

Manual Testing

Session-3

Static & Dynamic Testing Techniques

- Reviews
- Walkthroughs
- Inspection

Review

- **Reviews:**

- Conducts on documents to ensure correctness and completeness.
- Example:
 - Requirement Reviews
 - Design Reviews
 - Code Reviews
 - Test plan reviews
 - Test cases reviews etc.



Walkthrough

- **Walkthrough:**
 - It is a informal review.
 - Author reads the documents or code and discuss with peers.
 - It's not pre-planned and can be done whenever required.
 - Also walkthrough does not have minutes of the meet.

Inspection

- **Inspections:**
 - Its a most formal review type.
 - In which at least 3- 8 people will sit in the meeting 1- reader 2-writer 3-moderator plus concerned.
 - Inspection will have a proper schedule which will be intimated via email to the concerned developer/tester.

QA Vs QC

- QA is Process related.
- QC is the actual testing of the software.
- QA focuses on building in quality.
- QC focuses on testing for quality.
- QA is preventing defects.
- QC is detecting defects.
- QA is process oriented.
- QC is Product oriented.
- QA for entire life cycle.
- QC for testing part in SDLC

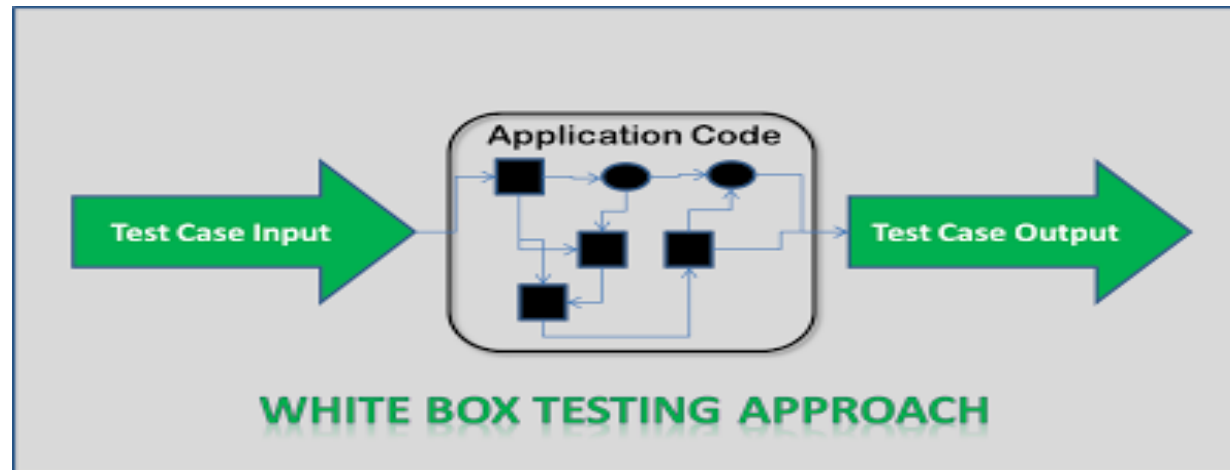


Testing Methodologies

- White box Testing
- Black box Testing
- Grey box Testing

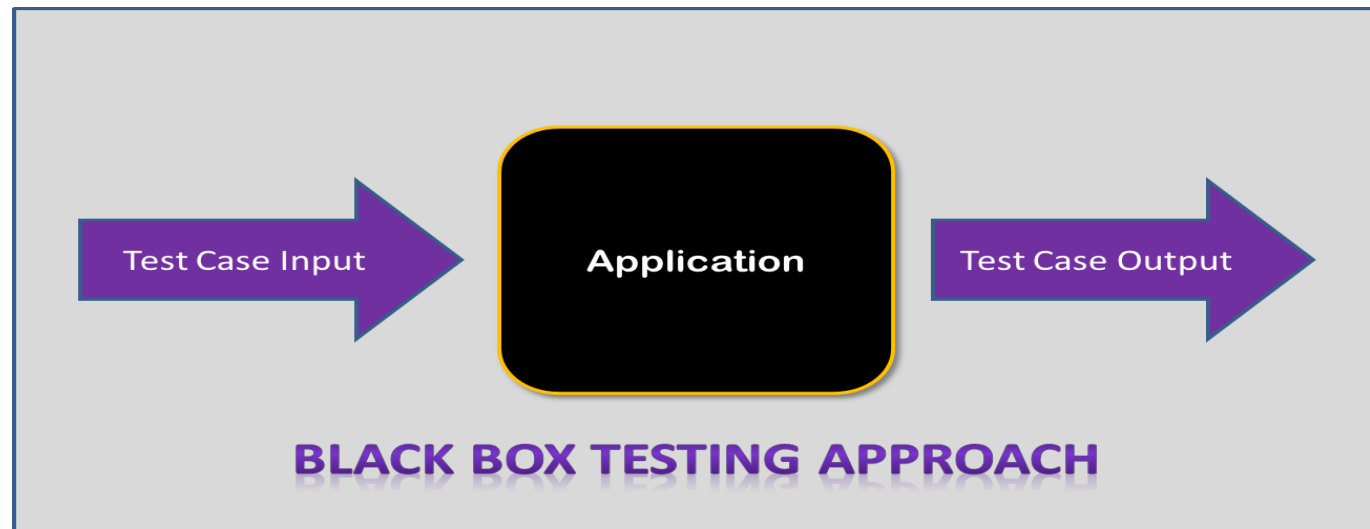
White Box Testing

- **White Box Testing** conducts on internal logic of the programs.
- Programming Skills are required.
 - Ex: Unit Testing & Integration Testing



Block Box Testing

- Testing conducts on functionality of the application whether it is working according to customer requirements or not.
- Ex: System Testing & UAT Testing



