# " Manual Part - 2 "

## ★ Software Testing Life cycle :- [STLC]

- STLC is the activity which is perform by testing team during the validation process.
- STLC having some stages to be follows:-
  1) Test Initiation
  2) Test plan
  3) Test case sinario
  4) Test cases

### 1) Test Initiation Testing :-

- Test Initiation is the stage where we know the domain of the application.
- In this stage project manager, team lead discuss about Requirements of project.
- which type of domain (Banking, Ecommerce, Telecom etc) app^n we have to test.
- In this stage testing team understand the scope of the project, complexity and difficulties of the project.
- "project manager" and "Team lead" will decide the scope (manual testing, API testing, Automation so on) and strategies for the testing.
- In this stage also they knowing about Risk involve in the project.

### 2) Test plan :-

- generally test plan is prepared by "Team Lead"
- In test plane estimation part is done, team lead does the estimation.
- In this test plan user stories are distributed to team members involve in the project.

- In estimation there will be Work Allocation, Resource Allocation User storys distribution as well as task allocations is happens.
- Estimation means start and end date of project.
- In job allocation tests are get selected for doing the testing on it.
- Based upon the scope of project jobs are get allocated.

3) Test case sinario :-
- To test the particular application what are the possible ways that will be a test case sinarioes.
- In short we can say that these are the possible roots of the functionalities.
- According to the user stories we are going to write test Sinarioes.
- Test sinario is the combination of test case sinario and design with positive and Negative aspects.
- generally we write only positive test sinarioes but we can check Negative sinarioes for Smoothly working of the functionality.

4) Test case Design :-
- Test case design starts after completion of test case Sinarioes.
- Test case design will do for " How to check the particular functionality in depth"
- According to the requirements which will gathered in user stories we have to prepare test sinario first and then test case designs.
- In this case tester we focuses on positive as well as Negative sinarioes.
- After the preparation of test cases, testing team will perform Sanity or Smoke testing to check the recieved built is in stable condition or Not.

- After performing sanity and smoke testing we start with the execution of Test cases that means we will do the "System and functional testing".
- While executing test cases we found any test case is getting fail at that time we will log that defect.
- Then we have to assign to the developer for resolving it. and developer solving this defect and fixed it, send us the corrected system.
- After fixing the defect, as a tester we have to do "Retesting" on it.
- suppose if any new functionality get added or change request is accepted so in this situation we have to do "Regression Testing".
- We do retesting testing using high priority test cases and if time permites then we do execution of low priority test cases or medium priority test cases.
- After completing the testing tasks we will prepare a test summary report.
- We testers are responsible to create "test summary report"
- In this report we mention :-
  1) How many test cases we prepare
  2) How many test cases are executed
  3) How many test cases will get pass
  4) How many will get fail
  5) What is the count of pass test cases
  6) What is the count of fail test cases
  7) How many get fixed
  8) How many will get retest

In this way we prepare test summary Report.

- After preparing a Test summary report we will send this report to Team Leader.
- Then Team lead prepare test closure report to check whether all process are correct or Not.

* Test plane (for V-model) :-

Test plane for V-model are as follows:-

- The duration for V-model is of 3-months.
- Test plane for V-Model prepare by project manager and testing lead.
- In this V-model Input for test plane are as follows:-
  a) SRS (system Requirement specification) - project Required
  b) TRM (Test Responsibility matrix) - What to test in project.
- There are some stages for V-Model:- There is a process in which

1) Team formation :-

- In this team lead make team formation depend on TRM and development document.
- firstly they consider which type of jobs present i.e "Job allocation."
- Then they consider how many resources require for jobs. i.e "resource Allocation".
- According to SRS and TRM, the team formation is done in which team lead check the resource availability.
- Configure like how many resources available, is they having with sufficient knowledge or not.
- After that they focuser on availability of test enviornment.
  i) They check for the application require software is present or Not.
  ii) They check after build upgradation, test enviornment present or not.
- In this team lead also focuses on estimation i.e start date and end date of project.
- Also team lead will allocate the task allocate job as well as define their roles and responsibility of every team member.
- After performing this task team lead checker availability of enviornment that is what software / Hardware are required for project.

