SOFTWARE TESTING FUNDAMENTALS

Agenda

1. SDLC - Process
2. What is Testing?
3. Why do we need Testing?
4. Documentation in Testing
5. Models
6. Strategic Approach
7. Levels of Testing

SDLC - Process

SDLC

- Raw materials requirement
- Planning
- Designing
- Construction
- Testing
- Maintenance

What is Testing?

What is Testing?

- Testing can be defined as “Performing Verification and Validation of the Software Product” for its correctness and accuracy of working.

- Software Testing is to identify errors in order to reveal and spot it.

Why do we need Testing?

Why do we need Testing?

- To save time as well as cost.
- To provide best quality product without taking so much time and money.
- To find defects which may get created by the programmer while developing the software.
- To gain confidence in and providing information about the level of quality.
- To prevent defects.
- To make sure that the end result meets the business and user requirements.

Documentation in Testing

Documentation in Testing

- Found the issue
- Created a bad situation for the company
- Issue – Compatibility of one website
- Issue was presented to higher authorities
- They showed the client a written proof
- Issue was resolved peacefully

Documentation in Testing

The prime objective of any software project is to get a high-quality output while reducing the cost and the time required for completing the project. To achieve that, companies test their software before they release it to the market. **Documentation** plays a critical role in achieving effective software testing

There are **different levels of documentation**, like:

***Test Script*:** A line-by-line description of all the actions and data needed to perform a test.
Test Case: Describes a specific idea that is to be tested, without detailing the exact steps to be taken or data to be used.
Test Scenario: It is a simple description of an objective a user might face when testing.

*A **test case** is a document which has a set of conditions or actions that are performed on the software application in order to verify the expected functionality of the feature.*

Benefits of Writing Test Cases

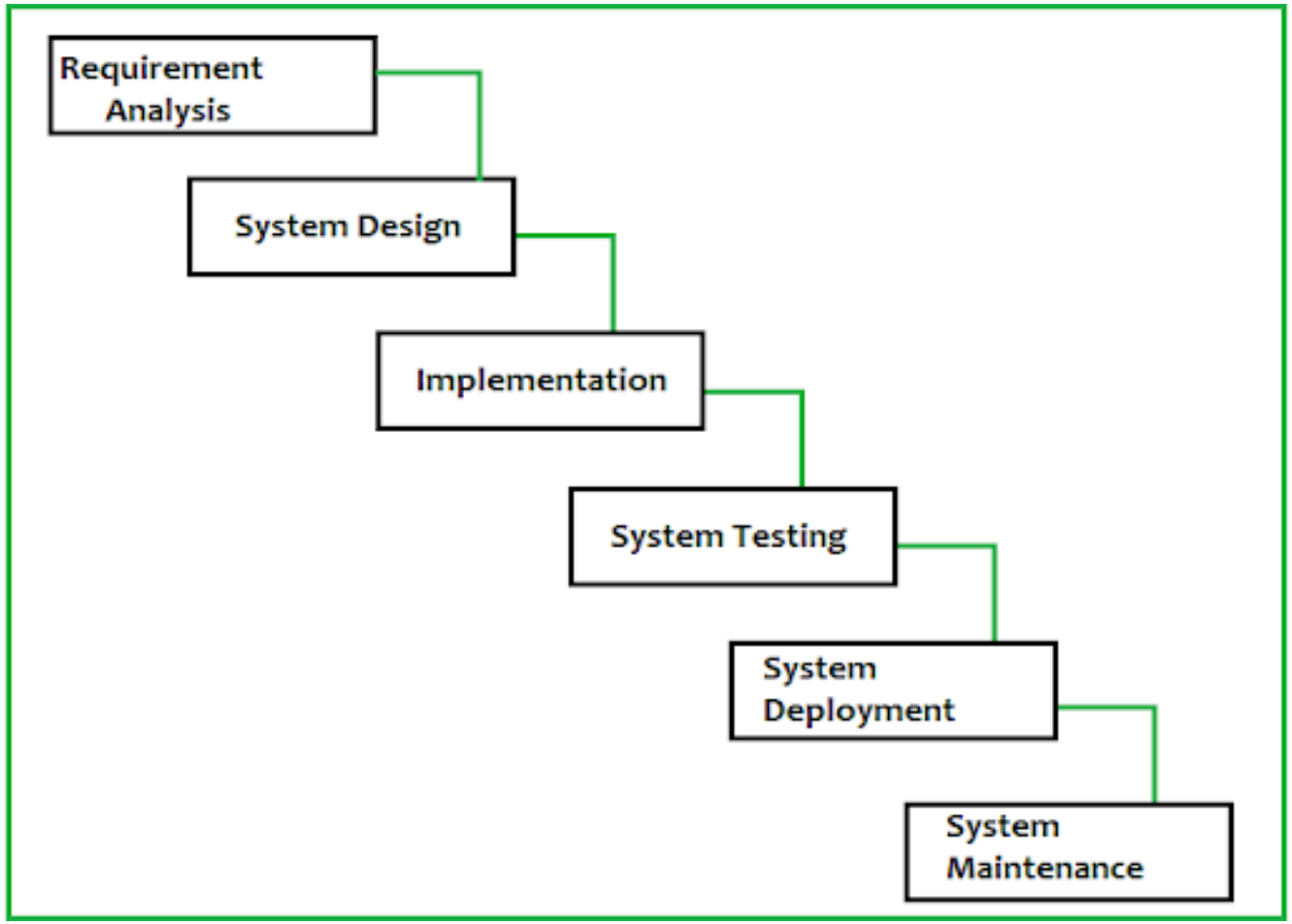
The key purpose of a test case is to ensure if different features within an application are working as expected. It helps tester, validate if the software is free of defects and if it is working as per the expectations of the end users.

