

- Loop and all decision

## Condition Coverage

- Condition of all Boolean expression

## Path Coverage

- test all logical flows in given E.A.

## UNIT - 5

### TYPES OF TESTING

#### Testing Categories

- What need to be test
- How to test
  - Black Box
  - White Box

#### What need to be test

- Functional Testing
- Non-Functional Testing

Functional Testing - Testing involves screenflow, data flow, business logic user and spy validation.

Non-Functional Testing - Test all other thing except functionality

#### Testing Quality attribute

Security, Performance, Maintainability, Reliability.

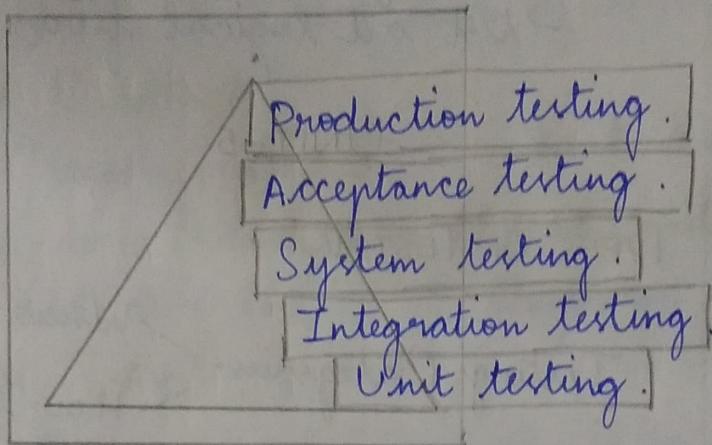
White Box Testing

- Testing internal structure
- Dataflow, Controlflow
- Need knowledge of algorithm

Black Box Testing

- No need of knowledge algorithm.

### TESTING LEVEL:



1. Unit Testing - Perform on module / function
  - Testing done on construction phase
2. Integration Testing - So phase code and module are grouped consistently.
  - Testing performed on combination module and class .
3. System Testing - Testing involve entire system
  - Provide different types of input to E.A and verify functionality .
  - End to end test .

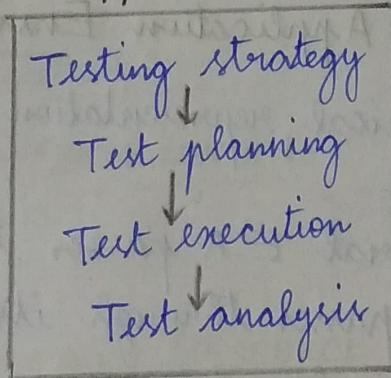
4. Acceptance Testing - Before fallout  
EA perform test  
- End user also involved.

5. Production Testing - Pilot release of  
EA in production environment.

### TESTING APPROACH:

- \* Testing typically start at inception of Enterprise Application.
- \* Testing planned and executed in parallel of lifecycle.
- \* Popular testing model - V-model

### Enterprise Application Testing Approach



### TESTING STRATEGY: (Take the environment)

- Type of testing done
- Testing team, effort
- Cost and timeline
- Defect tracking, test planning V-model
- When test start, when test end

O/P this phase is called test strategy.

## TEST PLANNING :

- What type of test performed
- Provide overall direction to test activity along with test case.
- Test data along with result.

## TEST EXECUTION :

- Unit Test
- Software Integration System
- Acceptance
- Development team responsible for perform test execution.

