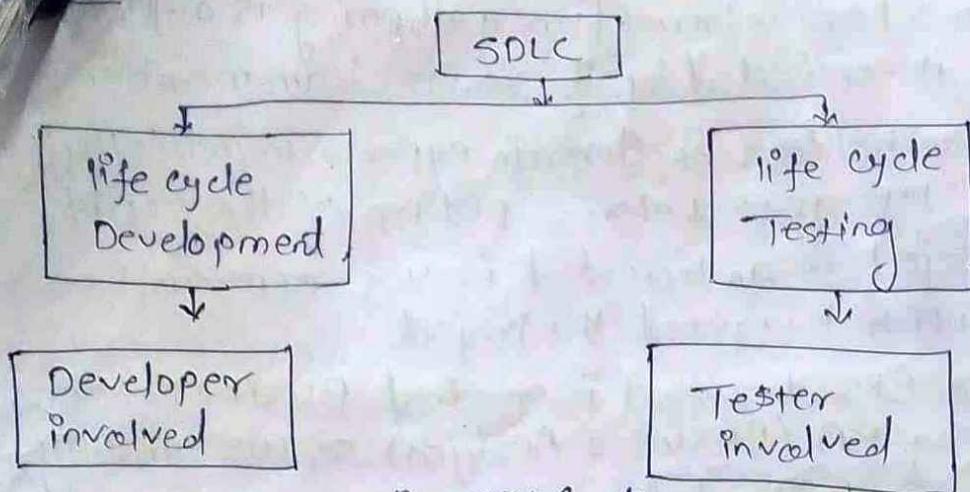


II- सॉफ्टवेर सम्पर्क ॥ (Software Development life cycle)



* Stages in SDLC *

Information Gathering

Analysis

Design

Coding (Development)

Testing

Maintainance

→ Software development life cycle is a systematic process for building SW that ensures the quality and correctness of the SW built.

SDLC ^{is to} aims to produce high quality SW that meets customer expectations.

① Information Gathering :-

Requirement or information gathering is a process of SPDC process it conducted by the senior team members & domain experts in industry inputs from stakeholders & domain experts in industry gives a clear picture of the scope of the entire project & anticipated issues, opportunities & directives which triggered the project.

→ In this phase BRS document is created Business Req. specification by BA (Business Analyst) so we can say that the BRS is bridge between client --- developer & tester.

② Analysis :- This step is about analyzing the performance of the

Software at various stages and making notes an additional requirement.

* BA involve in this process in this phase SRS is made, SRS (software requirement specification) this is detailed specification which shows minor units of SW.

Ex:- sign up page should have
SRS Name, No., email, pass.

BRS

ex:- Gather req. - Banking Proj.
- sign up page
- Home page
- Acc info
- contact
- link
This is overall req. of all.

* BRS :- A BRS includes all the requirement requested by a client generally it consists of products purpose, users the overall scope of work, all listed features and functions usability & performance requirement.

* SRS :- This document will be implemented by using BRS doc An SRS includes both functional & non-functional requirement & use cases as well.

- 1) documentation includes
- 2) Functional Requirement
- 3) Functional flow diagram
- 3) Use cases
- ④ screen shot / snapshot

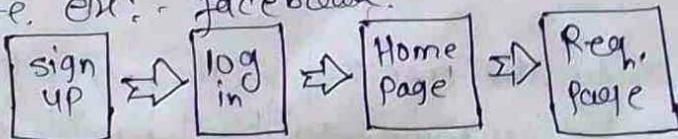
① Functional requirement means attributes which are required to complete a specific function.

For sign up page requirements are

First Name;
Last Name;
Mobile Number;
Email ID ;
Password;
Submit button;

② Functional flow diagram means flow of our task this flow shows relationship between the task it gives proper sequence of task.

→ functional flow diagram is actually a stepwise representation of software. ex:- facebook.



③ Use cases :- It is the functionality in terms of I/P & O/P.
A use case is a tool for defining the required user interaction
use case plays a significant role in the distinct phases of the SW development life cycle.

Use case depends on 'user actions & Response of system' to the User action.

* include :- Registered

* Exclude :- Not register.

④ Snap Shot :- Snapshot are created by BA people using Iraise Software. It gives idea to developer that how SW suppose to look like.

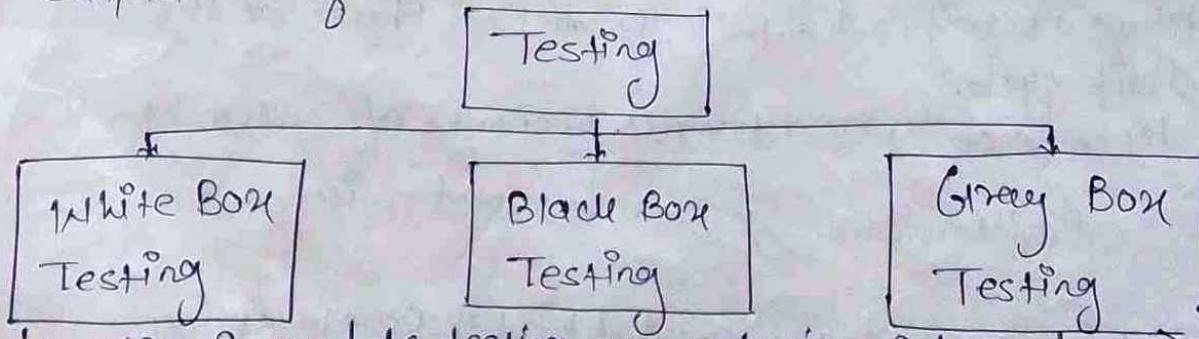
→ visualization of functionalities.

- ③ Design :- In this phase the system & SW design are prepared as per the SRS document this helps define or box X/ upon one function tester test etc.
- * There are two kinds of design documents developed in Phase HLD & LLD.
 - * HLD (High level Design) :-
 - ① HLD design is the general S/W design means it refers to the overall system design.
 - ② It includes relation & dependency of the main modules.
 - ③ Created by design architecture - * LLD (Low level design) :-
 - ① LLD is like detailing means it refers to component level design process.
 - ② It's design for working of sub-module.
 - ③ Created by front end developer

④ Coding :- In this phase developers start build the entire system by writing code using the chosen programming language. In this phase, tasks are divided into units or modules & assigned to the various developers.

⑤ Testing :- To verify the app's functionality to deliver quality product to the customer without having any issues.

→ Software testing is a process to identify the correctness & completeness of the SW.



↳ WB/T is used to testing SW solutions internal structure, design & coding developer are using this testing to check the coding structure, so it is also called dev. testing.

→ clear box testing / code level testing / coder check only +ve scenarios

* Boundary Testing :- In BBT tester check internal functionality & depend upon external functionality it is also known as sim function testing.
 → Tester test +ve as well as -ve scenario

Ex:- 10 digit No.

Tester check field functionality by entering 10 digit No. whether it work or not.

Ex:- 9 digit NO.