Grey Box Testing

- Both combination of white box and black box testing.
 - Ex: Database Testing

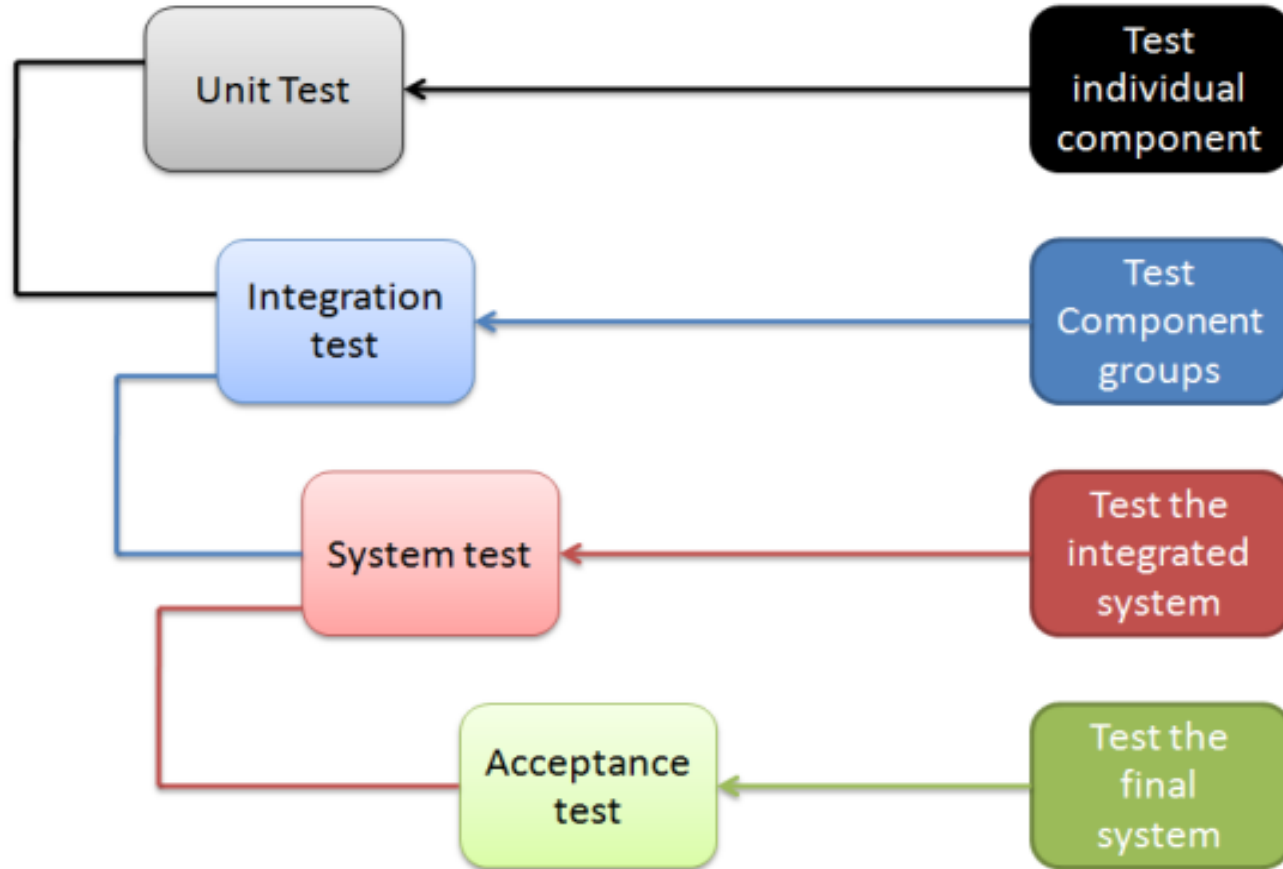


Levels of Software Testing

- Unit Testing
- Integration Testing
- System Testing
- User Acceptance Testing(UAT)

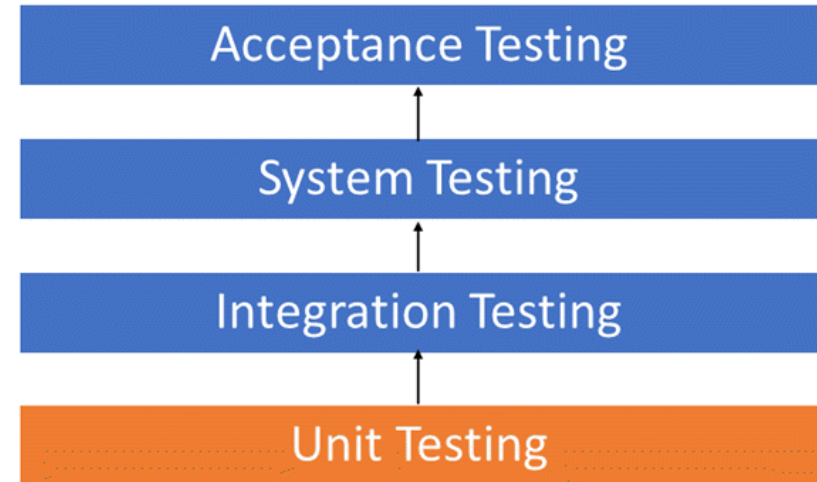


Levels of Software Testing



Unit Testing

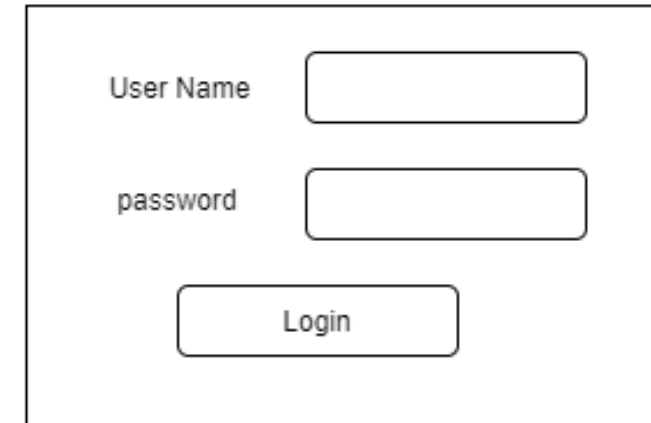
- A **unit** is a single component or module of a software.
- Unit testing conducts on a single program or single module.
- Unit Testing is white box testing technique.
- Unit testing is conducted by the developers.
- Unit testing techniques:
 - Basis path testing
 - Control structure testing
 - Conditional coverage
 - Loops Coverage
 - Mutation Testing



Unit Testing/Component Testing Example

```
if username='Scott' & Password="123"  
  then  
    "Allowed"  
  else  
    "NOT Allowed"
```

Unit Testing @ Code level (By Developers)

