Software Testing Life Cycle (STLC)

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.

Let's see, the different steps of STLC.

**Software testing life cycle contains the following steps:**

1. [Requirement Analysis](https://www.javatpoint.com/software-testing-life-cycle#requirement-analysis)
2. [Test Plan Creation](https://www.javatpoint.com/software-testing-life-cycle#test-plan-creation)
3. [Environment setup](https://www.javatpoint.com/software-testing-life-cycle#environment-setup)
4. [Test case Execution](https://www.javatpoint.com/software-testing-life-cycle#test-case-execution)
5. [Defect Logging](https://www.javatpoint.com/software-testing-life-cycle#defect-logging)
6. [Test Cycle Closure](https://www.javatpoint.com/software-testing-life-cycle#test-cycle-closure)

Software Testing Life Cycle

Requirement Analysis:

The first step of the manual testing procedure is requirement analysis. In this phase, tester analyses requirement document of SDLC (Software Development Life Cycle) to examine requirements stated by the client. After examining the requirements, the tester makes a test plan to check whether the software is meeting the requirements or not

|  |  |  |
| --- | --- | --- |
| **Entry Criteria** | **Activities** | **Deliverable** |
| For the planning of testplan requirement specification, application architecture document and well-defined acceptance criteria should be available. | Prepare the list of all requirements and queries, and get resolved from Technical Manager/Lead, System Architecture, Business Analyst and Client. Make a list of all types of tests (Performance, Functional and security) to be performed. Make a list of test environment details, which should contain all the necessary tools to execute test cases. | List of all the necessary tests for the testable requirements andTest environment details |

Test Plan Creation:

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**. Testing strategy and effort estimation documents provided by this phase. Test case execution can be started after the successful completion of Test Plan Creation.

|  |  |  |
| --- | --- | --- |
| **Entry Criteria** | **Activities** | **Deliverable** |
| Requirement Document | Define Objective as well as the scope of the software. List down methods involved in testing. Overview of the testing process. Settlement of testing environment. Preparation of the test schedules and control procedures. Determination of roles and responsibilities. List down testing deliverables, define risk if any. | Test strategy document. Testing Effort estimation documents are the deliverables of this phase. |

Environment setup:

Setup of the test environment is an independent activity and can be started along with **Test Case Development**. This is an essential part of the manual testing procedure as without environment testing is not possible. 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.

|  |  |  |
| --- | --- | --- |
| **Entry Criteria** | **Activities** | **Deliverable** |
| Test strategy and test plan document. Testcase document. Testing data. | Prepare the list of software and hardware by analysing requirement specification. After the setup of the test environment, execute the smoke test cases to check the readiness of the test environment. | Execution report. Defect report. |

Test case Execution:

Test case Execution takes place after the successful completion of test planning. In this phase, 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 by peer members of the team or Quality Assurance leader.

RTM (Requirement Traceability Matrix) is also prepared in this phase. Requirement Traceability Matrix is industry level format, used for tracking requirements. Each test case is mapped with the requirement specification. Backward & forward traceability can be done via RTM.

|  |  |  |
| --- | --- | --- |
| **Entry Criteria** | **Activities** | **Deliverable** |
| Requirement Document | Creation of test cases. Execution of test cases. Mapping of test cases according to requirements. | Test execution result. List of functions with the detailed explanation of defects. |

Defect Logging:

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.

Defect logging analysis mainly works to find out defect distribution depending upon severity and types.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.

Once the test cycle is fully completed then test closure report, and test metrics are prepared.

|  |  |  |
| --- | --- | --- |
| **Entry Criteria** | **Activities** | **Deliverable** |
| Test case execution report. Defect report | It evaluates the completion criteria of the software based on test coverage, quality, time consumption, cost, and critical business objectives. Defect logging analysis finds out defect distribution by categorizing in types and severity. | Closure report Test metrics |

Test Cycle Closure:

The test cycle closure report includes all the documentation related to software design, development, testing results, and defect reports.

This phase evaluates the strategy of development, testing procedure, possible defects in order to use these practices in the future if there is a software with the same specification.

|  |  |  |
| --- | --- | --- |
| **Entry Criteria** | **Activities** | **Deliverable** |
| All document and reports related to software. | Evaluates the strategy of development, testing procedure, possible defects to use these practices in the future if there is a software with the same specification | Test closure report |