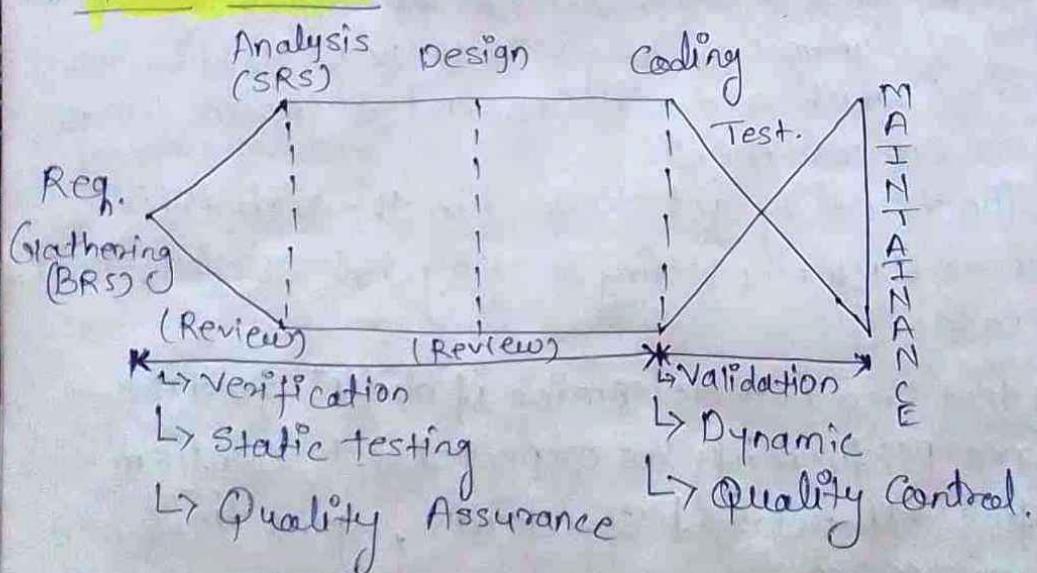
Not accept 9 or less & more than 10 digit
 tester check sim by entering less than 10 digit & more than 10 digit.

* Grey Box Testing :-

GBT is combination of WBT & BBT.

⑥ Maintenance :- Maintenance means provide service after delivery of the Project.

* Fish Model



* fish model is advance version of the SDLC

* fish model consist of verification & validation

Reg. gathering process Analyst gathering all the information from the cust. & make the BRS

→ Then BRS doc. BA make SRS doc.

→ verification :- (Dev) S/W add b/w diff.

- * verification process is also called as quality assurance.
- * It is also called as static testing.

imp * static testing is a software testing technique which is used to check defects in S/W appn without executing the code.

- * static testing is done to avoid errors at an early stage of development as it is easier. It also helps finding errors that may not be found by dynamic testing.

* static testing is the review process.

↳ A review is a systematic examination of a document by one or more people with the main aim of finding & removing errors early in the software.

→ validation :- S/W Working properly.

- * validation process is known as quality control.

- * validation is also called as dynamic testing.

imp * dynamic testing is a software testing method used to test the dynamic behaviour of software code.

→ * The code must be executed in order to test the dynamic behaviour.

→ * The main purpose of dynamic testing is to test S/W behaviour with dynamic variables which are not constant & finding weak areas in S/W run-time environment.

* Whole software functionality get checked in the validation process. It includes black box testing & gray box testing.

* Why we use test cases?

→ The purpose of a test case is to determine if diffnt features within a system are performing as expected & to confirm that the S/W satisfies all related standards, guidelines & customer requirement.

Software testing?

Software testing is the process of evaluating and verifying what a software product or application does (what it is supposed to do).

(OR)

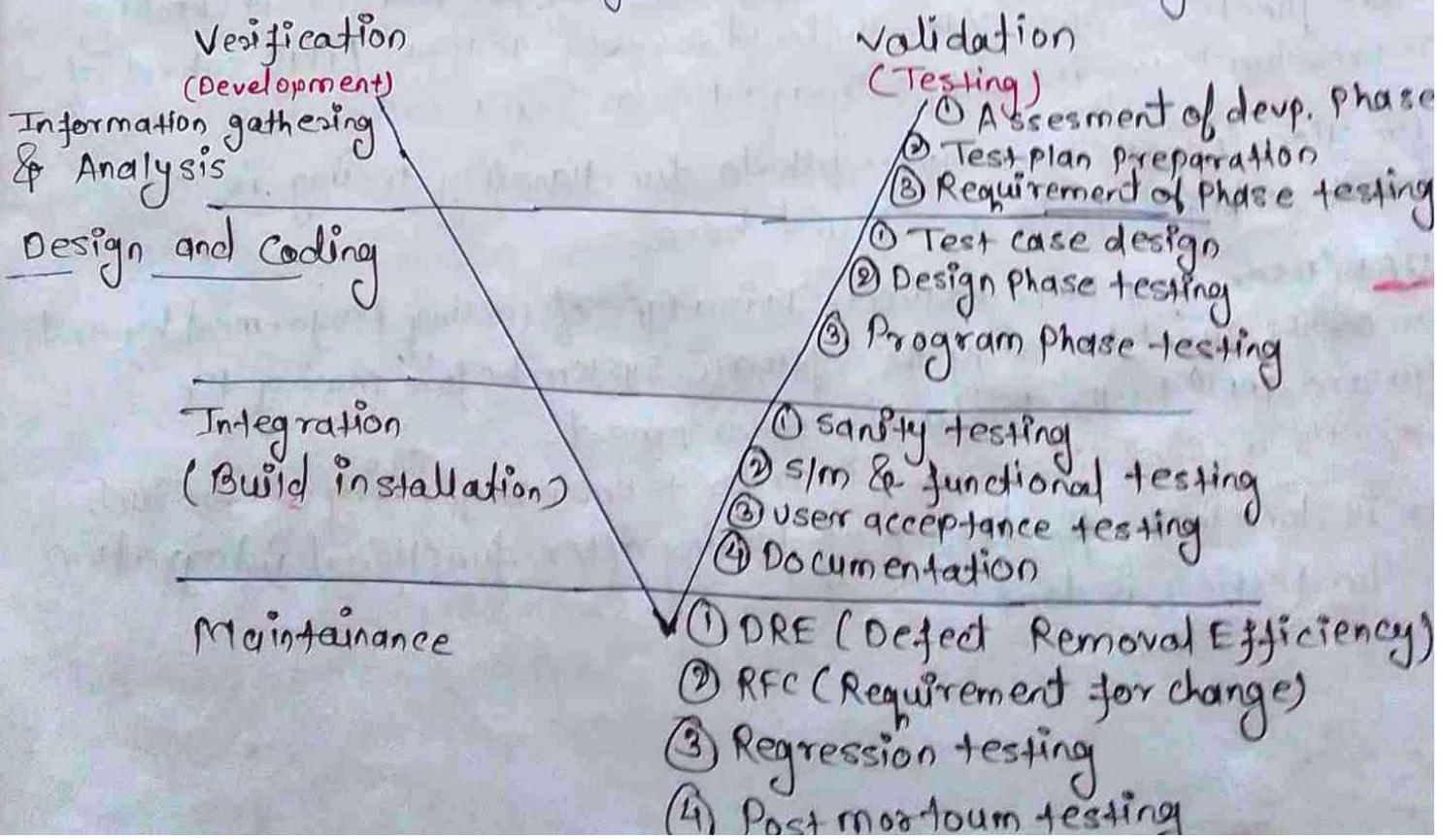
Software testing is the process of verifying a system with the purpose of identifying any errors, gaps or missing requirement versus the actual requirement.

