Verification and Validation

Example.

1. A clickable button which has name Submet. Verification would be check the design document and correcting the spelling mistake.

   Otherwise development team will create button like

So new specification is Submit

A clickable button with name Submit

2. PAN Card,

Aadhar Card

3. Paper revaluation

4. Mobile no. verification

5. Document (address) verification

Verification

Are we building product right?

(i.e. does s/w confirm to it's specification)

Checks the process of creating the product.

Ensures that "you built it right".

- Also called as "Static Testing ".
- Done by manually reading the work product. (Document)

Verification testing provides two important benefits:

- Presence of defects can be identified close to the point where they originate
- Cost to correct those defects is significantly less when they detected in dynamic testing. (Validation)

Verification Techniques

- Walkthrough
- Inspection
- Review

Walkthrough

- Informal Process
- Led by Author of the work product
- Colleagues observe the document and give required feedback
- Author gives explanation if required , and takes down necessary actions

Inspection

- It is a Semiformal process.
- It is done by DOMAIN EXPERTS.
- It is more detailed than walkthrough.
- we look for REQUIREMENT TRACEABILITY MATRIX.

- Author –owner of the Document
- Reader-who read the document
- Recorder-who record minute of meeting
- Inspector-is a domain expert
- Moderator-who schedule the meeting

Review

- It is a formal or official process
- Held at the end of each phase of the project
- It is decision making point to gain opinion “is the phase complete and are we ready to go for next phase?”i.e. a decision point
- This process is carried out by the Managers.

Validation

Are we building right product?

(i.e. s/w doing what the user really require)

Checks the end product after creation

Ensures that “you built the right thing”

- Validation is also known as Dynamic Testing
- It is done by Executing the s/w
- The process of evaluating s/w during or at the end of the development process to determine whether it satisfied specified requirements
- It helps in finding the presence of defects , and not their location

Validation Techniques

Also known as LEVELS OF TESTING:

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

1. Unit Testing

Unit is smallest piece of independent and executable code that can perform some functionality or produce some result as output

Unit Testing is done by programmers to validate if the unit is working properly

Approach:

- White Box Testing
- Black Box Testing

Benefits:

- Ensures your code does the required task
- Simplifies integration between units

