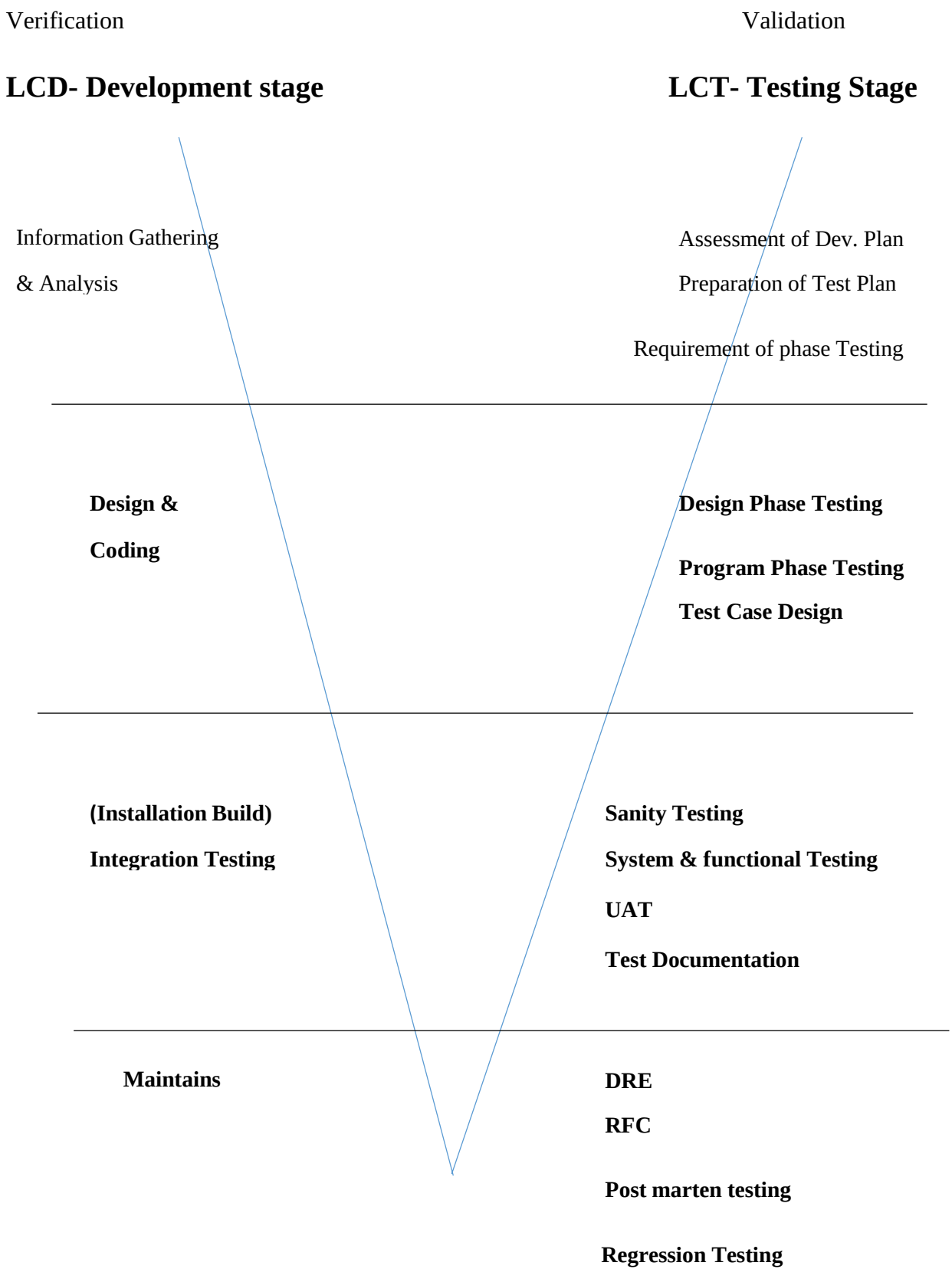
V Model


Verification
Validation
LCD- Development stage
LCT- Testing Stage
Information Gathering
& Analysis
Assessment of Dev. Plan
Preparation of Test Plan
Requirement of phase Testing
Design &
Coding
Design Phase Testing
Program Phase Testing
Test Case Design
(Installation Build)
Integration Testing
Sanity Testing
System & functional Testing
UAT
Test Documentation
Maintains
DRE
RFC
Post marten testing
Regression Testing

- The V-model is an SDLC model where execution of processes happens in a sequential manner in a V-shape. It is also known as **Verification and Validation model**.
- V stands for verification & validation
- In v model, verification & validation works/run parallel
- In the v model, development stages are mapped with testing stages
- In v model, suppose, we have completed 1st stage & now, we are in second stage which is running. If any change in requirement (CR) comes for 1st stage or for previous stage, then we can revert back to the previous stage or 1st stage to full-fill CR but, for this CR client/customer has to pay extra amount
- V model is used in big organization
- In v model, duration of the project is 3 or 3 plus month
- It is plan driven methodology- because CR are rarely come