2) Risk involve in the project :-

There are different types of risk occured in the project that are as follows:-

i) Lack of Resources
ii) Lack of knowledge
iii) Lack of Test data
iv) Lack of Requirement
v) Lack of communication between testing team and development team
vi) Lack of communication between business Analyst and Team.
vii) Software issues like database issue, server issue
viii) Software issues like connectivity between database and server.
ix) required softwares are not available.
x) Lack of delay in delivary
xi) Lack of defect tracking
xii) Lack of budget
xiii) Lack of development process Relgour

- When we (have) do not have test data then base on our previous experience we have to do Ad-hoc testing.
- If any new person come to team then for new person knowledge transfer is required.
- Resources are person involve in the project, if there are less availability of people in the project then extra work get assigned to them.
- Lack of development process Regiour means this is rude behaviour or improfessional behaviour of development team member with testing team member in that case with the permission of team leader we can contact to project manager.
- When there is problem arises due to internal issues or because of change in requirement of customer then delay in delivary occures.

3) Prepare Test plane :-

- Team lead is responsible to create a test plane.
- In this Analyse what exact requirement of project or client.
- According to the requirement prepare test cases.
- Decide what are the test items (which moduler we are going to test).
- Decide "features are to be tested" and "what to be tested"
- Decide the Acceptance criteria i.e test pass and test fail criteria.
- Also we will focus on which type of testing are needed for particular functionality.

4) Review Test plane :-

- In this Review test plane are reviewed by project manager and team leader.
- They will check whatever we have planned is correct or Not.
- project manager focuser on 3 factors:-
  1) BRS base coverage :- check if test plan is as per development document or TRM.
  2) TRM base coverage :- check if which is mention in test plan is as per TRM or Not.
  3) Risk base coverage :- Risk and their solution occure in project.
- After that project manager give permission to make finalize test plan.

## Test plane [ for Agile Module ]

- Agile test plane is prepare by "Test Engineer / Team lead".
- In Agile, 1 sprint is of near about 2 to 3 weeks process.
- so the Agile test plane is divided into 3 weeks process plans.

1) For first Week :- i) sprint planning / grooming session
   ii) User story analysis
   iii) selection of test scenarios

explanation:-

- product owner, development team, testing team arranges one meeting i.e **sprint planning meeting**.
- In which they are decides the strategies, methodologies to make sprint successful.
- After that they planning for grooming session in which every thing well get discussed about the user stories, means detail discussion in happen in this **grooming session**.
- While completing with grooming session, they are analyzing the user stories that which user story get selected for the particular sprint. Review user story if any doubt to project owner.
- on the basis of user stories they decides the test scenarios.
- Because user story means the exact business requirements so with the help of it test scenarios are finalize.
- This is the work plane for first week of sprint.

2) For second Week :- i) Test case preparation, Test Review process
   ii) Sanity / smoke Testing
   iii) system & functional Testing
   iv) Defect log process

Explanation :-

- In this second week we start writting with test cases for particular selected user storys.
- After writting test cases there will be a "Test Review process".

- Test cases are get prepared with the help of User stories.
- Before starting with the execution of test cases we have to do sanity / smoke testing to ensure either build is in stable condition or not..
- After that start the validation process ( that meant start executing test cases) with the system and functional Testing.
- While executing test cases some are fail to reach to exact output, so in that case we have log that Defect from that point Defect life cycle for bug get started until it close.
- This is the Work plane for second Week.

8) For Third Week :- i) Retesting
ii) Regression Testing
iii) Test summary Report
iv) Test closure Report
v) End of sprint

Explanation :-
- In third we have to do retesting for checking Wether the defect get resolved it or Not.
- If any new functionalities get added or any change request accepted so in that case we have to do Regression testing to check the impact on existing functionality / Application.
- While completing with testings we have to prepare test summary report in which we have to mention each every details about pass test cases, fail test cases, How many test cases prepare, count of fail test cases and so on..
- After preparing Test summary Report will send it to Team lead.
- Then Team lead prepare Test closure report to check whether all process are correct or Not.
- Finally "End of sprint".

