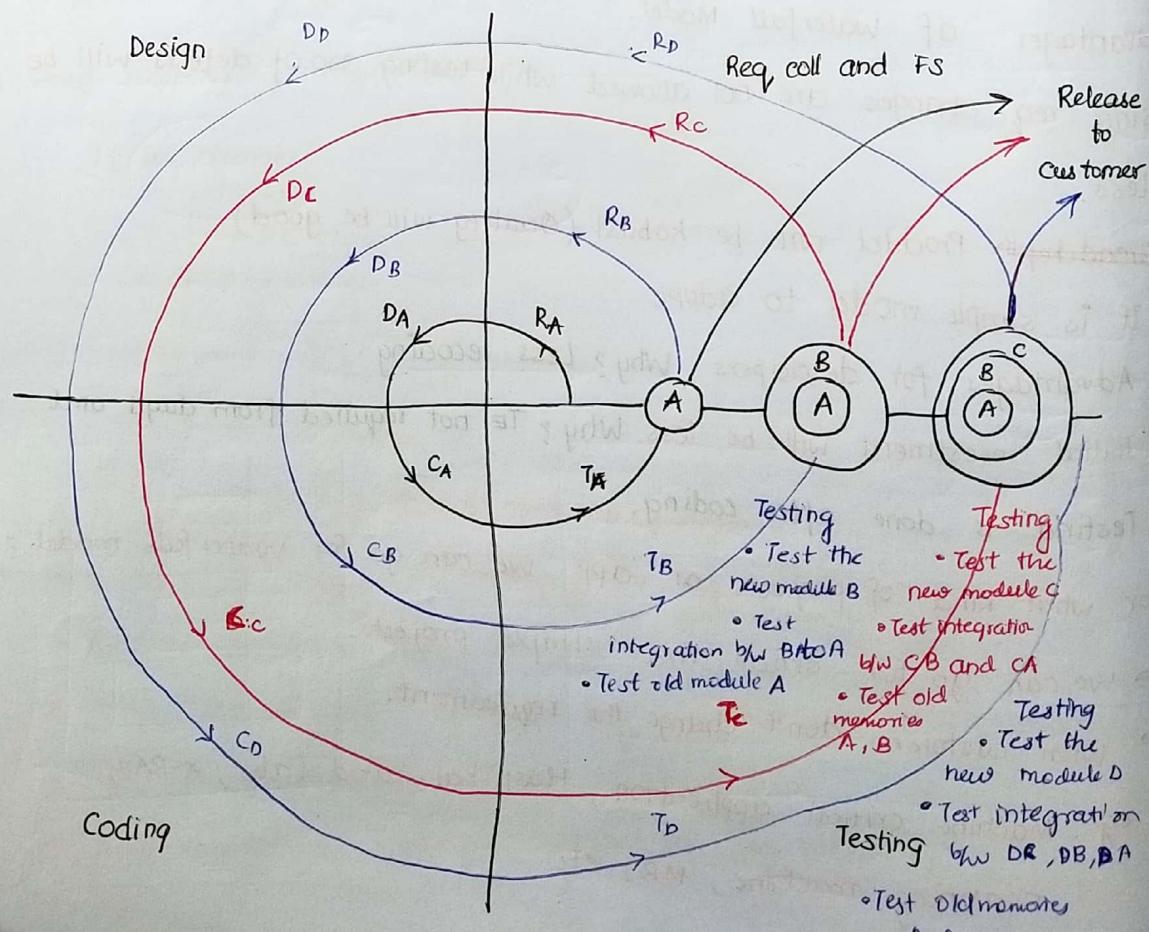
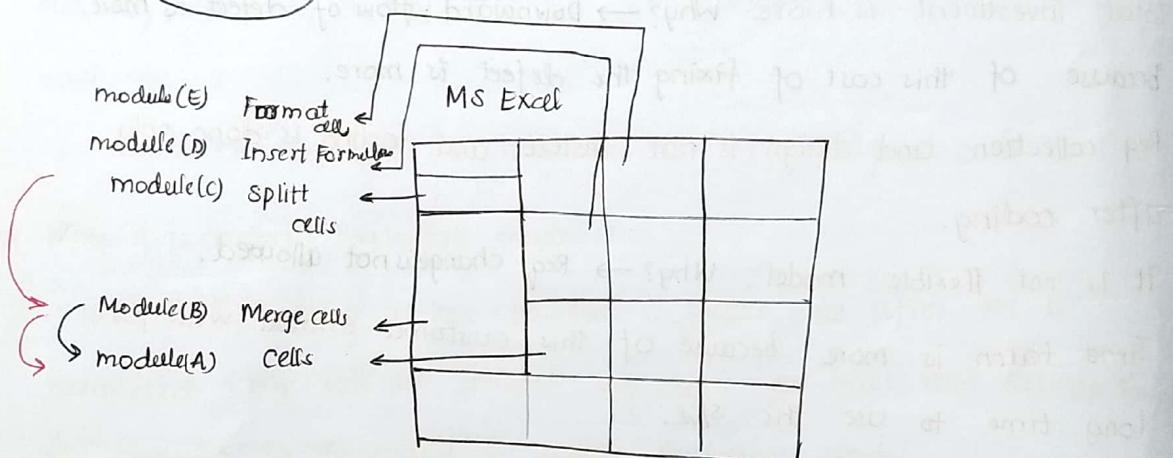
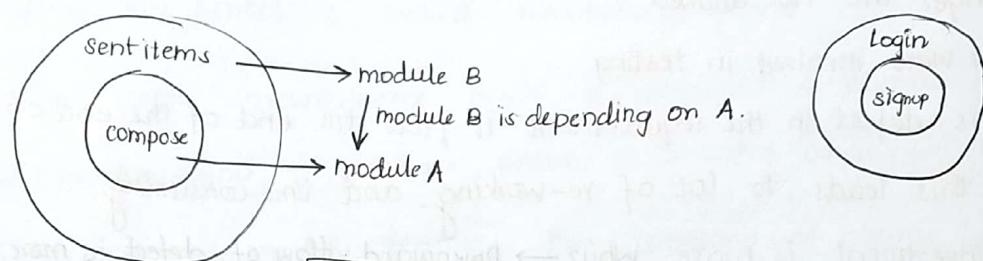


## Spiral Model

Spiral model is a step by step procedure or std procedure to develop a new software. In order to overcome drawbacks of Waterfall model, we go for spiral model. spiral model is mainly used when there is dependency b/w the modules or features or functionalities.

e.g. for dependency.

e.g:



## Module A.

Customer will give req for module A, BA will do requirement collection for module A and the same phase FS will be done. Architects will do design for module A [HLD and LLD]. Dev will do coding for module A and give the s/w [module A] to TE and TE will test module A. While Testing, if you find any defect company communicate to dev, dev will fix the defect and give new software. TE will uninstall old s/w, install new s/w and test the defect first and continue testing module A. Once after testing is completed we will release module A to the customer.

## Module B.

Customer will give req for module B. ~~BA~~ customer will tell B depends on A. BA will do requirement collection for module B and in the same phase FS will be done. Architects will do design for module B [HLD, LLD]. Dev will do coding for module B and give the s/w to TE, TE will

- Test new module B
- Test integration b/w B and A
- Test old module A.

Once after the testing is completed we will release module A and B to the customer.

? Why spiral model is called Interrelative model?

In every cycle, same process is repeated so the model is called interrelative model.

? Why the model is called incremental model?

In every cycle, we keep on adding new module, so the model is called incremental model.

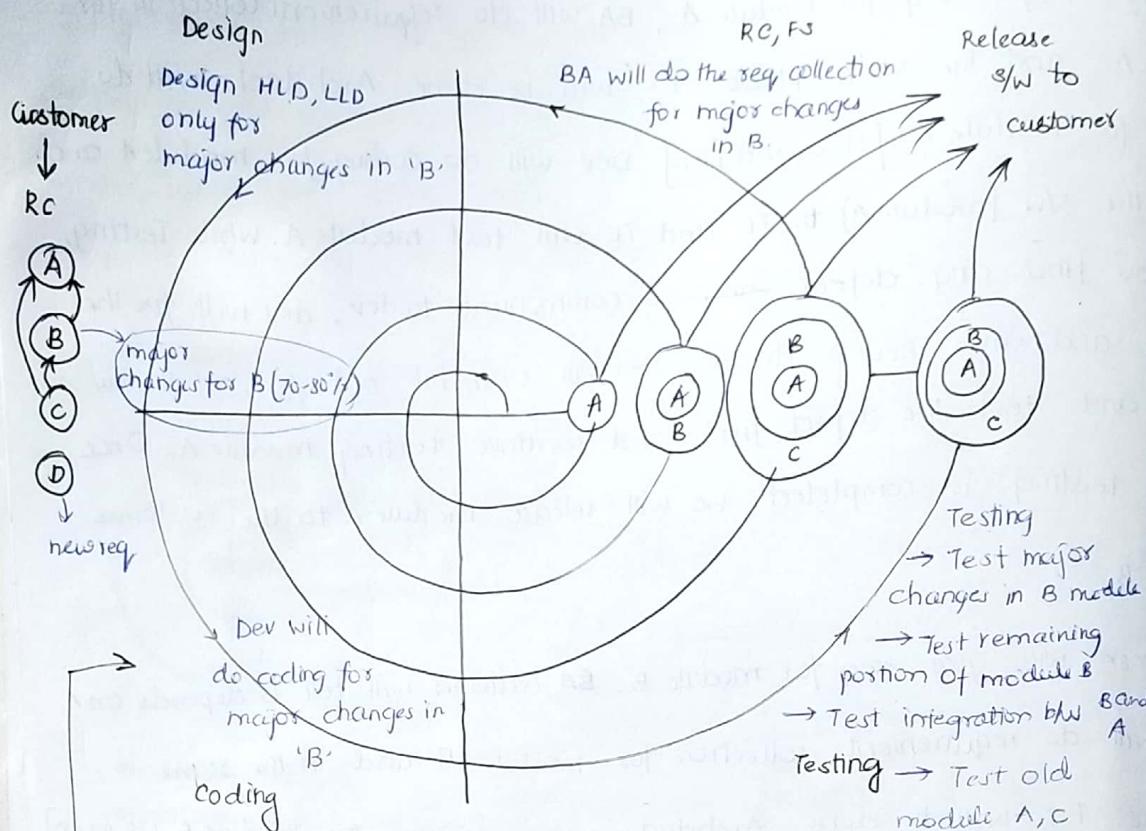
How to handle requirement changes in spiral Model.

Req changes can be handled in 2 ways.

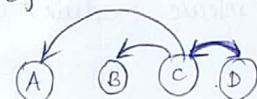
① Major changes

② Minor changes.

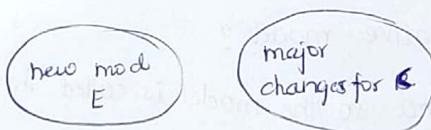
## Major Changes



According to above eg if customer come up with major changes for module B (70% - 80%) and new req for D, In this case , we will always first handle major first changes as a part of 1 new cycle.



Then integration b/w CB and CA



are taken. (ie, arrow from C are considered and not towards C). ie D and E are not considered.

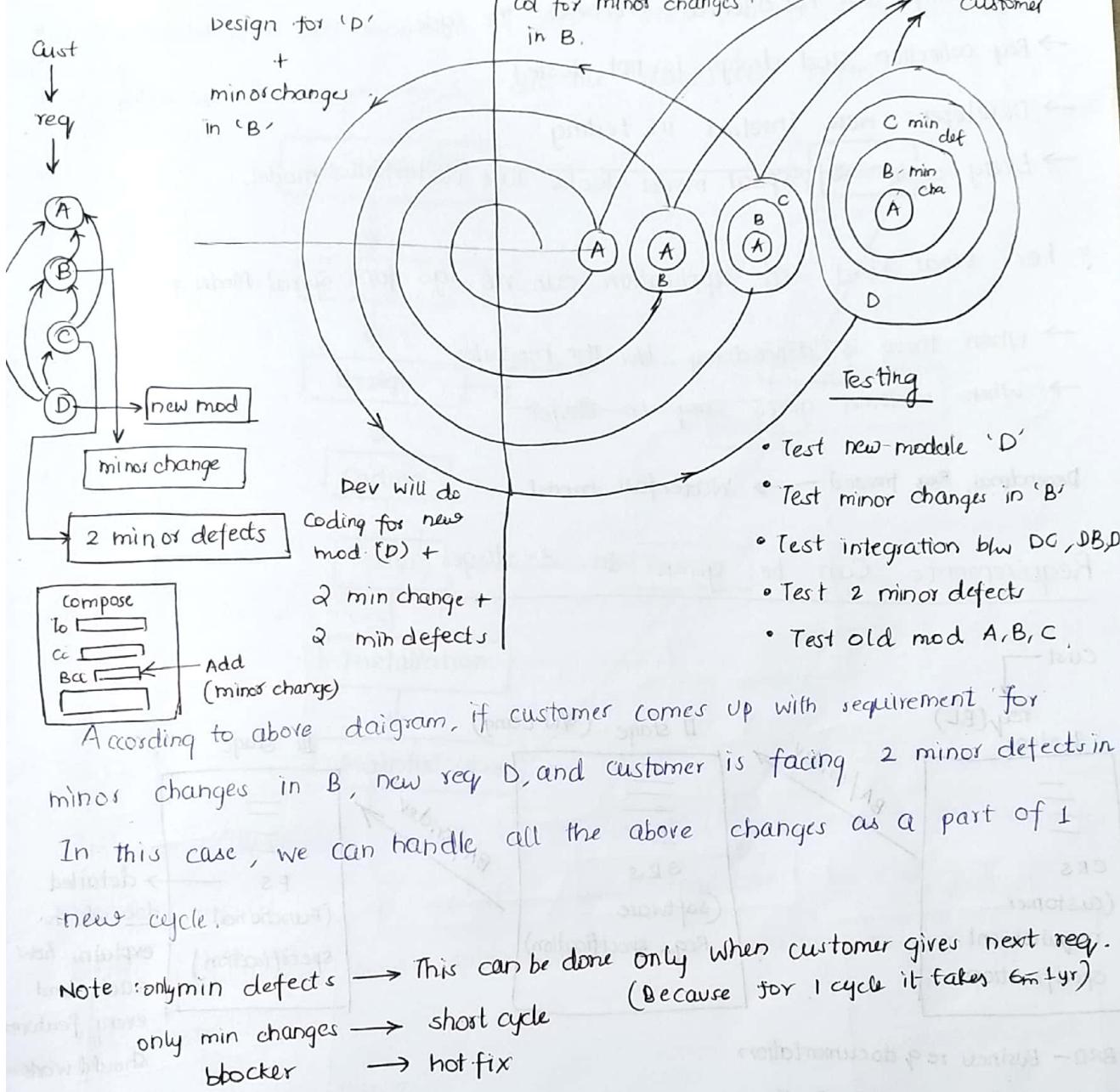
Initial mod B req. → major changes of B. (70-80%)

Compose	
To	(1-mail)
CC	
Sub	(5-10 char)
	(100 char)
Send	
Cancel	

compose	
To	(1000-mail id)
CC	
Sub	(5-20 char)
	(500-600 char)
Send	
Cancel	

Note : If 2 major changes are given as per the customers priority the module will be selected to work on

## Minor changes.



### Advantages

- Req changes can be done after every cycle
- Customer gets an opportunity to use a s/w for every cycle or every module to test
- Testing is done in every cycle before going to the next cycle.
- Spiral model is a controlled model Why → Here first we take req for 1 module, develop, test and if the module is stable, then only we take the req for next mod.
- Investment is done in proper way.

## Drawbacks

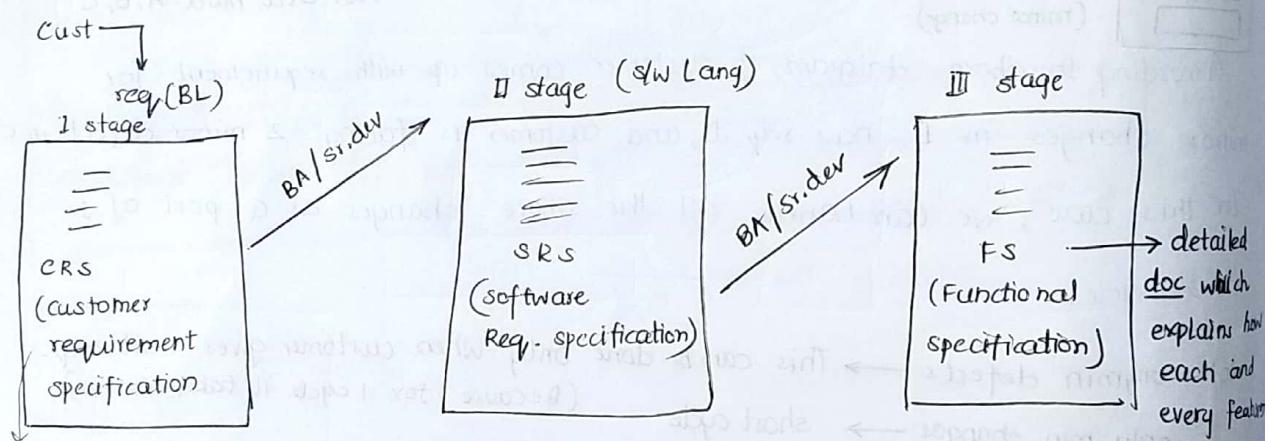
- Req changes are not allowed in between the cycle.
- Req collection and design is not tested.
- Developers were involved in testing.
- Every cycle of spiral model looks like waterfall model.

? For what kind of application can we go for spiral Model?

- When there is dependency b/w the modules
- When customer gives req in stages

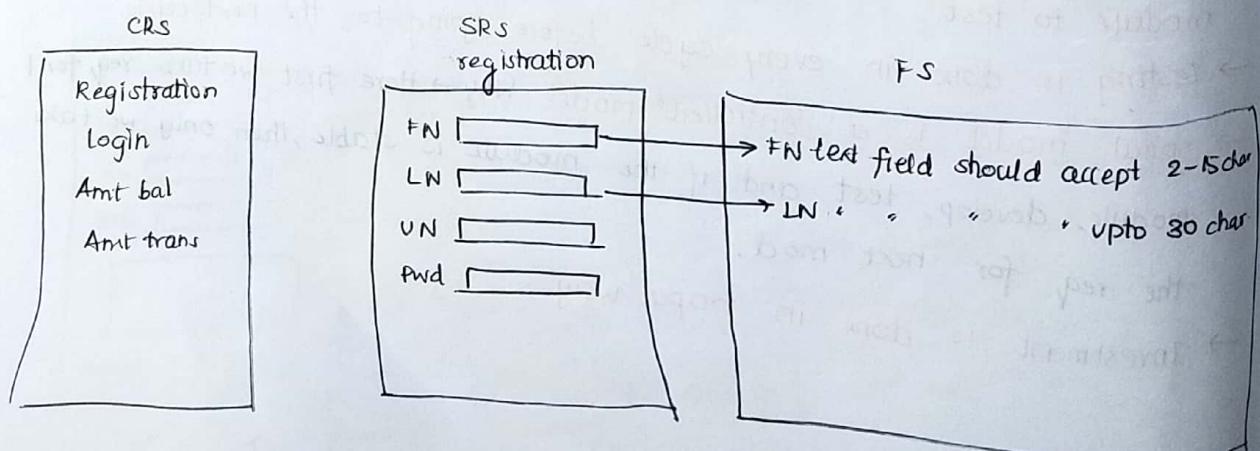
Dependency, Req freezed → Waterfall model.

Requirements Can be given in 3-stages



- or
- BRD - Business req documentation
- BRS - Business req specification
- BS - Business specification
- MRD - Market research documentation

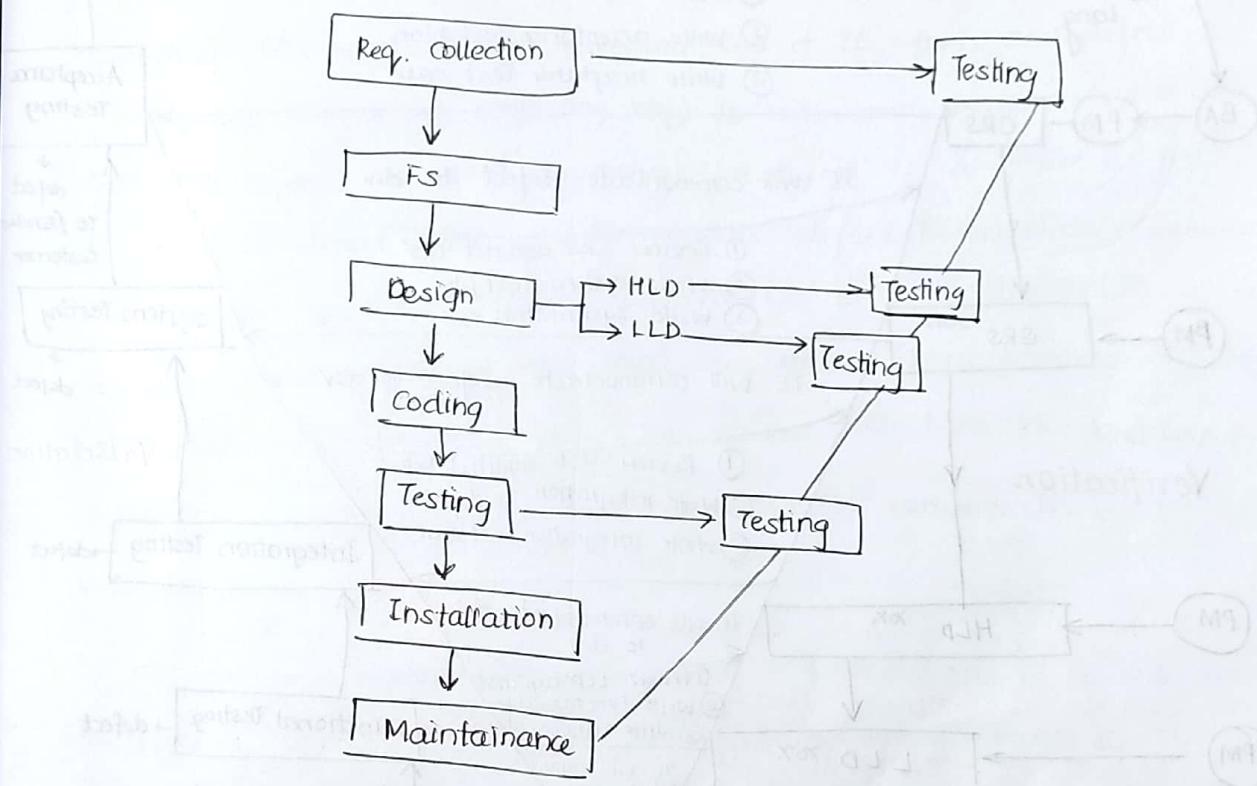
e.g.: citibank



## ★ Verification and Validation

1 or

V and V model is a std procedure or step by step procedure to develop a new software. In V and V model all the stages are tested.



In order to overcome drawbacks of waterfall and spiral model, we go for V and V model. i.e., in waterfall model req. can't be changed.

Both in waterfall and spiral model req. collection and design is not tested.

What is Verification?

Verifying / Testing CRS, SRS, HLD and LLD and check whether it is according to the customer requirement is called as verification. It is done by TE before s/w is developed. Here we ensure that are we building 'product right' or 'system right' or 's/w right'.  
↳ it is running as per the req.

What is Validation?

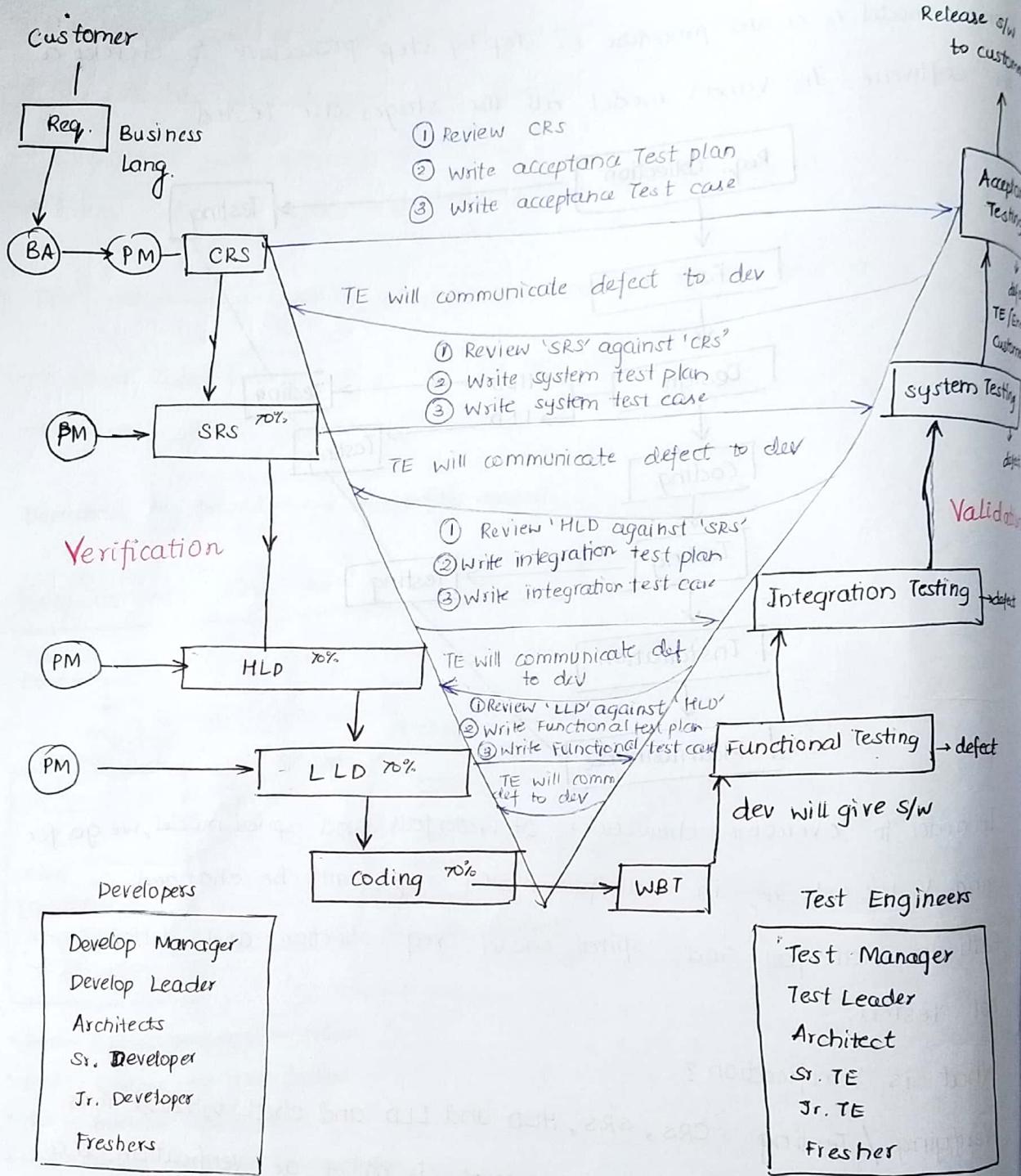
→ Testing the functionality of a s/w or application by executing test cases is called as validation.

→ It is done by TE after the s/w is developed.

→ Here, we ensure that are we building 'Right product / s/m / s/w'.

↳ Literally enter the s/w and test the functionality of the s/w by executing test case.

# Diagram for V-model



? Why the model is in V shape? Why not W, or U shape

V-stands for verification and validation. and also Dev and TE work parallely. so the model is in V-shape.

customer gives the req in the form of CRS BA will go to customers place and collect CRS in Business Language and explain with PM. PM will take up the CRS and sent it to both dev and TE. TE will review CRS, write acceptance Test plan and Test cases. Parallelly, Dev will be converting CRS to SRS. While reviewing CRS if TE finds any defect (wrong Req, Missing req, conflicting req) TE will communicate defect to dev. Dev will open CRS and crosscheck really it is a defect or not. If it is a defect dev will communicate defect to customer. Customers will update CRS and send updated CRS to both dev and TE. TE will review updated CRS and also update corresponding Test plan and Test cases. Parallelly dev will update defect in SRS and keep converting CRS to SRS. Once both dev and TE complete the work, SRS will be ready.

PM will take up SRS and sent it to both dev and TE, TE will review SRS against CRS, write s/m Test plan and test cases. Parallelly dev will be converting SRS to HLD. Once both dev and TE complete the work HLD will be ready.

PM will take up HLD and sent it to both dev and TE, TE will review HLD against SRS, write integration test plan and test cases. Parallelly dev will be converting HLD to LLD. Once both dev and TE complete the work. LLD will be ready.

PM will take up LLD and sent it to both dev and TE, TE will review LLD against HLD, write function test plan and test cases. Parallelly dev will be converting LLD to coding. Once both dev and TE complete the work. Once after coding is completed, dev will do WBT. While doing WBT if dev find any defect in the coding dev will fix the defect again do WBT. After WBT is completed dev will give software to TE and TE will start with validation activities.

Where in first TE will do functional Testing by executing functional Test case and if you find any defect while doing functional testing, communicate to dev and dev will fix the defect, do WBT and give the new s/w to TE. and TE will uninstall old s/w and install new s/w Test the defect first, and continue doing functional testing.

similarly TE will do integration testing and s/m testing. After s/m testing is completed TE or end user or customer will do Acceptance testing. Once after acceptance testing is completed s/w will be released to the customer.

### Drawbacks

- Initial investment is high Why → !
- Documentation is more. (documentation means every stage we should write Test plan and Test cases).
- Difficult to manage interaction b/w dev and TE.

### Advantages

- Testing is done from Req & early stage
- Total time taken is less → Testing is done from Req & early stage
- All the stages are tested (CRS, SRS, HLD, LLD)
- Since Testing is done from early stage downward flow of defect will be less because of less reworking and time consuming
- Total Investment is less. → Downward flow of defect is less and cost of fixing defect will be less.
- s/w quality will be good.
- Req changes can be done in any stages.
- Deliverables are parallel. (It means when dev is converting CRS → SRS parallelly TE will review CRS, write the acceptance Test plan and Test cases).

? For what kind of app can we go for V and V model

- Complex projects → Which customer wants quality s/w which is in short span of time.
- Less timing projects.
- long term projects.

What mistakes TE will find while reviewing CRS.

→ Conflicting requirement.

Citibank

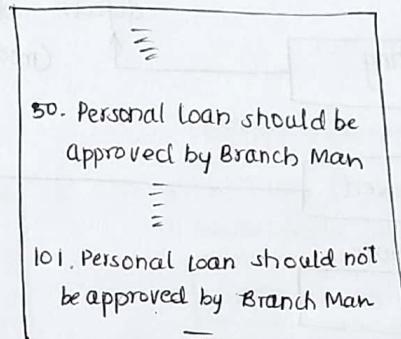
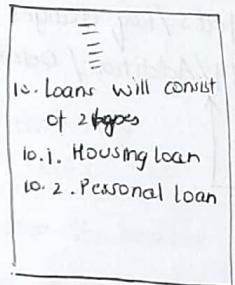


Req → BL



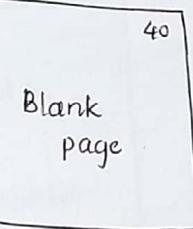
CRS

1. MS WORD

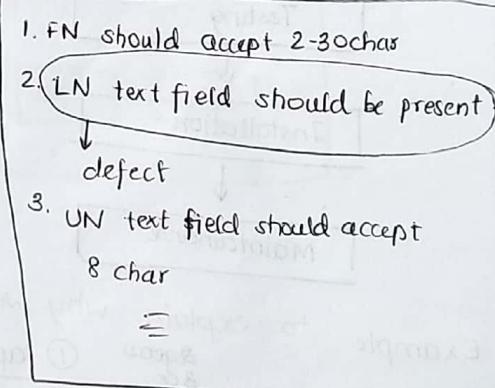


→ Missing Requirement.

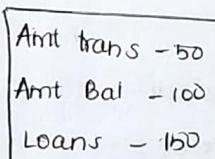
eg1:



eg2:



→ Wrong Requirement.

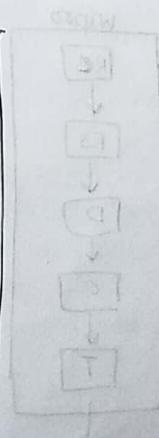


150.

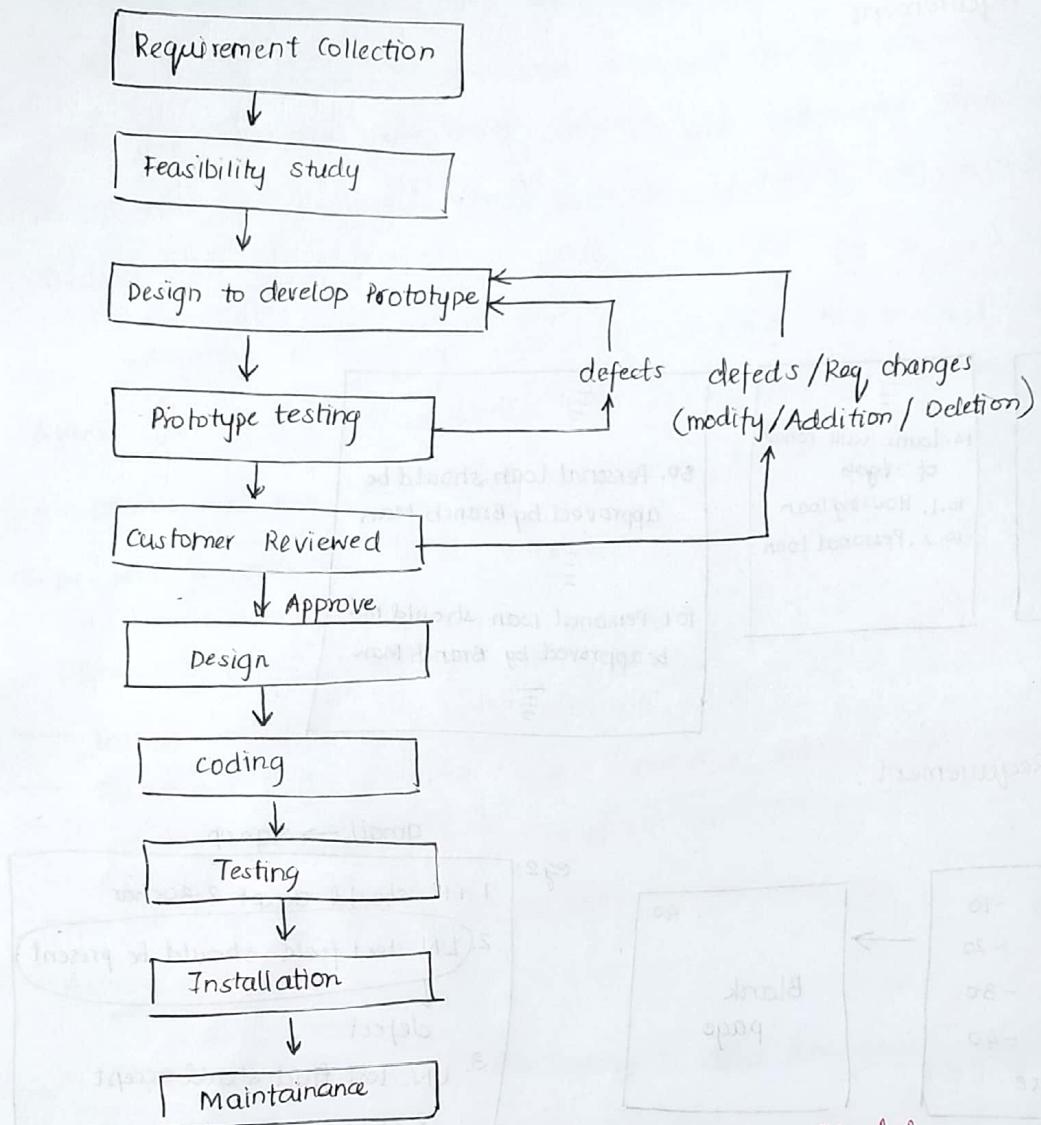
1. Housing loan should be of 2 types  
→ 150.1. Fixed interest  
150.2. Floating interest

150.1. Fixed interest - Bank will charge 10% p and fix i should be applied till the end of year

150.2. Floating i - Bank will charge 10% i should be applicable till the end of year

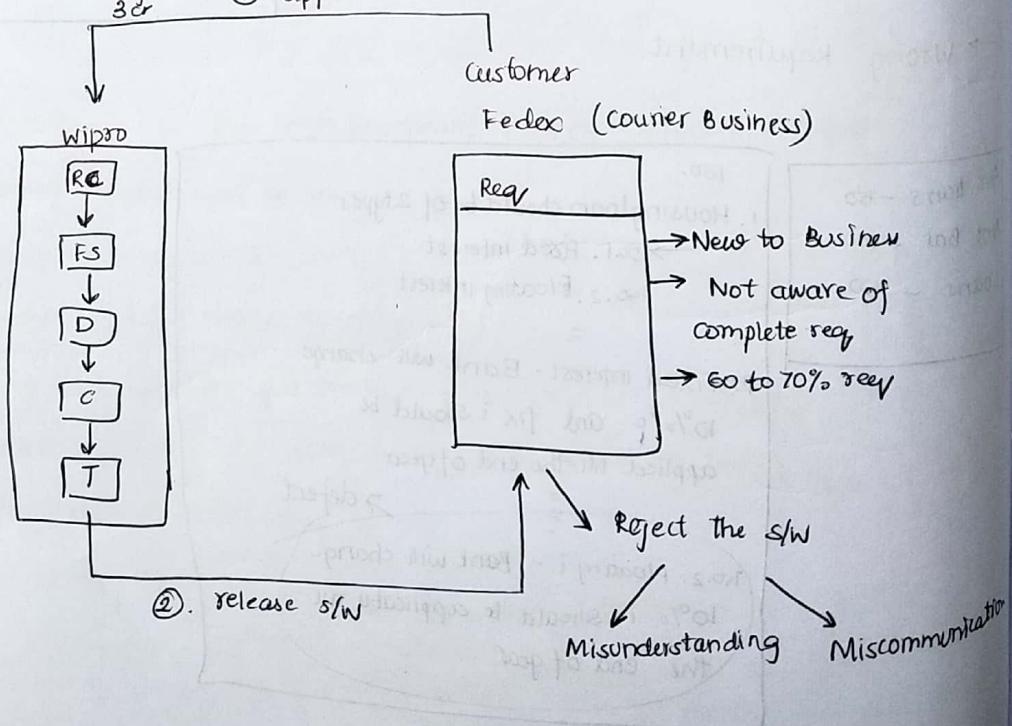


## Prototype model / Dummy model



Example to explain why we go for Prototype Model.

3 years  
2 years  
① approach



In order to overcome the above problem in the company we go for prototype model.

What is Prototype model?

Prototype model is a dummy model which is prepared by the web designers or content developers or developer. Where in they convert text format into image format. by using tools like paint, photo-shop, picasa or web html softwares.

Fedex

[ Req. (login) ] (60-70%)  
Text Format

- If any user open the browser and enter URL then Fedex welcome pg should be displayed.
- 'UN' Text field should be present
- 'pwd' Text field should be present
- Login button should be present
- cancel button should be present

prototype/dummy model

(Image format)  
www.fedex.com

Welcome to Fedex

UN \_\_\_\_\_

pwd \_\_\_\_\_

Remember password

Forgot password?

Login      cancel

Req changes → Add remember password  
→ Forgot password.

- Customer will give 60-70% of requirement
- BA will do req collection
- A Team will do Feasibility study.
- web designers / content dev / dev will design and develop the prototype and send the prototype to TE.
- TE will do prototype testing, ~~change~~ chances are there while doing prototype testing they might find defects. (some of the text format is not converted to img format)

TE will communicate defect to dev and dev will fix the defect in prototype and again sent the prototype for prototype testing. Once after prototype testing is completed. The prototype will be sent for customer review. While reviewing prototype if customer finds any defect / if customer want to do req changes, the customer will communicate changes to dev. and dev will redesign the prototype, again TE will do prototype Testing and sent for customer review. If customer is satisfied with the prototype then customer will approve the prototype. Architect will do design, dev will do actual coding and give s/w to TE and TE will do actual Testing or final testing. Once Testing is completed s/w will be released to customer so customer can use the s/w and run the business.

