Software Testing Life Cycle (STLC)

# 1. What is Software Testing Life Cycle (STLC)?

The Software Testing Life Cycle (STLC) is a step-by-step process that defines all the testing activities to ensure software quality. It runs parallel to the Software Development Life Cycle (SDLC) but focuses only on verification and validation.

## Phases of STLC

* Requirement Analysis: QA team understands the requirements, identifies what is testable, and prepares Requirement Traceability Matrix (RTM).
* Test Planning: Define scope, objectives, resources, tools, schedule, risks, and mitigation strategies. Output: Test Plan Document.
* Test Case Development: Write test cases, test scripts, and prepare test data. Output: Test Cases + Test Data.
* Test Environment Setup: Prepare hardware, software, test servers, and tools. Output: QA Test Environment.
* Test Execution: Execute test cases, log defects, and perform regression testing. Output: Test Results + Defect Reports.
* Test Cycle Closure: Evaluate test completion, prepare Test Summary Report, and document lessons learned. Output: Test Closure Report.

# 2. STLC Example: Fund Transfer in a Banking App

Feature: 'As a user, I should be able to transfer money from my account to another valid account, so that the transaction is reflected immediately in both accounts.'

* Requirement Analysis: Review Fund Transfer requirement. Identify scenarios like valid transfer, insufficient balance, invalid account, daily transfer limit. Output: RTM.
* Test Planning: Scope: Testing Fund Transfer (functional + negative). Resources: 2 QA engineers. Tools: JIRA, Selenium. Risks: Payment gateway downtime. Output: Test Plan.
* Test Case Development: Write positive and negative test cases. Example: Transfer ₹500 successfully; transfer ₹20,000 (insufficient balance). Prepare test data. Output: Test Cases + Test Data.
* Test Environment Setup: Deploy banking app in QA, prepare DB with sample accounts, setup mock gateway. Output: QA Environment Ready.
* Test Execution: Run test cases, log defects in JIRA, re-test after fixes, regression test transaction history. Output: Executed Test Results + Defect Reports.
* Test Cycle Closure: Check coverage, metrics (e.g., 20 cases, 18 passed, 2 fixed), lessons learned, Test Summary Report. Output: Test Closure Report.