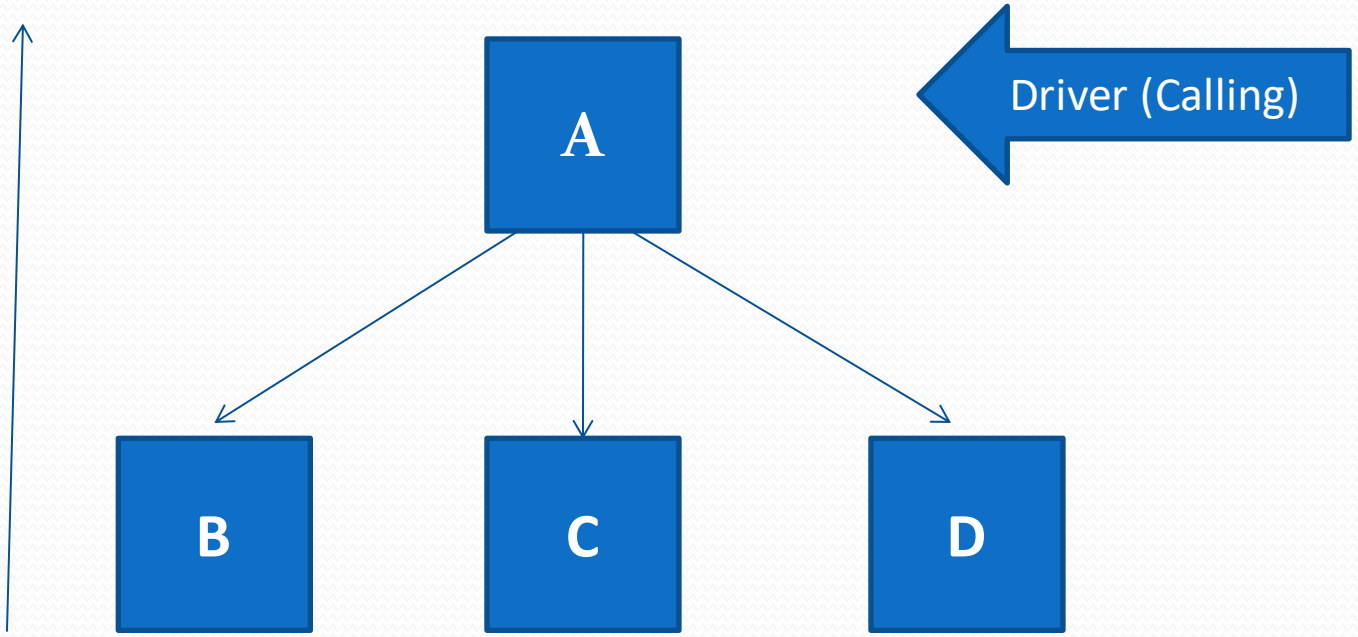
2. Integration Testing

- Starts at module level when various modules are integrated with each other to form a system
- Integration Testing tests interfaces between modules
- Integration Testing becomes easier if Unit Testing is complete and Interfaces between modules are well-defined
- Integration is done between two similar units of two different modules

