs
- Scheduling
- Risks and contingencies
- Testing costs
- Approvals

Test Plan Hierarchy

Verification Test Plan

*The **method** to be used for **verification**:

=> review, inspection, walkthrough.

* The **areas of the work product** that will be **verified**.

* The **areas of the work product** that will not be **verified**.

* **Risks** associated.

* Resources, schedule, **facilities**, tools and **responsibilities**.

Validation Test Plan

* Testing **techniques**

* Testing **Tools**

* Support **software** and **documents**

* **Risks** associated like **budget, resources**, **schedule**, and **training.**

Example:

There is a system for **railway reservation system**. There are **many functionalities** in the system, as given below:

S. No.	Functionality	Function ID in SRS	Test cases
1	Login the system	F3.4	T1
2	View reservation status	F3.5	T2
3	View train schedule	F3.6	T3
4	Reserve seat	F3.7	T4
5	Cancel seat	F3.8	T5
6	Exit the system	F3.9	T6

Suppose we want to **check the functionality** corresponding to '**view reservation status**'. Its **test specification** is given below:

- **Test case Specification Identifier**

  T2

- **Purpose**

  To check the functionality of 'View Reservation Status'

- **Test Items Needed**

  Refer function F3.5 in SRS of the system.

- **Special Environmental Requirements**

  Internet should be in working condition. Database software through which the data will be retrieved should be in running condition.

- **Special Procedural Requirements**

  The function 'Login' must be executed prior to the current test case.

- **Inter-case Dependencies**

  T1 test case must be executed prior to the current test case execution.

- **Input Specifications**

  Enter PNR number in 10 digits between 0–9 as given below:

  4102645876

  21A2345672

  234

  asdggggggg

- **Test Procedure**

  Press 'View Reservation status' button.

  Enter PNR number and press ENTER.

- **Output Specifications**

  The reservation status against the entered PNR number is displayed as S12 or RAC13 or WL123 as applicable.

Test Log

Test log is a record of the testing events that take place during the test. The format for preparing a test log according to IEEE [56] is given below:

- **Test Log Identifier**
  TL2
- **Description**
  Function 3.5 in SRS v 2.1. The function tested in Online environment with Internet.
- **Activity and Event Entries**
  Mention the following:
  (i)   Date: 22/03/2009
  (ii) Author of test: XYZ
  (iii) Testcase ID: T2
  (iv) Name of the personnel involved in testing: ABC, XYZ
  (v)   For each execution, record the results and mention pass/fail status
        The function was tested with the following inputs:

Inputs	Results	Status
4102645876	S12	Pass
21A2345672	S14	Fail
234	Enter correct 10 digit PNR number	Pass
asdggggggg	RAC12	Fail

  (vi) Report any anomalous unexpected event before or after the execution.
        Nil

Test Incident Report

It is the report about any unexpected event during testing which needs further investigation to resolve the bug.

- **Test Incident Report Identifier**
  TI2
- **Summary**
  Function 3.5 in SRS v 2.1. Test Case T2 and Test Log TL2.
- **Incident Description**
  It describes the following:
  - (i) Date and time: 23/03/2009, 2.00pm
  - (ii) Testing personnel names: ABC, XYZ
  - (iii) Environment: Online environment with X database
  - (iv) Testing inputs
  - (v) Expected outputs
  - (vi) Actual outputs
  - (vii) Anomalies detected during the test
  - (viii) Attempts to repeat the same test

Testing Inputs	Expected outputs	Actual outputs	Anomalies detected	Attempts to repeat the same test
4102645876	S12	S12	nil	–
21A2345672	Enter correct 10 digit PNR number	S14	Alphabet is being accepted in the input.	3
234	Enter correct 10 digit PNR number	Enter correct 10 digit PNR number	nil	–
asdgggggggg	Enter correct 10 digit PNR number	RAC12	Alphabet is being accepted in the input.	5

- **Impact**
  The severity value is 1 (Highest).

Test Summary Report

It is basically an evaluation report prepared when the testing is over.

- **Test Summary Report Identifier**
  TS2
- **Description**
  SRS v2.1

S. No.	Functionality	Function ID in SRS	Test cases
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4	Reserve seat	F3.7	T4
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6	Exit the system	F3.9	T6

- **Variances**
  Nil
- **Comprehensive Statement**
  All the test cases were tested except F3.7, F3.8, F3.9 according to the test plan.
- **Summary of Results**

S. No.	Functionality	Function ID in SRS	Test cases	Status
1	Login the system	F3.4	T1	Pass
2	View reservation status	F3.5	T2	Bug Found. Could not be resolved.
3	View train schedule	F3.6	T3	Pass

- **Evaluation**
  The functions F3.4, F3.6 have been tested successfully. Function F3.5 couldn't be tested as the bug has been found. The bug is that the PNR number entry has also accepted alphabetical entries as wrong