STLC (SOFTWARE TESTING LIFE CYCLE)

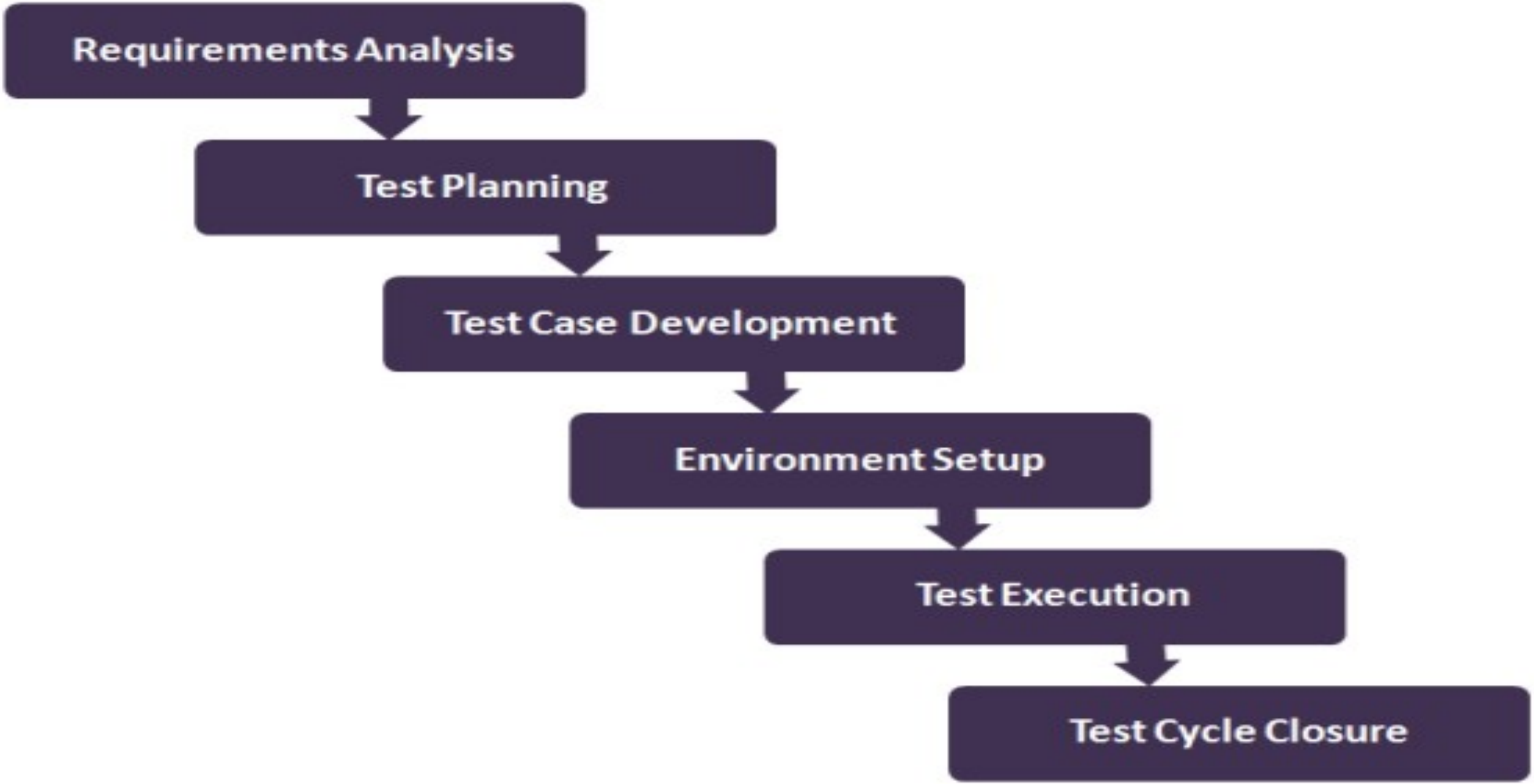
WHAT IS SOFTWARE TESTING?

- **Software testing** is a process of executing a program or application with the intent of finding the **software** bugs. It can also be stated as the process of validating and verifying that a **software** program or application or product: Meets the business and technical requirements that guided it's design and development.

SOFTWARE TESTING LIFECYCLE [STLC]

- Software Testing Life Cycle is a testing process which is executed in a sequence, in order to meet the quality goals. It is not a single activity but it consists of many different activities which are executed to achieve a good quality product.There are different phases in STLC which are given below:
- Requirement analysis
- Test Planning
- Test case development
- Environment Setup
- Test Execution
- Test Cycle Closure

Software Testing Life Cycle (STLC)



PHASES IN STLC

- **Phase 1 [Requirements Analysis]:**

- This is the very first phase of Software testing Life cycle (STLC). In this phase testing team goes through the Requirement document with both **Functional** and **non- functional** requirements details in order to identify the testable requirements.
- In case of any confusion the QA team may setup a meeting with the clients and the stakeholders (Technical Leads, Business Analyst, System Architects and Client etc.) in order to clarify their doubts.