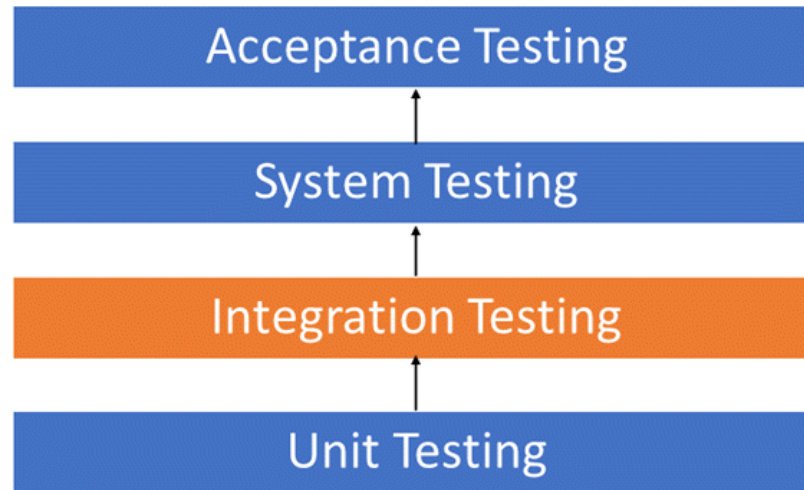


A login form with a rectangular border. Inside, there are two input fields: the top one is labeled "User Name" and the bottom one is labeled "password". Below these fields is a button labeled "Login".

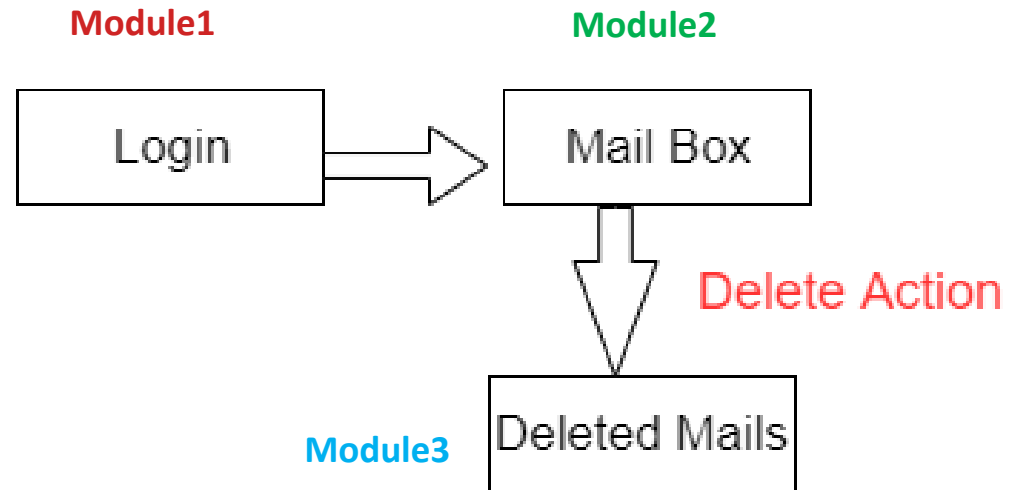
Component Testing @ UI level (By Testers)

Integration Testing

- Integration testing performed between 2 or more modules.
- Integration testing focuses on checking data communication between multiple modules.
- Integrated Testing is white box testing technique.



