

what is significance of testing?

Why you joined as a test engg.?

What is the importance of testing?

Why not you joined as a developer?

① What I understand, the market is absolute oligopoly.

I mean to say if huge competition so organization has to deliver quality product to survive in the market.

If To achieve the quality product, org. has to emphasis on testing.

"Because software testing is a way to assess the quality of software & to reduce the risk of software failure in operation."

Lets take an example,

During symbian Era Nokia rules the world.

When the technology gets changed from symbian to android even giant company like Nokia also couldn't survive.

i.e. because Nokia couldn't adapt the technology its because organization couldn't able to concentrate on quality & to find out quality we have to concentrate on testing quality. This example illustrates significance of testing.

②

Also to achieve quality product there are two possible approaches.

- ① Designing the robust code.
- ② To remove all defects.

Practically speaking, 2<sup>nd</sup> method is more approachable

And in this way I want to contribute in

Why Testing is known as next dimension technology?

②

- what I understand
- 1. Vol.<sup>m</sup> of data in the world  $\Rightarrow$  complexity begins  
 $\Rightarrow$  Analytics will be emphasis
- 2. if complexity begins  
if Analytics is more  $\Rightarrow$  Obviously we have to concentrate on testing.

$\Rightarrow$  testing is next dimension technology.

$\Rightarrow$  That's why I joined testing.

## Background

Earlier dev. people involved in testing.

Y2K concept  
↳ year 2000

when computer was generated  
date was written as 28 Aug 67.  
but 18  
:  
99

When year 2000 was there it read → 100

⇒ That day testing come to world.

# SQA - Software Quality Assurance

Q. What is Software quality Assurance.

Is quality a parameter?  
→ No.  
Quality is not testing.



To monitor & measure the strength of  
the development team, organisation use SQA concept.

1. Customer requirement. (what is purpose/  
objective)

2. Customer expectation. (privacy, performance)

3. Timely deliverable } management category.

4. cost of software.

5. risk management.

Testing

These are the parameters which define quality.

f Testing

Q. Where do you involved here?

Customer requirement

e.g requirement length = 10 digit Numeric.

⇒ length = 10 , + int .

Cell no. is static no.

Customer name is dynamic data.

Q. What is significance of testing?

To monitor & measure the strength of the development team, organisation use SQA concept.

e.g. When the world was in symbian Era  
When the world was changing from symbian Era to android  
Nokia was controlling India China market.

If android was accepted by Nokia  
→ current scenario would be different.

Why? : decision making - wrong.  
How depends upon data. ← intelligent parameter.

If data is more sophisticated → Analytics sofisticate

↓  
Data would be in 3nf.

Why are you using ETL?

What is importance of ETL in business?

It supports the DSS (Decision support system)

to take perfect decision.

e.g. for Amazon → what will be the timing for sale so that company will have more revenue.  
i.e. Diwali sale.

⇒ This is possible only when there is proper analytics

## What is project ?

A software related problems of a single customer solved by software engg's th' a software engg process.

→ known as SDLC.

## What is SDLC ?

Software development Life cycle.  
"It is a process / framework that describes steps involved in development of a software at each phase"

It consists 3 generic phases

What  
customer requirement  
Analysis

How  
Design  
Coding  
Testing

Modification  
Correction  
Adaptability  
Reenggiering  
Enhancement.

### ① What ?

What we are going to develop.

i) customer requirement

e.g end user can login with email / phone number.

### ii) Analysis.

i) enter → email  
password

ii) enter → phone no.  
password.

password - static in both cases.

## Different possibilities

email	pwd	cell	pwd
Y	Y	Y	Y
Y n	n Y	n Y	n Y
n	n	n	n

- ① If both email & pwd are correct } then f then  
② If both cell & pwd are correct } login will be  
successful.

otherwise it should fail  
with different messages.

This is nothing but analysis -

What if analysis goes wrong?

- we may miss some possible test scenarios.
- faulty product.
- loss to company

② How?

How we are going to develop

- i) we are going to **design** software part.
- ii) we are going to **code** it
- iii) we are going to **test** it.

③

Modification.

Correction

If something goes wrong we are going to modify it

Adaptability

Independently monitor behaviour & eventually modify the same according to changes in the operational env or in the system itself.

Reengg

Examination of alteration of a system to reconstitute it in a new form.

Enhancement

Any product change / upgrade that increases s/w or h/w capabilities beyond original client specifications.

## What are the stages of SDLC ?

<u>Stages</u>	<u>Documents made</u>
① Information Gathering   Requirement collection.	BRS (Business requirement specification)
② Analysis	SRS / CRS / FRS software requirement speci. customer requirement speci. functional requirement speci.
③ Design	HLD - high level design. LLD - low level design.
④ Coding	programming.
⑤ Testing	test documentation.
⑥ Maintenance	support

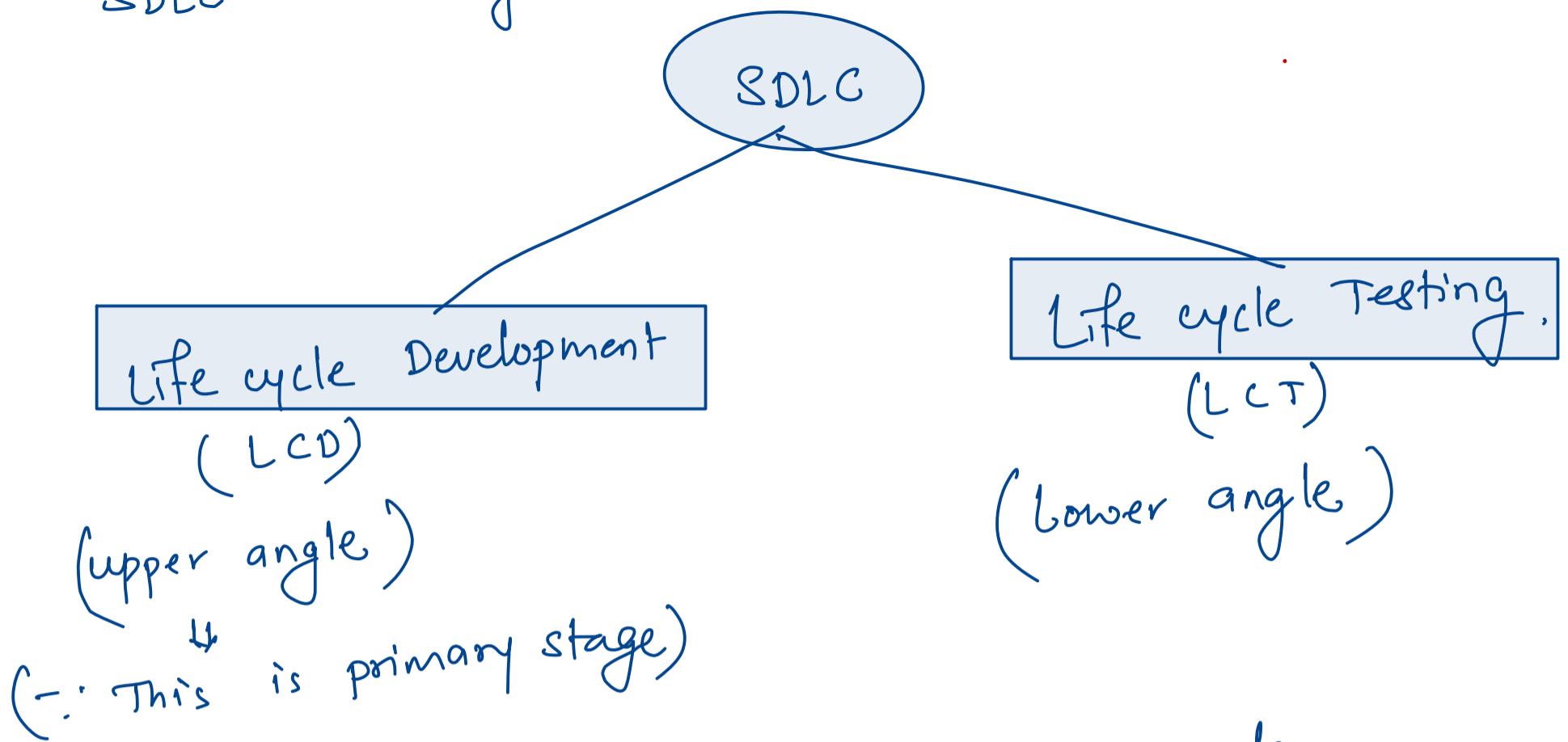
# Interview

## What is SDLC?

Software development Life cycle.  
"It is a process / framework that describes steps involved in development of a software at each phase"

<u>Stages</u>	<u>Documents made</u>
① Information Gathering / Requirement collection.	BRS (Business requirement specification)
② Analysis	SRS / CRS / FRS software requirement speci. customer requirement speci. functional requirement speci.
③ Design	HLD - high level design. LLD - low level Design.
④ Coding	programming.
⑤ Testing	Test documentation.
⑥ Maintenance	Support

SDLC is categorised into 2 parts.



w/o upper angle  $\Rightarrow$  there won't be lower angle.

i.e. w/o life cycle development  $\Rightarrow$  there won't be life cycle Testing  $\Rightarrow$  w/o LCT there won't be any quality product.

~~Interview~~  
How many developer & testers are involved in your org?

project	Dev.: Testers.
web appl. client server Enterprise appl.	3:1 ✓
System critical ↳ AI ↳ Robotics	1:1
m/c critical ↳ satellite programming ↳ missile defence	1:3

✓ my project.  
6 developers  
& 2 testers.

Note

If shows more critical the appl. is,  
the no. of testers are more.

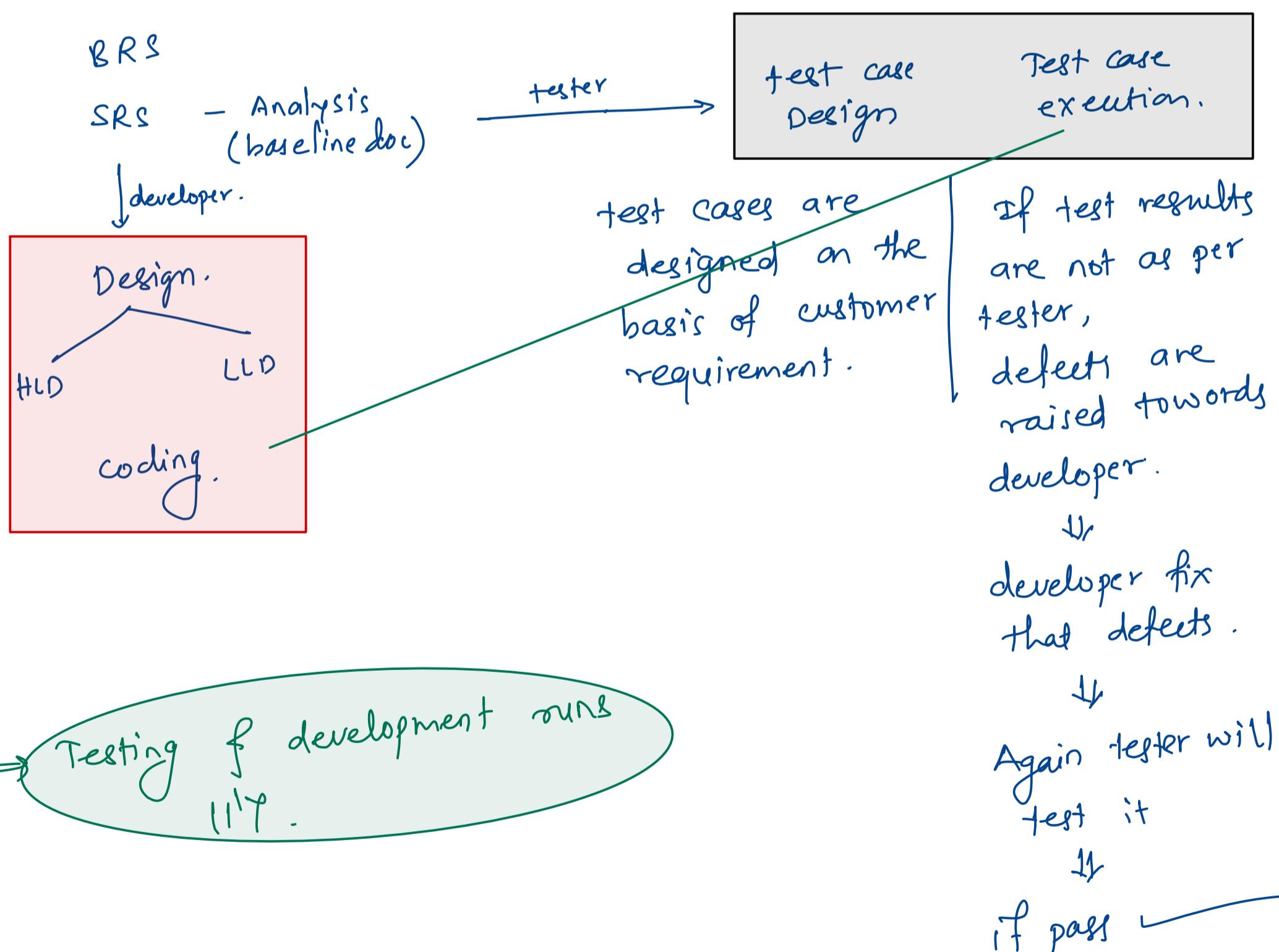
~~Interview~~

Q. Testing comes after coding or before coding?

It runs parallelly.

As SRS is made on the basis of BRS, one copy goes to testers & other copy goes to developers.  
 Developer people will start design & coding & Testers will start testing simultaneously.  
 → So testing & coding runs parallelly.

testing zone.



customer requirement. - 10 digit numeric value

what are the possible conditions?

expected.

- 10 digit
- (1) length - 10 →
  - 11 →
  - 9 →
  - (2)
  - (3)
  - (4) only nos →
  - (5) characters →
  - (6) Special character-
  - (7) alphanumeric -
  - (8) nos + special ch. -
  - (9) ch + special ch -

pass.  
fail  
fail.

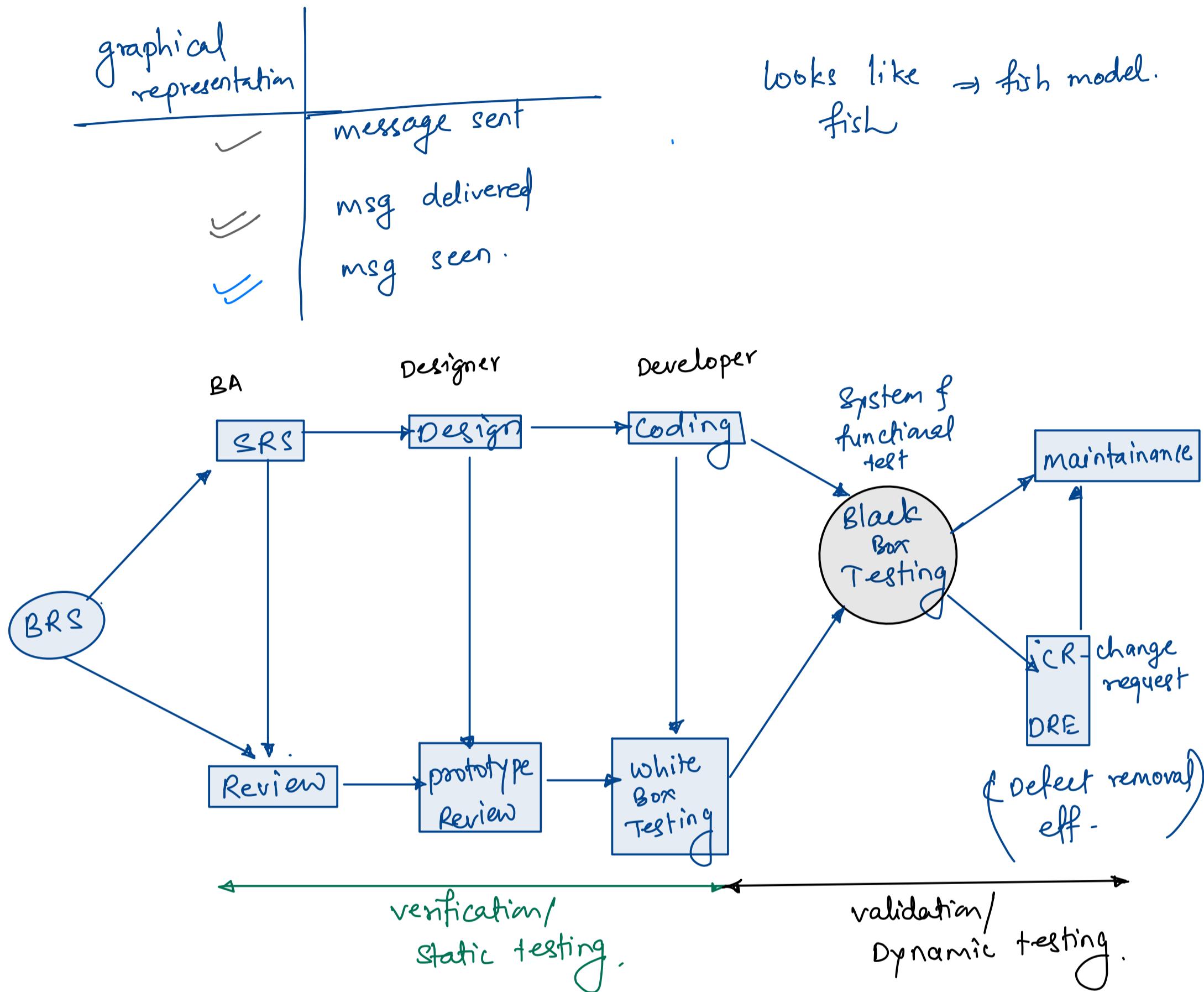
pass  
fail  
fail  
fail  
fail  
fail

execution  
pass  
pass → defect.

Whenever you work, make sure to be part of execution.

II  
you will understand  
the system.

## Graphical representation of fish model



- At every stage & review.
  - unless & until testing of each stage is completed we can't move to the next stage.
  - BA is going to review their own SRS
  - Designer is going to review their own design.
  - Developer is going to review their own code.
  - \* Irrespective of any stages, test engg is going to catch defect.
- {  
    ↳ Defect found in each stage is handled by respective member.

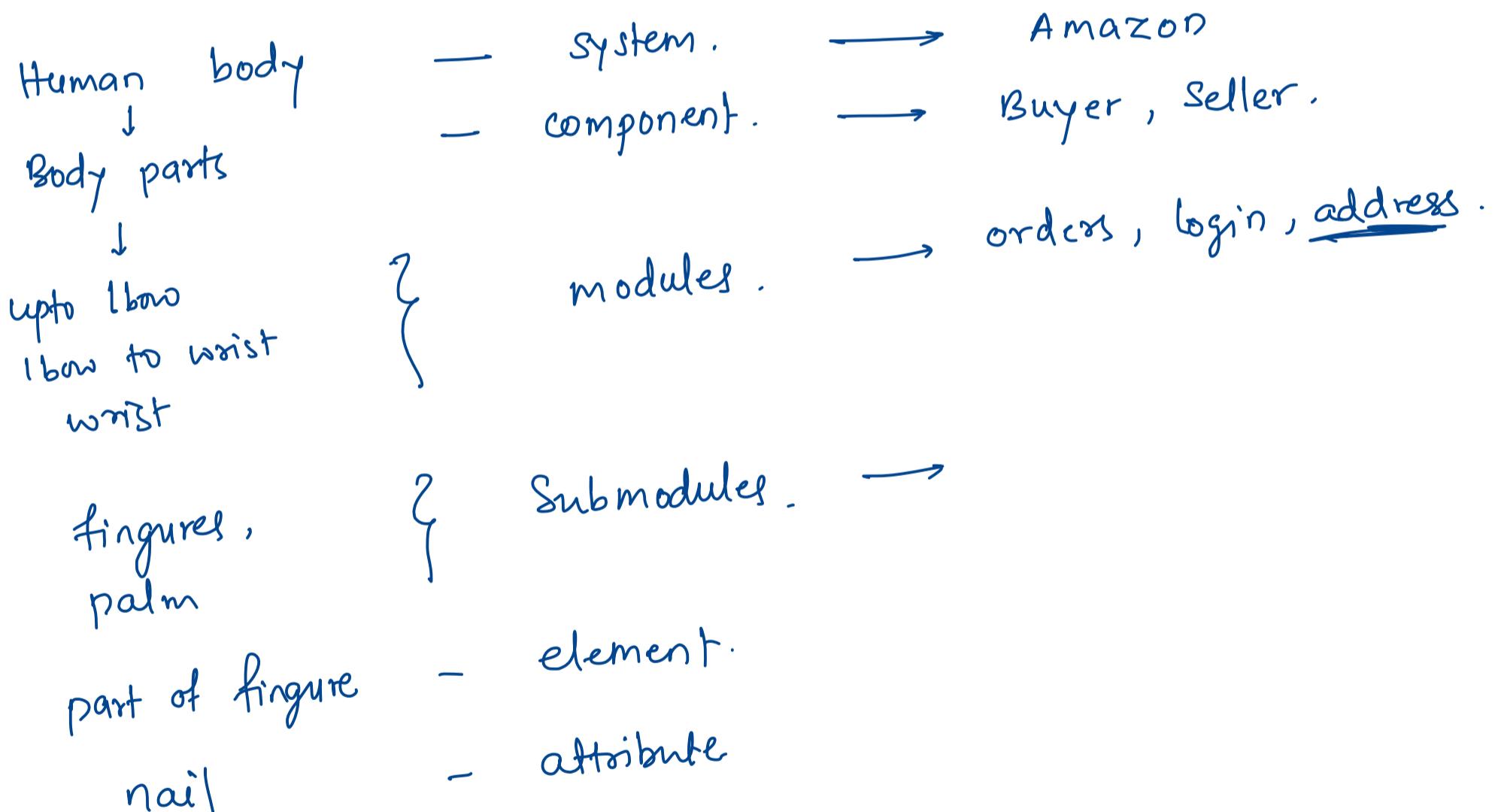
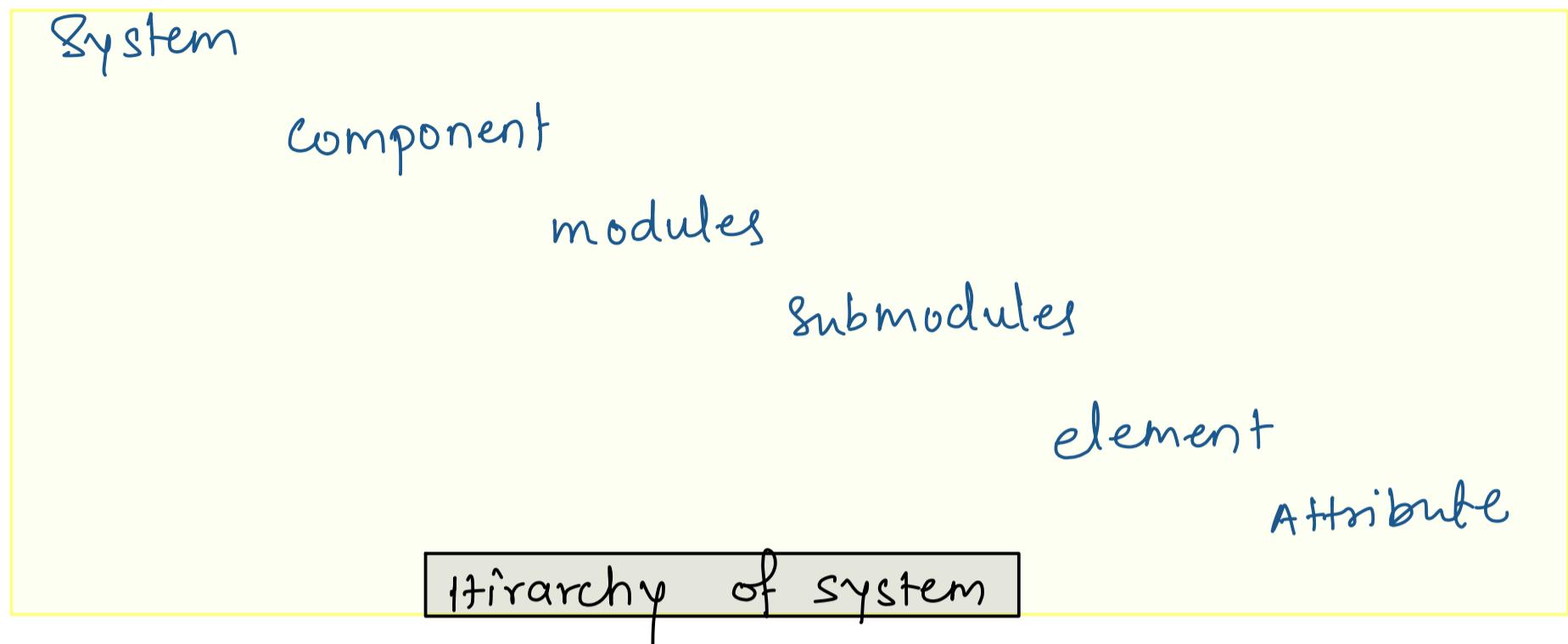
fish model is graphical representation of SDLC.

Here.

- At every stage & review.
  - unless & until testing of each stage is completed we can't move to the next stage.
  - BA is going to review their own SRS
  - Designer is going to review their own design
  - Developer is going to review their own code.
- Defects found in each stage is handled by respective member of that is called as verification.

Irrespective of any stages, test engg is going to catch defect. of which is known

System of functional test  
testing functionality of whole system,



function

e.g. Amazon → online buying | online selling  
Human → speak, walk,

## Interview

we have to identify the function of object.

e.g



text box

drop down .



To insert data.



Select the object.

## VVVVING

- Q. What is black box testing f white box testing.
- Q. what is the difference between verification f validation
- Q. what is static testing ? what is dynamic testing.  
why it is called static testing ?  
why it is called dynamic testing ?

## White box Testing

If we analyse SDLC model,

Then SRS will be reviewed by

design



BA

designer

coding



developer

that is nothing but white box testing.

## verification

They are going to review their own document  
it is called as verification / static testing.

## Black box Testing

we perform system f functional testing.

I mean to say functionality of the system,  
is called as black box testing,  
is called validation / dynamic testing.

## Why it is dynamic Testing?

I mean, respective of any stage , we are  
responsible to catch the defect.

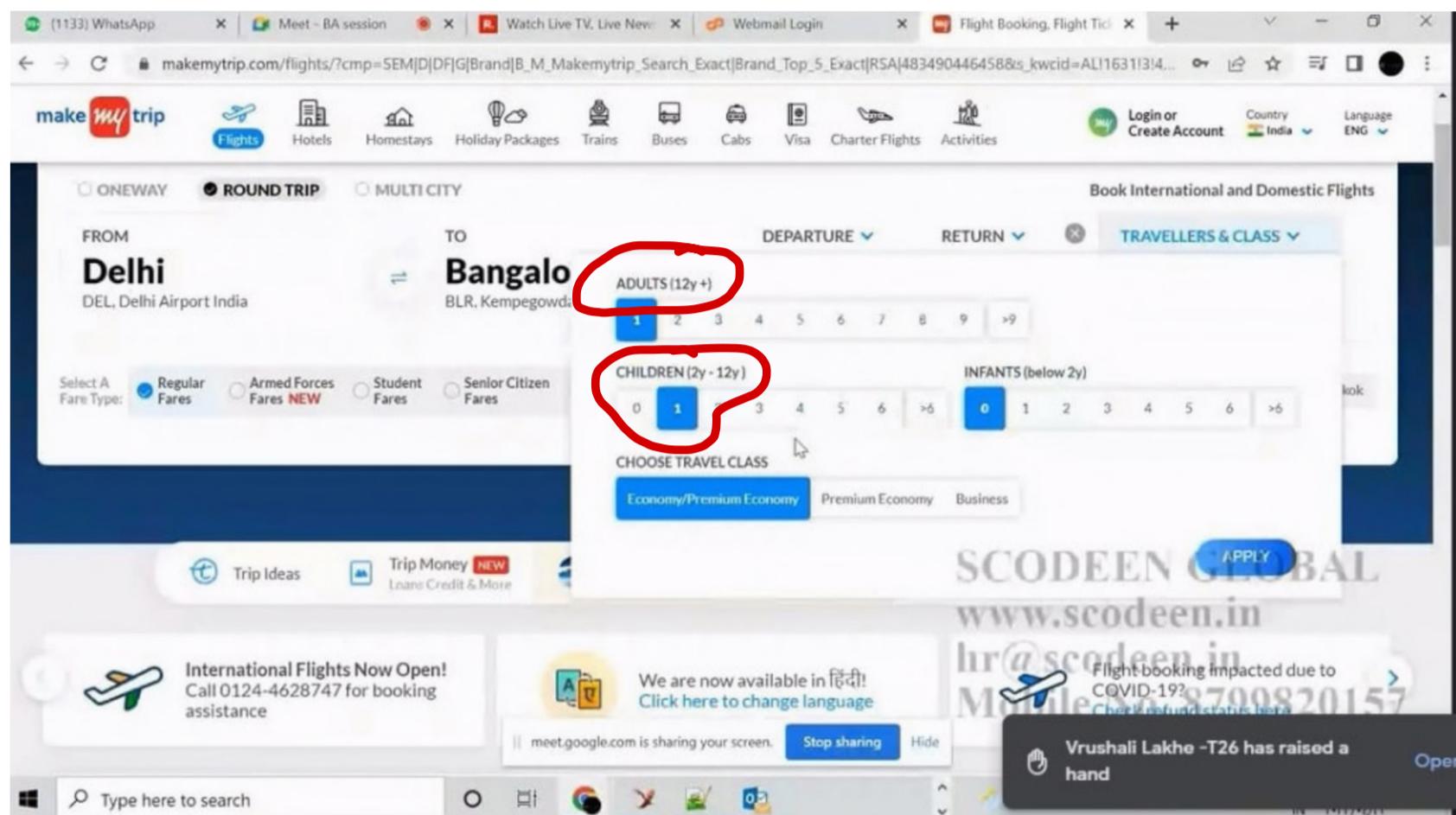
i.e. It can be - requirement defect  
- design defect  
- code defect.

What is requirement defect?

Search on net for example

If we go on makemytrip.com

↳ go to travellers & class section.



If I choose 1 person

→ How can be 1 person can be considered as Adults.

→ If should be Adult(s)

→ This type of defect is known as requirement defect.

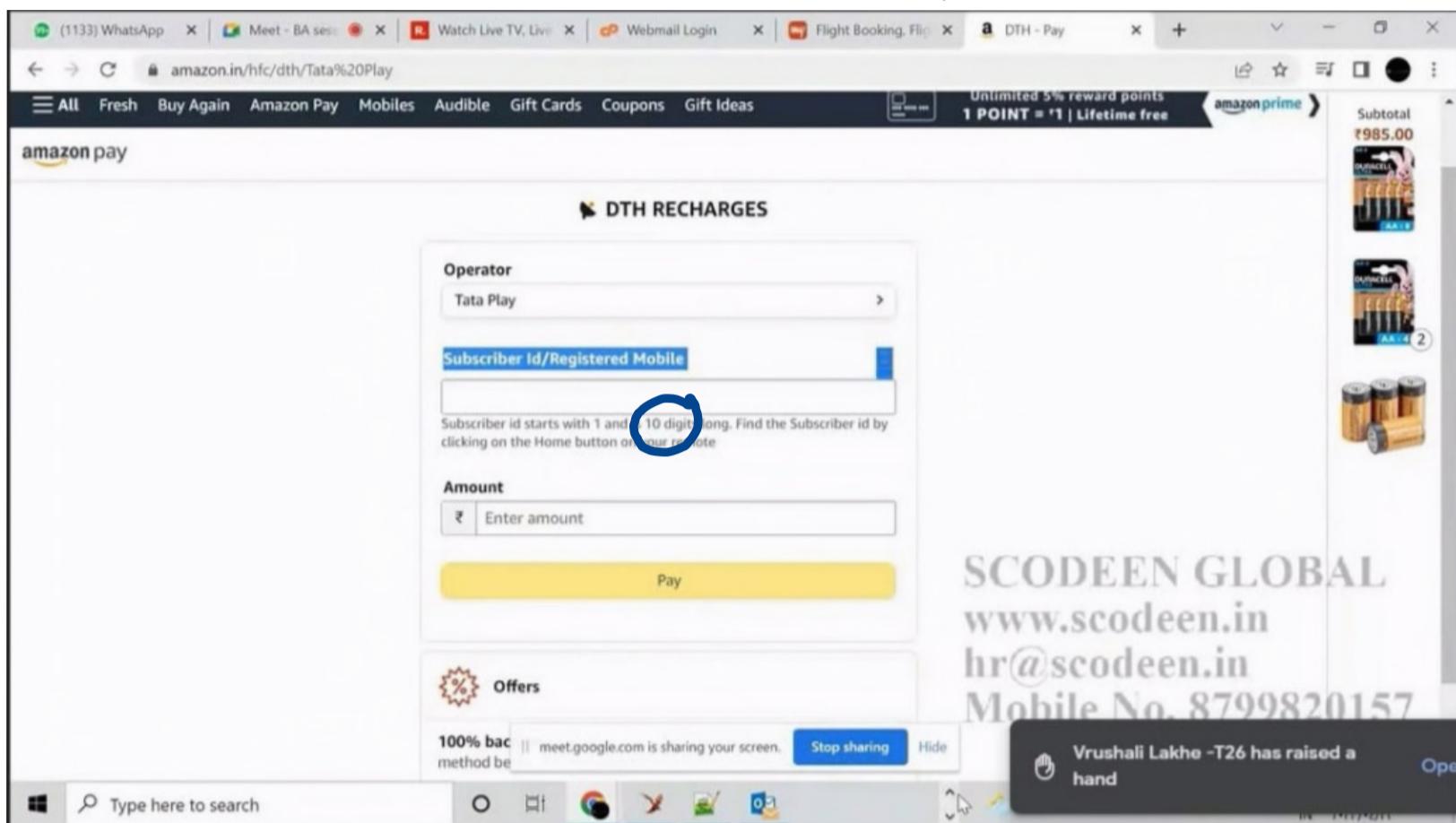
We have to raise requirement defect  
to — BA -

High priority defect.

## What is design defect?

amazon.in

Requirement : End user has to enter email / mobile phone.



Here there are two parameters →  
 for both → length → 10  
 - numeric by nature  
 - static by character.

If I maintain a single text box then,  
 it will store into database.

But if you observe this design

The screenshot shows the Amazon sign-in page with the URL [amazon.in/ap/signin?openid.pape.max\\_auth\\_age=900&openid.return\\_to=https%3A%2Fwww.amazon.in%2Fgp%2Fyourstore%2Fhome%3F...](https://amazon.in/ap/signin?openid.pape.max_auth_age=900&openid.return_to=https%3A%2Fwww.amazon.in%2Fgp%2Fyourstore%2Fhome%3F...). The page title is 'Sign-In'. It has a text input field labeled 'Email or mobile phone number' containing '7750082535' and a yellow 'Continue' button. Handwritten notes include: 'Static & dynamic data are combined.' pointing to the input field, and 'email is varchar & mobile is int' at the bottom left. To the right, handwritten text reads: 'absolutely wrong design :- length of the data will be varied' and 'Design defect' in a box. A large red arrow points from the note 'How come both things will be integrated in a single text box' to the input field. A watermark for 'SCODEEN GLOBAL' is visible.

requirement : End user has to enter  
email | mobile no.

⇒ It should be a list box.

⇒ End user has to choose which one  
should I select.

⇒ Then mobile no., email should  
be entered in text box.

E.g  
Travel pune → Mumbai

Departure date must be  $\rightarrow$  system date.

Departure date must be  $=$  system date

never be dd !  $<$  system date.

DOB  $\rightarrow$  system date  $\rightarrow$  Never should.

If we click departure date

(6 April 2022)

Return date

(6 April) 2022

Date is coming.

Bnt if today is 11:59 pm & have flight  
I can't return on same day.

⇒ for this there should be condition

like diff. bet<sup>n</sup> departure date & return date  
 $\geq 4$  hrs.

⇒ applications shouldn't accept it.

## ~~Interview~~ Coding Defect

Defect : 'customer name' is getting replicated twice in database/invoice shipping address.

If requirement, design indicates that customer name should be printed on invoice at once only., but due to coding it gets printed twice , that defect is known as coding defect .

Q. If developer reviews a code during white box testing, then what is the importance of black box testing?

first give definition

Explanation

During white box testing, developer concentrate on presence of defect in code.

Have you involved?

No, never got a chance  
if automation tester — yes.

In Black box testing we as test engg. concentrate on presence as well as absence of defect in code.

I mean to say we have to concentrate on +ve as well as -ve conditions.

During white box testing, developer concentrate on 2D approach.

But during black box testing, we as tester follows 3D approach.

3rd dimension is nothing but implementation of Business logic.

Developer focus on coding part while as a. tester we focus on whole system of functional testing.

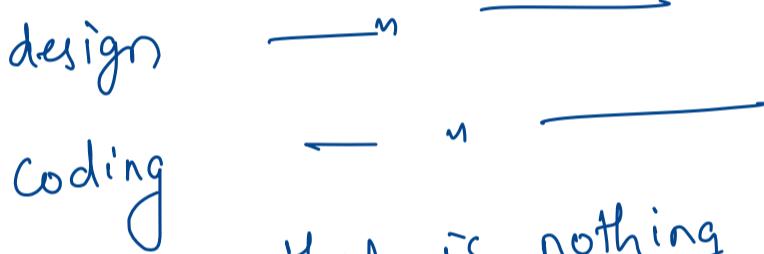
SDLC = verification + validation.

w/o verification validation is not possible  
w/o validation quality software cannot be achieved.

### Conclusion

If we analyse SDLC model,

Then SRS will be reviewed by  
designer -  
developer



Coding that is nothing but white box testing.

They are going to review their own document  
it is called as verification / static testing

In a complete SDLC process, verification &  
validation are two important stages.

w/o verification validation is not possible  
w/o validation quality software cannot be achieved.

## Class 5

**BRS**

- Business requirement specification.

Q. Have you involved here? (cross question)

→ No. (Answer should be within fraction of min)

It is communication -  $\frac{\text{client}}{\text{layman}} - \text{org}$  → tech people  
bet?

e.g dev., Tester.

Who is responsible for BRS?

- It is designed by BA.

**Def**

This doc defines requirement of the customer to be developed as a software

- This doc. acts as a bridge bet?  
customer/client & organisation.

e.g

customer requirement - digital watch.

Tech. terminology - Time should be displayed in digits.

requirement - This field is mandatory

Tech terminology - If this kept as blank, error msg should be displayed.

SRS	-	Software requirement specification
CRS	-	Customer _____ ~ _____
FRS	-	functional _____ " _____

- It is baseline doc.
- This doc defines functional requirement to develop f system requirement to be used.
- Designed by - BA

Q. Have you ever seen SFS?

→ yes.

Q. What it consists?

i) functional requirements.

ii) use case - (Business conditions)

functionality in terms of i/p f o/p f process.

e.g user shall give user-id, password, shift details.

with this only we make test scenar'os.

### Flow Of Events

#### 2.1.1 Basic Flow – User Login

The use-case starts when user gets login screen on clicking **CO** icon or on selecting logout option.

- User shall give user-id, password and Shift details.
- On submitting, user details shall be validated.
- If validation fails
  - Message shall be displayed. Use-Case ends.
- If valid,
  - Menu screen shall be displayed with options enabled as per group assigned at the time of user creation.
  - Any information to be given on login shall be displayed through an alert displayed on main menu screen.
  - In case a user is assigned more than one section highest priority section shall be enabled at the time of login with facility of changing the section any time after logging into the system.

An indicative screen for the above functionality is illustrated below

③ functional flow diagram

Data moving route.

④ Snap shots / prototype

Q From where does this snapshot comes from?

Basically it is designed by BA using HTML code.

Hyper Text mark up Language

⑤ Env. details

What are hardware required for it

What are software required for it.

## Design

designed by - sol.<sup>n</sup> designer  
or  
- project architecture

Design is classified as

High level design : Aka External design.

Low level design : Aka Internal design.

What exactly the design we are going to conduct at?

System

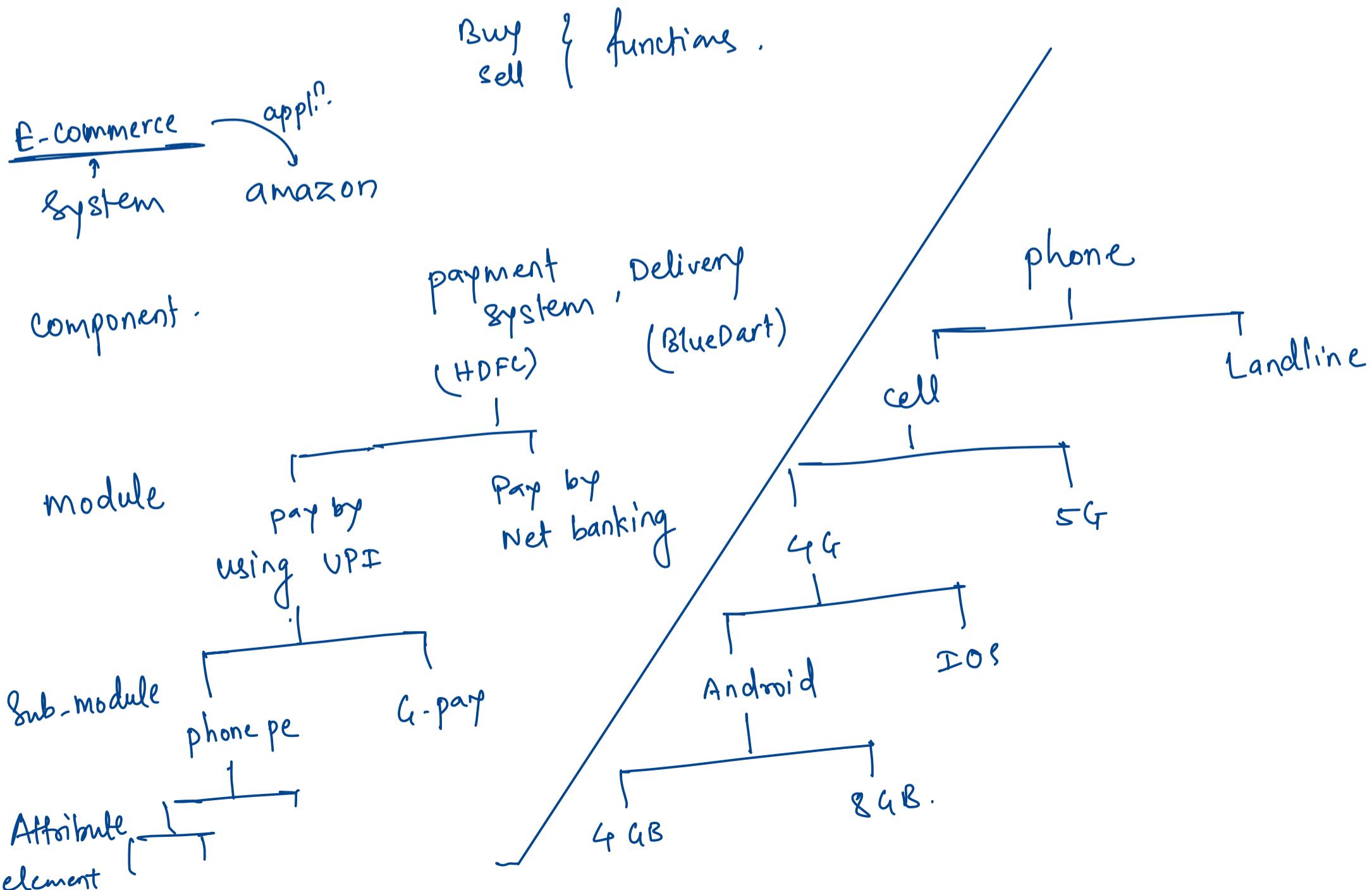
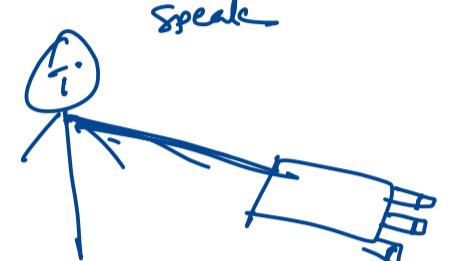
component

module

Sub-module

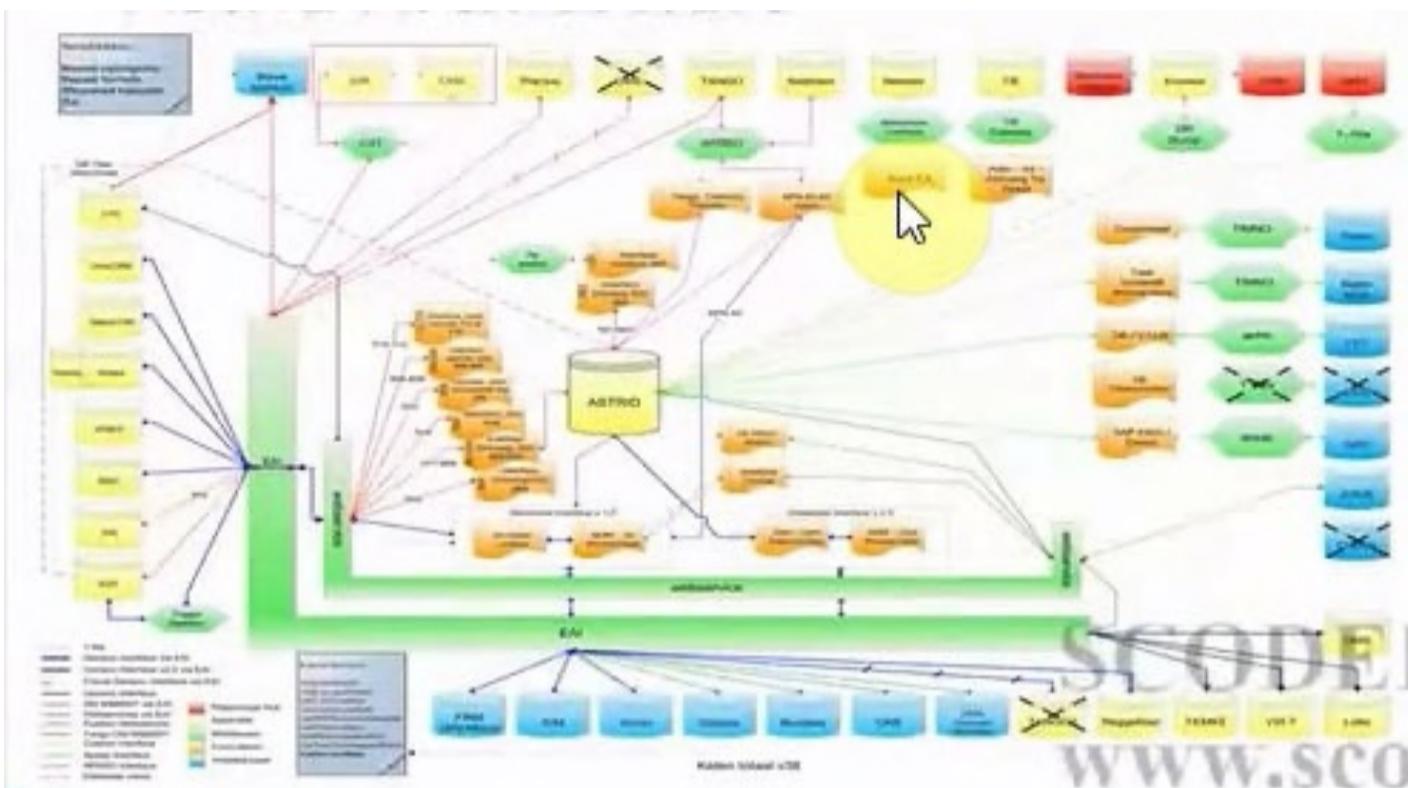
attribute

element.



HLD

It defines the hierarchy of all possible functionalities to be developed as a module, submodule, component etc.



Q. Apart from SRS what are the other related document you required to perform Test?

SRS

HLD

LLD

} doc required to perform Test.

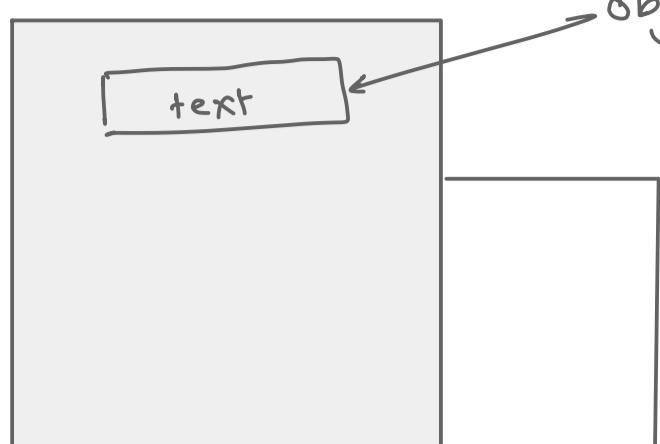
Low level Design : (aka Internal Design)

It defines static logic of every sub-module.  
done by - developer.

e.g

- class diagram.
- object diagram
- Entity Relationship (ER) diagram
- Schema

## Schema



object. C for this we have to verify → length / Datatypes

In front end.

product name

min  
7 8

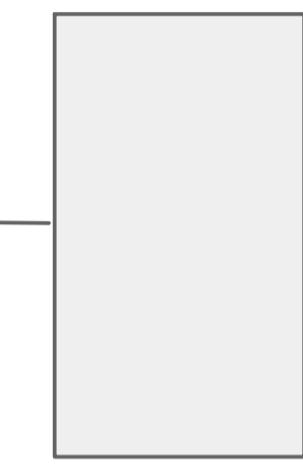
max

40 41

defect.

object  
length / datatype

(while testing,  
whatever is in frontend  
that should be in  
backend)



Back end  
(Database)

for data  
first you have to observe what type of data it is

e.g.  
zipcode  
cell no.

Static  
data

or

dynamic  
data

e.g.  
product name

It should have  
min, max.

for this only human  
intelligence will judge.

## Note

Bnt in Database there is only max data

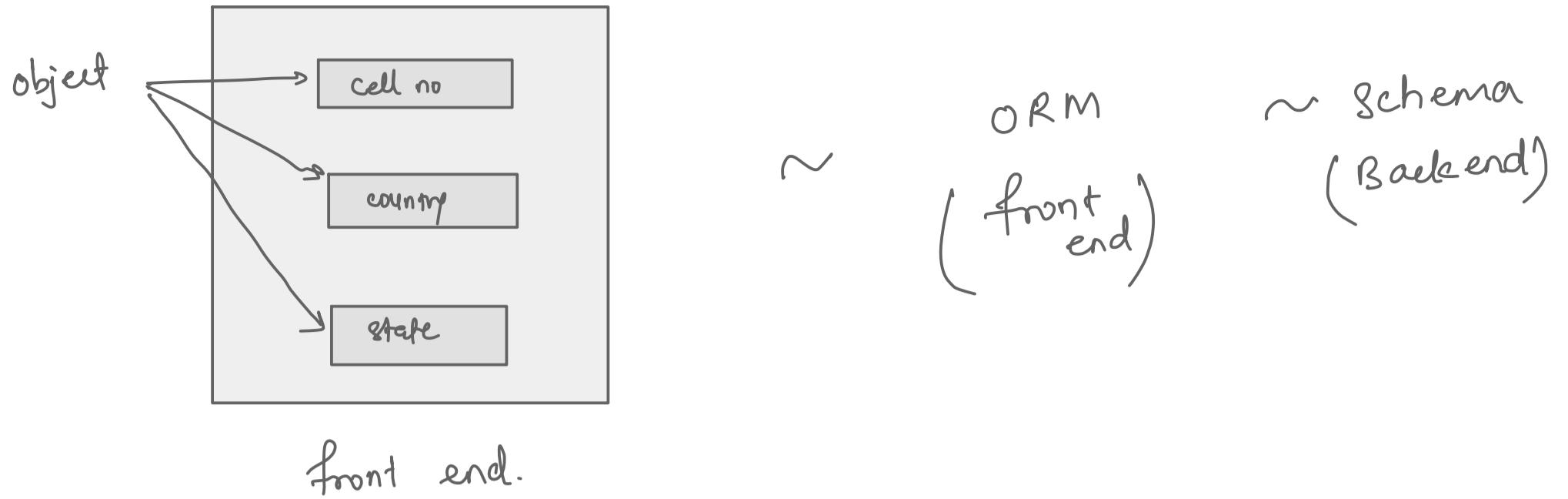
cell - constant length - 10

product name - length will be derived from  
customer requirement.

product name

length - 39 40 41  
defect defect.

→ If it is not then  
it is defect.



Schema → object relation

↳ in frontend. → object relationship mapping  
it is known as

relationships

object - object

- if I have user ID  
I must have password
- cust.name - row no.
- product name - product I

{ 2<sup>nd</sup> will by default  
integrate with 1<sup>st</sup>.  
Unless f until we  
define 1<sup>st</sup> we can't  
define 2<sup>nd</sup>.

object - value.  
price - decimal.

Customer requirement

price = 4 digit maximum.



① decimal

② max value = 9999.00  
min = 1.00

length of price

7 8 → fail

3 2 → fail.

What is schema?

Schema is object relationship defined at back end. That can be — one to one relationship  
— one to many

What is ER diagram?