Other benefits of test cases include:

- Test cases ensure good test coverage
- Help improve the quality of software,
- Decreases the maintenance and software support costs
- Help verify that the software meets the end user requirements
- Allows the tester to think thoroughly and approach the tests from as many angles as possible
- Test cases are reusable for the future – anyone can reference them and execute the test.

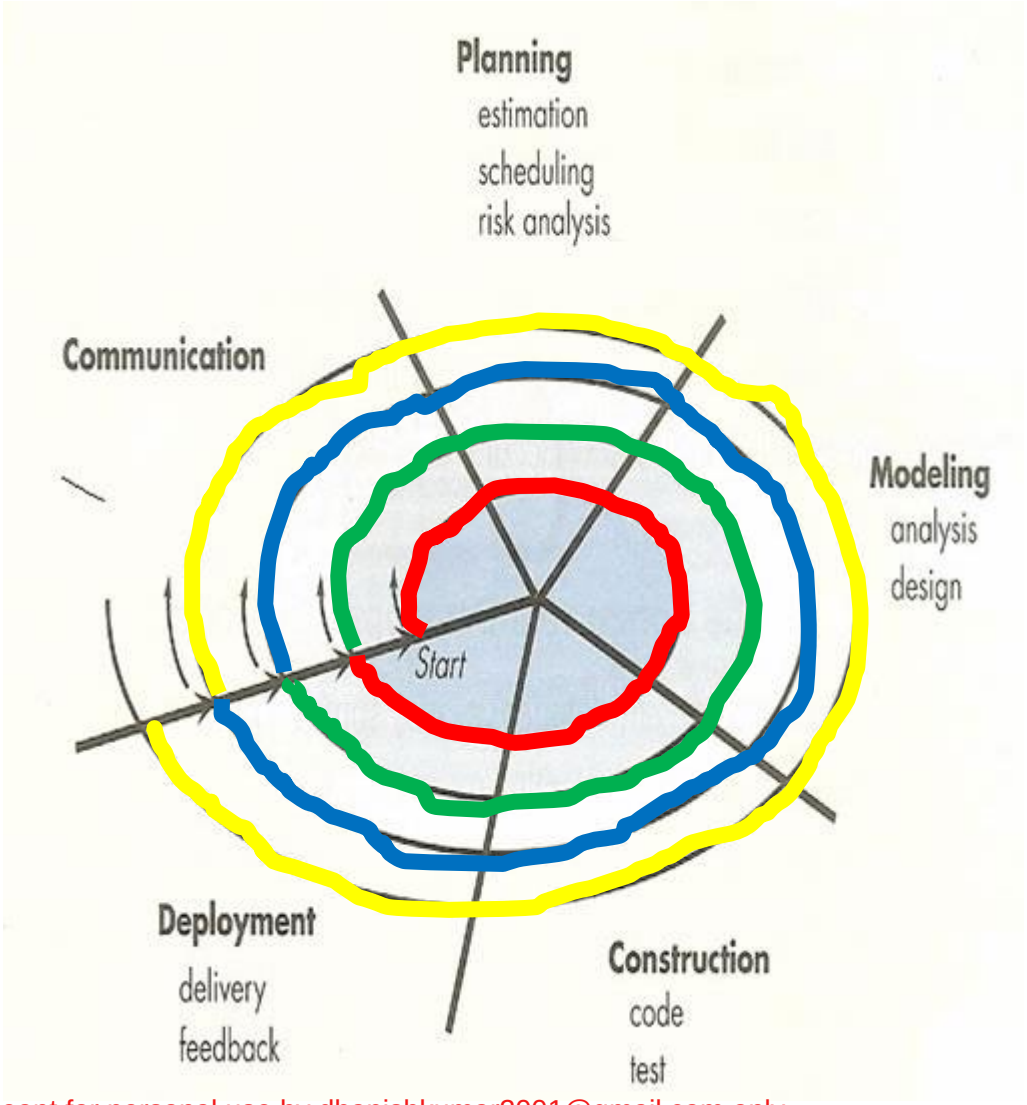
Models