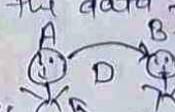
(OR)

To verify the application functionality to deliver quality Product to the customer without having any issues/ bugs.

* V-Model

- V-model is combination of verification & validation in which developer stage is verification & testing stage is validation so both are running parallelly.
- In V-model development stages are mapped with testing stages.



- We have information gathering and analysis
* Assessment of development phase it includes test initiation i.e. PM (Project manager) creates test strategy and test methods, also the analysis of TRM is done (Test Responsibility matrix). TRM (Test responsibility matrix) document, test cases, test cases, Octed code, Octed test cases.
- * Test plan preparation includes implementation of TRM, PM allocates job, Resources & estimation.
- * Requirement Phase testing includes testing of modules for ex 5 to 6 modules.
- Design & Coding
- * Design phase testing here I&BT tester are involved for designing & coding the application.
- * Program Phase testing so developers are involved in coding part if there is any problem developer solve that.
- * Test case design here two scenario are considered for designing the test cases it's a kind of black box testing.
- Integration / Build installation - Testing the data flow b/w two modules is called integration testing. 
- Sanity testing verify the new functionality like bug fix or checking core functionalities after the build is ready to test. It is subset of regression testing it verify only a particular component.
- Functionality & S/m testing - Inhole functionality testing is done small to big defects are found here.
- UAT (User acceptance testing) - It is a type of testing performed by end user or the client to verify the software system before moving the software appn to the production environment.
- * It's a client side testing in order to ensure quality of Product. UAT is done in the final phase of testing after functional integration & S/m testing, is done.

Documentation it involves daily status report, weekly report
also test summary is shared to the client.

Maintainance

DRE (Defect Removal Efficiency) here we check at which level the tester tests the application.

$$DRE = \frac{A}{A+B}$$

A = Defect found by tester

B = Defect found by client during UAT

* RFC (Request for change)

It is a CR (change request) documentation in SRS for the changes that customer want into the appn?

* Regression testing

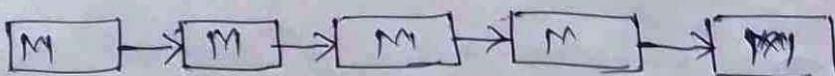
(Regression testing is carried out to confirm whether a recent program or code change has not adversely affected an existing feature. Regression testing is a subset of sanity testing after sanity we do perform regression testing.)

Regression testing is a type of slow testing executed to check whether a code change has not unfavorably disturbed current feature & functions of the appn.

* Post Mortem testing! - (order capture engine)

If a product is ready for production & a bug is detected from which desired output is not produced then WBT tester checks all the modules in details.

Ex:-

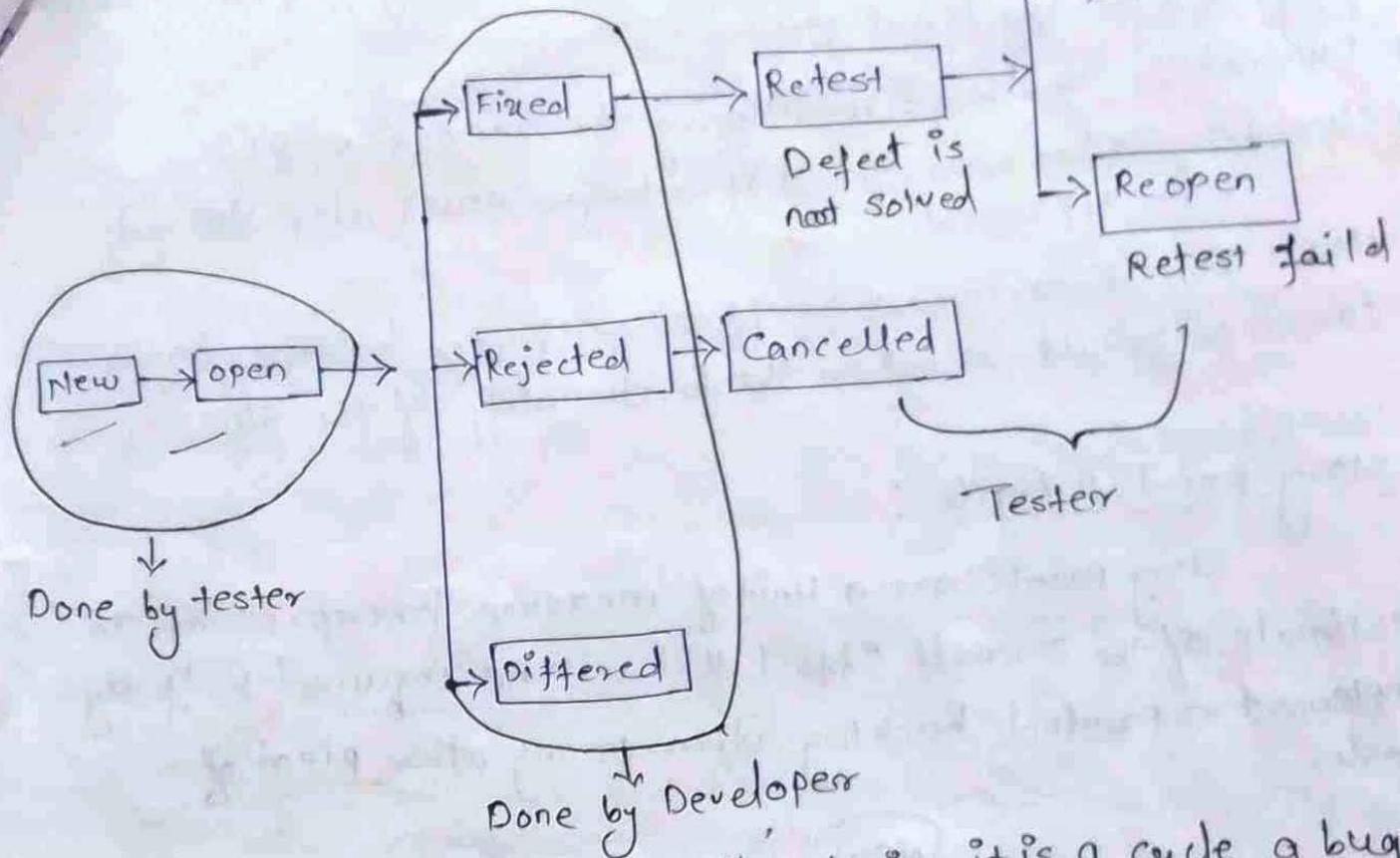


यो एंड-टो-एंड टेस्टिंग O/P नहीं मिलता

if desired O/P is not obtain at that time do all testing modules in details.

suits :- set of test cases execution.

life cycle diagram :- IMP



A bug is an error in the application ~~during~~ it is a cycle a bug passes through during its life open. This file involve from logging & posting to the closing of the bug.