? what is diff b/w Prototype testing and actual testing.

Prototype testing is the testing done to check whether all the customer given req is present in the prototype / dummy page is called Prototype Testing.

Testing the functionality of s/w by entering all the possible if's is called as Final / Actual Testing.

### Drawbacks.

- Total time taken is high
- Total Investment is more
- There will be delay in releasing s/w to the customer

### Advantages

- customer will get to know how the s/w looks in the early stage itself.

- There will be improved communication b/w customer and dev so that we can develop the s/w according to the customer needs and necessity.
- We can set high expectation for the customer.
- Req changes are allowed.
- It is very easy to handle the req changes.

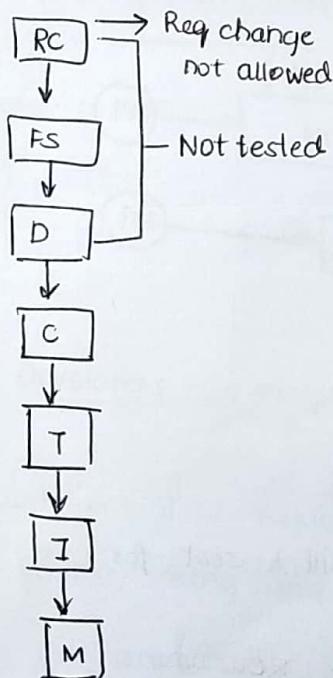
For what kind of projects we can go for prototype model.

- If the customer is new to business
- When customer is not aware of complete req.
- When dev are new to domain.

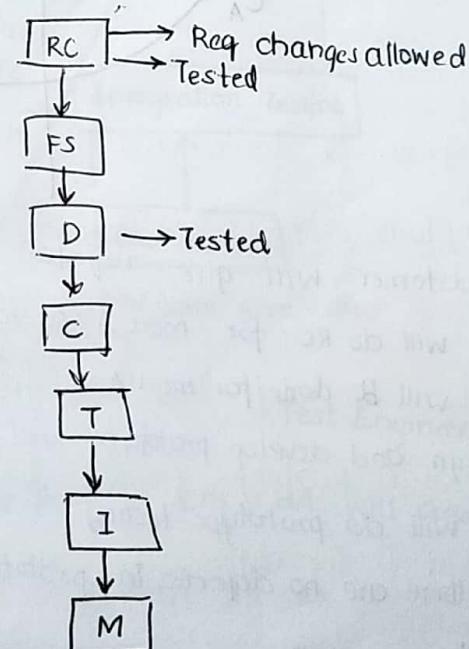
## Derived Model [Customized Model]

Here we will take a basic model or single model and change the model according to the customer business requirement or company stds. is called as derived model or customized model.

Waterfall Model



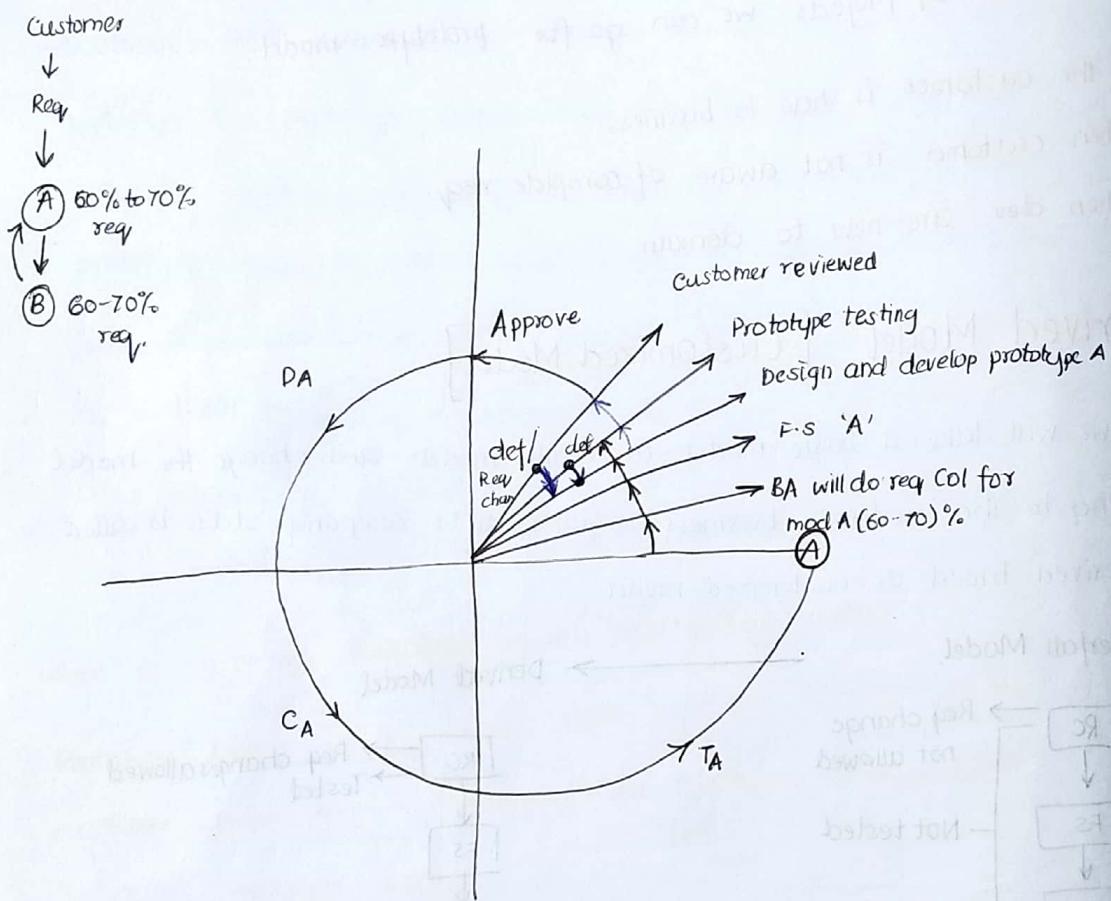
Derived Model



## Hybrid Model / Sandwich Model

The process of combining or merging more than 1 model into single model is called as hybrid model.

e.g.: Spiral with Prototype hybrid Model.

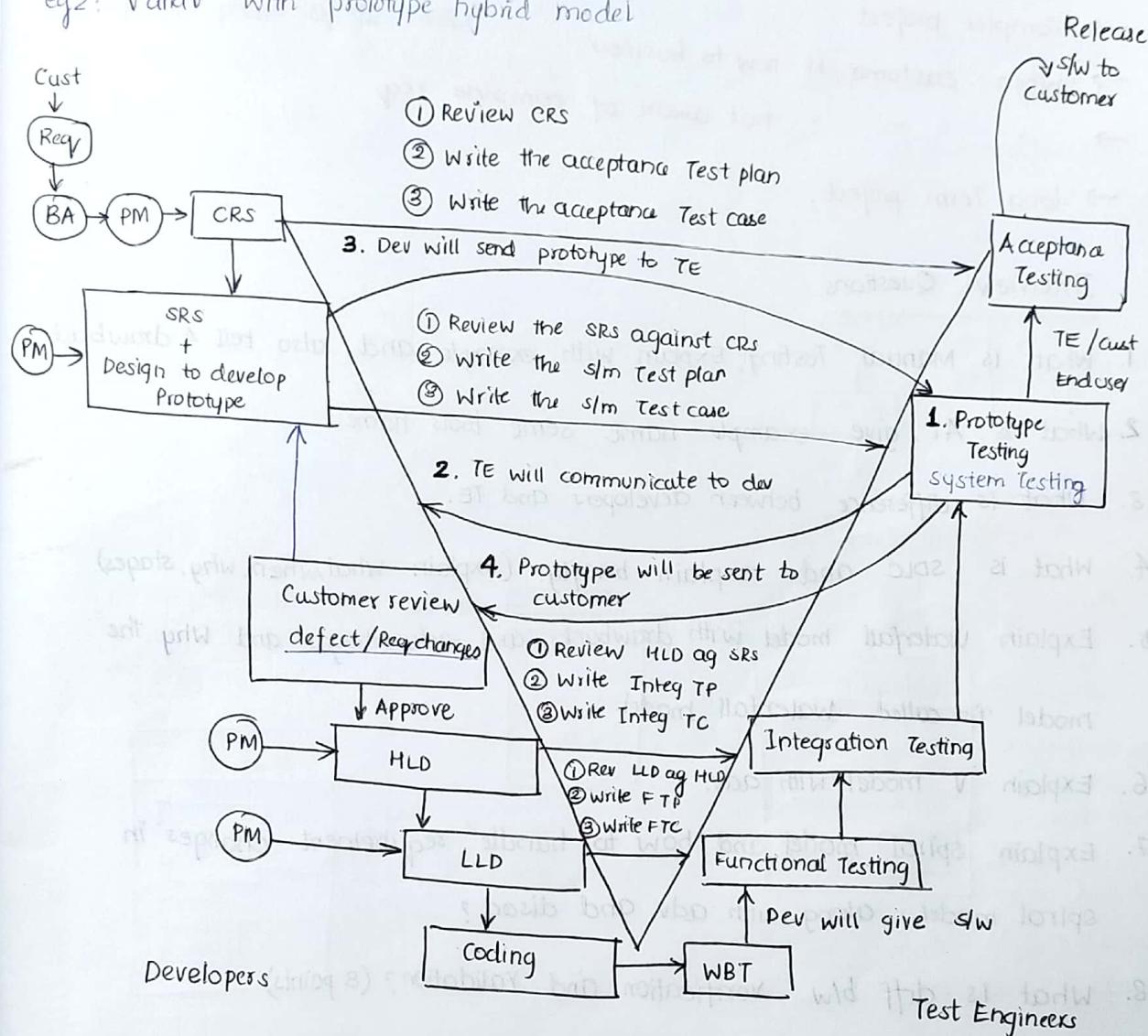


- customer will give req for mod A (60-70%)
- BA will do RC for mod A (60-70%)
- FS will be done for mod A
- Design and develop prototype will be done for mod A
- TE will do prototype testing
- If there are no defects in prototype, then prototype will be sent for customer review
- If customer will review the prototype and is satisfied, then customer will approve the customer review
- Architects will do design for mod A
- Dev will do coding for mod A and give s/w to TE and TE will test the module A
- If no defects, the mod A will be released to customer

For what kind of projects we go for spiral with prototype hybrid model.

- When there is a dependency b/w the modules
- When customer use req in stages
- When customer is new to business.
- When " is unaware of complete req.

e.g.: V and V with prototype hybrid model



Customer gives requirement (70-80%) in the form of CRS, BA will collect the CRS in business lang and explain to PM. PM will sent the CRS to both dev and TE. TE will review CRS, Write acceptance Test plan and test cases. Parallelly dev will be converting CRS to SRS and also design and dev the prototype. Once both Dev and TE complete the work SRS and prototype will be ready.

PM will take up SRS and prototype and sent it to both Dev and TE. TE will do prototype testing. If there are no defects TE will send the prototype to customer. and customer will review the prototype.

If customer is satisfied with prototype, customer will approve the prototype. Dev will start converting SRS to HLD parallelly. TE will review SRS against CRS, write SLM TP, TC. Once both dev and TE complete the work, HLD will be ready.

? For what kind of projects can we go for Hybrid Model

- Complex project
- When customer is new to business
- " " not aware of complete req.
- long Term project.

#### Interview Questions.

1. What is Manual Testing, Explain with example and also tell 4 drawbacks.
2. What is AT, give example name some tools name.
3. What is difference between developers and TE.
4. What is SDLC and explain briefly (Explain - what, when, why, stages).
5. Explain waterfall model with drawbacks and advantages and Why the model is called waterfall model.
6. Explain V model with adv.
7. Explain spiral model and how to handle requirement changes in spiral model along with adv and disad?
8. What is diff b/w verification and validation? (3 points)
9. What is prototype model, Explain with example with advantages.
10. What is the difference between prototype testing and actual testing.
11. What is derived model and hybrid model [example]
12. What is the difference b/w waterfall - V&V , waterfall - spiral
13. What is the difference b/w  
What stage is called as metephase in the SDLC model
14. Which phase is called as Analysis phase.

# SOFTWARE TESTING

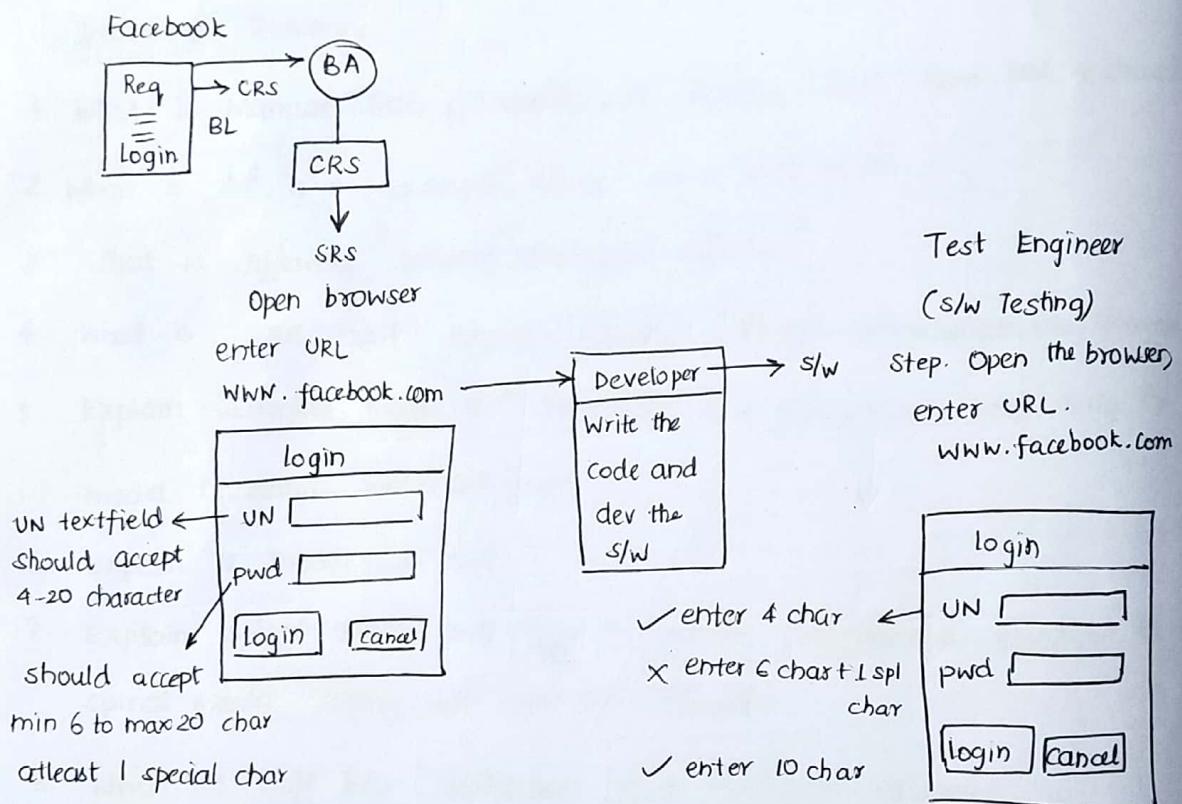
## Software Testing

The process of identifying or catching defects in a s/w is called Software Testing.

OR

Verifying / Testing the functionality or behaviour of an application against customer requirement specification is called as software testing.

Eg: Customer



What are the types of software Testing.

1. White box Testing → Unit Testing, Glass box Testing, Transparent testing, Open box testing, structural Testing, Mutational testing.
2. Black box Testing → Closed box testing, Functionality Testing, Behavioural Testing
3. Grey box Testing.

What are the ways of software testing / In how many ways s/w can be tested.

- 2 Ways I Manual
- II Automation.

What will happen if TE tries to fix the defect?

- TE fixing 1 defect might introduce or create n no of defects.
- Chances are there TE utilize testing time in fixing the defect.
- Time taken to fix the one defect will be more than when compared to d

## White Box Testing.

Testing Each and every line of the code is called as White box testing.

OR

Looking into the source code check whether each and every line of code is working as expected or not is called as White box testing.

Dev will do WBT.

Why it is called WBT?

Since the code is visible. It is called as WBT / Transparent / GBT.

What you meant by fixing the defect?

Developers will open the source code, identify the wrong code and correct the code this is called as fixing the defect.

How to do WBT? / eg for WBT / Types of WBT.

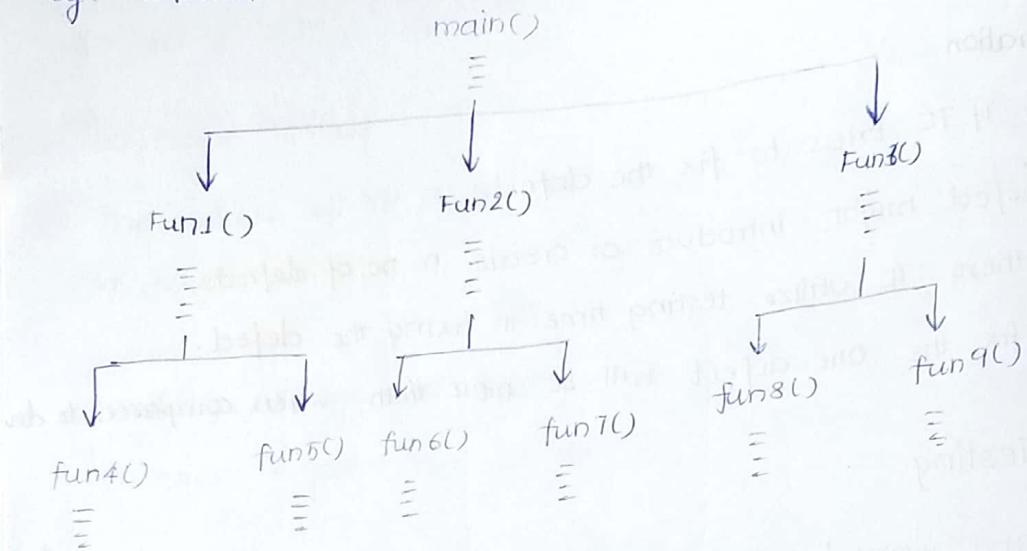
## Path Testing.

Path Testing is also called as cyclomatic complexity.

ISTQB - International s/w Testing Qualification Board.

Dev will write the flow chart and Test each individual part, this is called as path testing.

eg: Flowchart



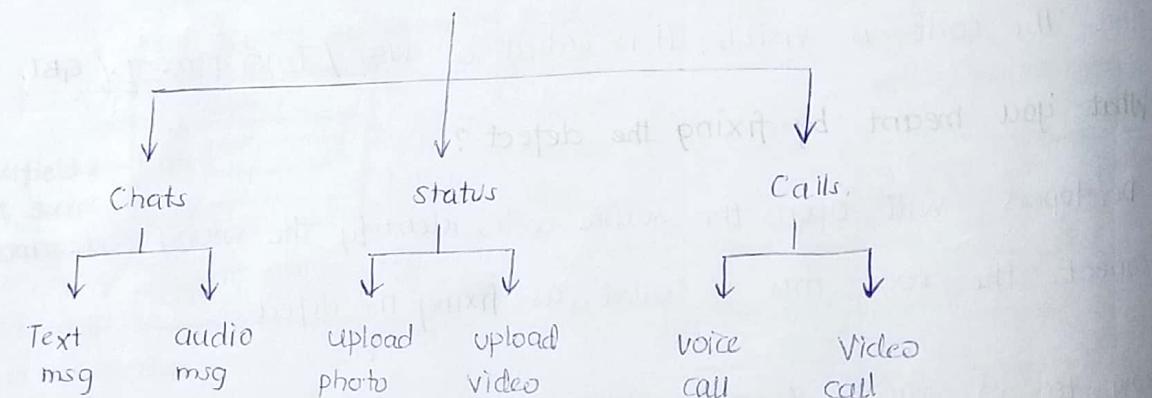
Path1 → main() → Fun1() → fun4()

path2 → main() → Fun1() → fun5()

path3 → main() → Fun2() → fun6()

path4 → main() → Fun2() → fun7()

eg: Installation and Registration



Conditional Testing OR Predicate Testing.

→ Here dev will test for logical condition ie, for both true and false condition. This is called conditional testing.

→ chances are these sometimes code might work for true condition and it is not work for false condition and vice versa. so we ensure that code is working for both True and false conditions, will do conditional testing.

Syntax

If (condition)

```
{  
    ...  
    True condition;  
}  
  
else  
{  
    ...  
    False condition;  
}
```

example

```
public static void main (String args[])
```

```
{  
    int x;  
    If (x == 10)  
    {  
        System.out.println ("The value of x= 10");  
    }  
    else if (x < 20)  
    {  
        SOP ("The value of x= 20")  
    }  
    else  
    {  
        SOP ("Invalid o/p");  
    }  
}
```

## Loop Testing.

Here developer will test the loop (while loop, for loop, do-while loop) and make sure that repeating for all the defined no.of cycles and also dev will make sure that terminating condition is properly working or not is called Loop Testing.

Eg: While ( $loop \leq 500$ )

```
{  
    ...  
    → 4000 time  
    loop fails } detect  
}
```

②

Condition = true;

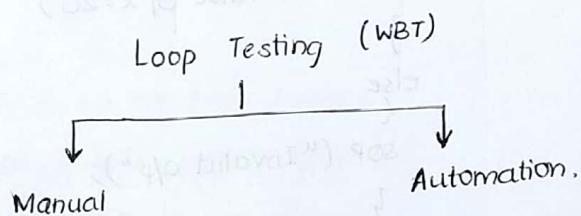
```
= =  
While ( $loop \leq 10$ )  
{  
    ...  
}
```

If ( $loop == 5$  & condition)

```
{  
    ...  
    break; → Terminator  
}  
else  
{  
    ...  
}
```

According to above eg: developers should test the loop manually for ten times. suppose if loops gets failed for the 6<sup>th</sup> time, then it is called defect. developer will fix the defect and dev should manually test the loop for 10 time. This is how developer will do manual testing.

Suppose if the developers as written the loop to repeat for 1 lakh times. In this case testing is done manually is very tough job. Developers will go for automation



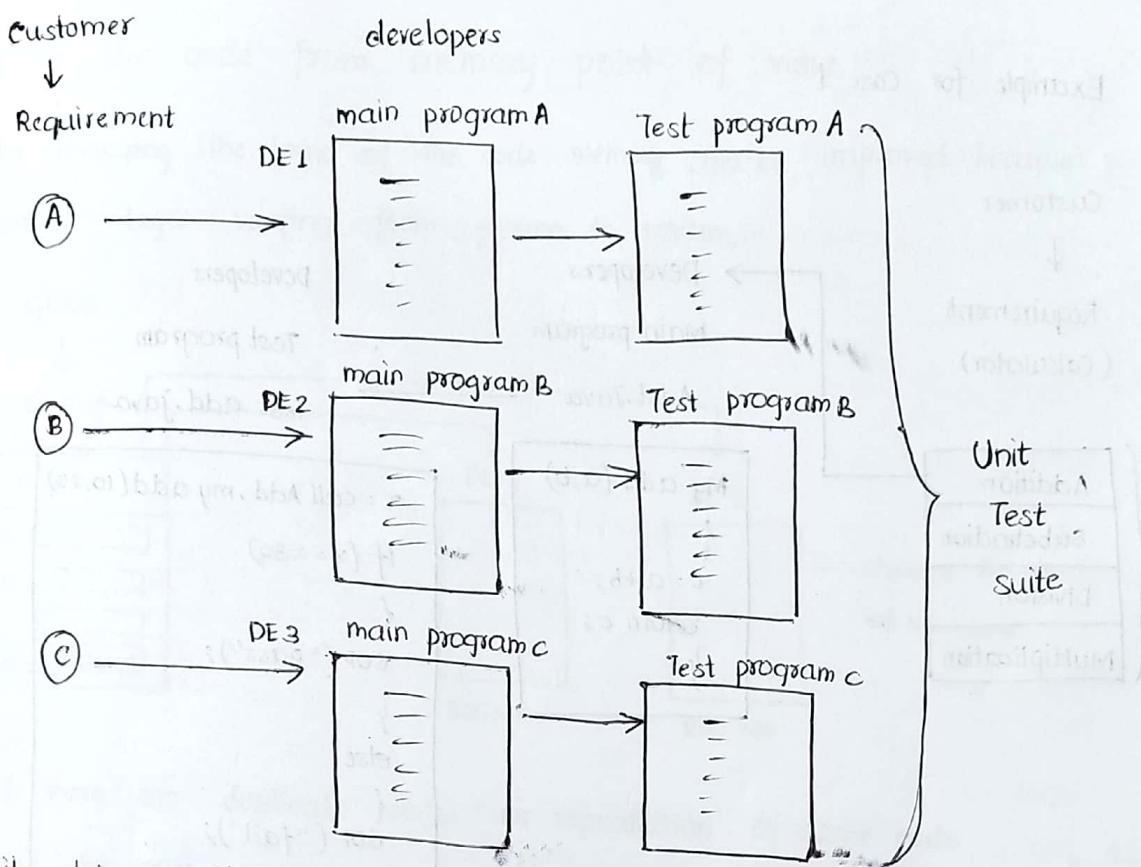
Developers will write the code and test the each and every line of the code manually.

## Loop Testing

### Unit Testing

Customer gives the requirement, developers will write main program for the requirement and also developers will write the corresponding test program in the same language and run the test program against the main program where in test program will automatically test the main program and gives the result as pass or fail. This is called unit Testing.

Collection of all the test programs is called as unit test suite.



While doing unit testing developers will come across 3 different cases.

### Case 1 : Error in Test program

In this case developer fix the error in test program and run the test program against corresponding main program.

### Case 2 : Error in main program

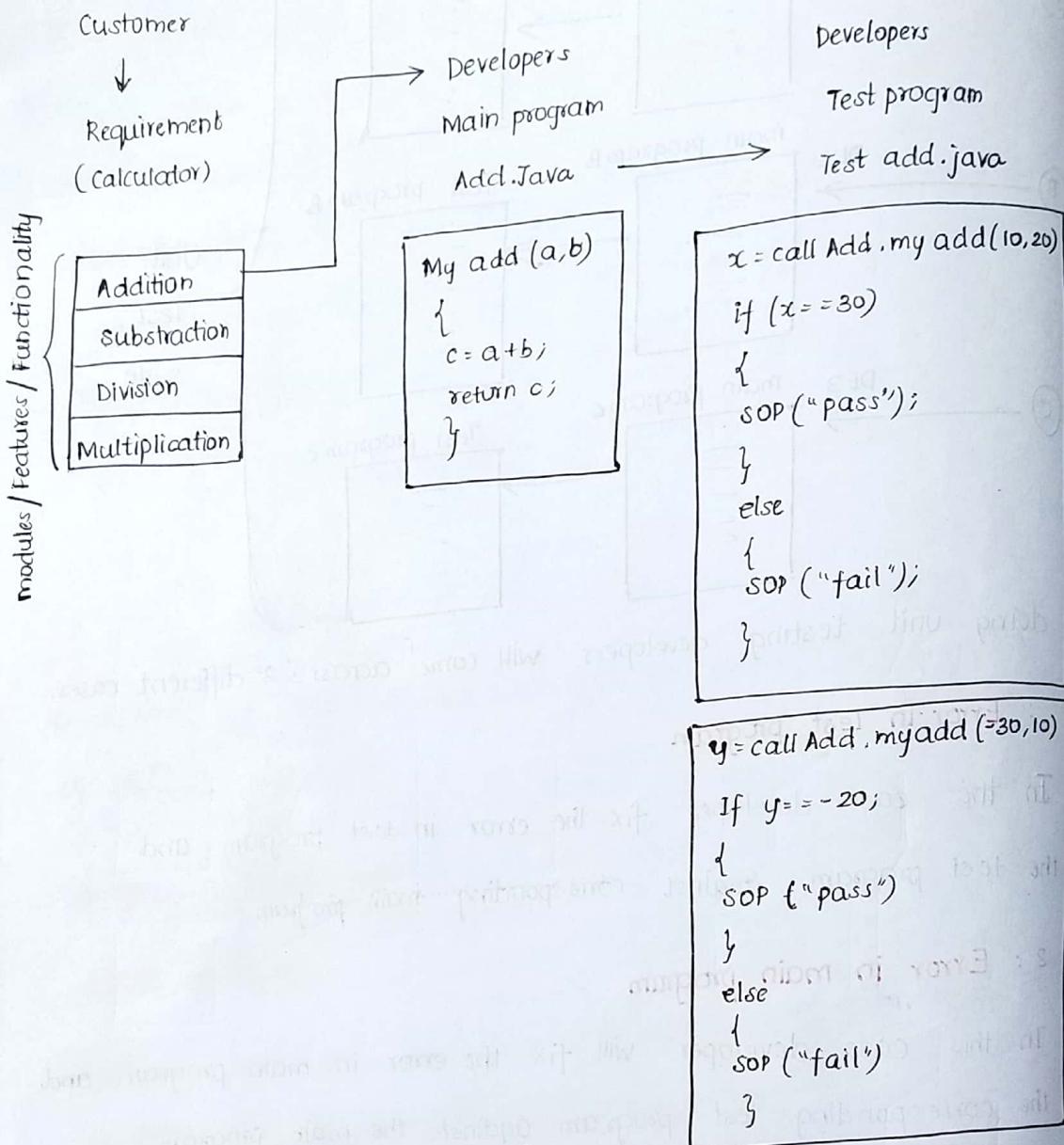
In this case developer will fix the error in main program and run the corresponding test program against the main program.

Chances are their fixing error in the main program might affect other main programs, so developers will run the entire unit test suite.

### Case 3 : Customer will change the requirement.

Suppose if customer change the requirement for module A. Developer will change main program A and corresponding test program A and run the test program A against main program A. chances are there changing requirement for module A might affect other modules, so developers will run entire unit test suite.

## Example for Case 1



- Junit [To do unit testing for java]

OR

Package which consist of  
many built in functions  
(free)

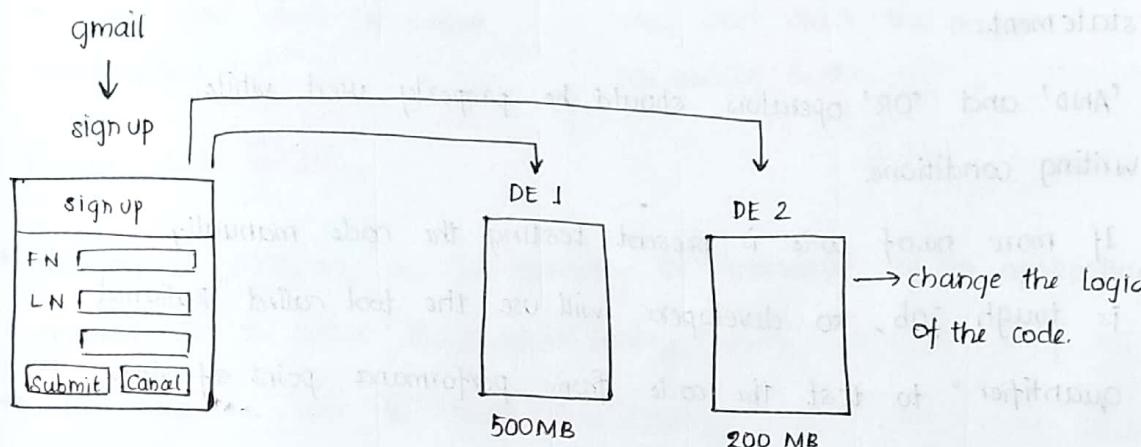
We use Junit  
open junit

```
Import Junit;
X = Call Add . my add(10, 20)
Assert(x, 30);
```

- Assert = Compare and check give the result as 'pass' or 'fail'.
- Import Junit = Display all the inbuilt functions.

## Testing the code from memory point of view.

- By changing the logic of the code memory can be improved because writing logic varying from person to person.



→ If there are duplicate codes or repetition of same code then we can convert the code into generic functions/ user defined functions.

→ By removing unwanted functions and unused commands memory can be improved.

→ By using in-built or built-in functions memory can be improved

- eg:
- call sort()
  - call strlnc()
  - call strrev()

→ By removing the dead codes memory can be improved

→ By removing unused variables memory can be improved.

```
Public static void main(string args[])
```

```
{
```

```
int x = 20;
```

click on run

```
float y = 4.2; Input
```

```
string "Hello";
```

```
double
```

```
long
```

```
{
```

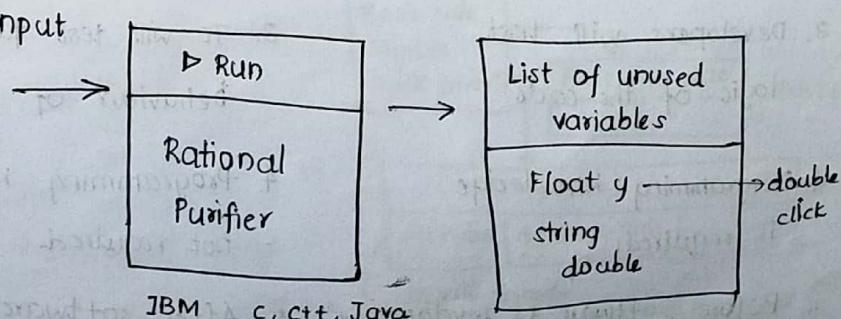
```
}
```

```
create user();
```

```
{
```

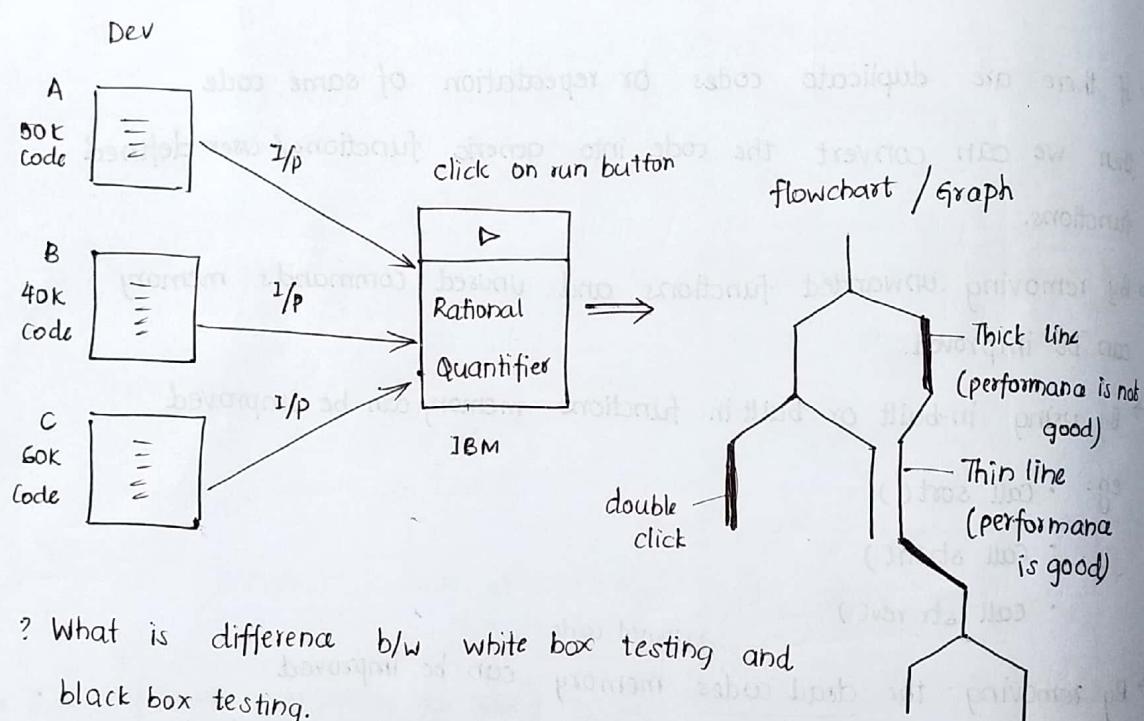
```
}
```

```
}
```



## Testing the code from performance point of view

- By writing good logic performance can be improved
- Instead of using Nested if developer should go for switch statement.
- 'AND' and 'OR' operators should be properly used while writing conditions.
- If more no.of code is present testing the code manually is tough job, so developers will use the tool called "Rational Quantifier" to test the code from performance point of view.



? What is difference b/w white box testing and black box testing.

- WBT
1. WBT is done by developers
  2. code is visible
  3. Developers will test logic of the code
  4. Programming knowledge is required.
  5. Before software is developed

- BBT
1. BBT is done by TE
  2. Code is not visible
  3. TE will test functionality / behaviour of the application.
  4. Programming knowledge is not required.

5. After software is developed

6. A person should have knowledge on internal design of code [HLD] and [LLD]

6. A person will not have knowledge on internal design of code. [HLD, LLD].

7. Dev will give the input to the code and check the output according to RC.

7. TE will give the input to the S/W and check the output according to RC.

## Black box Testing

- Testing or verifying the functionality or behaviour of an application against CRS is called Black-box-testing.
- Test Engineers will do Black-box-testing.

? Why it is called Black-box-testing?

Since the code is not visible.

? How to do BBT or example for BBT.

Here TE will not look into the source code, where in TE will open the application and test the functionality of an application against CRS.

Customer (OLA)

↓  
Req

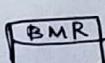
- If any user install OLA app into mobile and login to OLA app then OLA Home page should be displayed.

- In OLA Home pg in the left top corner, there should be a dropdown and it should consist of below mentioned options.

• Book My Ride

• My Rides

• Invite friends



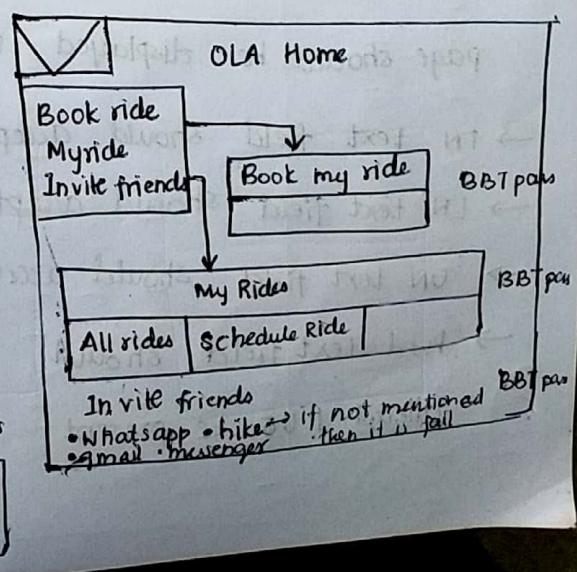
BMR	AR	SR	CAR
-----	----	----	-----

- Whatsapp
- FB
- Miko

Dev  
Write the  
code  
+  
WBT and  
develop the  
S/W

TE  
BBT.

- st1: TE will install OLA app into mobile
- st2: TE will login into OLA app



## Types of Black Box Testing

### Functionality Testing / component Testing.

Testing each and every component of an application thoroughly or regously against CRS is called as functionality testing / component testing.

Components.

Text field, text area field, button, link, checkbox, radio button, dropdown, icon, major tabs, minor tabs, widget, Right-arrow button, Left-arrow button, scroll bar.

Thoroughly / Regously Testing.

Here TE will take every single field / component and try to enter all possible scenarios / I/P (positive or negative) against the CRS is called Thoroughly / Regously testing.

e.g.: Cus (Google) → Gmail → Create Account.

→ If any user open browser and enter URL for gmail then 'Welcome' page should be displayed. and in this page there should be a link called 'create account'.

→ If any user clicks on 'Create Account' link then 'Create Account'

page should be displayed with following fields / components

→ FN text field should accept b/w 2-20 character

→ LN text field should accept b/w 4 alphabets

→ UN text field should accept b/w 4-50 alphabets.

→ Pwd text field should accept min 6 characters and atleast 1 UC be present

→ country drop down should be present and it is a mandatory field.