Integration Testing Example



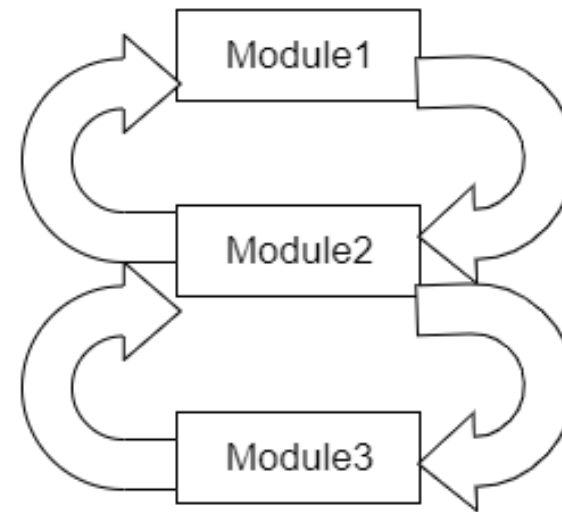
Types of Integration Testing

- Incremental Integration Testing
- Non- Incremental Testing

Incremental Integration

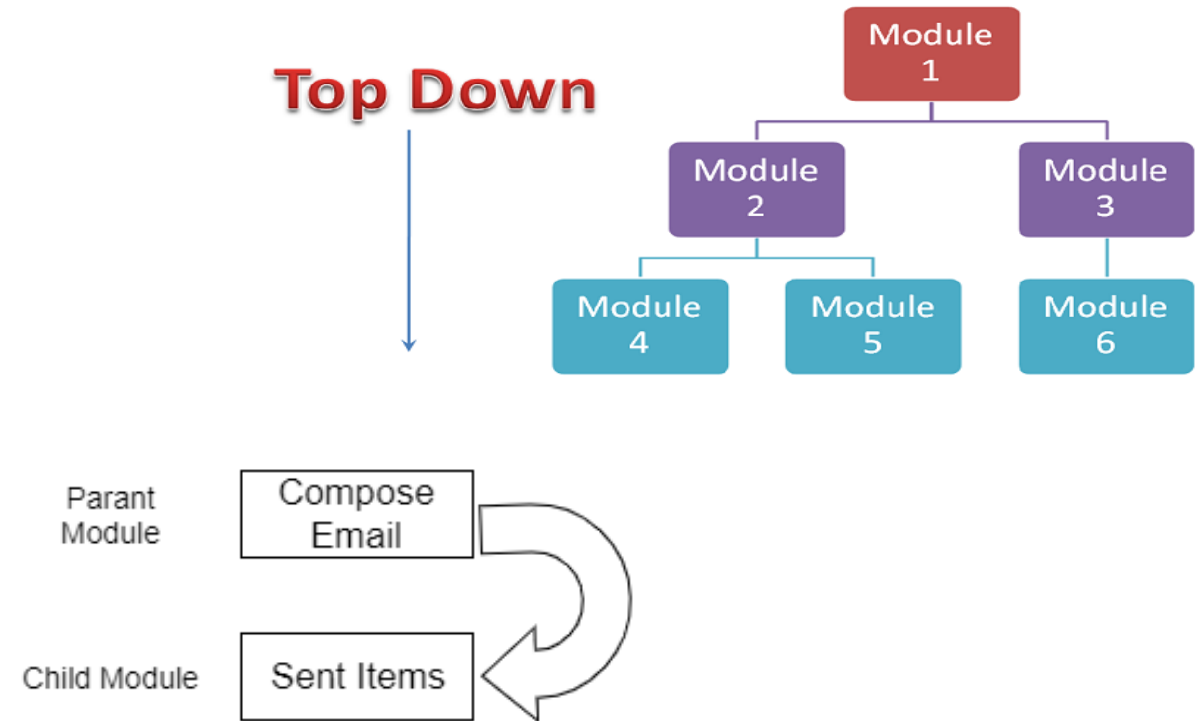
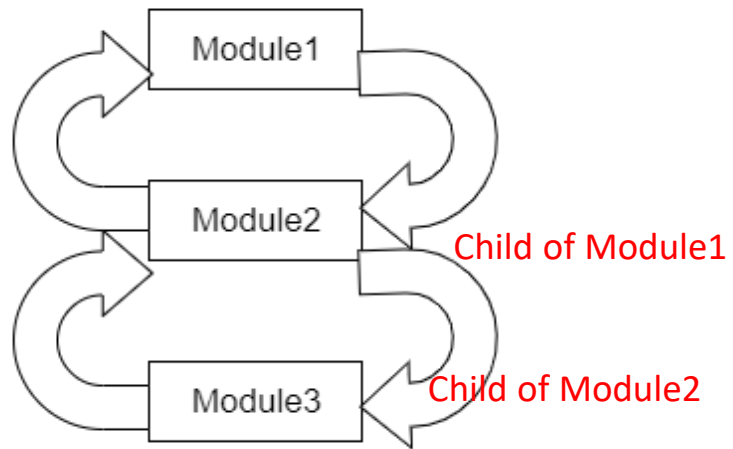
- **Incremental Integration** : Incrementally adding the modules and testing the data flow between the modules.