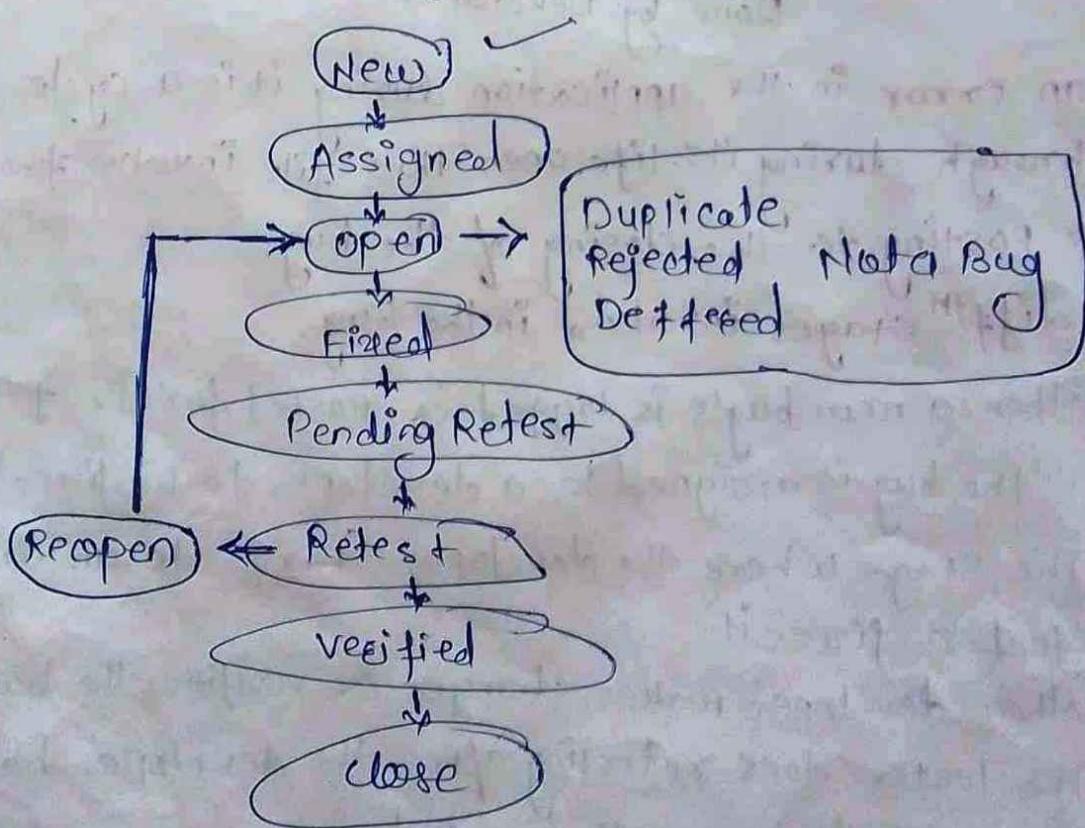
There are diffn stages involved in the bug.

- * New :- When a new bug's is logged & posted for the 1st time.
- * Assigned :- The bug is assigned to a developer to be fixed.
- * Open :- The stage where the developer starts to analyze the defect & fixes it.
- * Fixed :- When developer makes changes & verifies the bug.
- * Retest :- The tester does retesting after the developer has done the required changes in the code

- * Reopened :- if the bug did not get fixed
- * Preferred :- if involved the scheduling of the bug's next testing.
- * Rejected :- if developer did not accept the bug. / If the developer finds that the bug is not genuine.
- * Duplicate :- Two bugs mentioning the same concept.
- * Closed :- It has been fixed if no longer exist also tested & approved.
- * Not a bug / Enhancement :- if changes happen because of a customer request & not on the functionality of the SW.

* Story point in Agile :-

Story points are a unit of measure for expressing an estimate of the overall effort that will be required to fully implement a product backlog item or any other piece of work.



Smoke Testing

Smoke testing is performed by the developer or tester.

Smoke testing is usually documented or scripted.

* Smoke testing is a subset of Acceptance testing.

④ smoke testing exercises the entire system from end to end.

⑤ smoke testing is like General Health checkup.

Sanity Testing

① Sanity testing in software testing is usually performed by testers

② Sanity testing is usually not documented and is unscripted.

③ Sanity testing is a subset of Regression Testing.

④ Sanity testing exercises only the particular component of the entire system.

⑤ Sanity testing is like specialized health check up.

* Parameter

SDLC

origin - Development life cycle

The main object of SDLC life

objective - cycle is to complete successful development of the software

including testing & other phases

Requirement Gathering - In SDLC the business analyst gather the requirement & create development plan.

High & low-level design - In SDLC, the development team creates the high & low-level design plan.

Coding - The real code is developed & actual work takes place as per the design documents.

SDLC phase also includes post-deployment supports & updates.

STLC

Testing life cycle

The only objective of the STLC phase is testing.

In STLC, the QA team analyse requirement documents like functional & non functional documents & create test plan.

In STLC, the test analyst creates the integration test plan.

The testing team prepares the test environment & executes them.

Testers execute regression & usually automation scripts to check maintenance code deployed.

Validation

Req
The purpose
changes,
sides

Verification

- ① It includes checking documents, design code & programs.
- ② Verification is the static testing.
- ③ It does not include the execution of the code.
- ④ Methods used in verification are reviews, walk through, inspections and desk checking.
- ⑤ It checks whether the software conforms to specifications or not.
- ⑥ It can find the bugs in the early stage of the development.
- ⑦ The goal of verification is application & software architecture & specification.
- ⑧ Quality Assurance team does verification.
- ⑨ It comes before validation.
- ⑩ It consists of checking of documents / files & is performed by human.
- ① It includes testing & validating the actual product.
- ② Validation is the dynamic testing.
- ③ It includes the execution of the code.
- ④ Methods used in validation are Black Box testing, white Box testing & non functional testing.
- ⑤ It checks whether the software meets the requirement & expectation of a customer or not.
- ⑥ It can only find the bugs that could not be found by the verification process.
- ⑦ The goal of validation is an actual product.
- ⑧ Validation is executed on software code with the help of testing team.
- ⑨ It comes after verification.
- ⑩ It consists of execution of program & is performed by computer.

Regression Testing

The purpose is that new code changes should not have any side effects to existing functionalities.

- ① Re-testing is done on the basis of the Defect fixes.
- ② Defect verification is not the part of Regression Testing.
- ③ You can do automation for Regression testing.
- ④ Regression testing is known as a generic testing.
- ⑤ Regression testing is done for passed test cases.
- ⑥ Regression testing checks for unexpected side effects

* Regression Testing :-

→ Regression testing is carried out to confirm whether a recent program or code change has not adversely affected an existing features.

→ Regression testing is a type of S/W testing executed to check whether a code change has not unfavorably disturbed current features & functions of the application.

* Retesting :- Retesting is a process to check specific test case that are found with bug in the final execution.

Re-testing

- ① Re-testing is done on the basis of the Defect fixes.
- ② Defect verification is the part of re-testing.
- ③ You cannot automate the test cases for Re-testing.
- ④ Re-testing is a planned testing.
- ⑤ Retesting is done only for failed test cases.
- ⑥ Retesting makes sure that original fault has been corrected.