Information Gathering & Analysis

1. Assessment of development plan
2. Preparation of test plan
3. Requirement of phase testing / Requirement testing/ Understand

1. Assessment of development plan

- Defining objective of project- Banking, Telecom, and Healthcare…..etc.
- Defining steps to how we can achieve objective of project
- Strategy for project development & strategy for testing is prepared here
- In testing- there are automation & manual testing. So among these two, which methodology needs to be implemented is decided here
- Test responsibility matrix (TRM) is finalized in this stage
- CEO, MD, Vice president & top level people of the company involved in this stage
- Ex

  BCCI-Format- Test/Day/T20

  IND Vs AUS

  BCCA-

  BCCI/Rahul/Rohit

2. Preparation of test plan

- TRM is implemented in preparation of test plan
- PM is responsible for TRM implementation
- PM prepares a test team
- PM assigns team leader & both PM & TL distribute work to all member
- Test estimation is created in this phase
- Estimation- means how much time it will take to complete test/particular assigned task (Start to end time)
- In this phase job allocation, resource allocation & estimation are done
- Ex-

  Coach -Rahul

  Captain -Rohit/Virat

  Team-IND vs AUS

  TRM-Testing factor-15-Team member-15

  Select-11

  Batsman-5

  Keeper-1

  All-rounder-1

  Bowler-2

  Spinner-2

3. Requirement of phase testing

- Phase means unit
- In this phase, estimated requirements of the phase are finalized
- Ex- Paytm

  Paytm continuously introduce new modules like money transfer, so this money transfer is like new product so, for them we need requirement estimation
- Ex. Whatsp

  Introduce new module video calling, for them we need requirement estimation

Design & Coding

1. **Design phase testing**
2. **Program phase testing**
3. **Test case design**

1. Design phase & program phase testing

- Design & program phase testing means code testing
- Code testing is started from small unit of program
- Developers are involved in program phase & design phase testing process, because he checks the code, finds the error & fix the error this testing is like unit testing
- In this phase white box testing & unit testing is implemented

2. Test case design

Design test Case

Positive Test Cases Negative Test Cases

- Tester understand the SRS document & then tester prepares test case design
- Test case design includes
    1. Positive test cases / positive scenario
    2. Negative test cases / negative scenario
- These scenarios will be executed in the later stage
- Tester are involved here
- This testing is similar to black box testing (+ve & -Ve)

Integration (Build Installation/Install Build)

1. Sanity Testing
2. System & Functional Testing
3. User Acceptance Testing
4. Test Documentation

Install Build/Integration

- In 3 month duration, generally 5 to 6 module are developed
- For ex.

  For current/ running project, if organization receives new requirement from client/customer to develop new module, if client/customer wants to add this new module into the existing flow then we can called as integration testing
- In such case, developer comes in to the picture, where developer works on the new requirements, develops code for new requirement & perform WBT also
- So, when new module is ready, they add/integrate new module in the existing application flow

  Example – Amazon E-comers'

  Home – Fashion – electronics – Mobile - flight - Beauty –etc.

  Existing Flow

  Mobile – view Product – Buy Product/Add –place order – payment – delivery

  New

  Mobile – view Product – Buy Product/Add –**Exchange -** place order – payment – delivery

  Device Company

  Module

  Year

  IMIE

  Price

- Note-So, when we fill exchange mobile info & come to price stage, then exchange mobile price will be deducted from the final product price (new mobile price) & you will get new price when you reach at payment stage
- So, developer are involved in the integration
- Integration testing has 2 types
  1. Front end integration- front end developers add or combine all dependent module by using CALL function.
  2. Back end integration- back end developers combine all the tables together by using JOIN function

1. Sanity Testing

- It comes under the validation process
- In sanity testing tester tests/validates basic & core functionality of the application/main flow of application
- Check the happy flow of the application
- Tester tests/check application for blocker also
- In the sanity testing, only critical defects or blockers are raised/lock/assign
- Tester are responsible person to do the sanity testing
- Example – IRCTC

  Plan my Journey > my booking > PNR Enquiry >

  Refund History

  Source to Destination

  Class

  Date – **Date Format- DD-MM-YY** **MM/DD/YY**

  My booking – Reservation information, Date, Time, Class, Train Number

  Number of station in between count is incorrect - it's fine

  PNR – Railway **logo**

  Text Field to accept number

  Submit button / Search Train – Not working – it's critical one & raised – service not found
- After Integration Testing first Sanity Testing comes in picture