Entity  
↓

any object  
in universe

Relationship.

e.g.

student  
(object)

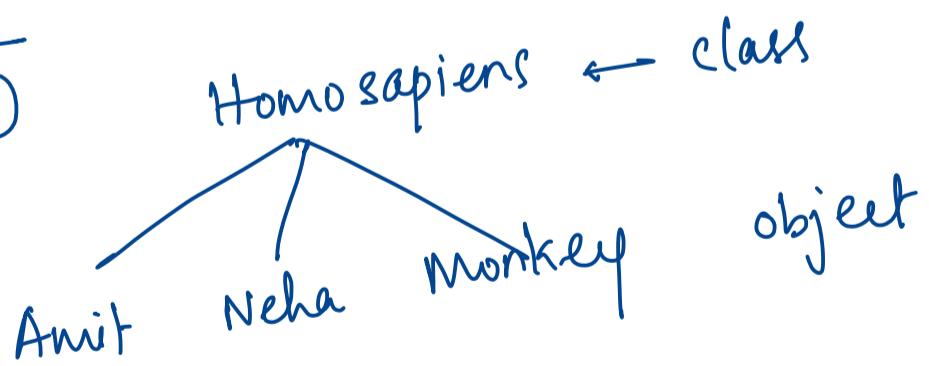
relationship  
with  
marks  
subject  
class

can't go with  
salary.

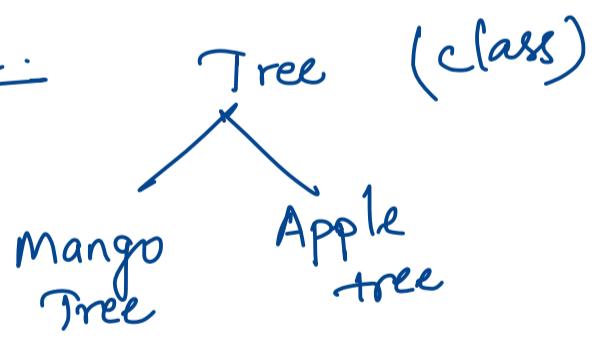
What is class diagram?

It is logical data  
not present physically.

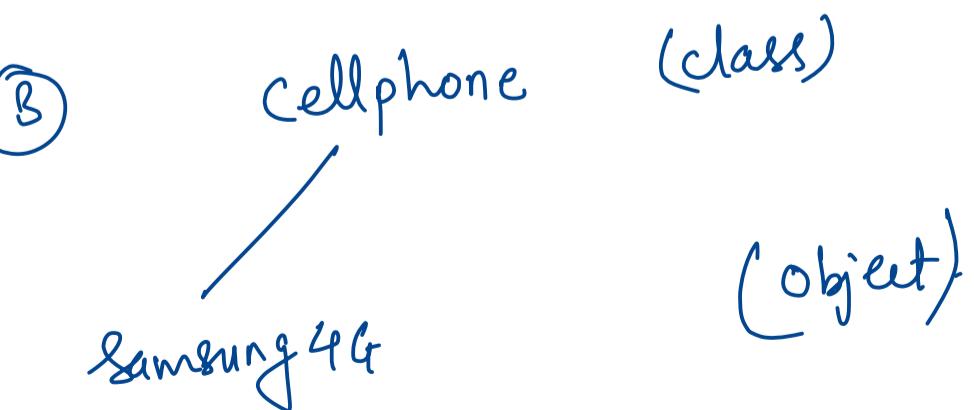
e.g.  
①



② e.g.



③



## What is white box Testing?

After completion of design & review,  
developer writes the programme  
to physically construct a software.

After completion of coding they implement white  
box testing to ensure completeness & correctness of  
the code.

During white box testing they follow 2D approach.  
This is also known as —

Glass box Testing | clear box testing

## Have you involved in white box testing?

During automation script validation we  
implemented white box testing mechanism.

biggest no. of 3

```
num1 = float(input("Enter 1st no:"))
num2 = float(input("Enter 2nd no:"))
num3 = float(input("Enter 3rd no:"))
```

if  $(\text{num1} > \text{num2})$  and  $(\text{num1} > \text{num3})$  :

biggest = num1

elif  $\text{num2} > \text{num1}$  and  $\text{num2} > \text{num3}$  :

biggest = num2

else :

biggest = num3.

print ("the biggest number is", biggest)

There are two parameters need to validate

How do you check in white box testing

① logic validation

$$q = 2$$

$$p = 2$$

$$\text{total} = p * q$$

print (total)

② Data validation

↓  
variance of data.

Suppose enter equal no.

## ~~Interview~~ Black Box Testing

It is a build level testing technique.

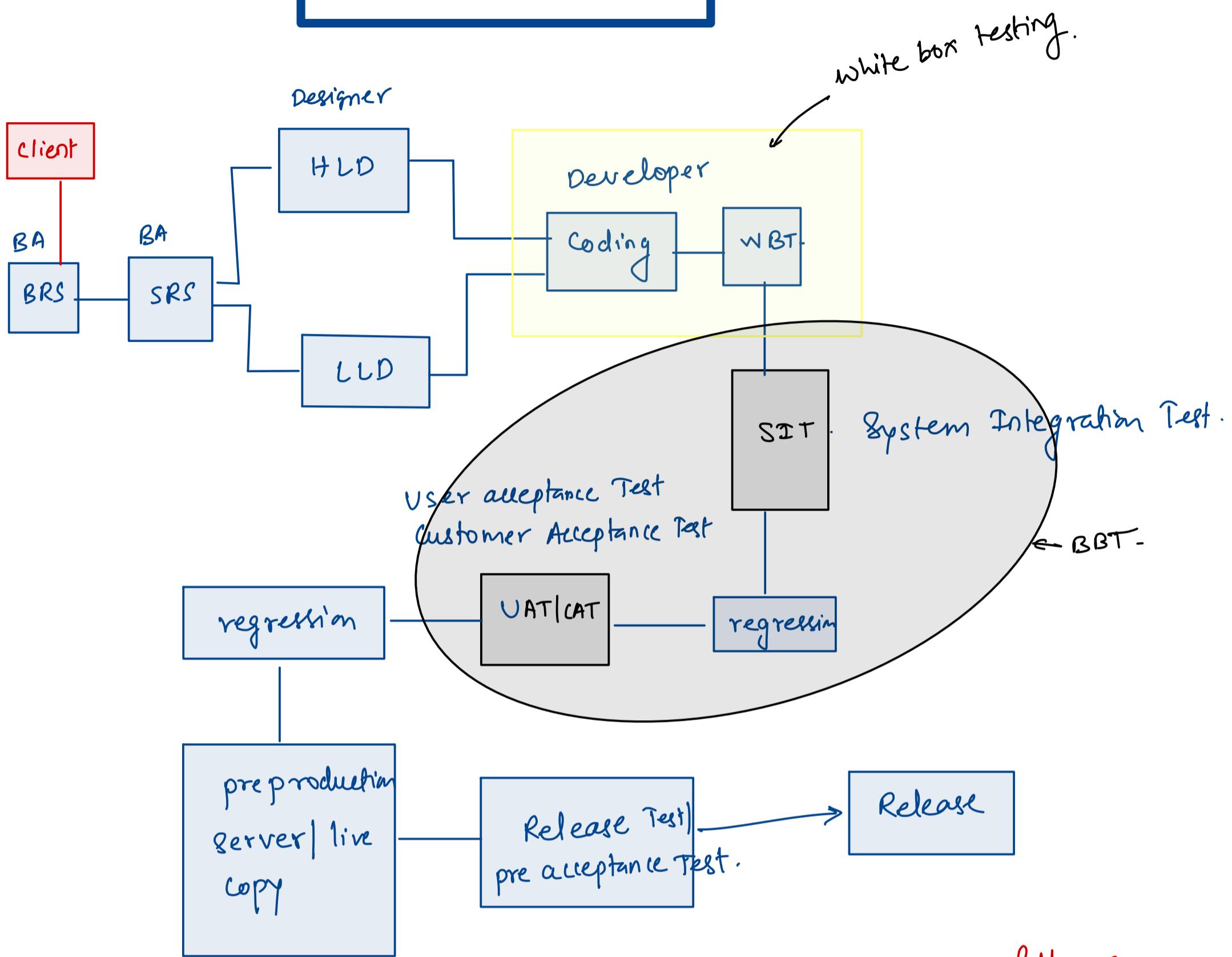
During Black box testing we concentrate on Internal functionality depends on external interface.

Generally, we perform system f functional test wrt customer requirement. During black box test we implement 3D approach to satisfy business logic.

build level test technique  
based on analysis of appropriate test base.

e.g formal requirement docs,  
specifications,  
use cases,  
user stories,  
business processes.

# Process



Apart from SRS what are the related doc you follow? or you refer?

- HLD
- LLD

Where did you involved?  
preproduction server.

Note!!

for same client you can't work SIT & UAT together.

## What is defect leakage?

### Defect leakage

lets assume in SIT we identify 80 defects  
f in UIT we identify 30 defects.

This 30 defects will be analyzed

out of 30 → 10 → might be new  
20 - are exist

These 10 new defects called as defect leakage

### Why existing defects came?

Because nature of the system , i-e.

#### ① Way of representation.

Tester says its taking invalid data in front end f its not storing the data in back end.

#### ② Developers mistake

After modifying code , sometime developer forgot to checkin the code  
(Save)

#### ③

If you got defect in SIT but not in coding stage.  
what will be your approach?

- operation complexity

check in - check out  
server changing.

What is DRE (Defect Removal Eff.)

Defect deficiency

Test efficiency

Test productivity.

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

A → defect identified during SIT

B → defect identified during UAT

$$DRE = \frac{80}{80+30} \quad \left\{ \text{Op will always in fraction.} \right.$$

Note!!

generally  $0.8 - 0.9 \rightarrow$  good productivity.

VIT → Here defects should be as low as possible.

Count of defects in UAT is low

⇒ productivity is more.

What is Super productivity & / D bug density

product

When defects (UAT) = 0

Is it possible in real world?

off course it is possible but difficult.

## Gap Analysis

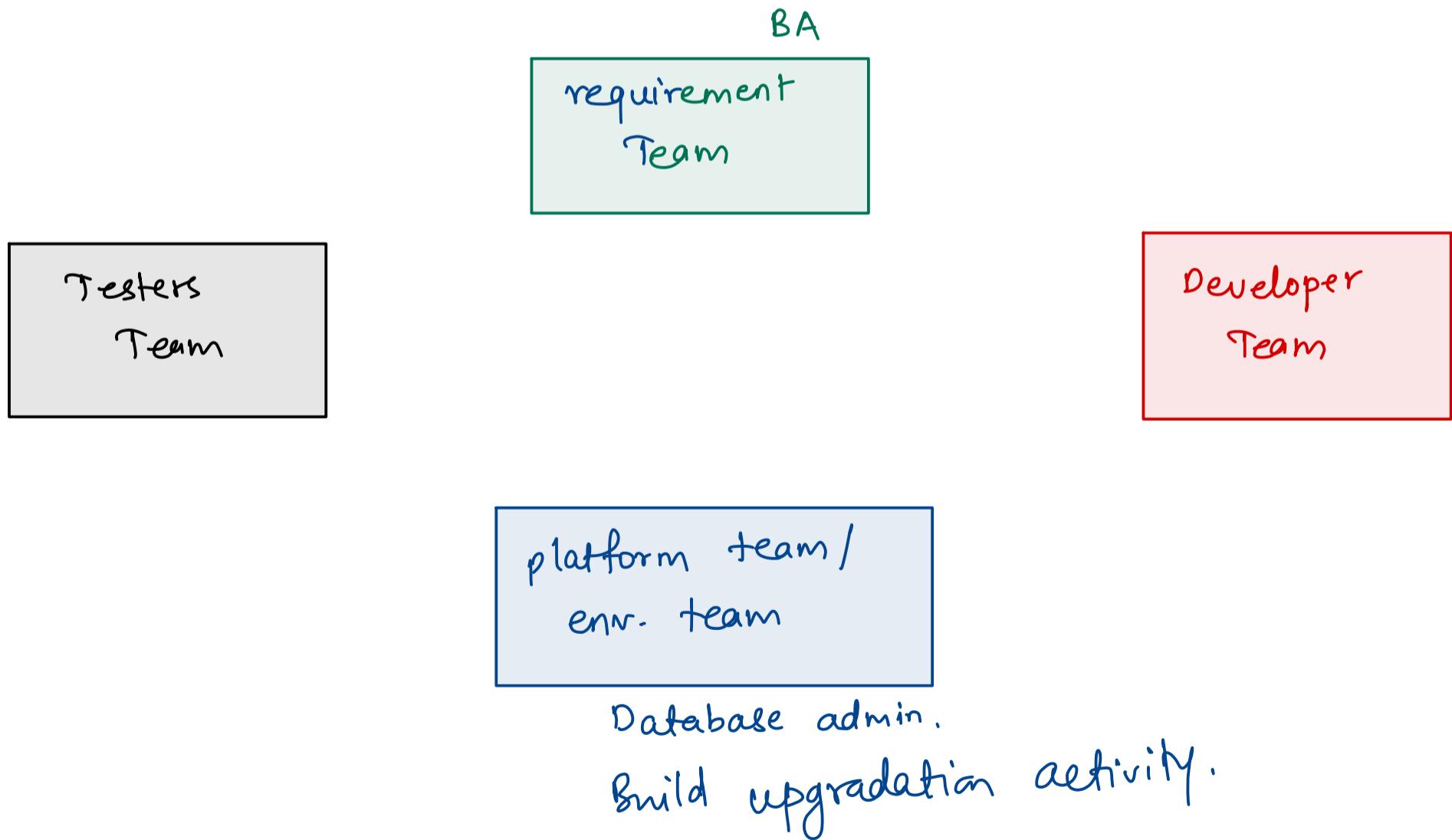
It is a matrix which used to analyse the space between two consecutive states of the organisation system.

I mean to say These two states are

- ① Desired state
- or
- expected state
- or
- optimum state

- ② Actual state.

## Core team member



## Organisation Structure

AM

DM

SPM

pm

- Account Manager
- Delivery manager
- Senior project manager
- project manager.

project lead

team lead

Senior Test engg.

test engg.

## Environment

local env. — BOA | 8080 | local  
Developer writes code here.

To test in local env just ask to share link  
for testing.

SIT env — BOA | 8081 | SIT

UAT env — BOA | 8082 | UAT

→ We test here with logical data.

Live copy | pre-production server.

→ We test here with physical data.

Live Server → cloud.

Actual live website/project/app.

What is preproduction server?

here we test project before going live.  
It is a sample copy of live copy.

How do you test at client side /

How do you load at client side?

How do you test preproduction server?

We are involved in preproduction

We created live copy of prod. server

We test here with physical data.

↓  
this data belongs to someone  
somewhere in the world.

client will going to provide us.

What is difference bet? fish model & v model?

fish model defines what is SDLC &  
Vmodel defines how to implement SDLC.

what is entry criteria & exit criteria?

completion of design is the exit criteria of design.

Exit criteria of design is entry criteria for coding.

completion of coding is the exit criteria for coding.

Exit criteria of coding is entry criteria for WBT.

completion of WBT is exit criteria for WBT.

exit criteria of WBT is entry criteria for SIT

& go on.....

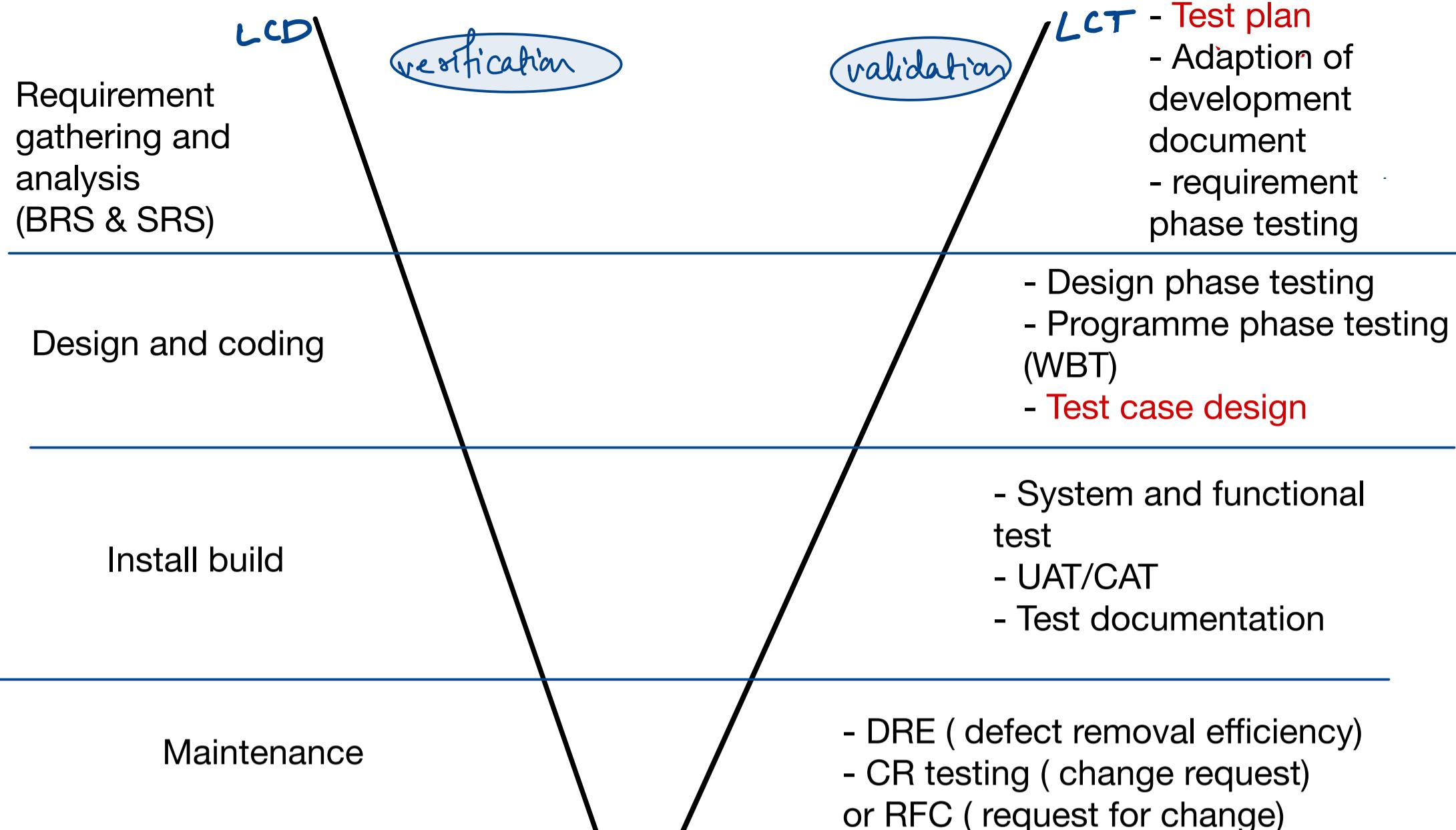
V model

V stands for verification & validation.

This model defines mapping bet? verification & validation.

i.e. mapping bet? life cycle development &  
life cycle testing.

Development → coding



### phase I

Generally what happen at LCD part, the requirement gathering & analysis is done & at testing phase we perform test plan, adaption of dev. document, & requirement phase testing.

who does testing of requirement phase?

It is done by BA.

If its done by BA then, how it comes as part of testing?

→ client is least bothered about who is testing.  
He is going to pay us for testing.

### phase II

In next phase when design & coding starts we are involved in test case design as well as programme phase test & design phase test.

Who does programme phase testing? / white box testing?

Developer.

If developer is doing this, How it comes at testing side?

client is least bothered about who is testing.

He is going to pay us for completion of testing

Testers role

Test case design.

phase (II)

Design stage

Install build

Code will be deployed to test.

Testing side

System integration test

UAT/ CAT

various test documents are designed.

Advantage

Development + Testing stages runs simultaneously  
⇒ it saves time

Drawbacks

It is an expensive model.

⇒ only rich clients can use this.

Why?

For testing there are multiple stages are involved in V model.

Then what about small clients?

PET process.

Note!!

Who is going to decide implementation of process?

→ Generally process implementation is decided by client based on

- Nature of behaviour of project.

## PET process

It stands for process , Exports , Tools & Techniques .

- Developed by HCL

- recognized by ~~QA FIRM OF INDIA.~~

In this model instead of multiple stages of testing,  
single stage is implemented. to reduce the cost.  
objective.

BRS

SRS

HLD

LLD

Refinement form  
of V model

WB Testing

System of functional  
Test

UAT.

Coding

Refinement form of V-model .

## Waterfall model

It looks like waterfall.

- very strict process.

### clients

AT & T - American telecommunication company  
HQ - Texas

largest telecommunication provider in US.

Merryl Lynch - holding company in Wall Street that provides financial planning services, investment advisory, and brokerage services.

Master cards , FedEx .

Top class clients prefer to implement this model.

### Why

world class products .

- As process is strict  $\Rightarrow$  quality of output product will be very good.

requirement gathering

SRS Analysis

Design

Coding

Testing

maintainance.

Waterfall Model.

- Banking appl<sup>n</sup>
- Insurance appl<sup>n</sup>
- police dept. appl<sup>n</sup>.

## Features

- It is Look like waterfall that's why its name is Waterfall. monolithic appl<sup>n</sup>
- In this model all stages work separately and before completion of previous stage we cannot work on next stage, that's why the software quality is very good.
- Waterfall model is also called as linear sequential model.
- Each stage is purely depends on the deliverables of previous stage.
- In waterfall model without completion of 1st stage we can't proceed for the next stage.
- This model generally used in product base company.
- General time duration for waterfall model is of 3 months.
- We can't reverse back to the previous stage.
- Suppose there are bugs found in any stage then those bugs log by the tester but those bugs fixed in the next release.

Suppose

In resume

project	client	model used
1.	BoA	✓
2.	BoA	✓
3.	SBI	✓ or WF.

- Note
- ① If there is same client, for different modules we can't change model.
- ② We can't work V f WF together.
- |           |   |          |
|-----------|---|----------|
| V f Agile | ✓ | V f WF ✗ |
| V f WF    | ✓ |          |

### **Advantages of waterfall model :-**

- Quality of the product will be good
- requirements change not allow, Chances of finding bugs will be less.
- Initial investigation is less since the testers are hired at the later stages.
- Preferred for small project where requirement are feezed.
- This model is simple and easy to understand and use.
- It is easy to manage due to the strictness of the model.
- In this model phases are processed and completed one at a time.

### **Disadvantages /drawbacks of Waterfall Model :-**

- Requirement changes are not allowed
- If there is defect in requirement that will be continued in later phases.
- Total investment is more,because time taking for rework on defect is time consuming which leads to high investment.
- Testing will start only after coding.
- Once an application is in the testing stage, it is very difficult to go back and change in coding.
- Time Consuming
- High amounts of risk
- Not a good model for complex and object-oriented projects.

**--Q What is Release period/time/span for V-model and Waterfall Model ?**

What is release span?

Vf WF

3 month : Quarterly delivery.

1 yr = 3 month , 1 yr = 1 yr, 2 yr, 3 yr, 4 yr.

Agile:

R = 1 month = 4 week.

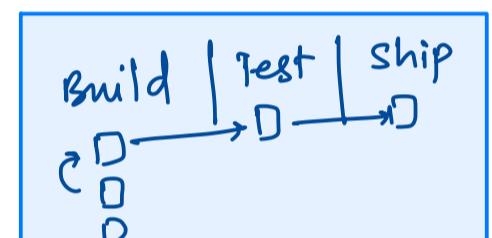
Agility  $\Rightarrow$  be rapid

Agile is a model or methodology?

It is methodology.

There are various type of Agile.

- ① Kanban - No sprints  $\Rightarrow$  continuous process
- ② XP - extreme programming.
- ③ Lean
- ④ fdd - feature driven development.
- ⑤ dsdm - dynamic system development model.
- ⑥ crystal
- ⑦ SCRUM.



On which Agile you have worked on?

We are using SCRUM.

- ① product is developed in Sprints
- ② people work as a single team
- ③ constantly deliver functioning products
- ④ continuous customer feedback.

flexible way of working in rapidly changing world.

~~Interviews~~ What exactly Agile is ? approach ↑

Agile is a philosophy rather than we can say It is a methodology.  
It is cumulative by nature. Unlike V or waterfall model,  
it is not plan driven, but actually it is value driven.  
i.e. frequent changes in the requirements doesn't have any  
impact neither on development nor on testing nor  
on production.

I mean to say requirement is absolute dynamic by nature.

~~Subquestions~~ Why Agile is a philosophy ?

Here we adopt a new way of thinking or  
mind set that is based on agile values f principles.

What is methodology ?

methodology means approach.  
means , depends on nature of behaviour we will  
choose which agile we are going to choose.

What is plan driven ?

suppose plan is going to end at 31<sup>st</sup> March,  
if there are 10 requirements.  
So we have to give all 10 requirements at the end of  
the plan . If not given we will get penalty.  
But if client changes requirement f added  
some requirement later then we will consider it  
as CR .

## What is value driven?

change in requirement  
can be at any stage.  
frequent changes in the requirements doesn't have any  
impact neither on development nor on testing nor  
on production.

I mean to say requirement is absolute dynamic by nature.

If client changes some requirement  
⇒ We won't consider it as CR.

If we only deliver 8/10 requirements then remaining  
requirements can be delivered in next cycle.

## What do you mean by cumulative in nature?

Suppose we have to deliver 3 functions

- ① ok
- ② cancel
- ③ Delete.

Delivering this in 3 months → V model.

But in Agile, we break big requirements into small parts.

like,

1<sup>st</sup> module - ok — in 1<sup>st</sup> Sprint  
— cancel — in 2<sup>nd</sup>  
2<sup>nd</sup>  
3<sup>rd</sup>  
— Delete — in 3<sup>rd</sup>

Instead of delivering single product after 3 months,  
giving product in 3 time in a stepwise manner.  
This approach is known as cumulative approach

## Agile Terminology

### V model / wf model

Account manager

BA

project manager

Estimation

SRS

Use Case

module requirement

project requirement

release

Everyday status meeting

stakeholders

### Agile

solution owner

product owner

scrum master.

Estimation .

Stories .

Acceptance criteria.

sprint backlogs.

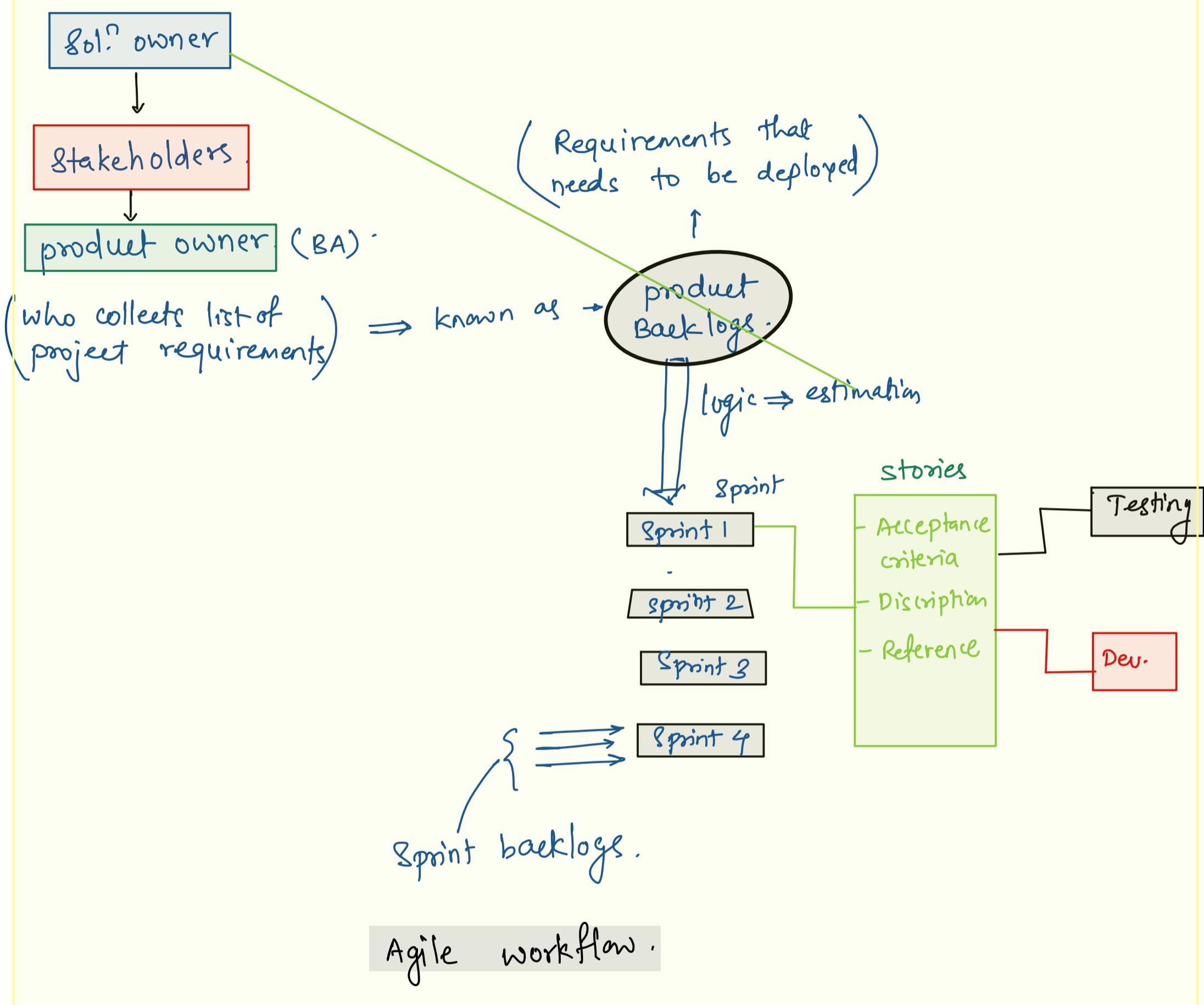
product backlogs -

sprint .

Scrum meeting.

stakeholders .

## Agile workflow / Architecture



### Estimation

- Q. Have you involved in estimation?
- 1 yr experience → Never got a chance.
- 3 yr experience → Yes.
- Q. How many sprint backlog you deliver in a sprint?

### Note

In a sprint - 7-13 sprint backlog are delivered.

# Agile Meetings

- ① Agile velocity
- ② Agile grooming
- ③ burn down chart.
- ④ Scrum meeting.

Q. What is Agile velocity?

Agile velocity (AV)

It is guessing technique which is used to ensure the total no. of sprint backlog to be delivered in the corresponding Agile project.

How to calculate Agile velocity?

$$AV = \frac{\text{total no. of sprint backlog to be delivered in very first sprint}}{\times \text{total no. of sprint.}}$$

refining  
Intermediate  
Agile

Agile grooming → (groom → gather at one place).

meeting after completion of current sprint & just before start of next sprint.

### Who are involved in Agile grooming?

product owner

Developer

Tester

Purpose →

to analyze requirement

- to ensure everything is clean & clear or
- There are any modifications or not.

Interview

### What is Agile Grooming? / planning

"As we understand, in an Agile project, requirement is absolute dynamic in nature

that means requirement changes frequently.

After completion of current sprint & just before start of next sprint

there is one meeting conducted by product owner, developer & test engg **to analyze the requirements to be delivered in the upcoming sprint**, whether everything is clean & clear or any modifications are there.

That meeting is known as **Agile grooming**.

## Burn down chart

### What is burn down chart?

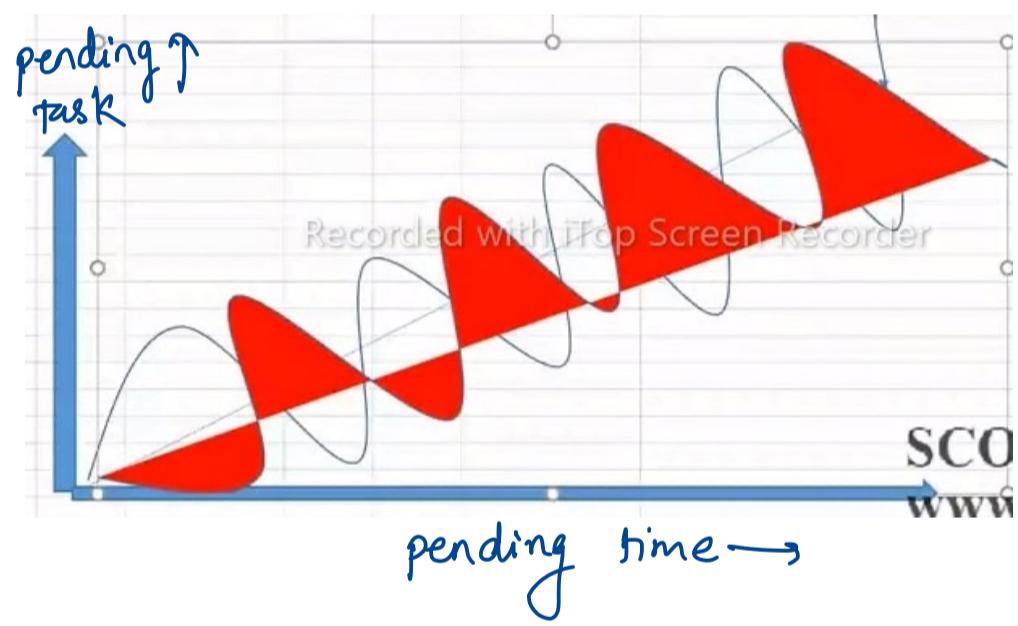
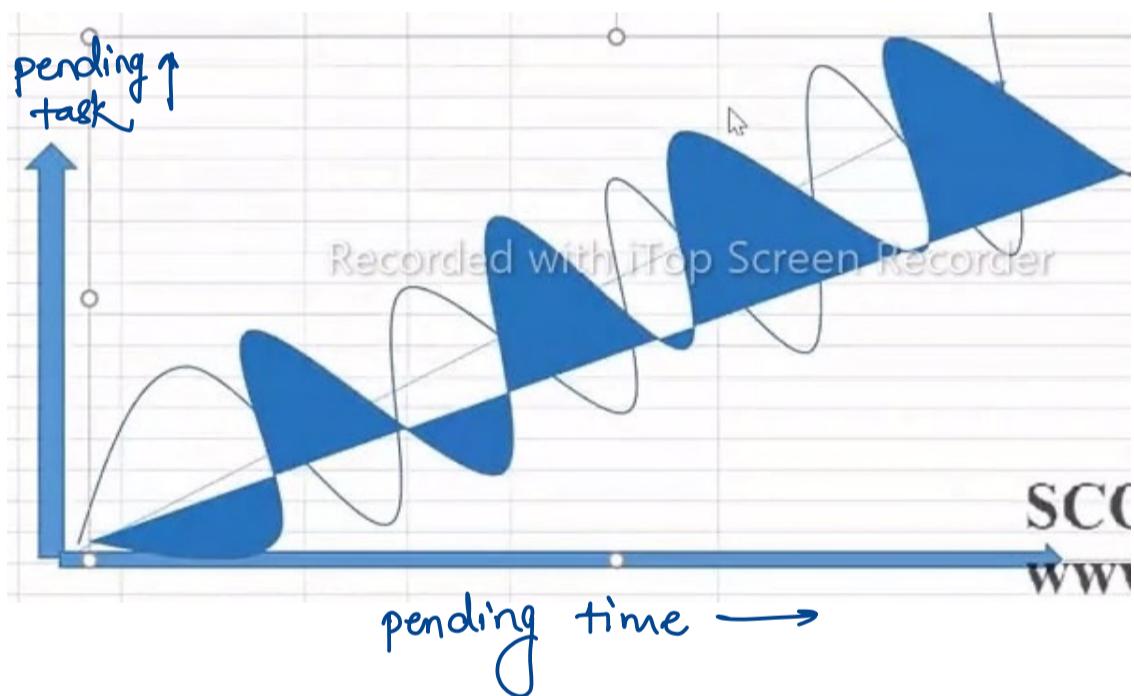
It is nothing but the mapping between pending task & pending time.

Everyday Scrum master shows us this chart.

### How do you know that your work is going well?

If its going well,  
then it will show blue color.

If its going wrong,  
it will show in red color.



### Who make burn down chart?

Scrum master.

### Have you involved here?

No.

## Burn up chart

represents how much work has been completed in a project.

## Scrum meeting

What is Scrum meeting?

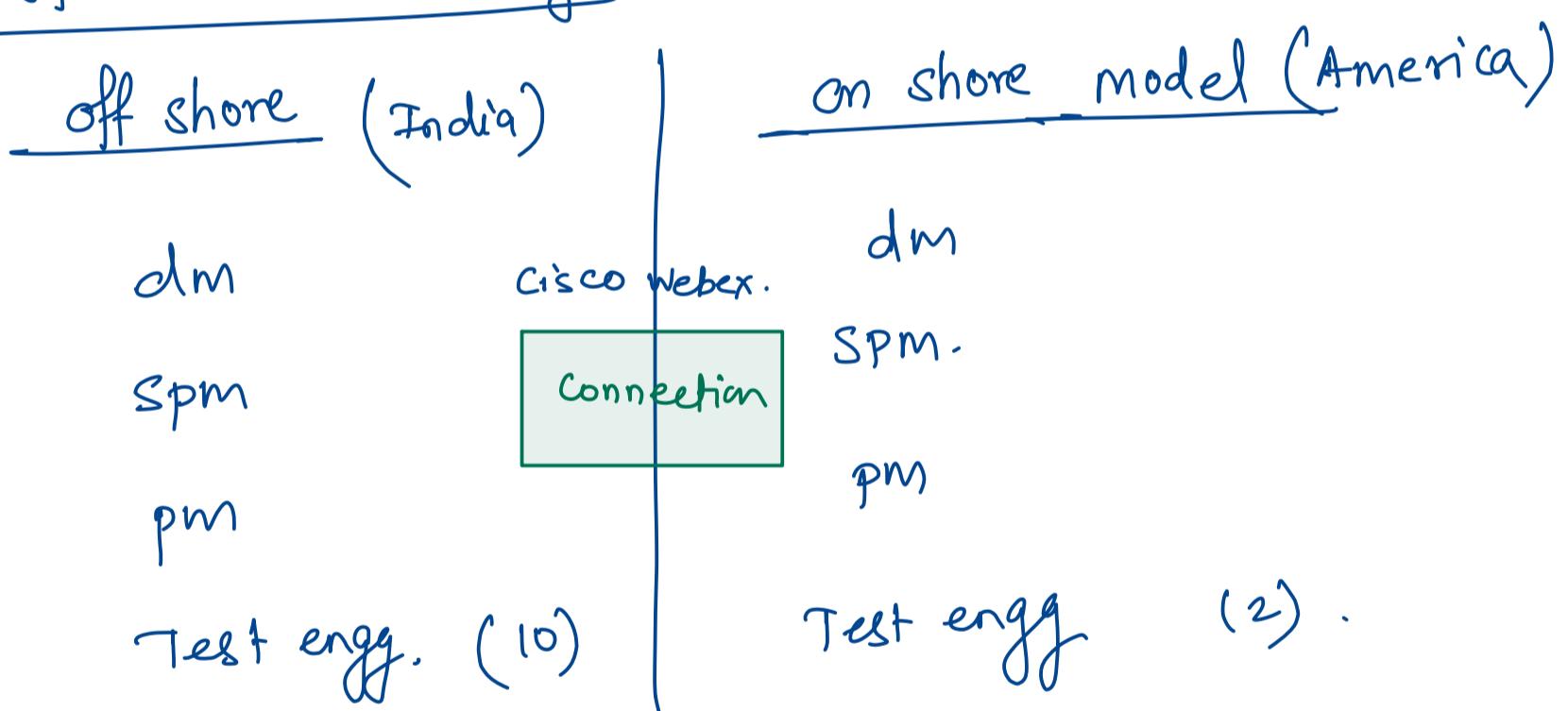
✓ Scrum meeting is nothing but **Every day status call**.

Who is present for Scrum meeting?

✓ Everybody belong to the project sit here.

- Scrum master
- product owner (BA)
- developer
- Test engg.
- on shore team.

Structure of scrum meeting



Structure is same but count is different.

off shore has more candidates than on shore.

- we have to represent to the onsite members.
- Everybody has to represent. We can't bypass.
- While presenting each one stand up & present so that's why it is known as standup call.

At what time do you have scrum meeting?

This ans should be according to client mentioned in our resume.

How much time?

1 hr - 1.5 hr.

5:30 - 6:30 pm.

This meeting starts on time

Who represents the scrum meeting?

Chair person - Scrum Master

What is agenda of Scrum meeting?

In this meeting the main agenda is

Agenda:

- ① what we did
- ② What will be next task
- ③ What are the roadblocks.

Note!!

What if we didn't did any work?

At that time also you have to manage f  
tell diplomatically .

Interview

## Scrum meeting

What is Scrum meeting?

Scrum meeting is nothing but **Every day status call**.

Everybody belong to the project sit here.

- Scrum master
- product owner (BA)
- developer
- Test engg.
- on shore team.

In this meeting the main agenda is

Agenda :

- ① what we did
- ② What will be next task
- ③ What are the roadblocks

Assume there are 4 requirements which you are not able to understand.

The screenshot shows the Amazon.in order history page. At the top, there's a navigation bar with links like 'All', 'Fresh', 'Amazon Pay', 'Buy Again', 'Mobiles', 'Gift Cards', 'Health, Household & Personal Care', and 'Coupons'. A search bar and a 'Hello, sangram' account dropdown are also present. Below the navigation, it says 'Your Account > Your Orders' and 'Your Orders'. There are four tabs: 'Orders' (circled in red), 'Buy Again' (circled in red), 'Not Yet Shipped', and 'Cancelled Orders'. A search bar and a 'Search Orders' button are to the right. Below this, it says '10 orders placed in past 3 months'. The main content area shows an order for a 'Butterfly Smart Mixer Grinder, 750W, 4 Jars (Grey)' from 'SCODEEN GL'. The order details include 'ORDER PLACED 21 April 2022', 'TOTAL ₹3,098.00', and 'SHIP TO Ghulam Mohammad Wangnoo'. To the right of the order details is a sidebar with options like 'Buy it again', 'Track package', 'Return or replace items', 'Share gift receipt', 'Leave seller feedback', and 'Leave delivery feedback'. Handwritten numbers 1, 2, 3, and 4 are circled in red above the 'Buy Again' and 'Not Yet Shipped' tabs.

We have to say,

" Basically I have gone th<sup>r</sup>. the requirement  
of sir basically there is some confusion  
in buy again functionality.  
So let me discuss with product owner  
if after that we will discuss".

What if there is any issue arises?  
It is resolved on the spot on call.  
They will ask here to BA, what is issue?

Suppose there is some defect?

We can say

"yesterday we execute 10 test cases,  
if we have identified 3 defects.  
Out of 3 → 2 are major if 1 is minor defect."

At this time scrum master will ask to developer on  
that call only,

"what is this defect? Did you analyzed it?"  
Dev : "I am not getting it. What is actual defect is".

Test engg : "This is the defect which is actually impacting  
the database, because data is not getting updated".

Dev : "I am not still getting".

Scrummaster : "Where exactly the issue is?  
to BA  
Can you please resolve this issue?"

BA : "I didn't get this"

Scrum master  
to onsite PM : "You discuss with the client if  
client is going to intimate you  
whether issue has positive value  
or -ve value whatever may be defect".

In this way issue is resolved on call only  
But if we go to the process it will take lot  
of time.

-----

Assume interviewer working in SBI project.  
his Scrum meeting - will be in the morning.  
- 9 - 10

And we told the ans for scrum meeting is 5:30-6:30.

Cross question

How is your scrum meeting is in the evening?

Sir actually, my client belongs to Netherland,  
Netherland belongs to Europe. And Business time  
is 12 pm IST.

~~Intenics~~ What is Retrospective meeting? | Sprint Retrospective.

After successfully completion of every sprint we involved in retrospective meeting.

In this meeting we analyse,

- what went wrong
- what are the actions needs to be taken to improvise our performance

## Sol<sup>r</sup> owner

He is responsible to channelise the revenue/money.

## Stakeholders (pm, SPM, dm)

responsible for

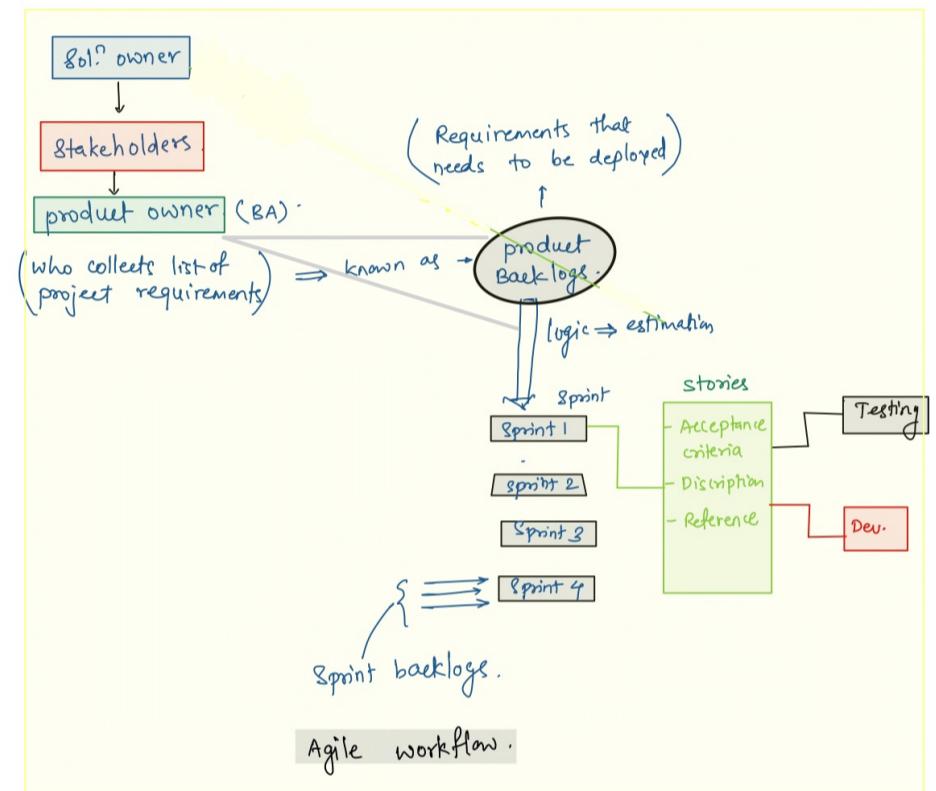
- (task)
- handling the operations
  - identifying risk factors involved.

- defining the scope of the Agile project

## Product Owner

responsible for

- collecting product backlogs
- Estimation
- Designing the stories.



## Estimation

Estimation is nothing but a mechanism/process used transformation of product backlogs into sprint backlogs

## Project Backlogs

the list of requirement to be delivered in current agile project.

## Sprint Backlogs

the list of requirement to be delivered in corresponding agile sprint.

What is sprint

Sprint is nothing but 1 release in Agile project

Stories - (SRS)

The functional requirement to be developed & system requirement to be used.

Acceptance criteria

It defines a functionality in terms of i/p, o/p of process.

Scope limit :

Once Sprint started

## Prioritization

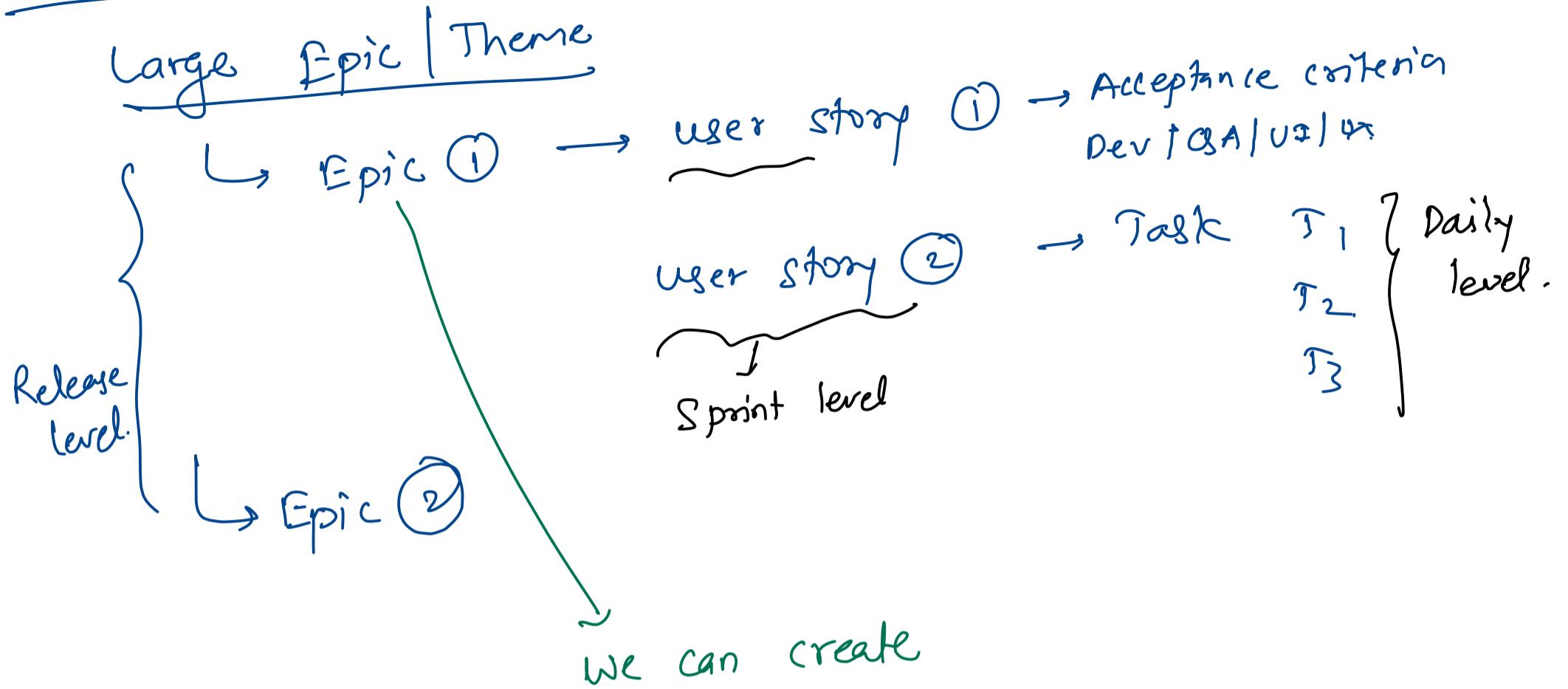
product backlogs are used to prioritize user stories to prioritize user stories

## Story point

A measuring unit used instead of hrs to estimate tasks duration.

one story point can stand for any period of time of task size

## project



## create

### Summary

Design login page feature.  
login page design  
backend  
sign up  
reset passwo  
home page  
user profile.

## Assignee

table - login →

priority →

depends on company  
low / med / high } 1 / 2 / 3 / 4 / 5 .

Affect version

4<sup>th</sup> version

fixed version

Affect functionality →

Story point

Where will you do estimation?

This will be understood with help of project.

## Estimation : Project : Supply chain

Whenever explaining project, we have to represent in which system this project belongs to.

System : supply chain.

e.g. Amazon : application  $\Rightarrow$  system : Ecommerce.

We will understand different systems

e.g. Telecom, Payment, CRM, supply chain.

applications of these can be multiple.

Project starts

My project basically deals with supply chain.

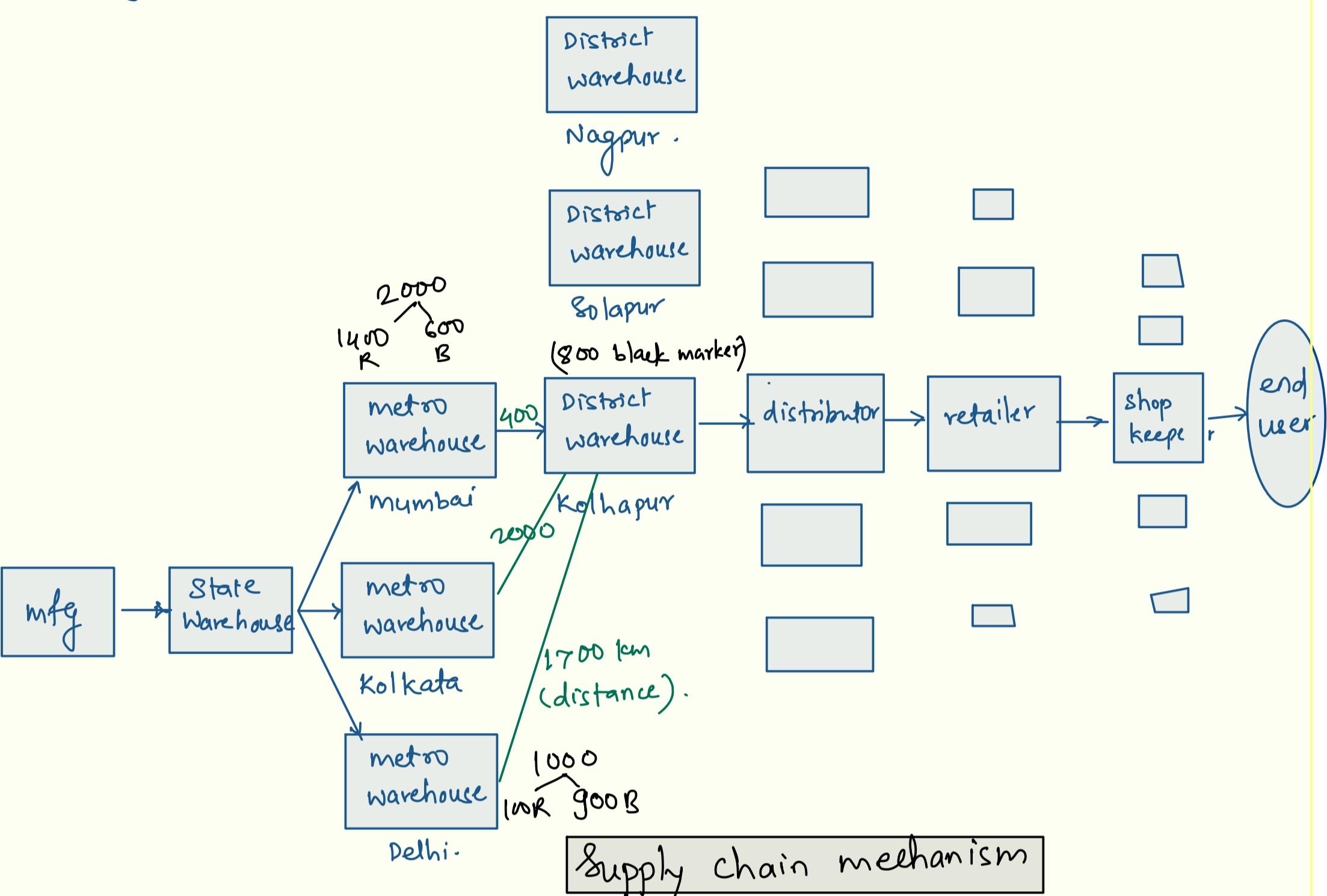
Supply chain

Assume there is mfging is going on of a product.