→ Address text area field should accept upto 5000 char

→ gender radio button should be present.

→ Terms and conditions check the box should be present

→ submit button should be present.

→ cancel button should be present.

### Create Account

FN :

→ Give 2 char

LN :

8 char → NA → Defect

UN :

20 char

Pwd:

1 char NA

21 char A → defect

35 char NA

\* Country :  ▾

Address :

Gender     Male     Female

Terms and conditions

Customer - citibank

BL - Requirements - 1000pg / MS Word / MS Excel  
↓  
CRS (citibank online application)

## 1. Welcome

- 1.1 : login
    - 1.1.1: UN-text field should accept between 2-70 chars
    - 1.1.2: pwd textfield should accept min 8 char and atleast 1 spl char should be present.
    - 1.1.3 : Remember pwd checkbox
    - 1.1.4 : Login button
    - 1.1.5 : Cancel button
  - 1.2 : sign up
    - 1.2.1 : First Name
    - 1.2.2 : Last Name
  - 1.3 : Registration

## 2. Loans.

- ## 2.1: Personal loans

- 2.1.1. . .  
2.1.2. . .

## 2.2 : Housing loans

- ## 2.2.1: Fixed interest

## 2.2.2 : Floating interest

- ## 10. Insurance . . . 150

15. OD (Overdraft) . . . 200

20. Amount Baj . . . . . 280

- ## 29. Transactions . . . 300

### 30. Amount Transfer

- 30.1 := FAN :textfield

- 30.1.1 - should accept valid only upto 10 digit account numbers (five integers)

- 80.1.2 - ~~start~~ Account should be created by the Bank manager

- ### 30.2 : TAN Textfield

- 30.2.1 : should accept valid only 10 digit account number

- 30.2.2 : Account should be created by the B.Manager

- ### 30.3: Amount textfield

- Q3.3.1 : It should accept only +ve integer  
Q3.3.2 : Should accept more than 100

- amt

- ### 30.4 : Transfer Button

- 30.5: Cancel Button

Positive inputs / Positive scenario	Negative inputs / Negative scenario
100 005	500.1 1000
2000 *+@/-	ABCD
50 500000	-50
100000 5556 66702	*123\$1-
50000	100 GB
Enter the amt less or equal to bal	0 (confusion → Talk to BA / sr.dev / sr. TE)
	50 space
	Blank.
	Enter the amt > bal

According to above example customer citibank will give CRS, BA will convert CRS to SRS and give it to both dev and TE. Dev will write the code, do WBT and give S/W to TE. Now TE will start to do functional testing for each and every components. While doing functional testing we should follow below mentioned rules or principles.

Rule 1 : First always we should do positive functional testing and then only we should do negative functional testing.

Rule 2 : If the application is working for valid data then only test for invalid input. Suppose if app is not working for valid input or valid data, then don't test for invalid data.

Rule 3 : Suppose if the application is not working for 1 of the invalid i/p don't stop testing. Test for some more invalid inputs and try to find more defects.

Rule 4 : As a TE you are not supposed to assume or propose any requirement if you have any dbts or confusions in the requirement, talk to BA or sr.dev or sr.TE and get your dbts clarified.

Rule 5 : We should always do optimised functional Testing.

## Types of functional Testing.

There are 3 types of functional testing.

→ Over / Exhaustive Testing.

Testing each and every components of an application by entering same input in different ways is called as over testing, (or)

Testing each and every components of an application by entering data or input which doesn't make any sense is called as over testing.

eg: 2.00 ✓

27.829 ✗

28.7356 ✗

1000.00 ✗

} Over testing.

Disadvantage

- Waste of time

→ Under Testing

Testing each and every component of an application by entering insufficient set of data or inputs is called under testing.

eg: Input

100

2500

500.780

Hundred

100 756

Blank

0

} missed by TE

Disadvantage

- TE will miss lot of scenarios
- TE will miss lot of defects.

## → Optimised Testing

Testing each and every component of an application by entering data / input which make sense is called as Optimised Testing.

### Adv

- TE will not miss any scenarios.
- TE will not " " defects.
- There will be no duplicates.
- Time will not be wasted.
- Quality will be good.

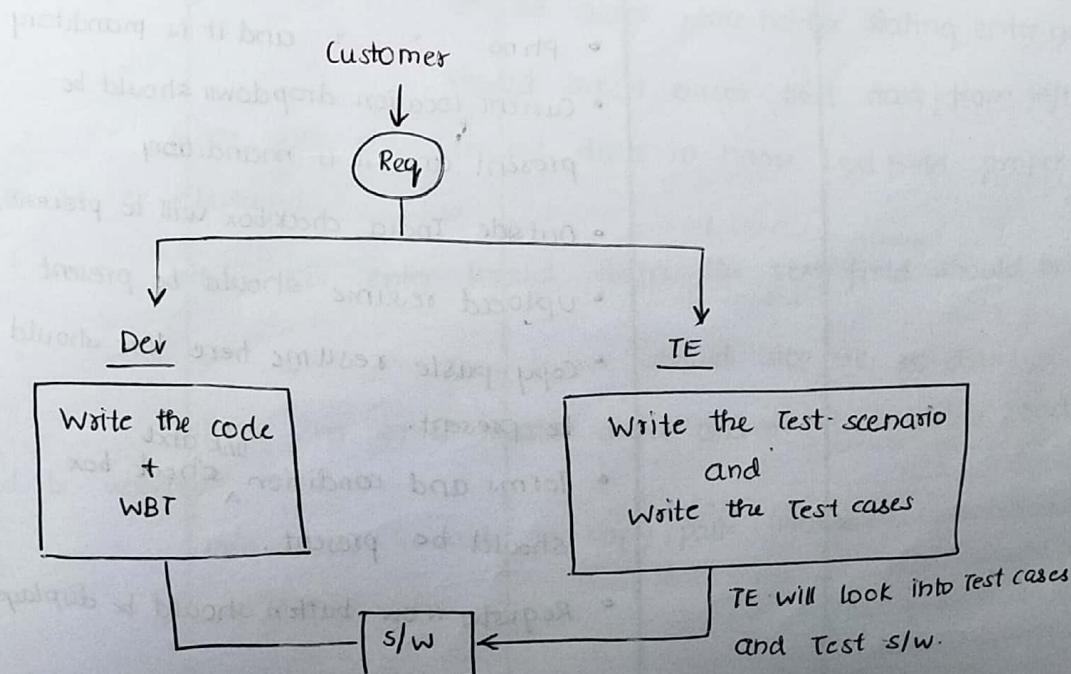
There are two types of optimised Testing.

### I. Positive Testing.

Testing each and every components of an application by entering valid data or expected data which is according to the customer requirement is called positive testing.

### II. Negative Testing.

Testing each and every components of an application by entering invalid input or unexpected input which is not according to the customer requirement is called Negative Testing.



# How to write test scenario and Test cases for functional testing

Real time example - Naukri.com.

Component name : 'Register with us' button.

Test scenario : To test / check / verify that when user clicks on 'Register with us' button 'Tell us about yourself' page should be displayed.

Test case..

Component name	Input	Expected Result
'Register with us' button	NA	<ul style="list-style-type: none"><li>'Tell us about yourself' page should be displayed with following field/ component.</li><li>'I am fresher' button</li><li>'I am a professional' button</li></ul>
'I am a fresher' button.	NA	<ul style="list-style-type: none"><li>'Personal' page should be displayed with following components / field.<ul style="list-style-type: none"><li>Name text field should be present</li><li>Email id " " and it is mandatory field.</li><li>Create text field should be present</li><li>Ph no " " and it is mandatory.</li><li>Current location dropdown should be present and it is mandatory.</li><li>Outside India checkbox will be present.</li><li>Upload resume should be present.</li><li>Copy-paste resume here link should be present.</li><li>Terms and condition link and check box should be present.</li><li>Register now button should be displayed</li></ul></li></ul>

### Name' text field.

1. To check that name text field should accept only alphabets. : Test scenario.
2. To check that name text field should accept alphabets with space +ve
3. To check that name text field should accept alphabet with .+ve
4. To check that name text field should accept alphabet with single quote +ve
5. " " " " " " " " blank space -+ve
6. " " " " " " " " should not accept more than 35 char -+ve
7. " " " " " " " " should accept ~~#,~~, special char(space, dot, , ) +ve
8. " " " " " " " " shouldnot accept special char otherthan (space, dot, , )
9. " " " " " " " " shouldnot accept combination of alphabets&Numbers
10. " " " " " " " " only numbers.
11. " " " " " " " " should accept combination of Cap and small alphabets (UC,LC)
12. " " " " " " " " shouldnot accept combination of spl char + numbers
13. " " " " " " " " should accept less than 35 alphabets.
14. " " " " " " " " shouldnot accept combination of Alphabets with spl char other than (space, ., , )
15. " " " " " " " " shouldnot accept combination of alph, number and spl char.
16. " " " " " " " " should accept upto 35 dots.
17. " " " " " " " " shouldnot accept other than english language
18. " " " " " " " " should accept combination of UC with space.,, ,
19. " " " " " " " " should accept only UC.
20. " " " " " " " " should accept only LC.
21. " " " " " " " " should accept place holder stating enter your FN.
22. " " " " " " " " should accept cursor that start from left end.
23. " " " When user enter invalid data in name text field proper error msg should be displayed.
24. " " " When user enter invalid data the text field should be red in colour.
25. " " " " " the cursor should stop till 35 char.
26. " " " When User enter invalid data and wants to delete , backspace should be working.
27. " " " When User is able to copy paste name

'Name' text field		Test	should be accepted	Test case
	XYZA		should be accepted	
	ABC.		should be accepted	
	ABCD'		should be accepted	
	NA		should be accepted	
	xyz... 36		shouldnot be accepted	
	.		should be accepted	
	* + - \$		should not be accepted	
	AB12		should not be accepted	
	4123		should not be accepted	
	AaBb		should be accepted	
	* + . 4781		should not be accepted	
	Abc.... <35		should be accepted	
	ABC k + \$ - 2		should not be accepted	
	Test*123x12		should not be accepted	
	..... 35		should be accepted	
	87020		should not be accepted	
	ABC.'		should be accepted	
	XYZ		should be accepted	
	abc		should be accepted	
	NA		place holder stating 'Enter your Full Name' should be displayed	
	NA		cursor should start from left side	
	123456		proper error message should be displayed	
	* 1234+		Text field should highlight red in colour.	

### 'EmailId' text field

Test scenario.

1. To check that email-id text field should accept valid email-id format.
2. To check that email-id text field should accept email-id format with combination of alphabets and numbers.
3. To check that email-id text field should accept email-id format along with domain.
4. To check that email-id text field should accept email-id format with alphabets, numbers and symbols.
5. To check that email id text field should accept email-id format with different domain.

6. To check that email-id textfield should accept email-id format ending with .co.in.
7. To check that email-id textfield should not accept blank
8. To check that email-id textfield should accept asterisk symbol (\*)
9. To check that email-id textfield should not accept only alphabets.
10. To check that email-id textfield should not accept invalid email-id format.
11. To check that email-id textfield should not accept duplicate id.
12. To check that email-id textfield should accept active email-id.
13. To check that emailid textfield should not accept multiple email-id.
14. To check that emailid textfield should not accept only numbers.
15. To check that emailid textfield should not accept only special character.

Assignment - Create password textfield. - 20 scenarios, 20 cases.



Requirement

1. It is a mandatory field.
  2. It should accept min 6, max 40 char.
  3. It should display place holder stating Minimum 6 char
  4. It is case sensitive.
- To check that when user click on show button password should be decrypted or unmasked.
  - To check that when user click on hide button password should be encrypted or masked.

Current location dropdown

1. To check that current location dropdown should accept all the cities present in dropdown.
2. To check that current location dropdown should display all the cities according to ~~the~~ state.
3. To check that current location dropdown should display other option if user city is not listed.
4. To check that user should be able to scroll the cities in the current position dropdown by using scroll bar.

5. To check that when user points the cursor on the city should be highlighted.
  6. To check that user should be able to select 1 city at a time from current location dropdown.
  7. To check that current location dropdown should not accept blank.
  8. To check that when user select city from drop down, the same city should be displayed.
  9. To check that when user enters valid city names into current location dropdown then the respective city should be displayed.
  10. To check that when user enters invalid cityname, then city shouldn't be displayed.

Write 15 scenario's for Bday field - Facebook.

Outside INDIA checkbox

1. To check that when user check outside INDIA checkbox, checkbox should be checked and current location dropdown should be hidden country dropdown and a textfield stating 'ENTER YOUR CITY NAME HERE' should be displayed.
  2. To check that when user uncheck outside INDIA checkbox, checkbox should be uncheck, country dropdown and city name text field should be hidden and current location dropdown should be displayed.

Test scenario for Birthday dropdown. [Facebook]

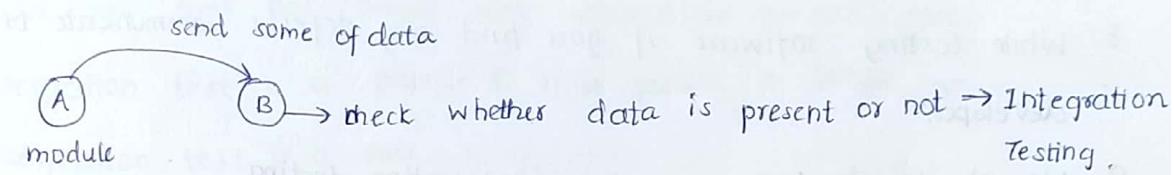
Gmail

defects

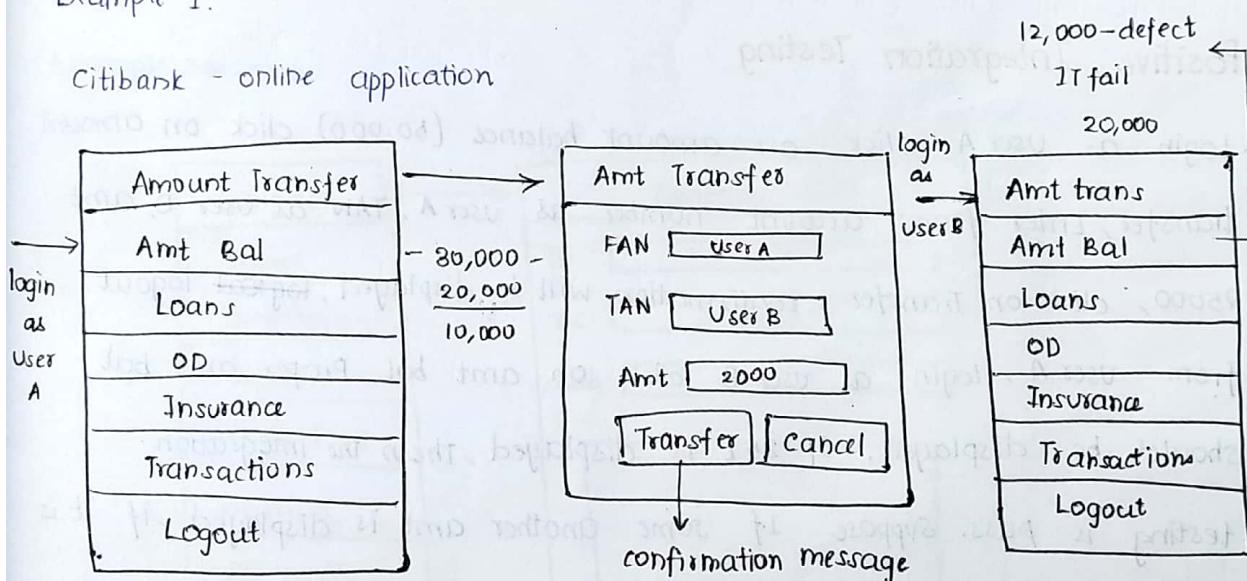
1. ✘ Asterisks symbols are not displayed
2. First name field that accepting more than 200 character.
3. "Sign in instead" link is not display properly.

## Integration Testing

Testing the data flow or interface between two or more modules is called as integration Testing.



Example 1.



Scenario

1. Login as UserA, click on amt transfer enter from account numbers as User B and To account number as User B, amount 20,000. click on transaction transfer button, confirmation message will be displayed Logout as user A. login as user B, click on amt bal, proper amt bal is displayed (20,000).
2. Login as user A, click on amt bal, check whether the proper bal should be displayed (data is flowing b/w amt transfer and amt bal module)

## \* How to identify integration scenarios.

1. First we should understand the complete project. It means we should understand how each and every features should work.
2. Understand how features are dependent or to each other
3. Identify all possible scenarios.
4. Prioritize the identified scenarios.
5. Document the scenarios
6. Write integration test cases for the scenario
7. Test the software by executing test cases.
8. While testing software if you find any defects communicate to developer.
9. We should do both +ve and -ve integration testing.

## Positive Integration Testing

1. Login as user A click on amount balance (50,000), click on amount transfer, Enter from account number as user A, TAN as user B, amt 25000, click on transfer, confirmation will be displayed, ~~log out~~ logout from user A, login as user B click on amt bal. Proper amt bal should be displayed. If 25k is displayed, then the integration testing is pass. Suppose If some another amt is displayed, if it is defect positive integration testing is fail.

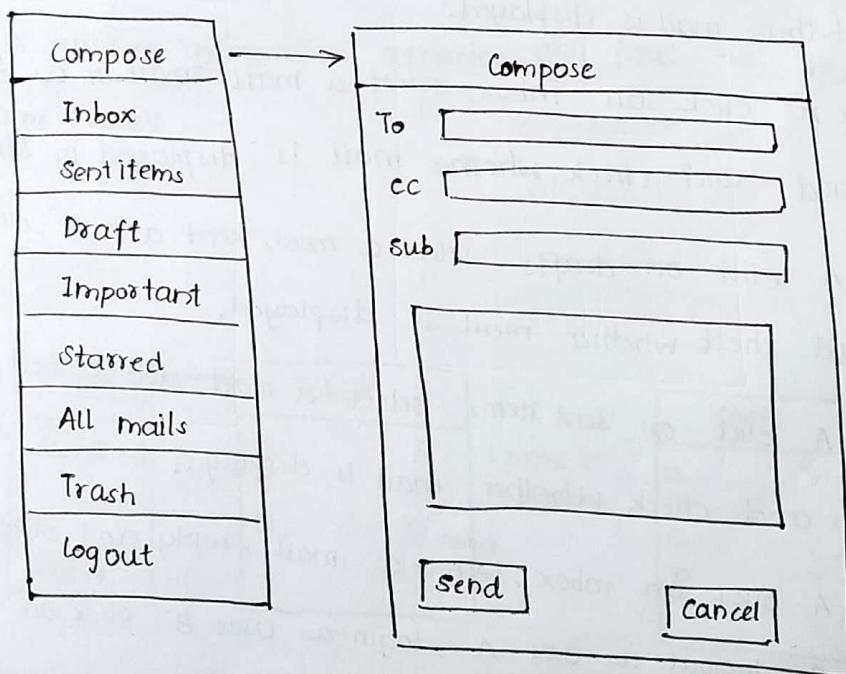
## Negative Integration Testing.

Login as user A, click on amt bal (2000) click on amt transfer, Enter FAN as user A, TAN as user B, amt 25k. click on transfer, Error message should be displayed, click on amt bal proper balance amt should be displayed  
(if 20,000 is displayed -ve integration testing is pass, suppose some another balancce is displayed it is a defect, -ve integration testing is fail).

Write 2 negative integration scenarios of the bank application.

1. Login as user A, click on amt bal (80000), click on amt trans, Enter TAN as user A, TAN as user B, amt 50000, click on transfer, Error message should be displayed, click on amt balance, proper balance amt should be displayed. If 80000 is displayed -ve integration test is pass. If it is displayed 30000 -ve integration test is fail.
2. Login as user A, click on amt bal (60000), click on amt transfer, Enter FAN as user A, Enter TAN as user B, amt 30000, click on transfer error message is displayed, All the fields are cleared. Check on amt bal proper amt should be present. -ve integration test is a pass, If it is present in 30000, -ve integration test is a fail.

Example 2: gmail.



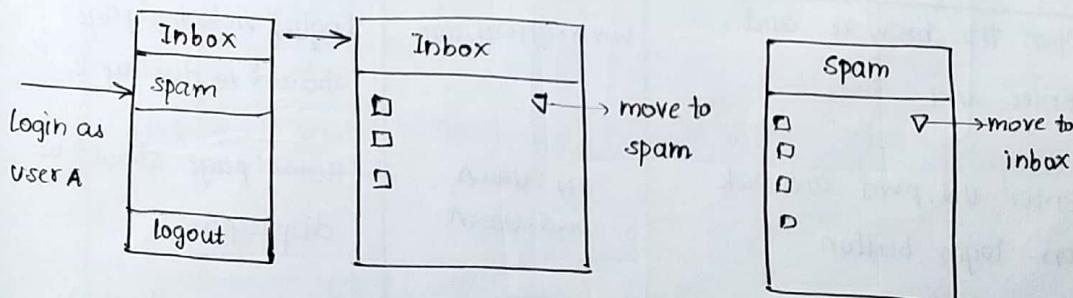
1. Login as user A click on compose, enter values for all the fields and sent a mail to user B, logout as user A. login user B click on inbox check whether mail is displayed in inbox.
2. Login as user A click on inbox select a mail, delete the mail click on Trash and check whether the mail is displayed in Trash.

3. Login as user A click on compose - enter values for all the fields sent items and check whether mail is displayed. 13
4. Login as user A click on compose - enter values for all the fields sent a mail to user B, logout as user A, login as user B - click on all mails and check whether mail is displayed. 14
5. login as user A click on inbox, select a mail mark it as important click on important and check whether mail is displayed. 15
6. Login as user A click on compose, enter values for all the fields click on cancel, click on draft check whether mail is displayed in draft. 1
7. Login as user A click on compose, enter To address as User B cc user C email-id, and enter values for remaining fields click on sent. Logout as user A, login as user B click on inbox, check which mails are there. Logout as user B login as user C, click on inbox and check whether mail is displayed. 1
8. Login as user A click on inbox, select a mail mark it as starred, click on starred and check whether mail is displayed in starred. 1
9. login as user A click on drafts select a mail, sent a mail, click on sent items and check whether mail is displayed. 1
10. login as user A click on sent items select a mail, delete that mail, click on trash and check whether mail is displayed in trash. 1
11. Login as user A click on inbox, open ~~select~~ a mail, reply and send the mail to user B, logout as user A, login as user B, click on inbox and check whether mail is displayed. 1
12. login as user A click on compose, enter same user A email-id for To ~~fields~~ and enter values for all other fields. click on sent. click on sent items and check whether mail is displayed. 1

13. Login as user A click on compose enter values for all the fields click on sent, trash, check whether the mail is displayed.
14. Login as user A click on compose, enter values for all the fields click on cancel button, click on sent items check whether mail is displayed.
15. login as user A click on compose, enter values for all the field, switch off internet connection, click on sent, switch on Internet connection. click on trash check whether mails is displayed.
16. login as user A click on compose enter value for all fields, click on sent click on starred check whether mail is displayed.
17. Login as user A click on compose enter value for all the fields, click on sent click on logout, check whether the mail is displayed.
18. Login as user A click on compose enter invalid email-id for To field and enter the values for all the other fields. click on sent items error message will be displayed.

Write 15 positive Integration scenarios and five -ve integration scenarios for same email

Example 3:



1. login as user A click on inbox, select a mail move to spam, click on spam and check whether mail is displayed. in spam.

Vimp Test cases

## Test Cases.

Step no	Action / Description	Input	Expected output / result
1.	Open the browser and enter URL	www.gmail.com	'login / Welcome' page should be displayed.
2.	Enter UN, pwd and click on 'login' button	UN: UserA pwd: UserA	'Home' page should be displayed
3.	Click on 'Inbox' button	NA	'Inbox' page should be displayed.
4.	Select a mail and click on move to spam	NA	mail should be moved to spam
5.	Click on 'spam' button	NA	mail should be displayed for spam.
6.	click on 'logout' button	NA	User should be logged out from the app successfully

Scenario 2: login as user A click on spam, select a mail ,move to inbox

Click on inbox. Check whether mail is displayed or not. in Inbox,

### Test Case

Step no.	Action / description	Input	Expected result.
1.	Open the browser and enter URL	www.gmail.com	'Login / Welcome' page should be displayed.
2.	Enter UN, pwd and click on 'login' button	UN: UserA pwd: UserA	'Home' page should be displayed.
3.	Click on 'spam' button	NA	'spam' page should be displayed.
4.	Select a mail and click on move to inbox	NA	mail should be moved to inbox
5.	click on 'Inbox' button	NA	mail should be displayed in inbox.
6.	click on 'logout' button	NA	User should be successfully logged out from the app.

Scenario 3 : login as user A , compose a mail, sent a mail to user B , click on sent items. Check whether mail is displayed. Delete the mail , click on trash and check whether mail is displayed. Logout as userA , login as user A , click on inbox. check whether mail is displayed.

Test Case.

Step no.	Action /Description	Input	Expected result .
1.	Open the browser, and enter URL	www.gmail.com	'Login/welcome' page should be displayed.
2.	Enter UN, pwd and click on 'login' button	UN: User A pwd: UserA	'Home' page should be displayed.
3.	click on 'compose' button	NA	'compose' page should be displayed.
4.	Enter values for all the fields and click on 'sent' button	To: User B cc: sub: Body: NA	Mail should be sent.
5.	Click on 'Sent Items' button	NA	'Sent Items' page should be displayed in sentitem
6.	Select a mail and click on delete	NA	Mail should be deleted successfully.
7.	click on 'Trash' button	NA	Mail should be displayed in Trash.
8.	click on 'logout' button	NA	User A should be logged out successfully.
9.	Enter UN, pwd and click on 'login' button	UN: User B pwd: UserB	'Home' page should be displayed.
10.	click on 'Inbox' button	NA	'Inbox' page should be displayed and mail should be shown
11.	click on 'logout' button	NA	

1<sup>st</sup> What is difference b/w Test scenario and Test Case.

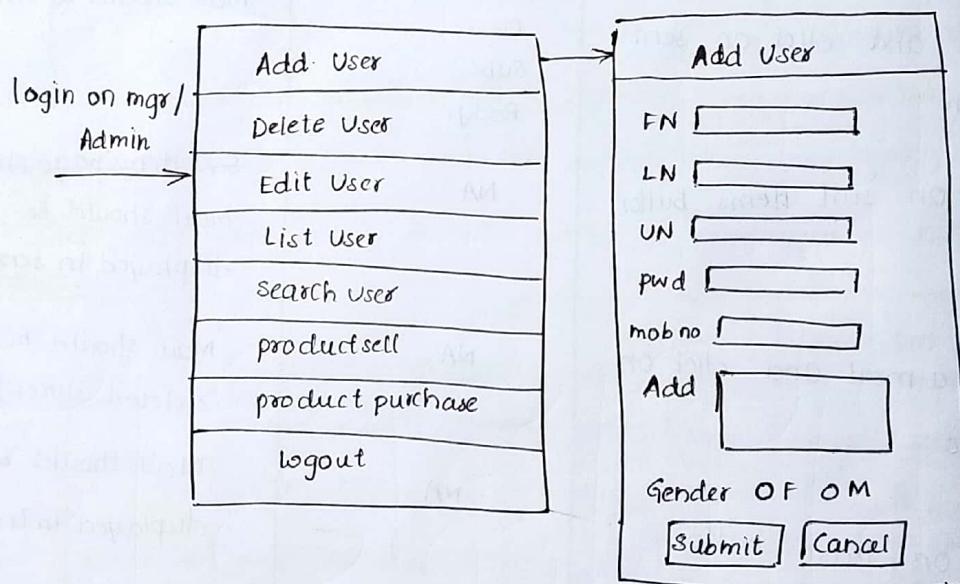
### Test Scenarios

- Test scenario is a high level document of all the customer business workflow according to the requirement
- We can <sup>write</sup> TS by looking into requirement
- By looking into the test scenario we can't test any projects until you have very good knowledge project knowledge.

### Test Cases.

- Test case is a detailed <sup>document</sup> of the scenario which helps TE to test the application.
- We can write TC by looking into both requirement and scenario.
- We can test any proj no matter whether you have proj knowledge or not.

User administration form.



1. Login as manager click on add user enter values for all the fields, click on list user and check whether user is displayed.
2. login as manager click on add user enter values for all the fields click on submit, click on edit user check whether user information is displayed.
3. Login as manager click on edit user, Update UN:ABC to xyz and click on search user, search for user XYZ and check whether user is displayed.

4. Login as manager click on add user, enter values for all the fields, click on submit, click on delete user, select the user and del the user and check whether user is deleted successfully.
5. Login as manager click on dlt user, dlt the user, click on list user check whether user is displayed or not.
6. Login as admin click on add user, enter values for all the fields, enter submit, click on search, search for user and check whether user is displayed.
7. Login as manager click on dlt user ABC, click on search user, search for user ABC and check whether user ABC is displayed or not.
8. Login as manager click on add user, enter values for all fields, click on submit, check whether & click on product sell, click on check whether user is displayed.
9. Login as manager click on add user, enter all invalid data, click on submit error message will be displayed. click on list user and check whether user is displayed.
10. Login as manager click on add user leave all the fields blank click on submit, error message will be displayed. click on search user. search for the user, user shouldn't be displayed.
11. Login as manager click on add user, enter all values, click submit twice. click on <sup>list</sup> search user, check whether twice the user name is displayed.
12. Login as manager, add to user ABC, edit user ABC to xyz, search for ABC user shouldn't be displayed.

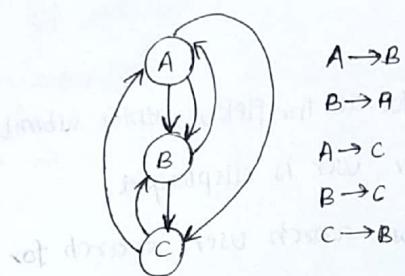
## Types of Integration Testing.

There are 2 types of integration testing.

1. Incremental Integration Testing
2. Non-incremental Integration Testing / Big-bang method.

## Incremental Integration Testing.

Incrementally adding the modules and testing the dataflow between the modules is called as incremental integration testing.

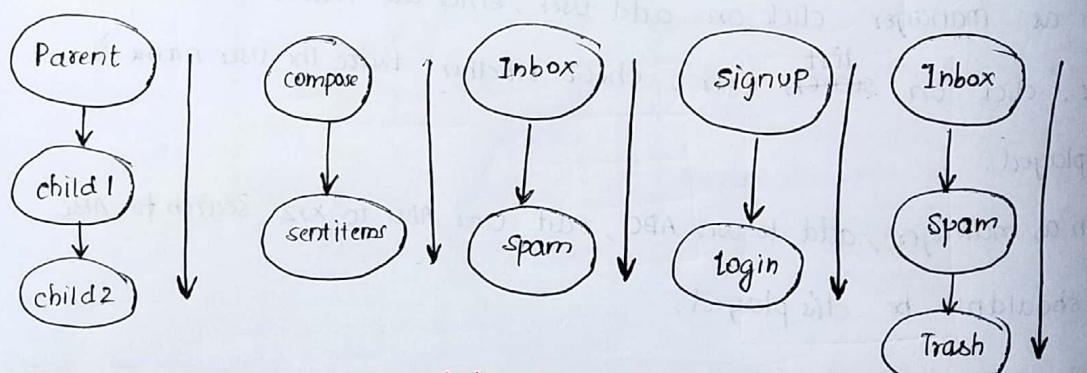


There are 2 types of incremental integration testing.

- a. Top down incremental integration Testing } = sandwich Testing/  
b. Bottom up incremental integration Testing. Hybrid Testing

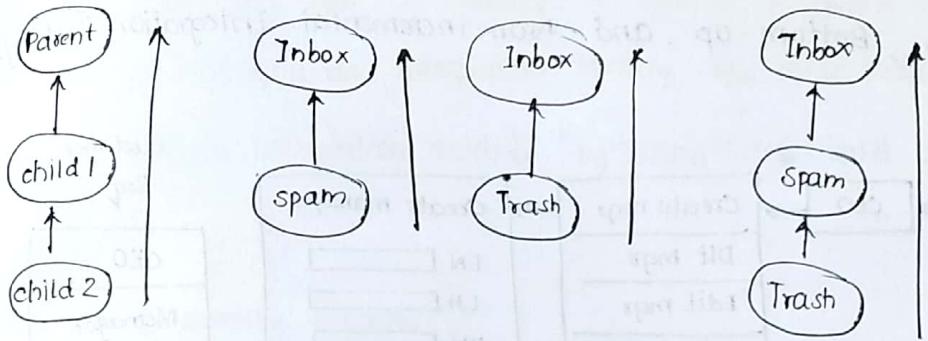
### a. Top down incremental Integration Testing

Incrementally adding the modules and testing the dataflow b/w the modules and ensure that the module that your adding is child of the previous module. Here data will flow from parent module to child module. This is called Top-down incremental integration testing.



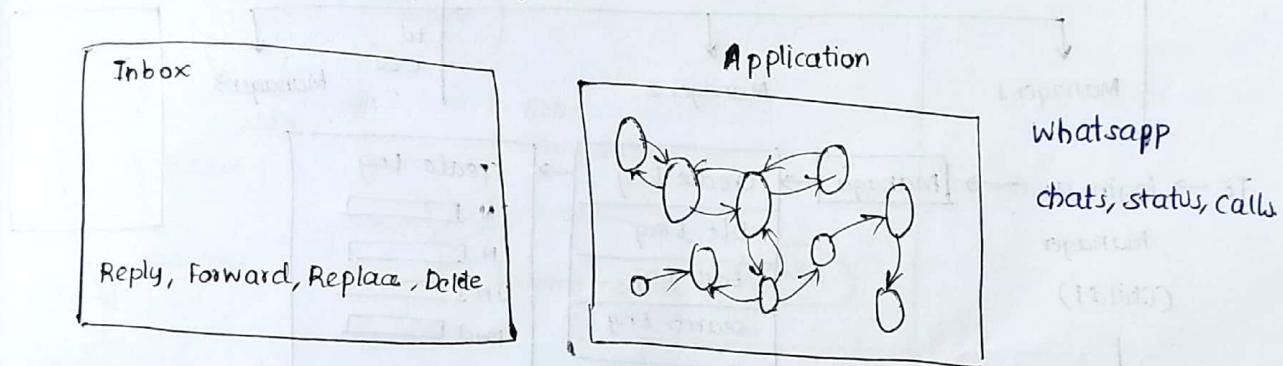
### b. Bottom up incremental integration Testing.

Incrementally adding the modules and testing the dataflow b/w the modules and ensure that the module your adding is parent of the previous module. Here data will flow from child module to parent module. This is called bottomup incremental integration testing.



## Non-Incremental Integration Testing / Big Bang Method.

Here we combine all the modules in 1 shot and test the data flow between the modules is called non-incremental integration testing.



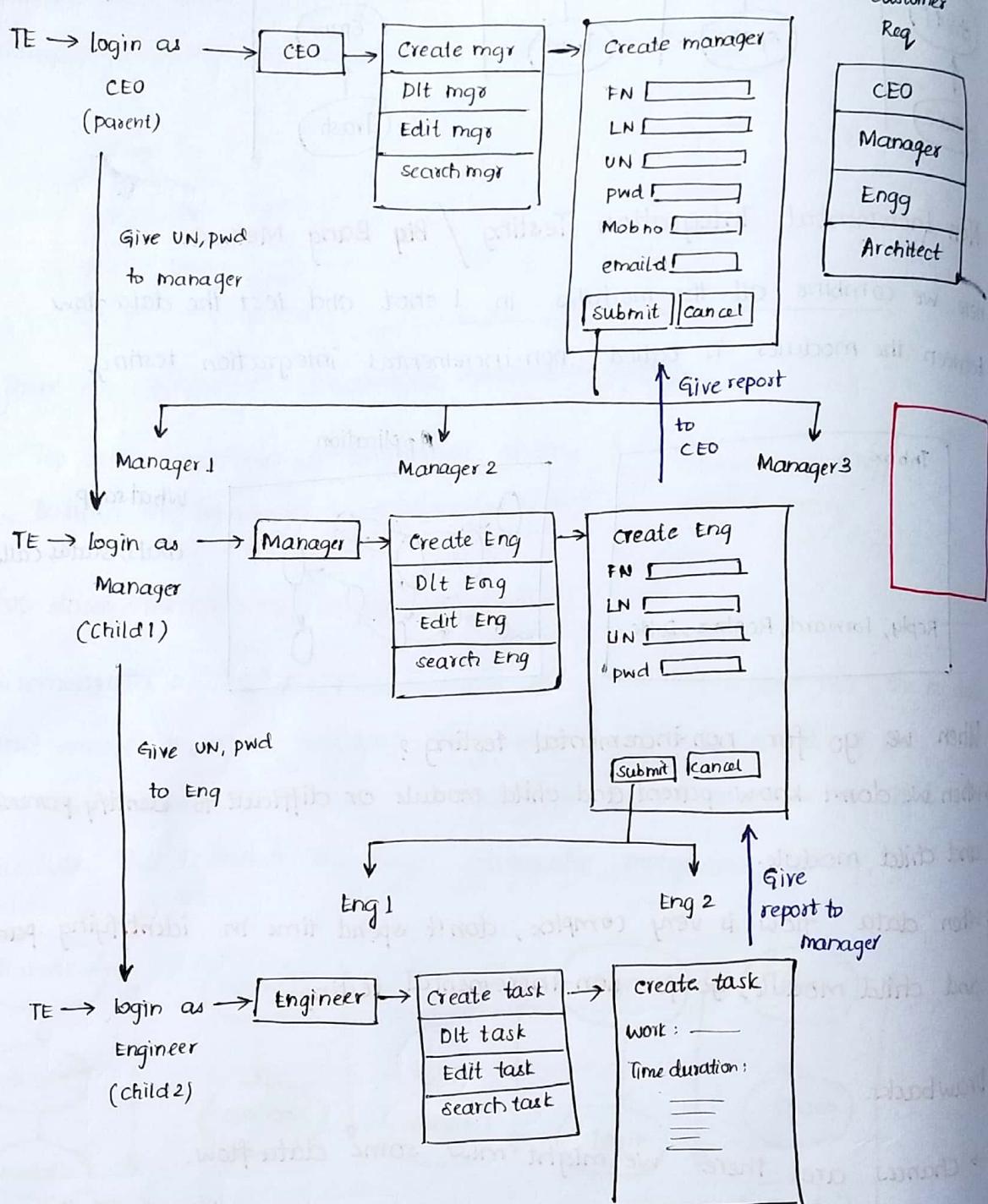
When we go for non-incremental testing?

- When we don't know parent and child module or difficult to identify parent and child module.
- When data flow is very complex, don't spend time in identifying parent and child module, go for non-incremental testing.

Drawbacks.

- Chances are there we might miss some data flow.
- Chances are there we might repeat same testing because of the time taken will be more.
- While testing if you find any defect then it is difficult to identify root cause of the defect.

Eg for Top-down, Bottom-up, and Non-incremental Integration Testing.



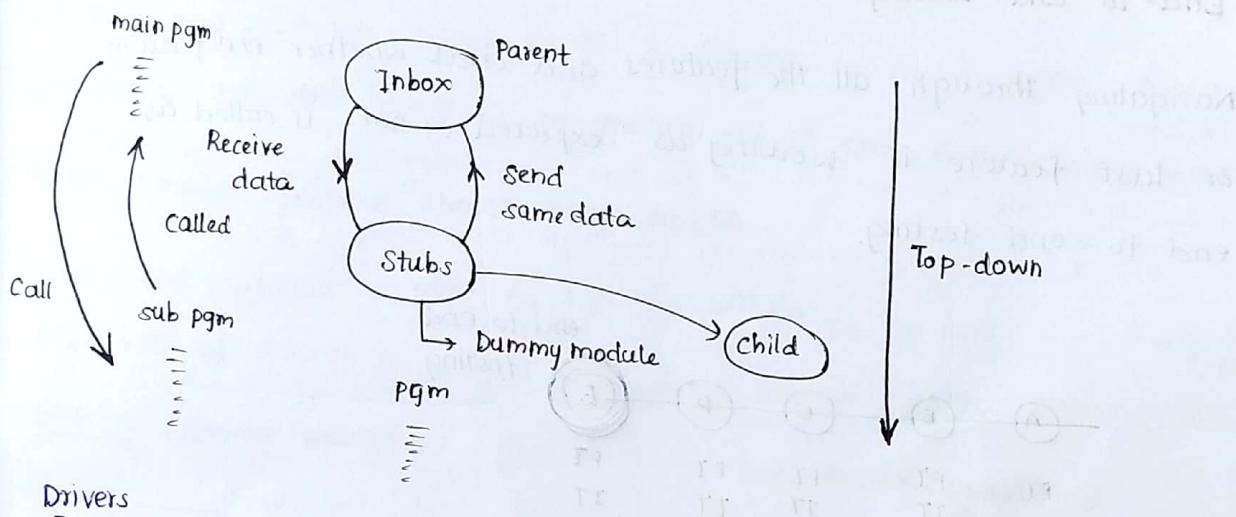
1<sup>st</sup> Assume that there are 2 modules A and B. Module A is ready and B not ready. How will you do integration testing b/w these modules.