Activities to be done in Requirement analysis phase are given below:

- Analyzing the System Requirement specifications from the testing point of view
- Identifying the testing techniques and testing types
- Prioritizing the feature which need focused testing
- Identifying the details about the testing environment where actual testing will be done

Deliverables (Outcome) of Requirement analysis phase are:

- Requirement Traceability Matrix (RTM) gather all requirements to be test.
- Enlist all testing requirements.

Example:

- Testing of **Login** with specific Username and Password is a requirement.

Phase 2 [Test Planning]:

Test Planning phase starts soon after the completion of the Requirement Analysis phase. In this phase the QA manager or QA Lead will **prepare the Test Plan** and **Test Strategy** documents. As per these documents they will also come up with the testing effort estimations.

Usually IEEE 829 test plan template is used for test planning.

Activities to be done in Test Planning phase are given below:

- Estimation of testing effort
- Selection of Testing Approach
- Preparation of Test Plan,Test strategy documents
- Resource planning and assigning roles and responsibility to them
- Selection of Testing tool

- **Deliverables** (Outcome) of Test Planning phase are:

- Test Plan document
- Test Strategy document
- Best suited Testing Approach
- Number of Resources, skill required and their roles and responsibilities
- Testing tool to be used

Phase 3 [Test case Development]:

- In this phase the QA team write test cases.They also write scripts for automation if required.Verification of both the test cases and test scripts are done by peers. Creation of Test Data is done in this phase.

Activities to be done in Test Case Development phase are given below:

- Creation of test cases
- Creation of test scripts if required
- Verification of test cases
- Creation of Test Data in testing environment

Deliverables (Outcome) of Test Case Development phase are:

- Test cases
- Test Data

TEST CASE IN SOFTWARE TESTING

- **A test case** is a set of conditions or variables under which
  a **tester** will determine whether a system under **test** satisfies requirements or works correctly.The process of
  developing **test cases** can also help find problems in the requirements or design of an application.

Phase 4 [Environment Setup]:

- This phase includes the setup or installation process of software and hardware which is required for testing the application. In this phase the integration of the third party application is also carried out if required in the project.
- After setting up the required software and hardware the installation of build is tested. Once the installation of build is successful and complete then the Test Data is generated.

Activities to be done in Test Environment Setup phase are given below:

- As per the Requirement and Architecture document the list of required software and hardware is prepared
- Setting up of test environment
- Creation of test data

Deliverables (Outcome) of Test Environment Setup phase are:

- Test Environment setup is ready
- Test Data is created

Phase 5 [Test Execution and Bug Reporting]:

- Before starting the Test Execution phase the Test Environment setup should be ready. In Test Execution phase the test cases are executed in the testing environment.
- While execution of the test cases the QA team may find bugs which will be reported against that test case.This bug is fixed by the developer and is retested by the QA.

Activities to be done in Test Execution phase are given below:

- Execution of Test Cases
- Reporting test results
- Logging defects for the failed test cases
- Verification and retesting of the defect
- Closure of defects

Deliverables (Outcome) of Test Execution phase are:

- Test execution Report
- Updated test cases with results
- Bug Report

Phase 6[Test Cycle Closure]:

- In order to start the Test Cycle Closure activity the Test Execution phase should be completed. In Test Cycle phase the QA team will meet and discuss about the testing artifacts.
- The whole intent of this discussion is to learn lessons from the bad practices.This will help in future projects.

Activities to be done in Test Cycle Closure phase are given below:

- To evaluate the test completion on the basis of Test Coverage and Software Quality
- Documentation of the learning from the project
- Analyzing the test results
- Test Closure Report preparation

Deliverables (Outcome) of Test Cycle Closure phase are:

- Report of Test Closure

OVERVIEW OF STLC PHASES

Phase	Activity	Deliverables	Necessity
Requirements/ Design Review	You review the software requirements/ design (Well, if they exist.)	• 'Review Defect' Reports	Curiosity
Test Planning	Once you have gathered a general idea of what needs to be tested, you 'plan' for the tests.	• Test Plan • Test Estimation • Test Schedule	Farsightedness
Test Designing	You design/ detail your tests on the basis of detailed requirements/design of the software (sometimes, on the basis of your imagination).	• Test Cases / Test Scripts /Test Data • Requirements Traceability Matrix	Creativity
Test Environment Setup	You setup the test environment (server/ client/ network, etc) with the goal of replicating the end-users' environment.	• Test Environment	Rich company
Test Execution	You execute your Test Cases/ Scripts in the Test Environment to see whether they pass.	• Test Results (Incremental) • Defect Reports	Patience

Thank You..

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