Software Testing during Maintenance

INTRODUCTION

- The process used to identify the correctness, completeness and quality of developed computer software.
- It is the process of executing a program/application under positive and negative conditions by manual or automated means.
- It checks for the -
    - Specification
    - Functionality
    - Performance

OBJECTIVES

- Uncover as many as errors (or bugs) as possible in a given product.
- Demonstrate a given software product matching its requirement specifications.
- Validate the quality of a software testing using the minimum cost and efforts.
- Generate high quality test cases, perform effective tests, and issue correct and helpful problem reports.

Error, Bug, Fault & Failure

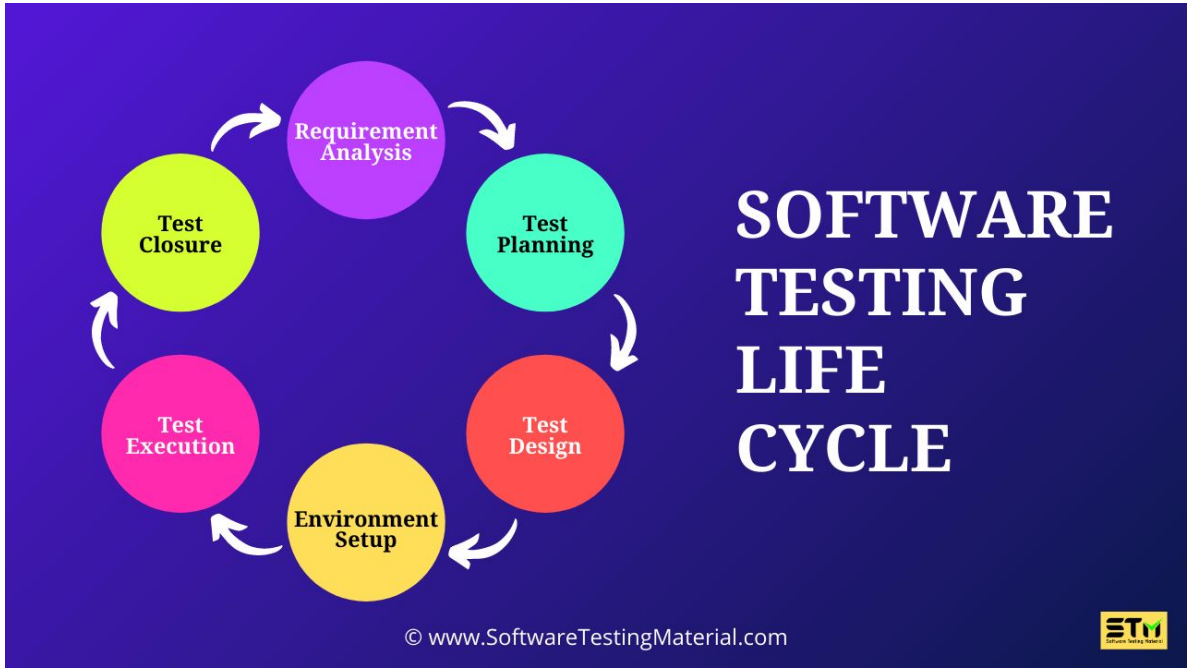
Error : It is a human action that produces the incorrect result that produces a fault.

Bug : The presence of error at the time of execution of the software.

Fault : State of software caused by an error.

Failure : Deviation of the software from its expected result. It is an event.

Software Testing Life Cycle



Software Testing Life Cycle

Test Plan: A systematic approach to test a system. The plan typically contains a detailed understanding of what the eventual testing workflow will be.

Test Case: It is a specific procedure of testing a particular requirement. It will include -

- Identification of specific requirement tested
- Test case success/failure criteria
- Specific steps to execute test Test data

Verification vs Validation

- **Verification:** The software should confirm to its specification (Are we building the product right?)
- **Validation:** The software should do what the user really requires (Are we building the right product?)

Testing Methodologies

- Black box testing
- White box testing

Testing Types (Chapter 8)

Book: Software Engineering, Ian sommerville, 9th Edition