Yes, we can do integration testing by using stubs and drivers.

- Stubs are the dummy module

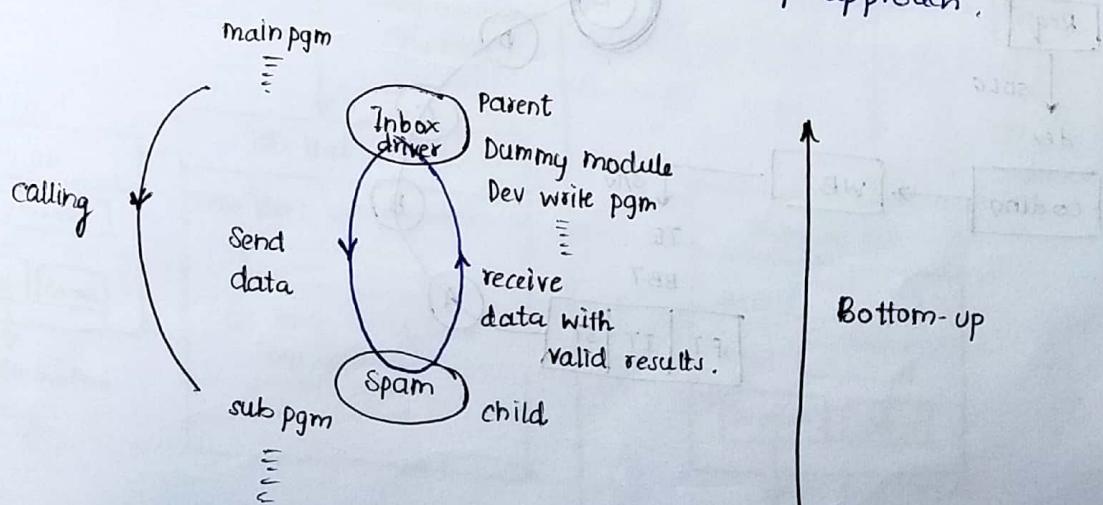
• It is the program written by the developer which will receive the data and send back the same data and it will not give any valid results.

• Stubs are known as 'called' program in Top-down approach.



### Drivers

- They are dummy module
- It is a pgm written by dev.
- Drivers will check interface b/w 2 modules. It means drivers will send the data and receive the data with valid results.
- Drivers are known as 'Calling' pgm in bottom-up approach.



Developers will write stubs and drivers.. TE can write stubs and drivers if your having very good pgming language.

## 1<sup>o</sup> System Testing.

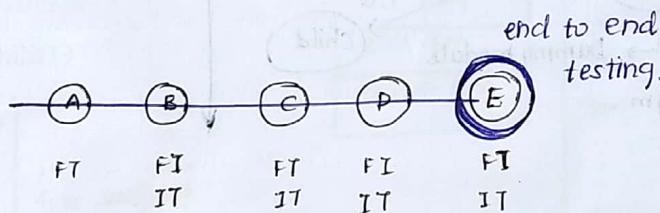
It is an end to end testing where in testing server/environment is similar to the production environment/server

OR

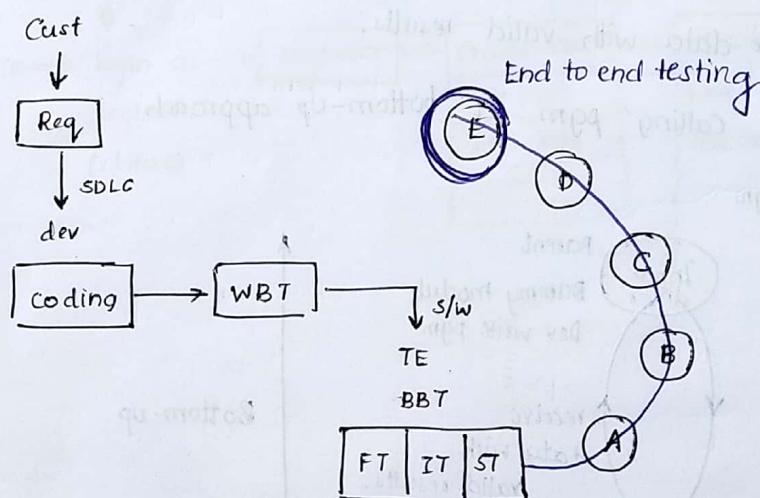
System testing is an end-to-end testing done by the test Engineers in testing server similar to the production server.

### End-to-End Testing.

Navigating through all the features and check whether end feature or last feature is working as expected or not. is called as end-to-end testing.



While doing end to end testing we are least bothered about FT, IT because before doing end to end testing we will be done with FT and IT..



Example 1.

Customer - citibank.

Req → S/W to track → OD (Over Draft) business.

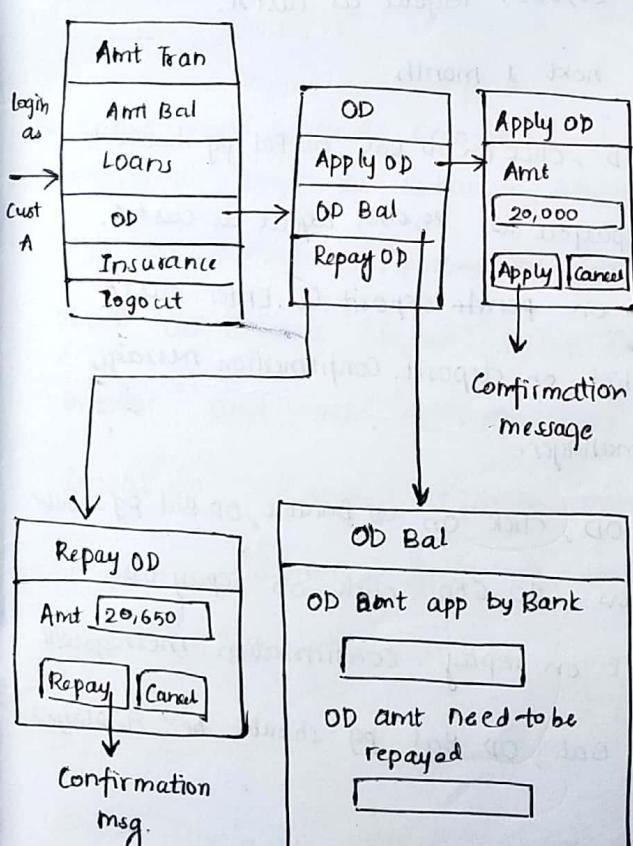
Over Draft : OD is a loan given by bank to customer based on monthly sal and the amount of loan will be twice the monthly sal and loan will be approved with 2 days to Bank manager.

Requirement Work - CRS.

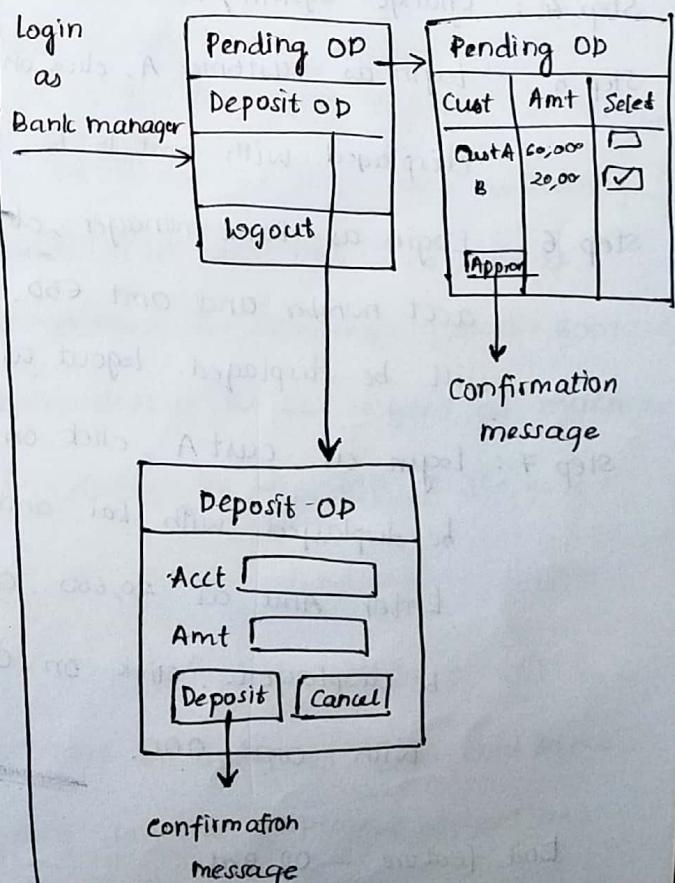
- If any new customer applies for OP for 20,000 for the first time, then bank will charge 2% rate of interest per month and 1st time activation fees is 250.
- After 1 month customer should pay 20,650.
- If some customer applies for 'OP' for 2<sup>nd</sup> time, the bank will charge only 2% rate of interest per month and bank will not charge activation fees.

SRS

Customer workflow



Bank Manager Workflow



## End to End scenario.

Scenario 1 : Login as customer A , Apply for OD for Rs. 20,000 logout as custA  
Login as Manager , Approve the pending OD logout as mgr , login as cust  
Check OD balance [20,000]. After 1 month, make sure that 2% rate of interest  
and 250 activation fees is charged for customer.  $[20000 + 400 + 250]$   
Logout as customer, login as manager deposit the OD logout as mgr.  
Logout as customer, login as manager deposit the OD logout as mgr.  
Logout as customer, check the OD Bal, repay the OD and make sure that OD  
bal is 000.

### Test Case

- Step 1 : login as customer A . click on OD, click on apply OD . Enter amt 20,000  
click on apply, confirmation msg will be displayed. Logout as custA
- Step 2 : login as Bank manager. click on pending OD, select custA amt click  
on approve, confirmation message should be displayed. Logout as Manager
- Step 3 : login as customer A, click on OD, click on OD Bal . OD Bal pg should  
be displayed with Bal amt as 20,000. Logout as custA.
- Step 4 : Change system / server date for next 1 month
- Step 5 : login as customer A, click on OD, click on OD Bal , OD Bal pg should be  
displayed with amt to be repaid as 20,650. Logout as custA.
- Step 6 : Login as Bank manager, click on deposit OD. Enter custA  
acct number and amt 650. Click on deposit. Confirmation message  
will be displayed. Logout as manager.
- Step 7 : Login as custA , click on OD, click on OD Balance, OD Bal pg should  
be displayed with bal amt as 20,650 . click on repay OD.  
Enter Amt as 20,650 . click on repay . Confirmation message will  
be displayed. click on OD Bal , OD Bal pg should be displayed  
with amt 000.

End feature - OD Bal

Scenario 2: Login as customer A, Apply for OD for Rs.20,000 logout as customer login as manager, Approve the pending OD logout as manager, login as customer check OD Bal [20,000]. After 1 month, make sure that 2% rate of interest is charged for customer [20,000 + 400]. logout as customer, login as manager deposit the OD to:

Test case.

Step 1 : Login as customer A, click on OD, click on apply OD. Enter amt 20,000 click on apply, confirmation message will be displayed. logout as cust A.

Step 2 : login as Bank Manager. Click on pending OD, select cust A amt click on approve, confirmation message will be displayed. logout as manager.

Step 3 : login as cust A, click on OD, click on OD Bal. OD Bal pg should be displayed with Bal amt as 20,000. logout as A.

Step 4 : Change system/ server date for next 1 month

Step 5 : login as customer A, click on OD, click on OD Bal, OD Bal page should be displayed with amt to be repayed as 20,400 logout as customer A.

Negative End to End Scenarios [salary= 15,000]

Scenario 3: Login as sukanya, Apply for OD for Rs.30,000 logout as sukanya. Login as Manager. Approve the pending OD logout as mgr. Login as sukanya check OD Balance [30,000]. After 1 month, make sure that 2% rate of interest and 250 activation fees is charged for sukanya [3000 + 600 + 250]. logout as sukanya. login as manager deposit the OD logout as manager login as sukanya, check the OD Bal, repay the OD and make sure that OD bal is 000.

Test case.

Step 1 : login as sukanya, click on OD, click on apply OD. Enter amt 30,000 click on apply, confirmation msg will be displayed. logout as sukanya

Sukanya

Step 2: login as Bank Manager. Click on pending OD. Select sukanya  
click on approve, confirmation message will be displayed. Logout  
as manager.

Step 3: login as sukanya, click on OD, click on OD Bal. OD display page should  
be displayed with amt ~~to be repay~~ <sup>bal as 30000</sup> ~~as 30850~~. Logout as sukanya

Step 4: change system date for next 1 month

Step 5: Login as sukanya, click on OD, click on OD Bal, OD page should

be displayed with amt ~~to be repay~~ <sup>as 30850</sup>. Logout as sukanya

Step 6: Login as manager, click on deposit OD, Enter sukanya's acc no

and amt 850, click on deposit. confirmation message should  
be displayed. logout as manager.

Step 7: ~~Logout~~ login as sukanya, click on OD Bal, OD Bal page should be

displayed with Bal amt as 30,850. click on repay OD. Enter  
amt as 30,850. click on repay. confirmation message will be

displayed. Click on OD Bal, OD Bal page should be displayed as a  
000.

Write 1 negative end-to-end scenario.

Scenario 4: login as customer A, Apply for OD for 50,000 Logout as cust A

login as manager. Approve the pending OD Logout as mgr, login as cust A

Check OD Bal [50,000]. After 1 moth, make sure that 3% rate of interest

and 250 activation fees is charged for customer  $(50,000 + 1500 + 250)$

Logout as customer. login as manager deposit the OD Logout as manager

login as customer. check the OD Bal, repay the OD and make sure that

OD Bal is 000.

Example:

### Insurance

↳ customer → Bajaj Alliance vehicle insurance



CRS → BL

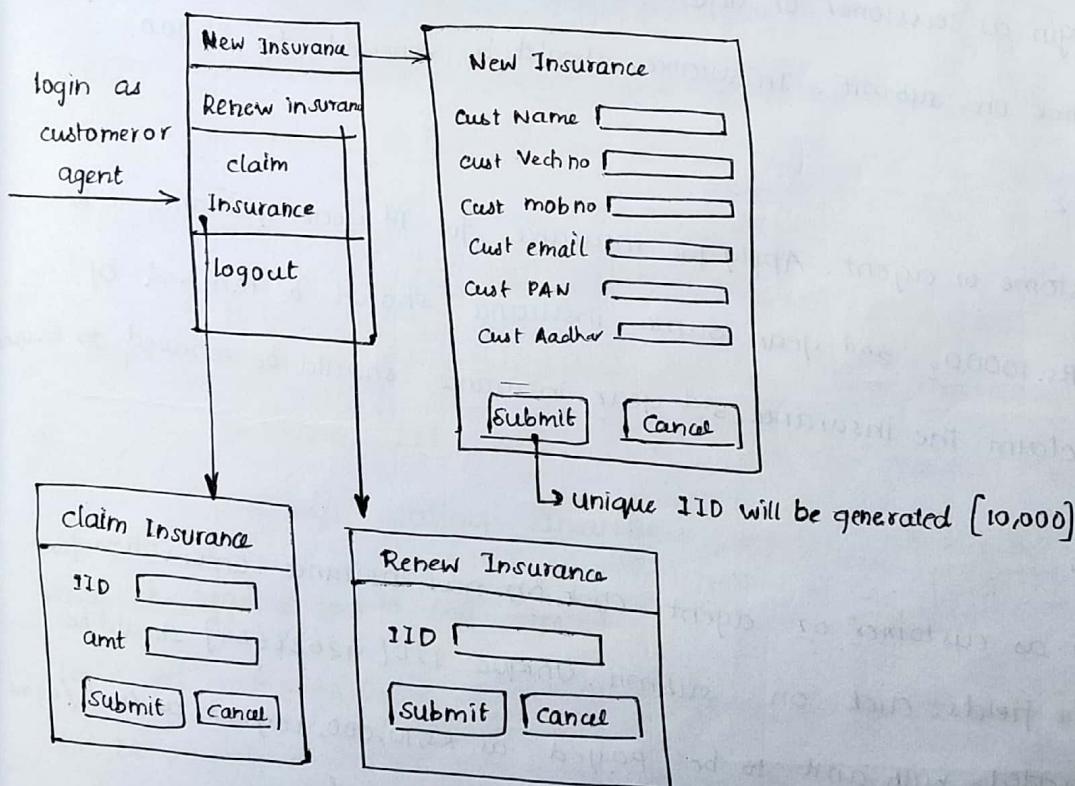
Req → S/W → Vehicle insurance.

→ If any customer purchase new car, along with the car 1 year new insurance should be purchased

→ Insurance Policy

- For the 1<sup>st</sup> year, insurance need to be payed is Rs.10,000
- For the 2<sup>nd</sup> year, same insurance can be renewed for 10,000
- During 2<sup>nd</sup> year, if there is no claim done then 3<sup>rd</sup> year insurance will be renewed for Rs 8500 (1500 discount for customer)
- Suppose during 2<sup>nd</sup> year claim is done, the 3<sup>rd</sup> year insurance should be renewed for 10,000

How SRS look



Login as customer or agent. Apply for insurance, for the 1st year insurance to be payed is Rs.10000, 2nd year same insurance should be renewed of Rs.10000. 3rd year insurance should be renewed for Rs.8500/-

Test case.

Step 1: login as customer or agent. Click on new insurance. Enter values for all the fields. click on submit. Unique IID [92526654] should be generated with amt to be payed as Rs.10000. Logout as customer or agent.

Step 2: Change the system date for 1 year

Step 3: login as customer or agent. click on renew insurance enter IID click submit. Insurance should be renewed for 10,000/- Logout as customer or agent.

Step 4: change the system date for 1 year

Step 5: login as customer or agent. click on renew insurance enter IID click on submit. Insurance should be renewed for 85,000.

Scenario 2.

Login as customer or agent. Apply for insurance, for 1st year insurance to be payed is Rs.10000, 2nd year same insurance should be renewed of Rs.10000. claim the insurance, 3rd year insurance should be renewed for Rs.10000.

Test case.

Step 1: login as customer or agent. Click on new insurance. Enter values for all the fields. click on submit. Unique IID [92526654] should be generated with amt to be payed as Rs.10,000. Logout as cust/agent.

Step 2: change the system date for 1 yr.

Step 3: login as cust or agent. click on renew insurance enter IID click on submit. Insurance should be renewed for Rs.10,000 logout as customer/agent.

step 4: login as customer / agent. click on claim insurance enter Insurance IID  
enter amt , click on submit. Insurance should be claimed. logout as  
cust / agent.

Step 5: change the system date for 1 year.

Step 6: login as cust / agent. click on renew insurance, enter IID click on submit.  
Insurance should be renewed for Rs. 10000.

Negative scenario.

login as customer / agent Apply for insurance, for the 1<sup>st</sup> year insurance to be  
payed is Rs. 10,000, 2<sup>nd</sup> year same insurance should be renewed Rs. 10,000  
change the system date for 1 year, ~~3rd year~~ claim the insurance and  
check whether error message stating insurance expired is displayed.

Step 1: login as customer or agent. click on new insurance. Enter values for  
all the fields . click on submit. Unique IID [ 92526654 ] should be  
generated with amt to be payed as Rs. 10,000 Logout as customer

Step 2: change the system date for 1 year

Step 3: Login as customer / agent. click on renew insurance enter IID.click  
on submit. Insurance should be renewed for Rs. 10000 Logout as  
customer

Step 4: change the system date for 1 year

Step 5: login as customer / agent. click on claim insurance .Enter  
insurance IID , enter amt , click on submit. Proper error  
message stating Insurance expired should be displayed.

Write 1 negative end to end scenario.

login as customer/agent. Apply for insurance, for the 1<sup>st</sup> year insurance  
to be payed is Rs.10,000, 2<sup>nd</sup> year claim the insurance and check whether  
error message stating insurance expired is displayed.

Access id : 192.168.0.5:9001

Note:

(Don't talk in interview)

1) login → logout

Any app start from login, navigate through all features, logout and make it as 1 end-to-end scenario

2) Take any app, combine any 6 to 7 features and make it as 1 end-to-end scenario

3) club any 3-4 integration scenarios and make it as 1 end-to-end scenario.

### Facebook End to End Scenario

sign up the facebook, login to facebook, upload profile photo tag the photo check some notifications accept some friend request, search some friend profile, check all their photos, like the photos, send friend request logout.

login to facebook, add a story like your own story, comment on somebody's story chat with friends, block the friend put some check in watch some videos, change profile picture, change cover photo, post some bday wishes and check whether bday wish is sent.

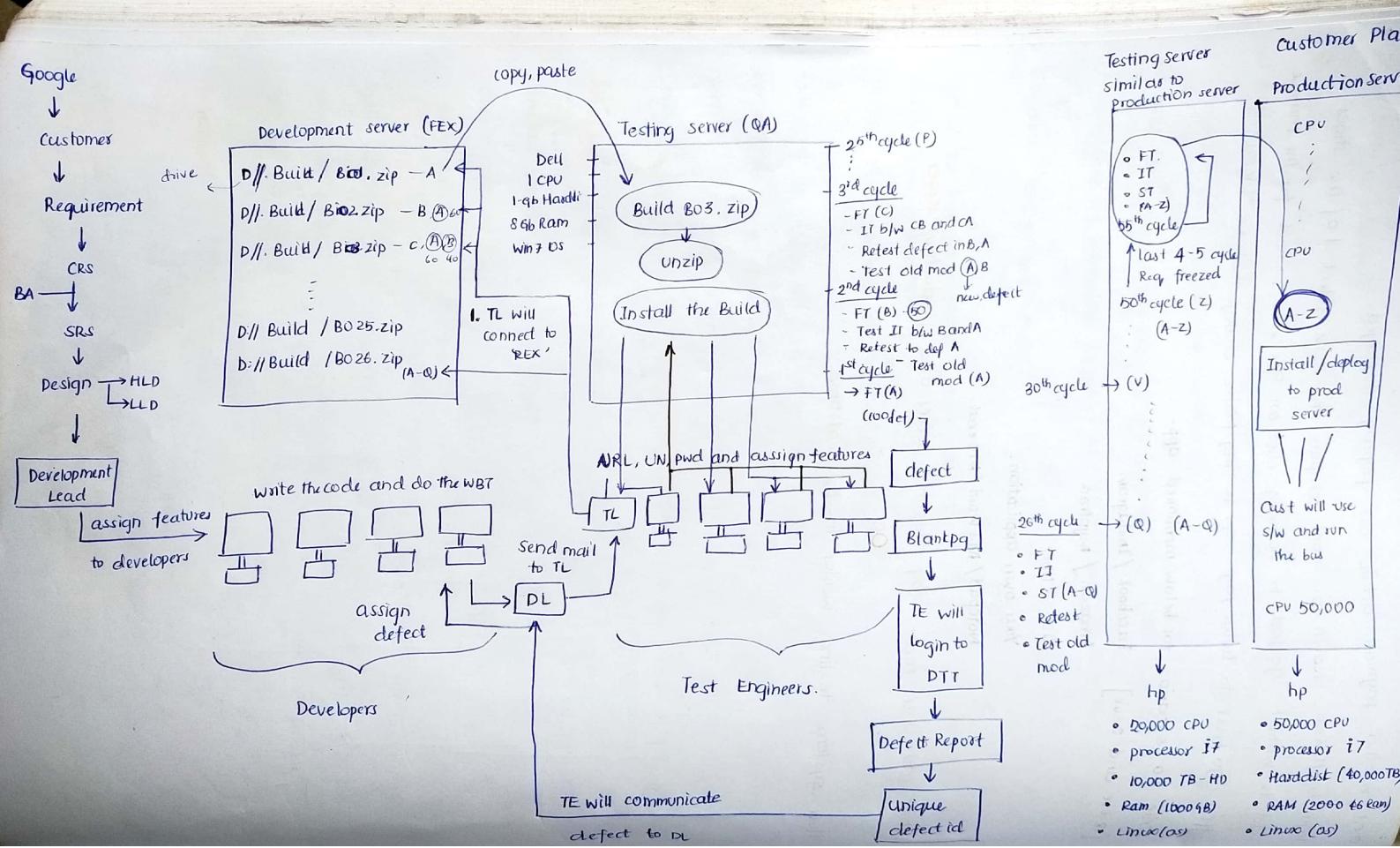
### Whatsapp end to end testing scenario

Install whatsapp, register, login to whatsapp, upload dp, Add contacts create group, add friends group, chat from group, exit from group, del the group. Upload status, check others status. Close the whatapp

Open whatsapp, chat with contact, del the chats, do video call, sent location block the contact. Chat with some other contact. Invite friend, change the dp, check whether this is displayed.

### Flipkart

signup flipkart, login to flipkart, click on electronics, click on samsung add mobile to the cart, go to cart place the order, click on continue, do the payment by using cash on delivery. Click on orders



### Server:

It is a server which is a combination of hardware and software

#### development server

It is a server which is used to store the code written by developer.

Testing server / Environment / Test Bed: Its a server which is used to install the software that needs to be tested.

Production server : It is the server present in the customer's place where customers will use the s/w and run the business. Customer gives the req for A-Z mod in the form of CRS, BA will convert CRS to SRS. Architects will do design (HLD and LLD), DL will assign features to dev. In 1st cycle (5 days) All dev write the code for module A do WBT, compress the code and store the code in development server in zip format, in the below mentioned path.

D drive

Build folder

Bo1.zip

development lead will send a mail stating Build.Bo1.zip is ready for testing which consist of code for module A and WBT to Testing Lead.

Test Lead will connect to REX server (Dev ser) copy,paste. It will be build to zip to testing server. unzip, install the zip and given URL,UN,pwd to TE and also assign features to TE. Every TE will start doing FT for modA. While testing if you find any defect, login to defect tracking tool, prepare defect report by giving unique defect ID and communicate defect to development Lead(DL). and DL will assign defect to dev E.

Let's assume we have found 100 defect in ~~in~~ 5 days. Parallelly developers

i) DEV will write new code for module B

iii) fix some defect (60) in module A

ii) Do WBT

DL will compress the code and store it in dev server in zip format

in the below mentioned path

D://Build .B03.zip.

DL will send a mail to TL stating Build B02.zip is ready for testing.

### 2<sup>nd</sup> Test cycle

TL will connect to Rex server, copy paste build .B02.zip into Testing server. Unzip, uninstall old build, install new build and TL will assign features to TE, and ask them to start the testing. Now TE will

- i) FT on module B
- ii) Integration b/w B and A
- iii) Retest defects in old module
- iv) Test the old module

Note: i) TE should retest the defects which is found by them, they should not worry abt defects found by other TE.

Why TE will find new defects while testing old module

→ chances are there adding new module might introduce defect in old mod.

→ chances are there clev fixing defects in old module might introduce defects in same old mod.

→ chances are there TE might have missed some defects in prev cycle.

Like this way testing continues for many cycles. Once minimum bunch of modules are ready, The Testing team will talk to production team and we will get testing Server similar to the production server setup available. In this server we will mainly focus on doing System testing.

when to go for system testing

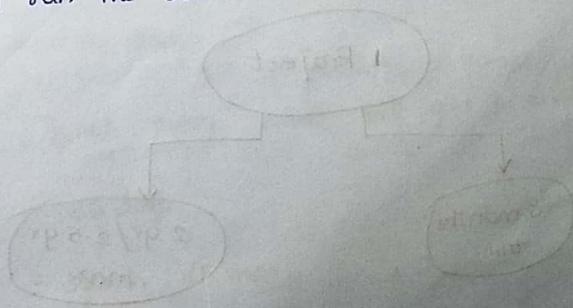
- When min bunch of mod are ready.
- Testing server similar to production server available
- Basic functionalities of all the modules should be working fine
- Product should be relatively stable. [No blockers]
- When we start getting less no. of requirements.

Testing continues from 25<sup>th</sup> cycle till 55<sup>th</sup> cycle. By this time dev will give mod Q to testing team. TE will

- i) FT for mod Q
- ii) Integration b/w Q with old mod
- iii) S/m testing [A-Q]
- iv) Retest defects in old module
- v) Test old module.

Like this way testing continues in all the upcoming cycles and dev will give mod Z by 100<sup>th</sup> cycle. Now TE will test mod Z. Once after all the A-Z modules are tested, last 4-5 cycles requirements would be freezed. Dev will be fixing defects which is pending and TE will be testing the defect. and again in the end stage also TE will do FT, IT, ST for all A-Z modules.

Once testing is completed, quality is good, TE will inform to project manager, dev manager and test manager stating all the A-Z modules are tested. Quality is good, and finally software will be deployed or installed into the production server where customer can use the s/w and run the business.



Q1. What is release or first release or 1 release?

Starting from gathering the requirement followed by developing the software and testing software for many cycles and deploy s/w into the production server is called as release.

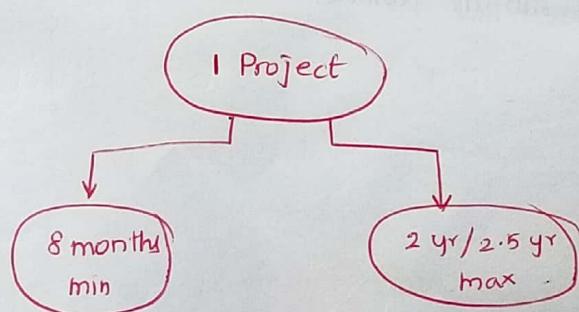
Q2. When to release software to the customer?

- When customer requested features are ready, then we will release s/w to customer.
- Once after FT, IT, ST is completed.
- When there are no blockers [critical defects] [Blank page]
- When the product is functionally stable.
- Once after s/w is tested in testing server similar to production server
- Once after all the end to end scenarios are thoroughly tested
- When we are about to meet deadline / release date given by customer
- We can have some minor defects and these defects should not affect customer business workflow and these defects should meet acceptable limit set by customer.

Q3. How many days will you take to test a project?

- It depends on complexity of the project
- Depends on size of proj [No. of mod present]
- Depends on no. of TE working on project.

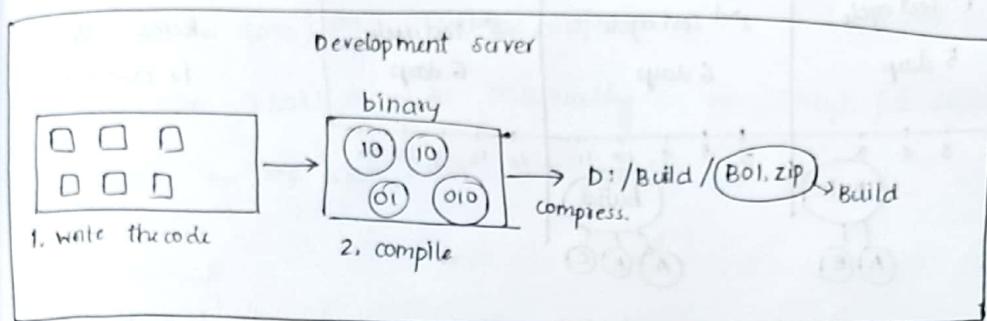
Q4. What is the total duration of the project that you have worked on?



## 1<sup>st</sup> Build

Developers will write the code, compile the code and compress the code into a file, that compressed file is called as build.

We will get the build in the below mentioned formats.



Build	→ .exe
	→ .zip
	→ .jar [Java]
	→ .war [Web app Archive]
	→ .Tar [Tape archive] [Capacity to store all the file formats]
	→ .Roth [Roshal archive]
Android	→ .Apt [Archive Package Kit]
iOS	→ .ipa [iOS App Archive]

- Note
- 1 project can have only 1 release if the project is small and simple
  - 1 project can have n no.of releases. If the proj is complex and big proj
  - One release can consist of n no.of builds.

? How many builds have you tested in your projects. (Exp)

Eg: 9 Month's project

1 Test cycle = 5 days

1 Month = 4 Weeks

1 week = 5 Working days

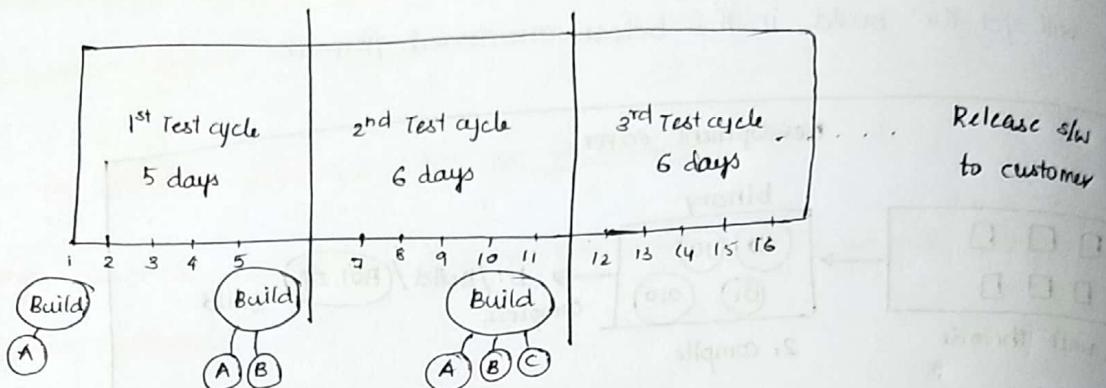
Every test cycle we get 1 build, every work we get 1 Build.

9 months → 9 × 4 = 36 days.

= 36 min, 45 max.

## Test cycle.

Time taken to test 1 complete build is called as test cycle.



Test cycle duration : Time period taken to completely test 1 Build is called as test cycle duration.

Test cycle duration depends on

- complexity of project
- size of project
- no. of TE

Note 1) 1 release can consist of n no.of builds and n no.of testcycles

2) Time taken to do FT, IT and ST neednot be same.

\* What do you mean by Testing server similar to production server  
[What are the similarities] ?

i) Hardware should be similar to production server.

a) Manufacturer should be similar to production server.

If production server is manufactured by hp then testing server similar to the production server should be manufactured by Hp only

b) Configuration and make should be similar but we can have different capacity. [No.of CPU][storage can be different]

2) software should be similar to the production server

a) OS should be similar

b) Web server should be similar

- c) App server should be similar
- d) Database server should be similar.
- 3) Data should be similar to production server.  
 Suppose if in the production server if there are 1 LK user accet then in testing server similar to the production server, we have to create 1 LK dummy accets [dummy data] and test the software.

Creating ~~#~~ 1 Lakh account manually is very tough job so, we can go for automation or we can write SQL queries.

While (50,000)

{

Create user name

Create pwd into user

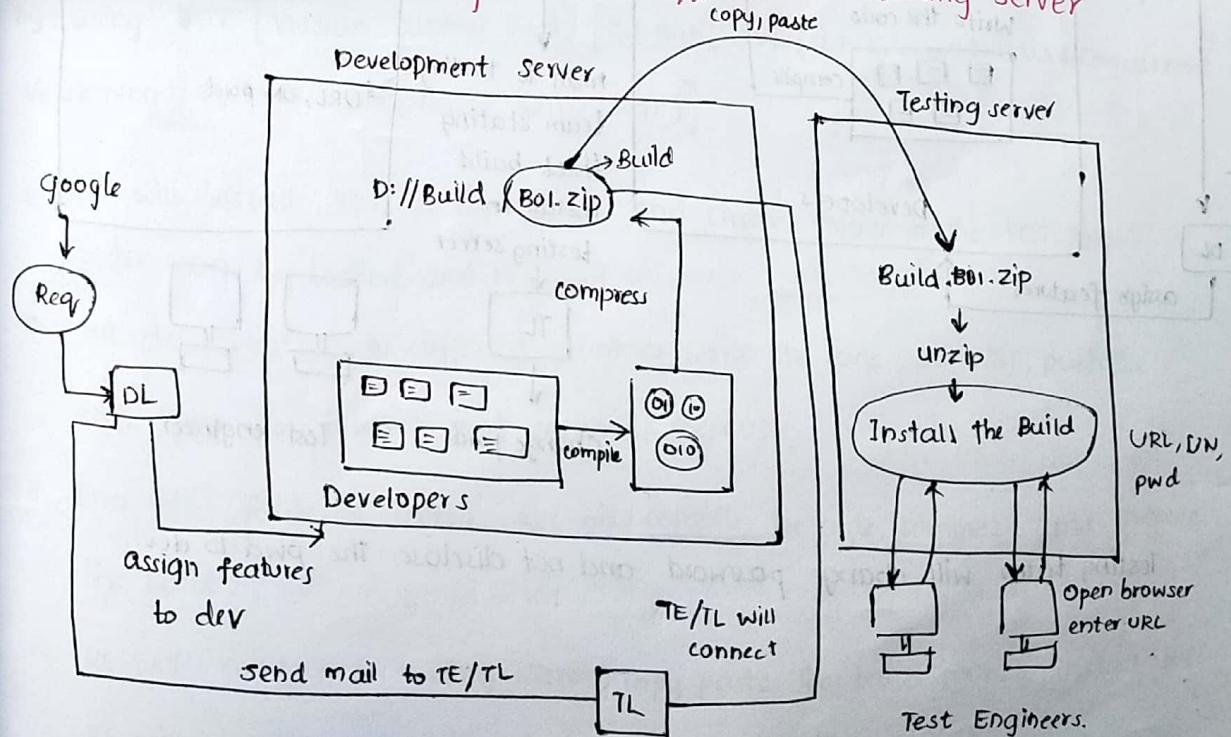
}

Run.

Who will be involved in installing build or software into the testing server.