Waterfall Model

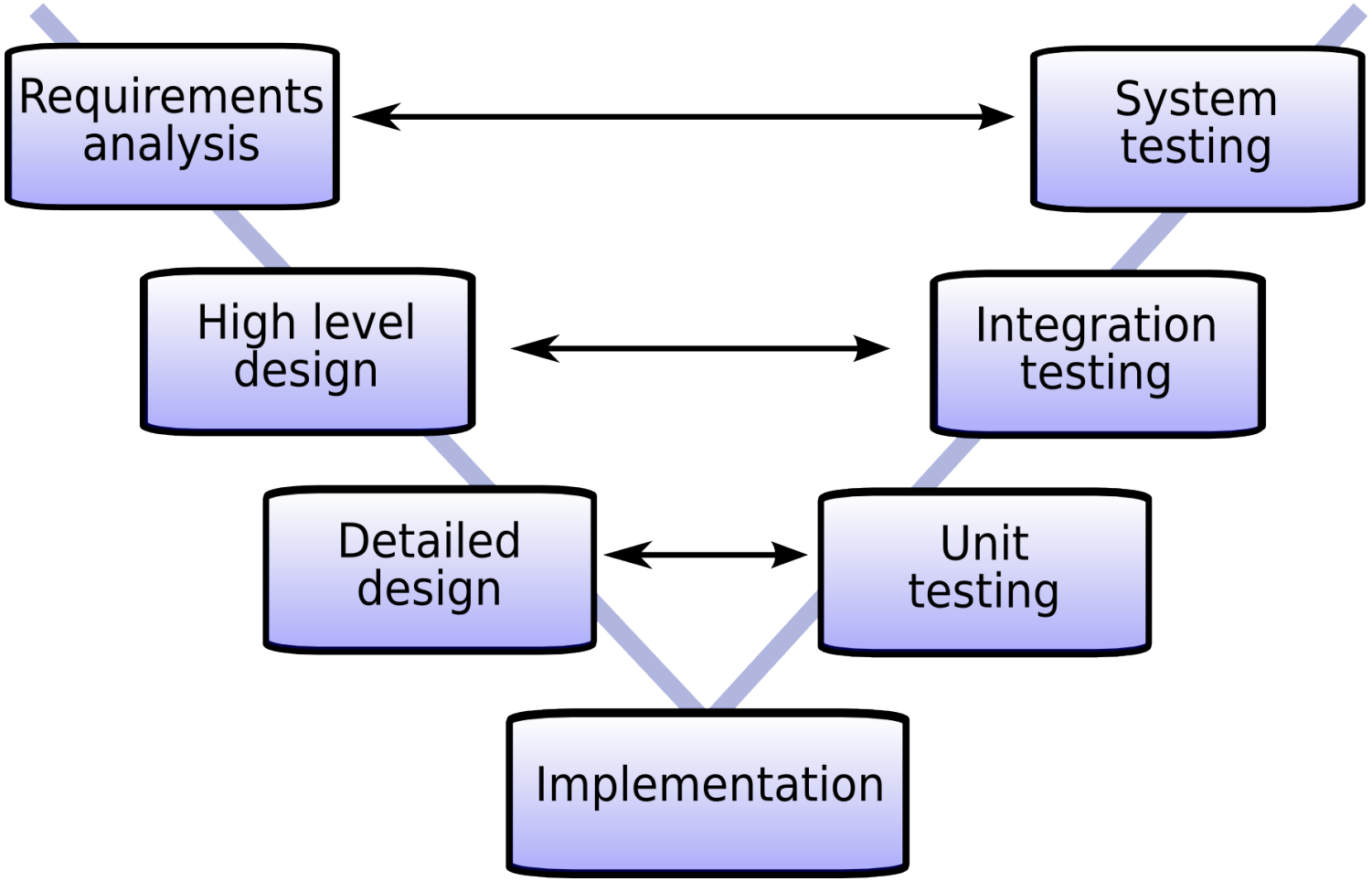


Spiral Model

- System Enhancement
- System Maintenance
- Concept Development
- System Development



V Model



Strategic Approach

Strategic Approach to Testing

General Characteristics of Strategic Testing :-

- To perform effective testing, a software team should conduct technical reviews.
- Testing begins at the component level and work toward the integration of entire computer based system.