## * Test Review process :-

- After completing with Test case preparation there will be a Test Review process.
- There are four types of Review they are as follows:

1) Self Review
2) peer Review
3) Internal Review
4) External Review

### 1) Self Review :-

- Self Review means this review is taking by our own to check whether according to the test-scenarios the test cases are prepared or Not properly.

### 2) Peer Review :-

- peer Review is taken by senior members of our team like from Team lead.
- Team lead is go through all the test cases that we prepare given us Feedback / suggestions.

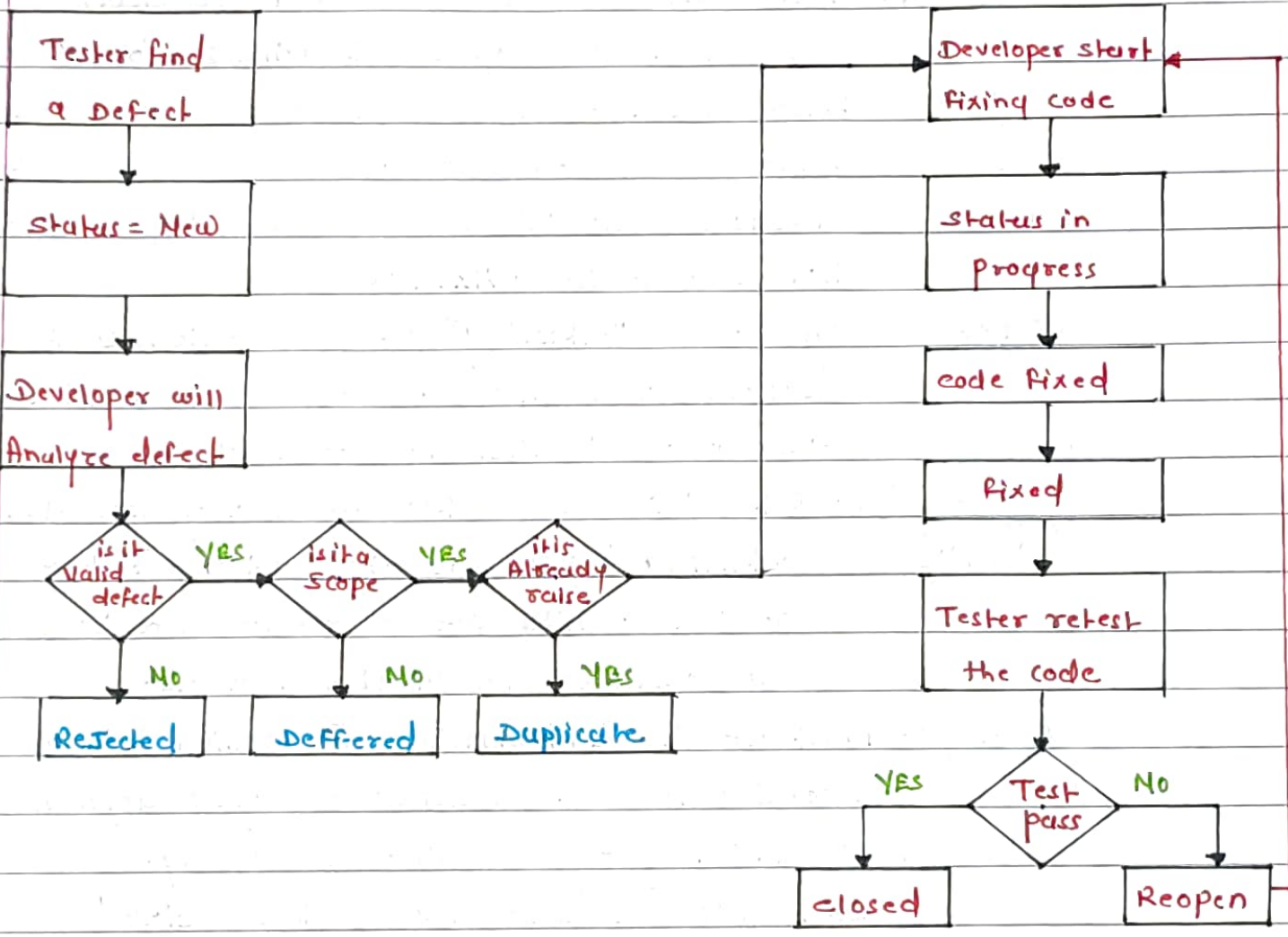
### 3) Internal Review :-

- Internal Review is done by all Team members of our project like product owner, Development Team, Design Team, Testing Team.