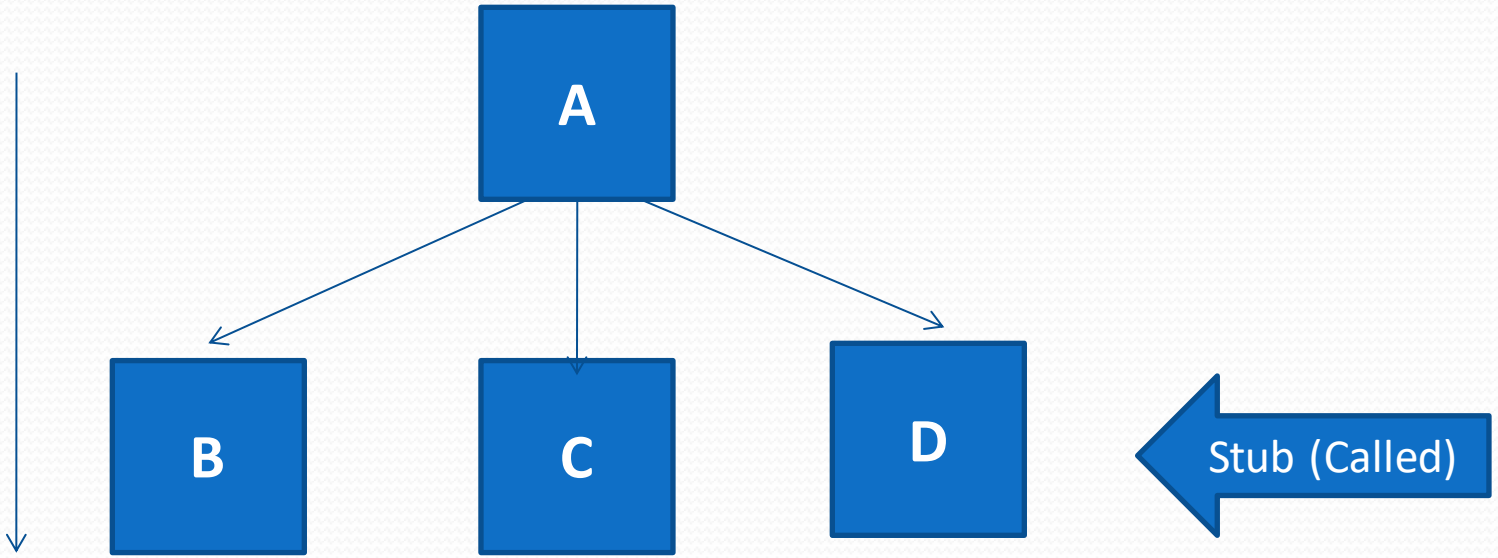
Integration Testing Approach

- Bottom Up Integration
- Top Down Integration
- Big Bang

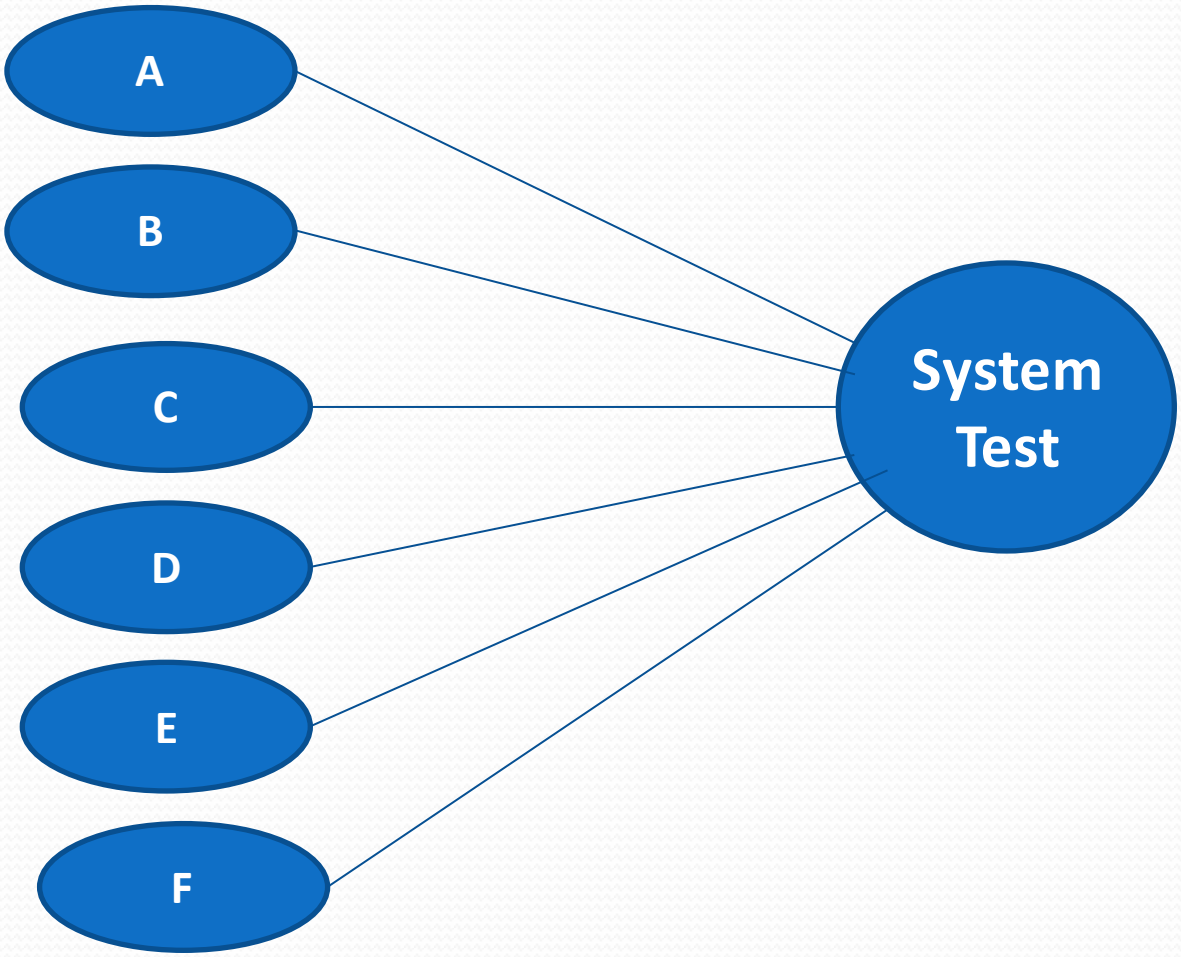
Bottom Up Integration



Top Down Integration



Big Bang Approach



3. System Testing

- Test For functional and non functional requirements of the system
- Test the whole system/product as per scope of release
- Tests must be conducted in production environment
- This is FINAL phase of testing before release of software
- Final Testing done by tester