What is supply chain?

If defines the journey from product mfging of product delivery to end user

mfging - from where product develops.



Suppose the owner of district warehouse at Kolhapur has requirement of 800 Black markers. He has following options.

loc	dist. (km)	availability		
		Total	Red	Black
Mumbai	400	2000	1400	600
Delhi	1700	1000	100	900
Kolkata	2000	3000	1500	1500

Here although the mumbai warehouse is nearer for reducing transportation cost but it doesn't have availability of required product.

so district warehouse owner has order it from Delhi warehouse. Although, its far but it has availability of required product.

Here kolkata warehouse has more availability of required product than the Delhi warehouse but then also end user will choose Delhi warehouse because Delhi warehouse is satisfying the requirement f also its nearer than kolkata so that transportation cost f time will be saved.

### Objective

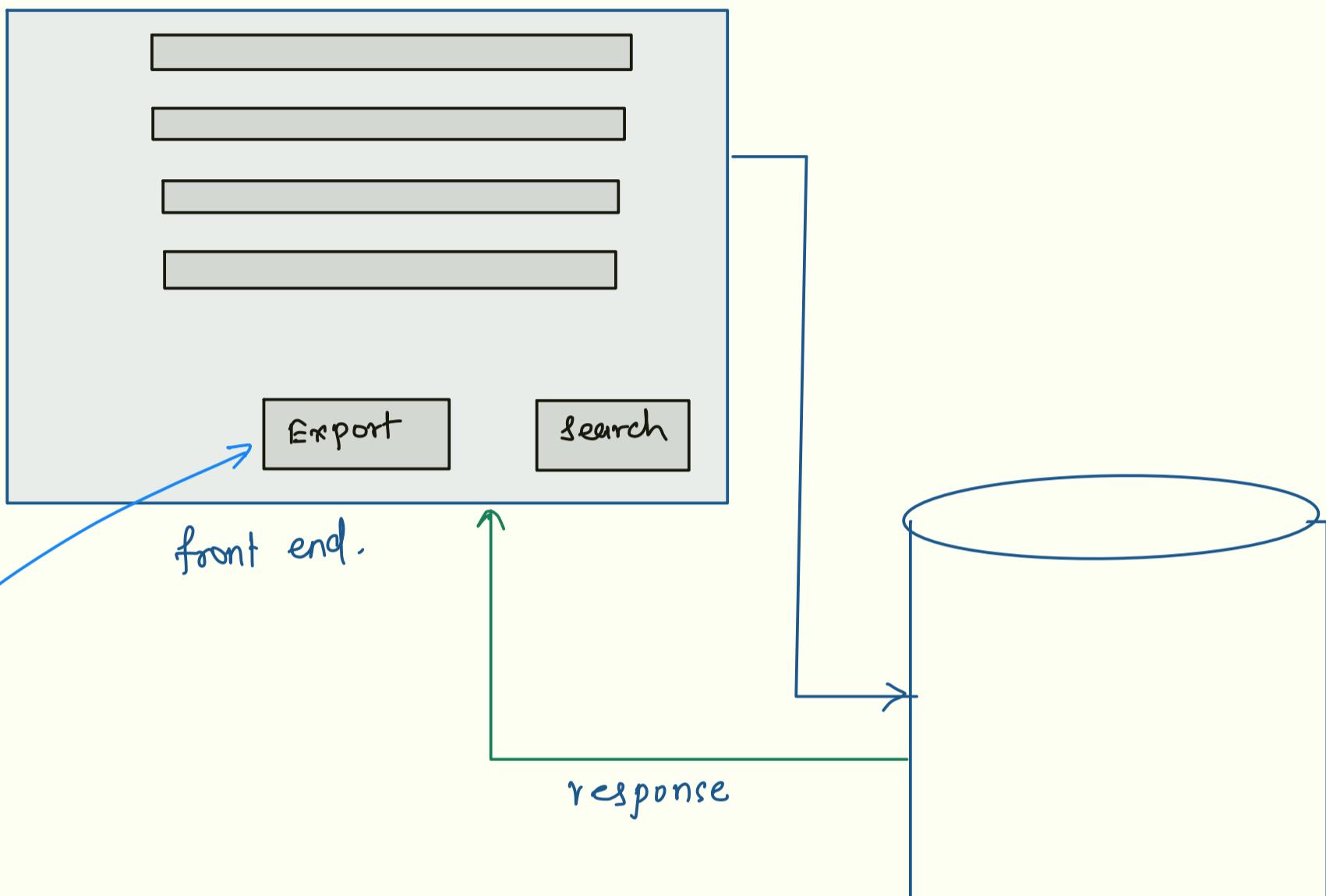
To analyze & verify the availability of product on specific location.

Project architecture

name of application

maintenance Analytical grid.

product type  
sku number  
mfg date.  
loc. id.  
product id.



This application gives about availability of product.

Requirement / objective

end user has to search the availability of product.

⇒ o/p of the server comes from warehouse depends on the i/p.

i/p → To search the availability of product  
This is given by end user.

e.g If we want to search medical expenses of a candidate then

medical expenses → front end data.

But the backend structure is not same

-: there are multiple parameters in back end.

i.e-

$$\begin{aligned} & \alpha + \gamma + \zeta \\ \alpha & \sim \text{operation} = 600 \\ \gamma & \sim \text{transportation} = 200 \\ \zeta & \sim \text{medicine} = 100. \end{aligned}$$

These costs are presented in 3 different table in back end.

After searching for medical expenses we get 900 in front end.

but there is  $\alpha + \gamma + \zeta$  business logic will be implemented in the back end.

Here our task is

Select  $\alpha$  from cust\_name where medicine

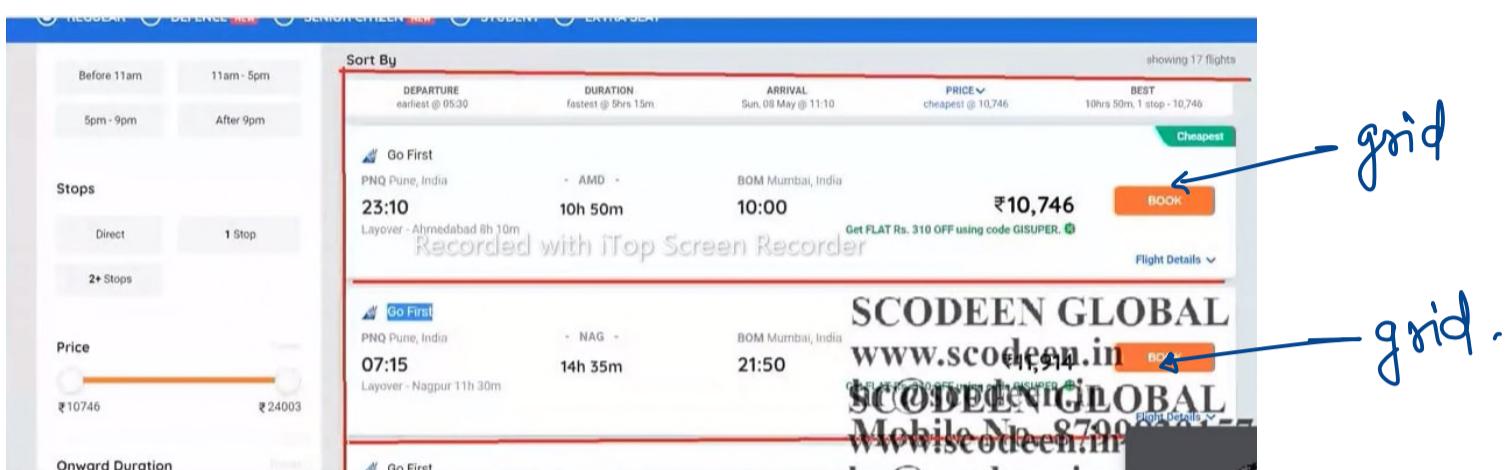
⇒ we have to check for individual results & verify them.

What actually happens

Whatever ip we provide, it will go to server, server will send the respond by implementing business logic.

## What is grid?

Basically in my project application, business logic is implemented if data would be pulled from dB, if result will be displayed on grid.



Customer requirement :-

In the result grid  
20 records will be there.

What is there are

>20 records in datawarehouse?

We have to provide extra functionality of Export

∴ On grid lines we can see only 20 records.  
for more records we have to put export.

	5cr	5cr.
8cr.	3 months	3 months
time	<20	<20
cond?	=20	=20
	>20	>20.

Demand - from end user

∴ while using he will face problems.

⇒ client will add requirement.

⇒ org has to make understand the client why we are bringing Export requirement.

"Assume we are end user

f in dB if >20 records.

⇒ In this case search won't work

∴ max 20 records will be displayed only.

⇒ we have to add requirement.

Org : You added only one requirement , but time taken for this is 3 months , why so ?

You : We have to explain this

stage ① - i/p data moves from client.

Stage ② - i/p data insert into database.

Stage ③ - Getting out of data from server

Stage ④ - after implementation of business logic.

Stage ④ - Display of result.

only this stage is different.

but we have to explain this technically.

What if you are creating next page option ?

next page option means we are creating hyperlink.

If 500 records

We have to put lot of pages.

⇒ cost will be increased.

Where have you worked on Agile project?

How many sprints were there?

6.

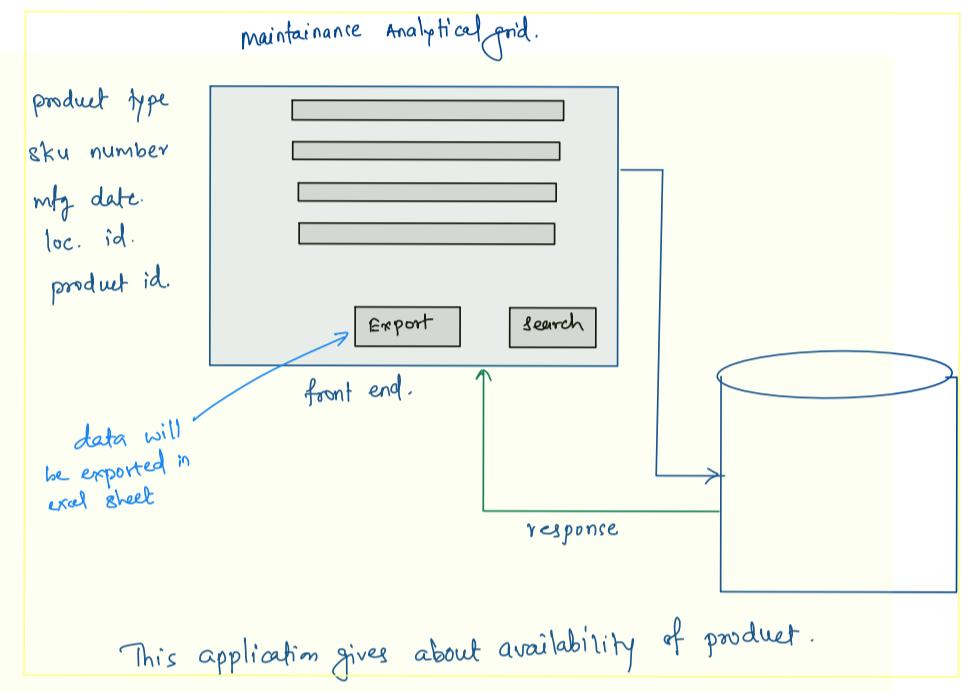
Interview

## Agile project

class 12

Explain your project Architecture ?

Basically my project deals with supply chain mgmt. & the objective was to search availability of product on specific location by end user. That tool will help him to identify the list of objects which are available in the warehouse.



This application gives about availability of product.

Technical flow

Generally the end user wants to search the availability of the product by providing various types of ips. The request will come to the server (DB) of here the business logic will be implemented.

After that server sends the response & the result will be displayed on the grid.

functions of the project

End user has to search the data

How he is going to search?

① Search

② Export

## Duration

The duration of our project was of 6 sprints.  
At last it was extended by 15 days i.e. 7 sprints.

1<sup>st</sup> 3 sprints deals with the 'search' &  
next 3 sprints deals with the 'export'.

## Scenario

requirement - Search

Assume your product type - list box - a,b,c,d,e  
f

skew number -

mfg date - g.

loc. id - (list box) - h,i,j.

We have to search the data with help of above combinations.

Sprint 1 :

a - f - g - h - search .

b - f - g - h - search .

c - f - g - h - search .

d - f - g - h - search .

e - f - g - h - search .

In this way we have to check all possible conditions.

If any combination is left then its loss of business.

### Sprint 2 :

- a - f - g - i - search
- b - f - g - i - search .
- c - f - g - i - search .
- d - f - g - i - search .
- e - f - g - i - search .

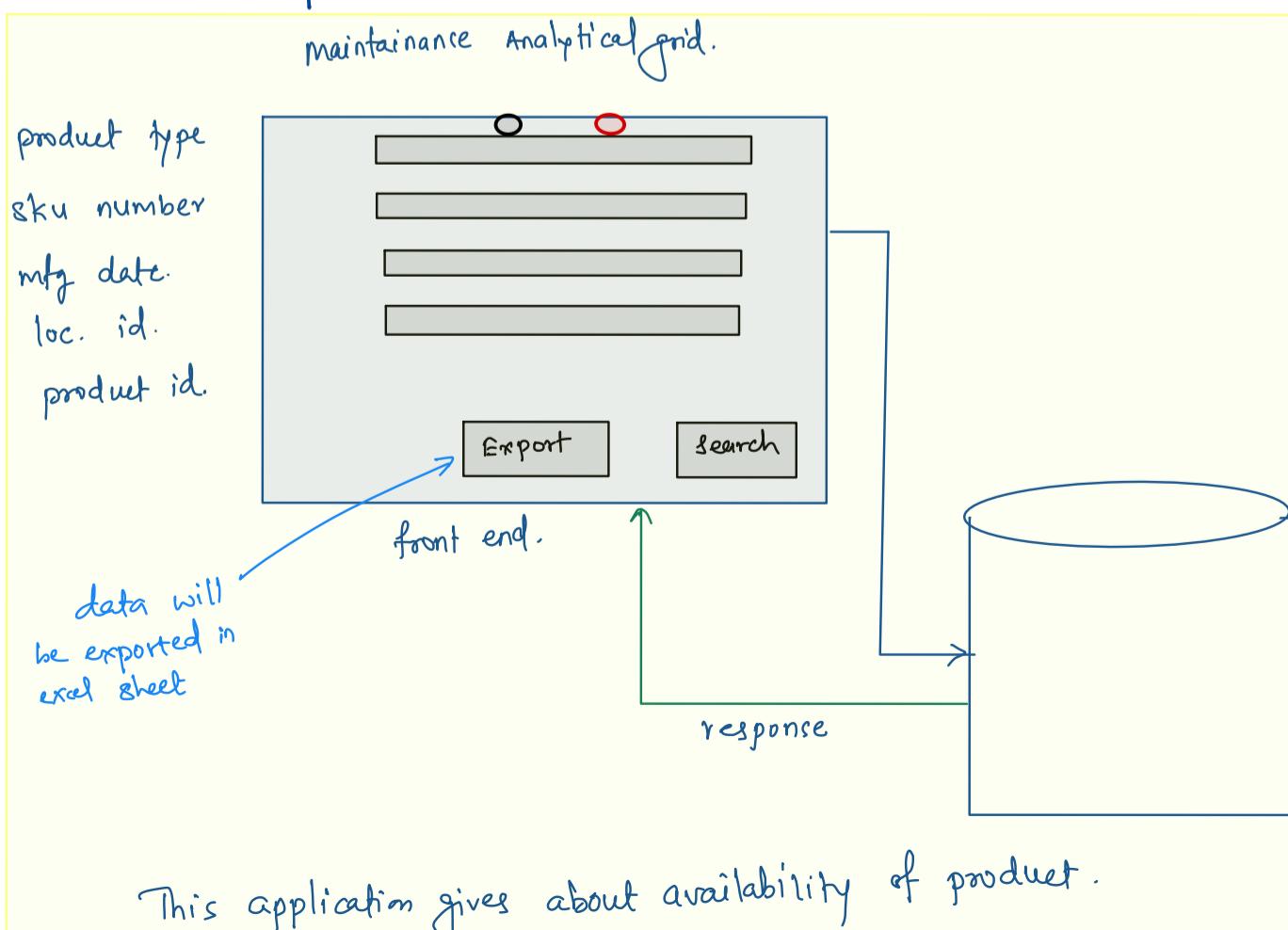
These are the scenarios we are going to test.

### Sprint 3 :

- a - f - g - j - search
- b - f - g - j - search .
- c - f - g - j - search .
- d - f - g - j - search .
- e - f - g - j - search .

Now if client is going to add new scenario

Country - Us , India. → 2 radio buttons.



Here dimensions will change.

⇒ If Indian → user has to first click on India radio button, if then have to select other possibilities.

Sprints for India radio button requirement.

Sprint 1 :

India - a - f - g - h - search .

India - b - f - g - h - search .

India - c - f - g - h - search .

India - d - f - g - h - search .

India - e - f - g - h - search .

Sprint 2 :

India - a - f - g - i - search

India - b - f - g - i - search .

India - c - f - g - i - search .

India - d - f - g - i - search .

India - e - f - g - i - search .

Sprint 3 :

India - a - f - g - j - search

India - b - f - g - j - search .

India - c - f - g - j - search .

India - d - f - g - j - search .

India - e - f - g - j - search .

## Sprints for US radio button requirement

### Sprint 1 :

US - a - f - g - h - search .

US - b - f - g - h - search .

US - c - f - g - h - search .

US - d - f - g - h - search .

US - e - f - g - h - search .

### Sprint 2 :

US - a - f - g - i - search

US - b - f - g - i - search .

US - c - f - g - i - search .

US - d - f - g - i - search .

US - e - f - g - i - search .

### Sprint 3 :

US - a - f - g - j - search

US - b - f - g - j - search .

US - c - f - g - j - search .

US - d - f - g - j - search .

US - e - f - g - j - search .

Now if there is new requirement of Export

simply

Select All + copy + paste

⇒ replace search with Export

Sprints for India radio button requirement + Export.

Sprint 1 :

India - a - f - g - h - Export

India - b - f - g - h - Export

India - c - f - g - h - Export

India - d - f - g - h - Export

India - e - f - g - h - Export.

Sprint 2 :

India - a - f - g - i - Export

India - b - f - g - i - Export

India - c - f - g - i - Export

India - d - f - g - i - Export

India - e - f - g - i - Export

Sprint 3 :

India - a - f - g - j - Export

India - b - f - g - j - Export

India - c - f - g - j - Export

India - d - f - g - j - Export

India - e - f - g - j - Export

## Sprints for US radio button requirement + Export

### Sprint 1 :

US - a - f - g - h - Export  
US - b - f - g - h - Export  
US - c - f - g - h - Export  
US - d - f - g - h - Export  
US - e - f - g - h - Export

### Sprint 2 :

US - a - f - g - i - Export  
US - b - f - g - i - Export  
US - c - f - g - i - Export  
US - d - f - g - i - Export  
US - e - f - g - i - Export

### Sprint 3 :

US - a - f - g - j - Export  
US - b - f - g - j - Export  
US - c - f - g - j - Export  
US - d - f - g - j - Export  
US - e - f - g - j - Export

## Execution

Tell me one real time scenario?

⇒ Always give project related info

requirement

Status = 100, 200, 300, 400, 500.  
product type = a, b, c, d, e.  
Date : DD/MM/YY YY YY.  
Loc id - 01, 02, 03.

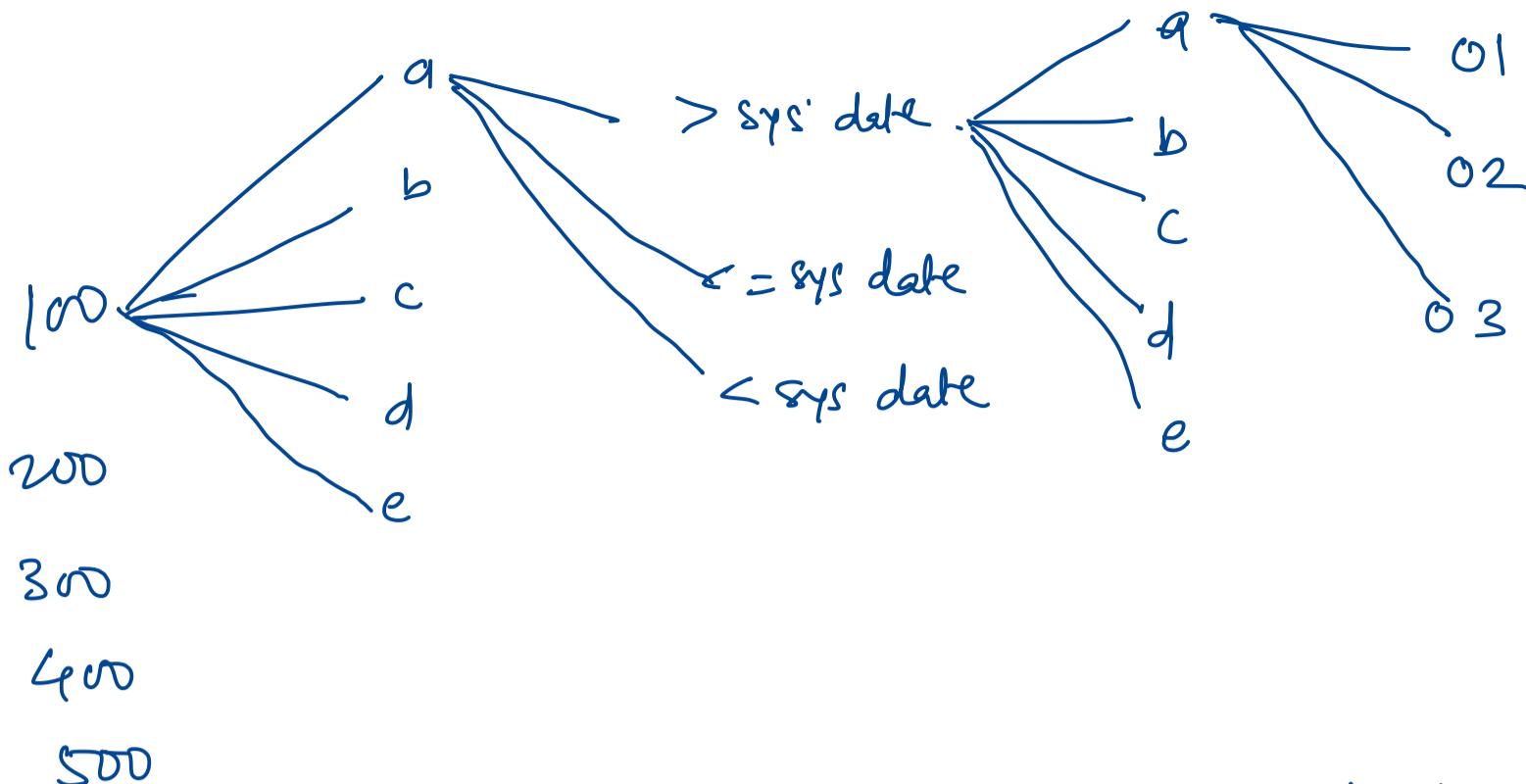
if status = 300, 400, 500  
if date  $\geq$  system date  
if product type = c, d, e,  
if loc id 02 & 03

Requirement.  
color will be green  
otherwise red.

status	0 100	0 200	0 300.	0 400	0 500
date	$\geq$ sys. date		< syst. date		
product type	a	b	c	d	e.
loc id	01	02	03		

there will be multiple scenarios on basis of above condition.

Note!! Before we analyzing the data, we must verify server.



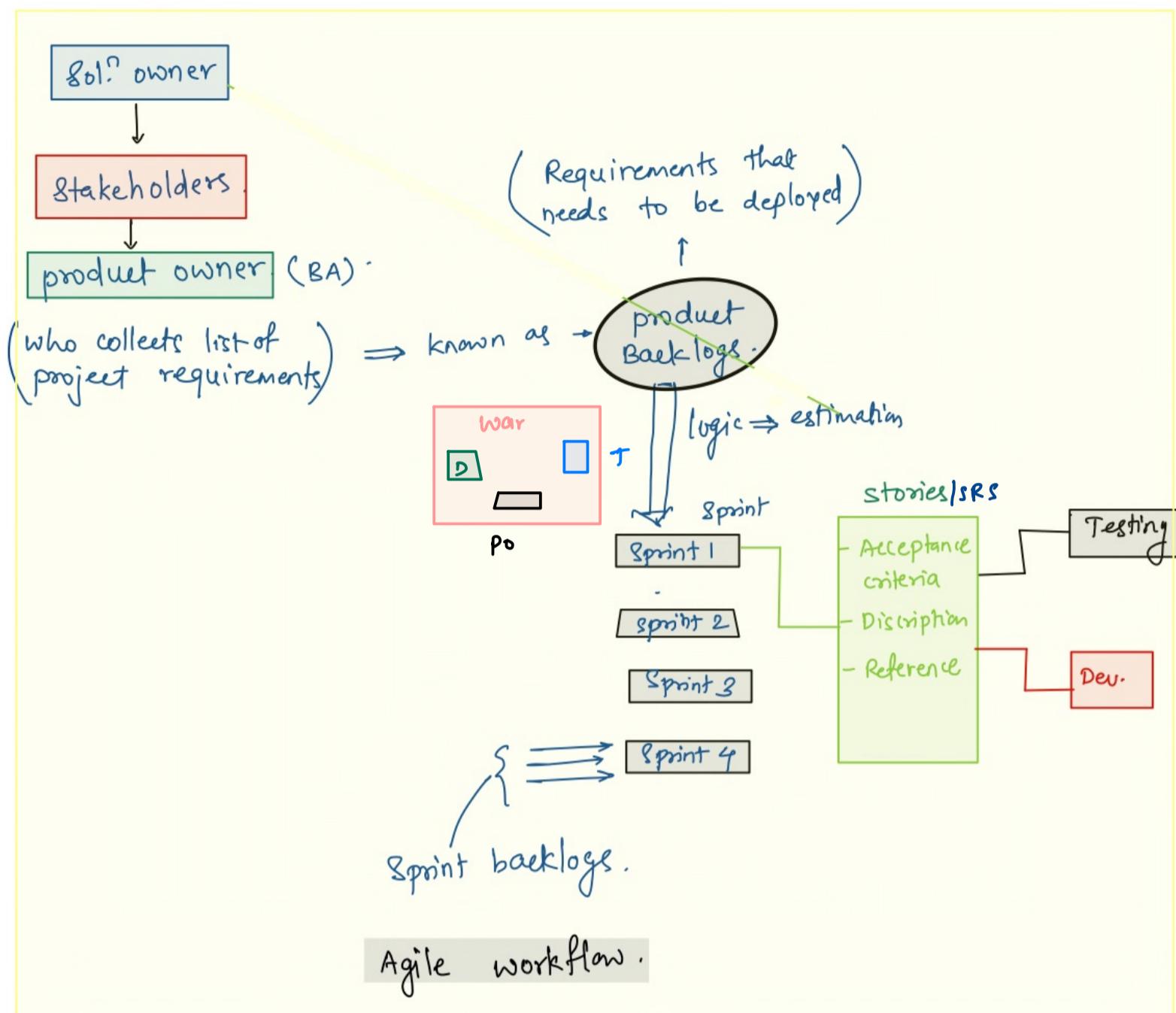
Same combination will be applied to each steps.

⇒ Here  
for 100 →  $\frac{\text{no. of conditions}}{5 \times 3 \times 5 \times 3} = 225$ .

Same for 200  
300  
400  
500

$$\left\{ 225 \Rightarrow \begin{aligned} \text{total conditions} &= 225 \times 5 \\ &= 1125 \cdot \underline{\text{cases.}} \end{aligned} \right.$$

# Effort, Estimation



## Project Estimation

Estimation is nothing but a mechanism/process used transformation of product backlog into sprint backlog

### Who are involved

Developer

Tester

product owner.

{ why? → Each of the effort varies.

Here we have to justify ourselves, why our effort is more.

### Have you ever involved?

Sir, One Agile requirement was there. & in that I got a chance to involve in estimation.

Where did you do estimation ?

Sir, recently one project came of that project was Agile project architecture of in that, sir we basically involved in estimation.

How exactly estimation process is done ?

Estimation process is basically will be done with the help of 3 major parameters.

- ① Efforts
- ② Knowledge
- ③ Complexity.

### Effort

on which system how much effort will be required that should be judged.

In this case we understand effort for test engg for search mechanism

### Note

What is war room?

The room in which estimation is done by dev., testing team, product owner is known as war room.

## Complexity

My requirement was the data basically migrated from oracle to teradata.

Sir I didn't know teradata query

During data migration from oracle to teradata.  
↓

most critical task is mapping.

for mapping I totally dependent on developer.

If dependency factor is there, obviously the complexity will be there.

If complexity is there  $\Rightarrow$  time required is more.  
time is effort.

& effort is money.

### Note

This answer can be given in any project,  
not only Agile but other projects also

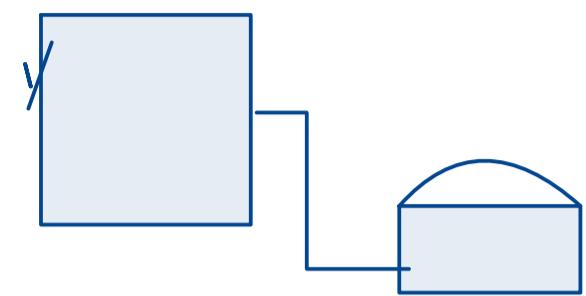
Class 13

defect mgmt tool : HP ALM.

Tool : JIRA - Agile project mgmt tool.

Advt.

It supports stand alone architecture  
only client-server model.

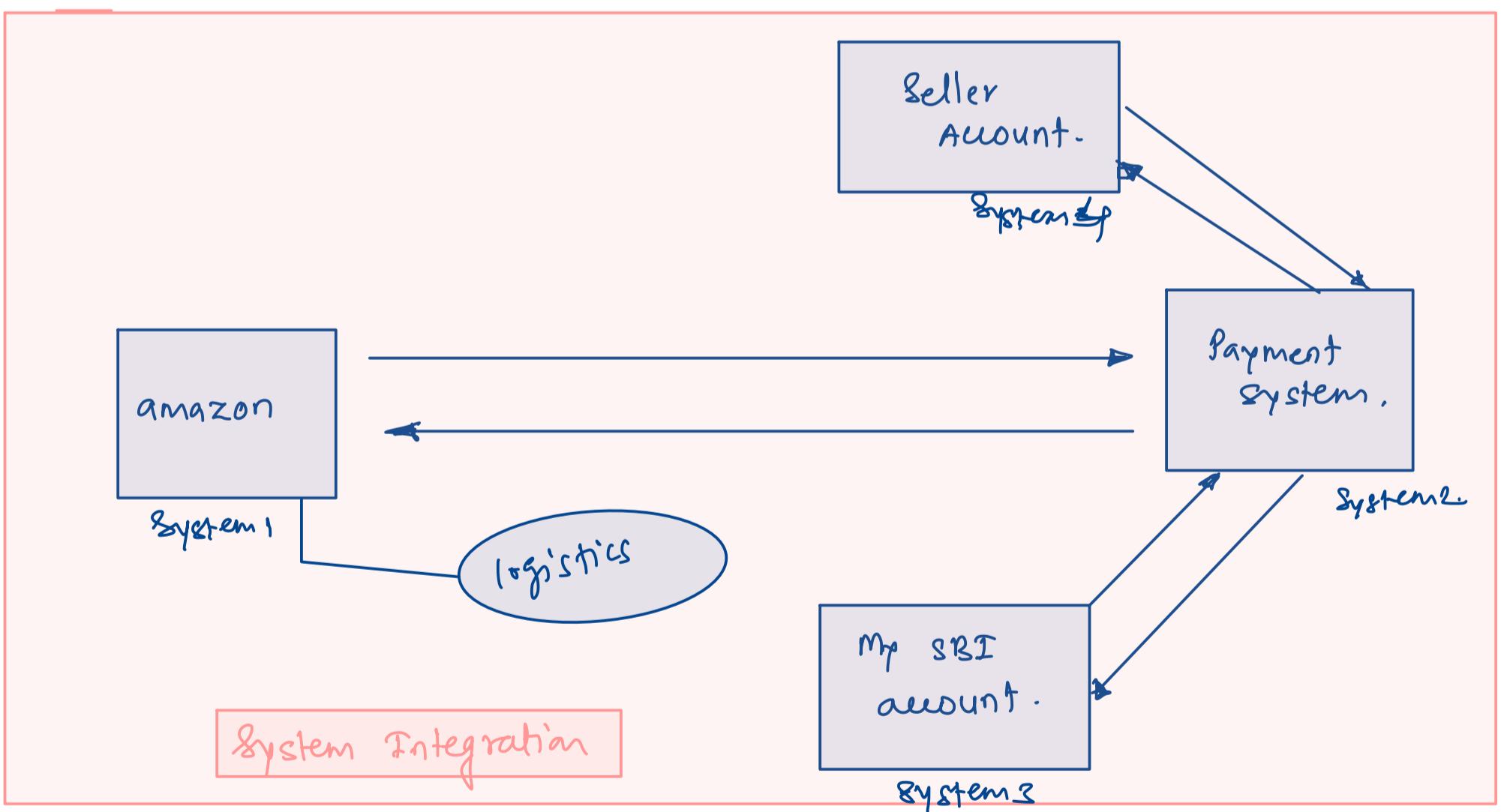


Interview

If Agile is a sweet model, why can't we use Agile  
at every place?

Drawback

Agile oppose system integration architecture.



## How to design stories?

Sprint 1 : Add a new address - Amazon Grid.

Stories : functional requirement to be developed & system requirement to be used.

## What it consist ?

Detailed description of the architecture.

## Description :

End user can able to add the address in

'Add a new address'

This address will be used for product delivery.

If it will stored in application server.

## Do you design stories?

No sir, stories are designed by product owner (BA)

## reference

SB - Add new address - country | Region.

Sprint backlog is reference.

## Acceptance criteria

## What is acceptance criteria?

It defines functionality in terms of ifp, ofp &

process.

Suggests → function of object is dropdown

- 001 - As an end user I can select the list of country from **country | Region** → object name
- 002 - As an end user I can enter 'mobile number' in mobile number **text box** **10 digit numeric value.**  
↓  
we hv to enter data  
↓  
datatype = integer.  
→ static data = min = max = 10.  
(length)

① accepting character - defect.

- ⇒ Send to developer that story asking 10 digit numeric  
⇒ it shouldn't accept character.  
⇒ defect raise.

data will be stored  
in database.

↑

- 003 - As an end user I can able to store the info by clicking 'add address' button.

- ⇒ ① able to click button  
② button name - add address.  
③ After clicking it should store address.

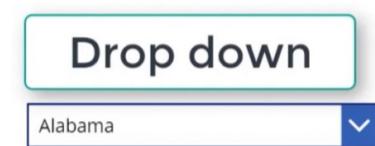
We can ask for table name

— which table I must refer to identify to verify customer info.

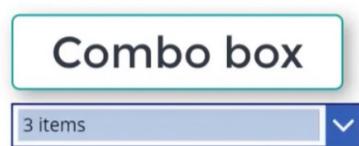
What is difference bet? list box & combo box

Both are drop down & will show same things but.

combo box	list box
- It just shows the combination of selection.	- If I can select multiple options & it will show all selected items in a list form
- Saves space	- Requires more space.



can select only 1 item



Select multiple but show just combination



Show all in list form.

Suppose there is requirement of pincode is added after 2nd sprint.

- copy the 1st two scenario's
- Add for pincode
- copy paste add address scenario.

If another requirement is added

- All earlier data, do copy paste.
- add scenario for new requirement.

⇒ This approach is getting repeated.

⇒ Agile follows

① regression approach.

② iterative (repeatative) approach.

What is iterative approach?

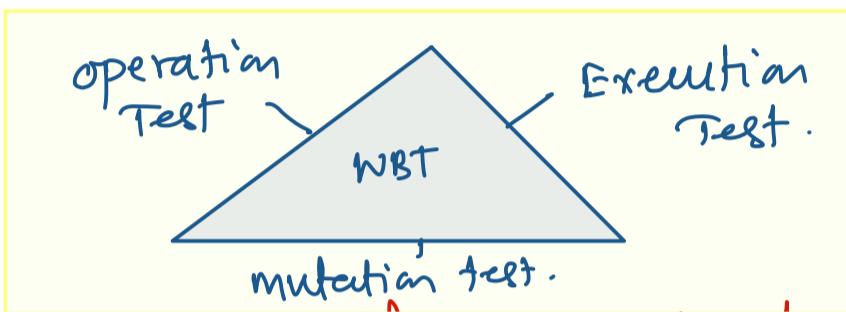
## White box testing

After completion of code design, developer reviews the code to check completeness & correctness of code. It is known as white box testing.

It is also known as glass box test or clear box test.

- Its done by
  - ① logic validation
  - ② Data validation.

- It contains



What are the things they are going to verify?

### Execution test :

- Statement coverage
- decision coverage
- Branch coverage
- condition coverage.
- multiple condition coverage.
- path coverage
- control flow coverage
- data flow coverage.

Just for sake of writing.

But in interview.

It is classified into

#### ① Basis path coverage -

which means Execution of all possible blocks

#### ② loop coverage - termination of loops.

## Programme technique coverage

programme should be written in such a way that it should take less no. of CPU/memory cycle.

## Operation Test

Code must run on customer expected platform.  
i.e. Browser, O.S., other system etc.

## Mutation Test : change

mutation means change

Developer intentionally change the logic of the code to estimate test coverages.

If we intentionally change the code  
o/p should come different.

If o/p is different  $\Rightarrow$  code is correct.

e.g  
 $a = 8$

$b = 5$

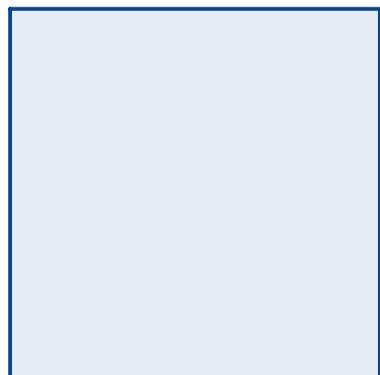
original logic

$$a * b = 40$$

changed logic

$$a + b = 13$$

$a + b \rightarrow$  logic

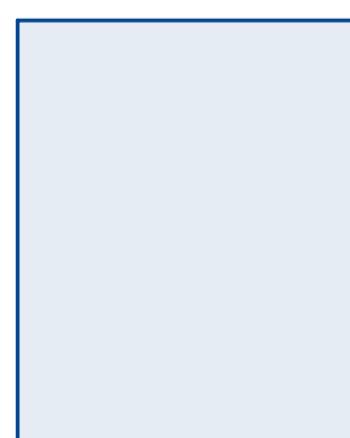


$o/p 1$

Sometimes we can't say its 100% true  
e.g  $a=2, b=2 \Rightarrow a+b=4, a*b=4$ .  
 $\Rightarrow$  Data variance is also an important point.

changing logic

$a * b \rightarrow$  logic.



$o/p 2$

$o/p 2 \neq o/p 1$ .

## Interview    What is white Box Testing?

Sir, WBT is nothing but glass box testing or we can also call this as clear box testing.

Sir, what happen actually,

After completion of design & review, developer writes the code to physically construct a software. Once code design gets done, developer review the code to ensure the completeness & correctness of the code.

Sir, During this white box testing basically they are going to concentrate various parameters.

### ① Execution Test.

I mean

Basic path coverage i.e. Execution of all possible blocks.

loop coverage i.e. termination of loops.

programme technique coverage

i.e. programme should be written in such a way that it should take less no. of CPU / memory cycle.

Sir After that

### ② Operation Test

I mean code must run on customer expected platform

i.e. browser, OS, other system SW.

& finally.

### ③ Mutation Test

I mean, intentionally developer change the code to estimate the test coverages.

## Integration Testing

( component wise )

System

component

modules

submodules

element

System

attribute.

~~interview~~ What is difference bet? system integration f integration.

Integration Testing

Sir what I understand, when system hierarchy i.e. system, component, module, submodule, element, attributes is integrated within one system wrt. business logic i.e. ITLD f LLD f we have to test the functionality.

That is known as integration testing.

System integration Testing

When two different system will be integrated, we have to test the functionality wrt customer requirement is called as system integration.

lets take example of amazon.

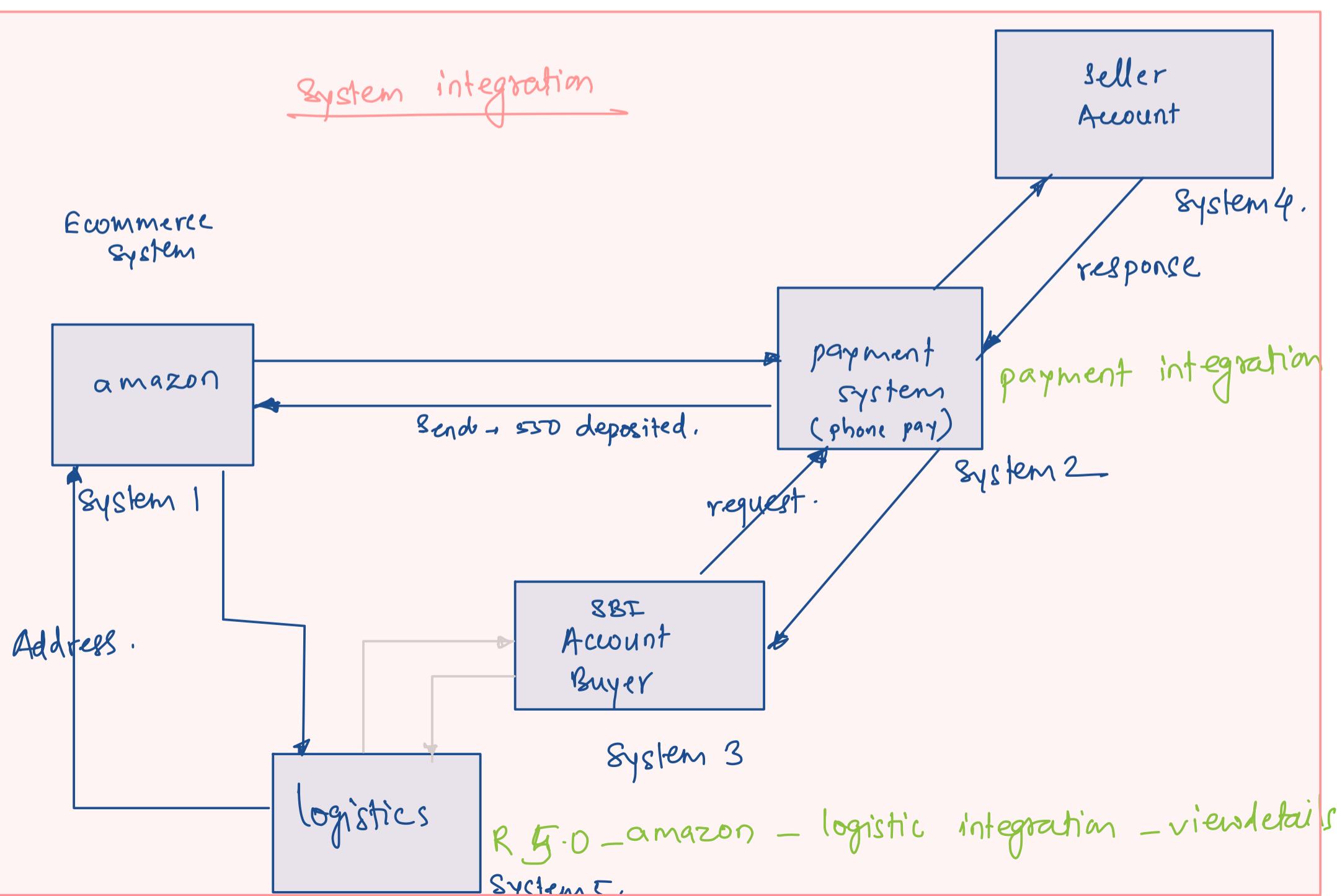
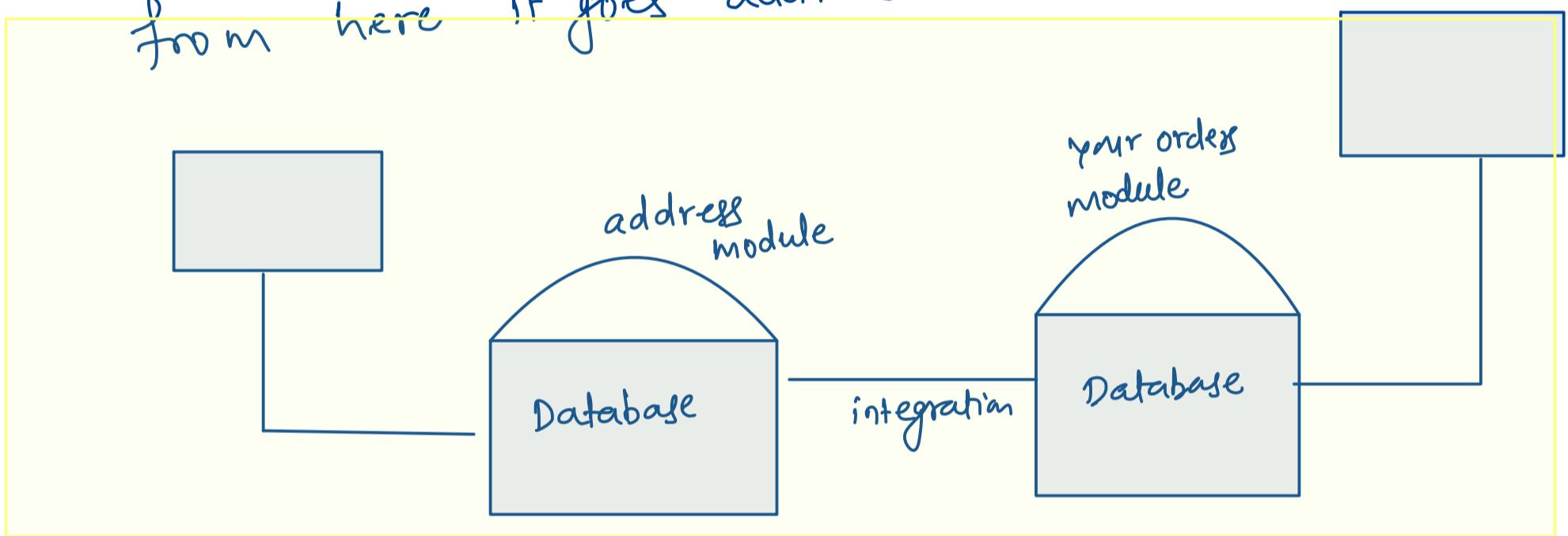
If different modules

such as your orders, Login & security, prime,  
your address, payment options, Amazon pay balance

If we load your address in your address module.

⇒ This will save data on database of amazon.

from here it goes address to your orders module.



Requirement : R4.0 - amazon - payment integration - view details.

Suppose I am trying to pay via phone pe. on

amazon - system 1 (Ecommerce)

phone pe - system 2 (payment gateway)

Buyer account - system 3

Seller account - system 4.

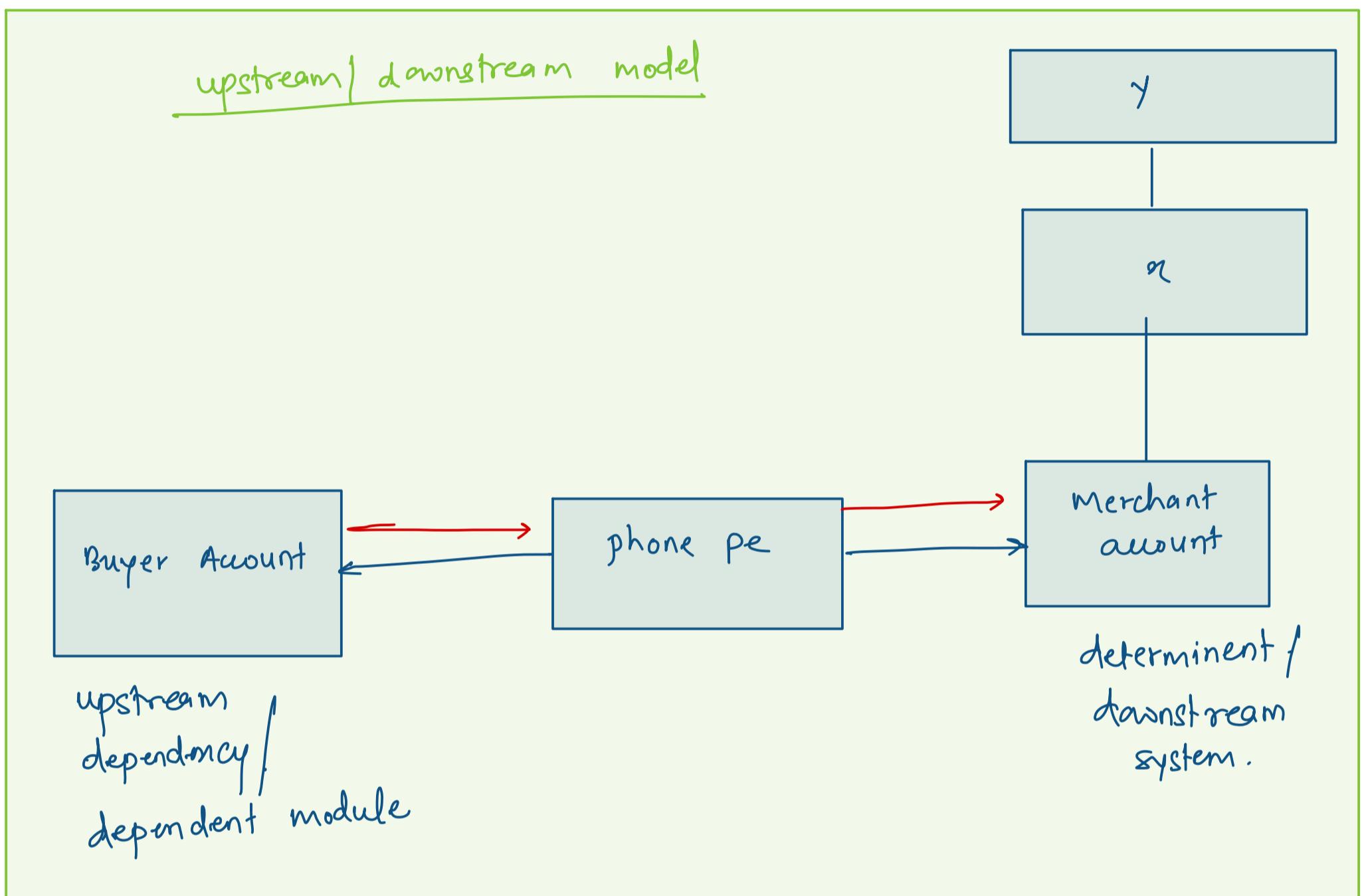
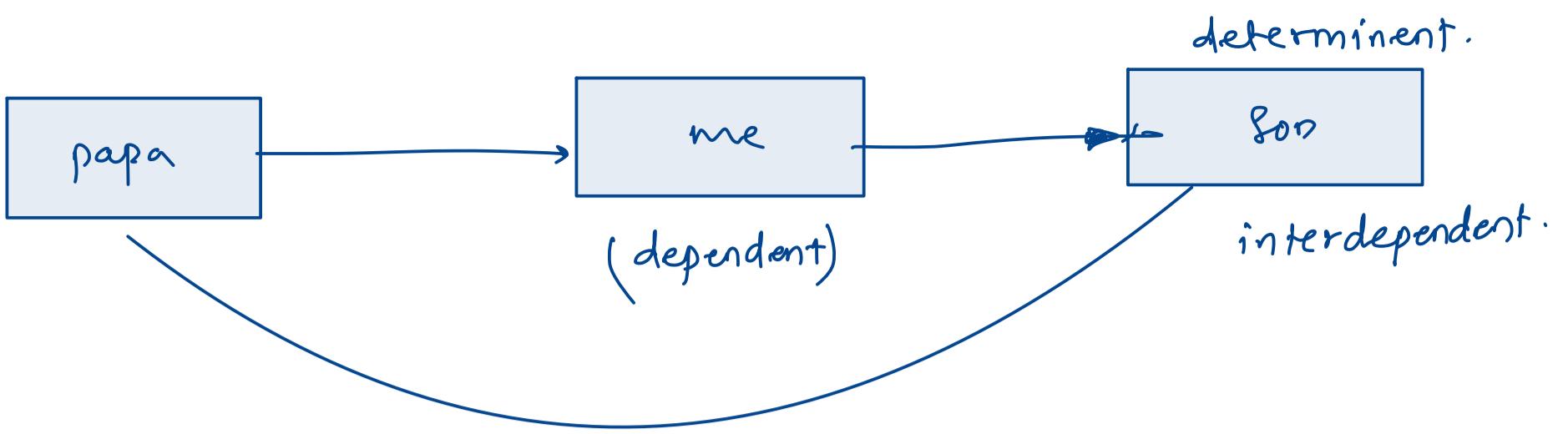
① When buyer requests for any order,  
the amount is debited from his account.  
if that msg is sent to the buyer. }  
done th' payment system.

② payment gateway system sends money  
to the sellers account  
when it gets successful response

③ if send request to amazon that  
550/- is deposited in seller account.

