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Software Quality Assurance (IT4100)

SOFTWARE TESTING TYPES

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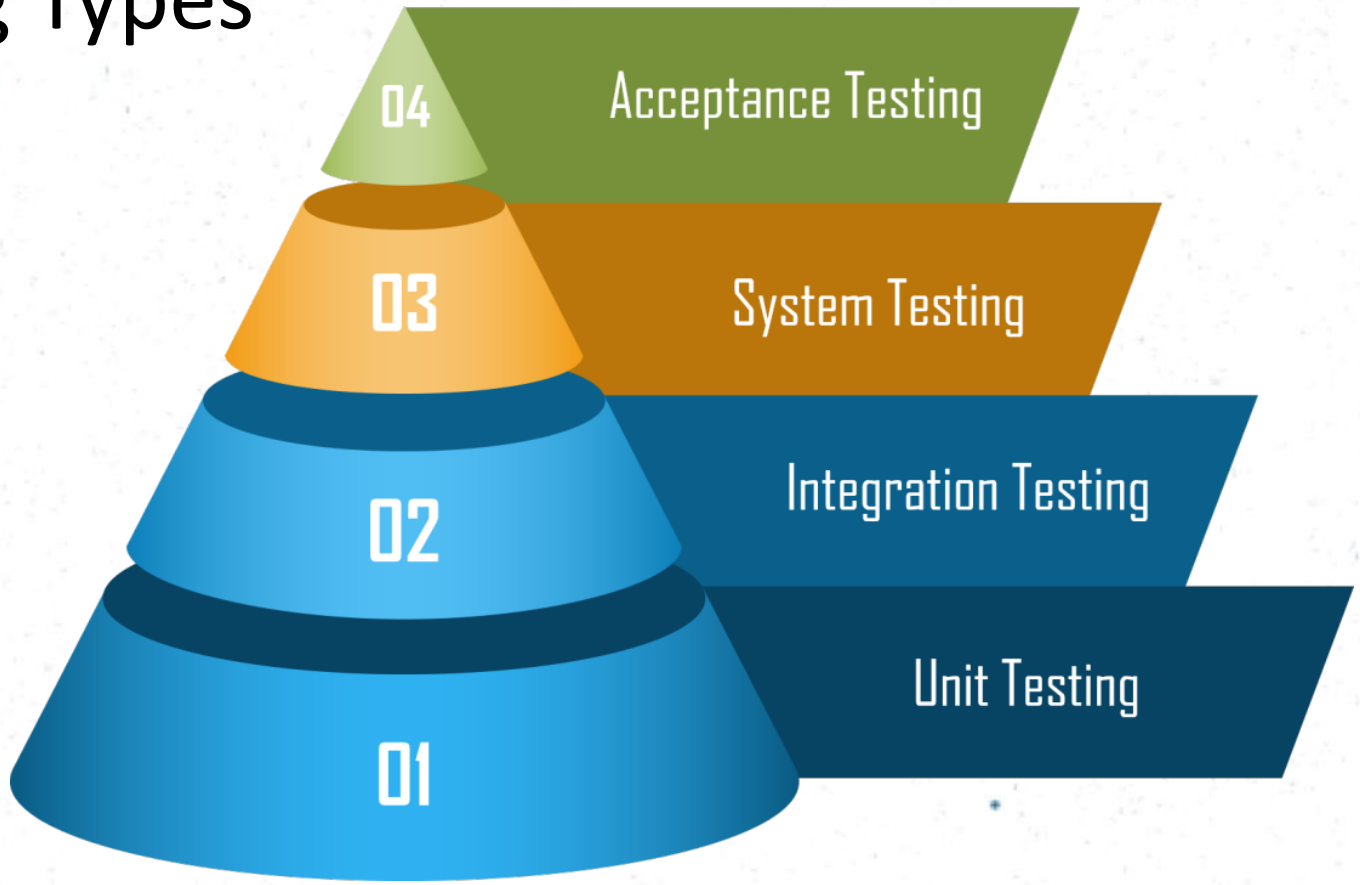
Software Testing Types

- Functional Testing
- Non – Functional Testing

Functional Testing Types

- Functional Testing Types



Functional Testing Types

- **Unit Testing :**
  - Individual program units or object classes are tested
  - Focused on testing the functionality of objects or methods
  - Ensures that each module is working correctly
- **Integration Testing:**
  - Combined individual units are tested as a group
  - Expose the faults in the interaction between the integrated units

Functional Testing Types

- **System Testing :**
  - All the components in a system are integrated and the system is tested as a whole
  - Ensures that system is working correctly according to the requirements

Functional Testing Types

- **User Acceptance Testing:**
  - Acceptance Testing is the final phase of software testing
  - Conducted to verify whether the system meets business requirements and is ready for release
  - Ensures that the software works as expected for end users
  - Focuses on business scenarios rather than technical aspects

Functional Testing Types

- **Smoke Testing:**
  - Functional testing technique where the basic functionality or feature of the application is tested
  - Ensures that the most important function works properly
- Regression Testing:
  - Make sure that the code changes do not affect the existing functionality and the features of the application

Functional Testing Types

- **Sanity Testing:**
  - Subset of regression testing and is done to make sure that the code changes introduced are working as expected
- **Adhoc Testing:**
  - Random testing that does not follow any documentation or test plan to perform testing

Non-Functional Testing Types

- **Performance testing:**
  - Ensure that a software program or system meets specific performance goals, such as response time or throughput.
- **Volume Testing:**
  - Ensure that a software program or system can handle a large volume of data.
  - For example, if the website is developed to handle traffic of 500 users, volume testing will whether the site is able to handle 500 users or not.

Non-Functional Testing Types

- **Security testing:**
  - Ensure that a software program or system is secure from unauthorized access or attack.
- **Scalability Testing:**
  - Ensure that a software program or system can be scaled up or down to meet changing needs.
- **Recovery testing:**
  - Ensure that a software program or system can be recovered from a failure or data loss.

Non-Functional Testing Types

- **Compatibility testing:**
  - Ensure that a software program or system is compatible with other software programs or systems.
- **Usability Testing:**
  - Ensure that a software program or system is easy to use.

Comparison

Feature	Functional Testing	Non-Functional Testing
Definition	Tests the system's functionalities and ensures that it behaves as expected.	Tests the system's non-functional aspects like performance, security, usability, and reliability.
Objective	Ensures that the application works as per the functional requirements.	Ensures that the system meets non-functional requirements like speed, scalability, and user experience.
Focus Areas	Verifies business logic, database operations, APIs, user interfaces, and system workflows.	Checks aspects such as performance, load handling, security, compatibility, and usability.
Testing Techniques	Includes Unit Testing, Integration Testing, System Testing, User Acceptance Testing (UAT).	Includes Performance Testing, Load Testing, Stress Testing, Security Testing, Usability Testing, etc.
Outcome	Determines whether the system meets functional requirements.	Determines how well the system performs under various conditions.