System Tests

- Basic Tests
- Functionality Tests
- Robustness Tests
- Interoperability Tests
- Performance Tests
- Scalability Tests
- Stress Tests
- Load and Stability Tests
- Regression Tests
- Documentation Tests
- Regulatory Tests
  - Software Safety
  - Safety Assurance

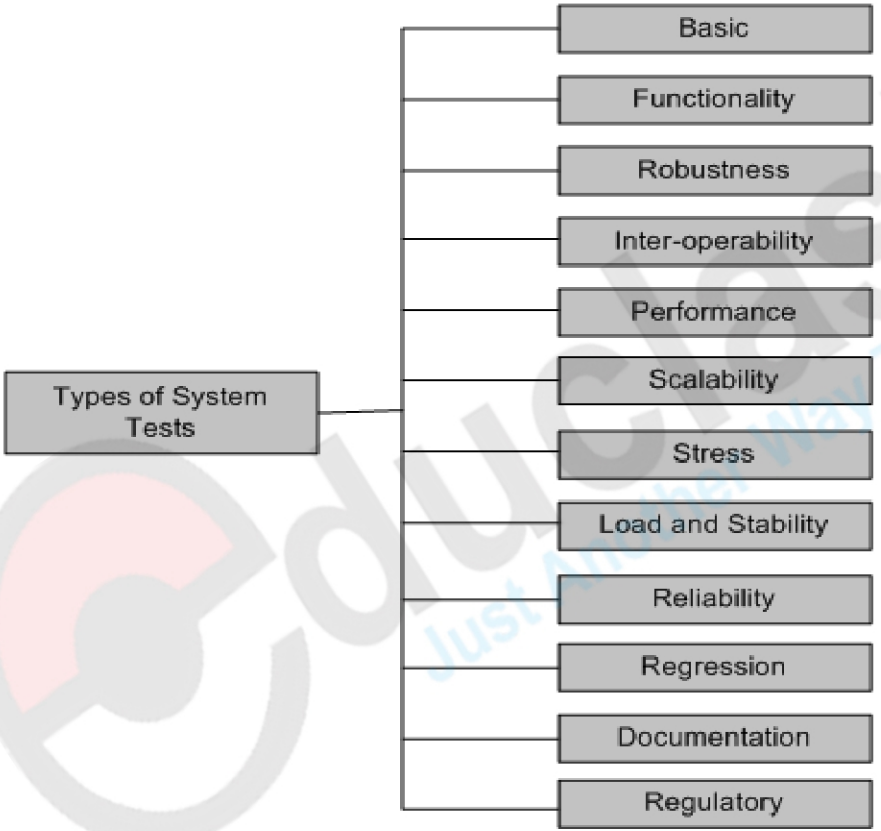

Figure 1: Types of system tests

System Tests

- **Basic tests** provide an evidence that the system can be installed, configured and be brought to an operational state
- **Functionality tests** provide comprehensive testing over the full range of the requirements, within the capabilities of the system
- **Robustness tests** determine how well the system recovers from various input errors and other failure situations
- **Inter-operability tests** determine whether the system can inter-operate with other third party products
- **Performance tests** measure the performance characteristics of the system, e.g., throughput and response time, under various conditions

- **Scalability tests** determine the scaling limits of the system, in terms of user scaling, geographic scaling, and resource scaling

- **Stress tests** put a system under stress in order to determine the limitations of a system and, when it fails, to determine the manner in which the failure occurs

- **Load and Stability** tests provide evidence that the system remains stable for a long period of time under full load

- **Reliability tests** measure the ability of the system to keep operating for a long time without developing failures

- **Regression tests** determine that the system remains stable as it cycles through the integration of other subsystems and through maintenance tasks

- **Documentation tests** ensure that the system's user guides are accurate and usable

- **Regulatory Test**: Also known as conformance testing, **Compliance** testing, and standards testing; It is a type of testing to determine the compliance of a system with internal or external standards.

Acceptance Testing

- Acceptance testing is a formal testing conducted to determine whether a system satisfies its acceptance criteria
- There are two categories of acceptance testing:
  - User Acceptance Testing (UAT)
    - It is conducted by the customer to ensure that system satisfies the contractual acceptance criteria before being signed-off as meeting user needs.
  - Business Acceptance Testing (BAT)
    - It is undertaken within the development organization of the supplier to ensure that the system will eventually pass the user acceptance testing.

Three major objectives of acceptance testing:

- Confirm that the system meets the agreed upon criteria
- Identify and resolve discrepancies, if there is any
- Determine the readiness of the system for cut-over to live operations

Acceptance Criteria

• The acceptance criteria are defined on the basis of the following attributes:

- Functional Correctness and Completeness
- Accuracy
- Data Integrity
- Data Conversion
- Backup and Recovery
- Competitive Edge
- Usability
- Performance
- Start-up Time
- Stress
- Reliability and Availability
- Maintainability and Serviceability
- Robustness
- Timeliness
- Confidentiality and Availability
- Compliance
- Install ability and Upgradability
- Scalability
- Documentation

Generic Types of Testing

Generic Types of Testing

Functional Testing

- Functional testing is performed using the functional specification provided by the client and verifies the system against the functional requirements.
- Functional testing is executed first
- Manual testing or automation tools can be used for functional testing
- Business requirements are the inputs to functional testing

Non-Functional Testing

- Non-Functional testing checks the Performance, reliability, scalability and other non-functional aspects of the software system.
- Non functional testing should be performed after functional testing
- Using tools will be effective for this testing
- Performance parameters like speed , scalability are inputs to non-functional testing.

Generic Types of Testing

Functional Testing

- Functional testing describes what the product does
- Easy to do manual testing
- Types of Functional testing are

Unit Testing
Smoke Testing
Integration Testing
White box testing
Black Box testing
User Acceptance testing
Regression Testing

Non-Functional Testing

- Nonfunctional testing describes how good the product works
- Tough to do manual testing
- Types of Non functional testing are

Performance Testing
Load Testing
Volume Testing
Stress Testing
Security Testing
Installation Testing
Compatibility Testing
Migration Testing