⇒ Now amazon will check in its database  
if match the value of 550 product cost.

If its matching | not matching depending upon  
that amazon proceeds for further procedure.



$x, y$  are  $\rightarrow$  downstream system for merchant account.

What are upstream of what are downstream  
or we can call it as dependant / determinant factors.

Interview

## What is upstream system?

### Upstream application / Dependent application

Its nothing but dependent module/system.

An upstream system is any system that sends data to the collaboration server system.

#### Example

### What are the upstream applications in your project.

Buyer account.

### downstream application / Determinent

Its nothing but determinant module/system.

A downstream system is a system that receives data from the collaboration server system.

Developer use call fun<sup>n</sup> to integrate all the dependent / interdependent module/submodule wrt HLD & LLD.

This file is known as master file.

f integrated all dependent module , design & master file.

During system integration we test functionality of system wrt. customer requirement .

During integration test we follow 3 possible approaches .

① Topdown approach

② Bottom up approach .

③ Sandwich approach / hybrid approach / bidirectional approach

~~Interview~~

What is approach & method ?

Approach

A possible sol<sup>n</sup> wrt. env./situation

Method

A predefined sol<sup>n</sup>.

In these approaches

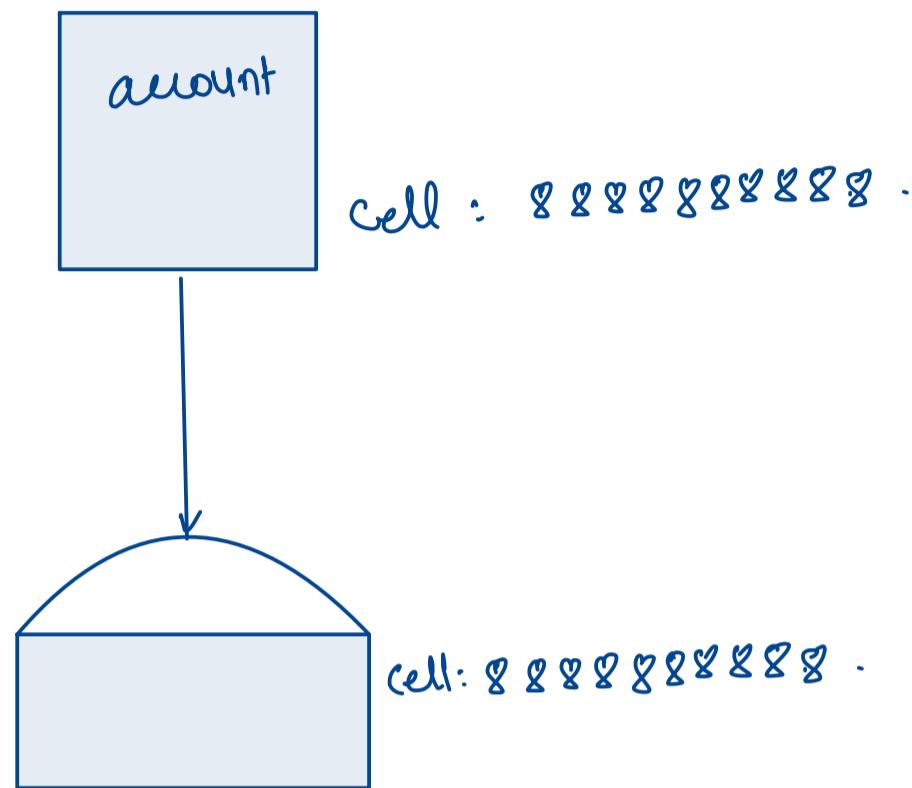
Step ①

We have to understand upstream dependencies appl<sup>n</sup>.

f downstream dependencies

Suppose If a modulename is account .  
you have entered a cell no. in this module.

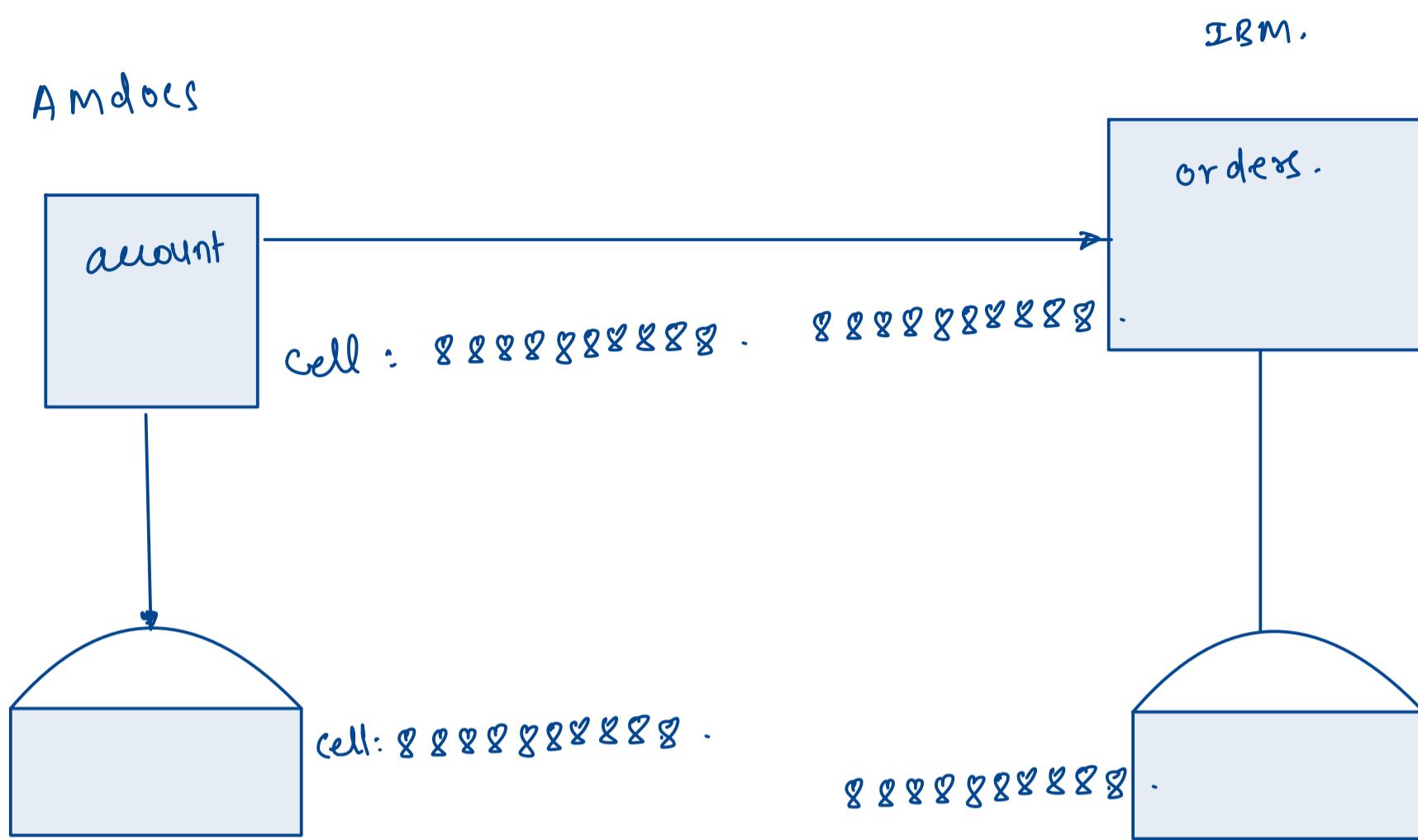
AMdocs



How to test

- 
- ① Test whether cell no. is correctly entered in account module or not.
  - ② Test whether cell no. is correctly stored in account table or not.

Now suppose orders module is dependent on account module



### How to test

- ① Test whether cell no. is correctly entered in account module or not.
- ② Test whether cell no. is correctly stored in account table or not.
- ③ As a test engg. we have to test dependency of orders table.

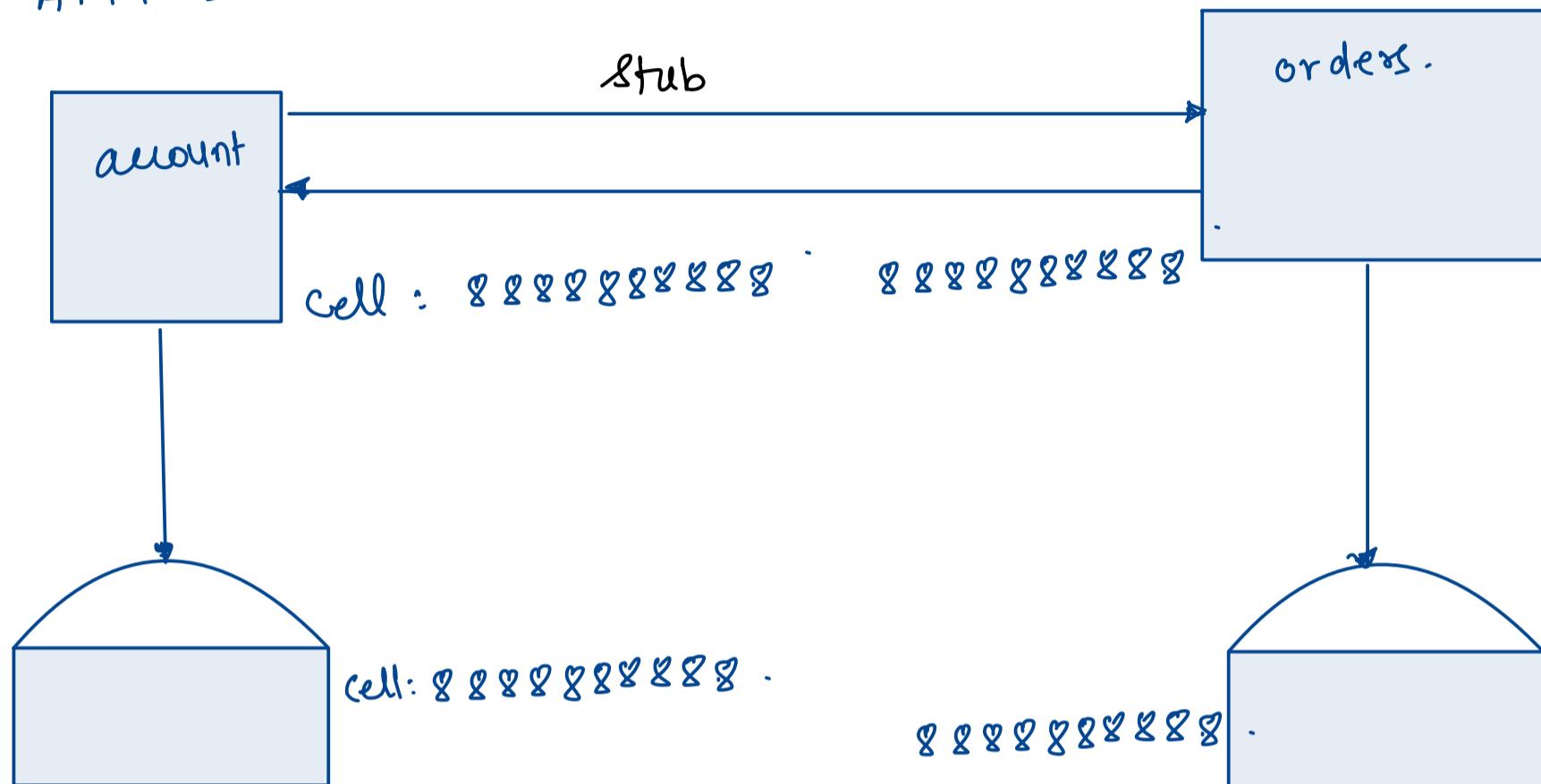
Suppose we don't have access of dependent table

requirement :

Data entered in account table must be present  
In orders table.

IBM.

AMdocs



How to test

① Test whether cell no. is correctly entered  
in account module or not.

② Test whether cell no. is correctly stored  
in account table or not.

But here As we don't have access of orders database,

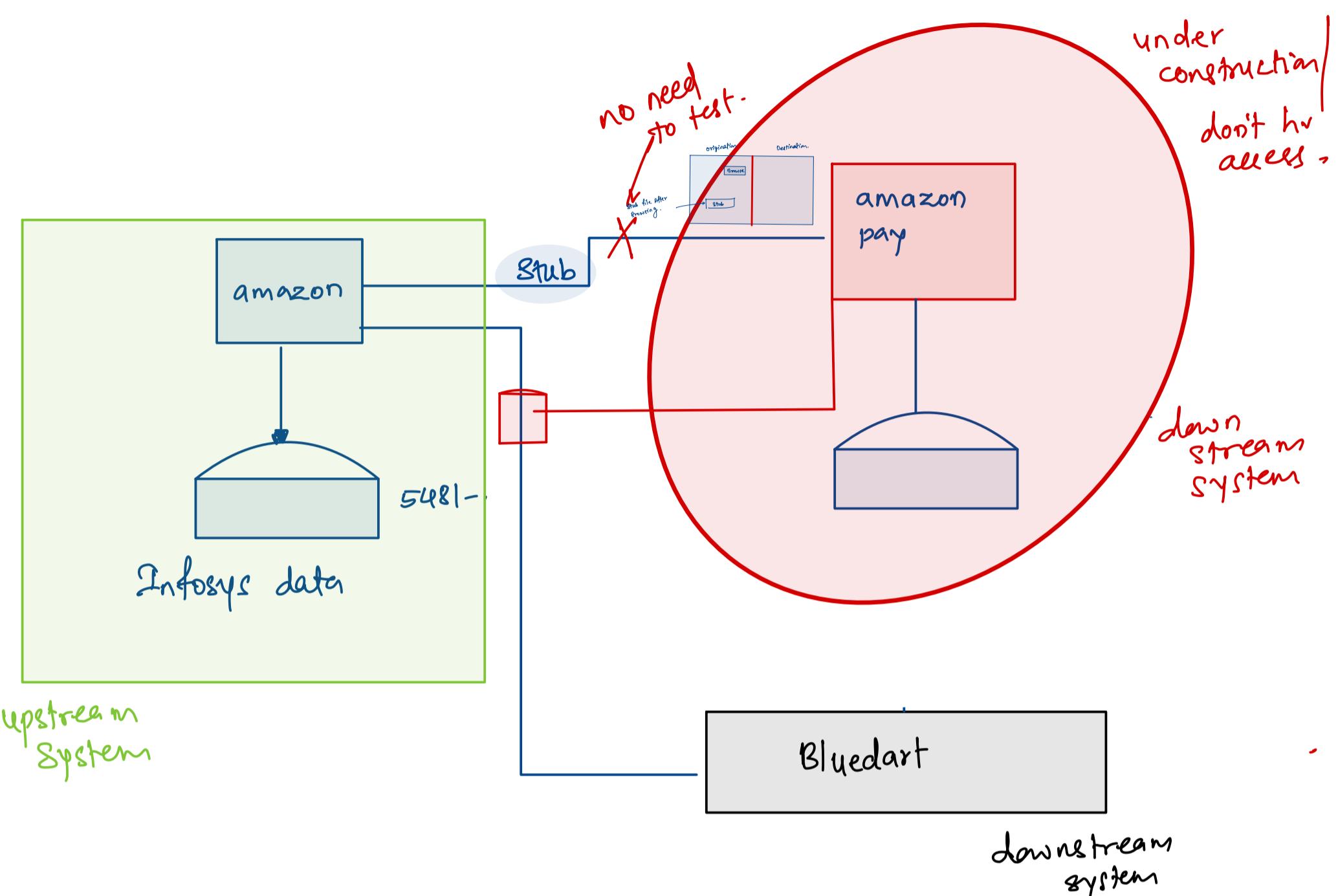
i) we will send some info to orders module. known as stub.

ii) That info will check the orders info.

iii) It will give response to us.

⇒ If says that info is matching  $\Rightarrow$  pass.  
If not  $\Rightarrow$  failed.

## Top down approach



Suppose one product is purchased.

cost of product is 5481-

we are working in Infosys .

What is my responsibility as a test engg?

① check the product cost in infosys database. - 5481-.

in amazon pay database also it should be 5481-

∴ amazon pay is dependent on amazon.

How to test this?

Cases

① If amazon pay system is **not physically present at your side**

⇒ This system belongs to other company.

② dependent system is **under construction**

In this case we have to test independent system instead of dependent system.

Don't have to check dependent system.

Don't get access of



In that case we will apply top down approach.

Here we will send one temporary program.

That temporary programme is known as stub.

It will test the system & again send us the respond.

~~Interview~~

## Top down approach

During top down approach we perform the test on the main module/upstream systems Instead of coming to the submodule/downstream systems which is under construction | physically not accessible

Stub

We implement temporary programme known as stub sometimes stub is also known as called programme.

Stub is generally written in XML.

Extensive Markup Language.

Why XML?

XML is the universal language which is used to communicate the different systems.

Who writes XML programme?

Developer writes the programme.

What XML consists?

Tags & values

Why can't we use JSON here?

```
<?xml version="1.0" encoding="UTF-8"?>
- <Network>
  <ProxyType>1</ProxyType>
  - <Ftp>
    <Host/>
    <Port>0</Port>
    <Username/>
    <Password/>
  </Ftp>
  - <Http>
    <Host/>
    <Port>0</Port>
    <Username/>
    <Password/>
  </Http>
  <Repositories/>
</Network>
```

XML  
programme

```

<?xml version="1.0"?>
- <catalog>
  - <book id="bk102">
    <author>Pratibha Mandhare</author>
    <title>XML Developer's Guide</title>
    <genre>Computer</genre>
    <price>44.00</price>
    <publish_date>2000-10-01</publish_date>
    <description>An in-depth look at creating applications with XML.</description>
  </book>
  - <book id="bk102">
    <author>Ralls, Kim</author>
    <title>Midnight Rain</title>
    <genre>Fantasy</genre>
    <price>5.95</price>
    <publish_date>2000-12-16</publish_date>
    <description>A former architect battles corporate zombies, an evil sorceress, and her own childhood to become queen of the world.</description>
  </book>
  - <book id="bk103">
    <author>Corets, Eva</author>
    <title>Maeve Ascendant</title>
    <genre>Fantasy</genre>
    <price>5.95</price>
    <publish_date>2000-11-17</publish_date>
    <description>After the collapse of a nanotechnology society in England, the young survivors lay the foundation for a new society. Sequel to Maeve Ascendant.</description>
  </book>
  - <book id="bk104">
    <author>Corets, Eva</author>
    <title>Oberon's Legacy</title>
    <genre>Fantasy</genre>
    <price>5.95</price>
    <publish_date>2001-03-10</publish_date>
    <description>In post-apocalypse England, the mysterious agent known only as Oberon helps to create a new life for the inhabitants of London. Sequel to Maeve Ascendant.</description>
  </book>
  - <book id="bk105">

```

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[www.scodeen.in](http://www.scodeen.in)  
 hr@scodeen.in  
 Mobile No. 8799820157

### Example of stub.

in 3 months, we have to check one functionality.

How many times we get stub?

get 1 stub / 1 release.

for 1 release whatever dependency requirement is there for that we get 1 stub from developer.

How many times we can put data

Many times.

### Note!!

We have to save this stub

After getting this stub there will be requirement to test.

There will be many requirements on that dependency.

## How to do integration testing

### Note

we can't edit XML directly -

- ① Edit the stub wrt customer requirement.

### How to edit the file ?

via notepad ++ .

via notepad ++ . (ctrl+A)

① copy all the data from stub file. (ctrl+A)

② paste it in notepad ++ (ctrl+V)

③ modify the file as per customer requirement.

~~e.g.~~

requirement

first & last name must be 20 characters maximum,

along with comma .

⇒ customer max. length = 19 .

closing tag .

### ① positive test :

<author> uuuuuuuuuuuuuuuuuuu, u </author> 20 .  
opening tag  
18 times 1 comma 1 name

⇒ This should pass .

tag specific

### ② -ve test :

knowingly give 20 characters .

<author> uuuuuuuuuuuuuuuuuuu, uu </author> 20 .  
18 times 1 comma 1 name

⇒ It should fail .

### ③ Save it .

$\lambda(\text{author}) = 20$

$<\text{author}>$  opening tag  
 $\Rightarrow$  This should pass.

$\text{u}$  18 times, 1 comma, 1 name

$</\text{author}> > 20$ . closing tag.

tag specific

i/p name Author , S.

Suppose

price value required is 548.00.

⇒ this value should be on server.

⇒ we have to update in stub.

<price> 36.45 </price>

→ Earlier

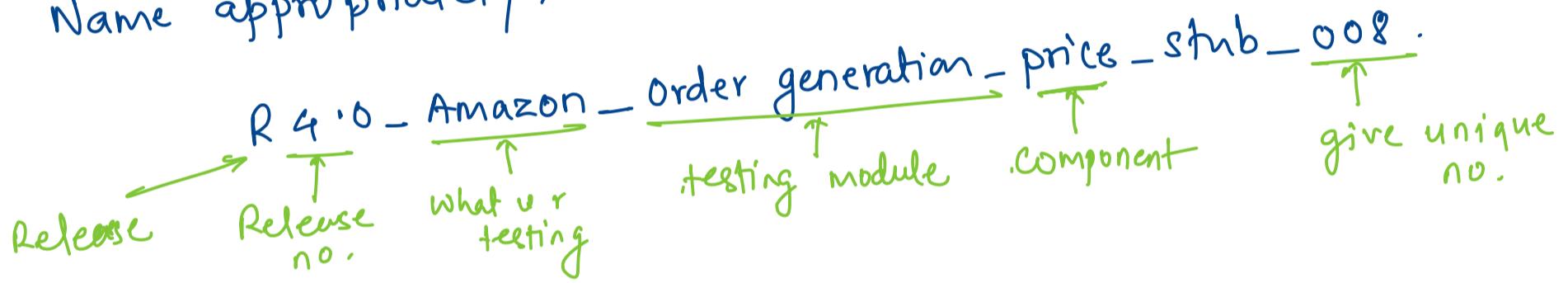
<price> 548.00 </price>

→ modified data.

length of the = 7.  
data

. Save it

. Name appropriately.



Note!!

while saving

Save it in XML format.

i.e. .XML

## How to send stub to the server

- ① via unix
- ② FTP - file transfer protocol.

## Where you used unix in your project?

- ① During stub implementation.
- ② During sending file to server
- ③ During response file validation.
- ④ During server status validation.
- ⑤ During job run
- ⑥ log file validation.

## Where you write Unix commands?

putty terminal.

## Where do you write database query?

SSMS server.

## Http

It stands for HyperText Transfer Protocol.

It only supports the data connection.

It does not require authentication.

It is efficient in transferring small files

## FTP

It stands for File Transfer Protocol

It supports both data connection and control connection

It requires authentication.

It is efficient in transferring large files.

What are the commands you are going to use when you send file to server?

Commands used to sending stub to server

- ① cd → What is difference bet? cd. f cd ..  
② Cat  
③ ls  
④ chmod 777  
      776

What is difference bet? FTP f https.

hyper text transfer protocol.

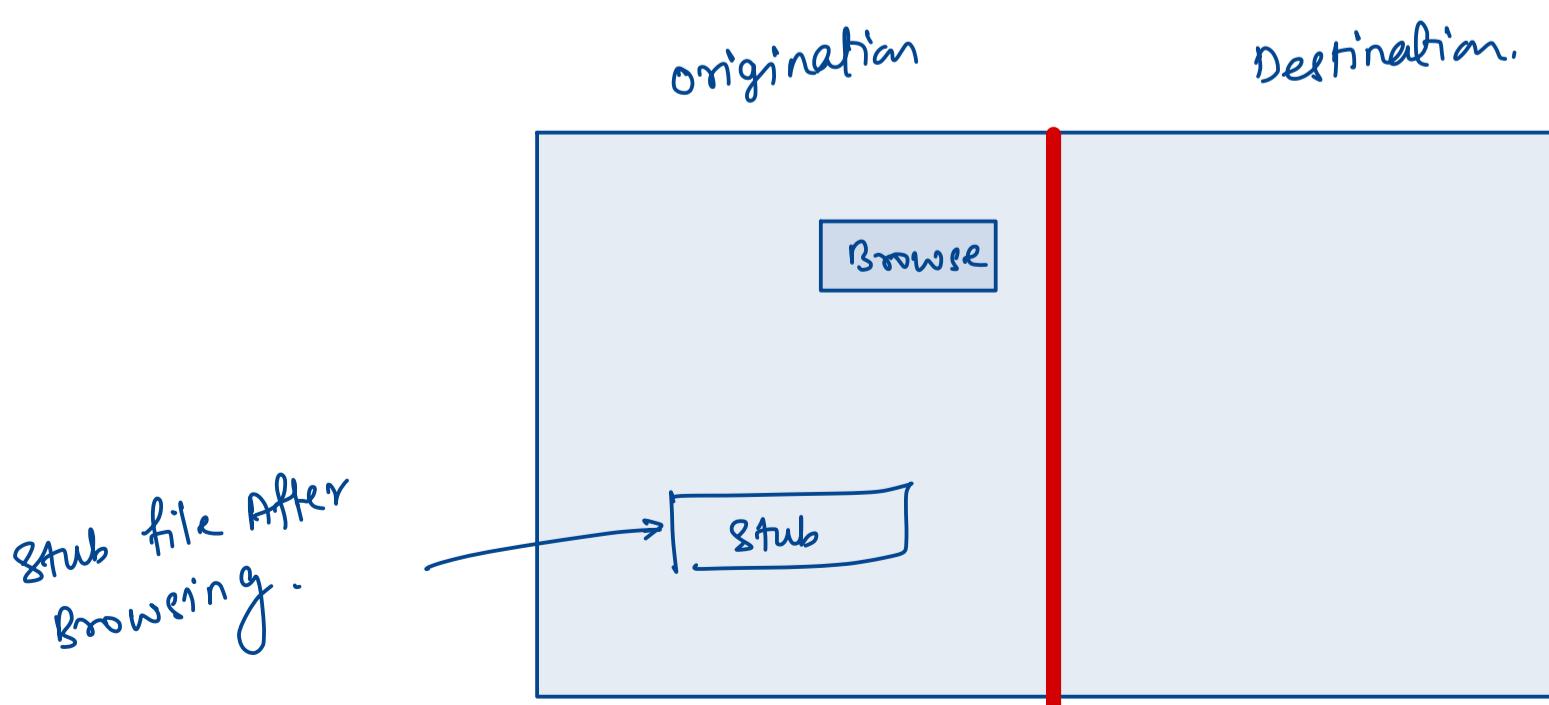
FTP → file transfer protocol  
It is responsible  
to transfer file

only text is there.

FTP is technology

Tool :- filezilla.

Architecture of FTP



① we have to browse the stub file.

→ It will simply bring the stub file into origination

② Now simply do drag & drop stub file to destination.

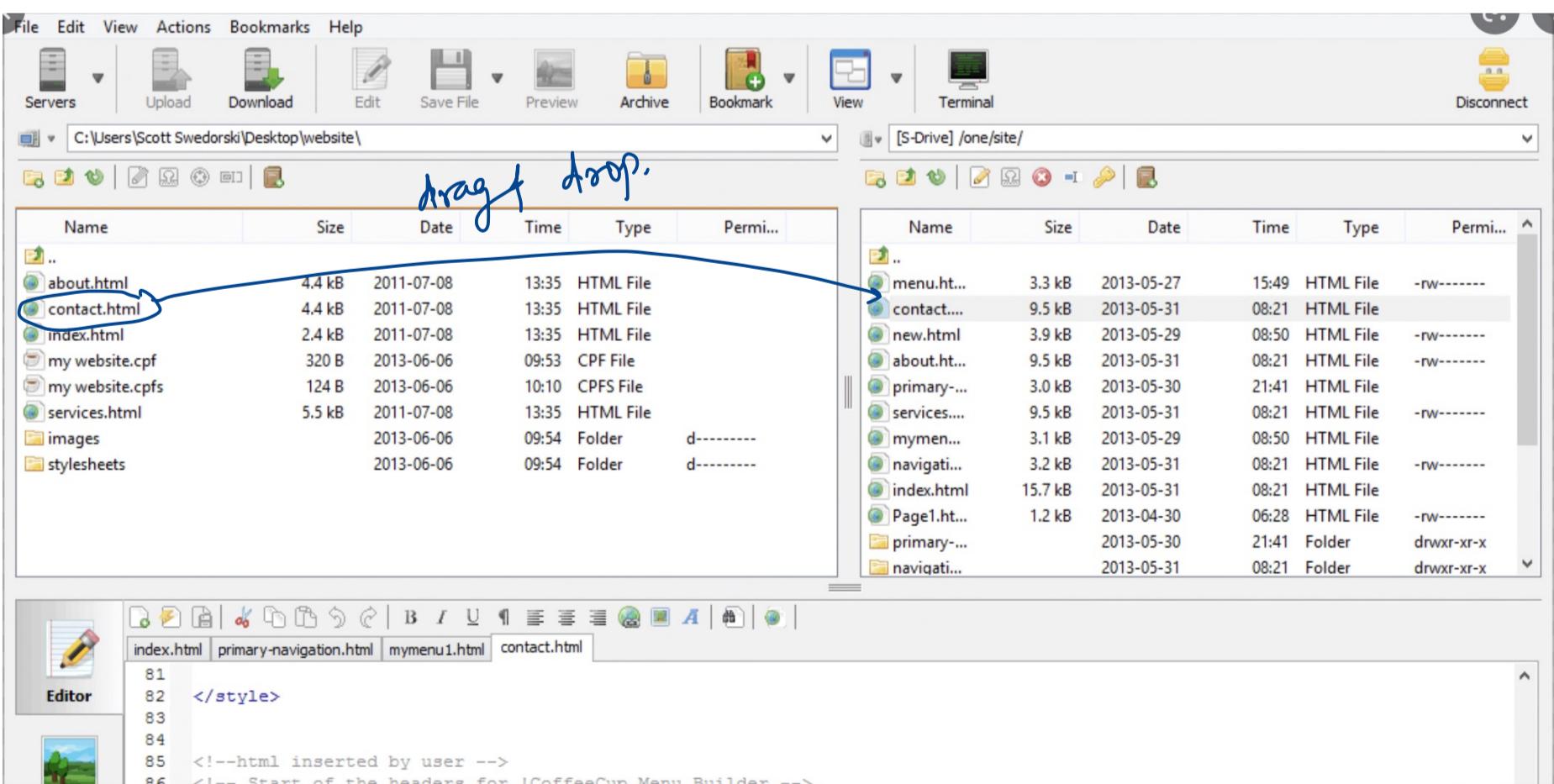
③ As soon as we drop stub into destination it goes to the connected system.

As it goes - it can't be visible.

Sometimes it's visible

when the name of the file is already present in the server

→ Naming of stub file must be unique.



Stub - Top down  
driver - bottom

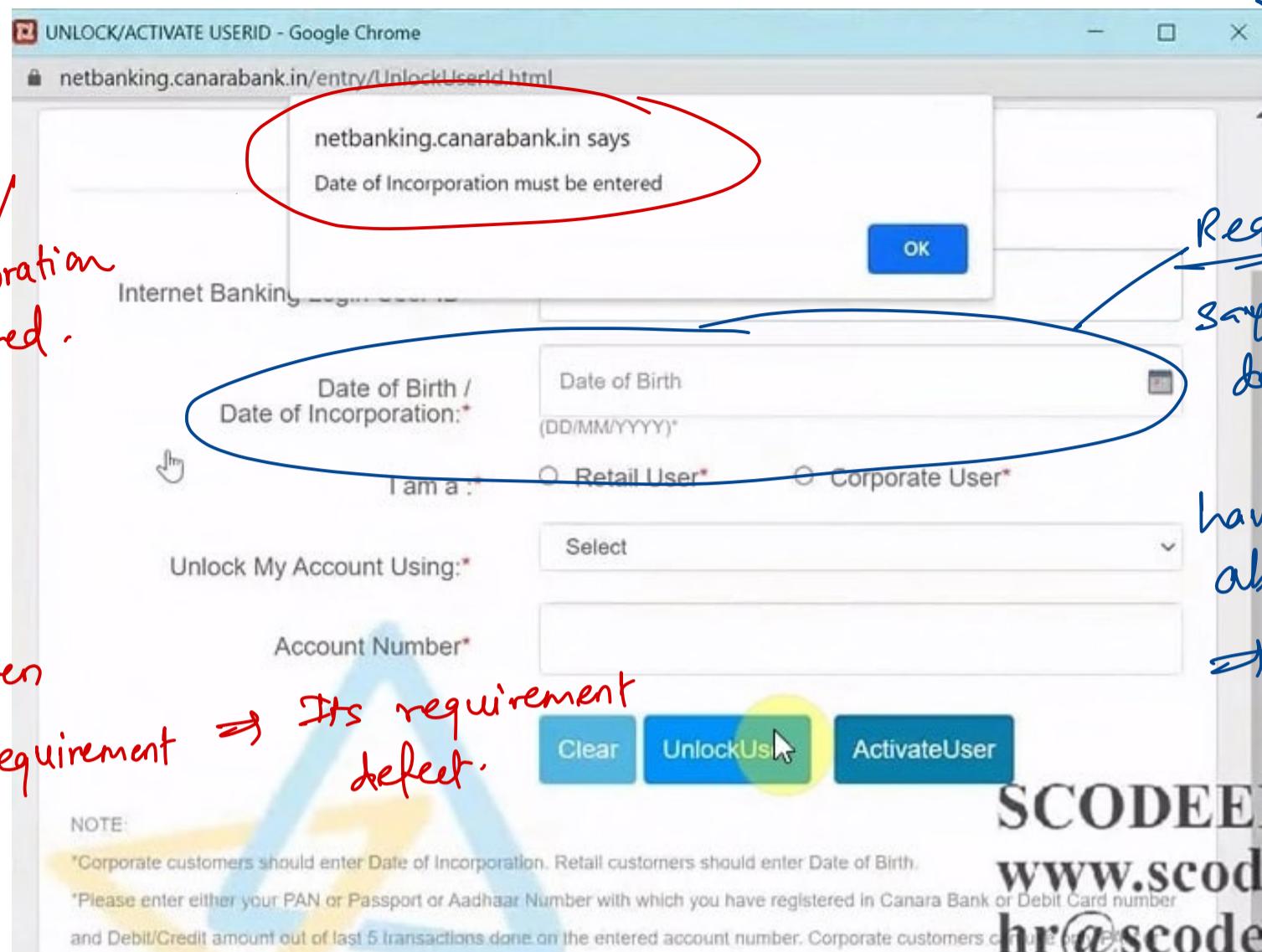
error msg  
should be

Date of Birth/  
Date of incorporation  
must be entered.

↑

Defect .

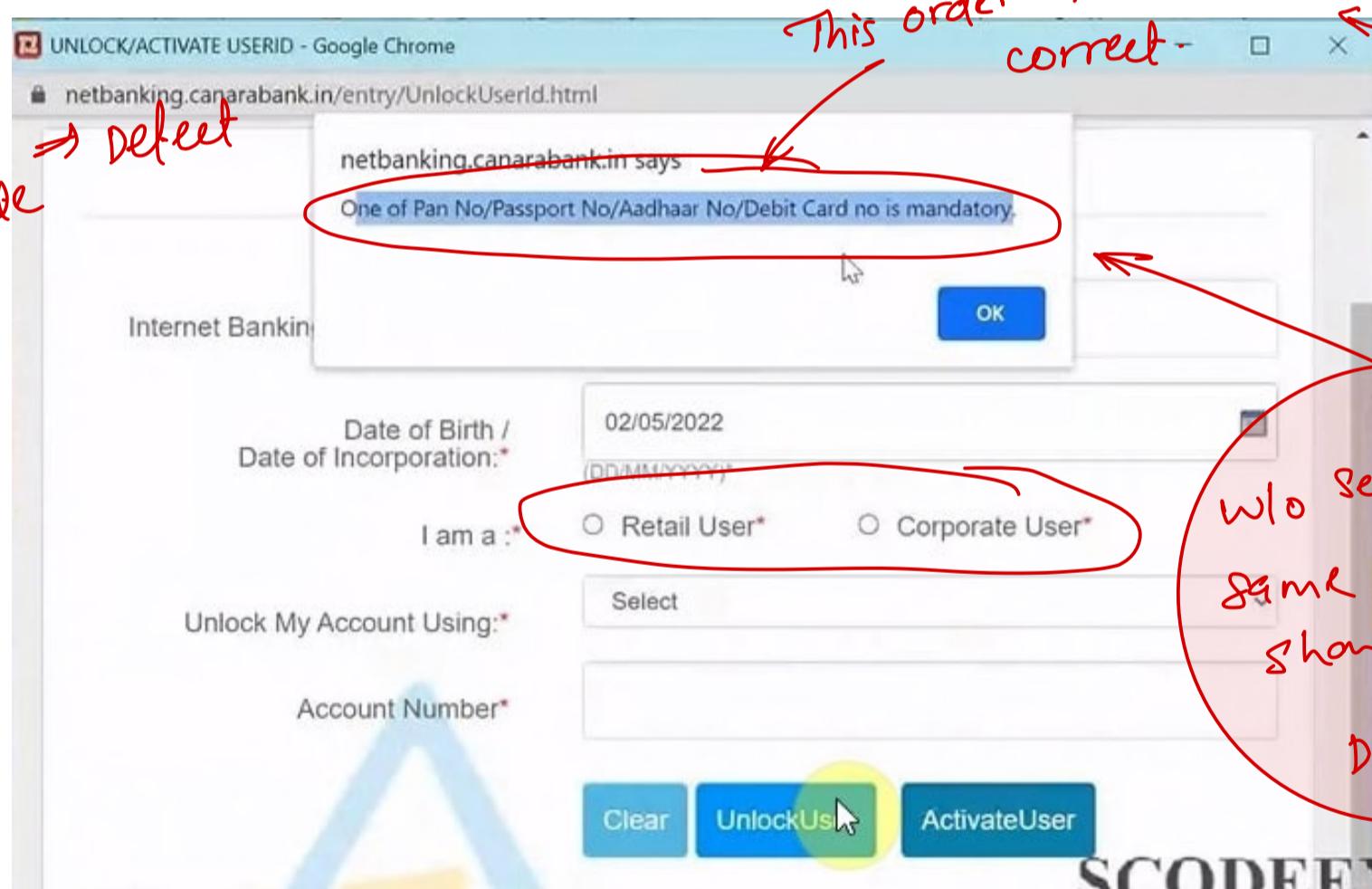
If its written  
wrongly on requirement  $\Rightarrow$  Its requirement  
defect.



date  $\leq$  system date.

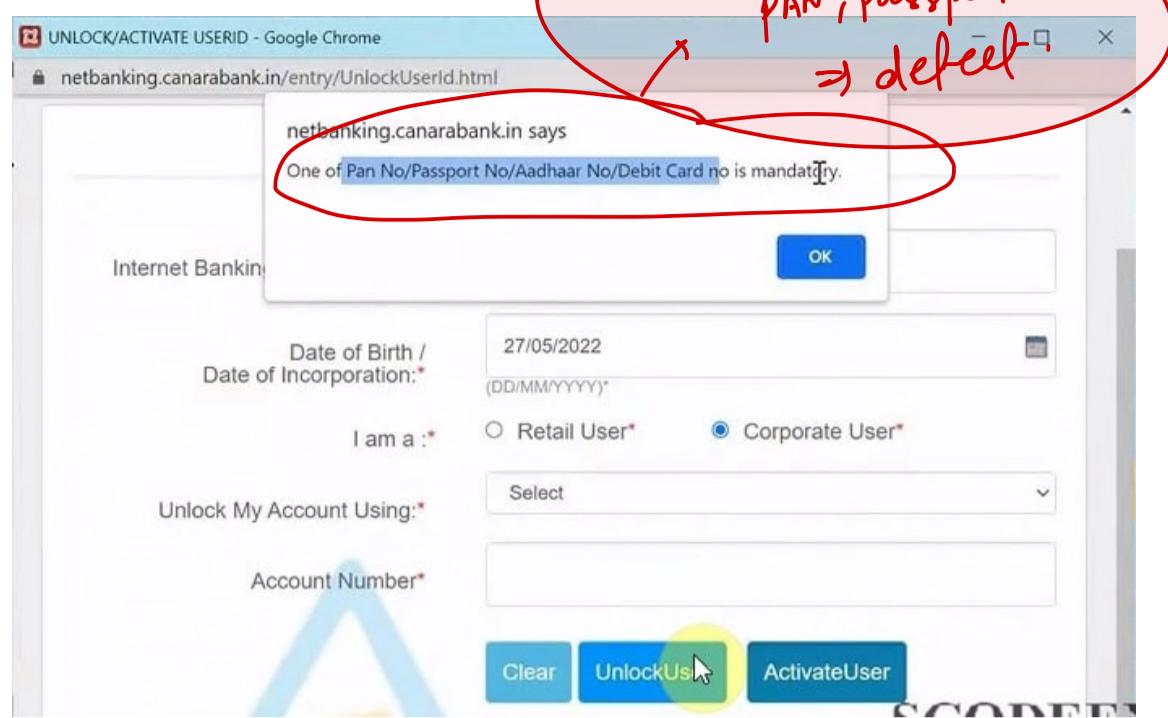
Requirement  
says abt.  
date format.  
but we  
have to test  
about function  
 $\Rightarrow$  3D testing.

Date is  
accepting  
system date  
 $\Rightarrow$  Defect



This order of sequence should be  
correct.  $\nwarrow$  (low priority)

w/o selecting  
same msg is  
showing  
 $\downarrow$   
Defect -  
med. level



Impact

If will go to database

In database

testing

if use query for this,  
it will just keep on searching

### Note!!

for a good tester  
your representation of defect must be good.

level 5 SOC → 250 loc - 1 defect.

defect msg  
Improper error msg is displayed.

If development team belongs to your company

Pan no  
Aadhar  
passport

club these all defects  
& raise single defect  
→ Improper error msg.

If dev team ≠ your company  
raise individual defects.

- Pan
- Aadhar
- passport

If sent any request

response will be in XML format

If response is not generated  $\Rightarrow$  defect

but don't raise defect immediately.

Sometimes system is down  $\Rightarrow$  don't get response.

So, ① give 1<sup>st</sup> warning.

Send request ID & say,

"Sir we are not getting response from  
this ID on price value transaction,  
please find request ID".

② After this they will check

③ If after that also response is not getting,

④ If there is no response  
 $\Rightarrow$  send another request.

⑤ If there is no response  
 $\Rightarrow$  lock the defect.

"Response is not getting from the gateway Server".

Where you collect the response file?

sir,

① we collect it from database. or.

② from repository. (Just a virtual folder).

queries

for request file → Select \* from regt\_info where fileName = '\_\_\_\_\_'

for res file → select \* from res\_info where fileName = '\_\_\_\_\_'

When we fire query  
we get table in database.

fileName	id	Date	XML
			< XML tag >

encoded format/  
encrypted.

In which format XML is in database?

Its in encoded format.

\* Just double click the XML file.

→ It will open XML file.

→ got response/request file.

\* Save as the file

Request of response file validation

Aka (XML Parsing).

What is XML parsing?

XML parsing defines mapping between

request of response

i.e. request of response file validation.

## Note

All back end related defects should be considered as critical defects.

What kind of critical defects you got?

- critical defect ~ back end defects
- ~ system integration defect
- ~ database defect.

Don't ever say login defect.

System integration defect

→ request response file is not matching.

E.g. Suppose  
customer name →

Pratibha, Mandhare

(i.e. 1st name & last name is separated by comma)

But its getting displayed as

Mandhare, Pratibha

i.e. last name & firstname is separated by comma.

Defect written as

- ① "request of response file data is not getting matched for 'Customer Name'"

## ② Subscriber id , subscriber name

Customer requirement

Subscriber id of subscribers 1st letter of name  
should be there.

88878788 A

Actual

A 88878788

→ 1st letter of name of subscriber id is showing.

→ Defect

Request file data of response file data is not getting matched for 'Subscriber Id' & 'Subscriber Name'.

③ If we define price value

Requirement price value - \$ 65665.00

{ ⇒ defect.

but actually it's getting - 65665.00 \$

" Request file data of response file data is not getting matched for 'price' & '\$'"

or

"The currency code is getting displayed as postfix instead of prefix".

④



requirement →  
price - 76767.00



response  
price - 76767

→ Defect

" In response file price value is not getting displayed with decimal values as request file".

or .

" price value is not getting displayed with decimal values".

locking defect.

while locking defect attach both request f  
response file f then send it.

## Repository

Sometimes due to large amount of data, there is load on server. To avoid that, for collecting response file one folder for temporary period is created, that folder is known as repository.

It's just like folder.

How will you know name of response file?

Response file name will be created by adding .RESP at the end of the request file name.

If request file name → .R 4.0-amazon

⇒ response file name → R4.0-amazon.RESP.

If I want to pick this file

Use unix.

→ verify the response file

How will you do validation of response file?

① We know repository name & path of this.

open ↑  
folder                    cd , cd..

② Know the response file name → response file + .RESP.  
open ↑  
file

Cat filename

Display all the data.

- ls find from list.
- grep → used to search particular pattern.

In this way we validate response file.

## Interview ans

What is integration

what is stub

what is topdown approach

Sir basically what happen, After completion of design f coding , developer is going to integrate the module by using call fun? into a master file. That is developer end.

Sir, we are going to test functionality of the system wrt customer requirement .

for this , basically we can implement 3 approaches

- ① Top down
- ② Bottom up
- ③ sandwitch / hybrid .

Before integration we have to start with understanding what exactly upstream dependency of downstream dependencies of the systems .

Once we get these info , we are going to implement the stub . I mean ,

In top down approach we are going to conduct test on main module instead of coming to the submodules . which is under construction in nature or physically not accessible

Sir basically we are going to implement temporary programme which is known as 'stub'. which is also known as 'called programme'.

After this if that person had worked on this, then he will ask about

- ① stub questions.
- ② Unix questions.

Where do you used Unix in your integration test.

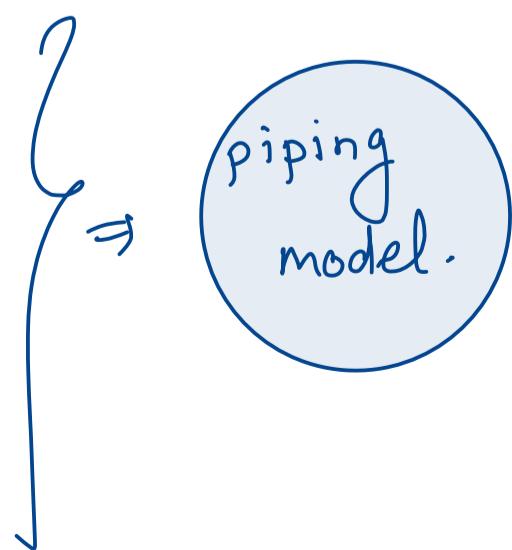
Stub format.

What do you do in integration testing

Q. There are 4 repository  
In that 4 files there is Neha in one of the file.  
in repository. How will I know where is that file?  
(Don't want Unix code, want logic)

→  
System doesn't know, where it is  
But it is somewhere.

- My task
- ① verify 1<sup>st</sup> one → if it is no
  - ② I will verify 2<sup>nd</sup> one → if it is no
  - ③ I will verify 3<sup>rd</sup> one → if it is yes.  
I will stop there.



## Note

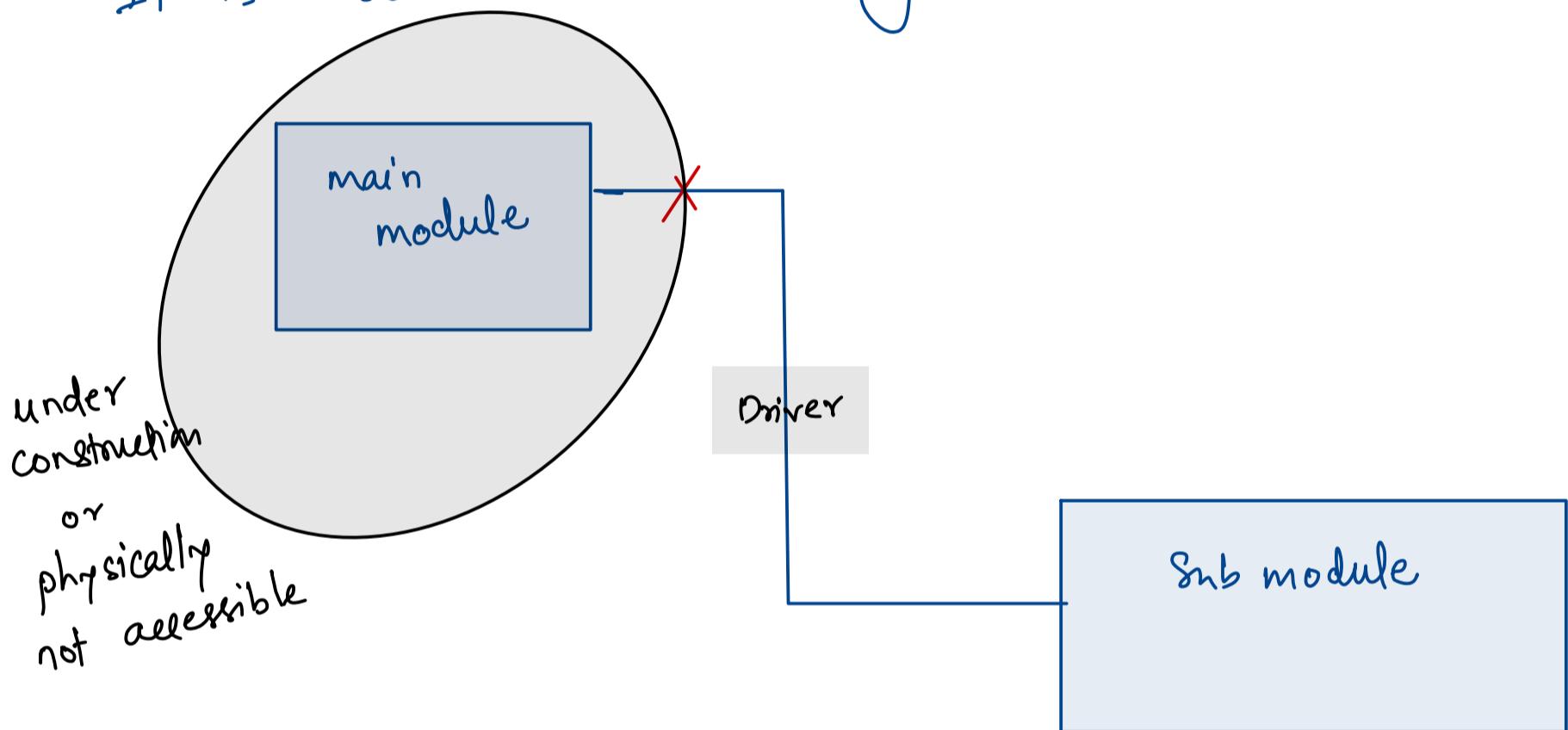
	unix	sql	web services
Search	piping grep	~ Subquery ~ Select	~ assertion.

## Bottom up Approach

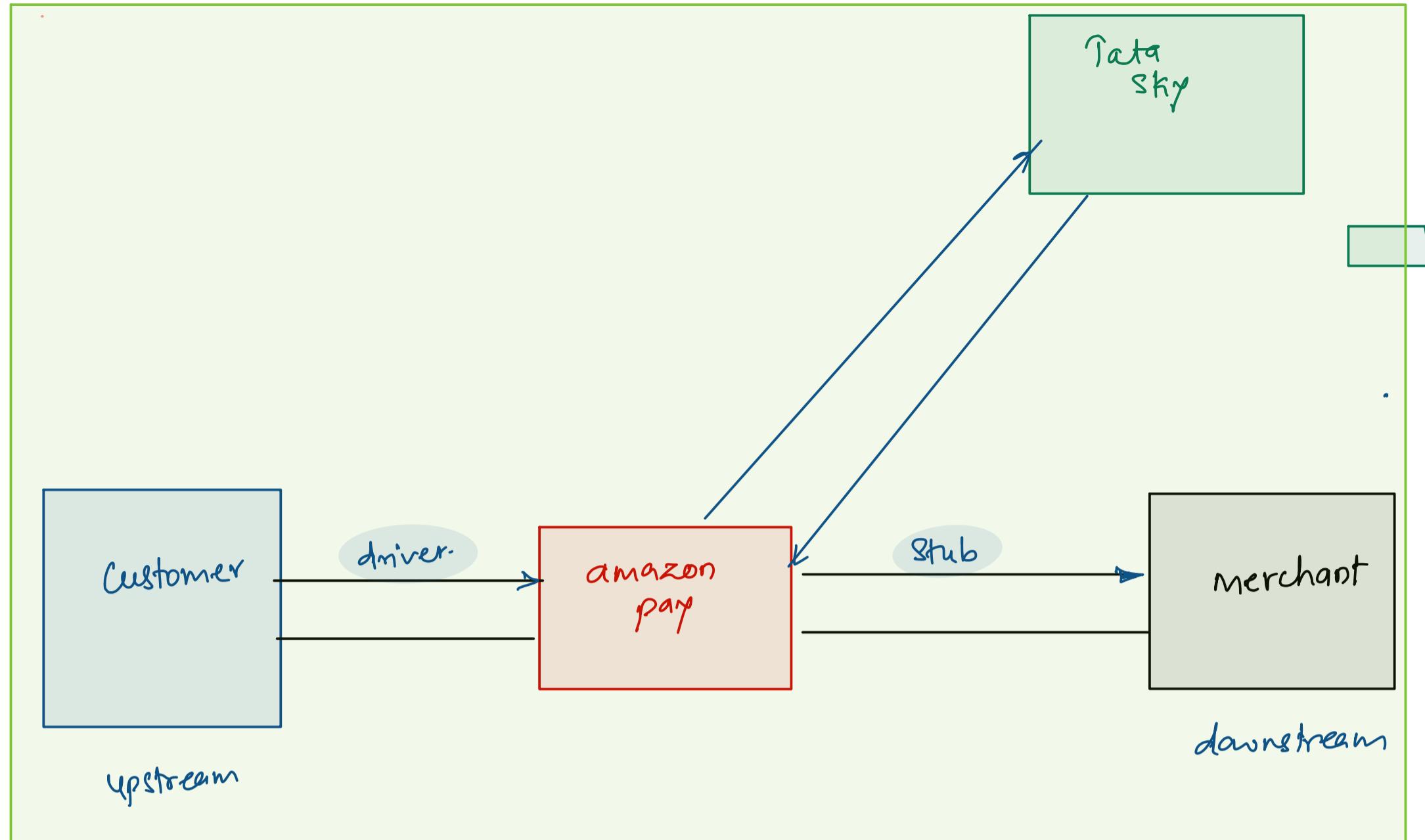
17<sup>th</sup> class

During Bottom up approach,  
we perform test on the submodule or downstream dependencies systems instead of coming into main module or upstream system which is under construction or physically not accessible.