- 1) Testing Team [TL, ST.TE, Jr.TE, Fresher]
- 2) Development Team [DL, Sr.Dev, Jr.Dev, Fresher]
- 3) Release Engineer / Build Engineer

How TE will be installing build or s/w into the testing server

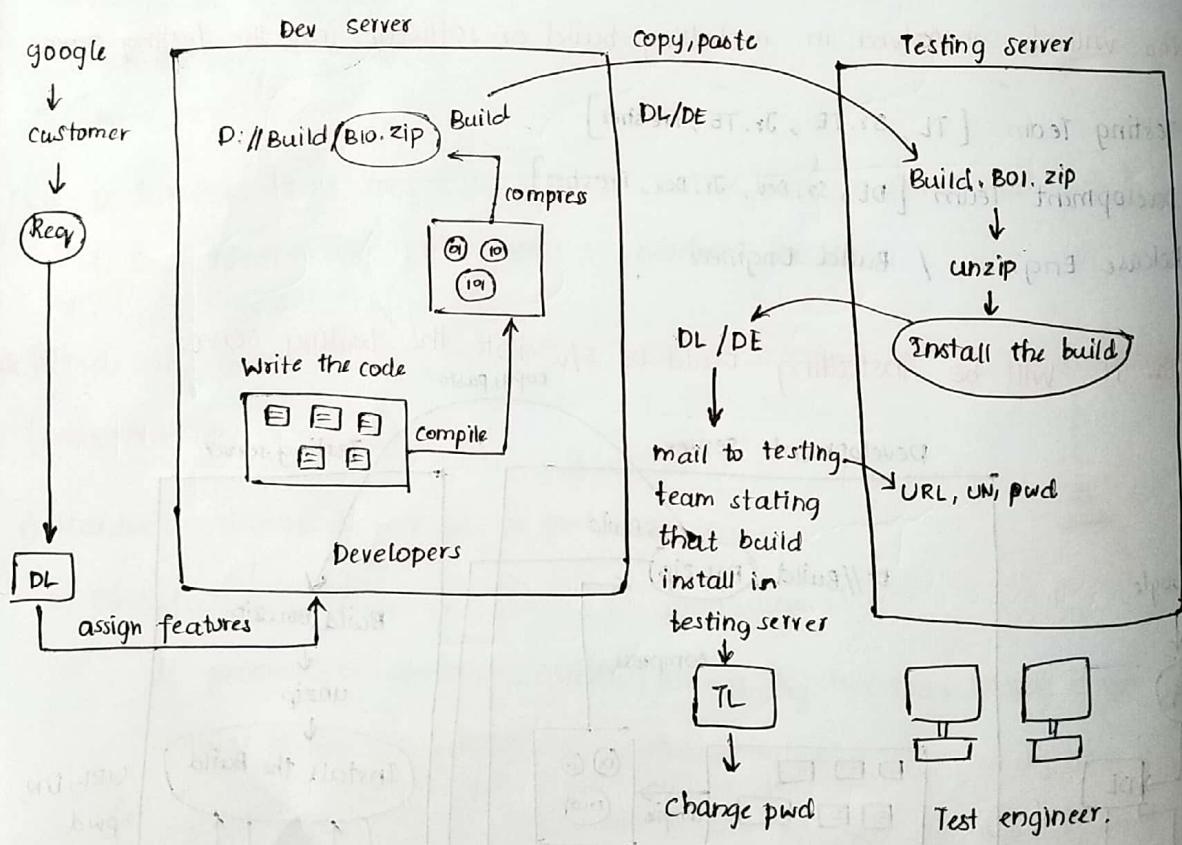


Customer gives requirement for both dev and TE. DL will assign features for dev and dev will write the code for respective assigned features, compile the code, compress the code and prepare the build and store in dev server in below mentioned path.

D://Build B10.zip.

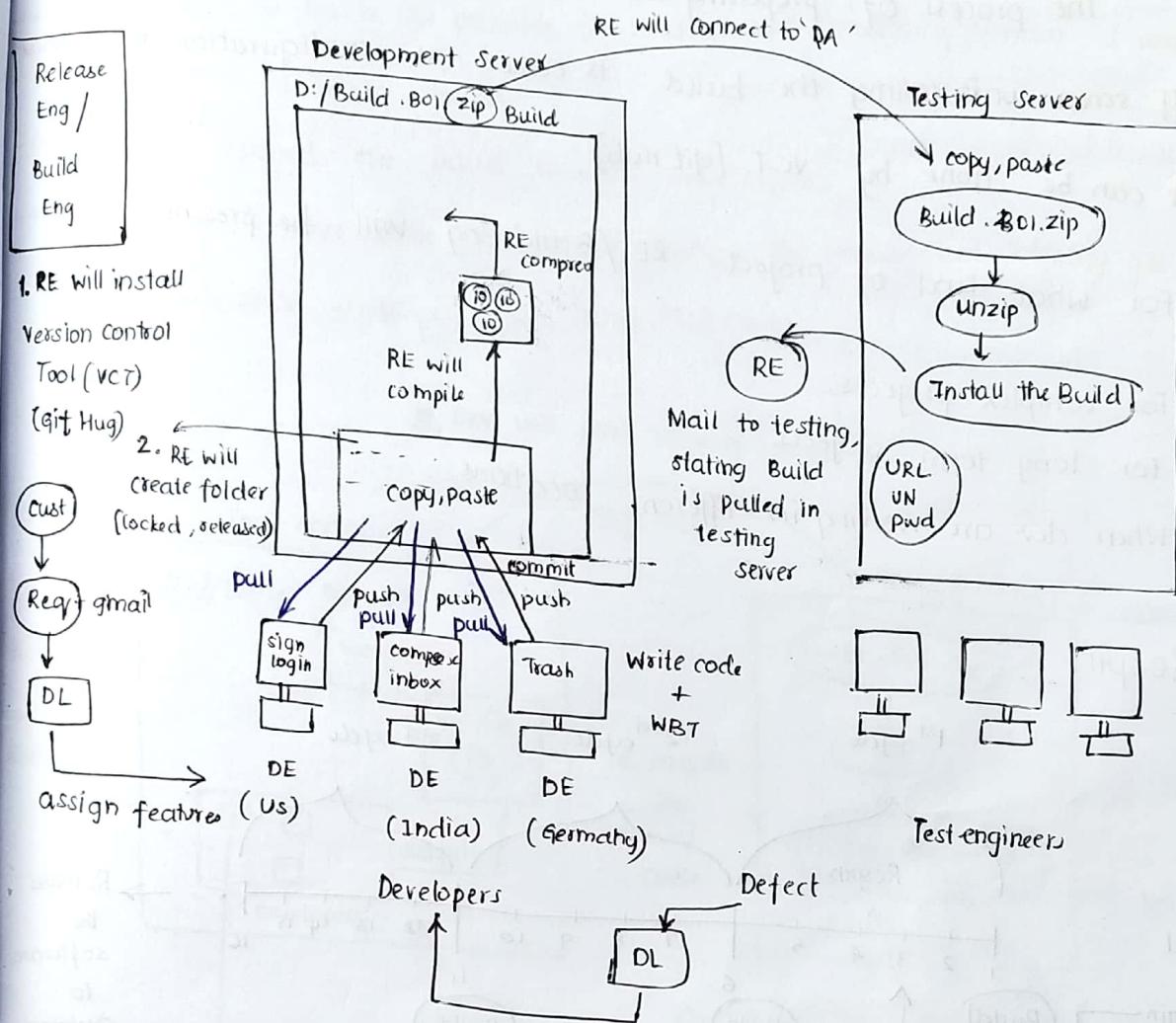
DL will send a mail to TL or TE stating build is ready for testing. TL/TE will connect to Rex server / Dev server, copy, paste build into Testing server, unzip, install the build in testing server. and if TL install the build, TL will give URL, UN, pwd to testing team. If TE install the build, TE will give URL, UN and pwd to testing team.

How developers will involved in install the build into server.



Testing team will change password and not disclose the pwd to dev.

★ How Release Engineer / Build Engineer will be involved in installing the build / s/w to server.



RE is a person one who manages source code, written by the developers by using VCT [Version control Tool] [GitHub, SVL (sub version), CVS (concurrent Versioning system), VSS (visual source safe)]

1. RE will install VCT in the server and create folder in the VCT. This folder can be locked and released.
2. All dev working in different countries, write the code, Do WBT, push the code into the folder and commit the code.
3. Once after folder is locked RE will compile the code, compress and prepare the build.

RE will connect to Testing server, copy paste the build, unzip, install and RE will give URL, UN and pwd to Testing team.

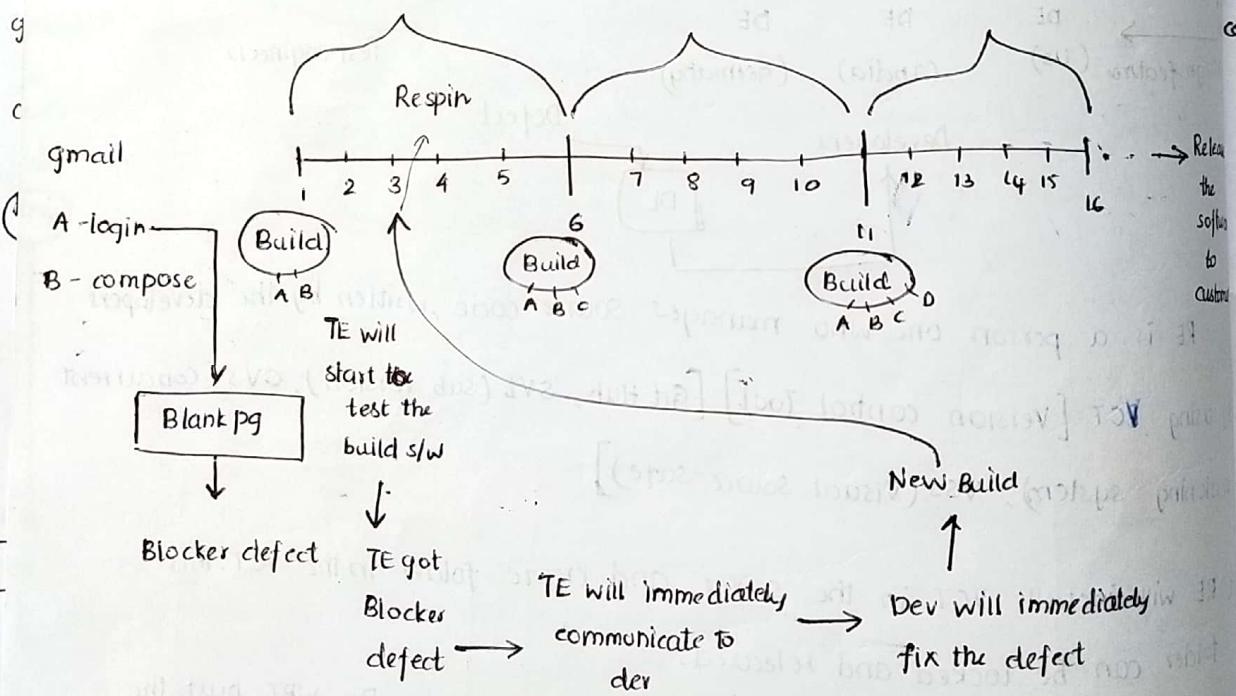
? What is Release management / configuration management

The process of preparing the build installing the build into diff servers is called as configuration management  
diff servers uninstalling the build is called as configuration management  
It can be done by VCT [GitHub].

? For what kind of projects RE / Build Eng will be present?

1. For complex projects.
2. For long term projects.
3. When dev are working in different locations.

### \* Respin



The process of getting new build within test cycle is called as Respin.

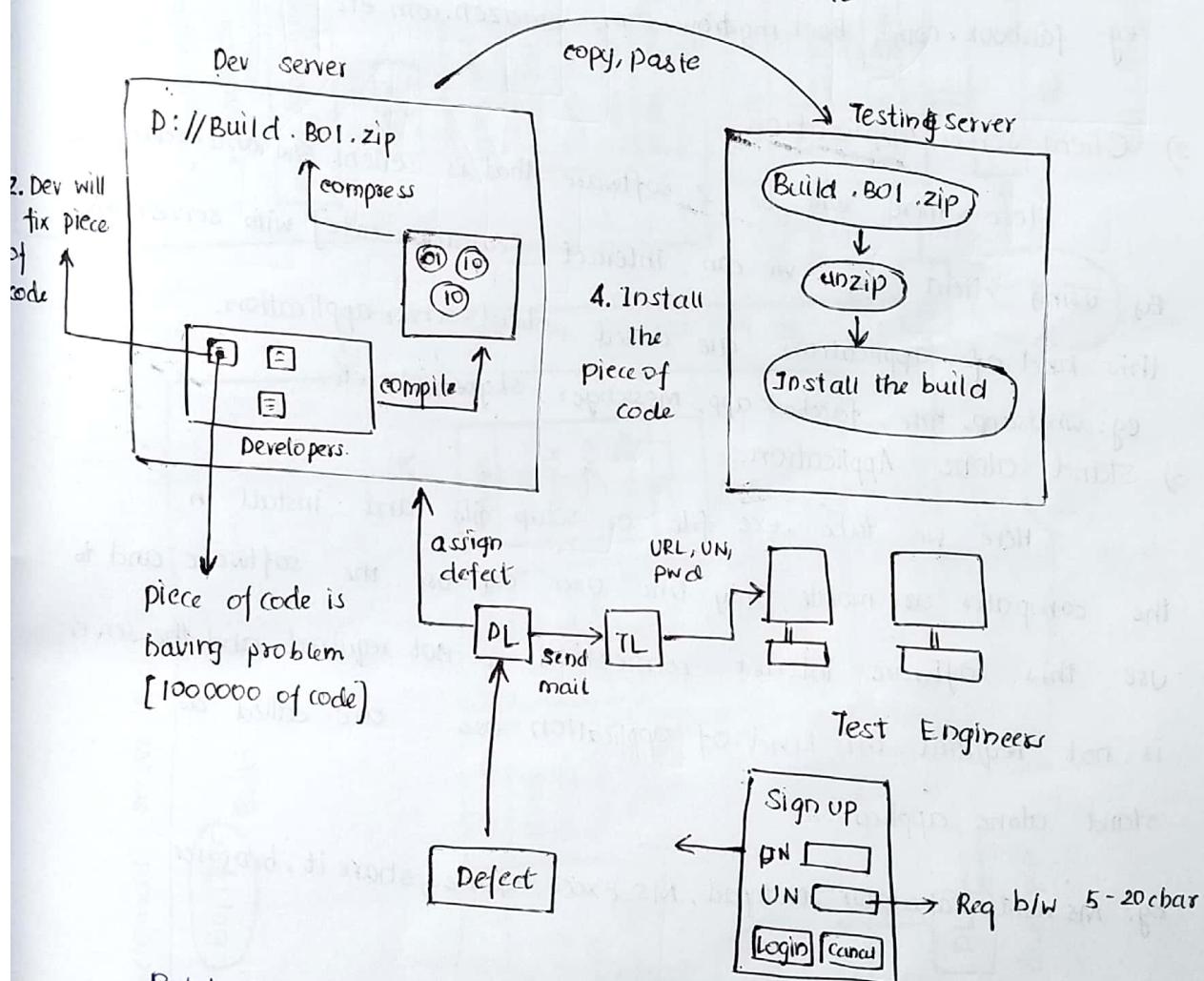
Eg: If you take Gmail has application if login only is not working then TE will cannot continue the testing. In this case dev will give Respin.

? Assume that dev will give the build or slw on the 4<sup>th</sup> day of the Test cycle as TE what will you do.

- I will test as much as possible for 2 days and remaining portion, I will test in next upcoming build.
- We can postpone the build to the next cycle.
- I will spent more time in understanding the requirement, identify all possible scenarios, write scenarios and test cases

## Patch

3. Dev will send piece of code to TL



Patch is a piece of software which consists of modifying programs.

To install the patch it is not required to uninstall the build.

Example: WhatsApp update, Facebook update, browser update.

Note: One release can consist of N no. of builds, Test cycles, Revisions, Patch

## Types of Application.

1. Web Application.
2. Client - server application
3. Desktop Application, windows app, standalone application

### 1) Web Application.

Any app that can be accessed by opening browser and entering URL is called as web application.

eg: facebook.com, Book my show.com, amazon.com etc

### 2) Client-Server Application

Here there will be 2 software that is client s/w and server s/w. By using client s/w we can interact [communicate] with server s/w this kind of application are called client-server application.

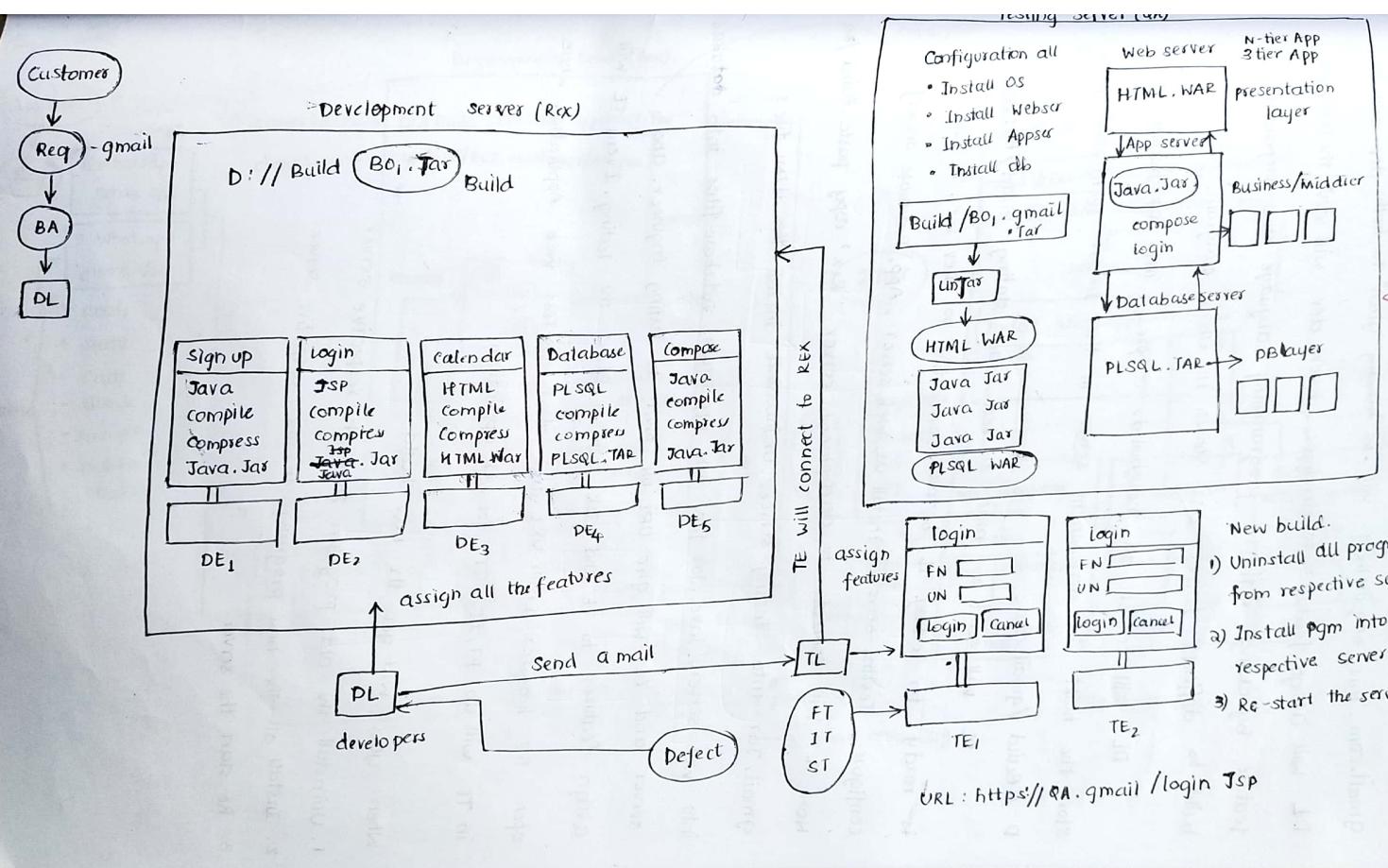
eg: whatsapp, nike, facebook app, messenger, skype, ola etc.

### 3) stand-alone Application.

Here we take .exe file or setup file and install in the computer or mobile. Only one user can use the software and use this software internet connection is not required and the server is not required. This kind of application use are called as stand alone application.

Eg: MS Word, calculator, Notepad, MS Excel, Games, share it, browser

How to test web application or how web application will be configured in the company.



According to above example customer will give requirement for gmail.com. This requirement will be ~~beaving~~ given to both dev and TB. DL will assign features to developers. Every dev will dev the assigned feature by using different programming language and prepare the build to different format as shown in above diagram.

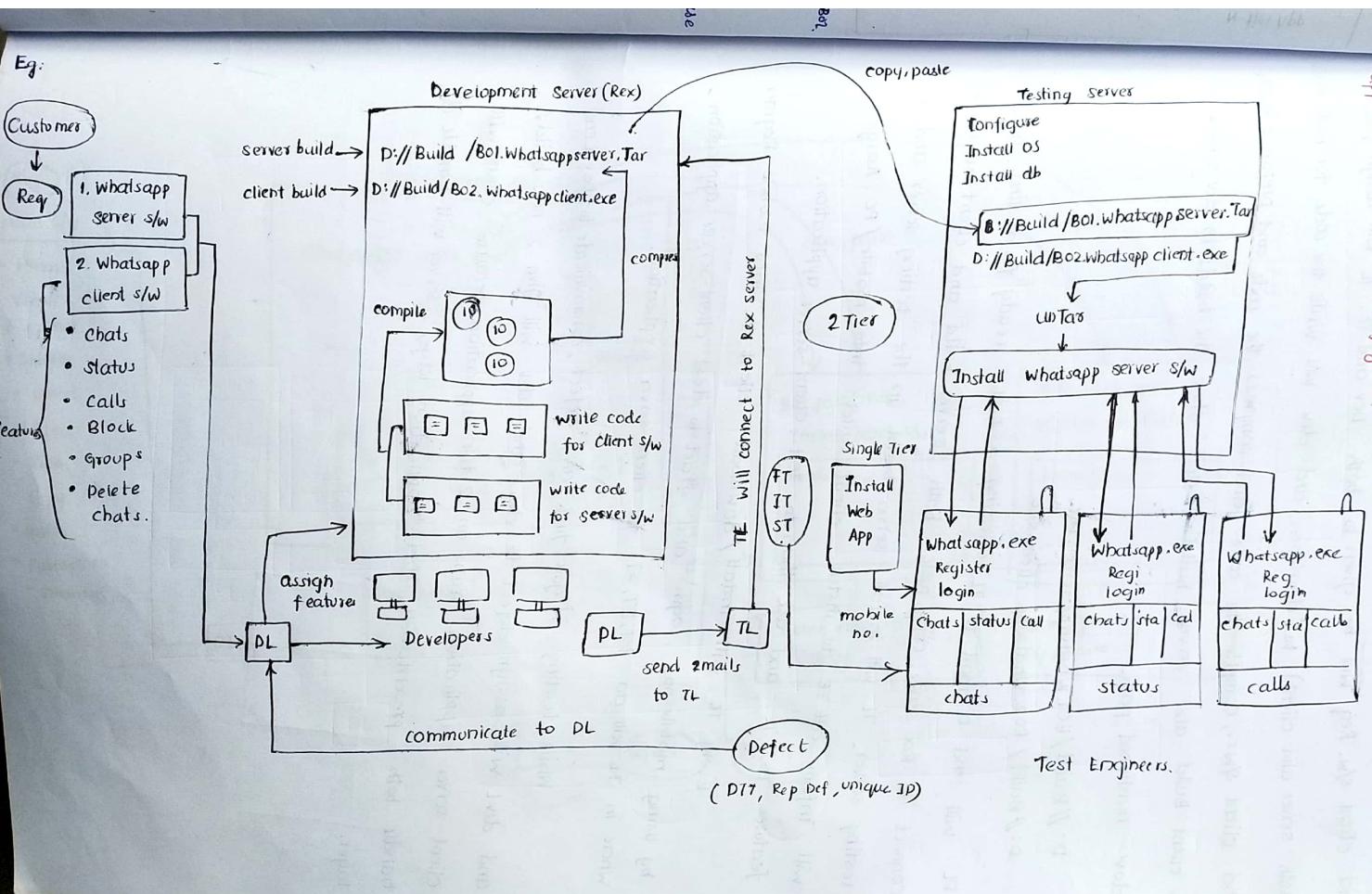
DL will collect all the builds compress into Jar format and store the build in development server in the below mentioned path.  
D://Build /gmail.com.

DL will send a mail to test Lead stating Build/B01.jar is ready for Testing. TL before connecting to Dev ser. TL will configure Testing server [Install OS, Web server, App, Database server] Now TL will connect to development server 'Rex' copy paste Build/gmail.Jar into Testing server, unJar and install the HTML files into web server, Java.Jar files into App server, database files into database server and TL will give URL, UN, PWD to Testing Engineer. and assign features to TE and ask them to start the testing. Every TE will open the browser. Enter URL and start to Test Web Application where in TE will do FT, IT, ST for web application.

When you will get the new build

1. Uninstall the old program from the respective server
2. Install all the New program in the respective server.
3. Re-start the server.

How to test Client - Server applications or How Client - Server application will be configure.



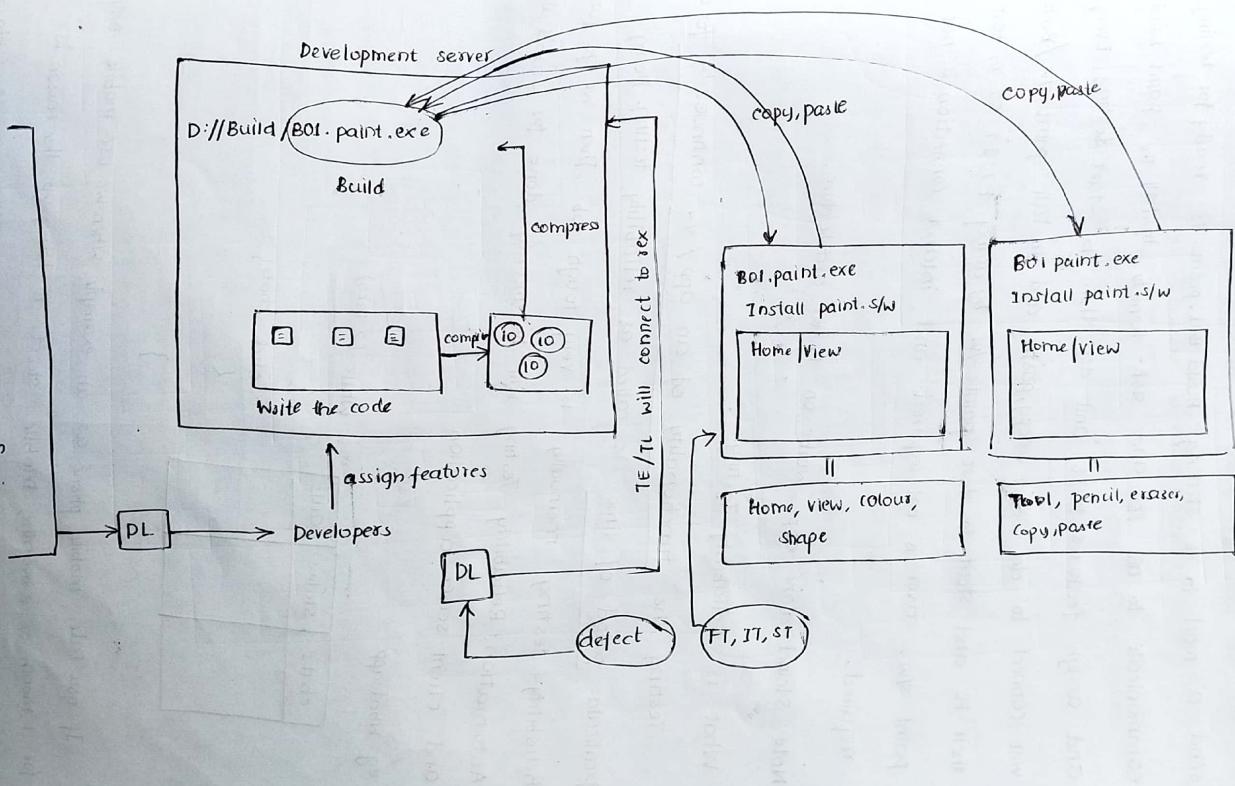
According to above eg: customer gives req to company ie for servers  
and client sw. Req will be given to both Dev and TE. TL will assign features  
[both server and client]. to developers. and dev will write the code for both  
Abd client svws, compile the code and compress the code and prepare 2 build  
ie, client build and server builds and store the builds in dev server. In  
Below mentioned path.

D://Build/B01.whatsapp server.tar  
D://Build / B02.Whatsapp client.exe

PL will send a mail to TL stating 2 Builds ready for testing. TL will  
connect to Rex server, copy, paste both server build and client build into  
testing server. TL will install server build in the testing server and it  
will inform all TE to install client-build into mobile / PC. Assign  
features to TE. and ask them to test client-server application.  
Every TE will install / download client svn into mobile, Register  
by using mobile no., login and start to test client-server application,  
where in TE will do FT, ST, ST for client-server application.

While testing if you find any defect, communicate to Dev Lead  
and devL will assign defect to dev. and dev will give 2 new builds.  
Client - server application runs on 2-tier application because client will  
handle both presentation and Application layer. server will handle db  
layer.

Eg:  
 Cust  
 Req  
Paint s/w  
 • Home  
 • View  
 • colour  
 • Shapes  
 • pencil  
 • Eraser  
 • Size  
 • Copy  
 • Paste  
 • Fullscreen  
 • Zoomin.



According to above eg: cust will give req for paint application. This req will be given to both dev, TE. DL will assign features to dev, dev will write the code, compile, compress and prepare the build and store the build in dev server. in the below mentioned path. D://Build/Balpaint.exe. DL will send a mail to TL stating Build B01.paint is ready for testing. TL will communicate to all TE and ask them to install the paint build by and assign features to TE and ask them to start testing. Every TE will connect to dev server, copy, paste and install paint s/w /Build in their PC and start to test paint s/w by doing FT, IT, ST. To test paint s/w, server is not required and internet connection is not required.

Note: Stand alone app works on 1-Tier architecture.

What is Reliability Testing ?

Testing the functionality of an app / s/w continuously for a particular period of time is called as reliability testing. Doing Reliability testing manually is very tough job, Then we go for Automation. Reliability Testing will be mainly done for stand alone and client-server application.

eg: WhatsApp.

chats	status	calls

```
while (2 lakh)
{
    click - chats
}
```

If you take mobile phone as an example, when we use mobile continuously for 1 month or 2 months, Mobile starts to hang up, the reason is when mobile is used continuously, unwanted objects gets stored in

Ram, once Ram is full, mobile starts to hang up. To avoid this problem, in the company, we should do proper reliability testing.

## Recovery Testing.

Testing the application or software to check how well the application recovers from the crashes or disasters is called Recovery testing.

Recovery Testing is mainly done for client-server and stand-alone application.

Eg: Browser - stand alone - Mozilla

→ switch on your computer

→ Open browser mozilla

→ Facebook



Flipkart



WhatsApp

Chats    Status    Calls



→ shutdown your computer

→ switch ON computer

→ Open same mozilla browser

Unfortunately WhatsApp  
stopped working

crashed  
and  
closed

Do you want to re-store  
previous session

OK

Cancel

What is difference between service based company and Product based company.

## Service Based company

Infosys, Accenture, Wipro, Emphasis etc.

- Customer gives the req.
- BA will be present in service based company and he will do req collection.
- Company will dev the software ; Test the s/w and give it back to the respect customer who gave the req.
- Company don't have any rights to sell same s/w to other costumer
- Company dont have any rights or authority to keep source code with them.
- Customer and projects will be used in service based company.

## Product Based company.

Flipkart, Amazon, Apple, Sony, Benz, Volvo, Nokia, Samsung, Oracle, google, Dell, Microsoft.

- Initially customer will not be present
- Product analyst will do market search and he will collect req.
- Company will develop the s/w and test the s/w and sees the same s/w to multiple cust.
- Company has got all the rights and authority to keep source code with them.
- While using s/w If customer wants any changes then customer give req to the company . compy will do.

## Acceptance Testing / Red box Testing

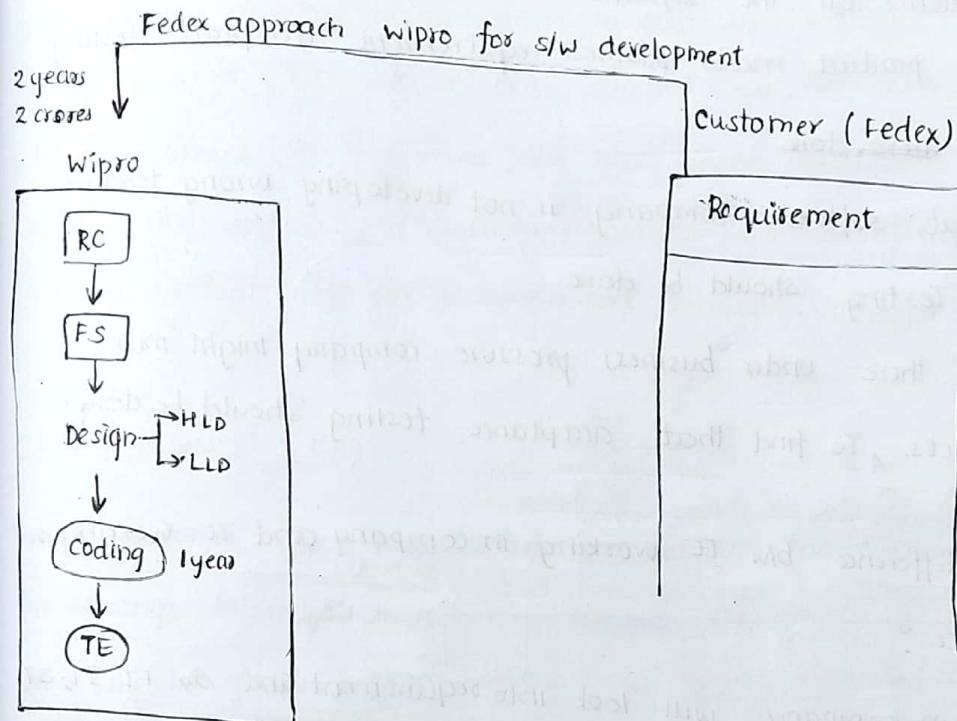
Acceptance Testing is an end to end testing by end user/cust where in they use the software for real business for some particular period of time and check whether software can handle all the real time business scenarios and situations.

Service based company - UAT (User Acceptance Testing)

Product based company - FAT (Final Acceptance Testing)

There are 5 cases in acceptance testing

Case 1.



According to case 1, Once after software is released to the customer Fedex ,inorder to get confidence on the software IT engineer or TE present in customers place will use the software for real business for some particular period of time and check whether software can handle real time business situations /scenarios by doing Acceptance Testing.

Once after Acceptance testing is completed then only s/w will be deployed into the production server.

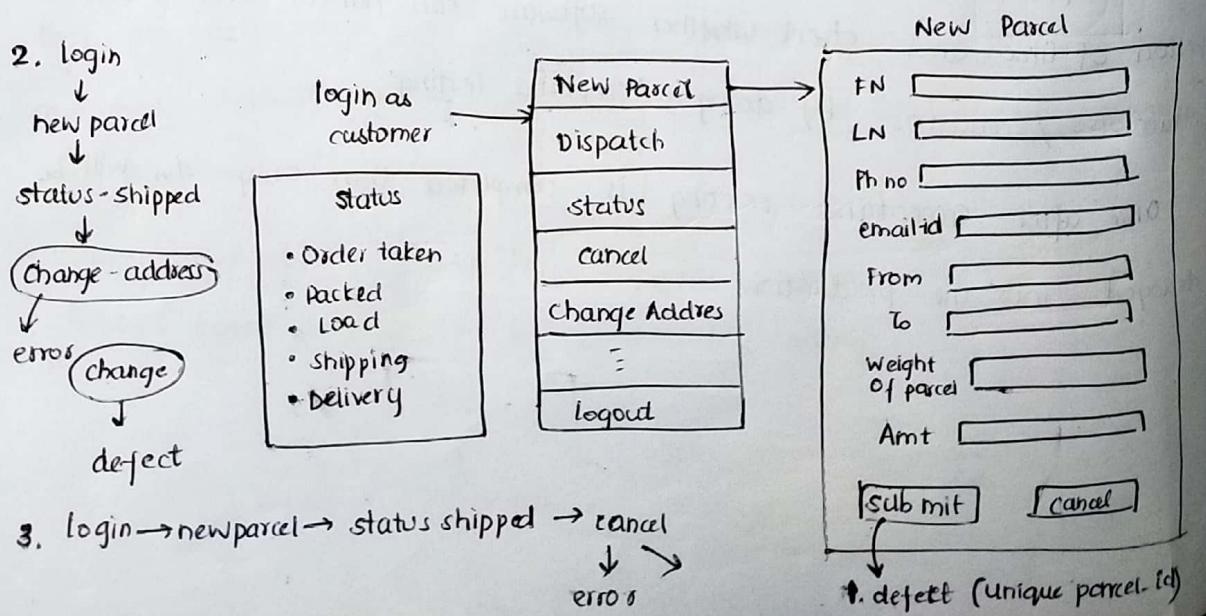
? Why customer should do acceptance testing?

1. To get confidence on the software.
2. To ensure that product meets business requirement. acceptance testing should be ~~there~~ done
3. To ensure that software company is not developing wrong features, acceptance testing should be done
4. Chances are there under business pressure company might miss some defects, To find that acceptance testing should be done.

? What is the difference b/w TE working in company and TE working in customers place?

1. TE working in company will look into requirement and do FT, IT, ST
2. TE while understanding req, you might understand in right way and sometimes in wrong way, still TE will do testing based on your understanding.
3. TE present in customers place will be a domain expert.
4. He understands the business very well
5. He will always test the s/w for real-time customer data.
6. He is a person one who gives the requirement to the company.

Software to track the Parcel. → Req (1000 pg)



Why Builds on Test cycle will be more on customer's place while doing Acceptance Testing?

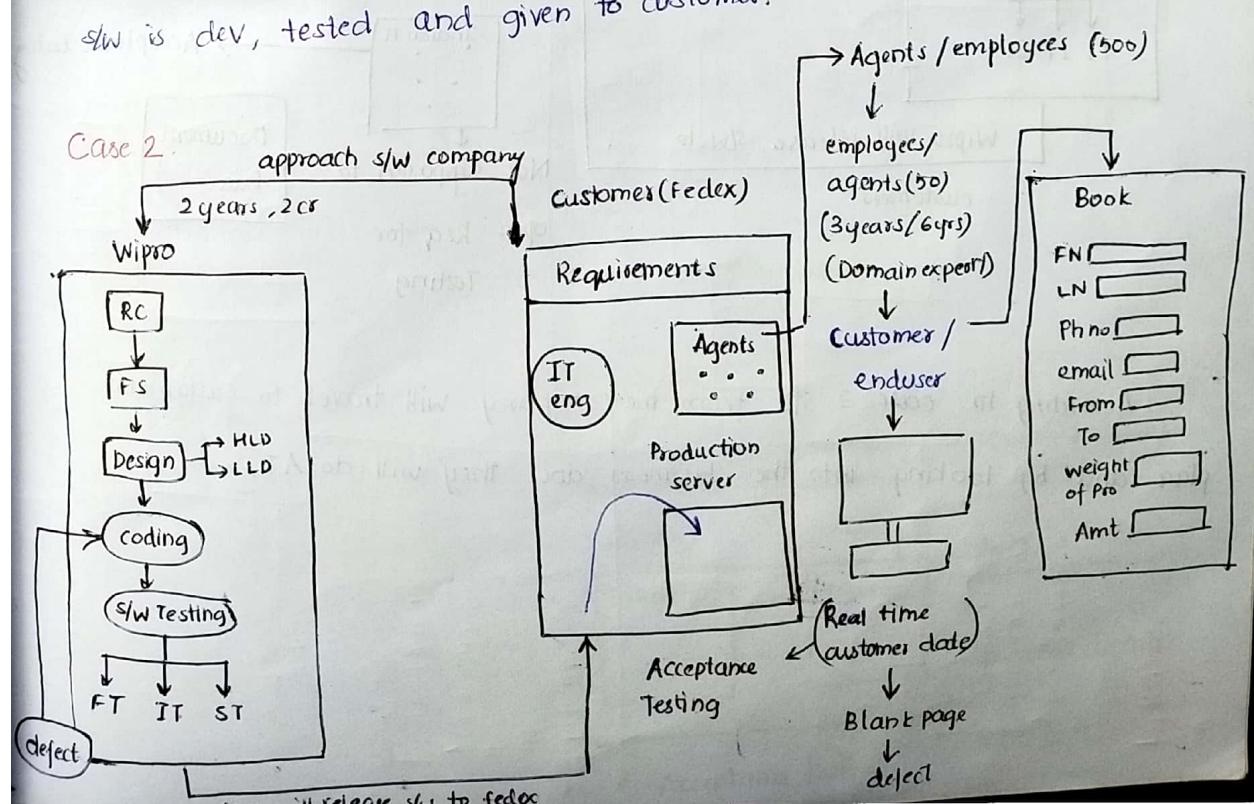
1. When quality software is not given to customer.
2. When customer given requirements are not clear, then customer will change the requirement. In this case, we need to give build.
3. While using software if customer come up with new ideas then customer will communicate to the company and company will give build for customer.

### Change Request (CR)

When customer given requirements are not clear, the customer will request for change in requirement. This changed requirement is called as CR. CR will be given before software is developed tested and given to customer.