### 4) External Review :-

- External review is taken by client / stakeholder.
- most of the times the Review is done at UAT (user acceptance Test) and external review is also known as "Walk through".
- Testing Team lead is chair person of external review and he will prepare mom (minutes of meeting) document.

## ★ Defect Life cycle :-




Diagrame :- "Defect Life cycle"

- Whenever we are starting to execute the test cases so at that time we are updating some status according it pass and fail test cases., so for that process we called as "Defect Life cycle".
- There are many status for Defect life cycle they are as follows:
- Defect life cycle having the different status for particular bug below are the possible status of bug.

1) New :- When defect is loged and posted for the first time at that time status of that defect is "New".

2) Assign :- once the bug is posted by us we will "assign" that bug to developer.

3) open :- After Assigning particular bug to developer at that time the status of defect will be "open".

4) Fixed :- When developer accept the bug and makes Necessary change in the code as well as Verifies whatever sinarioes was failed that is working properly at that time status is "Fixed".

5) Retest :- We do the "retesting" of bug which is fixed by developer and also we will check whether sinarioes was fail that is working or Not.

6) Verify / Verified :- After fixing the defect by development team and retesting by us we will "Verify" (tester) there is no functionality break means there is no issue and functionalities are Working properly.

7) closed :- Whatever the functionalities are mentioned in user story according to that developer developed application that is working properly and there is no bug.
at that time status of bug will be "closed".

8) Reopen :- If the bug is persist (still there) even after the developer has fixed the bug we will change the status of "Reopen" and once again bug goes through defect life cycle.

9) Duplicate :- If the defect is repeated or defect corresponds to same concept at that time status will be "Duplicate".

10) Rejected :- If the developer have proper explanation on that defect then the status will be "Rejected".

11) Deffered :- If we are considering any defect into next sprint at that time will update status "Deffered".

- so those are the status for updating defect life cycle.

## ★ TRM ( Test Responsibility matrix ) :-

- TRM is mapping between test issues or factor and SDLC.
- 1) It aquire test strategy document
  2) Determine the project type
  3) Determine the project requirement
  4) Identify the scope of Application
  5) Risk involve in project
- TRM is prepared by Testers.
- It captures all requirement proposed by client and deliver at the conclusion of SDLC.
- The main purpose of TRM is to validate all requirement are checked with the test cases.
- There are two types of TRM they are as follows:-
  1) Forward Matrix / Forword requirement traceability matrix
  2) Reverse Matrix

### 1) Forward Matrix :-

- Forward TRM mapps requirement to test cases / user stories, Business requirement.
- It make sure that each requirement is applied to application and requirement are tested thoroughly.

### 2) Reverse TRM / Reverse matrix :-

- Reverse TRM mappes defect and requirement / Business requirement user story.
- The main purpose behinde Reverse TRM is application should be defect free.

- In TRM will mapped the things like Integrity, performance, portability, service level etc.

* Requirement Traceability matrix (RTM) :-

- Requirement Traceability matrix (RTM) is a tool to ensure that the project's scope, requirements, are deliverables are in line.
- Traces deliverables by establishing a thread for each requirement - from the projects initiation to the final implementation.
- Every test managment tool provides facility to create RTM and also Report facility to view created matrix.
- Test cases can be mapped to requirements.

• Use of RTM :-

1) To check that all requirements are implemented.
2) Helps to do impact analysis when any particular requirement changes - Tester can find out the affected Test sinarioes and Test cases using RTM.

- The matrix should be created at the very beginning of a project because it forms the basis of the project's scope.
- RTM can extend to map requirements to all deliverables of SDLC and not only test cases.
- The matrix is considered to be bi-directional.
- It tracks the requirement "forword" by linking it with the output of the SDLC deliverables.
- It tracks other deliverables "Backward" by linking them back to the requirements specified for a particular feature of the product.