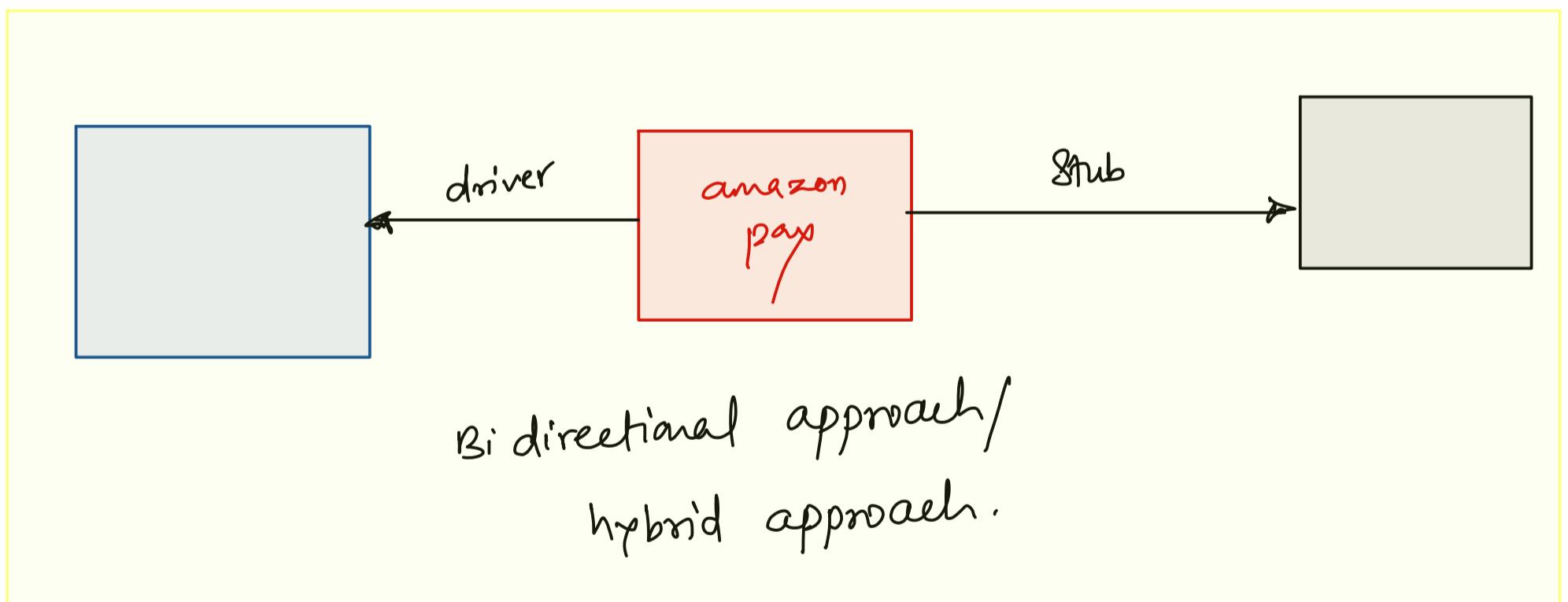
We use one temporary programme called as driver  
It is also known as 'calling programme'.



What is difference bet? stub & Driver?



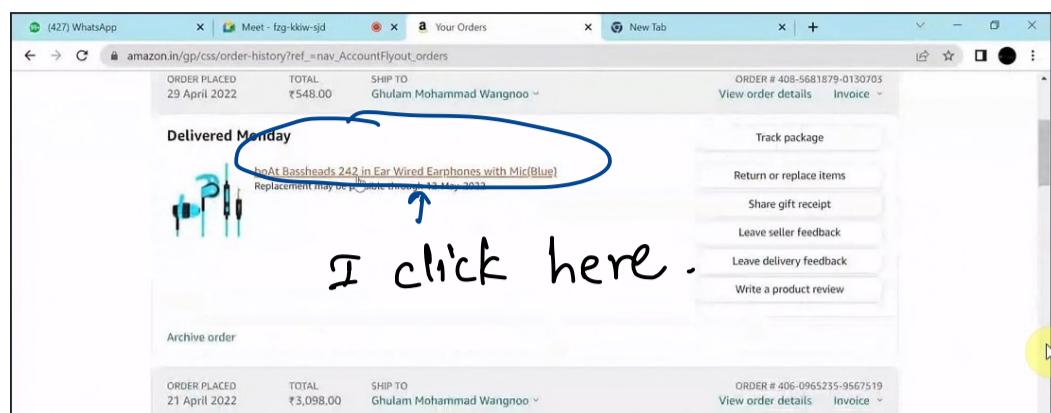
amazon pay - main module for tata sky system.  
 - sub module for customer system.



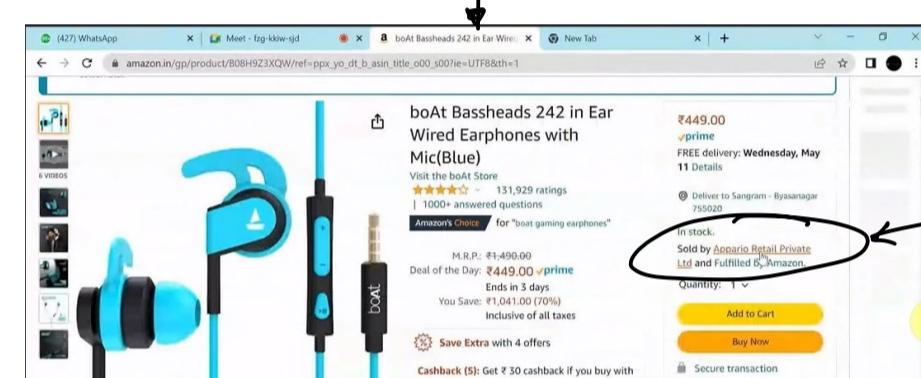
Realtime example

Hyperlink.

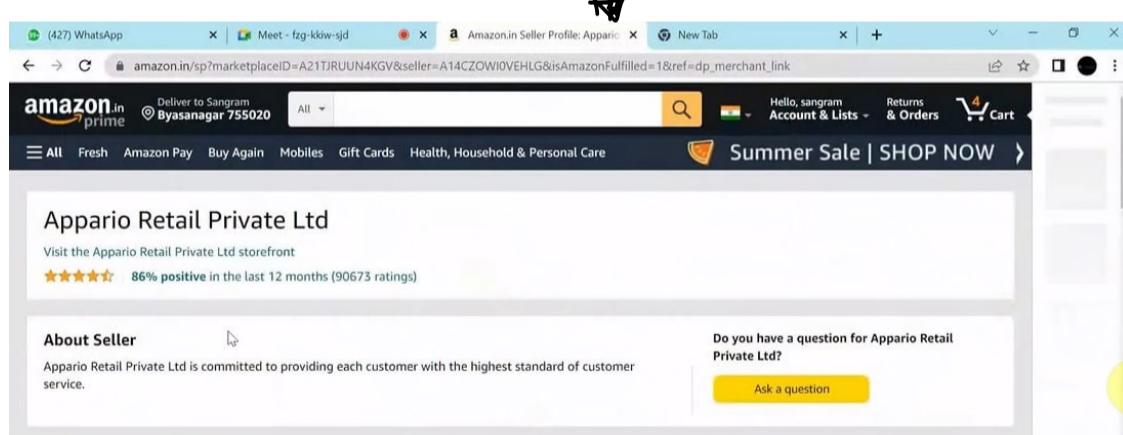
Assume



Yours orders .



product .



product owner .

⇒ Product owner detail is integrated with product detail page of product detail page integrated with orders page

Yours  
orders

product detail  
page  
(main module + submodule)

product owner  
page .

Here product detail page is submodule of yours orders page.

product owner details page is submodule of product details page.

⇒ product details page will work as main module as well as submodule

### Hybrid Approach

Hybrid is a bidirectional approach.

I mean here our module / component work as a upstream as well as downstream system.  
During this approach we use stub / driver to perform test.

Can you please elaborate?

Wherever, we have to test both dependencies  
⇒ we implement hybrid approach.

## Self Join

What is the condition for join?

All columns must have primary key with common name.

Without this can you join? yes/no?

How to join 5 tables?

How to join 4 tables?

Find out the mgr\_id name whose name is —

How to find out 26<sup>th</sup> max salary?

Interview

# System f Functional Test

## ( Black Box Testing Technique )

### What is system f functional testing?

After completion of integration of the code, .exe copies gets generated to form a system, which is called build. (unless f until code is integrated, Build can't be piece of SW which contains some features.)

Once we receive initial build from development team, we concentrate on system f functional test wrt a set of black box testing technique wrt customer requirement.

During this test we focus on functionality of whole system wrt customer requirement.

Black box testing is categorised in 4 types

- ① Usability test
- ② functional test.
- ③ Performance test.
- ④ security Testing

# Usability Testing

During this test we concentrate on user friendliness of screen / build.

It classified into two types.

① GUI graphical user interface

② Manual support test - regular expression.

① GUI - graphical user interface



receiving  
fun. on  
left side

declining  
on right  
side

-: 90% people → right handed.



pick up by thumb.



thumb on left side



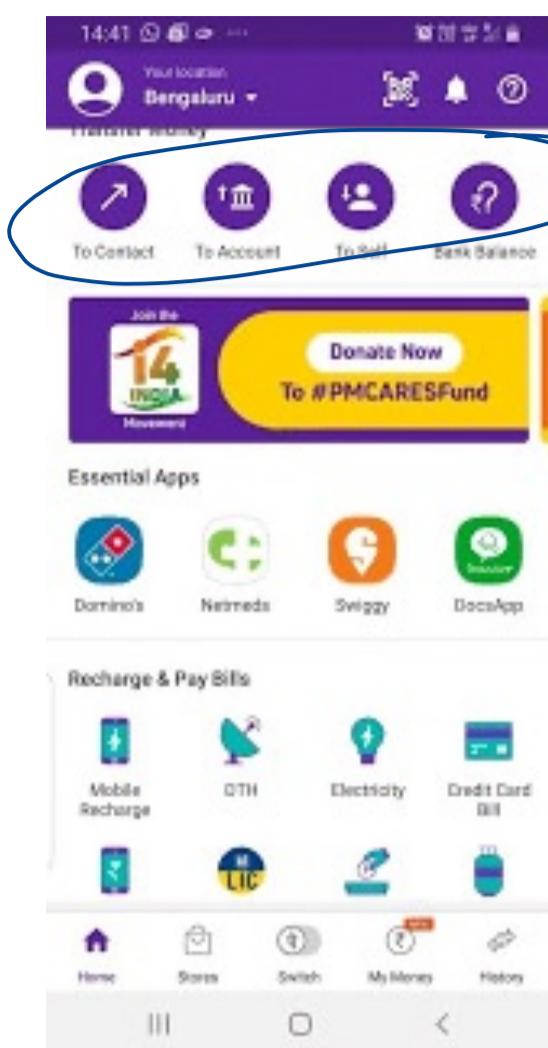
receiving is imp function  
→ emergency.



receive button on left side



green → for Yes.  
Red → No.



to contact → transaction is highest  
⇒ It placed at left side 1<sup>st</sup> place.  
(∴ human behaviour.)

→ Transacting analysed by data science.

↑  
priority decided

↓  
Sequence is decided.

Whenever developer designs the system,  
end user must satisfy with behaviour.  
design → designed by - GUI designer.

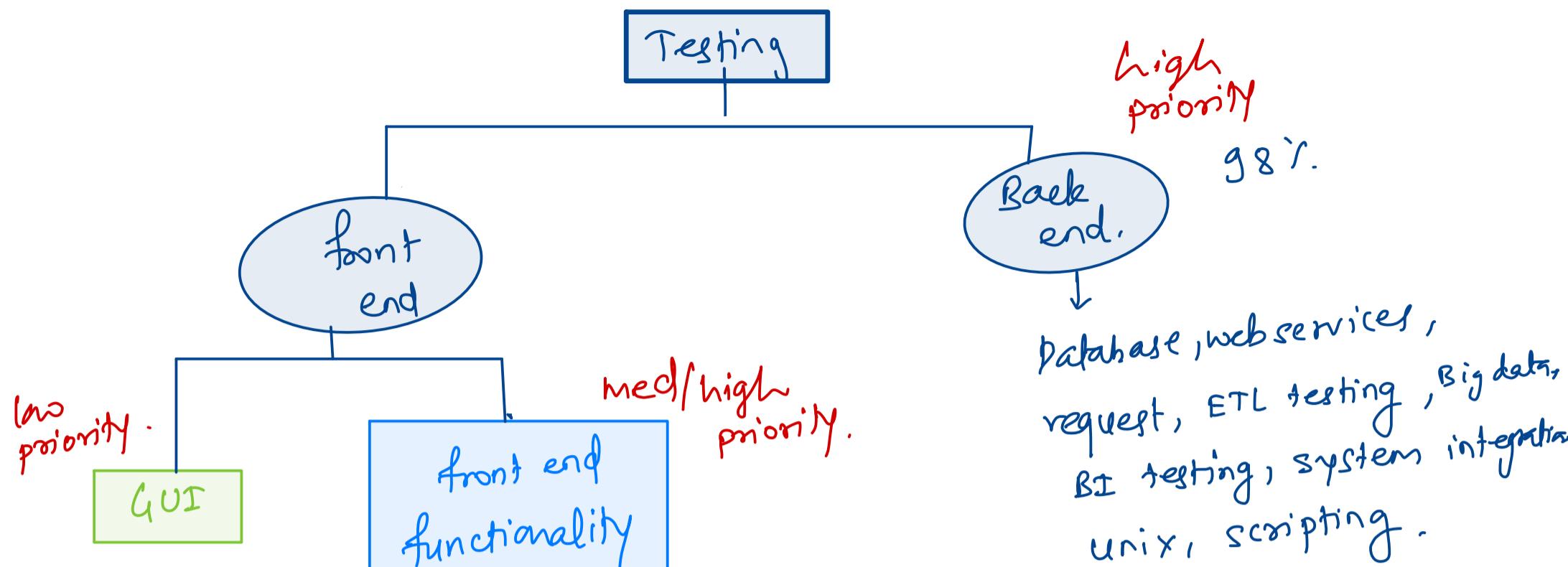
logic behind development

- KISS — technology.

- keep it **simple** my sweetheart.

Simple  
Symmetry

There are different dim<sup>n</sup> of testing



(we have to judge what type  
of issue it is)

Suppose we are doing gui testing.

Requirement: while login w/o any ip  
error msg should be displayed  
in Red color.

Actually : error msg is displaying in black color.

Issue is in front end but  
the reason in the back end.

while testing

- ① gui
- ② front end functionality
- ③ back end .

## Do you have involved in GUI testing?

Can't say No  $\rightarrow$   $\because$  its imp scenario.

Can't say Yes  $\rightarrow$   $\because$  Backend + functional  $\Rightarrow$  3 yrs more than enough.

We get requirement if it comes.

in 3 months simply test gui only.

$\Rightarrow$  Time is less.

so our an should be

We cover it during front end functionality i.e.  
functional testing.

(Don't say if that there was special requirement)

gui

What is GUI?

We can categorised in terms of

- Ease of use i.e. Easy to use
- Ease of operate - I mean - pleasantness of attractiveness.
- Speed of processing:

I mean

less no. of events to complete a task.

whatever  $\downarrow$  end user is operating

less events  $\Rightarrow$  speed ↑.

whenever we are going to perform any event, any function, that should take less no. of events.

⇒ That application will work.

E.g. forwarding msg to 5 people.

approach 1

- ① select msg
- ② choose multiple people
- ③ send.

This appl^n will work.

∴ events are less.

approach 2

- ① select msg
- ② select 1<sup>st</sup> person forward
- ③ msg -  
2<sup>nd</sup> person forward
- ④ :
- ⑤

- While designing always consider layman.

GUI Test case

- ① alignment
- ② font
- ③ size
- ④ error msg.

Where do we get error msg?

- in error msg sheet.
- ask to BA.
- whatever customer's requirement is that same msg should be there.

Note !!

All gui related defects are considered as low priority defects.

You have to justify the priority of the defect

e.g

If country is not showing in list.

⇒ its not front end defect,

Its backend defect

(∴ Data should present in backend.)

## Design

### Who designs the GUI?

- generally client defines
- if clients team is not strong enough then org. takes the control.

### What is Microsoft 6 rule?

- ① Controls are in init cap (word)  
initial letter should be capital
- ② controls should be properly aligned. (objects| words)
- ③ controls should be visible.
- ④ controls should not be overlaped.  
Spaces should be there
- ⑤ ok, cancel existence  
wherever if OK , there must exist cancel.
- ⑥ System menu existence

## gui Defects

- color
- font
- size
- error msg
- Improper date format
- label name.

The screenshot shows a web form for adding a new address on the Amazon.in website. The form includes fields for Country/Region (set to India), Full name, Mobile number, Pincode, and Flat/House no. The 'Full name' field has a red circle around it, and a red annotation with the text 'object name ≠ error msg.' points to it. Below the 'Full name' field, there is an error message: 'Please enter name'. Other fields like 'Mobile number' and 'Pincode' also have associated error messages: 'Please enter a phone number so we can call if there are any issues with delivery.' and 'Please enter a ZIP or postal code.'

What if BA doesn't agree with you regarding this?

You can say I want to talk with client.  
either you change table name or error msg.

Sometimes, BA will say developer is saying this if that?

If you want to close defect then do,  
I won't agree on this

In this situation client will intervene

Say to client that,

"Suppose I am end user,  
what should I understand from this?  
Error msg should be as per table name  
so either change table name or change  
error msg".

## Manual support Test

It is context sensitiveness of user manual.

e.g. regular expression. (Imp Ques. for manual + automation)

Sometimes some appln objects having same logical name with same description.

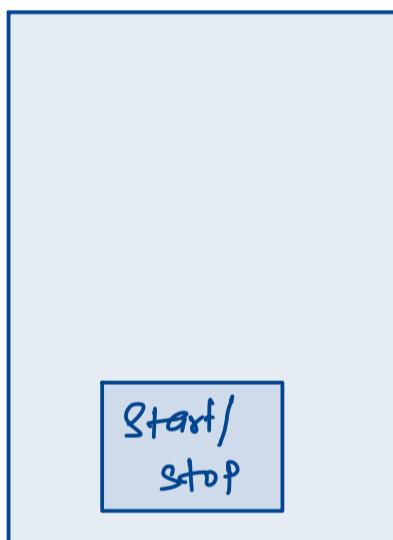
To overcome this situation we use regular expression.

Assume TV mfg unit preparing a remote.

It consists of start & stop button in one click.

Here logical name of event name (i.e start & stop)

is same. Here we can use regular expression.



Assume start & stop.

Stop	[S] [T] [
start	[S] [T] [A-Z]*

[S] [T] → common in both.

after this we will write [A-Z]\*

whatever comes take it accordingly.

⇒ if A comes → start  
      o comes → it will stop.

Interview

## Functional Testing

Q. What is functional testing?

functional test is categorised into

- (a) functionality
- (b) non functionality.

### Functional Testing

functional testing is considered as major part of Black box testing. During this test we validate functionality of the system or application wrt customer requirement.

During functionality test we concentrate on various coverage analysis

#### ① Behavioural coverage.

I mean to check object property.

#### ② Input Domain Testing.

i.e. to check size & type of input objects.

#### ③ Error handling coverage

i.e. preventing negative navigation.

#### ④ Backend coverage

I mean impact of content wrt user operation

#### ⑤ Service level coverage

Sequence of functionality.

#### ⑥ Calculation Based coverage

What is the difference between functionality & nonfunctionality.

functionality

Non functional.

range of operations that can  
be run on application wrt.  
customer requirement.

expectations.

① During this we validate functionality  
of system wrt customer requirement

② Here we concentrate on various  
coverage analysis

- Behavioural coverage
- Input domain coverage
- Error handling coverage
- Backend coverage
- service level coverage
- calculation based coverage.

# ① Behavioural coverage

To check object property.

Note!! In automation you should know abt. object names  
∴ you have to write it in programme

objects

Text box

List box

combo box

Radio button

check box

Button

hyperlink

function

Enter.

Select multiple

Select single

click

click

click

access

If f error in hyperlink then we hv to write like.

e.g. privacy Notice' hyperlink is not accessible.

property :-

focused / unfocused,  
enabled / disabled.

focused / unfocused

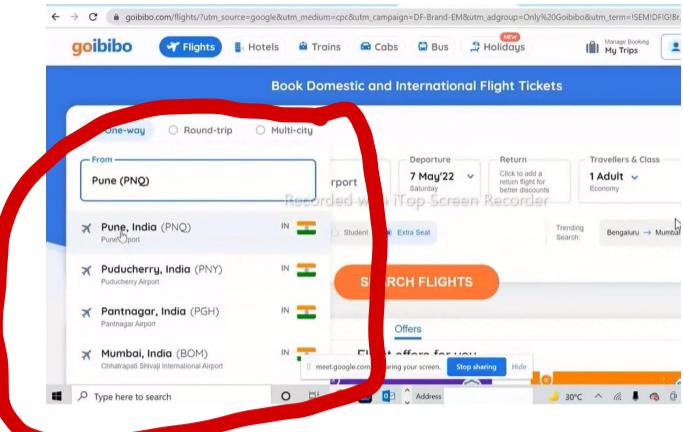
focused / unfocused

on / off.

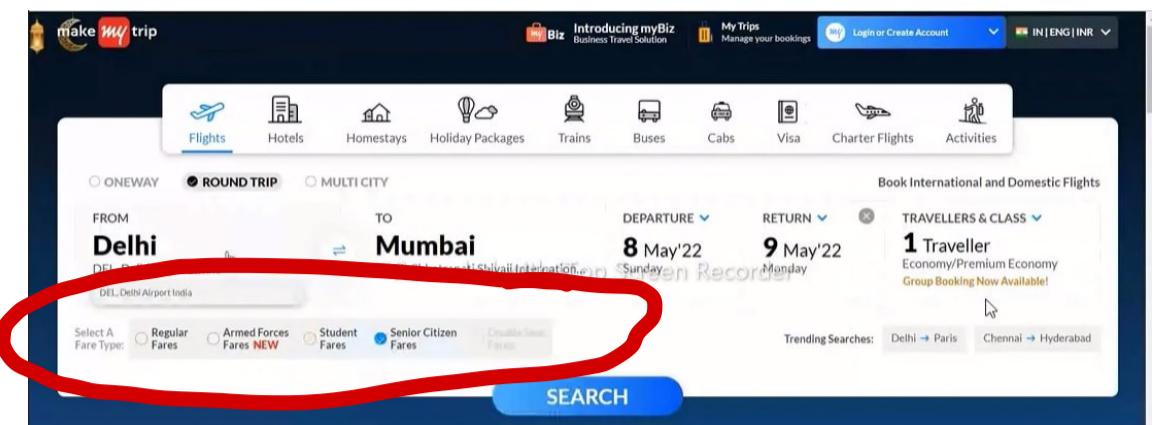
check / uncheck.

focused / unfocused

enabled / disabled.



Combo box



Radio button.

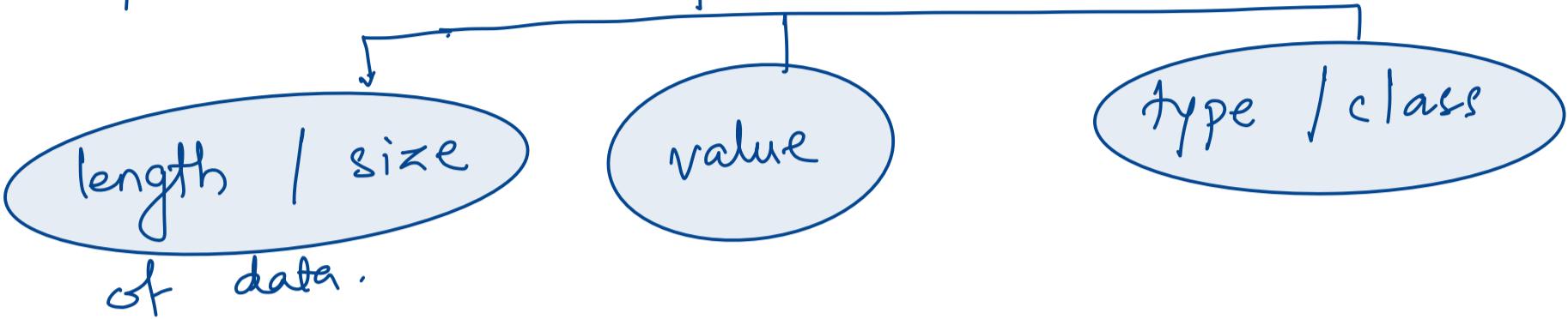


hyperlink.

## ② Input Domain Coverage

- To check the size & type of input objects.
- it is applicable to text box only.

every data has 2 characteristics.



for testing this, we use

BVA

Boundary value analysis.

Why it called as BVA?

It defines to measure the size of length of data

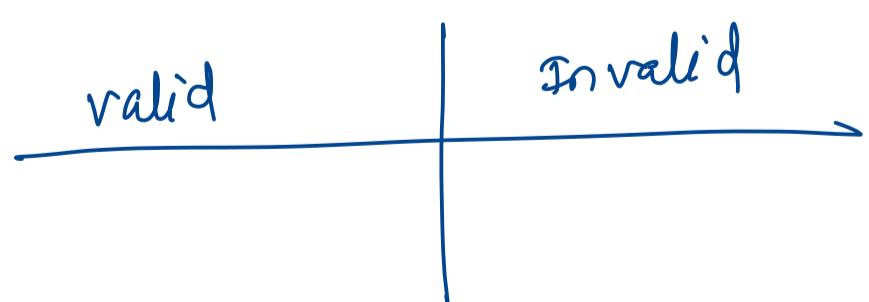
To validate length

min-1 | min | min+1

max-1 | max | max+1

Any datatype  
classified

- ① Numeric
- ② alphabets A-Z upper case
- ③ alphabets a-z lower case
- ④ special char - @#\$
- ⑤ blank.



while execution check  
all cases.

Whenever requirement is like,  
→ Data is numeric by nature.  
⇒ whenever we are going to  
design  
ECP structure will be

	Valid	Invalid
Numeric.		
- alphabets A-Z uppercase		
- alphabets a-z lowercase		
- special chars - @#\$%		
- blank.		

e.g  
requirement : price value is max 4 digit :

Here requirement is talking abt price.  
⇒ we have to take values in the decimal form  
with correction upto 2 decimal digits.

Max value price → 9999.00

Min value price → 00.00

These things should be tested in front end & back end.

## Note

In backend

f only max length.

(No min value).

valid	Invalid
Numeric.	- alphabets A-Z upper case
Special character with.	- alphabets a-z lower case
• position should be 3rd from left.	- special char - @#\$ (%^&)
	- blank.

## Value

frequency should be 1350 nm.

Age must be bet? 18-60 to get insurance.

Customer specifically saying about value of the requirement.

Here

length  
18 → 2

Datatype

numeric

60 → 2

numeric

61 → 2

numeric.



Here even BVA, ECP  
is satisfied  
we have to check  
for values.

e.g

Requirement

Zip code is 6 digit no. but should not start with 0 or 1  
if max value is 8.

⇒ It should start with 2,3,4,5,6,7,8

⇒ min value = 2000

max value = 8999.

Data set automation? → what have you done in it?  
How to find out length of list?

Suppose we have to check length of the data.

Suppose  $l = \text{"Any-Random-String"}$  (Take any variable)

we have to check length of the data.

$\text{print}(\text{len}(l))$  → give us length of 'l'.

— This is declared by developer.

Now we will see from where we get defect?

Here the data is on warehouse.

⇒ length of data = 17.

As customer requirement = 20.

⇒ test passed for 1 data.

But what if I want to check warehouse data.

Suppose

$a = [1, 2, 3, 4, 5]$

I hv. to check length of the list.

$\text{print}(\text{len}(l)) = 5$ . ⇒ warehouse contains 5 candidates.

If developer didn't agree with your defect,  
what will be your approach?

As a tester we must know our defect is valid.  
we have to approach one time, if we have to explain  
with strong reason.

If then also he doesn't agrees,  
In that case, I will approach to the  .  
Explain your justification about defect - one who give requirement.

But then also he doesn't agrees if I know my  
defect is totally valid then I will discuss with client.  
Tell PM that → "I want discuss with client".

Don't go for unnecessary defects.

Select a name from Table .



## Interview question

Assume in a cycle stand 100 cycle can be stored

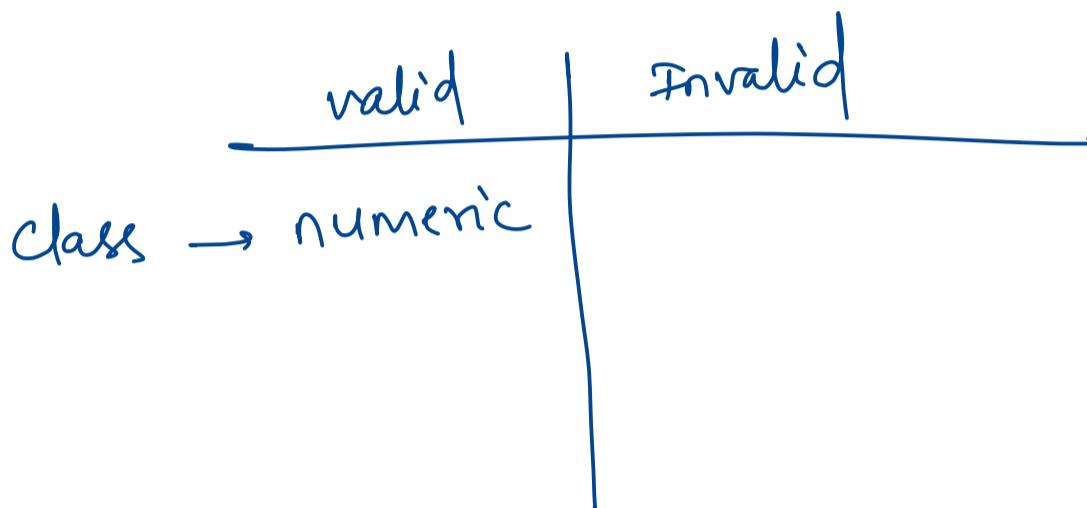
Max.

→ Capacity of cycle stand is → 100

→ Boundary = 100

Min = 1       $\Rightarrow \min(\text{length}) = 1$

Max = 100       $\max(\text{length}) = 3$ .



value → 0 → Accept

100 → Accept

101 → Reject  $\Rightarrow$  Invalid

## Backend

## Automation

Calculate salary bet? 1000 to 100,000 with 10,000 increment.

p = range(1000, 100001, 10000):

for i in p:  
    print(i)

Calculate whose marks above 60% f recharge above 150

Data is classified in two types

① Static

Length of data is constant.

~~e.g.~~

Account no.

Pan card

Aadhar card.

Dynamic -

length of data is variable

~~e.g.~~

name

product name

product info.

$$\Rightarrow \min = \max = n$$

Note

Whether data is static/dynamic is judged by human only.

Can't do it by M/C.

\* Every static data represent primary key.

check

## Interview

What I understand,

we have to analyse nature of the data in terms of static/dynamic.

How can you analyze?

It can be judged by human beings only.

①

Static

Static means → length of the data is constant.

~~e.g.~~

Account no.

pan card

Aadhar card.

$$\Rightarrow \min = \max = \alpha$$

Dynamic -

length of data is variable

~~e.g.~~

name

product name

product info.

## What is surrogate key?

It will be very difficult to pull the data

when there is

- ① combination of static & dynamic data
- ② Data type variance

To resolve these issues we maintain unique version numbering system.

This unique version numbering system implemented with indexing by nature primary key by character is known as surrogate key.

There are two reason behind this,

① In system sometimes data can be combination of static & dynamic

i.e.

Subscriber id - 1234

It is constant by nature

f

Subscriber name - Reliance

But suppose I want to switch from Reliance to Airtel

Service. So I will port from Reliance to Airtel.

In this case my subscriber ID i.e. mob. no. will be constant.

But subscriber name is changed to Airtel.

Here, If we try to fetch data using subscriber name,  
we might face difficulties

② Data variance

If in some system its declared as dollar

f in some system its declared as \$ -

## Error handling Coverage

criticality → low | medium.

who gives msg - BA

If we test positively → we will get confirmation msg.  
negatively → we will get error msg.

⇒ application must stop user so that,  
user can't move ahead.

Interview

What is Error Handling coverage?

Preventing user during negative navigation  
is known as Error handling coverage.

It is low/medium critical defect.

Who gives these messages for errors?

Should take from 'BA' as per customer requirement

## Backend coverage → :

i.e. Database testing.

Impact of front end on backend wrt user operations is known as Backend coverage or Database testing.

### What do you do in Database Testing?

#### 1. Data mapping

e.g

- If status in front end is shipped then in backend also it must show as shipped.

#### ② ACID properties validation

Atomicity, Consistency, Isolation, Durability.

#### ③ Data Integrity

Accuracy, completeness & quality of data maintained over period of time & across formats.

#### ④ Schema validation

— object relation mapping in backend.

#### ⑤ Data manipulation

— Sometimes we use complex query to manipulate/analyze data.

#### ⑥ Table structure validation

object	length	Datatype	nullable	constraint	mandatory
cell	10	int	No	PK	yes.

#### ⑦ Performance

## Note

We can't automate backend.

All defects in the backend is critical defect.

Where were you involved in backend?

Sir, Generally we involved in database testing.

In database testing we check impact of front end  
on backend wrt user operations.

I mean, here we consider various parameters

like

① Data mapping

② ACID properties

③ Data integrity

④ Schema validation

⑤ Data manipulation

⑥ Table structure validation

I mean, we have to understand nature of the data

in terms of static & dynamic

i.e. length, Data length, mandatory, Null, constraint

⑦ Performance.

If datatype is wrongly defined, obviously  
application will have performance issue.

## **Atomicity**

All changes to data are performed as if they are a single operation. That is, all the changes are performed, or none of them are.

For example, in an application that transfers funds from one account to another, the atomicity property ensures that, if a debit is made successfully from one account, the corresponding credit is made to the other account.

## **Consistency**

Data is in a consistent state when a transaction starts and when it ends.

For example, in an application that transfers funds from one account to another, the consistency property ensures that the total value of funds in both the accounts is the same at the start and end of each transaction.

## **Isolation**

The intermediate state of a transaction is invisible to other transactions. As a result, transactions that run concurrently appear to be serialized.

For example, in an application that transfers funds from one account to another, the isolation property ensures that another transaction sees the transferred funds in one account or the other, but not in both, nor in neither.

## **Durability**

After a transaction successfully completes, changes to data persist and are not undone, even in the event of a system failure.

For example, in an application that transfers funds from one account to another, the durability property ensures that the changes made to each account will not be reversed.

What is char?

What is varchar?

What is difference bet. char & varchar?

What is difference bet. varchar & varchar2?

What if we use varchar2 instead of varchar?

performance issue.

varchar → length 10.

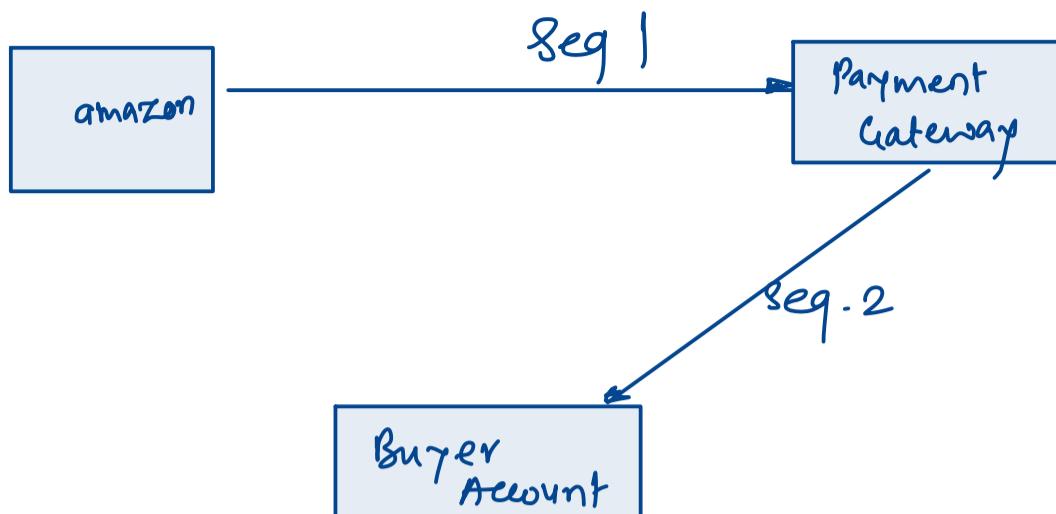
engine works

① length of data. →  $x$ .

What if we use varchar instead of char.

## Service level coverage (Sequence of functionality)

e.g



Seq. no.

- ① Amazon will send request to payment gateway.
- ② Payment gateway will generate request to buyer account.

Interview

Every functionality should be in proper sequence  
(Just like entry & Exit criteria).

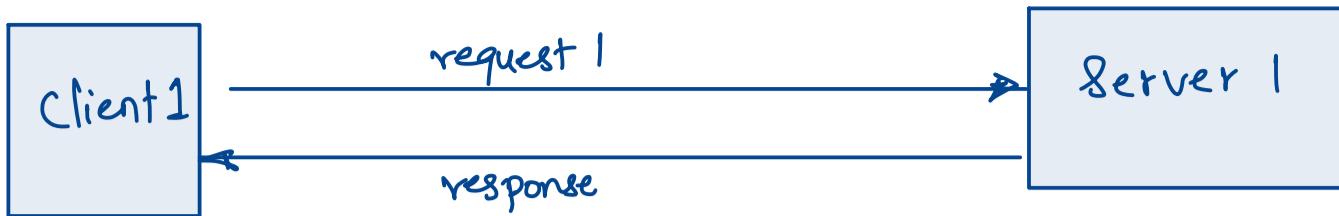
Suppose

we are not getting any request at sequence 2.

⇒ This is defect.

But here we have to check precondition also.

i.e. Request from amazon must be generated.  
payment gateway should send response back to the  
amazon that it gets request.



### Request 1

- ① client 1 requests to Server 1.  
 (Here we get this copy of we have to test this).
- ② Server 1 must generate response to client 1.

After this

System will generate next

### Request 2

- ③ Server 1 will send request to Server 2.

This is order of functionality.

In this way we have to test at backend.

How to test sequence of functionality at front end?

### Requirement

To test user ID & Password.

System sequence is

- ① User ID
- ② password.

If both are correct

⇒ message will display for success operation.  
 logged in page + will be displayed.

If user ID  
password

wrong

- ⇒ failed message will displayed.
- ⇒ logged in page won't be displayed.

Suppose

Its getting logged in  
if After this we are getting failed login error message.  
⇒ Defect -

Q6 Calculation based coverage

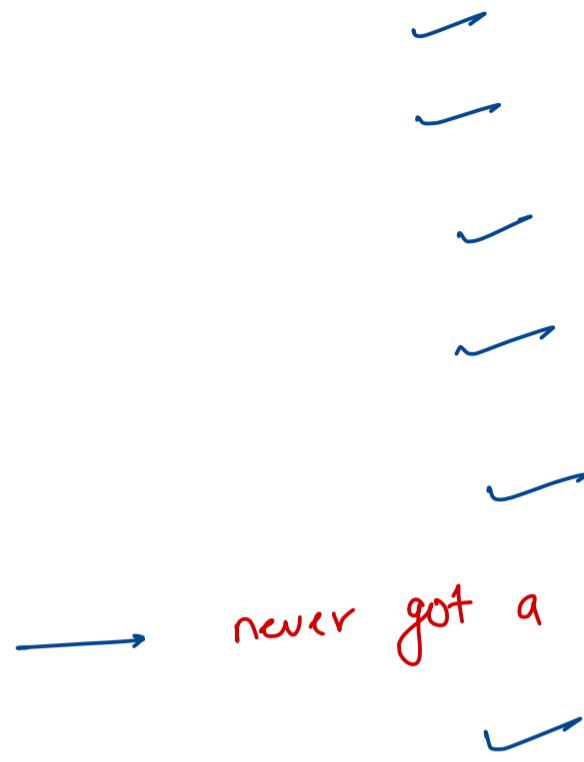
Where do you use calculation based validation?

In Rating f charging system in telecom.

# Non functional Testing

your Involvement

- ① Recovery test
- ② compatibility Test
- ③ Configuration Test
- ④ Intersystem Test
- ⑤ Installation Test
- ⑥ Parallel Test
- ⑦ Sanitation Test.



never got a chance. (This is used for product  
not for appln)

## Recovery test

Also called as Reliability test.

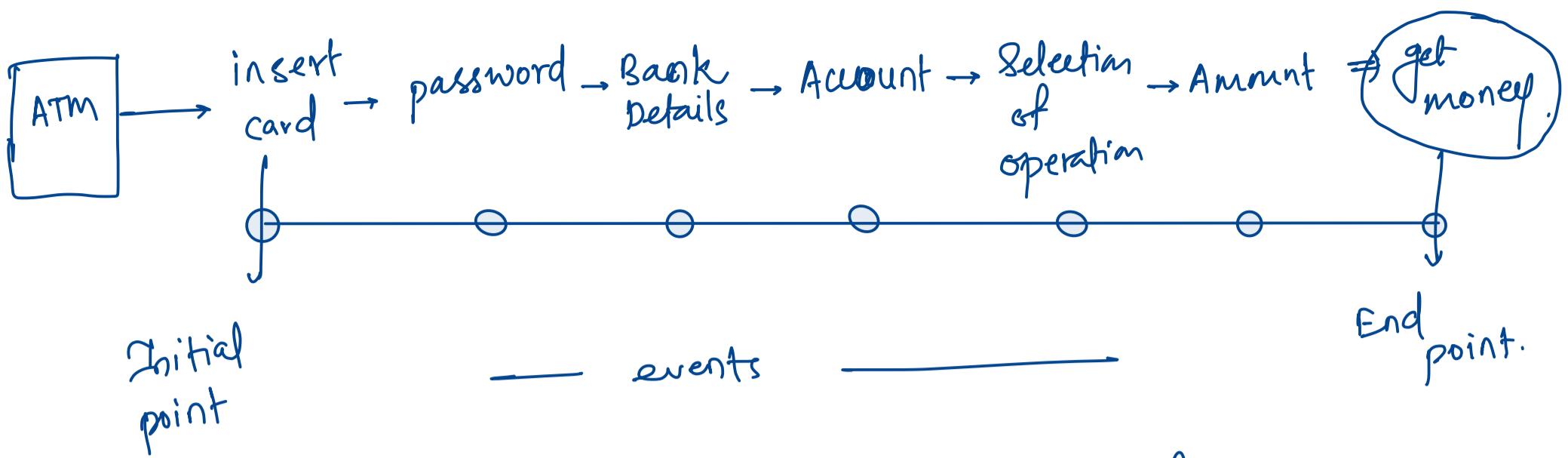
During this test we validate the recovery of our application from abnormal situation to normal situation

What is abnormal situation?

Abnormal situation means

- Server down,
- system crash,
- performance issue

During abnormal situation we need to stick to execute  
In normal situation we need not to execute



In this every event there is transaction of request & response.

Suppose there is an abnormal behaviour after entering amount | any in between event.

⇒ Last event won't execute.

⇒ As event started ⇒ money deducted

but there is an issue while server giving response

⇒ Appl. has Roll back mechanism.

# Recovery Testing Project

This project is purely based on artificial intelligence

What I understand

Suppose we have  
Function - withdraw money

Generally every function consists multiple events.

Assume start event and end event, in between any abnormal situation occur system should have tendency to follow roll back mechanism.

Where do you involved?

Actually the project was purely based on artificial intelligence mechanism.

## Requirement

My project requirement was, there were two systems which shares common database.

As we know,

System accepts only one request at a time

But,

There will be thousands of request will process in a min.

How is this possible?

We can deal with such situation with help

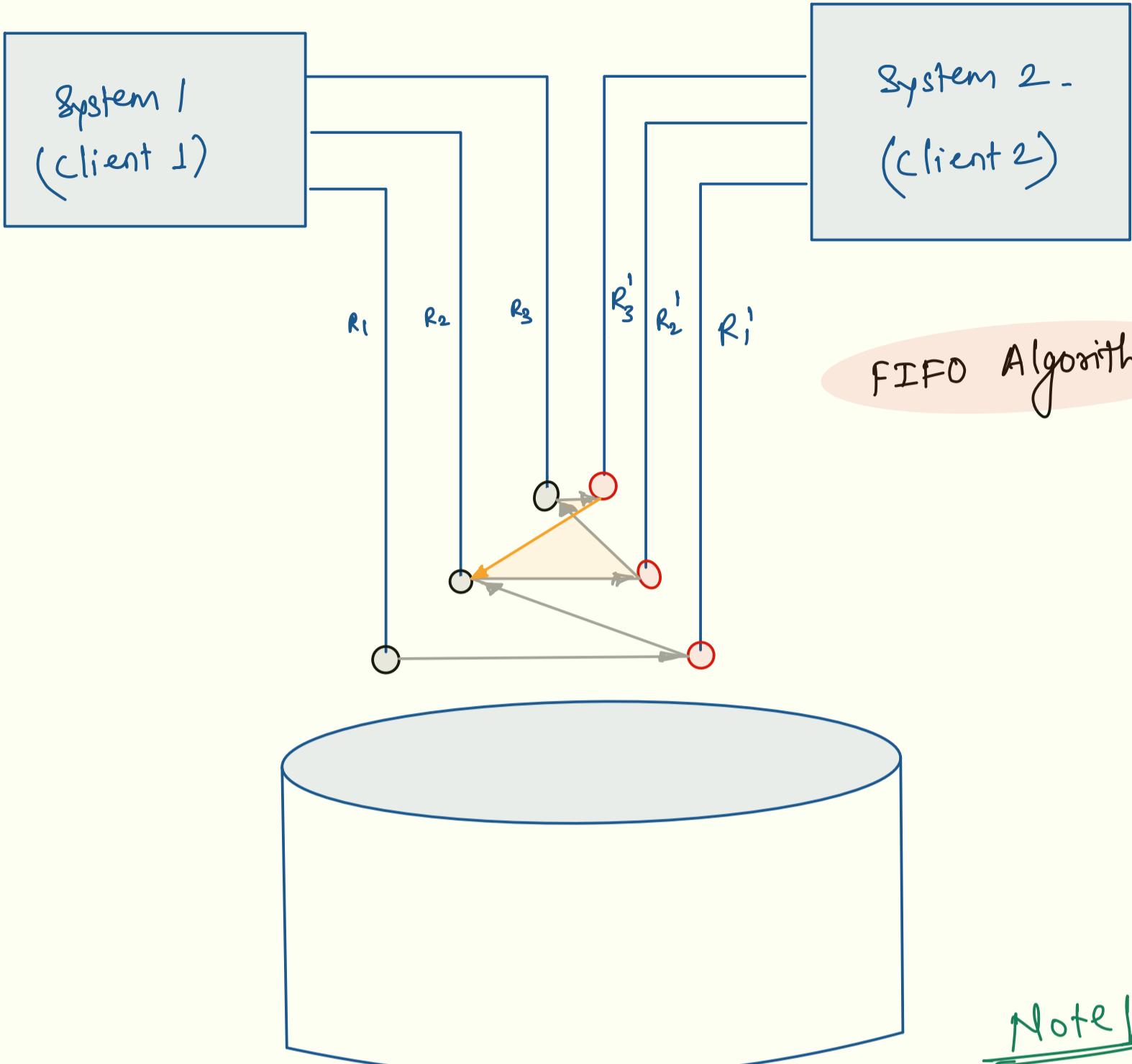
& A.I.

When two systems shares common database

When more than 80% functionality is similar.

- e.g credit card, debit card.
- SIM postpaid, prepaid.

⇒ A.I.



Note !!  
Its just like  
phonepe payment.

⇒ If didn't get request  
in specific time  
⇒ process terminated.

Requirement  
① Each request takes 5 min to execute

② After processing client 1 - Request 1,  
client 2 - Request 1 will process.

After that client 1 - Request 2 will process.

⇒ Sequence of operation  
 $c_1 R_1 \rightarrow c_2 R'_1 \rightarrow c_1 R_2$ .

How you tested this?

Here we can't test by tester alone.

Two developers f one tester combinly sit at one place.

### Conditions

To write scenarios

1st we will write positive scenarios.

①  $C_1R_1 \rightarrow$  should take 5 min.  $\Rightarrow$  It will pass.  
(where  $C_1R_1 \rightarrow$  client 1 Request 1).

②  $C_1R_1$  taking greater than 5 min to process.

$$C_1R_1 > 5$$

$\Rightarrow$  process must be terminated.

③ If  $C_1R_1$  taking less than 5 min to process.  
 $C_1R_1 < 5$ .

$\Rightarrow$  It should process successfully.

### Scenarios

- ①  $C_1R_1 = 5$  min
- ②  $C_1R_1 > 5$  min
- ③  $C_1R_1 < 5$  min.

Same conditions would be applied to client 2 also

- ∴ (4)  $C_2 R'_1 = 5 \text{ min}$   
(5)  $C_2 R'_1 > 5 \text{ min}$   
(6)  $C_2 R'_1 < 5 \text{ min.}$

Now we will see for requirement 2

② After processing client 1 - Request 1,  
client 2 - Request 1 will process.

After that client 1 - Request 2 will process.

⇒ Sequence of operation  
 $C_1 R_1 \rightarrow C_2 R'_1 \rightarrow C_1 R_2 .$

### Scenarios

⑦  $C_1 R_1 \rightarrow$  successful

⑧  $C_1 R_1 \rightarrow C_2 R'_1 \rightarrow$  successful

⑨ If  $C_1 R_2$  &  $C_2 R'_1$  comes exactly at same timestamp.

But if we saw logic  
⇒  $C_1 R'_1$  will get priority over  $C_1 R_2 .$

(-: FIFO Algorithm).

$$\Rightarrow C_1 R_2 = C_2 R'_1$$

$$⑩ C_1 R_2 = C_2 R_3^1$$

Where is the recovery going on?

Where is the abnormal situation?

If server took more than 5 min.,  
that request would get terminated.

$$\therefore \begin{aligned} C_1 R_1 &= 5 \text{ min} \\ C_1 R_1 &< 5 \text{ min} \\ C_1 R_1 &> 5 \text{ min} \end{aligned} \quad \left. \begin{array}{l} \text{normal cond.} \\ \text{abnormal cond.} \end{array} \right\}$$

Note! we can say AI programme FIFO, Recovery Testing.

Q. What are the critical requirement in your career?  
challenging area in your project?  
Tricky requirement you faced so far?

Q. What is recovery testing?

Q. Where did you used recovery testing in your project?

Q. Where did you use AI programme?

Q. Where did you done AI functional testing?

Q. Where did you done AI recovery testing?

~~Interview~~

Sir, what happened,

Recently we got one requirement that two systems shares common database.

Why common database?

If 80% features are same, this situation occurs.

Sir, what was the requirement,

Actually request 1 of client 1 will send

the request to server 1. It will take 5 min.

After client 1 request 1, client 2 request 1 will get processed.

Sir in this what happened, we implemented Artificial intelligence programme with use of FIFO algorithm.

What is FIFO?

first in first out.

In this the logic is, at a time 1000 requests from client 1 can be in queue of client 2. 1000 requests can be from client 2.

In that case basically we are going to use various conditions to test these one.

Generally we use recovery testing to solve such kind of issues.

## Compatibility

There are 3

types of compatibility:

① Software compatibility

② Hardware compatibility

③ Language compatibility

Compatibility

configuration  
(imp for  
Telecom)

globalisation

→ English

Internationalisation → Russian,  
Japanese

Localisation

- within  
country

Compatibility Test.

We can call it as Portability Test.

During this test, we check whether our appl. supports  
with customer expected platforms or not.

What do you mean by customer expected platforms?

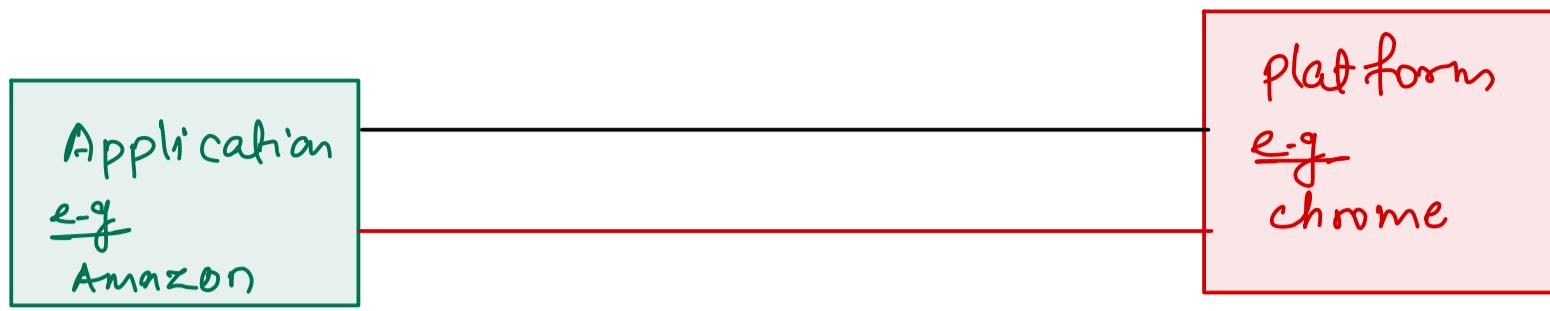
The environment / platform with which the customer  
wants to run that software  
i.e. Unix, mongoDB, cloud, chrome etc.  
is known as customer expected platform.