- Different testing techniques are appropriate at different points in time.
- Testing is done by developer of Software and for large projects by an independent test group.
- Testing and Debugging are different activities, but debugging must be accommodated in any test strategy.

Strategic Approach to Testing

In other words, software testing is a verification and validation process :-

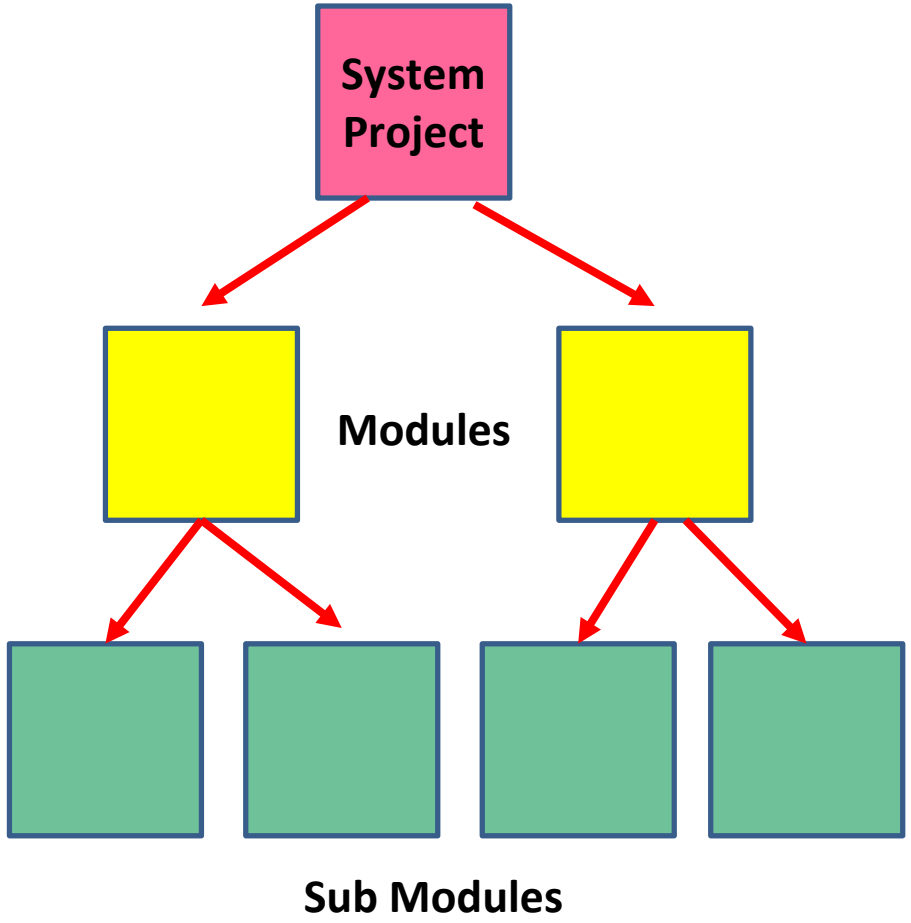
Verification – Does the product meet its specifications?