~~Functional~~ Parameters

Functional

Execution ① It is performed before non-functional testing.

Focus Area ② It is based on customer's requirement.

Requirement ③ It is easy to define functional requirement.

Usage ④ Helps to validate the behavior of the application.

Objective ⑤ carried out to validate software action

Requirement ⑥ Functional testing is carried out using the functional specification.

Manual testing ⑦ Functional testing is easy to execute by manual testing.

Functionality ⑧ It describes what the product does.

Example ⑨ check login functionality

Test Case Types Testing
→ ⑩ Ex:- * Unit testing
* Smoke testing
* User Acceptance
* Integration testing
* Regression testing
* Localization
* Globalization
* Interoperability

Non-Functional

① It is performed after the functional testing.

② It focuses on customer's expectation.

③ It is difficult to define the requirement for non-functional testing.

④ Helps to validate the performance of the application.

⑤ It is done to validate the performance of the software.

⑥ This kind of testing is carried out by Performance specification.

⑦ It is very hard to perform non-functional testing manually.

⑧ It describes how the product works.

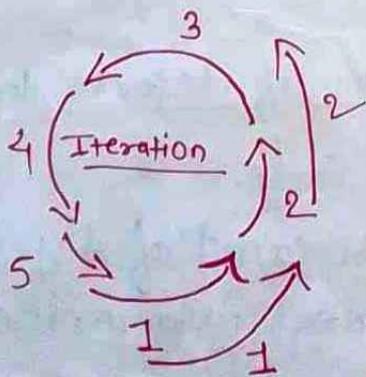
⑨ The dashboard should load in 2 seconds.

⑩ Ex:- * Performance testing
* Volume testing
* Scalability
* Usability testing
* Load testing
* Stress testing
* Compliance testing
* Portability testing
* Usability testing

Agile Testing

- In agile testing, testing is performed alongside the development.
- ① In agile testing, development team and testing team work together.
 - ② In agile testing, testers are involved in the requirements.
 - ③ In agile testing, acceptance testing is carried out after every iteration.
 - ④ In this regression testing is carried out after every iteration.
 - ⑤ In agile testing, there is no time delays between coding & testing.
 - ⑥ In agile testing, different testing levels overlap.

Agile :-



Waterfall Testing

- ① In waterfall testing, testing is carried out only after the completion of development.
- ② In waterfall testing, development team and testing team work separately.
 - ③ In waterfall testing, testers may or may not be involve in the req.
 - ④ In waterfall testing, acceptance testing is carried out only in the end.
 - ⑤ Regression testing is carried out only in the end.
 - ⑥ In waterfall testing there is normal time delays between coding & testing.
 - ⑦ In waterfall testing, testing levels can't overlap.

* Load Testing :- Load testing is a type of performance testing which determine the performance of a system, software product or software application under real life based load conditions.

* Stress Testing :- Stress testing is a type of software testing that verify the stability & reliability of the system. This test particular determines the system on its robustness & error handling under extremely heavy load conditions.

- (1) Load testing is performance testing
- (2) Stress testing ensure the system security.
- (3) It determines the operating capacity of a system or application.

Defect Density :- (Defect density is the number of defects found in the software product per size of the code.)

- * Defect density metric is different from the count of defects metric as the latter does not provide management information.
- * Defect density metric not only indicates the quality of the product being developed, but it can also be used as basis for estimating a number of defects in the next iteration or sprint. It can be defined as the number of defect per 1000 lines of code or function points.

Defect Density = Total Number of defects / Total Lines of Code

* Defect density has its own pros and cons. A QA manager needs to thoroughly understand these metrics before using it as a benchmark. It is recommended to use a tool to calculate the defect density else it might become labour intensive.

* It is useful in comparing similar projects. However the metric can be misleading if the complexity of the code is not considered, as different part of the code have a different degree of complexity.

→ Bug is included by default defect must be a customer issue type. When I've used those, a bug was a standard issue type & represented bug reports. A defect was a sub-task type and was used when the manual QA team found a bug in a story or feature. We can only guess why it's implemented in your system.

"A mistake in coding is called Error, error found by tester is called Defect, defect accepted by development team then it is called Bug, build does not meet the requirements then it is failure."

In other words defect is the difference between expected and actual result in the context of testing.

* Defect Leakage is the metric which is used to identify the efficiency of the QA testing i.e.

How many defects are missed / slipped during the QA testing

Defect leakage = (No. of Defects found in VAT / No. of Defects

found in QA testing)

* Alpha Testing :- is a type of software testing performed ^{internal UAT}

to identify bugs before releasing the product to real users or the public. Alpha testing is one of the user acceptance testing.

* Beta Testing :- is performed by real users of the software application in a real environment beta testing is one of the type of user acceptance testing, (external UAT)

Alpha Testing

Beta Testing

- 1) Alpha testing involves both the white box and black box testing.
 - 2) Alpha testing is performed by testers who are usually internal employee of the organization.
 - 3) It is performed at developer's side.
 - 4) Reliability and security testing are not checked in alpha testing.
 - 5) Alpha testing ensure the quality of the product before forwarding to beta testing.
 - 6) Alpha testing require a testing environment or a lab.
 - 7) It may require long execution cycle.
 - 8) Developers can immediately address the critical issues or fixes in alpha testing.
 - 9) To evaluate the quality of the product.
- 1) Beta testing commonly uses black box testing.
 - 2) Beta testing is performed by clients who are not part of the organization.
 - 3) Beta testing is performed at end-users of the product.
 - 4) Reliability, security and robustness are checked during beta testing.
 - 5) Beta testing also concentrates on the quality of the product but collect users input on the product and ensure that the product is ready for real time users.
 - 6) Beta testing doesn't require a testing environment or lab.
 - 7) Beta testing requires only a few weeks of execution.
 - 8) Most of the issues or feedback collected from beta testing will be implemented in future versions of the product.
 - 9) To evaluate customer satisfaction.

Agile methodology :-

The agile methodology is a way to manage a project by breaking it up into several phases. It involves constant collaboration with stakeholders and continuous improvement at every stage. Once the work begins, teams cycle through a process of planning, executing & evaluation.

- It is module driven methodology.
- Requirements are changing frequently in the agile methodology.
- In agile methodology customer can request for changing in requirement at any point of development phase.

* Agile meetings / ceremonies :-

① Sprint Planning meeting :- Involved - Project owner -
Developer Team -
→ In this task assigning and setting Testing Team -
dead lines are carried out.

② Scrum meeting / Daily standup meeting :-

Involved:- Scrum master
→ This meeting duration is whole Team -
15-30 min in this meeting each team member share his progress about the allocated task. / Each team member has to share what they have completed yesterday & what they are going to accomplish today.

③ Sprint review meeting :-

This meeting held at the end of each sprint. / it is review of the work

Completed by the team to the Product owner & other stake holder of the team.

The actual goal of this meeting is to gather feedback.

④ sprint Retrospective meeting :-

This meeting is held at the end of each sprint.

In this only scrum team is involve in this we address the questions.