### Request for enhancement (RFE)

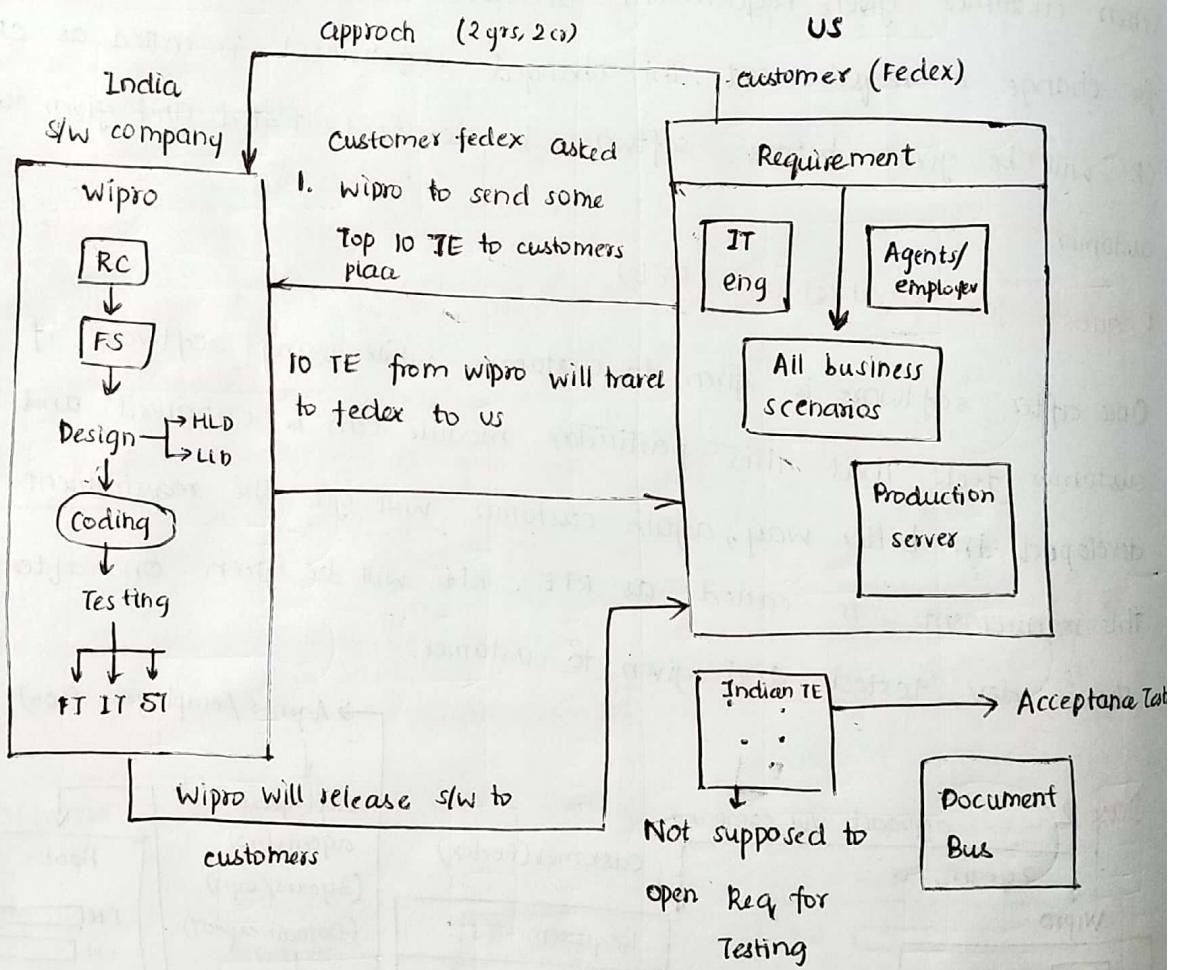
Once after software is given to customer while using software, if customer feels that this particular module can be enhanced and developed in better way, again customer will give the requirement and this requirement is called as RFE. RFE will be given once after s/w is dev, tested and given to customer.



According to case 2, Once after s/w is released to cust, IT eng in customers place will pick some of the agents who are domain experts and ask them to use the s/w for real business for some particular period of time. So, If we observe here agents present in the customers place will be involved in doing acceptance testing.

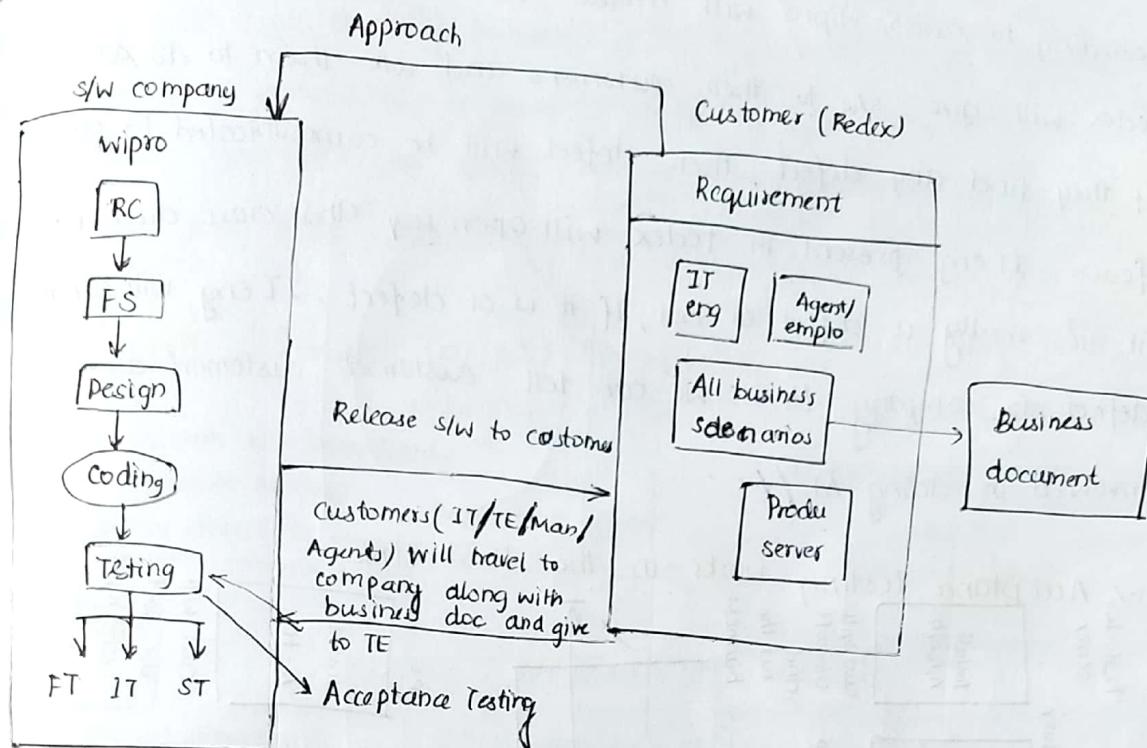
Note: Acceptance Testing is an end to end testing done by the agents/end users where in they use s/w for real time business for some particular period of time.

### Case 3.



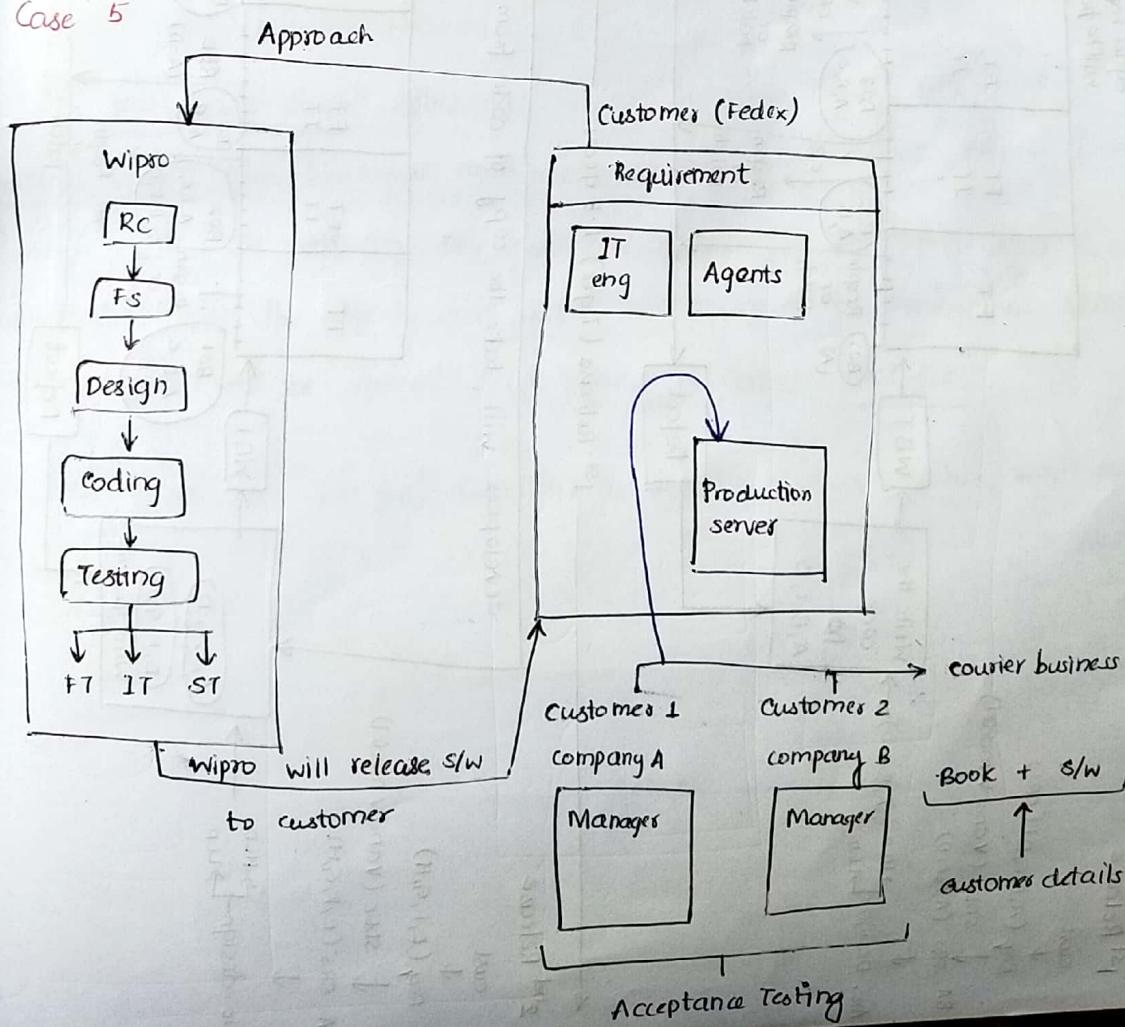
According to case 3 TE from the company will travel to customers place and by looking into the business doc they will do AT.

Case 4



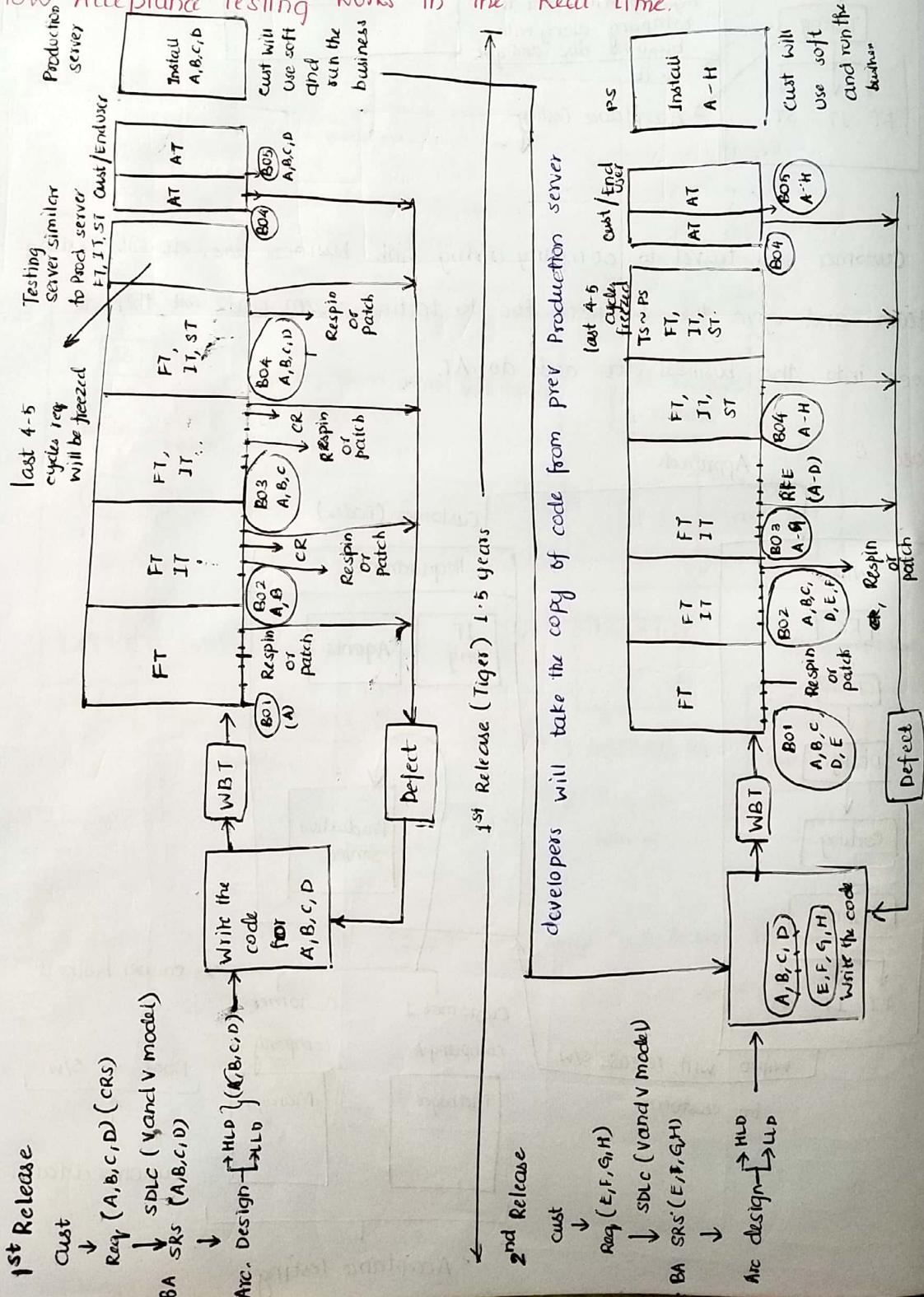
Customer will travel to company along with business doc. sit with Testing team and give the business doc to testing team and ask them to look into the business doc and do AT.

Case 5



According to case 5, Wipro will release s/w to customer FedEx and FedEx will give s/w to their customers and ask them to do AT. If they find any defect then defect will be communicated to customer FedEx, IT eng present in FedEx will open req and cross check whether it is really a defect or not, If it is a defect, IT eng will communicate defect to company. Here we can tell customer customers are involved in doing AT.

### How Acceptance Testing works in the Real-time.



One project can have 1 release if the proj is small or simple.

One project can have n no.of releases if the proj is complex or long term.

Every Release can consist of n no.of builds, Test cycles, Respin, Patch, CR, RFE

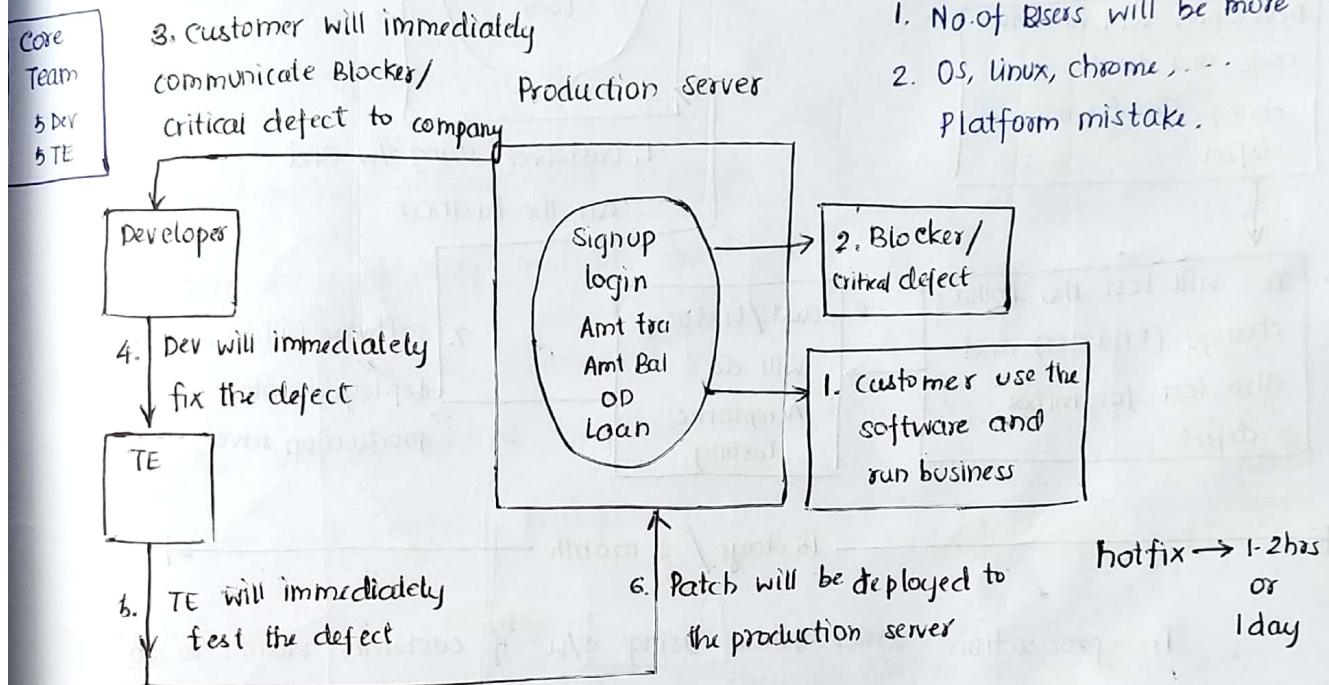
Every Release can have a unique release name. The time duration of 1

Release can vary from other release.

## Hot fix / Incident (defect) Management

### Reasons for Blocker

1. No.of users will be more
2. OS, linux, chrome, ... Platform mistake.

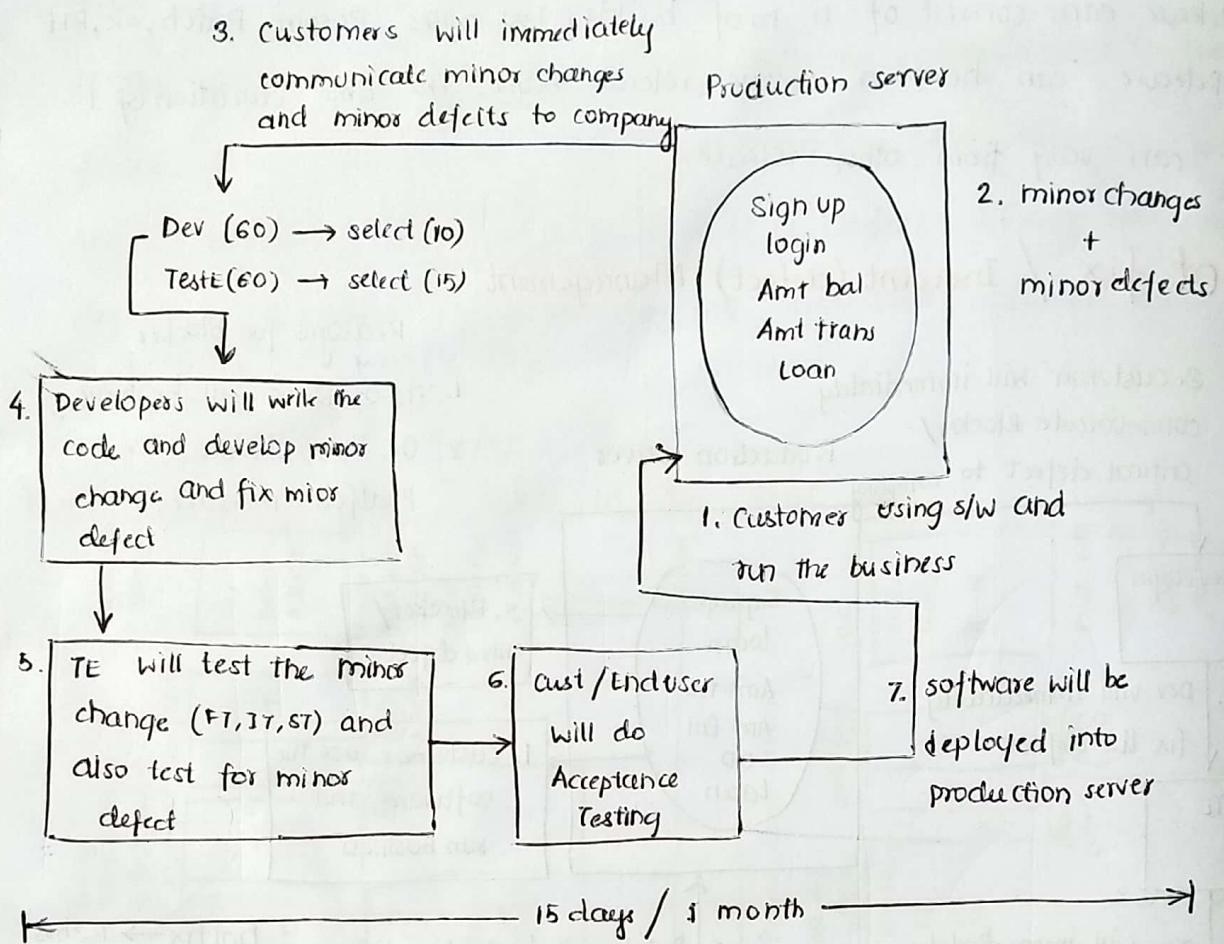


In production server while using s/w, if customer finds any blocker/critical defect then customer will immediately communicate defect to company

critical defect then customer will immediately communicate defect to company through mail. In company dev will immediately fix the defect and TE will immediately test the defect. and patch will be given to production server. (99% → Build will be given. This process is called Hot fix.

To work on hot fix, we will be having max 1-2 hrs, worst case 1-day time.

## Short cycle Release / Interim Release



In production server while using s/w if customer wants to do any minor changes and if customer finds minor defects, then customer will communicate minor changes and defect to the company. In company we will select set of dev and TE and dev will develop the minor change, fix the minor defect and give the s/w to TE, TE will test the minor change (FT, IT, ST) and test minor change, minor defect and give the s/w to cust / End users, and cust will do AT and s/w will be deployed into the production server. This entire process will be done just within say 15-days or 1 month instead of taking 1 year time. These kind of release is called short Release.

## Types of Acceptance Testing.

### a) UAT - (User Acceptance Testing)

It is done by end-users for real business for some particular period of time.

### b) OAT (Operational Acceptance Testing)

It is done by IT eng / system admin where in they use the software for different configuration and platform

### c) CAT (contract Acceptance Testing)

Here acceptance testing will be done based on the contract period.

### d) Compliance Acceptance Testing

Here s/w will be tested and we check software needs, government rules, regulations and safety policy.

### e) Alpha and Beta Testing

It is done by end-users where in they use software for real business and give feedback to the company.

## Types of System Testing

1) End to end testing

2) Acceptance testing

3) Usability testing

4) Compatibility testing

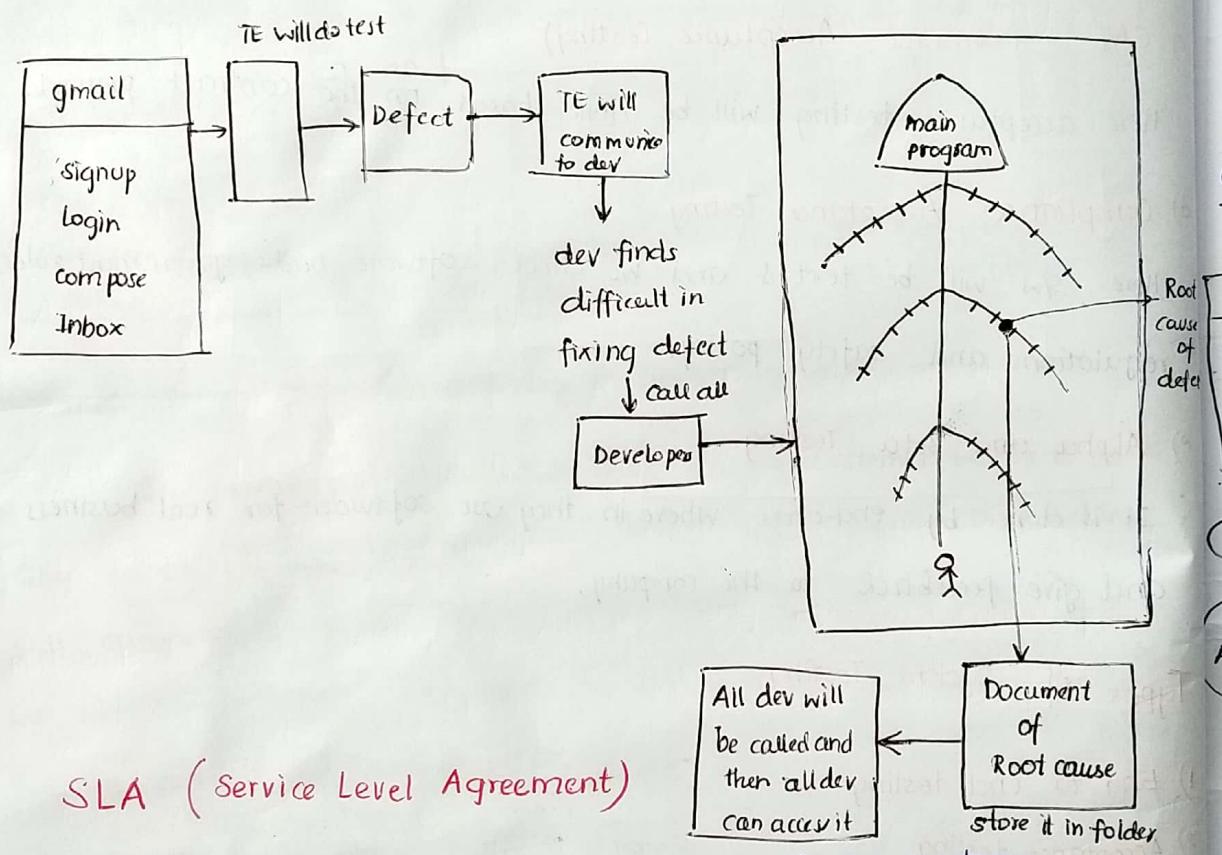
5) Regression testing

6) Performance testing

7) Adhoc testing

## Fish Bone Technique / Ishikawa Method.

TE while testing s/w if you find any defect communicate to dev, all dev will sit together and try to identify route cause of the defect, document the root cause, keep it in common folder where everybody can access. and present the document to the entire team. This process is called - ishikawa method. Since the solution is given in the form of fish bone, its called fish bone technique.



It is an agreement done between company and the customer.

How to calculate Test efficiency.

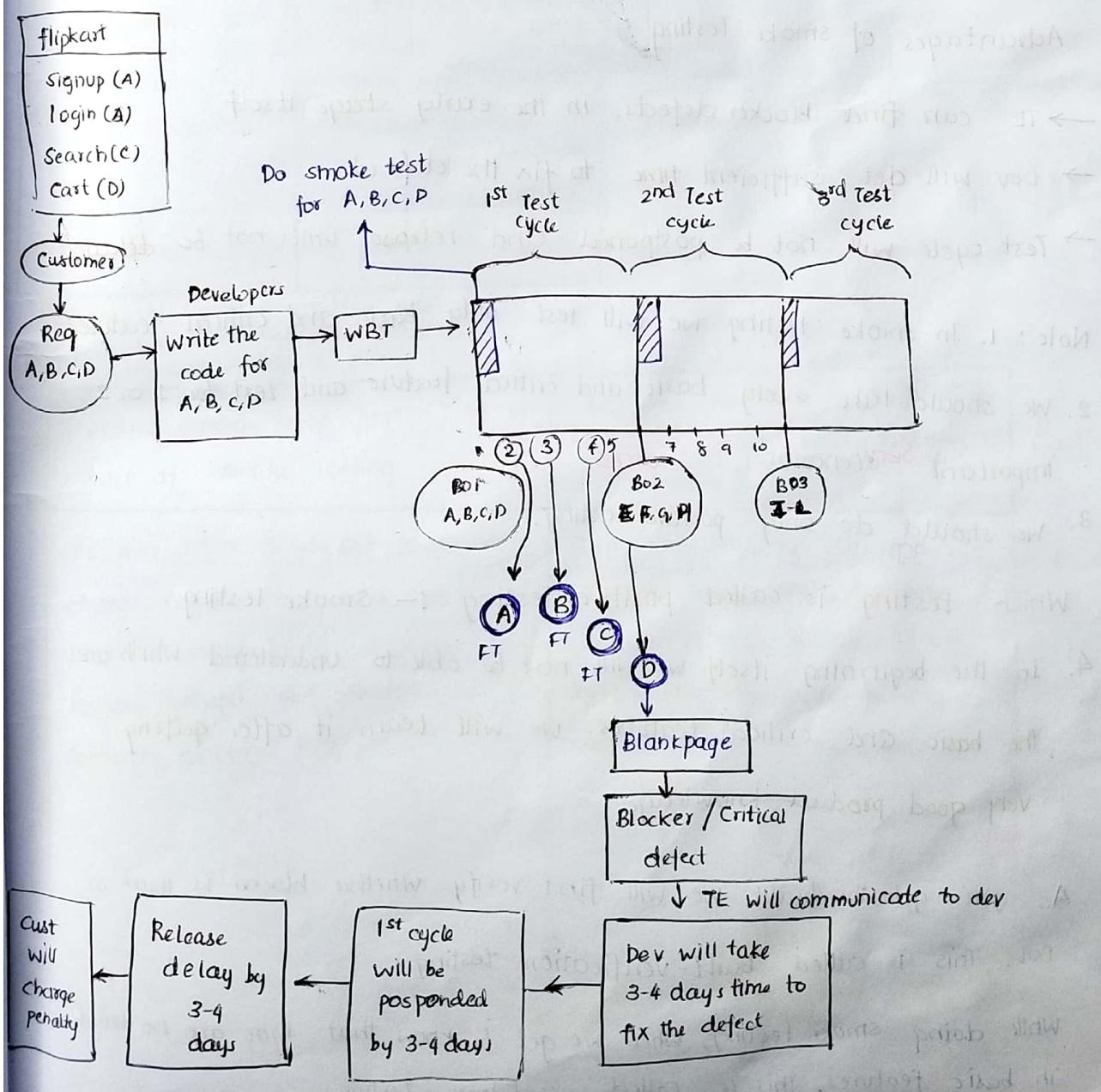
$$\text{Test efficiency} = \frac{\text{TE found defect}}{(\text{Total no. of defects})} \times 100$$

$$\left( \begin{array}{l} \text{TE found defect in} \\ \text{FT, IT, ST} \end{array} \right) + \left( \begin{array}{l} \text{defect found} \\ \text{by cust in AT} \end{array} \right) + \left( \begin{array}{l} \text{defects found} \\ \text{in production server} \end{array} \right)$$

TE	Module Name	defect found in FT, ST, IT	defect found in AT	defect found in PS	Testing efficiency
Mickey	sent items	30	10	7	$\frac{30}{30+10+7} \times 100 = 63.8\%$
Minnie	Compose	50	2	0	$\frac{50}{52} \times 100 = 96.2\%$

1<sup>o</sup> Smoke Testing / Sanity Testing / Dry-Run Testing / skim Testing / Build-verification Testing / Health check of the product / confidence testing.

Testing the basic and critical features of an application before doing thorough thorough/regerous testing is called smoke testing



According to above example developer will write the code for A-D module, do WBT and give the build or software to TE. Now TE will start to do thorough ~~smoke~~ FT for A,B,C modules. for 1st 3 days.

On 4<sup>th</sup> day when TE click on D module, Blank page will be displayed. And TE will communicate the blocker defect to dev and dev will tell he wants 3-4 days of time to fix the defect. Because of this 1<sup>st</sup> test cycle will get postponed by 3-4 days, Release will be delayed by 3-4 days and customer will charge penalty for the company.

In order to overcome this problem in every company as soon as you get the build / software first we should do smoke testing.

### Advantages of smoke Testing

- TE can find Blocker defects. in the early stage itself.
- Dev will get sufficient time to fix the defect.
- Test cycle will not be postponed and release will not be delayed.

Note : 1. In smoke testing we will test only basic and critical features.

2. We should take every basic and critical feature and test for 1 or 2 important scenarios.
3. We should do only positive testing.

Which testing is called positive testing :- smoke Testing.

4. In the beginning itself we will not be able to understand which are the basic and critical features. we will learn it after getting very good product knowledge.

As you get the build, we will first verify whether blocker is there or not. This is called Built-verification testing.

While doing smoke testing, when we get to know that there are no blockers in basic features, this is called confidence testing.

## How to do smoke testing - (How- eg)

Features to be tested as a part of smoke Testing	Features need not to be tested as a part of smoke Testing
Signup, login, Inbox, compose, logout, sent items, All mails, Attach -ments, Forward Reply, search, Forget password URL / Install app, Reply all	Draft, spam, Help, starred, important, Trash, Outbox, calendar, Feedback, upload photo, Add account, contacts, Chats, Manage acts, delete, primary, Achieve, social, promotion, privacy, labels, groups, Terms and conditions, Snooze, schedule, Bin

### gmail

Sign up	Outbox	Achieve
login	Forward	Social
Inbox	Calender	Promotion
Draft	Attachment	privacy
compose	Feedback	Labels
logout	uploadphoto	Groups
sentitems	Search	Terms and condition
spam	Add account	
Help	All mails	Forgot password
	starred	Contacts
	Important	Snooze
	Trash	Chats
	Reply	Schedule
	Manage Acts	Bin
	Delete	URL / Install
	primary	app

### eg: Mobile

Features need to be tested as a part of smoke Testing	Features need not to be tested as a part of smoke Testing.
Call, end button, power off, power on, charge, camera, sim card, slot, bluetooth, mobile data, display, Battery, Network slot, speaker, Contacts, call logs, keypad,	Screenlock, volume, wifi, gps, hotspot, Torch, clock, calculator, Gallery, settings, Airplane mode, Screenshots, Fingerprint, memory card slot, Text message, earphone slot.

## How to write smoke testing scenarios.

### Test scenarios

1. To check that when user enter URL welcome page should be displayed.
2. To check that when user click on sign up, sign up page should be displayed.
3. To check that when user enters valid data for all the fields in sign up page and click on submit button, account should be created.

Do smoke testing and write 15 smoke scenarios for below mention.

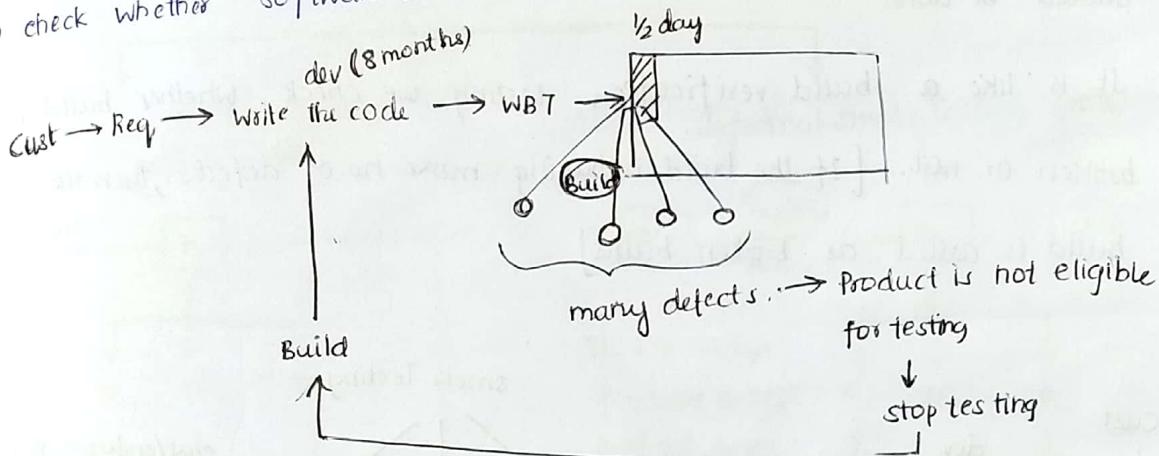
1. Facebook.com
2. Whatsapp.com
3. OLA / Uber
4. Ms Word / Ms paint / NotePad / Ms excel.
5. Your own app.

### \* When to do smoke Testing.

1. As soon as we get the new build we should do smoke testing.
2. When developer give the build or software to the customer, chances are there, dev might miss to copy few of the files so, customers will do smoke testing to check whether files are copied properly and build is installed properly or not.
3. Release Engineer / Build Engineer will do smoke testing to check whether build is installed properly or not. in the testing server or production server.
4. Dev will do smoke testing after doing WBT before giving build / sw to QE.

## 1<sup>st</sup> Why smoke Testing is done

- 1) To check whether software is testable or not.



As soon as we get the build, TE will test basic and critical features. By doing smoke testing, if you find more no. of defects while doing smoke testing, it means product is not eligible for testing, and give the product back to the dev. This is called ~~test first~~, testable ~~or not~~ or not.

? 1st day itself if we get to know product is not testable as a TE

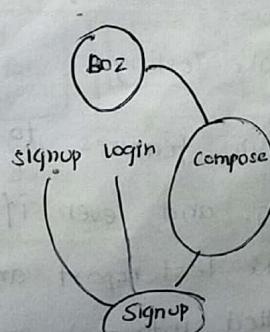
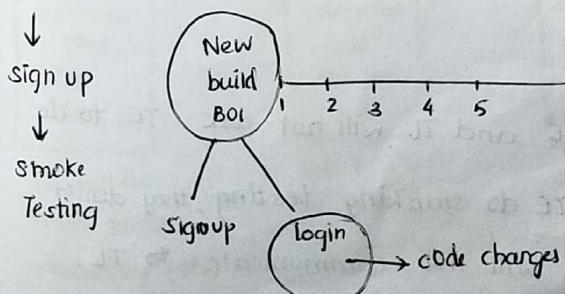
how will you spend your time?

I will spend more time in analysing and understanding req,

Identify scenarios, and write Test cases.

- 2) First day itself while doing smoke testing if you find defect communicate to developer so that dev will get sufficient time to fix the defect.
- 3) We are doing smoke testing means indirectly we are ensuring build is installed properly or not.
- 4) Dev is giving new build means he will be doing some code changes. chances are there this might affect old basic and critical features. so in order to find that smoke testing should be done.

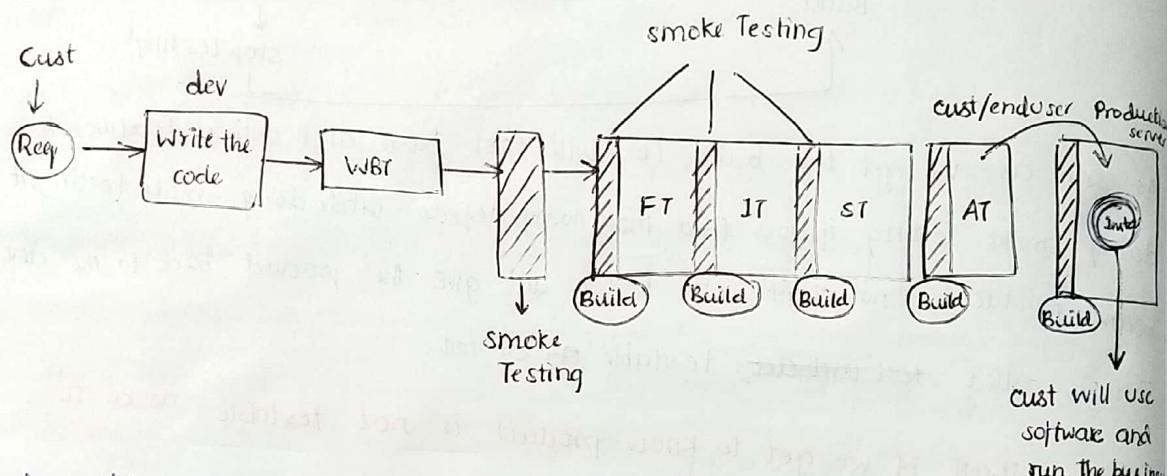
Build BOI



5. It is like a health check of the product so smoke testing should be done.

6. It is like a build verification testing, we check whether build is broken or not. [If the build is having more no. of defects, then the build is called as broken build]

7.