2. System & Functional Testing

- After the completion of sanity testing, we carried out system & functional testing
- Black box tester is responsible for it/tester implements black box testing here
- In this testing, tester check the entire/overall functionality of application step by step from start to end to ensure QA & QC
- This is actually end to end testing process
- In this testing tester executes positive & negative test case/scenarios
- In this testing small defects, large defects & critical defects are raised or documented or lock in this phase
- Example: same IRCTC Above

Logo

Date format

No of station

3. User Acceptance Testing (UAT)

- After the system & functional testing & after the removal of defects the application or product is moved to UAT
- So, after the system & functional testing we assure about bug/defect free application
- After the system & functional testing, in UAT, client/customer/BA/PM/dev. team/test team sit together & check the entire/overall functionality of the application/software step by step start to end as per the given requirements
  Ex. UI, main modules, sub modules, logo, font & color etc.
- After validation of product in UAT, product is sent to the production

4. Test Documentation

- Tester prepares & maintains testing reports (i.e test case design & test case execution)
- It include a. daily testing report b. defect report 3. Test summary report
- Tester send this report to –team lead
- Team lead send this report to- project manger
- Project manager send this report to- business analyst
- Business analyst send this report to- client
- Ex.
  Daily testing report
  Name of module Scenario executed Status (pass/fail) Comment

Maintenance

1. Defect removal efficiency
2. Request for change
3. Post mortem testing

There are 4 stages/phases of testing environment

1. DIT- Development Integration Testing – Developer
2. SIT- System Integration Testing- Tester
3. UAT- User Acceptance Testing- Client/BA/PM/DT/TT
4. Production- Live

1. Defect removal efficiency (DRE)

- It is a process of calculating at which level tester performed testing
- It is a process of calculating at which level tester tested application/software
- DRE has 2 phase
  1. Defect found by tester
  2. Defect found during UAT

1. Defect found by tester

During testing, if tester found defects then some of the defects are fixed & some of the defects are cancelled

Ex.

In SIT, Consider tester found 100 defects

90- Were fixed

10- Were cancelled

(Due to duplicate, not a defect, technical issue & environment issue)

So only 90 defect are consider

2. Defect found during UAT

If client found some defects during the testing of application

Ex.

In UAT, 10 defect were found

A= Defect found by tester- 90

B= Defect found during UAT-10

DRE = A/A+B

= Defect found by tester/ (Defect found by tester + Defect found during UAT)

= 90/ (90+10) = 0.9

Based on this what kind of testing has been done/performed is calculated

DRE	**Remarks**
0.8-1	Good Testing
0.5 -0.8	Average Testing
Below 0.5	Below Average Testing

2. Request for change (RFC) / Change in request (CR)

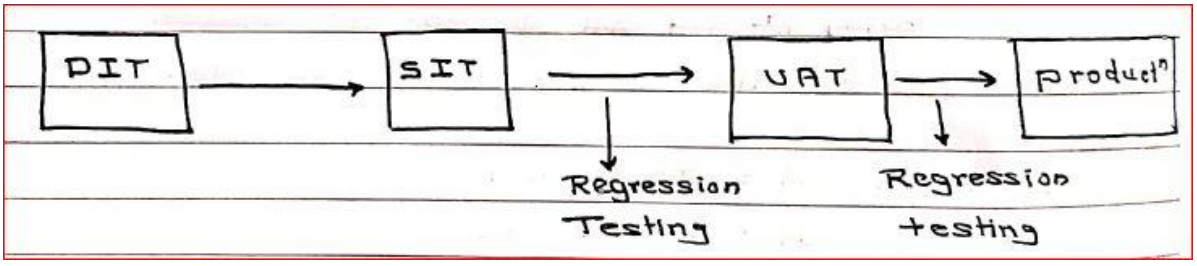
- If customer want to some changes in the product at the time of release then it is considered as request for change or change in request
- To handle this CR- there is a one team called as "configuration management team"
- CMT- involve- BA/Developer/Tester are involved
- So, in which environment we did the changes is decided by CMT
- Change in request is mentioned in the SRS document at the end. It is mentioned in red color with *mark, also we get the PDF
- So, for this change in request/requirement for change customer has to pay extra amount

3. Post mortem testing

- It is used to check complex & critical functionality of application
- PM testing- developer are involved
- When whole testing is done & product is ready for production & if product is not producing desired output then developer has to check all the modules in detail & has to perform WBT
- In this testing developer has to find out exact root cause of the defect- where it is & what is the problem

4. Regression Testing

- **Regression testing is subset of the sanity testing**
- **Regression testing perform after the SIT & after the UAT environment**



- **Regression** Testing is Re execution on modified build to ensure that defect is solved or not &impact on other modules
- Regression testing will always performed on Modify build to insures that defect will be fixed/solved and there is no side impact on interconnected module
- Check whether newly corrected system is working fine/well & should have no impact onother module