4. Acceptance Testing

- Conducted by customers/users
- Forms of user Acceptance Testing

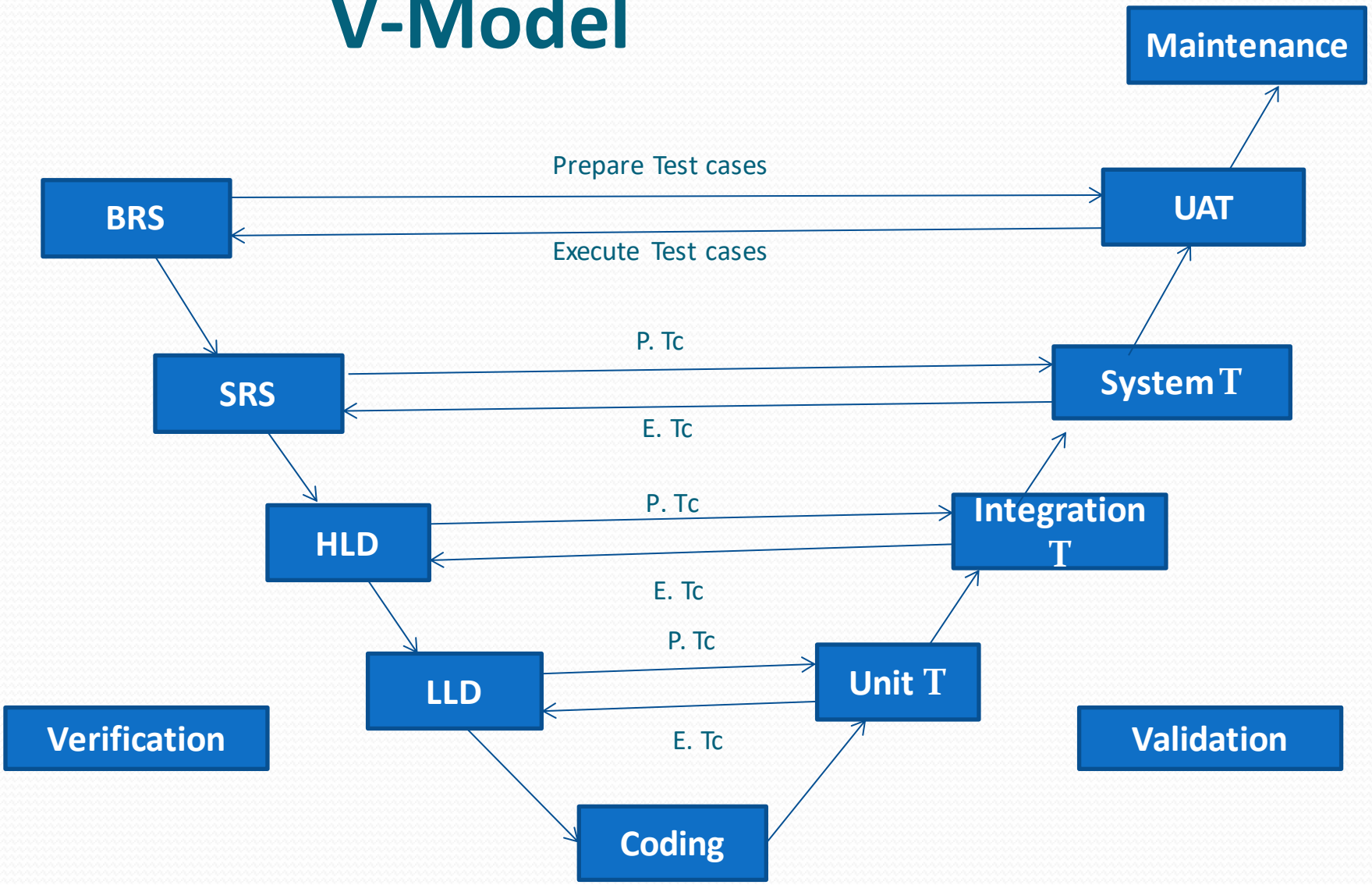
  Alpha Testing- Internal

  Beta Testing- External

Difference between Alpha Testing & Beta Testing

Alpha Testing (Factory)	Beta Testing (Field/Site)
It is always performed by customer at development environment	It is always performed by customer at live environment
Not open to market or public	Open to market or public
Within organization	Outside organization
Comes under both category White Box Black Box	Comes under only one category Black Box

V-Model


Maintenance
Prepare Test cases
BRS
UAT
Execute Test cases
P. Tc
SRS
System T
E. Tc
P. Tc
HLD
Integration T
E. Tc
P. Tc
LLD
Unit T
Verification
E. Tc
Validation
Coding

Thank you..