- Before doing thorough FT, IT, ST, smoke testing is done by TE.
- Before doing Acceptance Testing, customers will do smoke testing.
- Once after s/w is deployed or installed into production server, before using for business, smoke testing should be done.

### Types of smoke Testing.

#### 1. Formal smoke Testing.

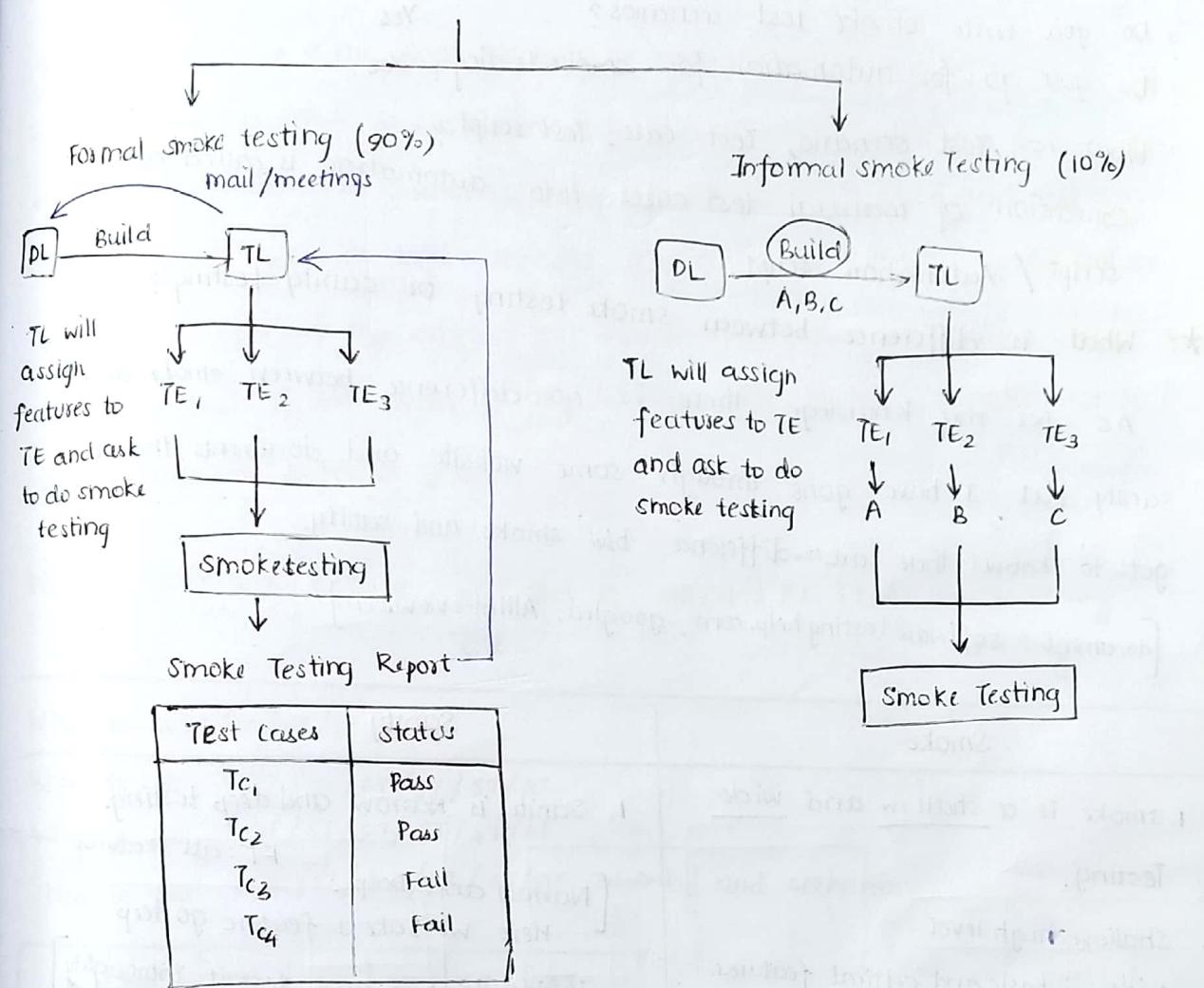
DL will give a build to TL and TL will assign features to TE and ask them to do smoke testing. TE will do smoke testing for the assigned features and prepare smoke test report and send it to TL.

TL will consolidate all the smoke test reports and communicate to DL. This entire process is done formally through mail / meetings, so, it is called formal smoke testing.

#### 2. Informal smoke Testing.

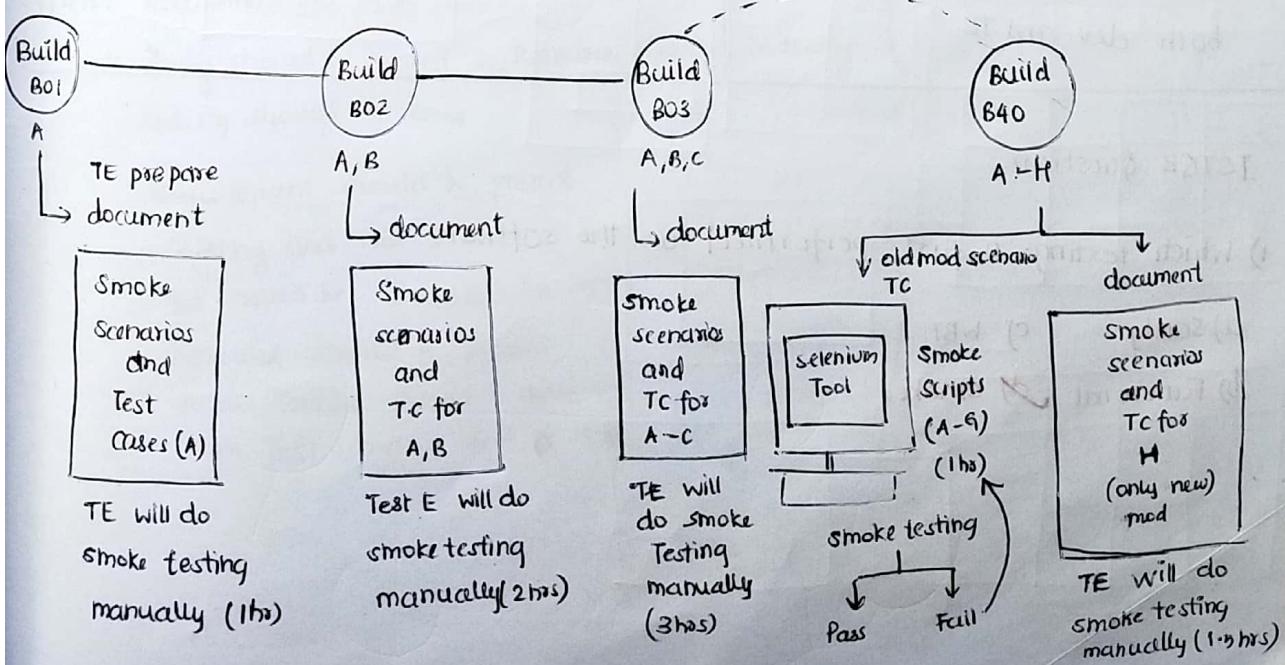
TL will assign features to TE and TL will not ask TE to do smoke testing. and even if TE do smoking testing, they don't prepare smoke test report and will not communicate to TL.

## Types of smoke testing



## Two ways to do smoke Testing.

- a) Manual
- b) Automation



old module test scenarios will be converted to smoke scripts by selenium to

? Do you write smoke test scenarios? Yes

? Do you go for automation for smoke testing? Yes.

? What is Test scenario, Test case, Test script?

Conversion of manual test cases into automation is called as Test script / Automation script.

\*? What is difference between smoke testing or sanity testing?

As per my knowledge there is no difference between smoke and sanity but I have gone through some website and documents, their I got to know there is some difference b/w smoke and sanity.

[document : softwaretestinghelp.com, googled, Allinterview.com]

Smoke	Sanity
1. smoke is a <u>shallow</u> and <u>wide</u> Testing. Shallow : high level wide : basic and critical features.	1. Sanity is Narrow and deep testing. FT : all features [Narrow and Deep : Here we take 1 feature go deep inside feature and test it thoroughly]
2. smoke is positive	2. Sanity is both positive and negative.
3. Here we document smoke scenarios and test cases.	3. We don't document scenarios and test cases.
4. We can go for automation.	4. We don't go for automation.
5. Smoke testing is done by both dev and TE	5. TE will do sanity testing.

### ISTQB Question.

1) Which testing is first performed on the software

- a) sanity      c) WBT
- b) Functional      ~~d) smoke~~

Why smoke is called smoke?

Word smoke has come from hardware and manufacturing industry, for eg assume that a house is constructed, first we will take 1 floor and do the electrical connection to check whether the connection is good and quality of wire is good, we will take the wire, give it as input to power supply and on the power supply, if fire catches or smoke comes, then we can tell smoke testing is fail if not smoke testing is pass. This is how smoke testing word came to software field.

What is difference between WBT and ST, WBT and FT, IT, AT, smoke testing

OR

- Friday

What is WBT/ST/FT/IT/AT/ST

When to do WBT/ST/FT/IT/AT/ST/AT

Why to do WBT/ST/FT/IT/AT/ST/AT

How to do WBT/ST/FT/IT/AT/ST/AT. → eg and scenarios.

	WBT	ST	FT	IT	ST	AT
What	def					
When						
Why						
How						
Types						

When: Requirement should be present

Body should be present ie, Resource should be ready  
coding should be done } WBT

Requirement should be present

Coding and WBT should be done

SW should be installed in server

Resource should be present

Smoke Testing should be done

With Test Scenarios and TC being ready } ST

# 1<sup>st</sup> Globalisation Testing.

Developing the software for different language is called Globalisation testing. Testing the software which is developed for developed for different languages is called Globalisation Testing.

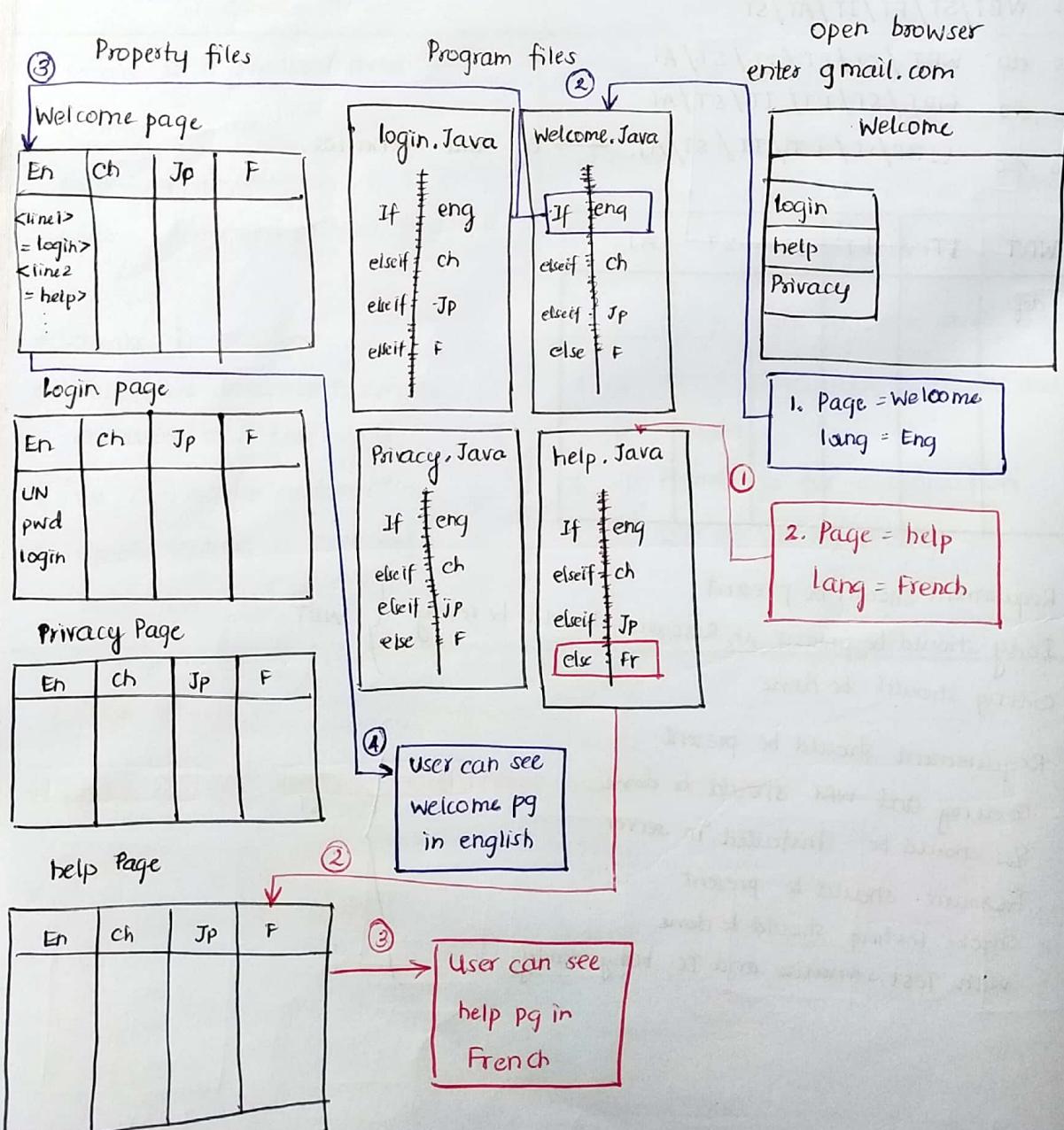
There are 2 types of globalisation testing.

1) Internationalization Testing = I<sub>18</sub>N Testing

2) Localization Testing = L<sub>10</sub>N Testing

## I<sub>18</sub>N Testing

Testing the software for different language / Multiple Languages is called as I<sub>18</sub>N testing.



According to above example lets assume TE is doing I<sub>18</sub>N testing for gmail.

app where in TE wants to test login feature in french language.

TE will open browser and enter URL.

welcome pg will be displayed in EngLang. click on login, login page will be displayed in eng language, select lang called french .browser will send request to the server, in the server it will run login.java pgm file .Program keeps on running until it see a language called 'French'. From there pgm will get connected to login property file , check for the french property file, copy the content in french and display login page in french language to the user. This is how we can do I<sub>18</sub>N testing for every feature for different languages.

### When to do I<sub>18</sub>N testing.

Once after FI,IT,ST is completed and software is developed for different languages then we do I<sub>18</sub>N testing.

Note: Dev will write property file in english language. In the company lang experts will write property file for different languages.

### Why we should do I<sub>18</sub>N testing

1. To check whether right language is displayed.
2. Check whether right content is displayed in right way.
- 3.

How should we ensure that right lang is displayed.

TE before starting testing with the help of dev and lang experts go to the server and go to respective property file and add prefix to the respective language.

ch\_h1n4t DLL.H

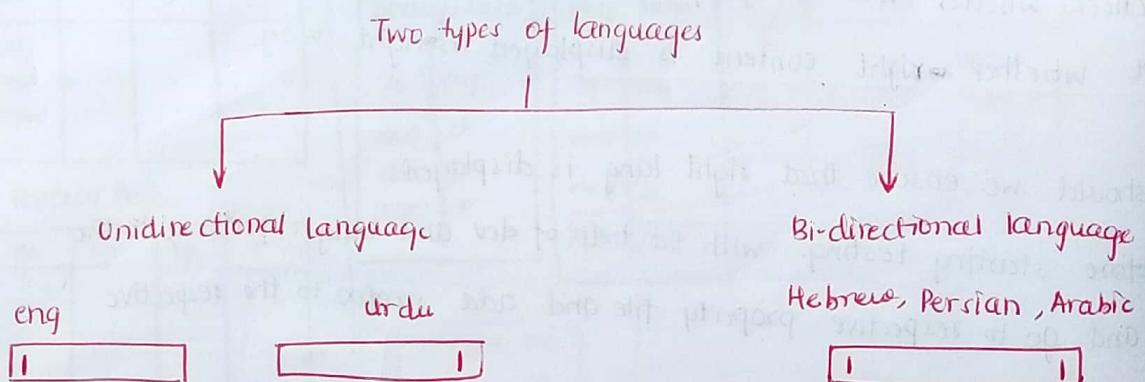
and save the property file in server. Now while testing , same prefix is displayed then we can tell right language is displayed. Assume that

How to make sure that right content is displayed in right place?

- TE before we start to test the software with the help of dev and language expert, we will go to server and they will go to respective property file then add both prefix and suffix for every content and saved in the server while testing if TE (ch7 & WL) see same pre and suf then we can tell right content is display in my place
- TE will give the prefix and suffix to every content for their understanding purpose. This concept is called Pseudo translation.

What type of defect you will find while doing I18N testing.

- 1) Chances are there right language might not be displayed. ie, if I take amazon as an eg and when we select chinese language it is displaying in Eng language. so it is a defect.
- 2) Chances are there right content might not be displayed in the right place. If you take amazon as an eg: select the language as Japanese, entire page is displayed in Japanese. but content like copyright is still displayed in english language.
- 3) Alignment specification problem.



#### 4) Tool tip defect

- 1) If user points the cursor on the image or text, a [ ] box will be displayed which explains about the image, this is called tool tip. It should be displayed in the language which user has selected. If not it is called tool tip defect.

Identify 12 ISBN defects in any application - PPT and take 5 colour printout.

## Localization Testing (L<sub>10N</sub>) / Format Testing.

Testing the software and checking whether software is developed as per the country standards / country culture is called as Localization Testing.

### Types of Localization testing

#### i) Currency format testing

Here we should check currency format is displayed as per the country standards. [Here we should not do functional testing like currency conversion].

India - 100 Rs / ₹ / INR

US - 100 USD / \$

Germany - 100 € / EUR

#### 2) Date format testing.

Here we should check date format is displayed as per the country standards or not.

India - DD/MM/YYYY

US - MM/DD/YYYY

Germany - YYYY/MM/DD

#### 3) Pincode format testing

Here we should check pincode format is displayed as per the country stds or not.

India - (567881) - 6 digits

US - 5 digits zipcode

Germany - 5 digits zipcode or  
3 digits zipcode

#### 4) Image format testing

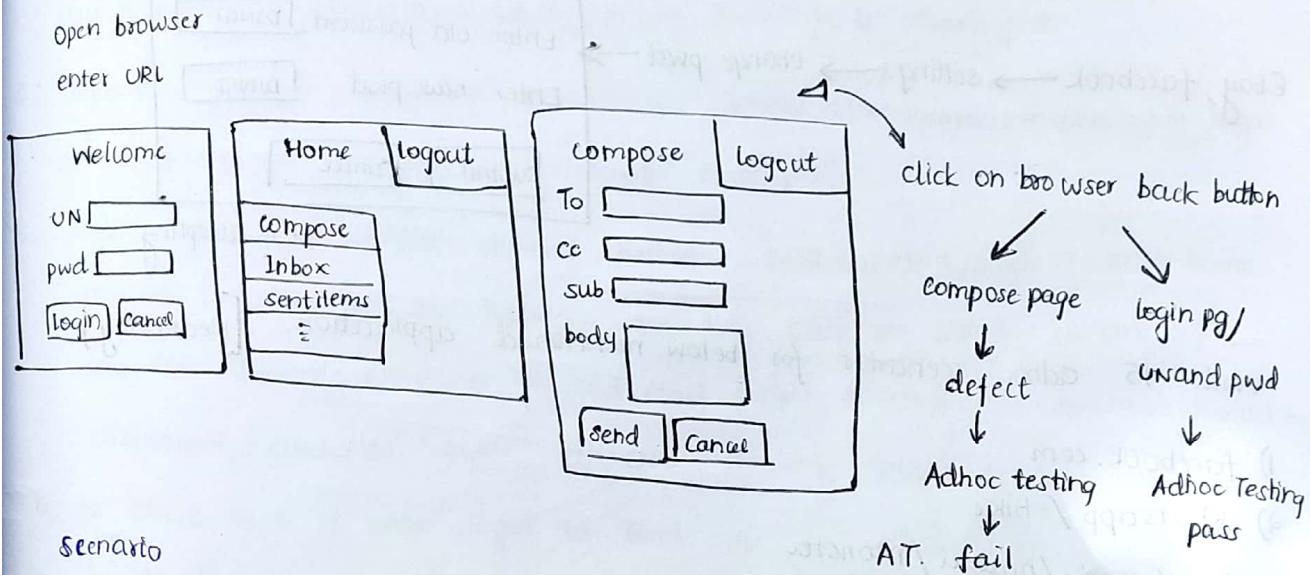
Here we will check colour of the national flag is displayed as per the company standards or not.

Colour of flags, stars etc

- 3) since it is a negative testing, Adhoc testing should be done
- 4) since requirements are not followed Adhoc testing should be done.
- 5) The intention of doing adhoc testing is to some how break the product.

## How to do Adhoc Testing

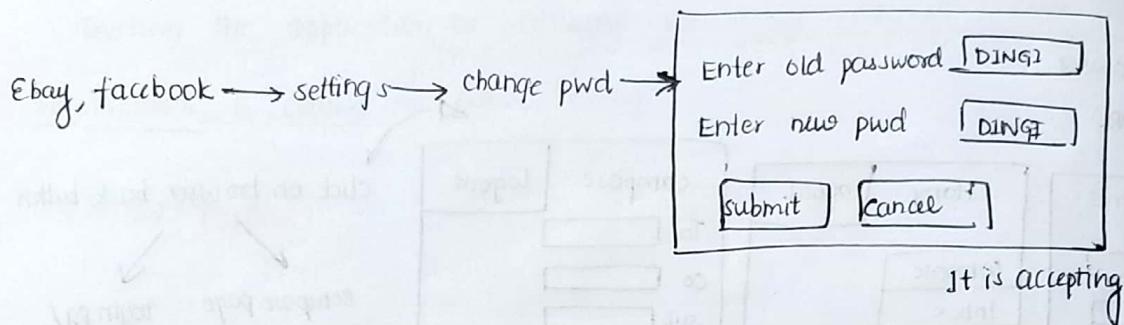
eg: gmail



1. Login to gmail, click on compose, enter values for all the fields, click on sent, logout. Click on browser back button and check whether login page is displayed.
2. Open the browser enter the URL for gmail, welcome pg will be displayed enter valid username, invalid password click on login proper error message should be displayed.
3. Open the browser, enter the URL for gmail, welcome page should be displayed enter invalid UN and invalid password click on login proper error message should be displayed.
4. Open the browser, enter the URL for gmail, welcome pg should be displayed enter valid UN and leave the password blank click on login, proper error message should be displayed.
5. Open the browser, enter the URL for facebook, welcome pg should be displayed, enter valid UN and pwd, click on login, Home pg should be displayed copy the URL paste in notepad, logout, copy paste same URL to the browser, check whether login page is displayed.

2. login to facebook account in 2 diff browsers. change the password in 1 of the browser, in the other browser, if user do any action in facebook it should ask to enter the changed password.

login to facebook - upload a photo send friend request logout go to browser history, click on facebook URL and check whether login page is displayed



Write 15 adhoc scenarios for below mentioned application. [Wednesday]

- 1) facebook.com
- 2) WhatsApp / hike
- 3) Ola / google / naukri / monster
- 4) MS Word / ms excel / NotePad
- 5) Your own app.

Web - ST, FT, IT, ST, GT, AdT.

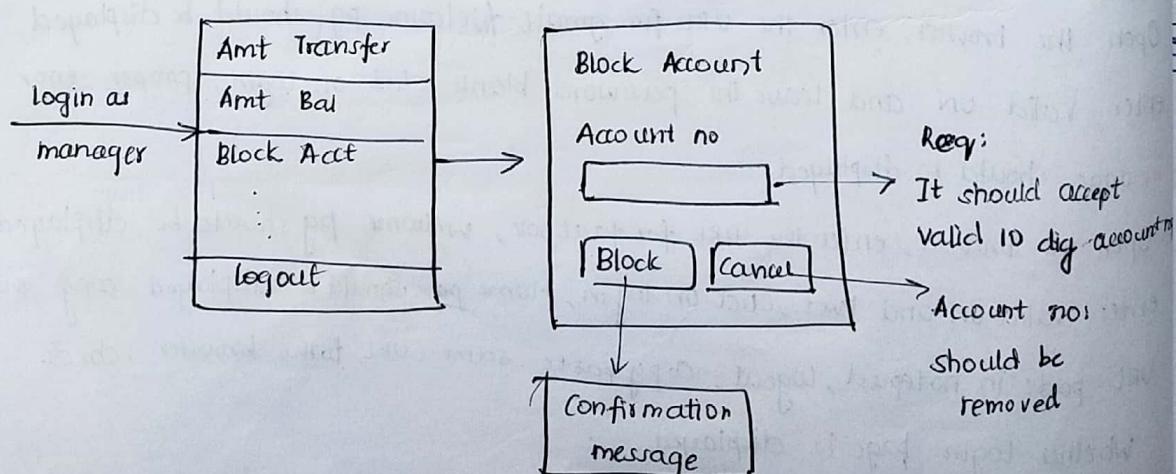
Client - ST, FT, IT, ST, Rel, Rcover, Glob, Adhoc T

stand - ST, FT, IT, ST, Rel, Rcs Adhoc → suppose diff lang → GT

alone

Fraud Management system software

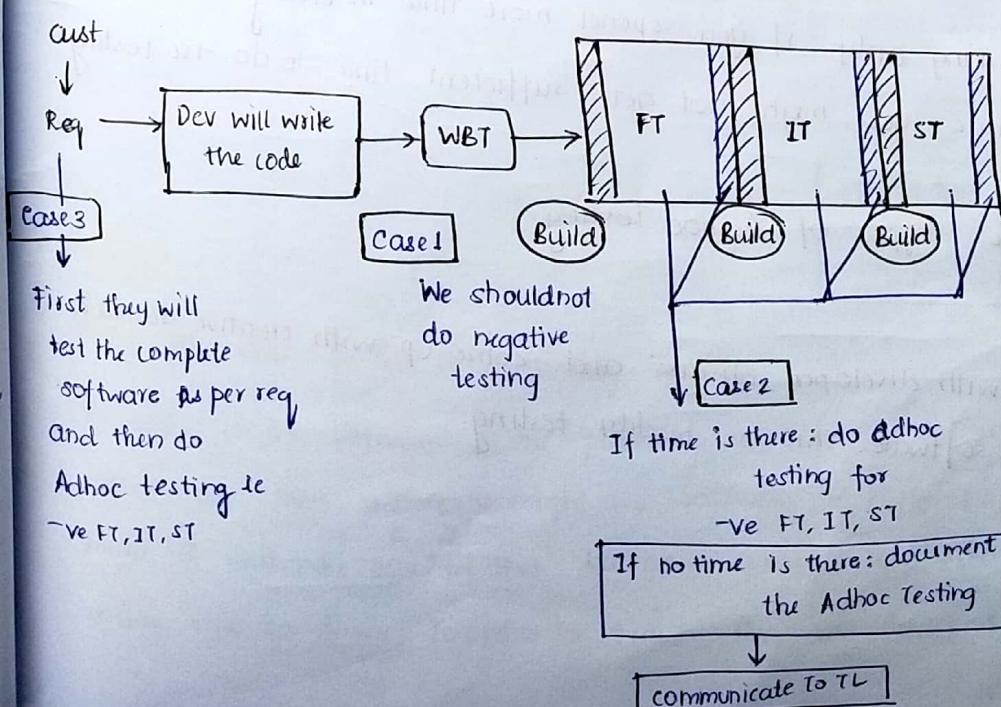
Bank app → citi bank



1. login as Bank manager enter click on block account, enter account no. of other bank, click on block proper error message should be displayed.
2. login as manager, Block user A account logout as manager, login as user B and try to transfer money to blocked user A account. proper error message should be displayed.
3. login as Bank manager, Block user A account and again try to block same user A account and check whether proper message is displayed.
4. login as manager, Block user C account, logout as manager, if you try to login as user C proper error message should be displayed.
5. login as manager in two different browsers, click on block account, enter same account no. in both the browsers - parallelly click on block, in one of the browser account should be blocked and proper confirmation message should be displayed. and other browser an error message should be displayed.
6. To check that if user login to Bank app, Block account feature should not be displayed.
7. login as manager, click on Block account, enter Acct no. and click on block and immediately click on cancel and check whether the account is blocked.

Write 5 Negative scenarios for same app - Citibank

### \* When to do Adhoc Testing



### case 5

while doing FT, IT, ST  
if do get good Adhoc testing scenario, stop doing FT, IT, ST do adhoc testing but not for too much of time and then switch to +ve FT, IT, ST

### case 4

first few cycle they test software as per req, stable or not  
↓  
Adhoc testing

1. As soon as you get build do smoke testing since smoke is a +ve testing we shouldn't do -ve testing.
2. While doing FT, IT, ST either inbetween or at end if you have some time you can do adhoc testing, if time is not there, then document the adhoc scenarios and communicate to TL.
3. Once after the complete software is tested as per req, then we can do adhoc testing.
4. Once after software is tested for around 10-15 cycles and if the product is stable then we can do adhoc testing.
5. While doing FT, IT, ST if you get any good adhoc scenario stop doing FT, IT, ST and test for the adhoc scenario but don't spend too much of time in doing adhoc testing. Immediately switch back to FT, IT, ST

? Do you write adhoc scenarios and Test cases

Yes, we can write

? Why we shouldn't do adhoc testing in the early stage itself.

i) As a TE first I should check software is testable or not.

ii) customer will use software in positive way

iii) In the beginning only if you spend more time in doing adhoc testing chances are there you might not get sufficient time to do +ve testing

? What are the types of Adhoc testing

i) Buddy Testing

TE will sit with developer, discuss and come up with creative scenarios and test the software. This is buddy testing.

## 2) Pair Testing.

TE will sit with other TE and discuss and come up with creative scenarios and test the software. This is called pair testing.

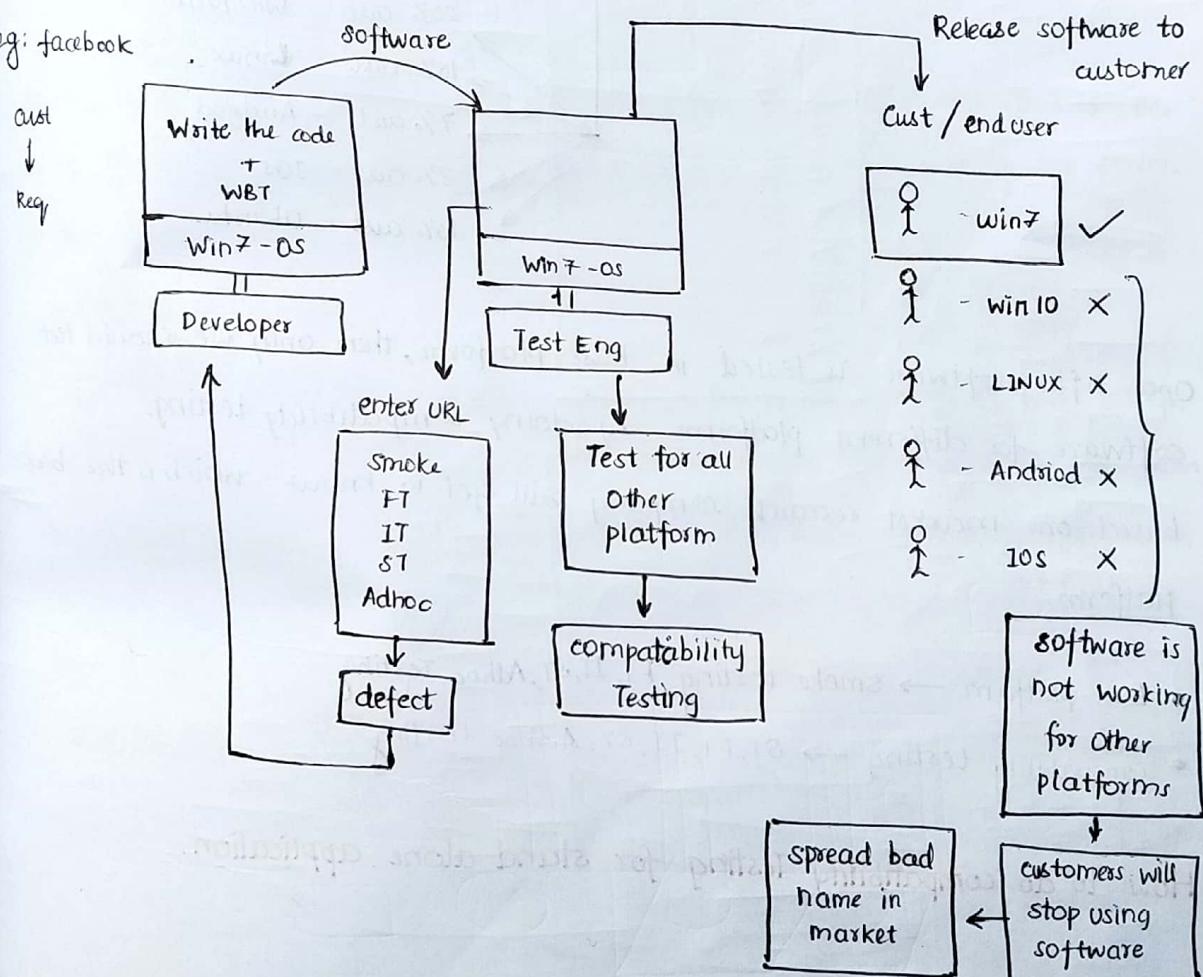
## 3) Monkey Testing.

Here TE will test the application - like a monkey without applying any logic. This is called Monkey testing.

## Compatibility Testing / Configuration / Portability Testing

Testing the functionality of an application in different hardware and software platforms / environment is called as compatibility testing.

e.g. facebook



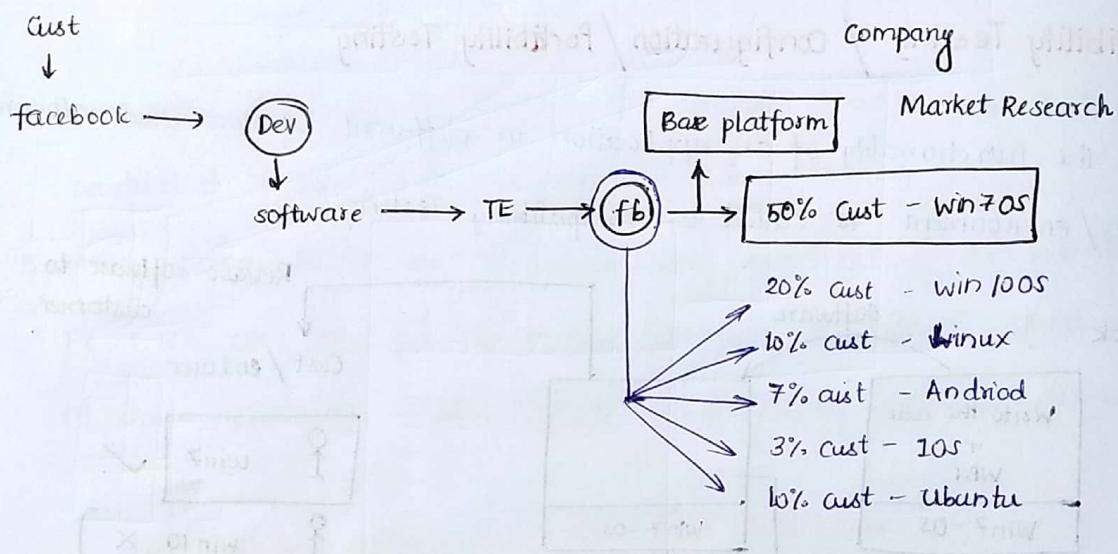
## Why we should do compatibility Testing

- 1) TE will test the software in one platform and release the software to the customer. Chances are there customers might use software in different platforms and software might not work, because of this bad name spreads in market and customer usage will go down. In order to avoid this we should do compatibility testing.

2. To ensure that each and every features are consistently working in all the platforms, compatibility testing should be done.

We can install and uninstall the software in different platforms so it is called compatibility testing. Portability testing.

### When to do compatibility Testing.

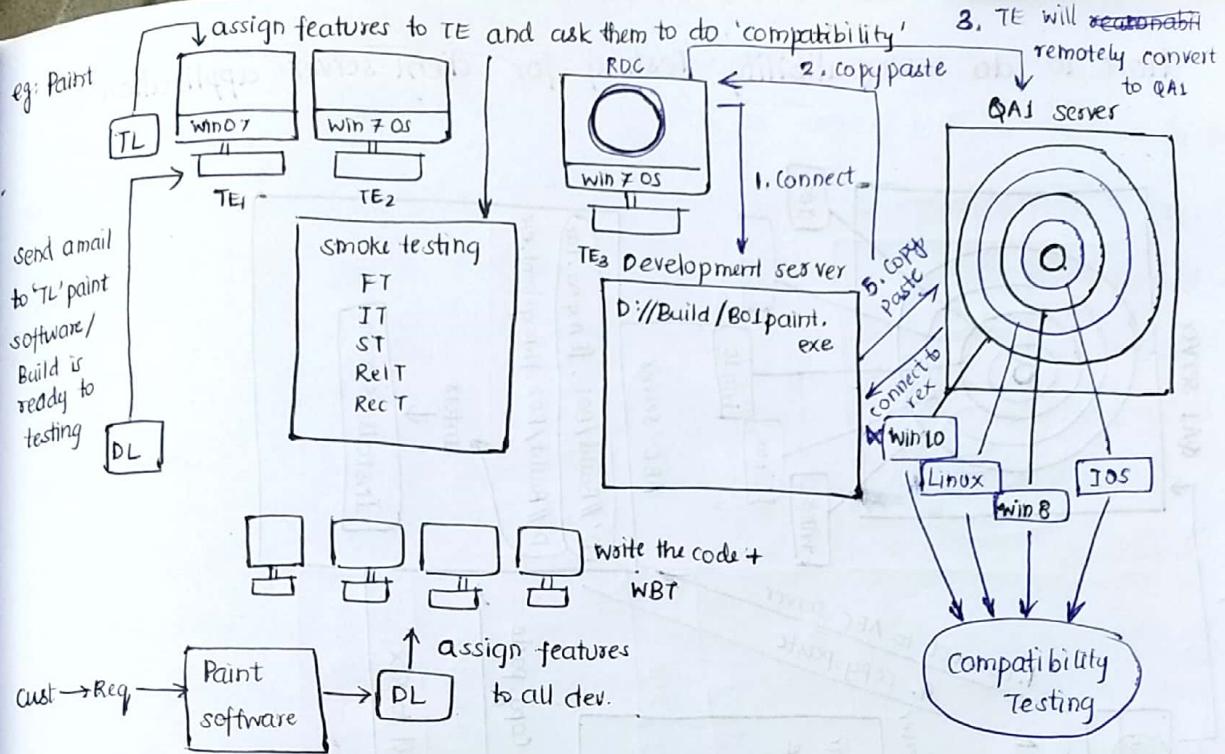


Once after software is tested in base platform, then only we should test software for different platforms by doing compatibility testing.

Based on market research company will get to know which is the base platform.