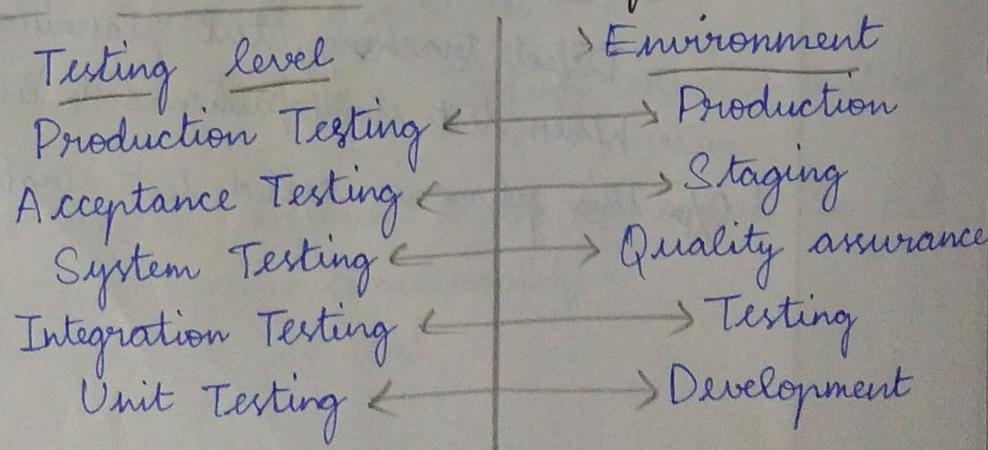
## TEST ANALYSIS :

- Defect found during test
- Corrective action taken based on defect.

## Enterprise Application Environment :

- \* ) Physical representation build blocks called E.A.
- \* ) Several E.A passes through environment that E.A passes through its lifecycle.
  - Development .
  - Test .
  - Quality assurance .
  - Staging .
  - Production .

## E.A Environment and Testing levels :



## E.A Testing matrix

	Strategy	Planning	Execution
Inception	Acceptance Strategy	Acceptance Test Plan	
Architecture and Plan	Unit Test Integration S/y test	Unit Test Integration S/y test	
Construction			Unit Test Integration S/y test

- APPLICATION CODE ANALYSIS: → Code analysis to investigate performance bottleneck
- identify time consume method
- DATABASE OPTIMIZATION: → store procedure used
- Database schema like index, table.

## INFRASTRUCTURE RESOURCE

### AND CAPACITY OPTIMIZATION

- PENETRATION TESTING
- Blackbox Testing.
  - Security perspective.
  - Ensure application compliance with industry standard.

## SECURITY NFR ELICITATION

### AND VALIDATION

Revising application to handle future attack

Penetration testing

Security code review

Static code analysis

→ Security Test  
Strategy and Planning  
and threat modeling

Design consideration  
for security

## USABILITY TEST

- Black Box Test.
- Validation Usability Requirement mentioned as NFR.
- Performed by End User (or) Business Analyst.

## TESTCASE

### Initiation..

- whether user self guided whole loan initiation process.

### Approval ..

- simple workflow from loan initiation to approval.

## GLOBALIZATION TEST:

- Manual to validate whether E.A meets internationalization standard.
- Whether EA can be localized based on given without architectural change.

Globalization Testing involves

- Content of EA
- Language translation
- Writing direction
- Currency symbol
- Date and time
- Font and image

## Interface Testing

- Validating incoming and outgoing of the application under test, interface
- Also called intersystem testing.

Several factor considered

- nature of communication interface .
- request - response handling of system .
- data format exchanged through the interface .

## User Acceptance Testing

- performed by end user .
- test done on functionality and usability .
- last stage of testing .
- certify readiness of E.A to go live , production .
- stated functionality in the system requirement , specification document .
- non functionality requirement like usability and response time .
- access control of the module .
- complete business process .
- business data from outgoing and incoming interface .

## Rolling out of EA

- \* ) Application live on production environment .
- \* ) EA handover to maintenance team .

High level strategy considered for rollout of EA:

1. Brand new - first rollout branded new application.
2. Parallel - Bring up new application environment switch.  
Application traffic switched from Old to new environment is kept standby pre-determined period.
3. Rolling rollout - Clustered and highly managed environment.
4. Phased rollout - Slowed variant of rolling out strategy.  
- basis of particular region and time.
5. Up-Down-Up rollout - Safest rollout.