STM MODULE 1

ADDITIONAL CONTENT

Levels of Testing

1. Unit Testing
2. Integration Testing
3. System Testing
4. Acceptance testing

Unit Testing

- Purpose of Unit Testing is to ensure that module/component/function is performing the intended task error free.

- White box testing technique is used to detect the error(s) or malfunctioning while performing unit testing.

- Developers are responsible for finding and resolving the errors in units.

Testing Methodologies

1. White Box testing:
   - Knowledge of the internal program design and code required.
   - Tests are based on coverage of code statements, branches, paths, conditions.
   - It is also called as behavioral testing
2. Black Box Testing:
   - No knowledge of internal program design or code required.
   - Tests are based on requirements and functionality.
   - This testing is also known as functional testing.

Verification Testing

- Verification is the process of manually examining / reviewing a document. The document may be SRS, design document, code or any document prepared during any phase of software development.

- As per IEEE, “verification is the process of evaluating the system or component to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase” [1]

Validation Testing

- Validation testing is done to ensure that software product being developed is as per the requirements of the customer.
- Validation is achieved through V-Shape software development life cycle model.
- This is a dynamic testing which is accomplished using:

  Unit Testing,

  Integration Testing,

  System Testing &

  Acceptance Testing.

Regression Testing

- Regression testing is the process of re-testing the modified parts of the software and ensuring that no new errors have been introduced into previously tested source code due to these modifications.
- Regression testing is used to test the modified source code and other parts of the source code that may be affected by the amendment.

Reference

[1] IEEE, “Standard Glossary of Software Engineering Terminology”, 2001.