There are two types of compatibility.

① forward

② backward.

## forward compatibility



Application is working but platform on which that application has to work is not working.

When if error is application but platform on which that application has to work is working fine is known as Backword compatibility.

generally we find backword compatibility defects as maximum.

Where do you involved?

I have involved in cloud environment compatibility.  
which also known as data migration.

(Suppose our system is already based on oracle.  
Now its migrated to google big query i.e. cloud warehouse



Here we are migrating data from one place to another.

Compatibility

Here we check the codes in source & target are running smoothly or not.

Note!!

use **Data migration** word either of following cases

① What is ETL?

I have involved in data migration.

After loading data we do map

② compatability Test

I have involved in Browser compatibility.

What is browser?

with which we browse things.

e.g Internet Explorer, chrome, Safari etc

classified into two types.

1. Cross browsing compatibility →

It should run in different respective browsers

i.e chrome, edge, mozilla

2. Version comparison

Here we check compatibility with different versions of same browser.

e.g

IE 9, IE 10, IE 11.

Q. How will you test version comparison?

(As you can't install two different versions on same system then How will you do version comparison testing?)

→ There is one software called VM wire  
(Virtual machine wire)

⇒ We are using VM wire software for  
version comparison.

Q. Where you have involved in ?

Requirement

requirement - cross browsing compatibility.

" sir, Recently we got one requirement for cross browsing compatibility "

duration - 3 month.

Here we tested for different browsers like chrome, IE, mozilla, safari.

Why?

generally Americans prefer → IE.

France prefer → mozilla firefox.

Canada prefer → Safari.

India prefer → All

This data  
analysed with  
help of  
ml.

⇒ Depends on country we have to check what end user used to prefer.

Requirement

" Our client wants to deploy the product in Southern Canada & that's why the requirement was Mozilla firefox, chrome, IE & Safari."

Have you done it alone?

No sir,

for one browser, we had one candidate

If its not done, what will be the impact on business?

If its not compatible with that particular platform / system we will loose those customers which belongs to that platform / system.

Q. How to test?

If we are testing any application on IE & chrome then each of every function of that application should run on both browsers. We have to test.

While doing cross compatibility testing, have you involved in backend?

No sir,

This testing is only applicable for front end validation. Backend testing of this is not possible.

## Testing Each of everything

e.g chrome -

- ① Tested functionalities of that application

- i.e hyperlink for order.

Now go to internet explorer

go to the same page.

f Test all the functionalities which we have tested earlier on the chrome.

If f some variation

⇒ Catch it

⇒ lock the defect.

While locking defect we have to represent that defect correctly so that issue of defect should get correctly even for layman after seeing that representation / visualisation.

Q. What do you test here?

During cross browser compatibility we focus

① hyperlink accessibility.

Each of every hyperlink must work.

② page navigation

Each of every page must navigate to the correct page.

③ Tab validation

④ Performance.

Time taken by each page on each browser should be same

⑤ Cookies.

⑥ Interface validation.

We can also call it as usability test.

⑦ Session.

Configuration Test → (Telecom <sup>anr</sup> OSS project)

for Telecom domain →  
our involvement is must.

During configuration test we concentrate on whether our application supported various types of hardware devices or not.

It is also known as Hardware compatibility test.

e.g

LAN → Local area network

WAN - Wide area Network

MAN - Metro Area Network

FTTH - Reliance Gigafibre technology (Fibre to Home).  
(This would be on our resume).

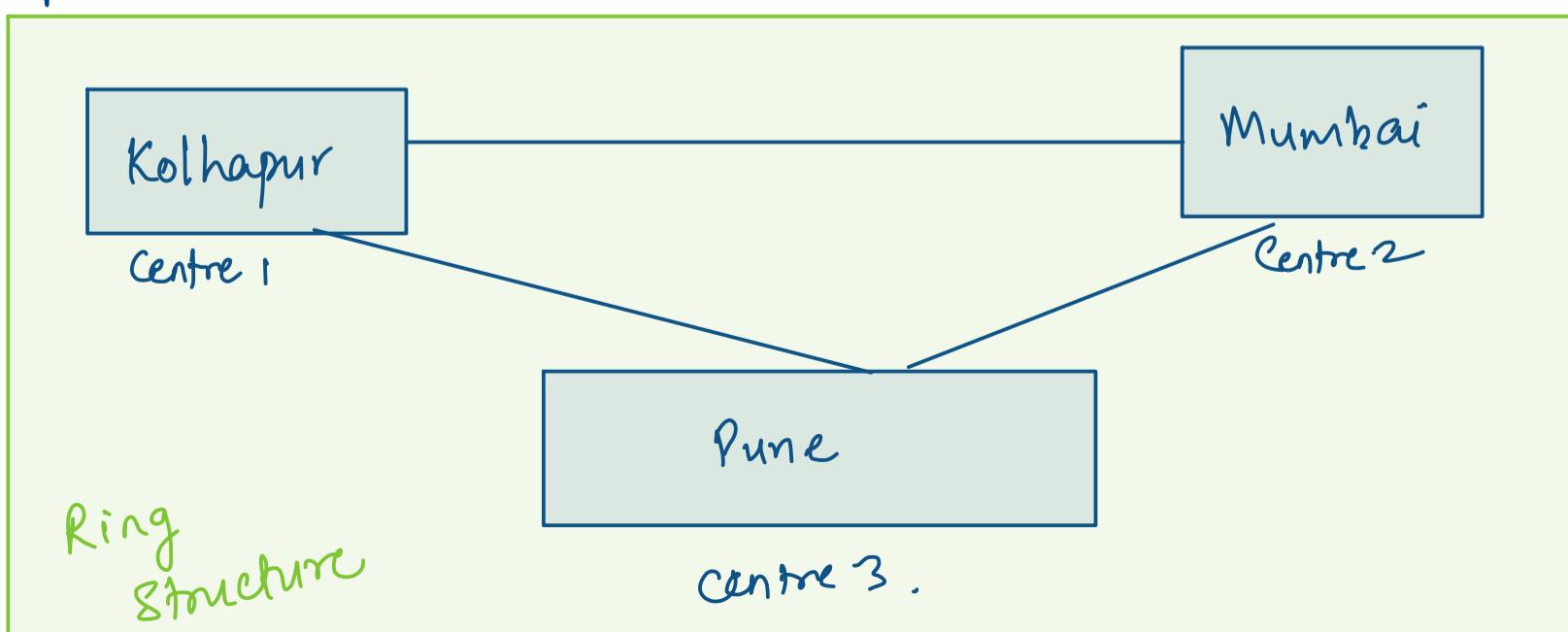
VLAN

5G

4G

Topologies

Depends on geographical structure, which architecture is implemented



## Different topologies

- ✓ standalone ,
- Ring
- mesh
- ✓ star.

we can call  
it as framework



This depends on  
geographic structure

There are two types of telecom related projects

- ① Network related project (OSS)
- ② Billing related project (BSS)

Our complete OSS project is based on  
configuration test.

OSS → operation support system  
(most complex architecture).

BSS - Business support system.

Ericsson, Amdocs, Tech M,

## Intersystem Testing

(Most imp)



While working, f communication bet? two systems.

Whenever 2 systems integrated

Suppose →  
if customer wants to transfer money to merchant  
amount.

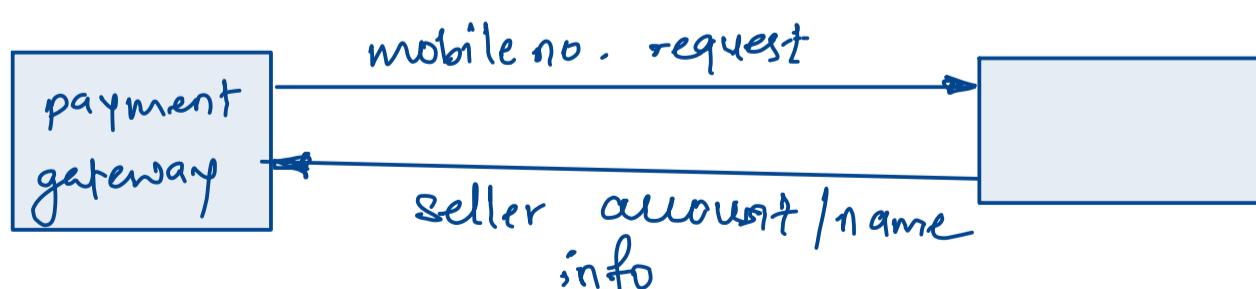
- ① 1st we enter mobile no.
- ② get name of the merchant & we verify it.

Here After entering mobile no.

payment gateway sends request to seller account.

request → Mobile no.

response from server → seller info of whose that  
mobile no. belongs.



⇒ It's confirmed that  
our money is going to right person.

⇒ This is system integration

Now suppose,  
we are entering amount .800/-.



- ① It will send request to Buyer account to confirm whether there is availability of 800/- or not.

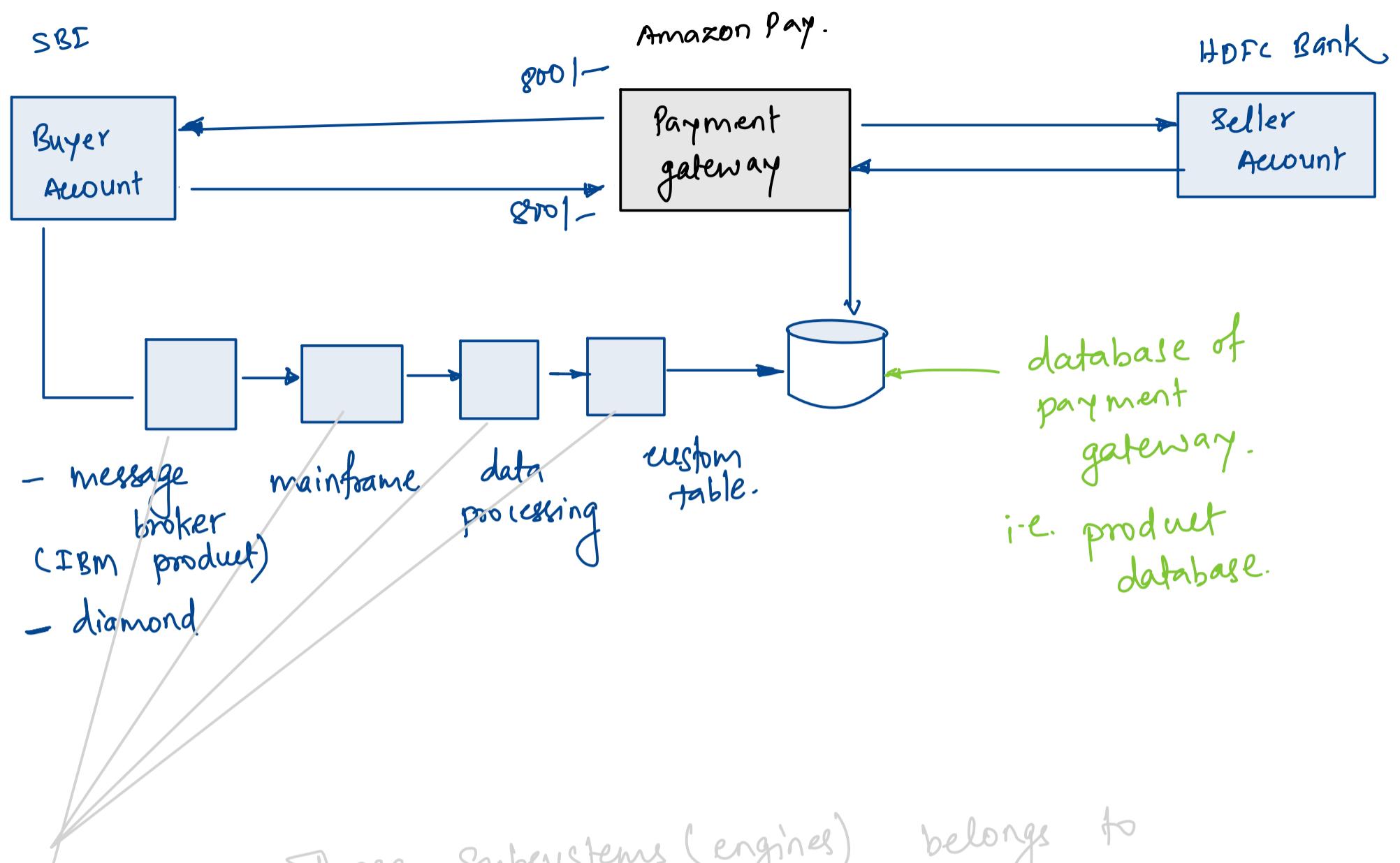
⇒ There will be following possible scenarios.

- ① Available amount  $> 800\text{/-}$   $\Rightarrow$  Transaction will proceed.
- ② Available amount  $= 800\text{/-}$
- ③ Available amount  $< 800\text{/-}$ ,  $\Rightarrow$  Transaction will be declined.

while doing this transaction,

Its not straightforward communication

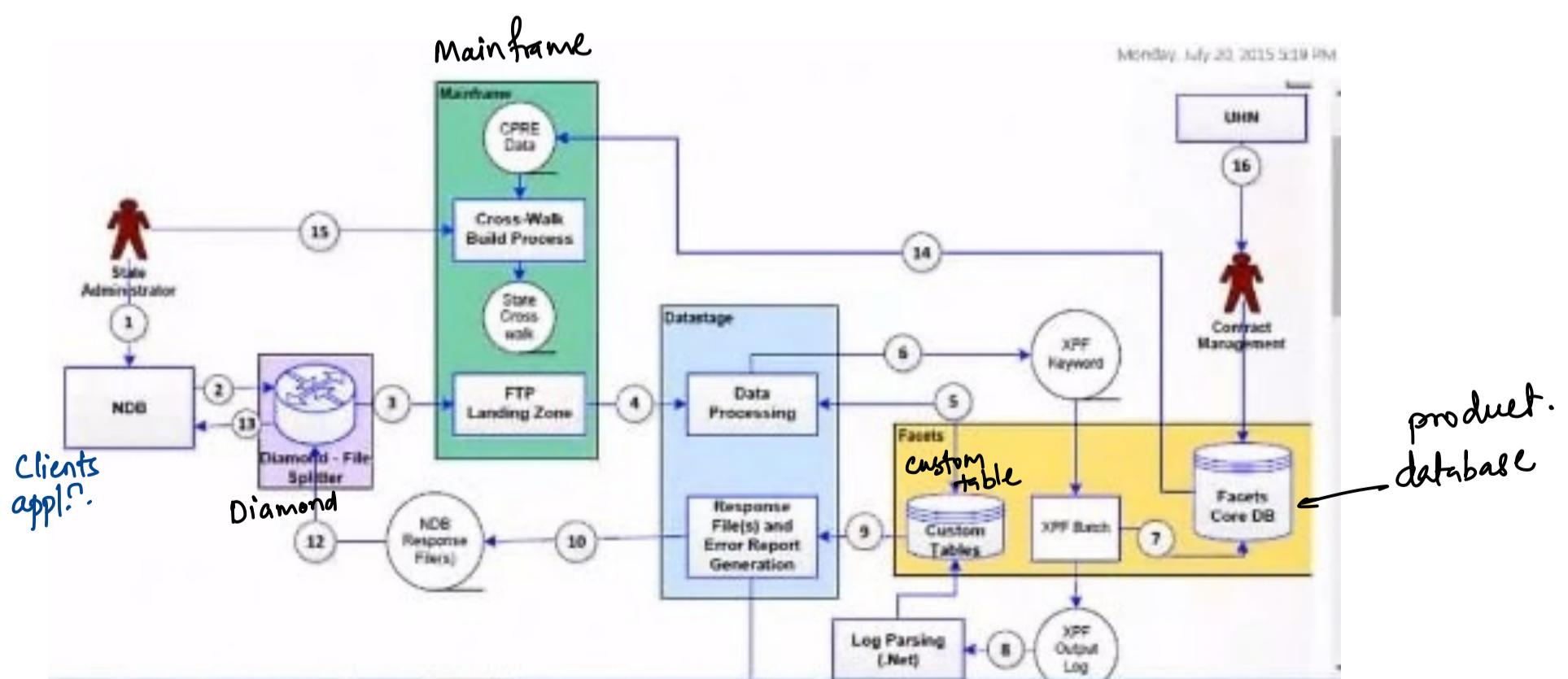
If different subsystems for this communication



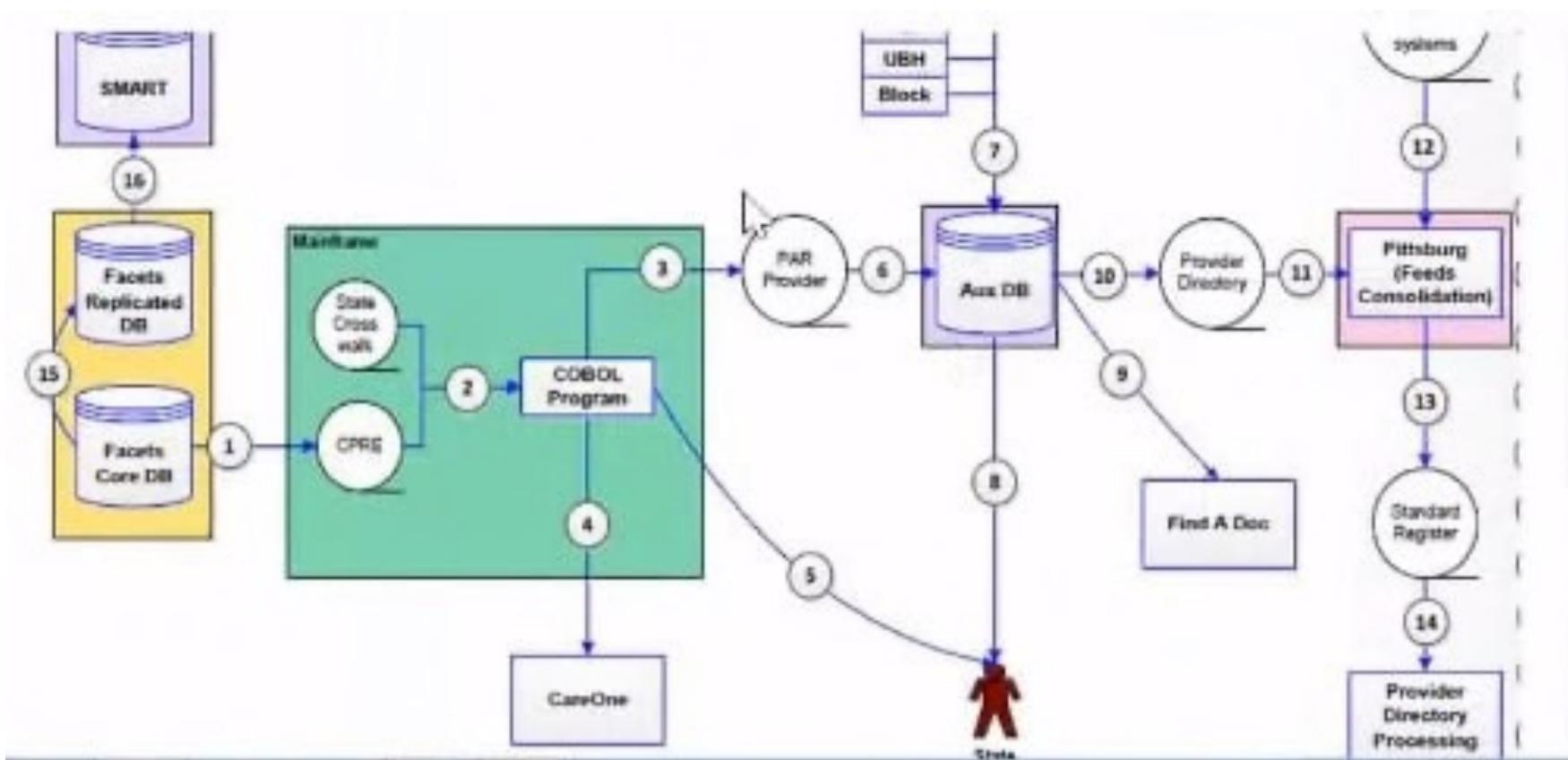
*Engines → These subsystems (engines) belongs to different companies.*

*→ Data is processed thr. these engines.*

*while testing, we have to test all subsystems individually.*



*Inbound project .*



out bound project.

Sir, Basically my project these are the systems.

Data moves from message broker to mainframes to data processing to custom table then data get uploaded in product database.

While testing

price is defined in system as 800.00

⇒ length = 6.  
Datatype → float. {

This logic should be applied to the data base also.

While testing we have to test this logic

length	Datatype	mandatory	nullable
6	float.	yes	no

This above logic must be implemented / tested  
in each of every system

⇒ Then often data will move.

What you are testing here ?

In between two systems,  
what are the associated subsystems

To share the info / resources.

Interview

Q. What is intersystem testing ?

During this test we validate co-existence of our application  
along with other existing software / system / app1? to share  
the info / resources along with other associated subsystems.

During this test we implement file handling  
mechanism.

What is file handling ?

Generally during file handling mechanism we  
implement data intelligence approach.

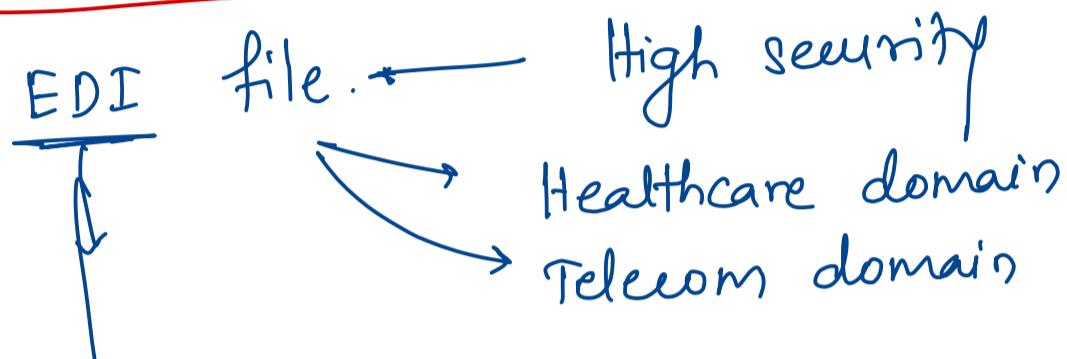
What are the types of files?

flat file, excel, csv, json,

What file contains?

Data in line format.

Which file is most powerful?



EDI stands for Electronic Data Interchange.

Why use EDI?

Advantage?

- Highly secure
- low cost

```
EDIFILE.txt - Notepad
File Edit Format View Help

ISA*00* *00* *30*94071A513      *01*940315113      *101207*104754*U*00401*0
GS*HP*940360524      *940760193*20101207*1047*290*X*004010X091A1
ST*835*000000016      BPR*I*300000*C*ACH*****20080111
TRN*1*430205008*198746313188      DTM*405GGGGGGGGGGGGGGGGGGHHH .TTT*201
N1*PR*CCH Payer
N3*PO Box 272569866666
N4*Chico      *CA*959272560
N1*PE*COMMUNITY HOSPITAL OF THE*XX*3456728280
N3*MONTEREY PENINSULA*P O BOX 39000 DEPT 33290
N4*SAN FRANCISCO*CA*941390001*US      REF*TJ*940760193      LX*1      CLP*A175120
```

How it looks like?

segments . values . separator .

```
*new 6 - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
File Edit View Encoding Language Settings Tools Macro Run Plugins Window ?
1 ISA*00* *00* *30*94071A513      *01*940315113      *101207*104754*U*00401*0*F*:
2 GS*HP*940360524      *940760193*20101207*1047*290*X*004010X091A1
3 ST*835*000000016      BPR*I*300000*C*ACH*****20080111
4 TRN*1*430205008*198746313188      DTM*405GGGGGGGGGGGGGGGGHHH .TTT*201
5 N1*PR*CCH Payer
6 N3*PO Box 272569866666
7 N4*Chico      *CA*959272560
8 N1*PE*COMMUNITY HOSPITAL OF THE*XX*3456728280
9 N3*MONTEREY PENINSULA*P O BOX 39000 DEPT 33290
10 N4*SAN FRANCISCO*CA*941390001*US      REF*TJ*940760193
11 LX*1      CLP*A17512078 3*1*78.1*0*131.28*15*26103372354200*23*1
12 NM1*QC*1*Patient*One****MI*1234      NM1*IL*1*BISHOP*ANTHONY****MI*875439
13 NM1*02*2*****XX*1111111111      REF*1L*0000099000105      REF*EA*44434TE56222      DTM*050*20101203      PER*CX**TE*0000240039      AMT*AU*24.92      SV
14 I
```

Q. What it consists?

It consists

Segments - values.

segment structure

How the segment structure is?

segment → values.

ISA → interchange control header.

GS → functional group header.

ST → state transaction header.

Segments

All the name data.

NM : India, ELECTRONICS, Amit Patel, Yes.  
↓  
Name of country of student      Book name      Customer name  
Bank name.

payloads.

trn : 8.26 pm \* 858585885  
(trn. time)      (trn ID)

\* pune  
(trn loc).

SE

state transaltion

tailor

GE → functional group tailor

IEA → Interchange control tailor.

What is segment?

Segment is nothing but it consists the related objects / values / data.

Who gives this file? →  
Developer will give this file.

Which software you are using for file editing?

Notepad ++

~~Interview~~

Q. Tell me the structure of EDI?

Two data separated with Asterisks (\*) if every data is carried out by segments.

It consists various headers & trailers like ISA interchange control header, GS i.e. functional group header, ST i.e state transaction header

Each ST has one SE

Each GS has one GE

if Each ISA has one IEA.

Sometimes there are multiple requirements

⇒ structure become more complex.

data goes in multisegment

Customer requirement →

Transaction - NEFT

	Object	location	Segments	length	Datatype	Nullable	Mandatory	constraints
①	customer name	4	NM	40	varchar	No	yes	FK
②	order ID	8	TRN	17	Int	N	Y	PK

## Designing file

See for requirement  $\Rightarrow$  ① Go for segment i.e. NMR

```

1 ISA*00* *00* *30*94071A513      *01*940315113      *101207*104754*U*00401*0000004325*0*F*:
2 GS*HP*940360524      *940760193*20101207*1047*290*X*004010X091A1
3 ST*835*000000016      BPR*I*300000*C*ACH*****20080111
4 TRN*1*430205008*198746313188      DTM*405GGGGGGGGGGGGGGGGGGGGHHH .TTT*20101206
5 N1*PR*CCH Payer
6 N3*PO Box 272569866666
7 N4*Chico      *CA*959272560
8 N1*FE*COMMUNITY HOSPITAL OF THE*XX*3456728200
9 N3*MONTEREY PENINSULA*P O BOX 39000 DEPT 33290
10 N4*SAN FRANCISCO*CA*941390001*US      REF*TJ*940760193
11 LX*1      CLP*A17512078 3*1*78.1*0*131.28*15*26103372354200*23*1
12 NM1*QCT*1*Patient*one***MI*1234      NM1*IL*1*BISHOP*ANTHONY***MI*875439
13 NM1*02*2*****XX*1111111111      REF*IL*0000099000105      REF*EA*44434TE56222      DTM*050*20101203      PER*CX**TE*8000240039      AMT*AU*24.92      SV
14 I
  
```

② 4<sup>th</sup> position.

③ Here in requirement it has mentioned that customer name length = 40. (max).

$\Rightarrow$  Change it upto 40 characters.

Nm \* pos1 \* pos2 \* pos3 \* uuu.....uuu \*\* MI \* 1234  
40 characters.

Data is absolute Dynamic in nature.

If data is of 38 characters then give data of 38 characters  
but here max length given is 40. so make sure  
length of total area is 40 by giving extra spaces.

Nm \* pos1 \* pos2 \* pos3 \* uuu.....uuu \*\* MI \* 1234  
38 characters 2 Spaces.  
total length = 40.

④ Now save the data

⑤ Process the data in system ( send file ).  
Sending file from one system to another.

Q How you use file handling process ?

→ Unix by writing commands on putty terminal.

Commands for this

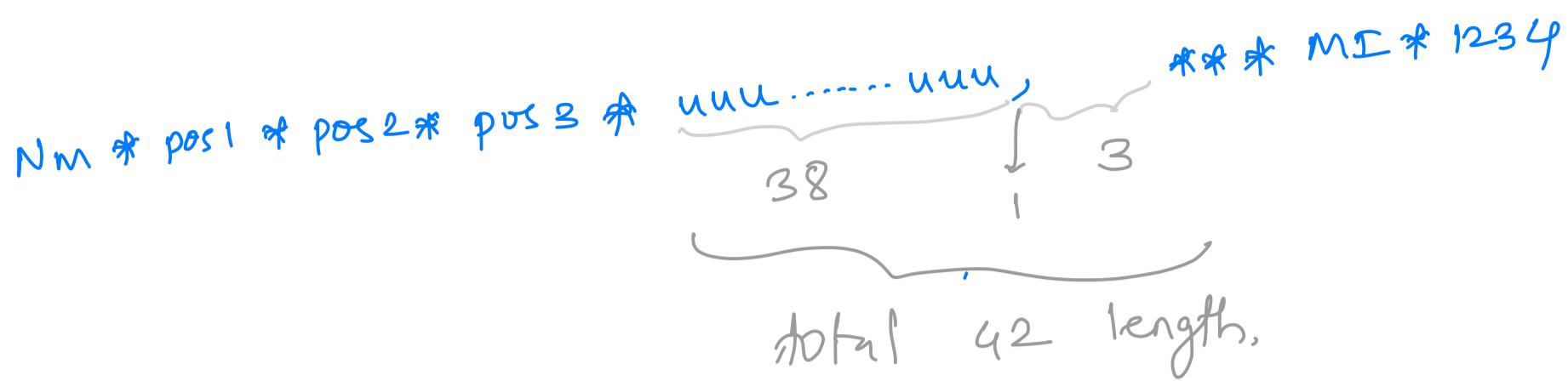
- (a) cd → To change directory to wherever file is
- (b) cd .. → Reverse
- (c) cat → opening file
- (d) ls → show list.
- (e) CHMOD 777 → giving permission to server.

This is done for each of every subsystem.

whatever logic we have applied that logic  
should be adapted by each of every subsystem.  
If there's mismatch in logic file won't proceed further.

As requirement  
customer name consists first name & last name.  
together length of it is 40 & its separated by comma.  
⇒ max length for customer name → 41.  
⇒ length of total data should be 41.

If data given is of length 42



⇒ It should fail.

⇒ Try for negative testing also.

Q. How much time is required to process the files?

Hardly in 2-3 min.

If it takes more than 2-3 min. somewhere

there is glitch

⇒ Defect.

After 2-3 min

go to the database

run the database

Select \* from TRAN\_INFO

⇒ After using this query we will get transaction ID

Then use next query

Select \* from VIRT\_CUST\_INFO where TRAN\_ID is  
live tablename. ↓  
taken from  
above query.

⇒ This will give CUSTOMER NAME

Q. Tell me live table info ?

Here for CUSTOMER NAME in requirement length is defined as 40

- ⇒ we have to check whether length of customer name is 40 or not.
- ⇒ if yes ⇒ pass.
- ⇒ if No ⇒ fail.

Note

Every defect related file handling is critical in nature.

[Now checking for Datatype]

Now As,

Customer Name is dynamic in nature

⇒ Datatype should be varchar.

[Check for mandatory]

As requirement for mandatory is yes.

⇒ while testing just give nothing for customer name

① Nm \* pos1 \* pos2 \* pos3 \* MI \* 1234

↓  
It signifies there is nothing at place of customer name.

② Save it & run it.

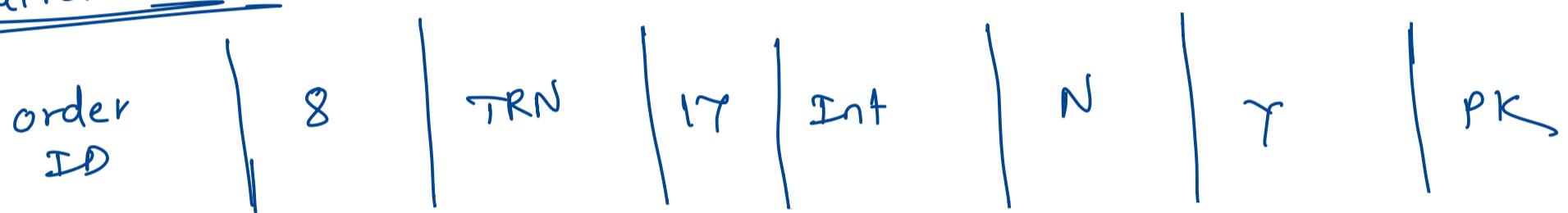
③ Status should be failed.

Testing for constraint

It should be primary key.

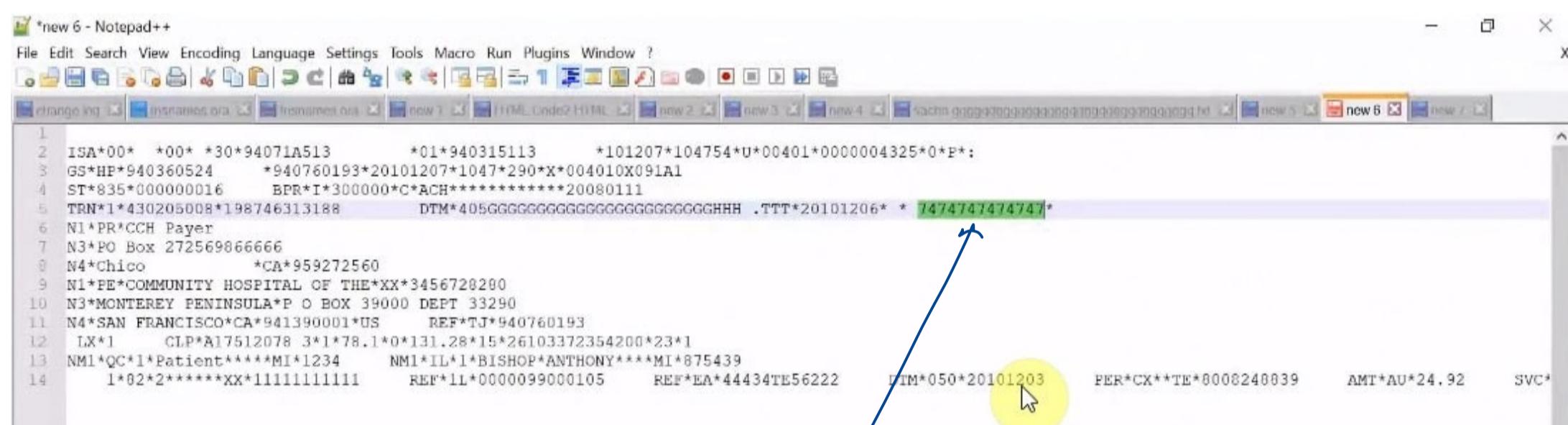
Now Test for Order ID

Requirement



Segment  $\Rightarrow$  TRN,

location  $\Rightarrow$  8.



```
new 6 - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
new 1 new 2 new 3 new 4 new 5 new 6 new 7
1 ISA*00* *00* *30*94071A513 *01*940315113 *101207*104754*0*00401*0000004325*0*P*;
2 GS*HP*940360524 *940760193*20101207*1047*290*X*004010X091A1
3 ST*835*000000016 BPR*I*300000*C*ACH*****20080111
4 TRN*1*430205008*198746313188 DTM*405GGGGGGGGGGGGGGGGGGGGHHH .TTT*20101206* * 1474747474747*
5 N1*PR*CCH Payer
6 N3*PO Box 272569866666
7 N4*Chico *CA*959272560
8 N1*PE*COMMUNITY HOSPITAL OF THE*XX*3456720200
9 N3*MONTEREY PENINSULA*P O BOX 39000 DEPT 33290
10 N4*SAN FRANCISCO*CA*941390001*US REF*TJ*940760193
11 LX*1 CLP*A17512078 3*1*78.1*0*131.28*15*26103372354200*23*1
12 NM1*QC*1*Patient****MI*1234 NM1*IL*1*BISHOP*ANTHONY***MI*875439
13 1*02*2*****XX*111111111111 REF*1L*0000099000105 REF*EA*44434TE56222
14 DTM*050*20101203 PER*CX**TE*8008240039 AMT*AU*24.92 SVC*
```

length of order ID + 17 max.  
Datatype — int.

$\Rightarrow$  order ID  $\rightarrow$  static data.

As requirement of length is 17.

for test

- ① give length = 17 → should pass
- ② give length < 17 { should fail
- ③ give length > 17

if process the file.

In this way test for other requirements also

Suppose  
sometimes every order id consists - after every  
3 digits,

⇒ order id starts with az.

⇒ length = 19 ( $17+2$ )

Datatype → varchar

⇒ order id should be like

az ————— orderid

→ pass.

orderid ————— az

→ fail.

Here length is same but  
position of az is wrong.

Q. Write a query to select order id whose 1st two position is city name & after that 8 digit numeric.

We can solve this by using substring.

Select \* from tablename where orderid = sele

Interview

To validate the systems basically we are going to implement file handling mechanism & in that we implement data intelligence to test the associated subsystems.

Subsystems are  
msg broker  
main frame  
data processing  
custom table  
Data base

In this we completely check the table structure validation.

In file handling validation we basically perform

- Data validation  
- Control validation.

Installation Testing

Installation testing always be at live env  
i.e. customer expected platform.

Things need to consider instal

- ① Set up programme execution before installation.
- ② Easy interface during installation (imp scenario).  
e.g. time left, easy navigation etc.
- ③ Occupied disk space after installation.
- ④ Check uninstalation.

Interview

"During installation test we validate Installation of our application on customer expected configuration.

During this test we concentrate on

- Set up programme execution before installation
- Easy interface during installation (imp scenario)  
e.g. time left, easy navigation etc.
- Occupied disk space after installation
- f check uninstalation"

Have you involved?

Never got a chance.

## Parallel Testing

life testing is applicable to product not application.

Is Your work application based or product based ?

Application based.

Have you involved ?

Never got a chance

What is difference bet. application & product ?

Application

It is designed for specific customer / client with specific requirement.

product

It is designed for multiple clients with common features.

Q. What is parallel testing ?

During this test, we compare the functionality of our product with existing competitive product in market.

e.g. while purchasing any product customer do parallel testing.

← don't give this example in interview.

Q. Have you involved in it ?

I never got a chance As its applicable for only product.

What is your experience?

What was your roles & responsibilities?

Sir, basically I have 3 years of experience of  
I have worked in various technologies like  
Database Testing, ETL, Big data, cloud warehouse  
i.e. google big query, webservice etc.  
Recently we are automizing dataset by implementing  
python script.

from this question will be on python.

Then also he attacked ETL.

Tell me what are the complex area you have faced?

Sir, Basically in this we run the job of  
that job basically written in python script.

In this way you can bring interviewer to the  
python i.e. your interested area.

Ericson, AMDOCS , Techm

↳ Telecom company.

⇒ will ask domain specific questions.

Q. Tell me about yourself ?

Sir, I am Abhinav Shedabale. I have completed my engineering from Shivaji University, Kolhapur. After that I got chance to work in \_\_\_\_\_.

Sir, During these 3 yrs basically I have involved in database testing, ETL testing of Big data testing with various domain like Telecom in this OSS system, BSS system, CRM, mediations these are nothing but rating engg

Tell me about your projects?

My project deals with telecom vertical

## Sanitation Test

Also known as Garbage test.  
↓  
waste / not useful  
↓  
more than required.

i.e. extra feature than requirement.

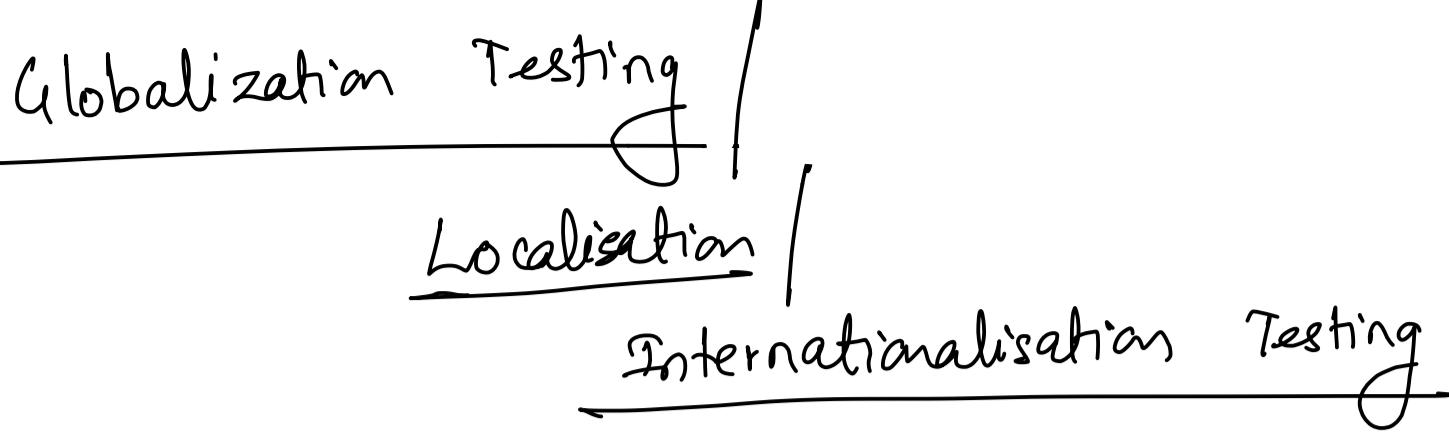
Objective  
To identify extra feature than requirement.

Interview Sanitation test is also known as garbage test.

The main objective of sanitation test is to remove extra feature present in the system/application.

I mean to say during enhancement customer/client might approach to organization for that specific requirement, such that organization can generate more revenue

This defect is raised against Business.  
i.e. against total → BA + developer.



This is also called as language compatibility test.  
I mean my application must integrate/synchronize with different languages.

During this test we validate our application supports multilingual characteristics.

It is applicable to usability test  
As it applied only for frontend testing so, we cannot perform backend testing.

Note!!  
Do you have involved in database testing in this?  
Does it have any impact on backend

No.  
This is only applied for frontend testing not for backend testing.

⇒ only usability test happens here

What is the difference between globalisation Testing,  
Localisation testing & internationalisation Testing?

Whenever application is tested with english  
language compatibility its known as globalisation Testing.  
Whenever we are dealing with local regional  
languages like Marathi, Tamil, Telugu its known as  
localisation Testing.

Whenever we are dealing with languages  
which deals with whole country i.e. Chinese, Russian  
that testing is known as Internationalisation  
Testing.

Barcode

Have you involved ?

Yes sir.

Recently we got one requirement  
Our client wants to deploy the application in  
Southern Canada.

If Requirement was english vs french compatibility.

What was duration?

3 months | requirement.

Who is your client?

Q. What you did here?

- ① Interface validation
- ② functionality
- ③ page navigation
- ④ hyperlink accessibility
- ⑤ Tab validation
- ⑥ Performance

functionality Requirement

a) By default french should be hyperlinked  
⇒ English would be by default language.

b) Date format :

french → mm/DD/YYYY

english → YYYY/MM/DD.

Is it required to know the specific language to do compatibility testing?

→ absolutely No-

Bnt I must know that its getting changed.

The screenshot shows the footer area of the American Express France website. It includes links for 'LIENS UTILES' (Useful Links) and 'PLUS DE SERVICES' (More Services), as well as sections for 'INFORMATIONS SUR LA SOCIETE' (Information about the Company). A copyright notice 'Copyright © 2022 American Express Company' is visible at the bottom. A blue oval highlights this notice, and a handwritten note 'Requirement' with an arrow points to it.

Marques déposées | Mentions légales | Protection des données | Votre Protection | Communication Compte inactif | Gestion des réclamations | Services client pour sourds et malentendants | FX-ECB Comparaison | Documentation d'Information Tarifaire | Glossaire Documentation d'Information Tarifaire | Politique de gestion des Cookies

Copyright © 2022 American Express Company.

Requirement

This should be in english only.  
But sometimes developer do changes in whole page  
which will be considered as defect.

The screenshot shows a dropdown menu on the Amazon.in website, specifically for selecting a country. The menu is titled 'नया पता जोड़ें (अंग्रेजी में)' and lists various countries in English. The option 'India' is highlighted. The menu is displayed in Hindi, which is noted in the handwritten text below.

आपका अकाउंट > आपके पते > नया पता

नया पता जोड़ें (अंग्रेजी में)

या अपने आसापास एक Amazon पिकअप लोकेशन ढूँढें>

देश/क्षेत्र

- Heard Island and the McDonald Islands
- Holy See
- Honduras
- Hong Kong
- Hungary
- Iceland
- India**
- Indonesia
- Iraq
- Ireland, Republic of
- Isle of Man
- Israel
- Italy

Here even we changes data to Hindi.  
But Database won't change  
=> We will get country in english.



## Security Testing

Security testing is advance f critical by nature

Note:-

All defects related to security test should be considered as critical in nature.

It is categorized into

- ① Authorization { ✓ yes. Role based access control system.
- ② Access control
- ③ Encryption Decryption → never got chance

Q. What is authorization ?

The user is valid or not.

e.g. are you valid subscriber or not.

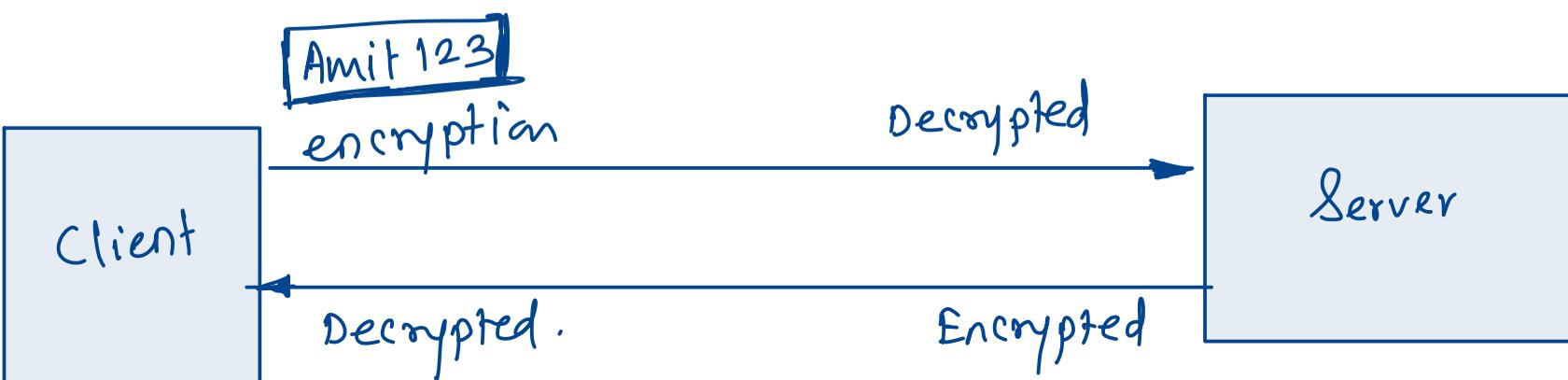
Q. What is Access control ?

The valid user having permission for specific task.

e.g. Buyer has access to buy only not to sell.

Q. What is encryption decryption ?

The data conversation betw client & server is known as encryption decryption.



Have you involved? (for encryption decryption).

Never got a chance

- ① Authorisation
- ② Access control

{

In business words  
known as  
Role based access control system.

### Duration

3 days.

When do we do this Testing?

Before build goes to production we do this testing.

user/  
functions↓

Access Resume  
Download Resume  
visualise  
upload

Job seeker

HR

yes (1)

yes (1)

yes (1)

Yes

No

Yes

yes

No

## Requirement

Permissions ↓	User	Superuser	Admin	Superadmin.
App 1	Y	Y	Y	Y
App 2	Y	Y	Y	Y
App 3	Y	Y	Y	Y
App 4	Y	Y	Y	Y
App 5	Y	Y	X	Y
App 6	N	Y	Y	Y
App 7	N	N	Y	Y
App 8	N	N	Y	Y
App 9	N	N	Y	Y
App 10	N	N	N	Y

## How to test it?

We have to send request to developer for sending credentials.

∴ Authorities of respective user is decided by the developer. Developer has all the credentials of all users.

Hi Team,

(If you are writing it to individual  
then write name of that person.)

Please send us the credentials for below mentioned users.

users

super user

admin

super admin

Please let us know if any concern!

Thanks & Regards.

Now, developer will provide us credentials for each users.

users :	login ID	password
	user1	user1

With use of this we have to try for login.

⇒ If successful.

⇒ Authorization is successful.

Note

During security testing we perform front end of back end testing.

⇒ Automation process is absolutely not allowed.

⇒ We have to perform security with help of manual.

## After login

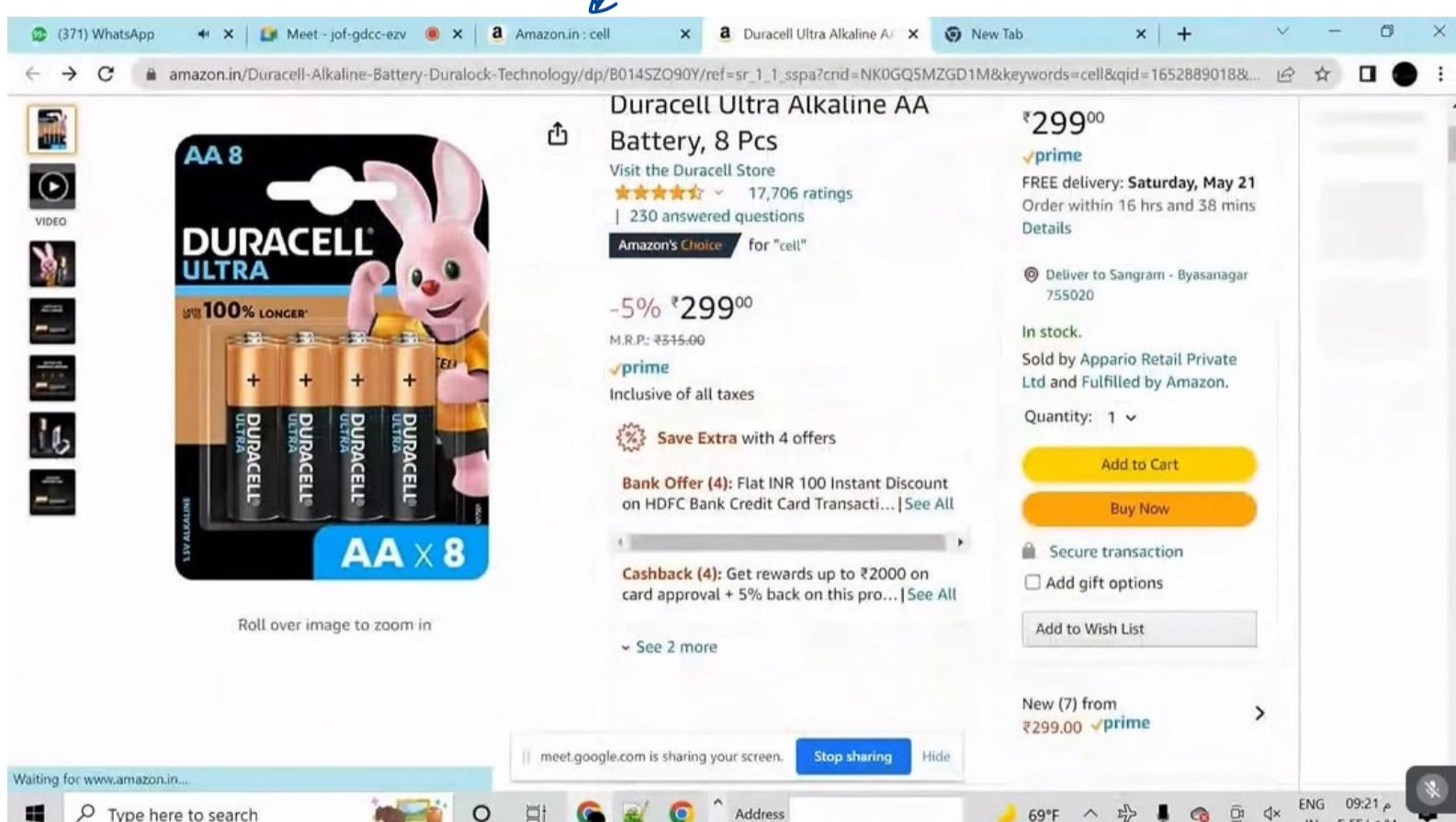
- ① check for each permissions.
- ② If its allowed  $\Rightarrow$  validate that.
- ③ If its not allowed  $\Rightarrow$  validate that.

## Requirement

R4.0\_Amazon\_Order Generation.

user : uid-user1 pwd - user1

Buy Now :



## Back end

Select \* from flag\_info

Here flag value must be yes.

	flag	
	Y	

while doing this take  
Screenshot of backend paste  
that

In this way we have to check each of every permission and each of every user.  
prepare validations.

## Interview

What is security testing?

Sir basically it is categorized into

- ① Authorization -
- ② Access control
- ③ encryption decryption.

Authorization means whether user is valid or not.

Access control means valid user having permission for specific application or not.

Encryption decryption simply means the data conversation bet. client & server.

Sir recently we got one requirement that was about role based access security system.

Sir in that what happened there were various

users like

User

super user

Admin

super admin.

Generally in such role based security test we validate front end & back end.

In front end we are going to check the accessibility of the specific application for specific user & in the back end we check the flag value.



## Performance Test

It is also an advance testing technique. It is complex to conduct.