The set of activities that ensure that software correctly implements a specific function or algorithm.

Validation – Does the product perform as desired?

The set of activities that ensure that the software which has been built is traceable to customer requirements.

Strategic Approach to Testing



System Testing

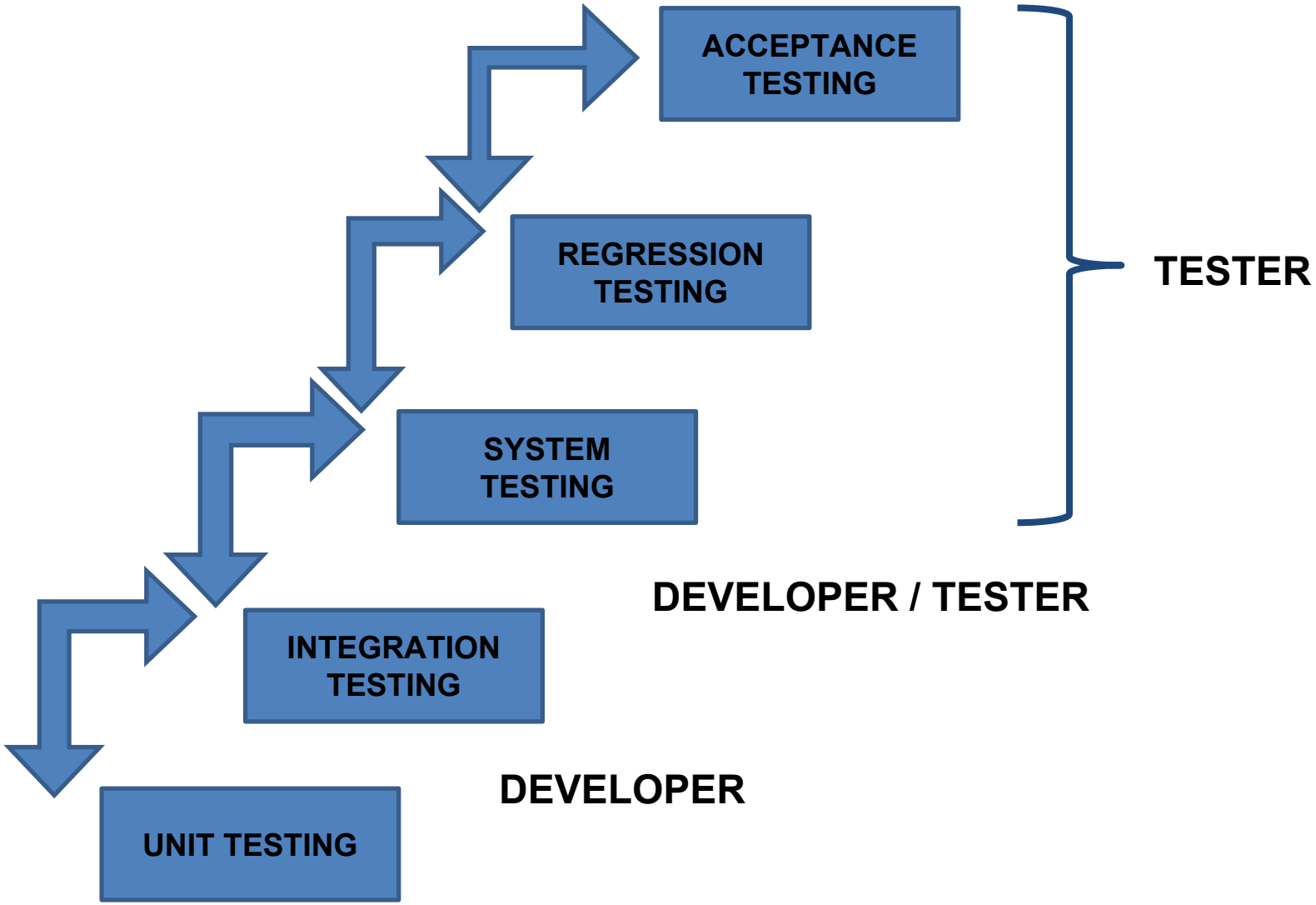
Validation Testing

Integration Testing

Unit Testing

Levels of Testing

Levels of Testing



Thank You