**SOFTWARE TESTING LIFE CYCLE**

* The procedure of software testing is also known as STLC (Software Testing Life Cycle).
* which includes phases of the testing process.
* The testing process is executed in a well-planned and systematic manner.
* All activities are done to improve the quality of the software product.
* It is the subset of sdlc.

**The different steps of STLC**.

* Phase 1 — Requirement Analysis.
* Phase 2 — Test Planning.
* Phase 3 — Test Design.
* Phase 4 — Test Environment.
* Phase 5 — Test Execution.
* Phase 6 — Defect Tracking.
* Phase 7 — Test Reporting.
* Phase 8- Test Enclosure.

**ENTRY-LEVEL CRITERIA:** It gives the prerequisites before going for testing of an application. [input]

**EXIT-LEVEL CRITERIA:** We define the tests has completed before testing concluded. [outcome]

**Requirement Analysis**

* The first step of the manual testing procedure is requirement analysis.
* Tester analyses requirement document examine requirements stated by the client. [it based upon the documents provided by customer or business units]
* Input is SRS document. [A software requirement specification document. It designed by client and software developed company that include business analyst, project manager, developers. It is mainly focus on how to work on application, what is it contained, models, styles, graphics, size etc .details about the working of the application. ]
* After examining the requirements and validate it.
* We try to find the scope of automation.

\* Identify the tests to be conducted.

\* Gives the priority to the TCs

\* Prepare RTM.

\* Scope of automation.

RTM (Requirements Traceability Matrix)

It is an excel sheet in tabular form where we put all the information of test cases. Requirements are mapped in test cases by matrix fomat.

**Test Plan**

* Test plan creation is the crucial phase of STLC
* where all the testing strategies are defined.
* Tester determines the estimated effort and cost of the entire project.
* This phase takes place after the successful completion of the **Requirement Analysis Phase**.
* In Test case execution can be started after the successful completion of Test Plan Creation.
* Test plan will give the clear outline of requirements, and help to other people likes business team, stake holders, customers to understand.

KEY STEPS IN TEST PLANNING:

1. Test strategy
2. Test objectives
3. Test scope
4. Test deliverables
5. Test estimation
6. Risk analysis
7. Resource allocation
8. Test schedule and milestones

* Inputs is SRS document, project plan.
* Activities are:

Identify resource

Team formation

Team estimation

Preparation of test plan

Review on test plan

* Outcome is test plan document, effort and cost estimatically document.

## It gives the responsibility of the phases are test leader(70%), test manager(30%)

Test Design:

* Test design is the third phase in the [software testing lifecycle](https://mastersoftwaretesting.com/testing-fundamentals/software-testing-life-cycle/stlc-overview), after [test requirement analysis](https://mastersoftwaretesting.com/testing-fundamentals/software-testing-life-cycle/requirements-analysis), [test planning](https://mastersoftwaretesting.com/testing-fundamentals/software-testing-life-cycle/test-planning), and before [test execution](https://mastersoftwaretesting.com/testing-fundamentals/software-testing-life-cycle/test-execution).
* where test cases and procedures are created to validate the software's functionality and performance.
* Its deliverables, entry and exit criteria, and tips for effective test design.

KEY STEPS IN TEST DESIGN:

1. Test coverage
2. Text case creation
3. Text data preparation
4. Text environment setup
5. Test case prioritization
6. Test design techniques
7. Test data management

* Input is SRS document, project plan, test plan document and design documents, use cases.
* Activities are:

Preparation of test scenario

Preparation of test cases

Review on test cases

Test case sign off

* Out comes are test case document, RTM

## It gives the responsibility of the phases are test leader(30%), test engineer (70%)

## Environment setup

## Environment setup requires a group of essential software and hardware to create a test environment.

## The testing team is not involved in setting up the testing environment, its senior developers who create it.

## Prepare the list of software and hardware by analyzing requirement specification.

## After the setup of the test environment, execute the smoke test cases to check the readiness of the test environment.

## Its result is Execution report, Defect report, smoke test.

## Smoke test:

## 1. receiving build software from the development team.

## 2. The purpose of smoke testing is to determine whether the build software is testable or not.

## 3. It is a time-saving process.

## 4. It reduces testing time

## 5. The focus of Smoke Testing is on the workflow of the core and primary functions of the application.

## KEY STEPS OF ENVIRONMENT SETUP:

## Requirement analysis

## Infrastructure planning

## Software installation

## Test data setup

## Configuration management

## Test case Execution

## Test case Execution takes place after the successful completion of test planning.

## The testing team starts case development and execution activity.

## The testing team writes down the detailed test cases, also prepares the test data if required.

## The prepared test cases are reviewed Quality Assurance leader.

## Inputs is Test plan document, test case document, test data, test environment

## Activities are:

## Executing test case

## Preparation of test report

## Identifying reports

## Outcomes are test reports, updated RTM.

## It gives the responsibility of the phases are test leader(10%), test engineer (90%)

## KEY STEPS IN THE TEST CASE EXECUTION

## 1.Test case preparation

## 2. Test environment setup

## 3. Test execution

## 4. Defect reporting

## 5. Test result analysis

## 6. Test completion reporting

## 7. Text closure activities

## Defect Tracking

## Testers and developers evaluate the completion criteria of the software based on test coverage, quality, time consumption, cost, and critical business objectives.

## This phase determines the characteristics and drawbacks of the software.

## Test cases and bug reports are analyzed in depth to detect the type of defect and its severity.

* If any defect is detected, then the software is returned to the development team to fix the defect, then the software is re-tested on all aspects of the testing.
* Inputs is test cases, test reports.
* Activities are:

Preparation of defect report

Reporting defects to developers

## Its result is defect report.

## It gives the responsibility of the phases are test lead/team(10%), test engineer (90%)

## KEY STEPS IN DEFECT TRACKING

## Defect identification

## Defect documentation

## Defect prioritization

## Defect assignment

## Defect solution

## Defect verification and retesting

## Defect closure

## Test reporting

## Test reporting is the process of communicating the results of testing to the stakeholders.

## It includes the test coverage, test status and the details about extend of testing performed.

## The test report is a document that summarizes the results of testing.

## The defect list is a document that lists all of the defects that were found during testing.

## KEY STEPS OF TEST REPORTING

## 1.Test summary report

## 2.Test execution report

## 3.Defect report

## 4.Test coverage status report

## 5.Test metrics report

## Test Cycle Closure

## It is a final stage

## We will put all the outline details, results of documentation done in the previous phases

## We submit it to the client at the time of delivery

## It contains test report, defect report, test case summary, RTM, release notes etc….

## Activities are:

## Analysing test reports

## Analysing bug reports

## Evaluating exit criteria

## Outcome is test summary reports.

## It gives the responsibility of the phases are test leader(70%), test engineer (30%)