Why? A huge environment is required to conduct the test.

### What we do in Performance Testing?

During this test we validate speed of processing of the application.

### Why performance testing is necessary?

There might be performance issue due to following reasons

① Developer's wrong programming logic

i.e. declaration of class-object.

② Backend developer's wrong logic.

- Schema relation
- Data type declaration.
- Shortest path detection.

ant colony algorithm

chooses shortest path  
to reach destination.

You have involvement.

### What is shortest path

In dim? table, data, we have to analyze which path is getting pull out of that path must be shortest one.

③ No. of user.

Categorized into

load testing } done with only automation.  
stress  
endurance  
data vol.<sup>m</sup>  
storage. } with manually.

Have you involved in performance testing?

Basically we perform

- schema validation
- Datatype declaration
- Shortest path detection

These are the core reasons for backend structure performance testing.

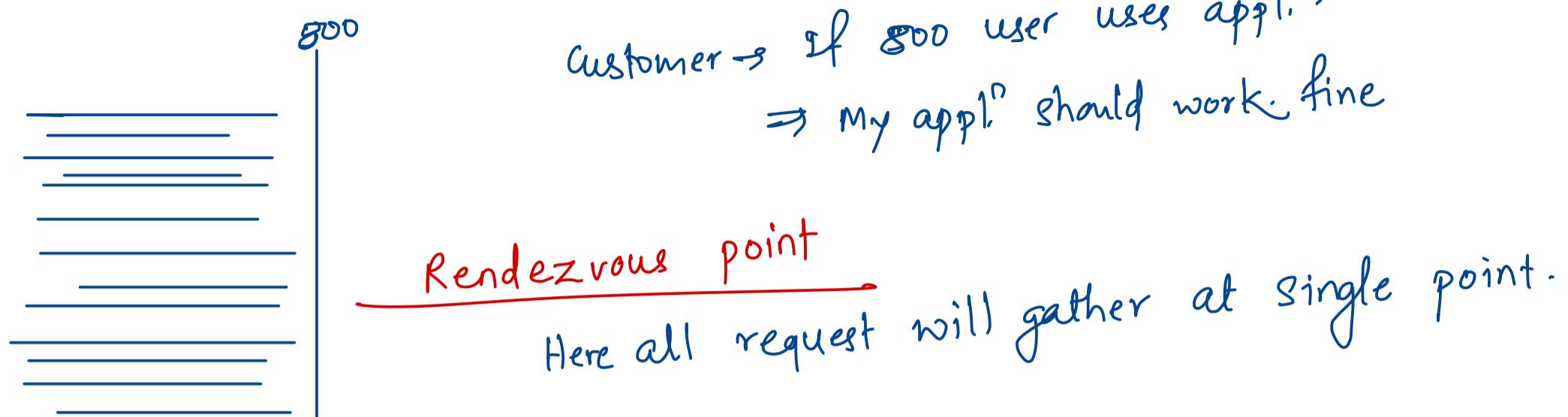
Service at Backend

Response time + waiting time for loaded data is known as service time.

To test this is known as scalability test.

## Load Testing

Tool used for this — Load Runner.



### How load testing is done?

Sir, Basically we implement rendezvous point, I mean all the request will gather at single stage if we release request at single time.

After that we observe appl. behaviour.

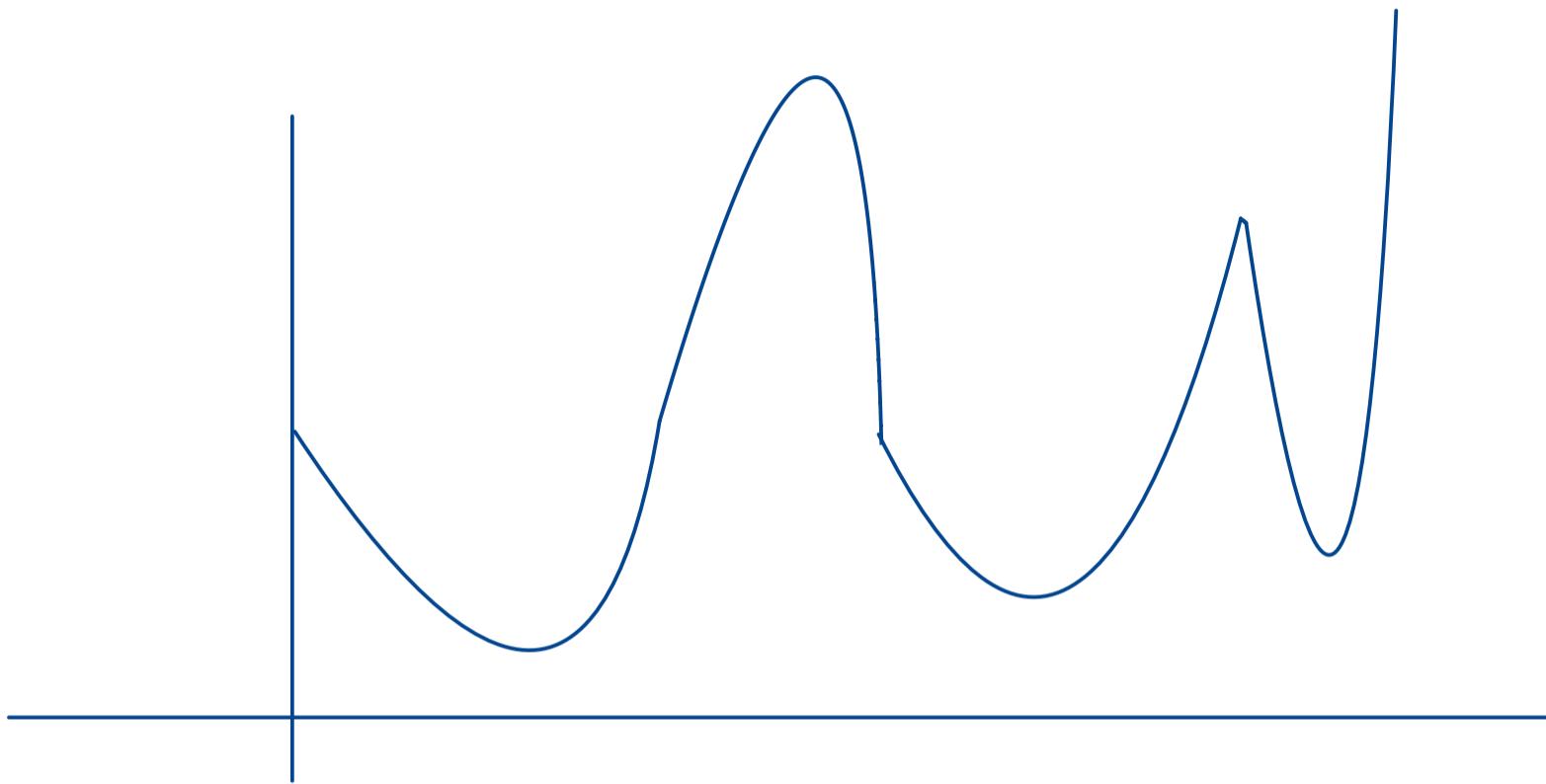
### Q. What is load testing?

The execution of our application with customer expected configuration if customer expected load to estimate the performance is called as load testing.

sr. no.	fun	load capacity	time of observation
1	buy .		
2	addition of address		
3	payment transaction		

+ function we have to write test cases if we have to report it to the client.

This is observed on the chart.  
If its in abnormal behaviour then we can say system is not ok.

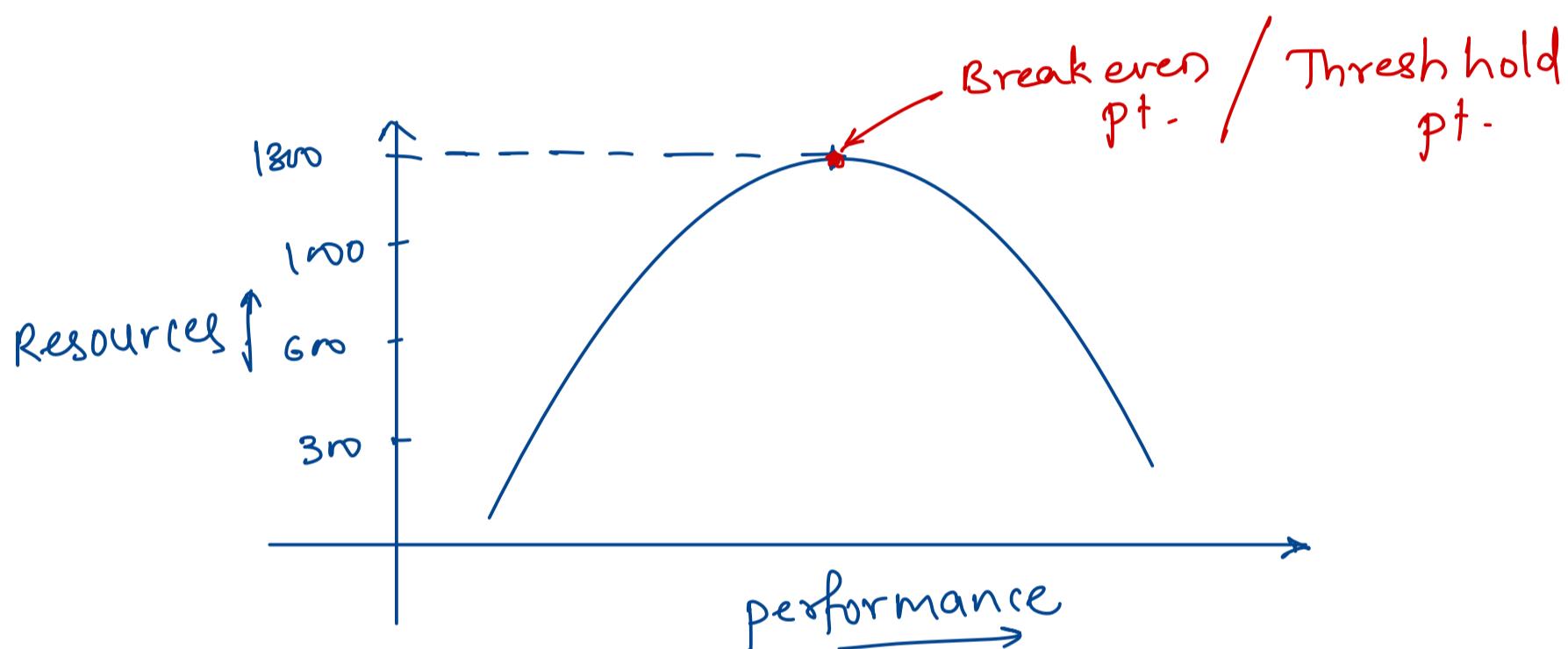


## Stress Testing

Stress testing defines max(load).

The execution of our appl. under customer expected configuration of customer expected load of peak load to estimate the performance is called stress testing.

The main objective of stress testing is to identify threshold point / Break even point.



Q. If load testing satisfies customer requirement, what is significance of stress testing?

It is used for enhancement purpose.

Assume, the no. of users might be increased in near future. Hence identifying break even point is most important from business point view.

What is the difference between load of stress testing?

Interview

Q. What is stress testing?

Stress testing is nothing but testing for breakeven load.

Generally during this we are going to execute our appl. under customer expected configuration of customer expected load of peak load to estimate performance.

The question arises here that, if the load testing satisfies the customer requirement then what is significance of stress testing?

In stress testing we are basically test for the maximum load

I mean sir, the main objective of stress testing is to identify breakeven point/ threshold pt. Here, the performance of resource will be mapped of threshold point is identified.

I mean sir, for enhancement purpose it is mandatory to identify the breakeven point.

Let us assume, tomorrow the no. of users for specific clients gets increased in that case from business perspective identifying the maximum load is very important.

Q. As Load testing & stress testing are similar, can we do it together in a single test?

Yes we can do it but its not the rule of business, slight change in requirement gets extra money.

### Endurance Test

It signifies how much time application can bear the load.

During this test we check & validate the application how much time the application can bear customer expected load.

During endurance test, we analyze & monitor the memory consumption mechanism to determine potential consumer.

What is the difference between load testing, stress testing & endurance testing?

## Involvement

load stress endurance	} No.	storage Data vol. <sup>m</sup>	} Yes.
-----------------------------	-------	-----------------------------------	--------

## Data vol.<sup>m</sup> Testing

It is also known as flood testing.

This testing is related to huge vol.<sup>m</sup> of data. During this test we validate the system performance by increasing / decreasing the vol.<sup>m</sup> of data in database / container.

During this test, we concentrate on various parameters

- ① Response time
- ② system behaviour.

## Storage Testing

Here we check for capacity.

On which database you are working?

oracle / mongo dB

## Which version?

gi (i → internet)

log (g → grid architecture)

l2c (c → cloud).

## What is the capacity?

## Storage testing

During storage testing we verify

- ① Whether it has enough space to prevent unexpected termination.
- ② The relevant data is getting stored into appropriate directories.

e.g

Assume we are using file

In file there are 3 spaces

audio

video

image

Each one has defined space

What are the source system data you are maintaining here?

voice

MMS

SMS

Data

Every data's behaviour is different.

⇒ All the should be stored at appropriate places.

What is the difference between

① Issue , Defect , Bug , Error .

Error

A mistake in the code is called an error.

Defect

Due to this error mismatch occurs, is called as a 'defect'.

Bug -

When this defect will be accepted by developer is called as 'Bug'.

Issue -

Some times some defects are neither accepted by developer nor it is rejected by tester.

These defects are known as Issues.

e.g

price value is defined as integer.

But its not accepting -ve value

⇒ developer will argue that where is the requirement that price value should be negative.

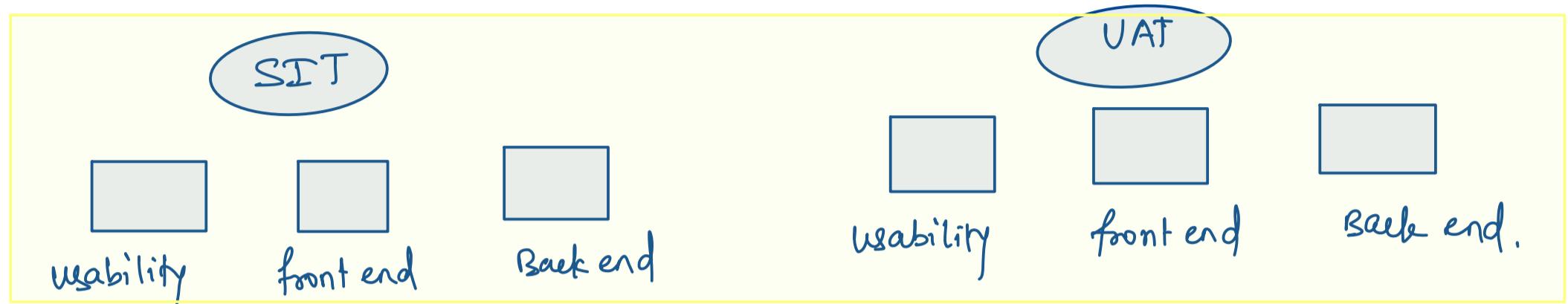
⇒ But we have to tell them that price value can be negative.

Known issue

The defect which already exist in system due to environmental factor.

# User Acceptance Test (UAT)

- you cannot work in UAT & SIT for same client.
- UAT test follows low level mechanism.



What is the difference bet<sup>n</sup> SIT & UAT ?

SIT

- ① SIT refers on the interfacing bet<sup>n</sup> modules
- ② SIT performed by developers & testers
- ③ SIT follows high level mechanism
- ④ This is primary level testing.
- ⑤ SIT performed in development env.
- ⑥ Client involvement is not mandatory

UAT.

- ① UAT focuses on the requirements with the user point of view.
- ② UAT is performed by customers & end testers.
- ③ UAT follows low level mechanism
- ④ This is secondary level testing.
- ⑤ UAT is performed in customer expected env.
- ⑥ Client involvement is mandatory.

UAT is categorized into two parts.

	Test	applicable for
①	α test	Application
②	β test.	product.

Q. If it is product f you are testing in UAT which approach will you follow?

→ β test.

What is difference between α test & β test?

α - test

- It is tested at org. env.
- applicable for appl.

β - test.

- It is tested at customer expected environment.
- applicable for product.

# Release Testing

Class 28

After completion of UAT & regression test, Org. concentrate on release team formation.

This release team consists

- ① Hardware engg
- ② Software dev.
- ③ Software test engg.

This is also known as post mortem testing /  
confidence testing / pre release testing

During this test we concentrate on critical area of application / system.

will ask compulsory in project.

Q. What are the critical area of your project?

In banking project.

Critical area

- ↳
  - ① Security
  - ② Transaction.

Critical area Amazon

- ① authorization - end user is having permission to access the system.
- ② OTP generation - In time bound manner.
- ③ Payment system.
- ④ Delivery.

## factors which we concentrate on

- ① OS handling
- ② Input device handling
- ③ O/p device handling.
- ④ overall functionality. (critical functionality)
- ⑤ Environment handling (hardware, s/w, Browser).

After this, project will move to client.

For this we (test engg) has to give sign off.

- Unless f untill test engg. doesn't give sign off,  
project won't go live.

- Before sign off we have to give training to client.

e.g

Suppose

requirement - Invoice generation.

client don't know abt invoice generation.

- we provide KT to client.

① We have to design test prototype documents.  
(in powerpoint).

- While making please do consider that you are explaining  
to a person who don't know anything

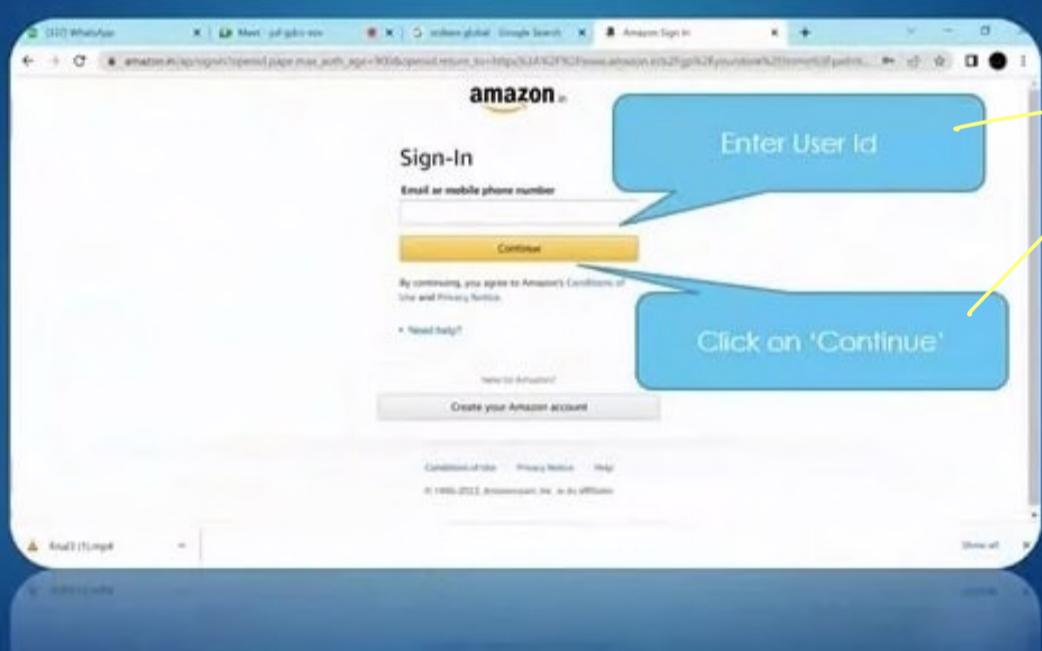
- make it with all possibilities for testing.

# Amazon\_Invoice Generation

--A Journey---

AUTHOR : AMIT PATIL ,NEHA THAKREY

Log in Amazon :



we will meet at webx-

## Interview

After completion of UAT & regression test, org. concentrate on release team formation.

This release team consists

- ① Hardware engg
- ② Software dev.
- ③ Software test engg.

This is also known as post mortem testing / confidence testing / pre release testing

During this test we concentrate on critical area of application / system.

Here we concentrate on

- ① OS handling
- ② Input device handling
- ③ O/P device handling
- ④ Overall functionality. (critical functionality)
- ⑤ Environment handling (hardware, s/w, Browser)

After this, project will move to client.

for this we (test engg) has to give sign off.

- Unless & until test engg. doesn't give sign off, project won't go live.

- Before sign off we have to give training to client

- training is nothing but KT

① We have to design test prototype documents

# Post Production Architecture

## Production Issue

After build goes to production if any issue is identified by end user & that is valid defect with missing functionality, should be considered as production issue.

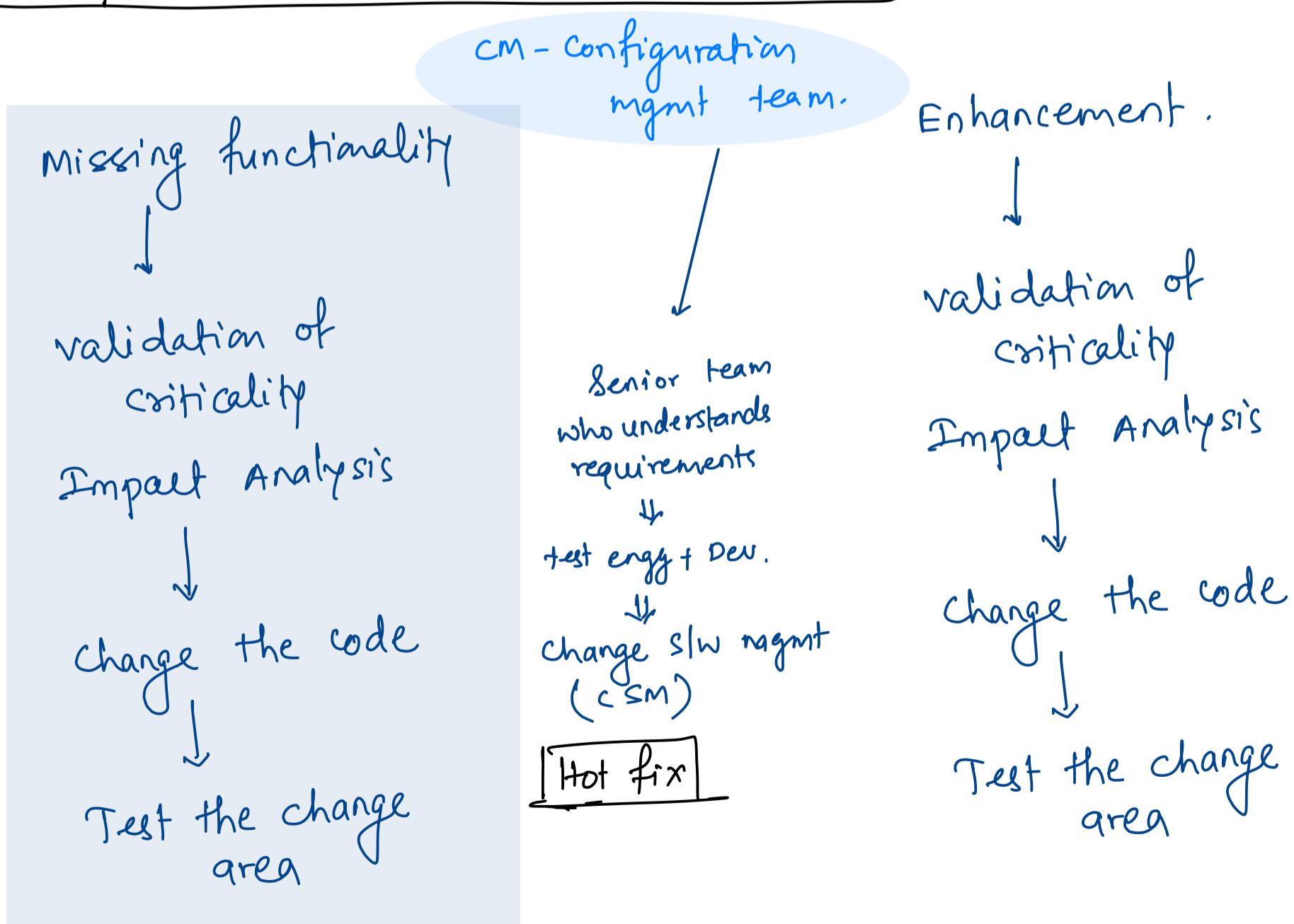
## Change request / Request for change :

missing functionality from clients end.

## Have you involved in production issue testing?

Yes sir, I have involved in production issue testing.

## Lifecycle of production issue, CR



## ① Missing functionality

we have to analyze whether defect is valid/not.

→ If its missing functionality then we call it as a production issue.

## ② Validation of criticality :

These valid defects will be analyzed & set their priorities i.e.

Impact analysis is done

⇒ Here we analyze how much is this defect is impacting our system.

i.e. high, medium, low.

## ③ Modify the code

Developer will going to modify the code.

## ④ Test the change area

Here tester will test the changed area.

## What is configuration mgmt team?

To handle the change request is called as configuration mgmt team.

- Developer
- Tester
- BA

Interview

Q. What is production issue life cycle?

Sir, once we receive the production issue, we need to analyze whether it is either missing functionality or not. I mean whether it is valid defect or not.

Next, we need to analyze the validation of criticality i.e. impact analysis is done.

I mean sir, we need to understand how much the system is getting impacted by that specific defect.

After that we need to change the code i.e. modification of the code.

If we need to test that modified area. This mechanism is known as HOT FIX.

If this is the life cycle of the production issue.

All these things is done by one team which known as configuration mgmt team.

Interview

Q. What is CR|Enhancement life cycle?

Sir, basically we need to analyse the defect is missing functionality or it belongs to enhancement.

We need to analyze that the slight changes can be the major impact on system.

After that we need to change the code i.e. modification in the code.

And next to that we need to test that modified area.

These things are managed by configuration management team.

Change software mgmt Team

There is a senior level team of test engg of developers who understands the requirements which is under configuration mgmt team is known as change s/w mgmt team (CSM team).

## Testing Terminology

### Monkey Testing / Speed Testing

In 4 days you have to report 200 test cases. Then what will be your approach?

Generally when we have max. no. of task w.r.t. less time then we perform monkey Testing.

In monkey testing we concentrate only on high priority functionality / test case. by skipping low priority test cases / functionality.

Why you do this?  
The main objective of monkey testing is to achieve delivery timeline.

## Gorilla Testing | Frustrated | Torturing | Fault Tolerance Testing

During this test we apply the same i/p on the same module repetitively to validate the functionality to ensure there are no bugs exists.

The main objective of this testing is to test specific module heavily I mean 50, 60 even 100 times.

When do we do Gorilla Testing?

When high cost product is there & there are chances of collapsing of product with even single mistake at that time we use Gorilla testing.

What is exploral

Exploratory Testing.

Here we will explore the functionality I mean we have to do level by level functionality coverage.

This is the approach for simultaneous learning of test design & test execution.

What I see, your profile is telecom, but our domain is banking. Then how will deal with it?

Q What would be your approach if you don't have specific knowledge about that application?

→ we have to explore the functionality. I mean we can perform exploratory testing.

Here we do level by level functionality coverage.

I mean to say it is an approach for simultaneous learning of test design & execution.

### Adhoc Testing

Adhoc testing is the mechanism which used to perform the test when we don't have sufficient test data, with help of past experience, we have to perform testing.

What if you don't have SRS document?

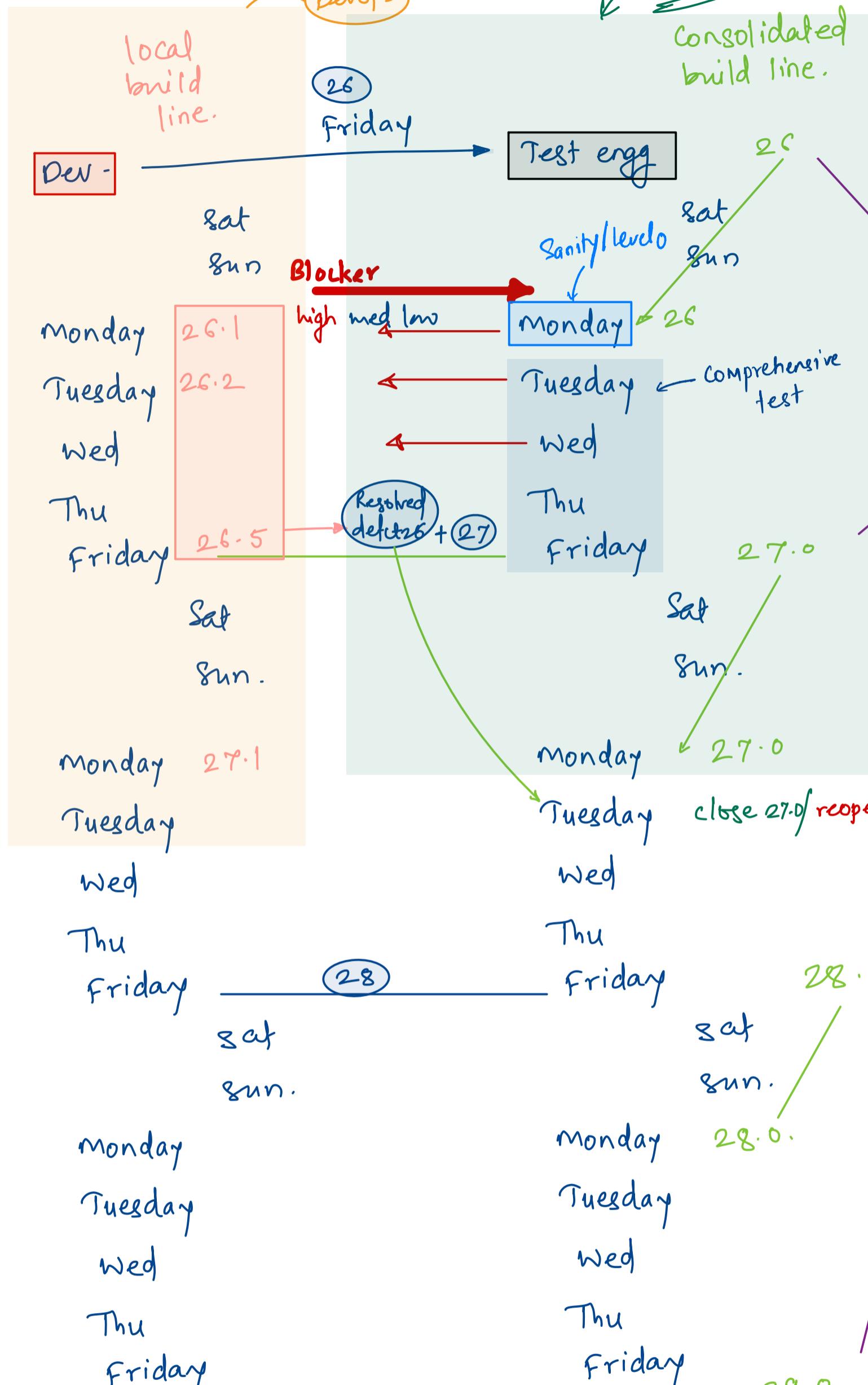
# Build Architecture

Jenkins

Devops

GIT

Docker



client.

R 4.0 AMAZON-order processing

Master build line

Developer send the build to testing team on Friday.  
The communication b/w developer & tester is very important.  
Every build is uniquely named for this GIT is used  
(version control numbering system)

Suppose they have given us 26.0 build line.  
(which means they have already given us build line  
from 1.0 to 25.0).

After deploying this build, we will start  
our work on 26.0<sup>th</sup> build on Monday till Friday.  
Again we will receive 27<sup>th</sup> build on Friday & work  
will start from upcoming Monday. In this way  
new build will receive at each Friday & our  
work will start at each upcoming Monday. This  
build line is known as consolidated build line.  
(This is always a numeric figure)

The build line at developer side is  
called as local build line. Here developers send  
the 26<sup>th</sup> build on Friday to tester. If they will  
start their work on 26.1 build on Monday.

Suppose there are 3 functions OK, cancel, delete.  
- On 1st release they completed OK.  
- On 2nd release they have to deliver cancel. But  
for this they maintain their buildline for each of  
everyday. like 26.1, 26.2, 26.3....

Instead of 27 if they do it as 28 then its high critical defect. To avoid that defect they use tool like GIT, Bit pocket to automate process (motion control numbering system)

Whenever there will be any defect they will get to know that from which particular build line that defect is.

Suppose for 26.1 → customer name

26.2 → mobile no.

26.3 → address

26.4 → zipcode

In this way they will work for each of every day.

Suppose we got defect in address. Then here developer knows that address belongs to particular 26.3 build line. So they will fix 26.3 only.

All these builds will be integrated & this is known as 27. If this 27<sup>th</sup> build is delivered to us i.e. consolidated buildline.

Tester has to deal with consolidated buildline only.

We will get build around 4-5 times (26, 27, 28, 29, 30) All the consolidated build lines combined of one combined build is given to client is called master build line.

How will you know In which buildline your application is?

How to identify your build version?

We have to write the query

Query :

Select \* from Build\_VERSION.

O/P

Date	Build_VERSION.
26 April 2022	26
3 May 2022	27

The latest entry in the table is our current build version.

The defects found in build versions are high critical by nature & are known as version control defect.

Note!!

whenever we as a tester working on version x, then at same time developers working on version x+1.

suppose we got defect on build 26

→ we are going to lock the defect.

& send it to developers.

Suppose if there are 8 defects came on build 26.

Now its the developers responsibility to fix those defects within a week.

→ Developer is working on 27<sup>th</sup> build + 26<sup>th</sup> defects.

⇒ Next build (27<sup>th</sup>) will consists of  
① New features of 27<sup>th</sup> build (i.e. 26.1, 26.2, .....)  
② Resolved defects of 26<sup>th</sup> build.

What if developers couldn't able to resolve all defects from previous build?

while raising defects as a tester we have to prioritise all the defects i.e. high, medium, low. On basis of this priority, developer decides which defect has to give early & which to give lately.

⇒ Identifying criticality is the most imp. parameter.

How will you identify criticality?

By understanding system.

After getting 27<sup>th</sup> build what will you do?

(options → work on resolved defects  
finding new defects from new feature)

Q. Suppose if you have existing defects 10, &

there are 100 new functionalities.

What will be your approach?

1<sup>st</sup> of all we will concentrate on existing defects,  
(on Tuesday) after that we will test new functionalities.

There is regression scenario + new defects. What will you do?  
Obviously sir we will do first regression scenario.

We found defect at 26.

In next week we will test on 27.

Also we will get fix of defects from 26.

Now we will test fixed defects from 26<sup>th</sup> 1<sup>st</sup>.

If defect is resolved we mark it as close.

But while closing the defect we have to write  
its build line  
i.e. close 27.0

⇒ Note 11

Defect identified on current version,  
current version + 1 will be → defect closing  
version.

What if defect not fixed?

In this case its called as reopen defect.

It will be sent to developer again

Developer will fix that again.

We have to test it on next week again.

If it is closed → closed 28.0

build line.

Now client is going to observe quality engineer.

If defect open f closed time difference is maximum then  
in such scenario developer performance will be validated.

What if developer fix 8/8 defects? Is there any issue?

No

Remaining defects will be fixed in next cycle.

But developers performance also gets validated

so developers try to fix it as soon as possible.

so developers

What is blocker defect?

Due to these defects whole system will gets impacted,

so Without fixing the defects, we cannot validate the system

those defects are known as blocker defects.

e.g. order ID is not getting generated in amazon.  
⇒ payment system of infosys } will be  
⇒ logistics TCS impacted.

Note!! Blocker defects are urgent in nature.

What to do if blocker defect occurs?

Here we won't wait for 7 days, build will be moved on that day only on special permission within 1 hr.

Dev ops → operations process  
not a technology.

Class 30

Agile → process, v-model, waterfall → process.

All development versions maintained for this  
Jenkins is used

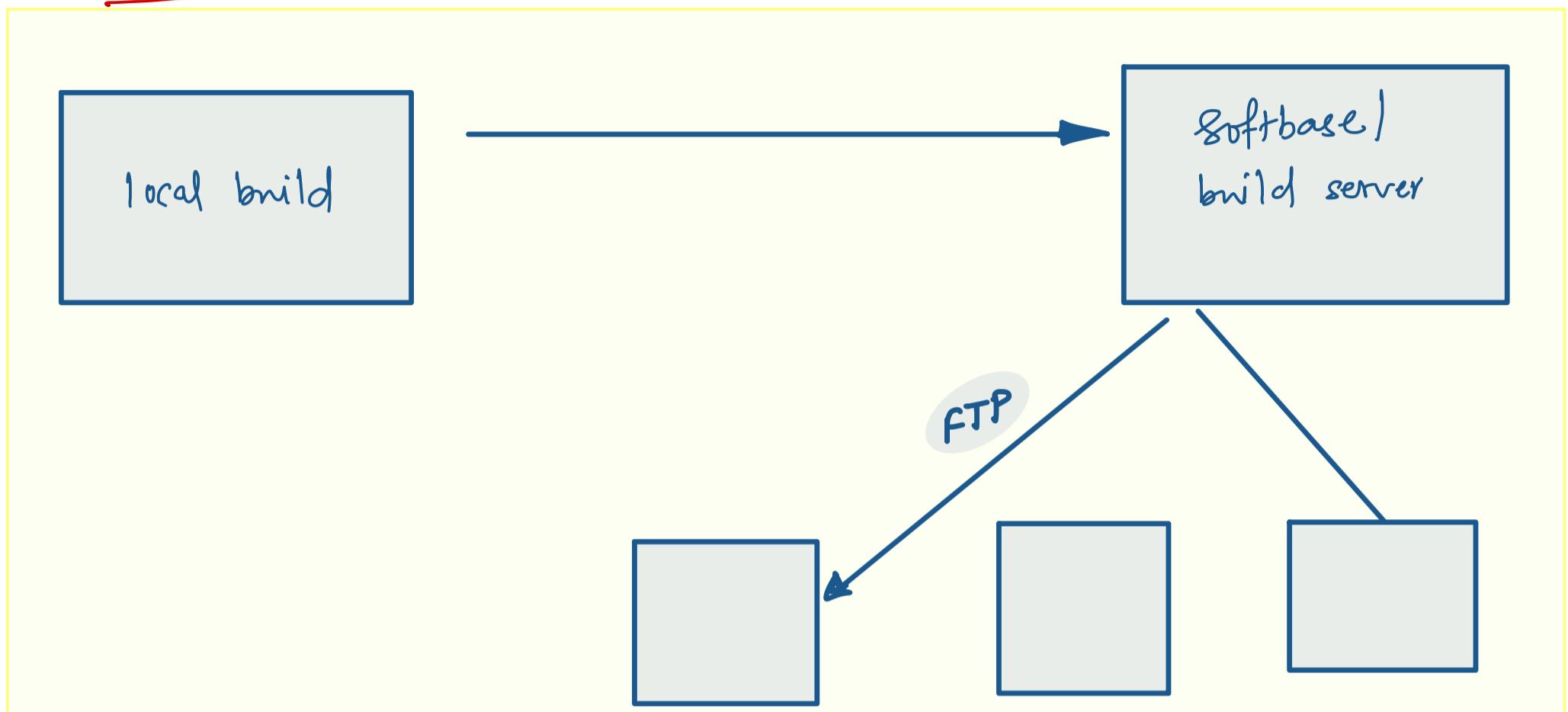
To deliver the project to testing environment  
is also one of the important task  
for this purpose GIT is used.

We have to deploy project at client end also.  
for that Docker is used

While developer is uploading 27<sup>th</sup> build, we (testers)  
are working on build 26.  
But how this build gets upgraded from 26-27  
is known as build upgradation activity.

# Build Upgradation Activity

Q. How you receive the build?



Developer deploy the local build on softbase / build server

f we receive the build via FTP.

f They share us IP address of softbase / build server.

How will you get your IP address?

use command → ipconfig

Q. How do you login in your company?

- user id
- password
- domain .

Q. Tell me the browser on which you work? Which version?

Internet Explorer,

on Friday evening developer will send email like this

Hi Team,  
Please find build line 26.0 @ 172.34.56.24 and start  
the test operations.

Interview  
Q. What is build upgradation activity?

Build upgradation activity is nothing but,  
object synchronisation process with server  
generally once we receive initial build, we will request  
to platform team for build upgradation activity.

DBA implements the compilation process (compile earlier + new (27))  
(database admin)  
to handle build upgradation activities.

Once it is getting done they share with us valid  
of invalid objects.

Valid objects → the objects which are synchronized  
Invalid objects → the objects which couldn't be synchronized/recognized

As we receive we need to analyze which invalid  
objects needs to be validated.

If it is we request to platform team for recompilation.

These are the activities we perform before sanity test.

After that we will perform sanity test.

Why not only 27 compilation is done?

There might be some objects in 27 which is dependent on earlier objects from 1-26 build. That's why 1-27 total compilation is done.

How much time they took?

generally within 1-2 hrs this process is completed

practically speaking

come to sat. f complete their task.  
(Before monday they have to do it).

Is it follow in each f every company?

It depends on project you are going to deliver.

Who does this

Any senior member.



After these compilation process (monday up to 10)  
one high configuration test is done till → sanity, Test.

Q. What is the difference between sanity f smoke testing?

## Package validation

platform team create the package.

Suppose

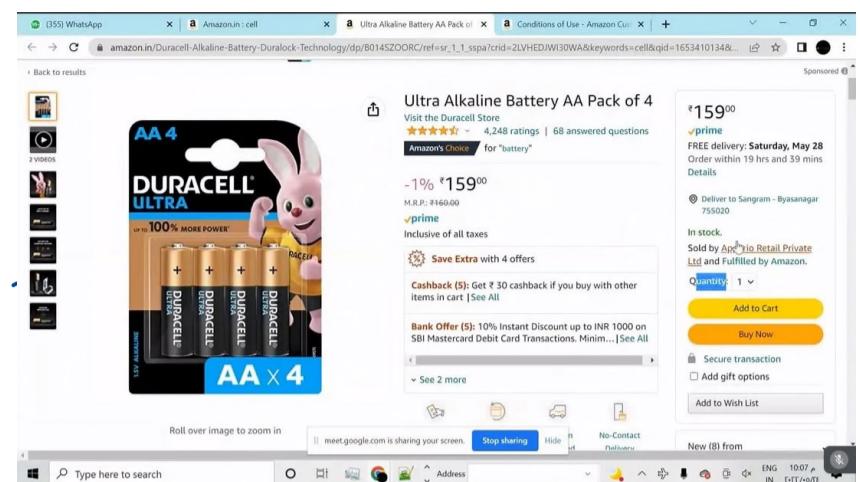
name of package

→ pkg-order

name of object

→ buy now.

→ add to cart.



orders contain - Buy functionality.  
- Add to cart

These objects gets integrated & stored in pkg-orders.

Who creates this package?

Database team.

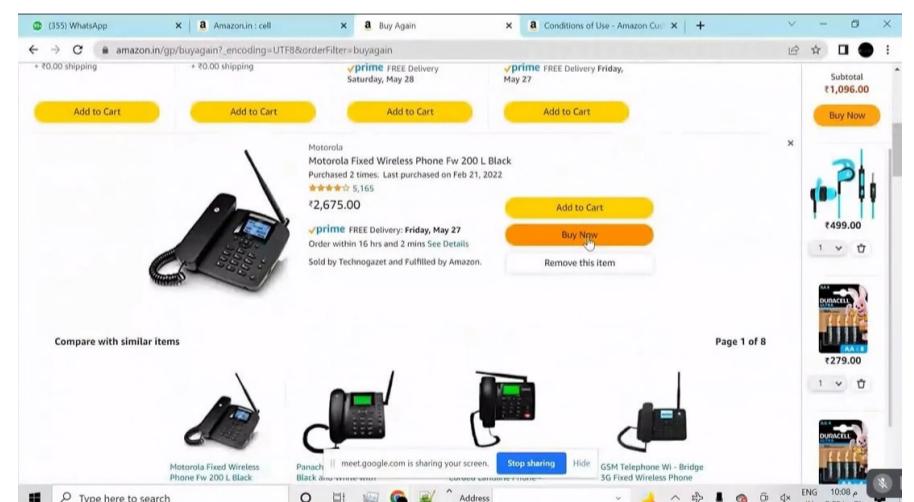
Suppose we go to another object

Buy Again.

Here also we have objects

- Buy now

- add to cart.



→ pkg-Buy Again - Buy now  
- add to cart.

Why you have to understand

Smoke - package validation.

# Sanity

Sanity / Level 0 / Testability / Octangle test /  
Test Acceptance Test / Build Verification Test.

What do you mean by test Acceptance test?

We must accept build, it must have tendency  
to implement the comprehensive test.

What if it rejects an 1<sup>st</sup> build?

- ⇒ Basic stds are not working
- ⇒ Huge escalation of dev. team.
- ⇒ Chances of loosing project.

What is Sanity test?

Sanity test is nothing but level 0 test, we can  
call it as testability test or sometimes we call it as  
octangle test or test acceptance test or Build verification Test.

What do we do here?

We are going to test basic functionality.

we have to identify it.

Why we do it?

To check whether it is eligible for testing or not.

During this sanity test we validate the stability of build / system

I mean to say we will check whether the build is ready for test or not.

During sanity test we validate core / basic functionality of the system.

Duration : 1 day.

Interview

Do you write test case in sanity test

What I understand we perform test to validate core / basic functionality of any system which is static by nature. We design test case during initial stage of system development & after that we involve only in execution.

Interview

Q. Which defects will you get in Sanity test?

Generally during sanity test we find **environmental related defects** as maximum.

Environmental defects means

1. run time error
2. dll file missing (for appl? run f one file  $\Rightarrow$  dll file)
3. 404 issue. (Call fun? won't work here)

Q. Do you register the defect in tool?

Generally we register high critical defect. test we share with developer via email.

Interview

## What is sanity Testing?

Sir generally what happens, Once we receive initial build, we request platform team for build upgradation activities. Once build upgradation activities gets done, we are going to check valid f invalid objects. If invalid objects needs to be validated then we request them for recompilation. These are the pre-condition for sanity. I mean once it is getting done, we start the sanity test.

Sanity test is nothing but level 0 test, we can call it as testability test or sometimes we call it as octangle test or test acceptance test or Build verification Test. During this sanity test, we validate the stability of build / system. I mean to say we will check whether the build is ready for test or not by validating core / basic functionality of the system.

Take pause

If asks question about test cases then deliver those answers.

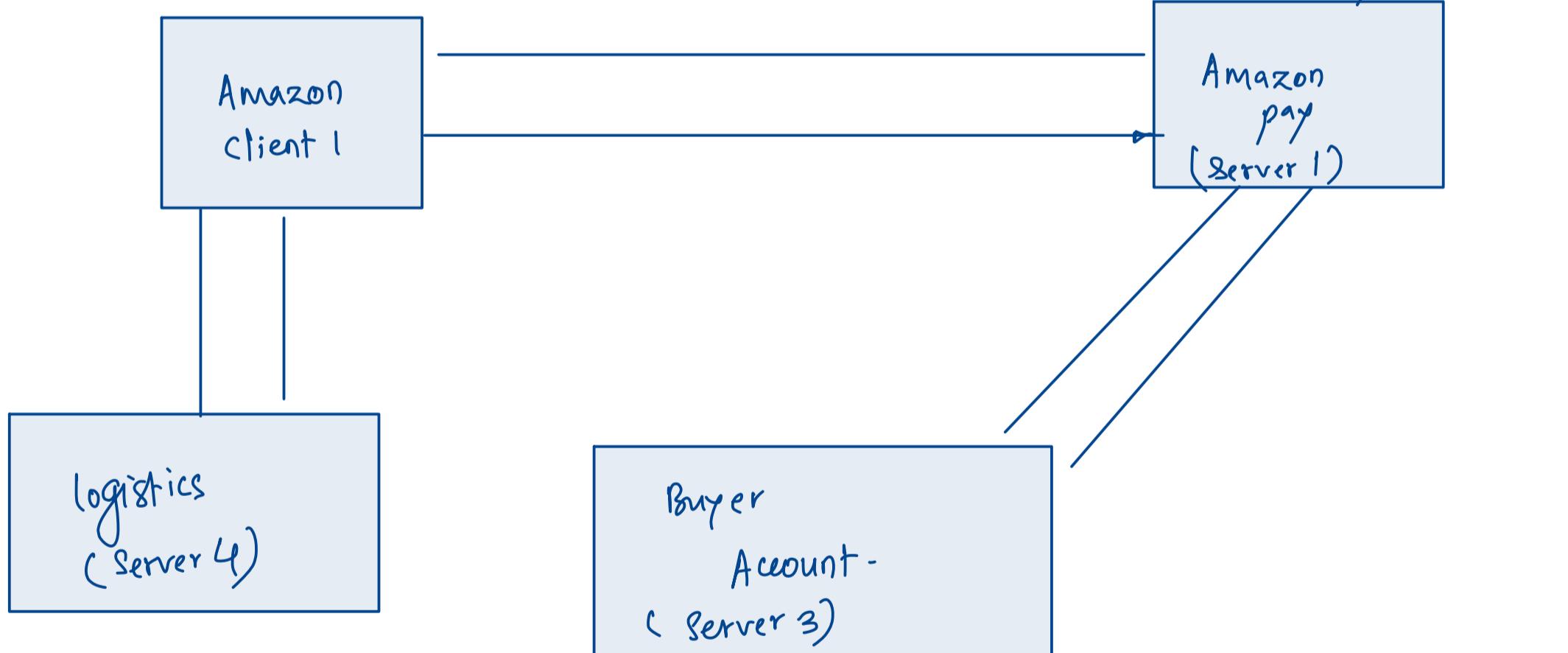
During sanity test we concentrate on ,  
front end

- ① Hyperlink accessibility
- ② performance
- ③ Interface validation
- ④ Core functionality .
- ⑤ Page navigation
- ⑥ Tab validation.

login  
product search  
product selection  
payment fun?  
Invoice gen?

Back end

System Integration



Whenever we have to test , we have to check system stability.

C<sub>1</sub> - sends request to -server1  $\Rightarrow$  if generating  $\Rightarrow$  pass .

Server1 - Response to client1  $\Rightarrow$  yes  $\Rightarrow$  pass .

$\Rightarrow$  1<sup>st</sup> client1 - Server1 system is stable.

In same way other systems get checked.

S<sub>1</sub>  $\rightarrow$  S<sub>2</sub> request  $\Rightarrow$  yes  $\Rightarrow$  pass .

S<sub>2</sub>  $\rightarrow$  S<sub>1</sub> response  $\Rightarrow$  yes  $\Rightarrow$  pass .

S<sub>1</sub>  $\rightarrow$  S<sub>3</sub> request  $\Rightarrow$  yes  $\Rightarrow$  pass

S<sub>3</sub>  $\rightarrow$  S<sub>1</sub> response  $\Rightarrow$  yes  $\Rightarrow$  pass .

C<sub>1</sub>  $\rightarrow$  S<sub>4</sub> request  $\Rightarrow$  yes  $\Rightarrow$  pass .

S<sub>4</sub>  $\rightarrow$  S<sub>1</sub> response  $\Rightarrow$  yes  $\Rightarrow$  pass .

## How to write report ?

CC: DM → SPM → PM + PM + test team + dev. team  
 (dev) (test)

This should be  
in sequence  
(Desc/Asc)

Subject : Sanity - test - Report - SIT - R4.0 - Amazon - Invoice generation -  
 Buildline - 26.0.26 May 2022  
 (Build no) (date)

format → Calibri (11).

Hi Team,

Please find statistics of 'sanity Test Report - SIT - Amazon - Invoice generation - Buildline - 26.0.26 May 2022' Report.  
 to emphasize highlight it (never bold)

During this sanity test we cover below mentioned functionalities

- 1. Over all functionality
- 2. Interface validation
- 3. Performance
- 4. Hyperlink accessibility.

Please find attached request and response file.

- C1 - S1 - Request — Pass

During this test we identified 3 defects

1 - Major defect id = 2626, 2 minor - defect id - 674646, 747744

Please let us know if any

Regards

Name, signature, email id, company name.

format of  
this should be 1 size  
less than body.

Send it.

Now, we have to send it again on next monday.

next monday

on the same email do reply to all.

just change the date.

Do all data copy paste & make changes according by.

Note II

mail chain is maintained for

- sending report
- defect analysis.

for locking new defect

- There will be new mail chain.

After that we will start our work on Tuesday.

which is known as comprehensive test.

~~Interview~~

## Smoke Testing

Sir, smoke testing means it is extra shake up of sanity test.

i.e. Smoke = sanity + troubleshoot.

I mean to say we will troubleshoot the build when it doesn't work. That means we have to identify where the exact issue is.

generally during smoke testing we perform package validation.

Package validation means,

Assume during execution we identify issue suppose it is run time error. Now we have to identify the object belongs to which package.

Then we request to platform team to recompile that particular package which containing issue

What about other objects in same package?

They run all the package.

Q Package validation

Q Smoke sanity

Q Troubleshoot -

Sanity test

Q. Back end ?

front + Back end ~~Not ancient either~~ ~~not~~ ~~ancient~~ ~~either~~ ~~not~~ ?

How can you do Sanity + Smoke together?

I do sanity + smoke together.

Interviewer : But in our company I do sanity & smoke differently ?

Scenarios

① can do sanity + smoke

② can't do sanity + smoke

your company has → testing  
development with another company.

⇒ only testing is with org

⇒ known as off the shelf architecture.

⇒ organization's logic will be  
How can we fetch more money in testing

⇒ Monday → do sanity      { do the same thing  
Tuesday → do smoke.      { but show differently.

This is not rule, This is business implementation.

## Traditional Architecture

But suppose company has

Testing + development.

⇒ Company has to deliver project in less time

⇒ This is known as traditional architecture.

But in our company I do sanity & smoke differently?

But sir, I am working in traditional architecture.  
we have to complete initial level testing on monday itself.  
& start the comprehensive early as we have only 4 days  
for it. That's why we perform smoke testing. Because in  
smoke we cover sanity + troubleshoot.

Then where I work?

It might be off the shelf..