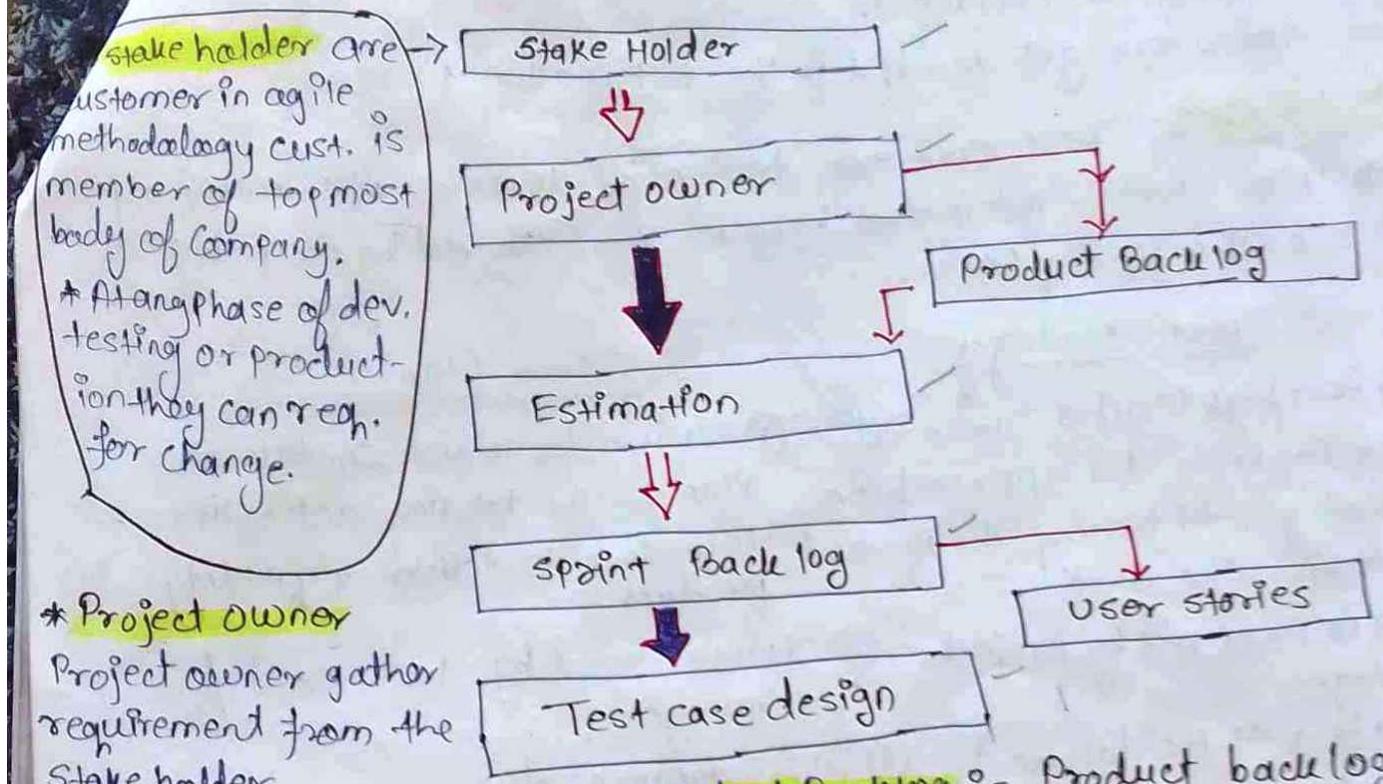
- ① what went well in the sprint?
- ② What went wrong?
- ③ What are the improvement?

* Agile Process :- IMP interview point of view

- * PO (Project owner) gathers requirements from stakeholders.
- * PO prepares the product backlog.
- * Then sprint planning meeting.
- * Selecting stories for the sprint.
- * Sprint cycle will be created
- * Estimation will be done.
- * Then PO will add the Story Points in the Rally tool.
- * We will pick the stories from the sprint.
- * Developer and QA will create the task.
- * Daily scrum meeting.
- * The task will be completed between the sprint duration.
- * After completion of all this we have sprint review meeting and sprint retrospective meeting.

* sprint :- A sprint is a short, time-based period when a scrum team works to complete a set amount of work.

Architecture of Agile methodology.



* Project owner

Project owner gather requirement from the Stake holder.

- * PO is team member of sprint planning meeting.
- * PO is responsible for creating project backlog.

- * Estimation :- In the agile method, the focus is on module base release.
 - so all the req. are not of any use for specific module.
 - So to decide req. among the all requirement estimation is done.
 - People involved :- PO, Dev. lead, Test lead.
 - Estimation is also called sprint planning meeting.
 - Estimation is the process of how to deal with problem when obstacle come
 - There are Three factors in the estimation.

- ① Knowledge
- ② Efforts
- ③ Complexity

- * Sprint Backlog :- Sprint backlog created by the Project owner
sprint backlog contains user story. Sprint backlog contain detail information of the requirements which are require for module development.

1 sprint = 15 days

* User Story :- User story are the functional requirements of the module development.

User stories are get decided in the estimation phase.

* Test cases :- Test case are design by testers & it is mapped with user stories. This is done because there should be no point left behind in testing phase.

Test Strategy

- ① It is a high level documentation which captures the approach on how we go abt testing the product & achieve the goals.
- ② It is prepared by project manager
- ③ It is a static document.
- ④ It is derived from BRs
- ⑤ It is defined at org. level.

Test Plan

- ① It is a doc which contain the plan for the testing activities to be done to deliver a quality product.
- ② It is prepared by test lead / Test manager.
- ③ It is dynamic doc.
- ④ It is derived from SRS
- ⑤ It is defined at Project level.

Components - RTM, test matrices reporting tools, test summary report, first list & mitigation

→ Agile is an iterative approach of SDLC development methodology using short iterations of 1 to 4 weeks.

* Adv. of Agile

- Creativity & innovation
- Time to market
- Improved Quality
- Customer satisfaction
- Flexibility & adaptivity

Test deliverables, features hat to be tested, Pass / fail

* Disadvantages

- Poor resource planning
- Limited documentation
- Fragmented O/P
- No finite end
- Difficult Measurement

User story :- A user story is a tool used in Agile to capture a description of a software feature stories from an end user perspective.

