

**STLC (Software Testing Life Cycle)** represents a series of well-defined steps that outline the process of software testing. It provides a structured approach to testing, ensuring thorough verification of software before its release.

The STLC phases encompass planning, designing, executing, and reporting, which are carried out in a sequential manner to ensure quality throughout the software development life cycle.

**Here's a breakdown of each phase of STLC:**

## **1. Requirement Analysis**

**Goal:** To comprehend and collect the testing requirements based on the business and technical specifications of the project.

**Activities:**

- The testing team evaluates the software requirements, functional documents, and business specifications to define the testing scope.
- They determine the features and functions that require testing and those that are excluded.
- The team identifies testable requirements and begins preparing test strategies and plans.

**Deliverables:**

- Testable requirements
- Risk analysis
- Test plan

## **2. Test Planning**

**Goal:** To establish a comprehensive strategy for testing and develop a detailed test plan.

**Activities:**

- A test plan is drafted to outline the scope, objectives, types of testing (functional, performance, security), required resources, timeline, and environment specifications.
- The team defines the testing approach, tools, and techniques to be used.
- Resources, test environments, test data requirements, and the responsibilities of team members are clearly assigned.

**Deliverables:**

- Test plan document
- Test schedule
- Resource allocation plan
- Risk mitigation strategies

### **3. Test Design**

**Goal:** To create detailed test cases and scripts based on requirements and the overall test plan.

**Activities:**

- The team develops test cases and scripts derived from requirements and use cases.
- Test scenarios are defined, and the necessary test data is prepared.
- Test cases are crafted to cover all relevant situations, including edge cases.
- Each test case will include detailed steps, expected results, and the associated test data.

**Deliverables:**

- Test cases
- Test scripts
- Test data
- Traceability matrix (which links test cases to requirements)

### **4. Test Environment Setup**

**Goal:** To set up the testing environment, including the necessary hardware, software, and network configurations.

**Activities:**

- The test environment is prepared according to the specifications of the test plan, which includes configuring the necessary hardware, software, and network setups.
- The test environment may be a replica or a simulated version of the production environment.
- The application is installed and configured, along with any required databases, servers, and network configurations.

**Deliverables:**

- Test environment setup

- Test configurations
- Necessary tools and applications

## 5. Test Execution & Defect Reporting

**Goal:** To execute the test cases and scripts in the test environment and to log and track any defects found.

### Activities:

- The testing team executes the test cases, recording the results (pass/fail).
- If defects or issues are encountered, they are logged in a defect tracking tool (such as JIRA, Bugzilla).
- Various testing types (e.g., functional, integration, system, performance) are carried out.
- Defects are reported with detailed steps to reproduce, severity, and any supporting screenshots or logs.
- Once defects are fixed by the development team, the testing team retests to verify the resolution.
- The status of defects is monitored throughout the process (e.g., new, in progress, fixed).

### Deliverables:

- Test execution logs
- Defect reports (for identified bugs)

## 6. Test Closure

**Goal:** To formally close the testing process, evaluate the testing outcomes, and document lessons learned.

### Activities:

- After all testing activities are completed, the team prepares a test summary report.
- The report summarizes the test execution, including the number of tests run, passed, failed, defects reported, and the overall results.
- A final evaluation is conducted to assess the efficiency of the testing process.
- Test-related documents (such as test cases, scripts, and logs) are archived for future reference.
- The team documents lessons learned to help improve future testing efforts.

### Deliverables:

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Task: STLC

- Test summary report
- Test closure report

Summary of STLC Phases and Deliverables:

Phase	Objective	Key Deliverables
Requirement Analysis	Understand and collect testing requirements	Testable requirements, Test Plan
Test Planning	Define the testing strategy and resources	Test Plan, Resource Allocation
Test Design	Design test cases, scripts, and data	Test Cases, Test Scripts
Test Environment Setup	Prepare the test environment	Test Environment, Test Configurations
Test Execution & Defect Reporting	Execute tests, report defects	Test Execution Logs, Defect Reports
Test Closure	Close testing and evaluate results	Test Summary Report, Test Closure Report