- Base platform → smoke testing, FT, IT, ST, Adhoc Testing
- compatibility testing → ST, FT, IT, ST, Adhoc Testing

### How to do compatibility Testing for stand alone application.

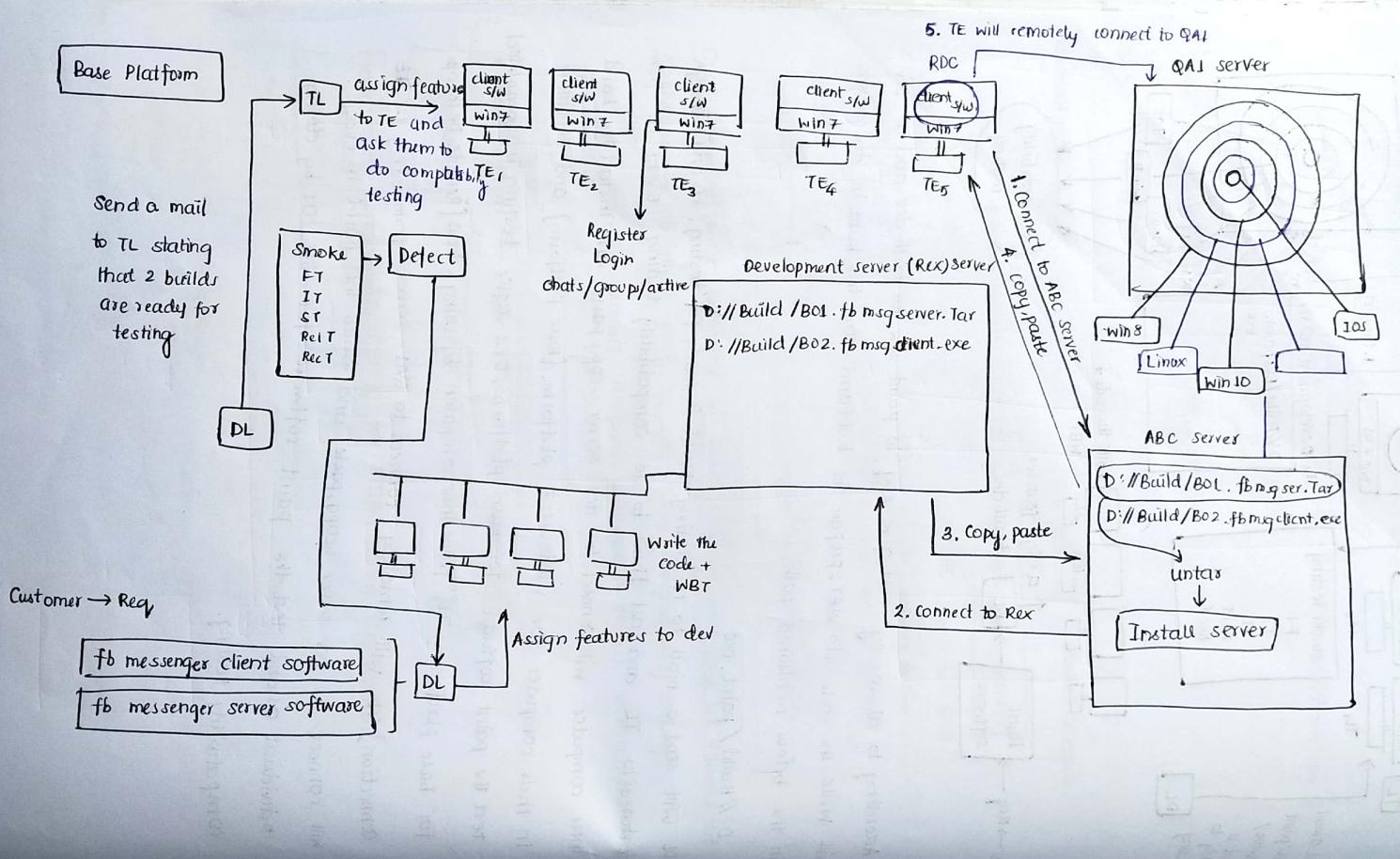


According to above eg cust give req to paint s/w for both dev and TE. Dev will write the code, do WBT, prepare the build and store the built in dev server in the below mentioned path.

D://Build / paint.exe

DL will send a mail to TL stating build is ready for testing, TL will assign features to TE and ask them to do compatibility testing. Every TE from their computer will connect to dev server, copy paste and install the build in their computer for windows 7 platform. [Base platform] and TE will test the paint software for base platform, Once after testing is completed for base platform, TE from their computer by using RDC [Remote Desktop connection] TE will remotely connect to QA1 server from every OS, TE will connect to dev server, copy, paste and install the build in every individual OS and test the paint software for cliff OS by doing compatibility testing.

## How to do compatibility Testing for client-server application



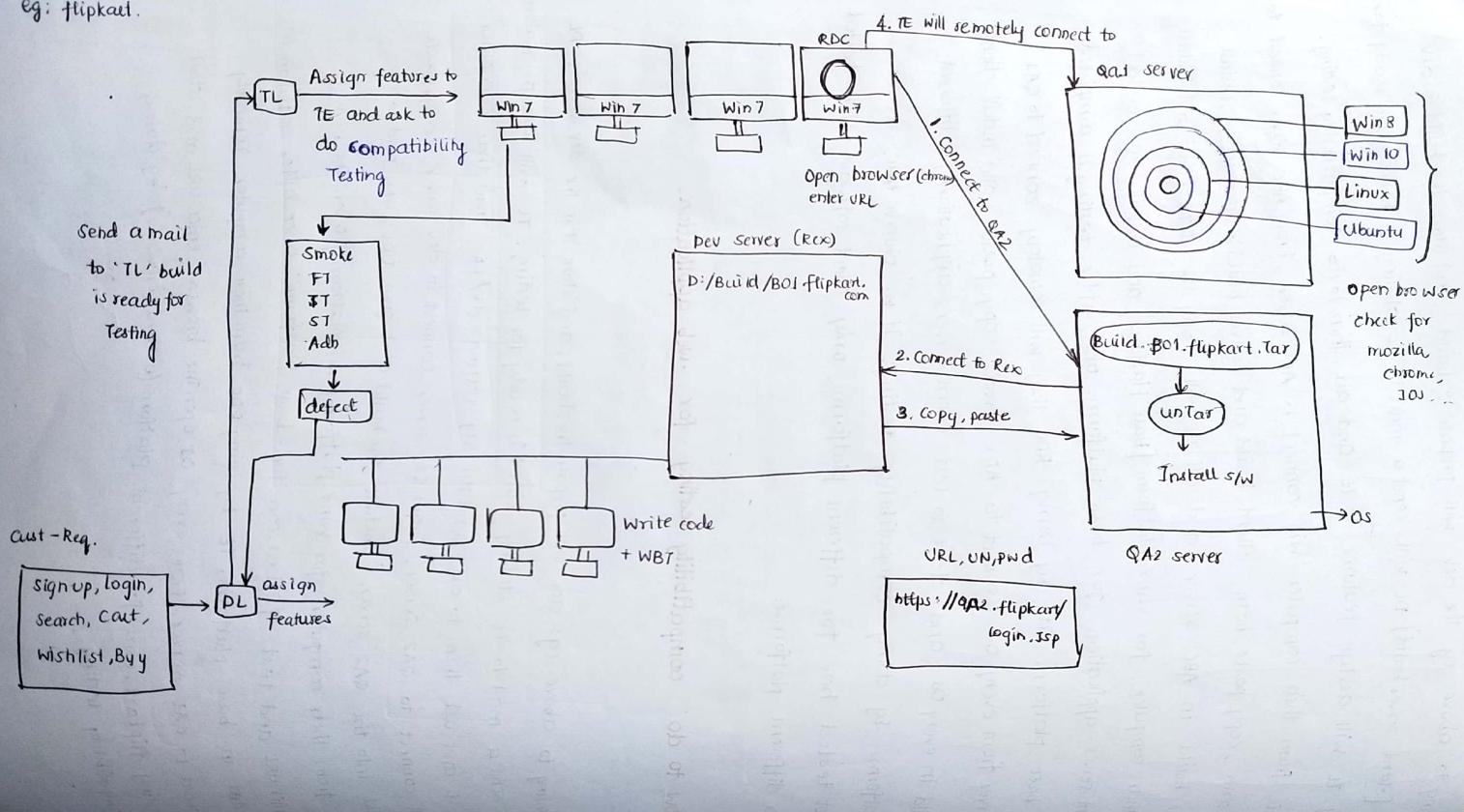
According to above eg, the dev will prepare 2 builds and store the build in dev server (client, server build) DL will send a mail to TL stating 2 builds are ready for testing. TL will assign features to TE and ask them to do compatibility testing.

TL/TE from their computer will connect to ABC server, From ABC server connect to dev server, copy paste both client build and server build in ABC server, install server build in ABC server and all TE will copy the client build and install in their computer for Win7 platform. [Base platform] and TE will start to test client-server application for basic platform. Once after testing is completed for base platform TE by using RDC they will remotely connect to QA1 server from every OS, connect to ABC server, copy paste and install client build in every OS and start to test client-server application for different platforms by doing compatibility testing. If we observe here, server is not tested here for different platforms, only client software will be tested for different platforms.

### How to do compatibility testing for web application.

According to above eg: dev will prepare the build, and store it in the dev server, DL will send a mail to TL stating build is ready for testing. TL will assign features to TE and ask them to do compatibility testing. TL/TE from their computer will connect to QA2 server, From QA2 server connect to dev server, copy, paste build into the QA2 server. Install the build and give URL, UN, pwd to TE. TE from their computer for Win7 platform (Base platform) Open the browser, enter URL and test flipkart.com for base platform. Once after software is tested in base platform, TE by using RDC from their computer remotely connect to QA1 server. From every OS, open the browser, enter URL and start testing flipkart.com for different platform (OS and browsers) by doing compatibility testing.

Eg: flipkart.

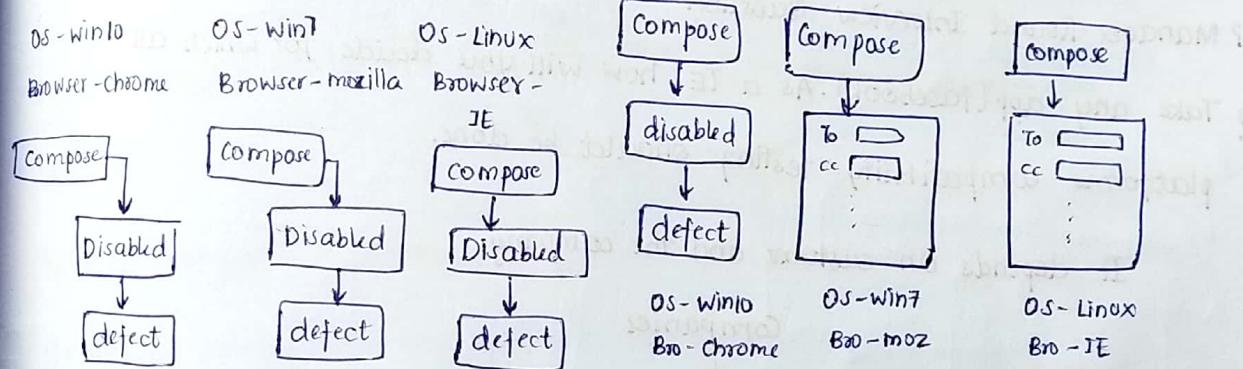


What is the difference between functionality issue and compatibility issue

If a feature or functionality is not working in any OS and any browser then it is called functionality issue/defect.

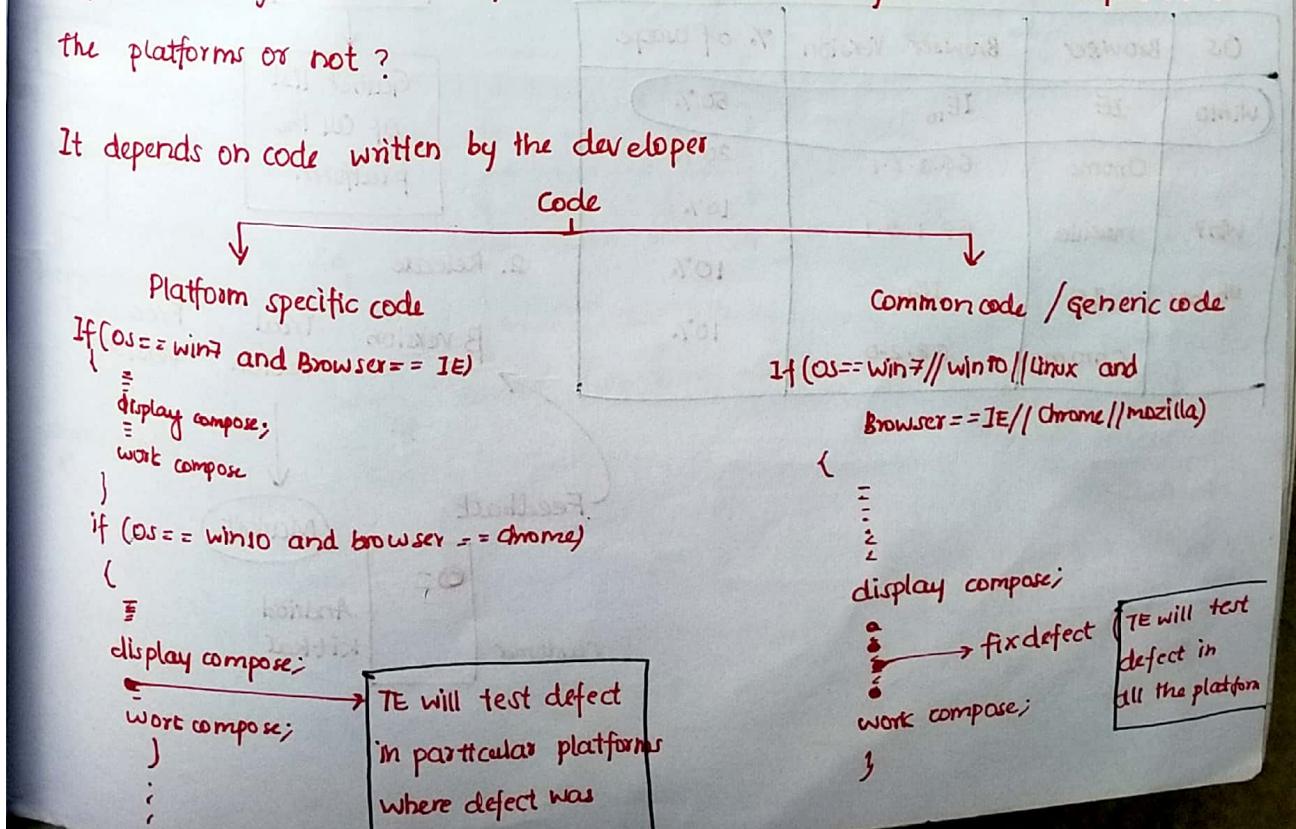
If a feature or functionality is not working in any OS and any browser then it is called functionality issue/defect.

gmail



Assume that developer will develop gmail software for eg: compose feature to support all the platform [all OS and browsers], dev will give software to TE. Now TE in windows 10 platform, chrome browser when you click on compose, it's going to blank page, TE will communicate defect to dev and dev will fix the defect and give the new software. As a TE will you test the defect in all the platforms or not?

It depends on code written by the developer



? How TE will get to know code is platform specific or common code

1) TE will interact with dev and dev will tell whether code is common code or platform specific.

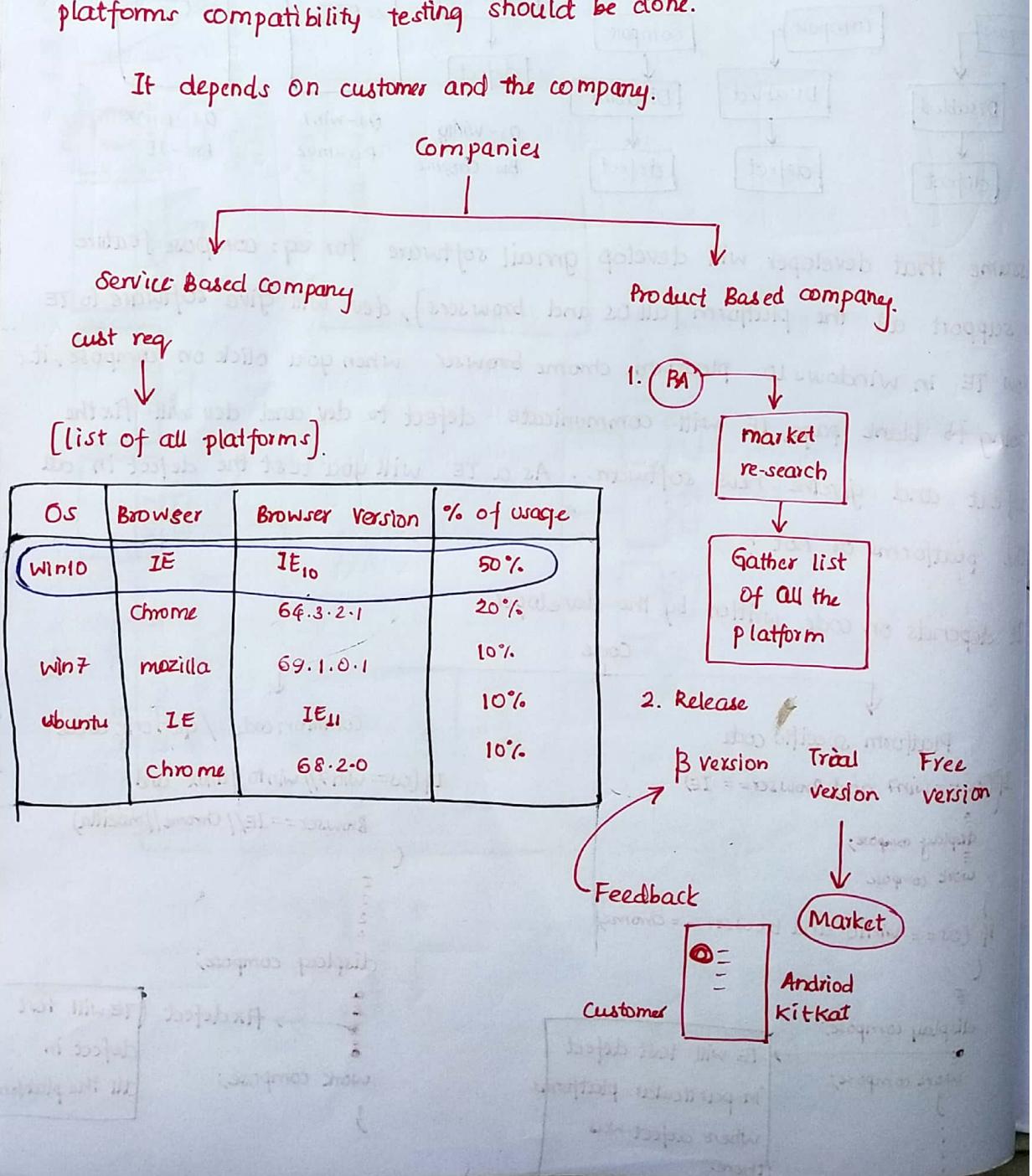
2) When dev fix the defect, dev will only send a mail to testing team stating code is platform specific / common code.

3) TE based on our experience we will get to know whether the code is platform specific or common code.

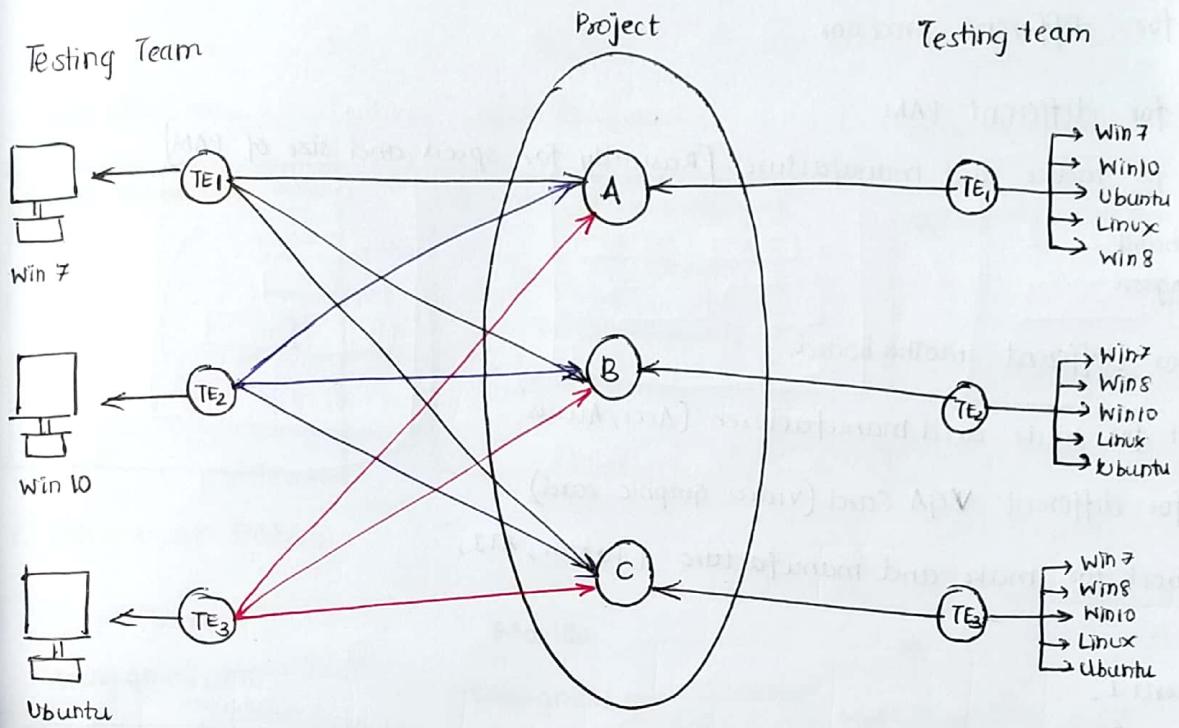
? Manager Round Interview Question

? Take any app (facebook). As a TE how will you decide for which all platforms compatibility testing should be done.

It depends on customer and the company.



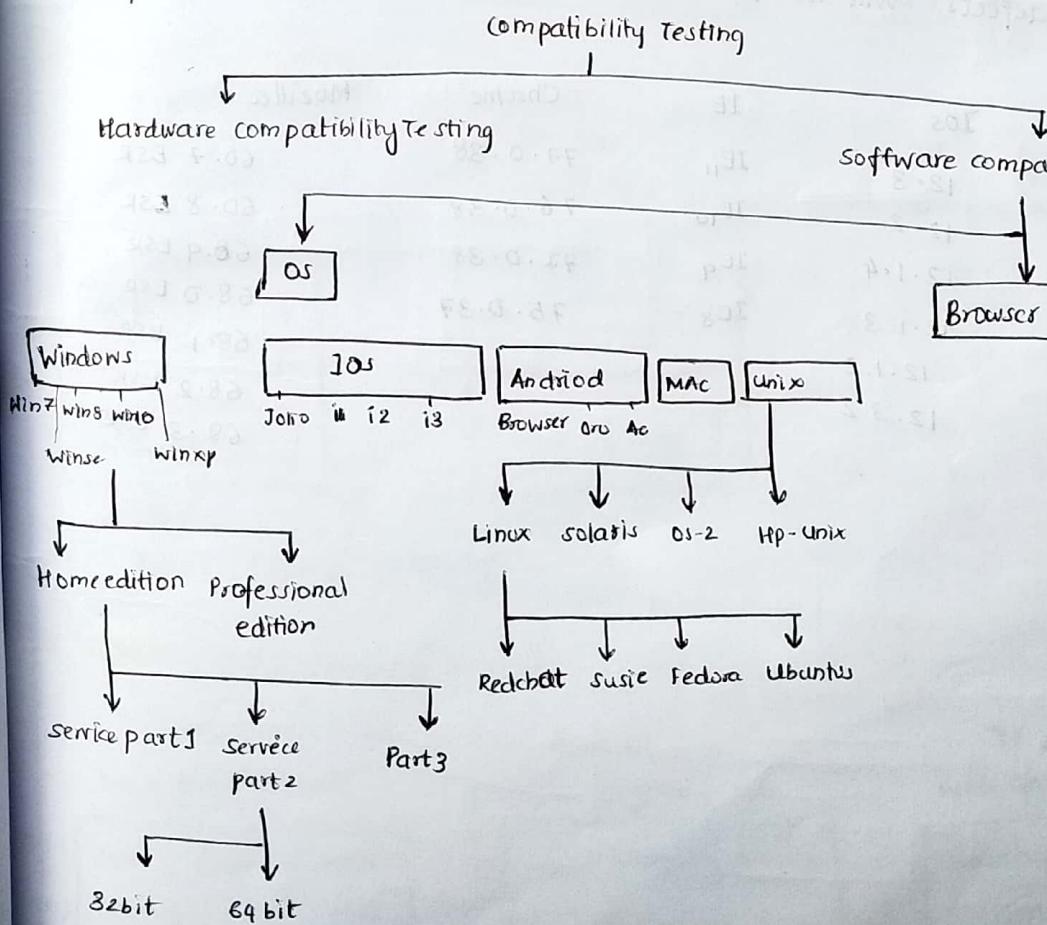
How work will be allocated in the company to the compatibility Testing?



### Types of Compatibility testing

1) Hardware compatibility testing

2) software compatibility testing



1) Test for different processor

2) Test for different RAM

Test for make and manufacturer [Basically for speed and size of RAM]

Sandisk

Kingson

3) Test for different mother board

Test for make and manufacturer (Acer, Ausus)

4) Test for different VGA Card (video graphic card)

Check for make and manufacture (Foxon, ATI,

Assignment 1.

Tell me all the android version

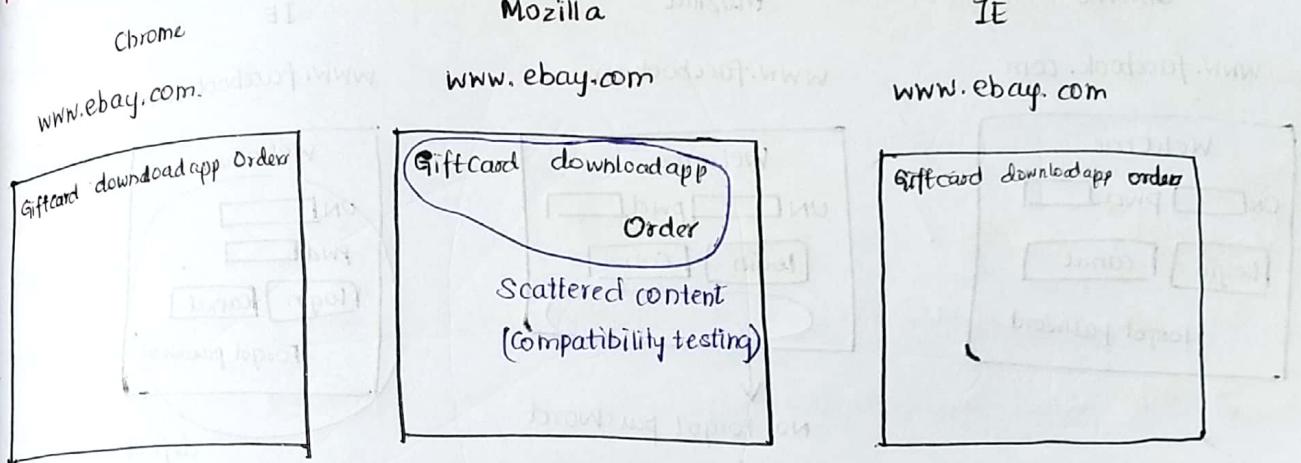
Assignment 2

Get latest 3 version of Ios, IE, chrome, mozilla.

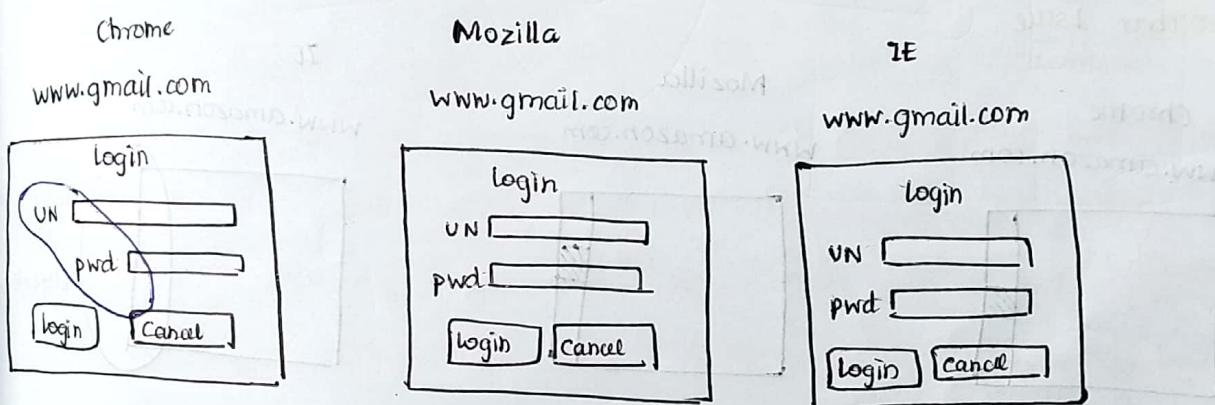
What type of defects will we find while doing compatibility testing.

A - Alpha	Ios	IE	Chrome	Mozilla
B = Beta	12.3	IE <sub>11</sub>	77.0.38	60.7 ESR
C = Cupcake	12.2	IE <sub>10</sub>	76.0.38	60.8 ESR
D = Doughnut	12.1.4	IE <sub>9</sub>	77.0.38	60.9 ESR
E = Eclair	12.1.3	IE <sub>8</sub>	75.0.37	60.0 ESR
F = Froyo	12.1.2			60.1 ESR
G = Gingerbread	12.3.2			60.2 ESR
H = Honey				60.3 ESR
I = Icecream				
J = Jelly				
K = Kitkat				
L = Lollipop				
M = Marshmallow				
N = Nugget				
O = Oreo				
P = Pie				

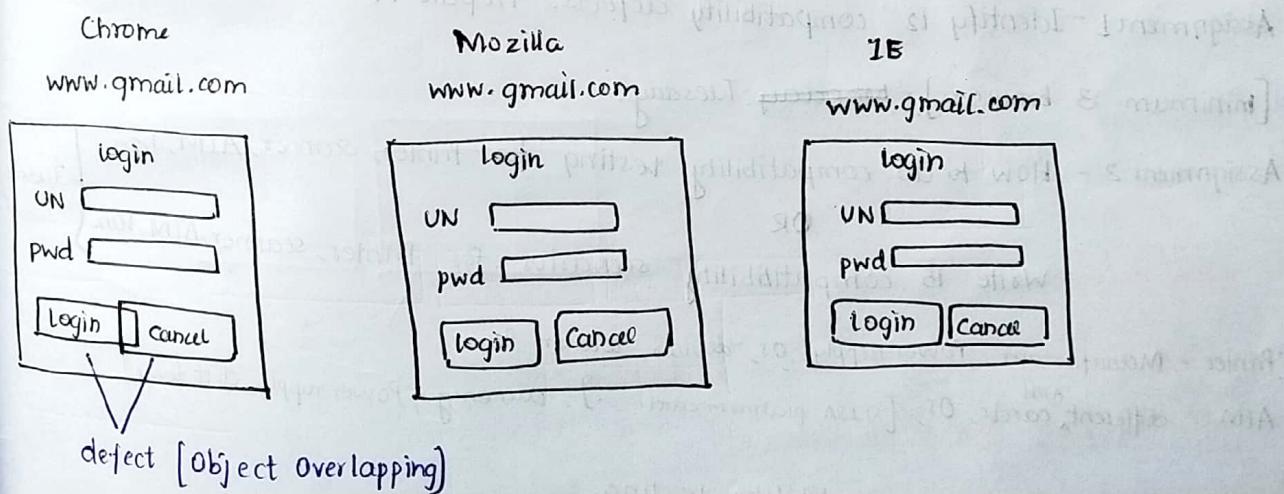
## 1. Scattered Content.



## 2. Alignment Problem.



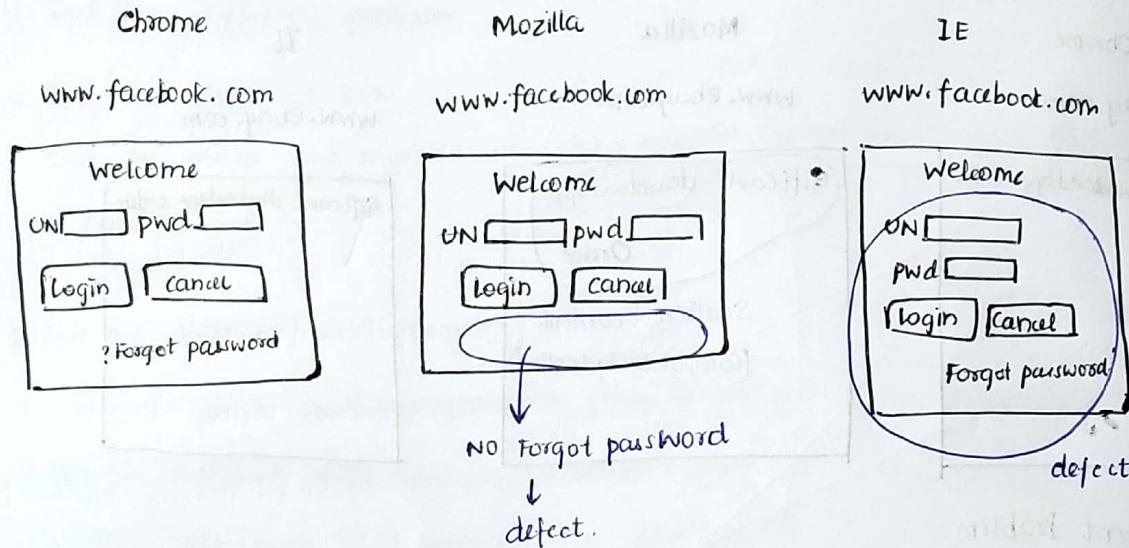
## 3. Object Overlapping.



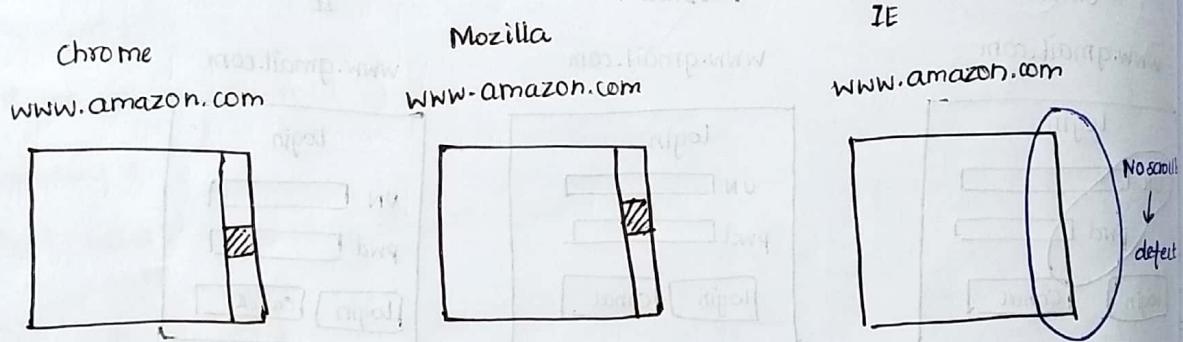
## 4. Broken Frames. (button / Textfield / Icon / Images . . . ]



## 5. Change in look and feel of application [Font, colour, Text, size, some feature missing]



## 6. Scrollbar Issue



Assignment 1 - Identify 12 compatibility defects. Prepare PPT , 6 printouts.

[minimum 3 browsers] - ~~Monday~~, Tuesday.

Assignment 2 - How to do compatibility testing for Printer, scanner, ATM, Fan

OR

Write 15 compatibility scenarios for Printer, scanner, ATM, fan.

Printer - Manufacturer, Power supply, OS, devices, colour, Papers.

ATM - different <sup>ATM</sup> cards, OS, [VISA, platinum card...], currency; Power supply, diff temp.

? How will you do compatibility testing

I will do compatibility testing of a application in different hardware and software platforms. wherein I will test the software for different OS, browser and browser versions.

Manager Round

? What type of testing you will do for Web application.

Web application consist of basic and critical features so I will do smoke testing, since web application consist of many components, I will do functional testing, some of the modules might be having the data flows so, I will do integration testing, Web application will consist of many end-to-end flows so, I will do system testing, chances are there customers might use web app random so, I will do Adhoc testing, chances are there cust might use web app in different platforms so I will do compatibility testing, suppose if web application is developed for different languages and currencies then I will do globalization testing, chances are there many users might put load on the web application so I will do performance testing, chances are there web application might be hacked by hackers so, I will do web security testing, I will check web application is user friendly or not by doing Usability testing, Chances are there adding new feature for web app might affect old features, so I will do regression testing, I will compare web application with similar kind of application and check for advantages and disadvantages, strength and weakness by doing comparison testing.

What type of testing you do for client-server, stand-alone (No, per, web security...)

What is comparison testing / Parallel testing

Here we will compare newly build application with similar kind of competitor app which is already released in market and we check for adv and disadv, strength and weakness and we make sure that all the features are present in newly build application. This is called as comparison testing or parallel testing.

e.g. WhatsApp v/s ~~facebook~~ hike, swiggy v/s zomato, bigbazaar v/s more.

Yellow Box Testing

Testing the warning messages of an application is called as yellow box testing.

Warning message can be ignored [we check spelling is correct or not]

e.g. Battery low message,

Error message can't be ignored.

## Usability Testing / cosmetic Testing

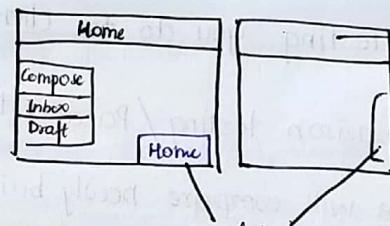
Testing the user friendliness of an application is called usability testing.

Based on what we can tell application is user friendly or not?

1. Simple to understand.
2. Easy to use
3. Navigation should be simple
4. Look and feel should be good.
5. Proper helper text should be given.
6. While using application if user do any mistakes then proper error message should be displayed.
7. Proper tool tip should be given for some of the images.

## How to do usability testing. [How to find usability defects]

1. All the important features and frequently used features should be displayed in left or top navigation bar.



2. All the important features and frequently used features should be accessible within 1 or 2 clicks to users.
3. All the text fields, buttons, links, radio button should be developed as per the GUI [Graphical User Interface] stds.

Login	✓	UN	✓	Body		FN	
Login	x	UN	x	Body	✓	FN	defect * symbol is not there

If helper text is not displayed, error msg not displayed then it is defect.

4. suppose if user is in 2<sup>nd</sup> / 3<sup>rd</sup> / 10<sup>th</sup> pg, user should be able to go back to prev pg or 1<sup>st</sup> pg just by 1 click.

⑤ 5 years down the line where would you like see your self.

Better position in same company. As am a fresher I am looking an opp to work in your company where I can implement my tech skills and in my proj. By doing this I would like to gather more product knowledge and proj knowledge, with this I would like to see my profile in a place where if some if facing a problem I should be in a position to ~~trouble shoot~~ <sup>trouble shoot</sup> that problem, If company is getting new proj they should approach me to handle the proj, If customer facing any issues in the production server I should be able to troubleshoot that problem this is where ~~I~~ I would like to see myself in 5 year down the line.

⑥ For How many years you would like to be in your compy?

Until I get good knowledge, until you get a good opp, Now I am in need of job and as of now I don't have any intention of leaving the company. I am here to build my carrier, I would like to stay in your company until I get opps to implement all my tech skills and creativity on my proj.

Until I get opp on new tech and n proj

Until I benefit for the company I would like to stay in the same company

⑦ Why Testing?

Once I was done with my degree I joined a core company where it was not compatible for me. and I felt growth is bit less, I met my cousin working in IT. He was working as TE, were he explained his profile and I felt bit interesting and I joined a testing course where I felt still more interesting, Now I am done with this course with some prac knowledge. so that ~~so~~ I am here for testing interview, I have ~~no~~ interest in this.