- The user are the requirements. Whenever stakeholder gives requirements to product owner, those requirement are for whole product.
- In estimation, sprint planning meeting member decide which module to develop & those modules requirements. The sorted requirement are include in the sprint backlog. Those user stories are functional requirements for module to be development in 1 month.
- * User stories consist of two parts

① Description

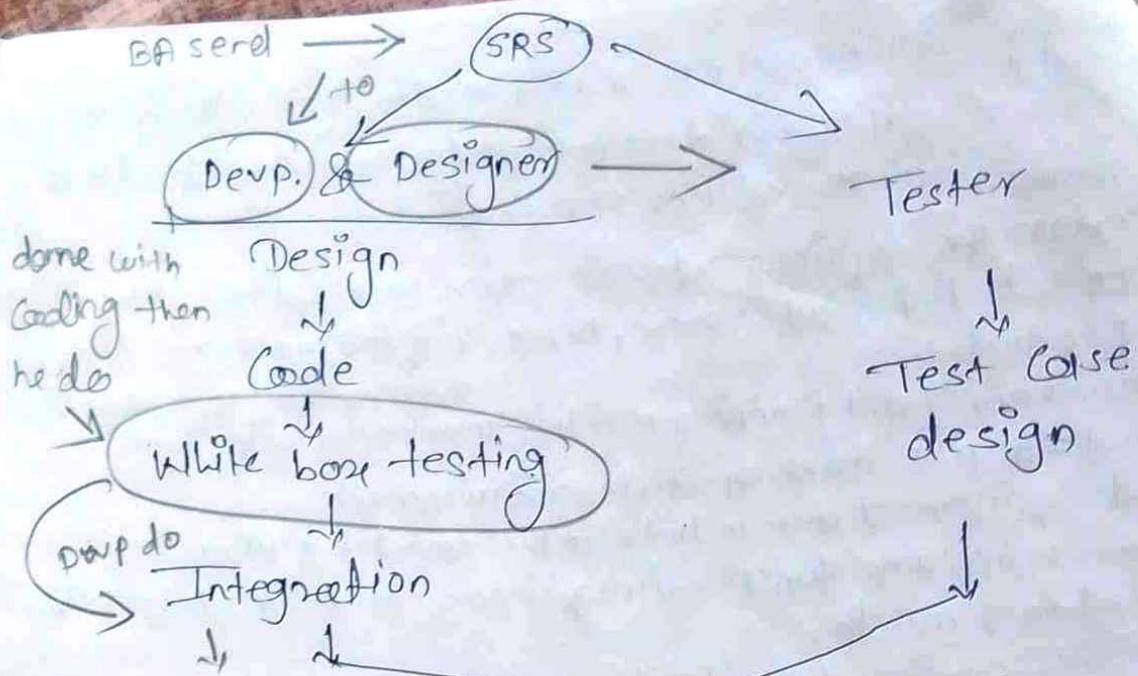
↓
It is the description about what user want to do (process) & what is his desired o/p

② Acceptance criteria

↓
These are the scenarios when these scenarios are true then system generate correct o/p otherwise s/m shows failure

* Integration Testing :-

- * Integration testing is executed by testers & tests integration between software modules.
- * Integration testing is defined as the testing of combined parts of an application to determine if they are working correctly.
- * Integration testing performed after Unit testing.
- * It is a software testing technique where individual units of a program are combined & tested as a group.
- * The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated.



It is the process of mapping new module with the old module.

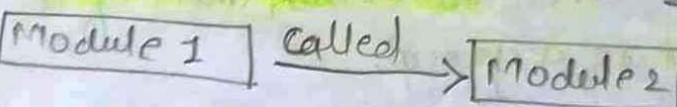
→ Integration testing is the process to check correctness & completeness of the flow of functionality whenever integration of module performed.

* Integration Types *

① Front end Int.

Devp connect modules

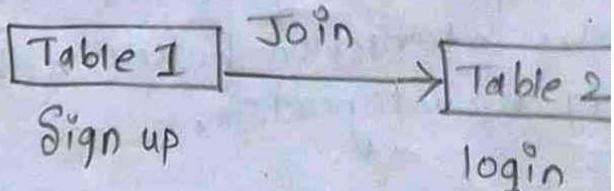
using "called function"



Communication b/w two modules proceed through XML language.

② Back end Integration

It includes connecting two or more tables in database using Join Query

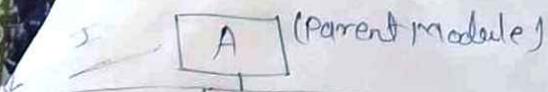


Testing Approaches

Top down approach

② Bottom up approach

③ sandwich
(Bidirectional)
approach



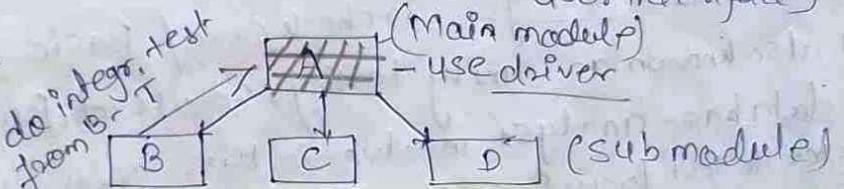
As a stub we use stub in submodule

* If we have to do integration testing & we have developed module but don't have next module from which we can check correctness of new module.

* In this case we use dummy module. Dummy module is created from STUB.

* STUB is dummy program created by developer STUB is in XML format
→ To check stub we use SOAP UI (Simple object access protocol user interface)

② Bottom up approach →



* If we have sub module from but do not have main module

Then in that case we use bottom up approach.

* To check sub module, developer create dummy main module. developer first create program called "Driver" this driver programs are in XML language.

③ Bidirectional approach →

* When developer want to check functionality of main module but don't have sub module then developer uses stub program.

* When developer want to check functionality of sub module but don't have main module then developer uses driver program.

* In bidirectional approach both type of testing use by developer.

* Smoke Testing :-

- It's a software testing technique performed post SW build to check that the critical functionalities of SW are working fine. It is also called smoke testing before regression testing.
- * Smoke testing is a subset of acceptance testing smoke testing is documented. Smoke testing verifies the entire system from end to end.
- * The main purpose of smoke testing is to reject build with defect so that QA team will not waste defect time testing broken SW application. Smoke testing has a goal to verify stability of the build it done by both tester as well as developers.
- * Back end developer is involved. It is advanced version of sanity testing.

* zero level Testing :- To check core/ Basic functionality.

It also known as sanity testing, zero level, Built verification testing & database analyst involve in this. In this test, tester test button Tester do test for ① Basic core functionality - icons from which user can process for next stage.

② Tab validation →

* it involve functioning of Tab.

* Whenever we enter any value in tab, by using on screen keyboard or physical keyboard, those char, number symbol should get entered in tab.

→ link validation is the process in which seq. of interactive pages get tested.

* Sequence means if user click on flight icon then flight informative page should open. developer give link of that page to the icon so this link go validate in link validation.

This testing is called as navigation testing.

"कृतार्थ समय"

I Testing :- GUI is a graphical user interface testing in which testee finds the defects in user interface.
→ It checks whether user interface is looking as expected & meet the specification.

* System Integration testing :-

- * SIT is a process of checking completeness & correctness of functionality of the system as per SRS or user's requirement.
- * SIT also known as system & function testing. It is black box test. It check internal functionality depend upon external functn.
- SIT & functional testing includes.
- ① Functional testing } 95% ③ Security testing } 5%
- ② Usability testing } ④ Performance testing }

① Functional Testing :-

- * Functional testing is the process of checking correctness & completeness of the functionality of the build. Or checking internal functionality depend upon external functionality. In this process execution of test cases are done.
- It include ① functional Testing & ② Non-functional testing.

- We check internal functionalities. → Process of checking external functn?
- A) Behavioral coverage
 - B) IP domain coverage.
 - C) Error handling coverage
 - D) Back end coverage
 - E) Service level coverage
 - F) Calculation base coverage

- B ① Recovery Testing,
- T ② Compatibility testing.
- E ③ Configuration testing.
- S ④ Inter system testing.
- C ⑤ Installation testing.
- G ⑥ Globalization testing.
- ⑦ Sanitation testing.
- ⑧ Parallel testing.