- 2 Approaches
- Top Down
- Bottom Up



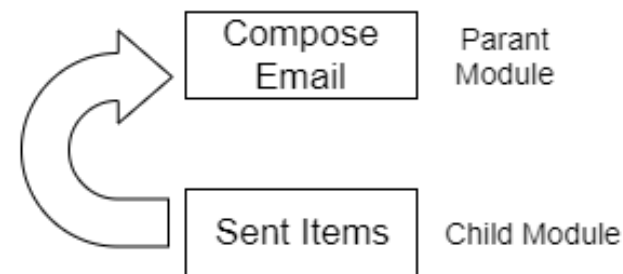
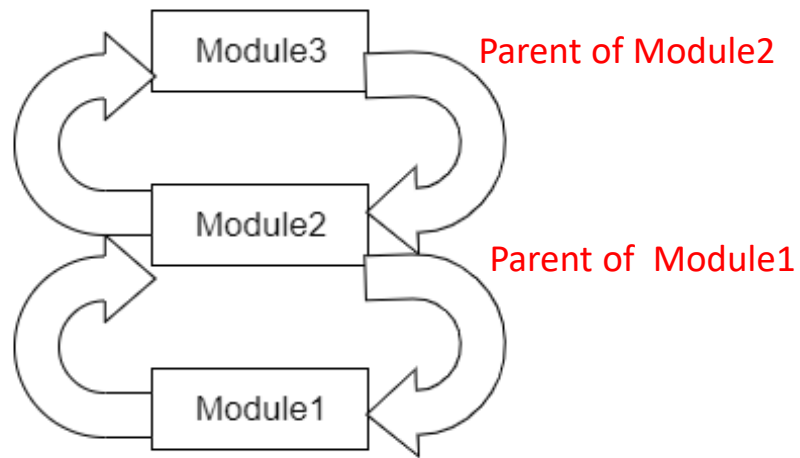
Incremental Integration (Top down Integration)

- Incrementally adding the modules and testing the data flow between the modules. And **Ensure the module added is the child of previous module.**

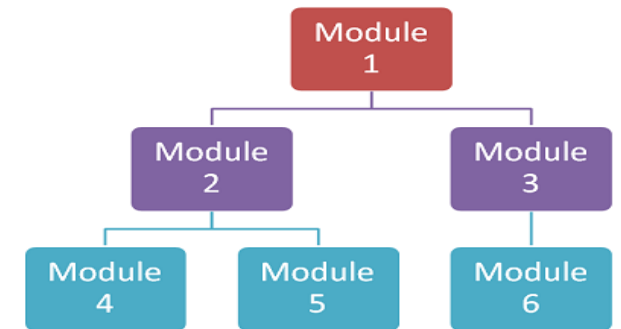


Incremental Integration (Bottom-Up Integration)

- Incrementally adding the modules and testing the data flow between the modules. **And Ensure the module added is the parent of the previous module.**



**Bottom
Up**



Incremental Integration (Sandwich/Hybrid Approach)

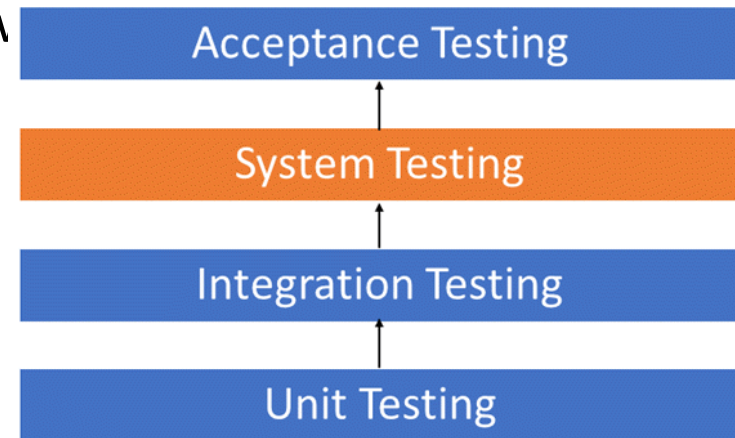
- Combination of Top-Down & Bottom Up approach is called Sandwich Approach.

Non- Incremental Integration Testing/Big Bang Testing

- Adding all the modules in a single shot and test the data flow between modules.
- Drawbacks:
- We might miss data flow between some of the modules.
- If you find any defect we cant understand the root cause of defect.

System Testing

- Testing over all functionality of the application with respective client requirements.
- It is a black box testing technique.
- This testing is conducted by testing team.
- After completion of component and integration level testing's we start System testing.
- Before conducting system testing we should know
- System Testing focusses on below aspects.
 - User Interface Testing (GUI)
 - Functional Testing
 - Non-Functional Testing
 - Usability Testing



User Acceptance Testing (UAT)

- After completion of system testing UAT team conducts acceptance testing in two levels.
 - Alpha testing
 - Beta testing