(A) Behavioral coverage :-

In this we check property & behaviour of objects
ex:- Sign in google account.

→ Property of text box :- accept user I/P

Behaviour of text box :- Focus & Non focus

Property of checkbox :- Do tick when user click.

Behaviour of checkbox :- check / uncheck

Behaviour of dropdown :- show hidden list on click

Property of dropdown :- to show hidden list

Behaviour of dropdown :- show / hide list

(B) I/P domain coverage :-

* It checks the size & type of input object | In this we have to maintain boundary value analysis

* check valid as well as invalid data. | Equivalence class.

→ Mobile number - text box should accept 10 digits

BVA

size
min = 10 ✓
max = 10 ✓
min-1 = 9 ✗
min+1 = 11 ✗
max-1 = 9 ✗
max+1 = 11 ✗

ECP

Valid	Invalid
0-9	a-z
	A-Z
	special sim
	space (-)

(C) Error handling coverage :-

* Check whether the error message displays or not

(D) Back end coverage :-

All the data saved in the application should be saved in the database using SQL.
We also check whether data get fetch from database or not.

Service level coverage :-

check the order of functionality, sequential functionality

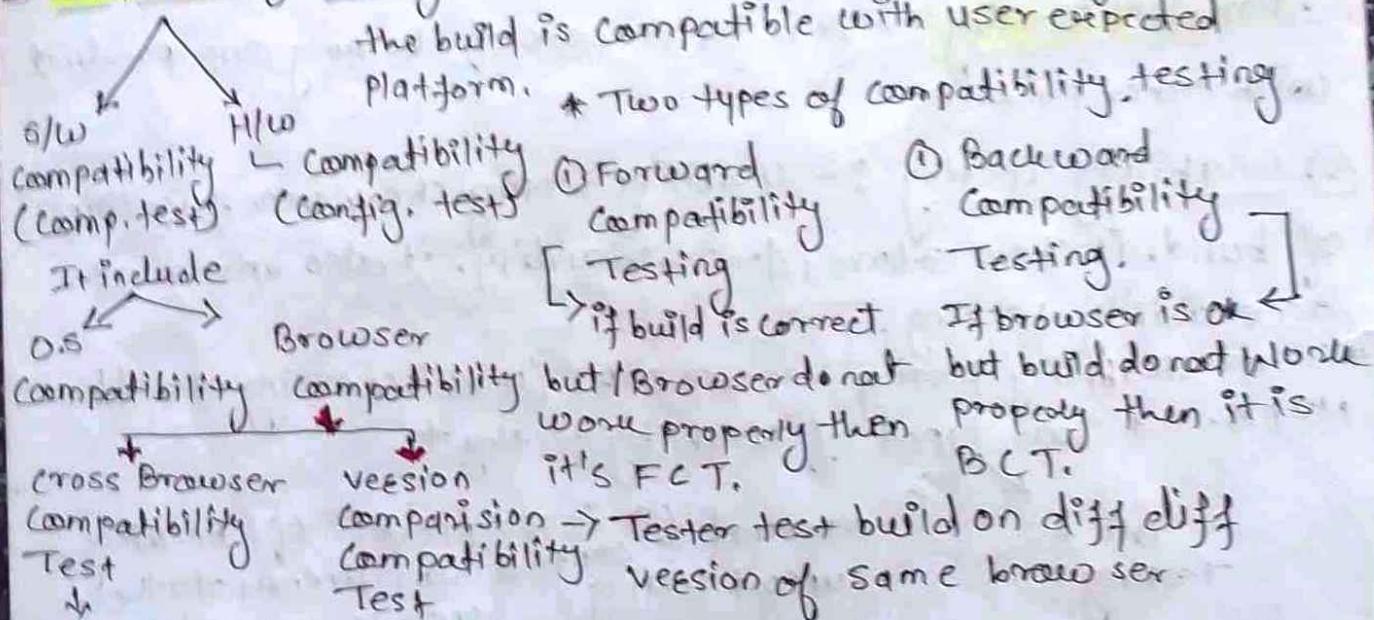
Calculation base coverage :-

To check the arithmetic operations like addition, subtraction multiplication, division.

① Non-Functional Testing :-

① Recovery Testing :- Process of checking whether S/W is able to recover from abnormal situation to normal sit.

② Compatibility Testing :- It is the process of checking whether the build is compatible with user expected platform. * Two types of compatibility testing.



③ Configuration Testing :- It is the hardware compatibility testing. It is the process of checking whether one app can work on diff hardware or not.

- (4) Inter System Testing :- It is the process of checking whether one application shares data with others appn.
- (5) Installation Testing :- It is the process of checking installation of one build with existing software into user's expected platform.
- (6) Globalization Testing :- It is the process of checking whether application supports different languages or not.
- (7) Sanitization Testing :- Sanitization testing is the method in which we test or check for extra features which are not mentioned in the customer requirement.
- (8) Parallel Testing :- It is the process of checking our product with other products.
- (9) Usability Testing :- Usability testing checks user friendliness of build. It checks colors, fonts, visuality. It is also known as accessibility testing.
- * To do usability testing we use WAT (Web accessibility toolbar), NVDA.
- * Two types of usability testing
- GUI Testing
 - Manual (It is the process of checking support testing context sensitivity to the user's manual & I.P.)
- (3) Security Testing :-

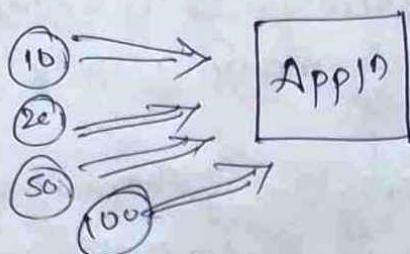
It is a process of checking privacy related to user operation.

- Types :-
- ① Authorisation → Person is auth. or not
 - ↳ Auth. person is reg. person
 - ② Access Control → Auth. person has per. to access specific op.
 - ③ Encryption & Decryption

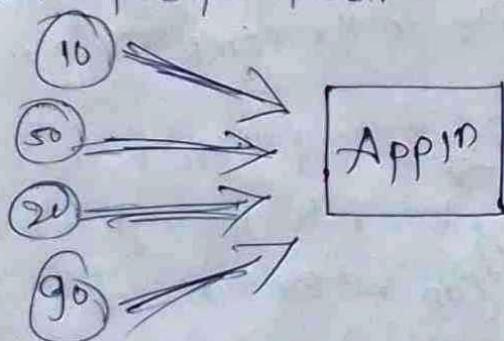
Performance Testing :-

It is a process of checking speed of processing of our build.
Performance test engg / ETL involved.
We use JMeter / load runner tool.

① Load Testing :- In this testing we check how the application behaves gradually increasing the load on the application.



② Stress Testing :- In this testing we check how the app behaves under specific load.



* Epic :- A software feature defined by a customer & itemized in the product backlog is known as epic. The subdivisions of Epics are known as stories.

* Task :- The user stories are further broken down into various tasks.

* User Stories :- User stories are prepared according to the client's perspective such as Project or business func & delivered in a particular sprint.