Q. What do you do? Whether you do sanity 1<sup>st</sup> or smoke 1<sup>st</sup>?

sir, sequence is

- ① Sanity
- ② Smoke.

## ~~Big-Bang Testing~~

Interview

What is big bang testing?

Big Bang testing is nothing but Informal testing.  
I mean we need to test one major functionality from start to end In One Big shot.

Sir Generally, during this test we concentrate on a single stage to validate the functionality instead of multiple stages after completion of entire system development

Let's take an example of amazon delivery.

While testing here we will take one big functionality suppose its invoice generation

If invoice is generated properly from start to end means everything is fine

I mean Here testing from start to end means

login  
product selection  
payment system  
product delivery  
Invoice generation



If all is working fine,  
we can say,  
Total amazon delivery is  
working fine.

## formal Testing | Incremental Testing

During this test we validate functionality from unit level to system level

## Retesting

Re - Testing  $\Rightarrow$  Repeative Testing.

What is retesting ?

Sir retesting is nothing but  
Reexecution of our application / System on same build  
to validate functionality with different set of ip data.  
I mean to say to implement data intelligence.

to perform retesting.

Sir generally During this test, we apply  
multi dimensional data analytics approach.

What is difference bet. application & system?

System consists of multiple applications.

What is multidimensional data analytics approach?

front end Retesting

Suppose we are going to test login functionality on  
amazon build.

provide data of test like

User id

y

y

n

pwd.

y

n

y

n

Back end Retesting  
using data variance in file handling mechanism.

# Regression Testing

Regression = Regret + Action.

## Regression f Retesting

What I understand retesting of regression test is just an approach.

### Note !!

Every regression test is retesting but every retesting might not be regression.

## Interview What is Regression Testing ?

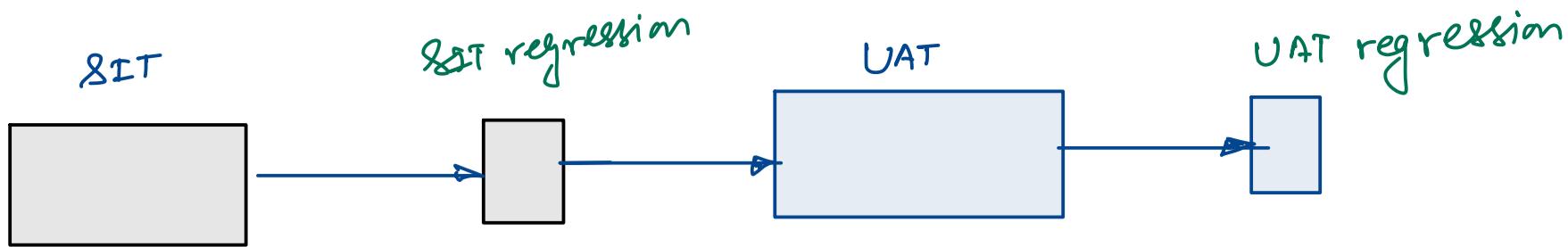
Regression testing is nothing but reexecution of our application or system on modified build to check bug fix work of occurrence of side effects.

Once we receive initial build, we start execution.

If we find any defect, we send it to developer.

Developer will fix those defect.

Once we receive modified build we check whether the existing defects gets resolved or not, or any side effects are present.



Q. When do you perform regression test?

Generally in every testing cycle, we perform twice regression test.

1. During Comprehensive test
2. During post SIT.

Q. What do you do in regression Testing?

During regression, we concentrate on

1. SIT failed test case.
2. Newly added scenario
3. High priority test case
4. If time permits, interdependent case.

## Case Study: Refactoring & Regression Test

Sir what I understand in refactoring & reexecution

tests reexecution is common factor.

common factor means repetitions of repetition means

probability of implementation of automation is maximum.

Where you implement automation?

Tell me the possibility to implement automation?

Sir, It must support standalone architecture

① Repetitions.

② Stand alone architecture.

### AI Testing

- Back end mechanism.

- will do on ETL functions.

- data set will be automated

- mapping bet. source system & target system  
will be automated.

- we will do back end automation.

In which scenario we can implement automation?

Where we can implement automation?

In common testing practice, we implement test automation wrt test impact of test criticality.

Big test impact means test repetition.

Test criticality means complex to test manually.

If we implement automation, advantage will be,

- ① Less time
- ② Less resource utilization
- ③ Avoid human error.

Drawback

① Doesn't support system integration architecture

② Doesn't support back end mechanism.

Amazon  
We can do in specific area where client server architecture is getting implemented.

We are doing data set automation not architecture.

# Automation

What is OOPS ?

It consists

- class
- object
- abstraction
- Inheritance
- polymorphism
- encapsulation.

What you did in automation ?

We are implementing backend automation.

① Data migration:

Data is migrating from one system to another.  
wrt business logic.

Why it is getting migrated ?

When technology gets changed, the behaviour  
of data changes f system behaviour changes.

What is your project ?

We are migrating Legacy data on to the cloud.

## Requirement

Avg salary

mapping

length

data types

count.

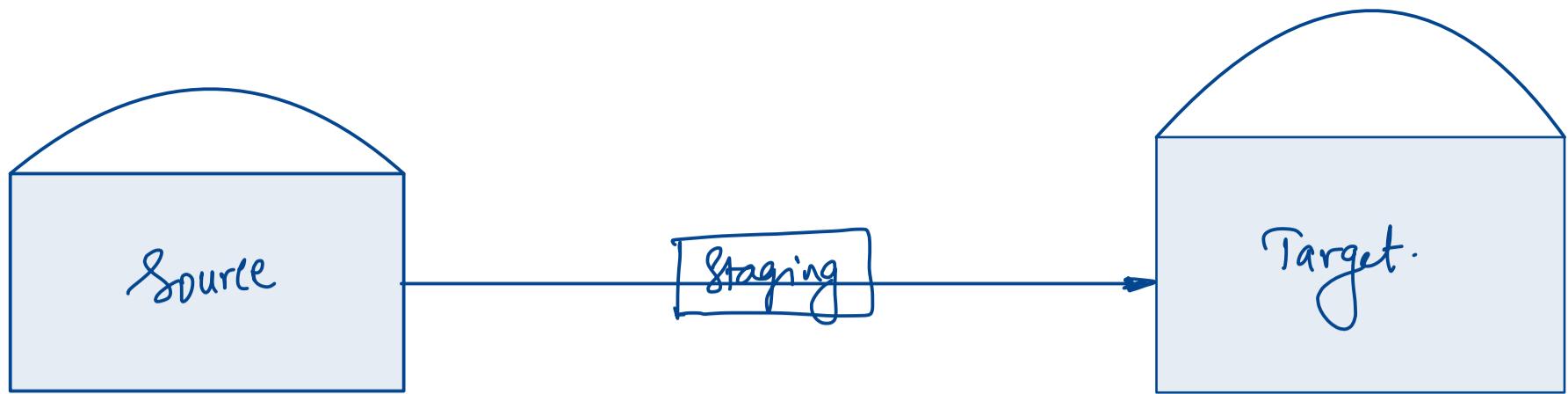
```
import numpy as np
```

```
import csv
```

file handling → data set

fname, lname, salary

amit, patil, 90000



functions need to test :  
in ETL

mapping  
 count  
 length  
 Datatypes  
 null value  
 Duplicate

How will you test this ?

Source

Subscriber name	Subscriber ID
Airtel	65677877

Target

A 65677877.
-------------

① Count should be same.  
 ② Check length → target → length should be 9  
    (= A + 8 digit ID)  
 ③ Datatypes  
    1<sup>st</sup> letter → character → should match with 1<sup>st</sup> letter of subscriber name.  
    last 8 letter → numeric

How will you test this?

fname      Lname  
AMIT      PATIL

Target  
email  
amit.patil@amazon.com.  
salary

Assume this data can be from big data/dwts} any container.

In which format data is coming?

Any format — JSON, CSV, flat file or other.

In real world test can be million but we will be

given

Max salary is 5 digit numeric  $\rightarrow 10000.00 \Rightarrow$  length 8  
 $\Rightarrow 4$

logically min salary is  $\rightarrow 1.00$

$\Rightarrow$  our code must consists length of salary between 4-8.

Can you please test for avg salary?

Use algorithm for avg. salary.

we will write programme To automate this million set of data.

Ask BA/client for max. length of customer name.

first name → 20

last name → 20

@ amazon.com ← static

Email → firstname.lastname@amazon.com

min length → a.b@amazon.com = 14

max length → \_20\_ - . - \_20\_ - @amazon.com = 52

⇒ min → 14  
max → 52

Count of source & target should same.

mapping

firstname.lastname.com

We use lambda function for this

## What is requirement ?

- ① Mapping of ETL functions
  - Length
  - Datatypes
  - count.

- ② avg salary .

These are the functions we are going to automate.

As per this requirement we have to write programme .

- ① import numpy as np
  - ② import csv
- ( numpy library is used to deal with numerical calculations )  
( In which format we are collecting those data , that Library should be imported here )  
e.g csv, excel, JSON

- ③ This data must come to the system to the terminal.

To bring dataset to terminal we use file handling.

We can use → r → execute  
write.

open system.  
with open (' path of file /filename ', 'r') as file :

opening in read formal  
↑  
w → write.

## How to Load the data from csv file?

(4)

Here always remember, file should be readable from 2<sup>nd</sup> row . (:- 1<sup>st</sup> row is for column name) .

for reading csv data there is one function  
i.e. `csv.DictReader(file which we want to read)`

dictionary reader  $\Rightarrow$  will read 1<sup>st</sup> row as column name.

Note!!  
If we write `CSV.Reader`  $\rightarrow$  it read from 1<sup>st</sup> row.

`CSV-file = CSV.DictReader(file)`  
 $\uparrow$   
variable

Now data is starting to read.

What if file is in JSON format?

`JSON.Load(file which want to load)`

(5) After reading the data it will keep in dataset .

What are the dataset?

List, Tuple, dictionary .

How to insert data into list?

How to insert data ...  
first keep one empty list. Insert the data here from dataset.

list variable  
↓  
fname = []  
variable name in which we have loaded the file.  
any variable  
for row in csv-file:

⇒ each value in csv-file

Here it will read as

firstname : Abhi  
firstname : Ashu  
firstname : Rahul -

⇒ first name will be repeated  
each f everytime

(∴ Data is in dictionary format)

format) But we want date as `firstname: Abhi, Ashu, Rahul`.

for this  $\Rightarrow$  we have to convert list into dictionary  
 $\Rightarrow$  we will add values into list.

How to convert list into dictionary?

How to list function.

With the use of dict function.

`dict = converter = dict (row)`

point (dict\_converter)

A hand-drawn diagram consisting of three separate horizontal blue lines. Each line has a blue arrowhead at its right end, pointing towards the right side of the page.

 (5) fname = [ ]

for row in csv-file:

dict-converter = dict(`now`)

point (dict-converter)

will get values  
in dictionary form.

⑥ Now we have to insert values into list.

As we don't want key everytime-

How to insert values into list?

with use of append function  
f = dict-converter [ "fname" ]  
fname.append (f)  
print (fname)

column name

Assign values of  
fname column  
to variable f.

What is the difference between Insert & Append ?

Append	Insert
If we want to add the data at the end	If we want to add data in bet?

programme till now

```
import numpy as nm
import csv
# file Handling
with open('file-path','r') as file:
    csv_file = csv.DictReader(file)
    # Insert data from csv into dataset
    fname = []
    for row in csv_file:
        dict_converter = dict (row)
        print (dict_converter)
        f = dict_converter [ "fname" ]
        fname.append (f)
    print (fname)
```

⑦ The same method is used to get only lname values.  
⇒ we will create dataset for lname.

```
lname = []
for row in csv_file:
    dict_converter = dict(row)
    print(dict_converter)
    l = dict_converter["lname"]
    lname.append(l)
print(lname).
```

⑧ Now we have to create emailID.

means format for that will be

Email = fname.lname @ amazon.com

for this 1st we will declare one variable for @ amazon.com.

Suppose,

domain = "@amazon.com"

→ This is constant value.

⑨ Now we have to validate count function

i) for this first of all we have to count at the source system.

i.e. fname, lname is same or not.

If yes then we will go to the target system.

fname	Iname
-	=
-	=
-	=
-	=
-	=
-	=
-	=

Target

```

=====
| |
| |
| |
| |
=====
```

If fname=10  $\Rightarrow$  Iname should be 10.

If it is then count(target) should be 10.

(I) for this we will use len function.

for fname  
 fname-total = len(fname) # to check count function  
 in firstname in  
 source table.  
 print(fname-total)

fname-count-variable = fname-total.

if fname-total == fname-count-variable:  
 print("fname count is", fname-count-variable)  
 else:  
 print("source system count Error")

for lname  
 (II) lname-total = len(lname) # to check count function  
 in lname in  
 source table.  
 print(lname-total)  
 lname-count-variable = lname-total.

if lname-total == lname-count-variable:  
 print("lname count is", lname-count-variable)

⑩ Comparing count of fname of lname

for comparing we will use lambda function.  
↓  
main objective

Note II

As we are doing ETL function automation  
⇒ we will do mapping  
⇒ lambda functions are important.  
main objective of lambda functions are mapping.

What are lambda functions?

It is used for the higher order functions

↳ mapping  
↳ sorting  
↳ filtering.

mapping\_dot = list(map(lambda x,y: x+'.'+y, fname, lname))  
print(mapping\_dot)

⑪ Creating data set for email id.

```
email = []
for i in mapping_dot:
    print(i)
email_creation = i + domain
print(email_creation)
```

12

# Data length validation

Checking length of email

$p = \text{len}(\text{email\_creation})$  min length  
if  $p \leq 42$  &  $p \geq 14$ :  
    print ("length of email is perfect")  
else:  
    print ("length of email is not perfect")

max length.

13

Enter email ID's in email list

email.append (email\_creation)  
print (email)

14

Checking count for email

count\_email = len (email)  
print (count\_email)

15

# Validate source of target system count function

if fname\_total == lname\_total == count\_email:  
    print ("count function is matched source of target")

else:  
    print ("count function is not matched  
          source of target")

⑯

finding out avg salary

# checking avg salary of data.

salary = [ ]

for s in :

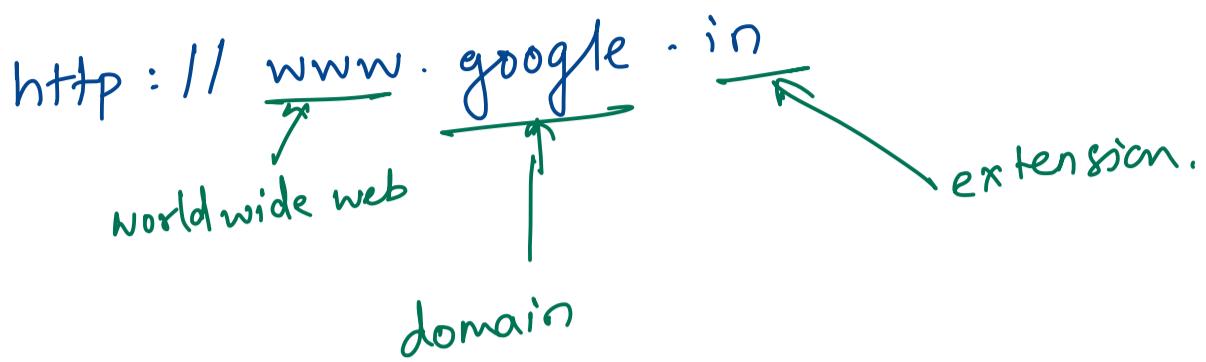
mean\_value = np.mean(salary)

print ("avg salary of scodeen is " mean\_value)

Sir I have involved in data set automation.  
by implementing mlc learning algorithms by using  
python script.

Q. Difference between http & https ?

https → Secure.



Q Which version you are using?  
What is the difference bet? Oracle gi, log & loc

We use log -

gi → internet.  
log → grid  
loc → cloud

Q.3. Server architecture

① Stand alone server  
client & server are in one system.



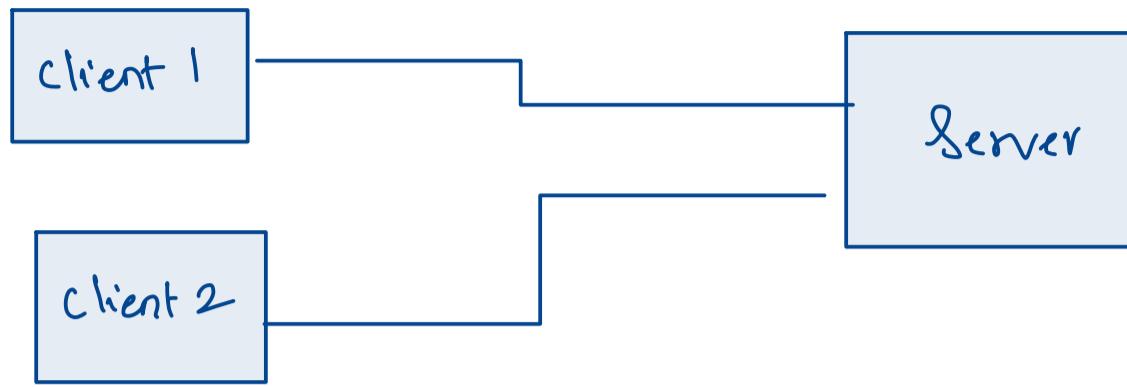
standalone

(1 computer ⚡ client & Server)

② 1 Tier architecture  
One client with different server is known as client-server architecture.  
client & server are in different system.

## 2 tier architecture

one server multiple clients



## 3 tier architecture

All the websites run on 3 tier architecture.

e.g front end

Java, html, css, python

web server

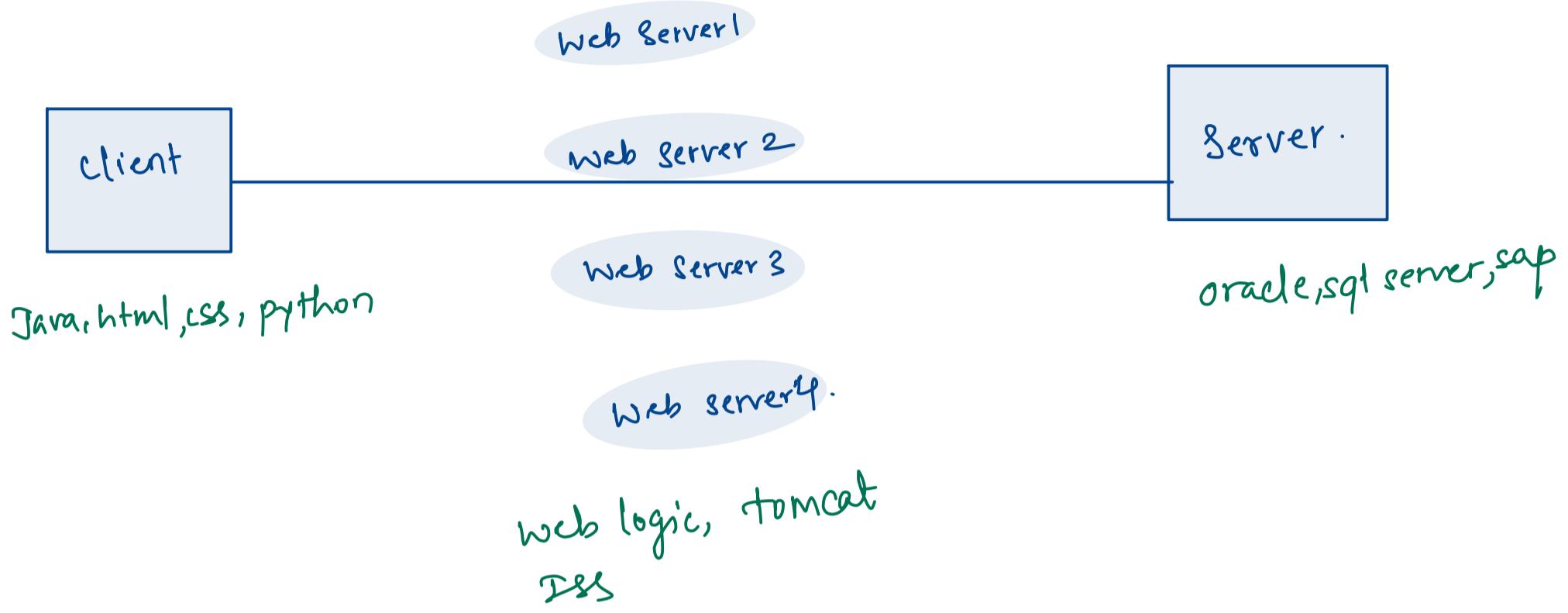
e.g web logic,  
IIS



database  
(SQL server, oracle, sap)

Q On which architecture you have worked?

n-tier.  $\Rightarrow$  multiple Webservers are there.



Note!  
If client is Java  $\rightarrow$  it doesn't support IIS.  
.Net supports IIS.

How many webservers are there in your architecture?

## Web based testing

Have you involved in web based testing?

web based appl. → website  
what do you do here?

- ① Hyperlink accessibility
- ② performance
- ③ Interface validations
- ④ Page navigation
- ⑤ Tab validation.
- ⑥ session
- ⑦ cookies.

What is the difference bet? session f cookies?

Session	Cookies
<ul style="list-style-type: none"> <li>- Session is used for security reason.</li> <li>- during any web application execution, the time span bet? event 1 f event 2 is called. as session.</li> </ul>	<ul style="list-style-type: none"> <li>- During execution of any web based application system generates log file. one is temporary f another is permanent.</li> <li>Temporary file is known as cookies</li> <li>f the permanent files gets stored in server.</li> </ul>

Web Service testing

API

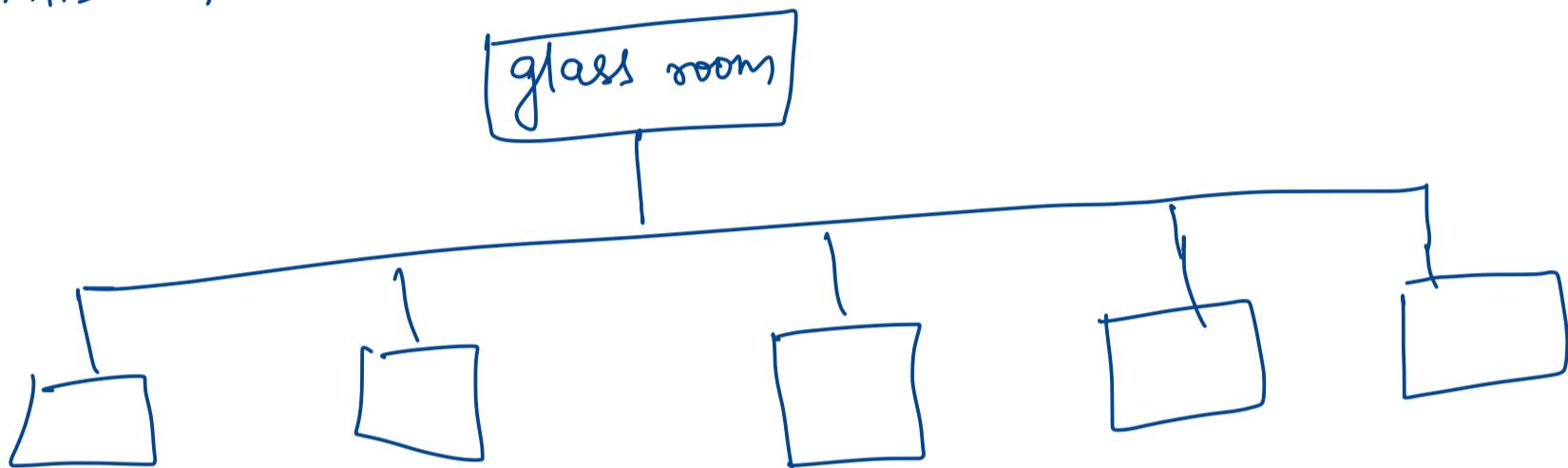
Q What is SQL injection?

It is used for hacking purpose.  
If the condition is true that time system has authority

# Business Class

How project came?

client shares info that  
"we are going to deliver 5G project".  
This information is known as glass room.



Sow paper (Statement of work)

It consists

project duration

technology

risk

system information

resource information.



Kick off meeting

It is very initial meeting between client & team members. In this meeting we discuss goals of objective of project. How are we going to achieve it.

What are the roles of responsibilities?

Chairperson : BA.

requirement analysis is done.

Suppose requirement comes at 1 Jan.

requirement : Search the flight.

① Requirement analysis

## Requirement analysis

lets take example of amazon.  
customer load, 3rd party transfer.

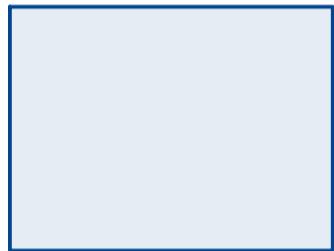
What is 3rd party transfer ?



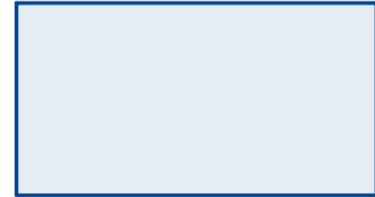
Bank 1



Bank 1



Bank 1



Bank 2 .

To transfer money from Bank 1 to Bank 2

NEFT

RTGS

IMPS

Note: whenever requirement comes,  
each one will get only one unit/requirement .  
Bnt its important to know each f everything so that  
you can lead the team.

## Requirement

- Third\_party\_transfer - NEFT
- Third\_party\_transfer - RTGS
- Third\_party\_transfer - IMPS

## During analysis

We know

client & receiver are different. There are 3 approaches. But difference between them are

	NEFT	RTGS	IMPS
max eligible transfer	upto 10 lakh	2 lakh - 2000 cr	1 - 2 lakh (max)
Settlement	settles every 30 min (multiple settlement)	Instant Settlement	Instant Settlement

Logic for all 3 requirements will same

## Requirement

Suppose we are purchasing a product on amazon.

F

Buy

Buy Again

Cancelled order

Requirement analysed as

What is difference bet? Buy & Buy Again?

These are different functions. So we have to ask

them.

Buy → 1st time buy  
Buy again → Not first time  
product status → initiated (I)

## functional flow of Buy

login → product selection → buy now → pay → NEFT → product delivery → invoice generation  
login → product selection → buy now → pay → Net banking → delivery → invoice  
login → product selection → buy now → pay → UPI → delivery - invoice  
login → product selection → buy now → pay → credit card - delivery - invoice  
login → product selection → buy now → pay → debit card - delivery - invoice

login → product selection → <sup>order place</sup> → product delivery → Buy → invoice gen?  
login → product selection → <sup>order place</sup> → product delivery → Reject → Return.

These are the scenarios for Buy

## Requirement 2

Buy again: → not first time buy

question

Is product : different | same. ⇒ if same

product status = delivered (D)

buy now → pay → NEFT → product delivery → invoice generation

buy now → pay → Net banking → delivery → invoice

buy now → pay → UPI → delivery - invoice

buy now → pay → credit card - delivery - invoice

buy now → pay → debit card - delivery - invoice

As product  
is already bought  
⇒ no need to login  
& product selection.

order → product delivery → Buy → invoice gen.  
place  
order → product delivery → Reject → Return.  
place

These are the scenario's for buy again.

## Requirement 3

Not yet shipped.

product status — delivered

## requirements

- ① one way → 3 months
- ② Round trip. → -
- ③ multicity. → -

### ① One way

Requirement

Goibibo-flights - One-way  $\Rightarrow$

Goibibo-flights - Round Trip

meaning →

Goibibo-flights - One-way

### Scenarios

Goibibo-flights - One-way - from

Goibibo-flights - One-way - to

Goibibo-flights - One-way -  $i = to$

Goibibo-flights - One-way - swap

Goibibo-flights - One-way - departure

Goibibo-flights - One-way - return & disable

Goibibo-flights - One-way - travellers

Goibibo-flights - One-way - travellers - adults

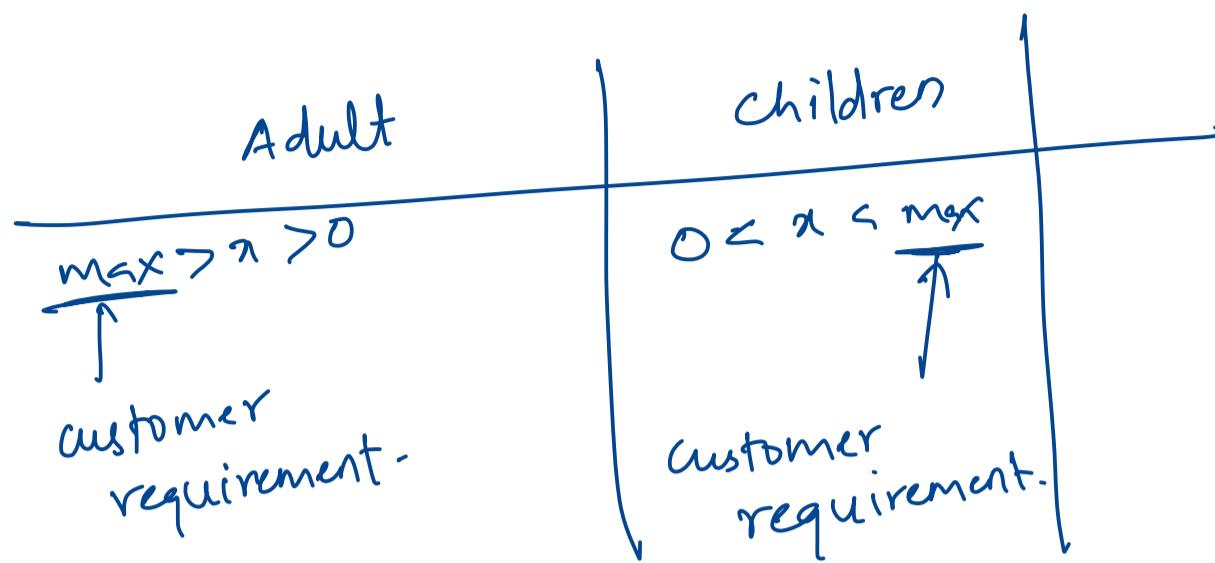
travellers - infants

Goibibo-flights - One-way - travellers - children.

travellers - children.

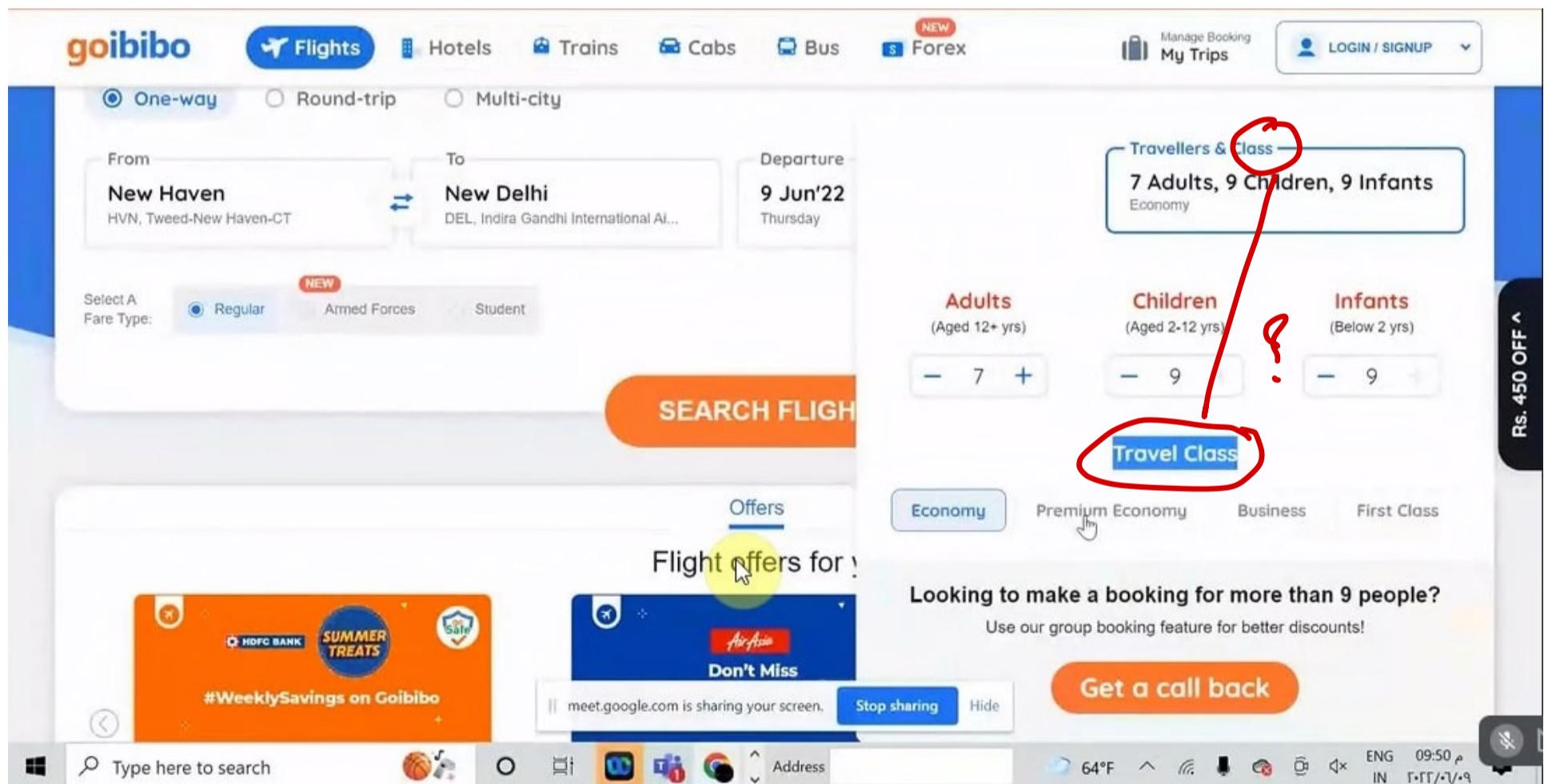
Relationship b/w objects should be maintained at back end.

→ schema design.



Travel class

What's the meaning of this? creating confusion.



Age → 12+ , 2-12 , < 2+

⇒ Where should we put who has age exactly ↗ at day of purchasing

- ① I must know what are the objects needs to be evaluated.

Q. How you receive SRS document?  
We receive SRS document via emailing IP address  
of the central

- ① Type that IP address in search
  - ② There will be folders in which SRS is saved.

 R-4.0-amazon-invoice-generation-SRS-final v4.

⇒ make sure its final version.

→ Make sure  
for this we have to communicate with BA.

- ③ Open this folder  
there will be srs file  
copy that file & paste it into our system.

SRS has huge amount of data (1600-2000 pages).

What does SRS consist of?

~~e.g.~~ requirement

login

if

Use case

User ID  
password

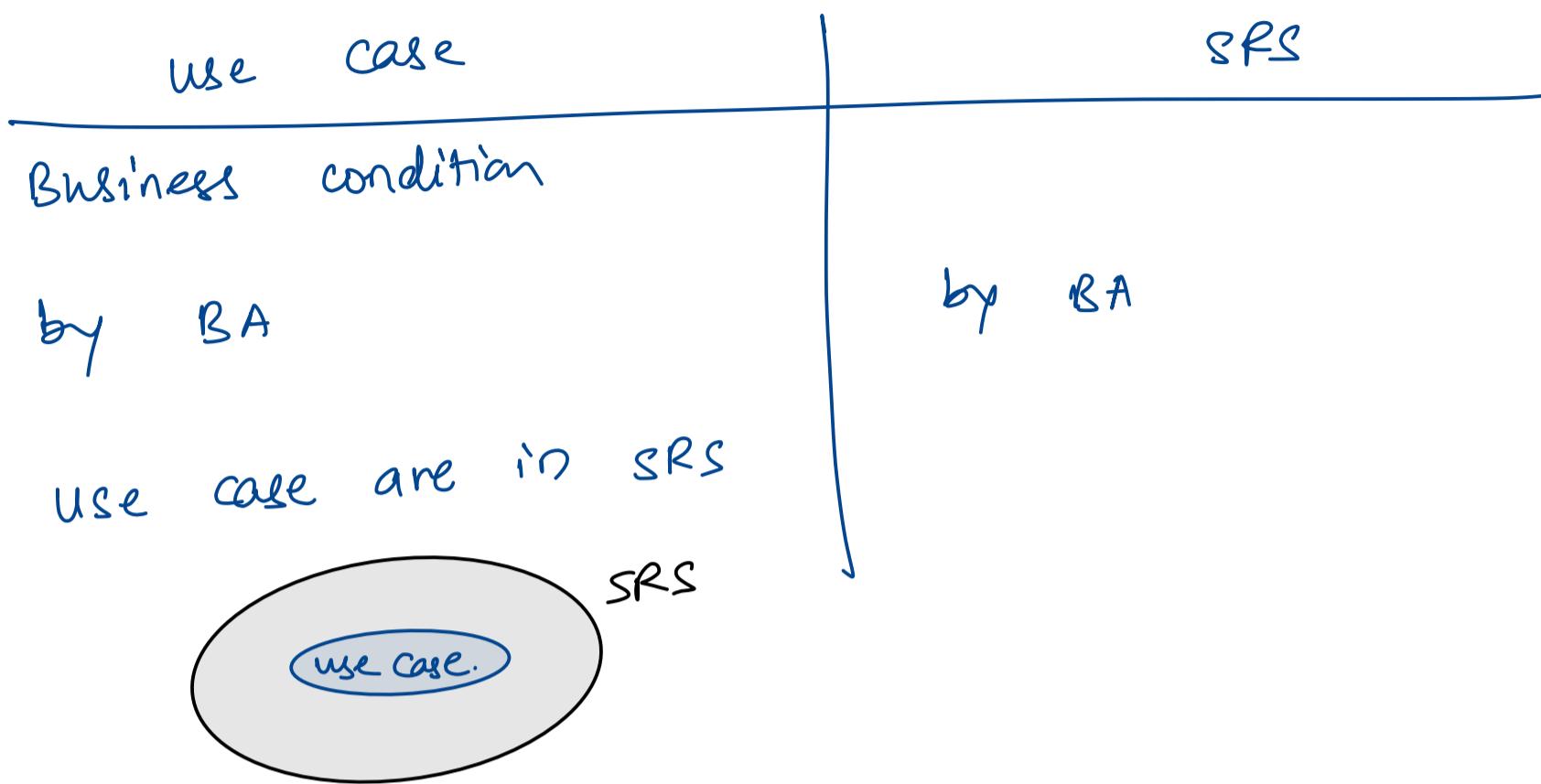
1

Successful msg

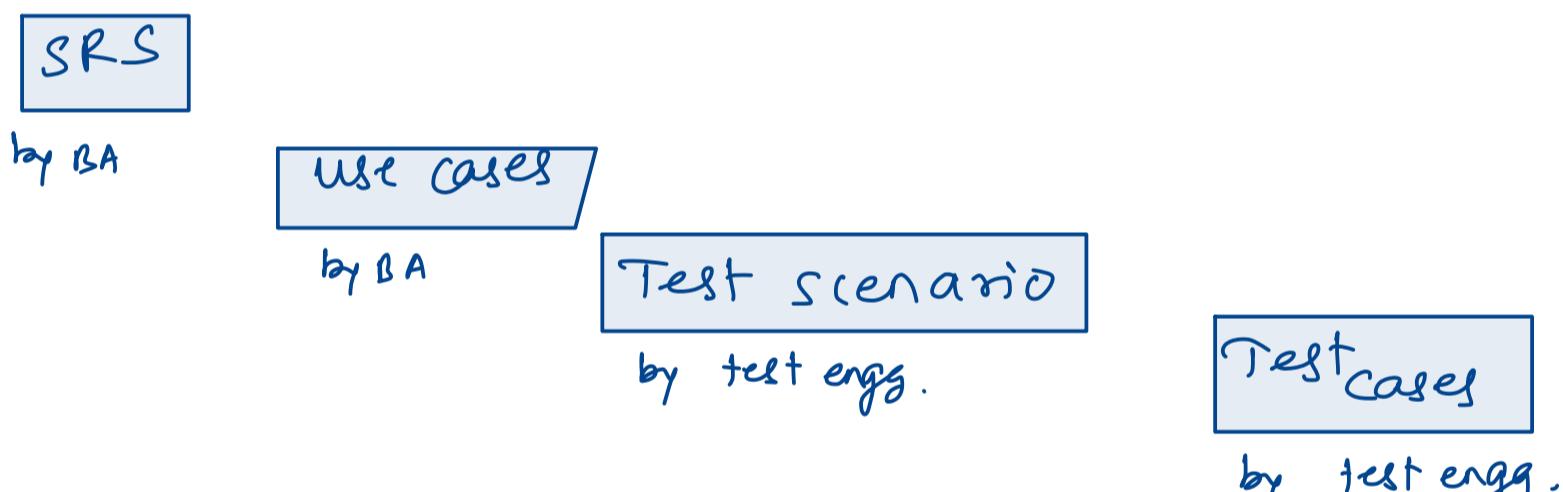
$\Rightarrow$  error msg

What is the difference between SRS & use case?

Test scenarios & Test cases?



We as tester involved in test scenario.



After getting SRS, we will prepare for test scenarios.

Test scenarios -

Scenarios are nothing but business conditions.

We have to pull it from use cases with 3D logic.

Q. What is SRS?

functional requirement to be developed, f  
system requirement to be used.

Q. What is use case?

Use cases are nothing but functionality in  
terms of i/p, o/p & process.

Q. Test scenario:

Scenario defines the list of probable conditions  
needs to be applied to derive the functions.

Test scenarios are derived from functions.

Every object has functions.

e.g.

object

function

human : eat, hear, cry, laugh, run, speak.

amazon : online buying, selling.

⇒ function is nothing but existence of object.

⇒ 1st find the function of object.

① System level

② Appl. level

③ Object level

④ Data level.

e.g.

Suppose payment system.

① payment system  
level functions

financial transaction  
from buyer to seller.  
 $(a-n)$                      $(a+n)$

② application level  
function

If I want to buy product 1<sup>st</sup> time  
order - product selection - buy - deliver

③ object level  
function.

email & alternative email are two  
objects.

Relationship bet. them.  
⇒ If  $\text{email} = x$ ,  $a\text{email} \neq x$ .

objects → departure date  
return date  $\Rightarrow$  relationship  
return date  $\geq$  departure date.

#### ④ Data level functions

If we are analysing date of birth.

$\Rightarrow \text{DOB} \leq \text{system date}$

What is the duration for test scenario?

2 days for 1 release / 3 month.

Name of scenario

System - function - condition to derive function -

Human - breath - oxygen - mouth

Human - breath - oxygen - nose 1

Human - breath - oxygen - nose 2

Human - breath - oxygen - nose 1 f nose 2

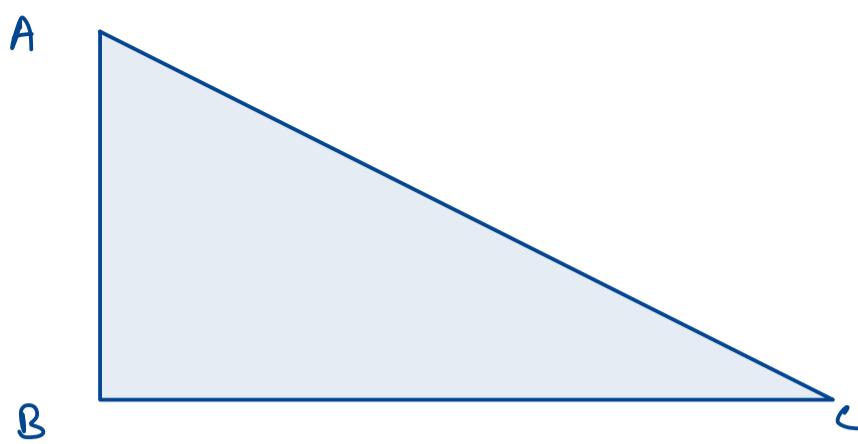
Human - breath - oxygen - mouth f nose

Q. What are the test scenarios for circle?

Circumference =  $2 * \pi * r$  where  $r \rightarrow$  radius.

Area A =  $\pi * r * r$ .

Q. Derive scenarios for right angle triangle?



① no. of angles = 3

f ② Any of

i)  $A = 90^\circ \ f B+C = 90^\circ$

ii)  $B = 90^\circ \ f A+C = 90^\circ$

iii)  $C = 90^\circ \ f A+B = 90^\circ$

③ Any of

i)  $A = 90^\circ \ f BC^2 = AB * AC$

ii)  $B = 90^\circ \ f AC^2 = AB * BC$

iii)  $C = 90^\circ \ f AB^2 = AC * BC$ .

④ Any of

i) If  $A = 90^\circ, \Rightarrow \text{Area} = \frac{1}{2} \times AB \times AC$ .

ii) If  $B = 90^\circ, \Rightarrow \text{Area} = \frac{1}{2} \times BC \times BA$ .

iii) If  $C = 90^\circ, \Rightarrow \text{Area} = \frac{1}{2} \times CA \times CB$ .

Q. Derive test scenarios for pen?

(fountain pen)

function of pen → writing (color of paper should not match with ink color)

d o  
co x

- ① It should write (color of paper should not match with ink color)
- ② Fuel should be in liquid state
- ③ It obeys gravitational rule
- ④ lines must not be erased
- ⑤ If follows capillary tube mechanism.

Scenarios for pencil

- ① It should write (color of paper should not match with ink color)
- ② Fuel should be in solid state (graphite rod)
- ③ It obeys gravitational rule
- ④ lines must be erased
- ⑤ If follows capillary tube mechanism.

Q. Suppose F mobile of Samsung company which has 4G SIM.  
How will you define this in OOPS?

i.e. In above scenario  
what is class, object, data, function?

Q. Write test scenarios for mobile  
chair  
fan

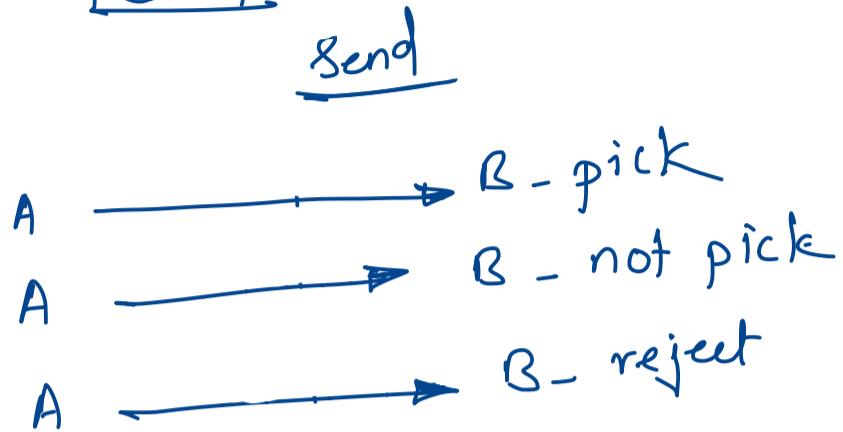
Select    `substring(emailid, charindex(email, ',`

## How to define mobile?

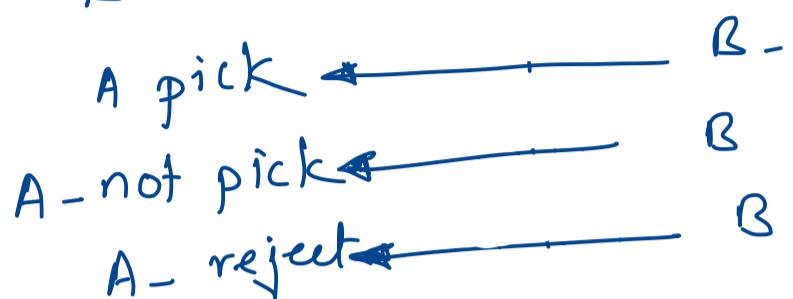
functions of mobile - calling  
message

### Scenarios

[Call]:



Receive



[message]:

Send

message send - Text

message send - 250 words

message send > 250 words

message send < 250 words

receive

message receive - Text

message receive - 250 words

message receive > 250 words

message receive < 250 words

[file]

Send

file send - format

file send - size

file send > size

file send < size

receive

file receive - format

file receive - size

file receive > size

file receive < size

### Q. Write scenarios for dual sim?

sir, what I understand, dual sim is nothing but 2 sim in a single device.

We can categorize functions of dual sim as

- ① Call
- ② message.

#### Scenarios

##### Calling means

- ① Sim 1 should call to Sim 2 → No.
- ② Sim 2 should call to Sim 1 → No.
- ③ If call at Sim 1, Sim 2 on same time stamp.  
which sim should be activated

↳ Ask this question to client & decide priority accordingly.

- ④ When Sim 1 active - Sim 2 should inactive

- ⑤ When Sim 2 active - Sim 1 should be inactive

##### Message means

- ① Sim 1 messaging Sim 2 → yes
- ② Sim 2 messaging Sim 1 → yes.
- ③ msg at Sim 1, Sim 2 on same time stamp.

↳ Ask this question to client & decide priority accordingly.

- ④ Sim 1 active - Sim 2 should active

- ⑤ Sim 2 active - Sim 1 should be active.

## Sending email

Requirement :

Sending email - compose

Sending email - reply

Sending email - reply to all

Sending email - forward.

### Note

To → to whom we are sending mail.

CC → carbon copy (who should know it)

BCC → Blind carbon copy (receiver can't see to whom this mail goes to)

### objects

① To

② CC

③ BCC

we have to design accordingly.

① To

- i) Placing 0 candidates.
- ii) Able to place 1 candidate
- iii) Able to place more than 1 candidate

⇒ If yes ⇒ what will be the separator?

We should ask this question to client -  
for design according to requirement.

- i) Separator ⇒ a) placing ; (As per requirement) → Should pass  
b) placing , (other than) } Shouldn't pass.  
c) placing nothing }

v) As 'To' is text box  
maximum length = 256 (requirement)  
min. length = 1

for i/p conditions there will be

ⓐ 6 Boundary value Analysis (BVA) conditions for length.

min + 1	max + 1
min	max
min - 1	max - 1.

ⓑ 5 conditions for type (Equivalence class partitioning)

⇒ total i/p conditions  $5 + 6 \Rightarrow 11$ .

⇒ Total conditions for 'To' object

$$= 11 + 6 = 15$$

② CC  
same conditions as 'To' will be applied  
to the 'cc' also

③ BCC  
same conditions as 'To' will be applied to  
'BCC' also.

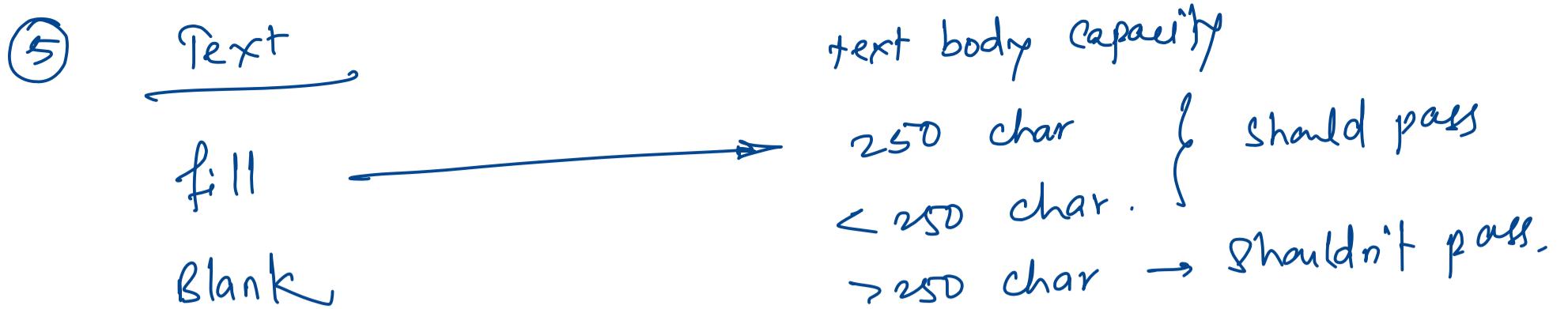
- ④ Subject line  
i) Entering subject  
ii) Not entering subject.

i) Entering subject  
~~If yes then~~

As we know subject object is input text box.

⇒ BVA → 6 conditions  
ECP → 5 conditions.

$$11 + 2 = 13 \text{ conditions}$$



⇒ total conditions = 5.

⑥ Attachment

i) No

ii) Yes .

Ask clients which  
should support  
of which shouldn't .

<u>file type</u>	<u>requirement.</u>	<u>file capacity</u>
word doc	{ yes .	8 mb
pdf		> 8 mb
JPG		< 8 mb -
notepad .		
Excel	→ No	

⇒ Total conditions  $\Rightarrow 4 \times 3 = 12$

excel x → 1

yes attach → 1

No attach → 1

15

Total scenarios for compose email

$$15 + 15 + 15 + 13 + 13 + 15 = 86.$$

Same scenarios will be for reply → 86.

Note

This will require more than 1 month time period.

## ② Now requirement is reply

### i) To

1

<1

>1

Separator

$$\text{Text box} \Rightarrow \begin{matrix} \text{ECP} & \text{BVA} \\ 5 + 6 = 11 \end{matrix}$$

#### Note!!

There is to box  
it should be only 1 one email

but this is off.

→ Conditions will be same as compose

generally for reply

in To → whoever we are replying, it should come by default.

ii) cc  
Same 15 conditions

iii) bcc  
Same 15 conditions

iv) Subject  
i) nofill → then also RE:  
ii) fill → RE: subjectline should remain constant.

As we reply subjectline should be displayed as

RE: subjectline

## v) Text body

a) filled →



Ask client about requirement.  
what should be format -  
⇒ Server statistics should be replicated  
exactly in it -

⇒ After that body text will be there

$> 250$   
 $< 250$   
 $= 250$ .

b) Blank

Here also server msg will come.

vi)

## Attachment

a) Yes →

word doc  
pdf  
jpg  
Notepad

not → excel.

This should be  
as per requirement -

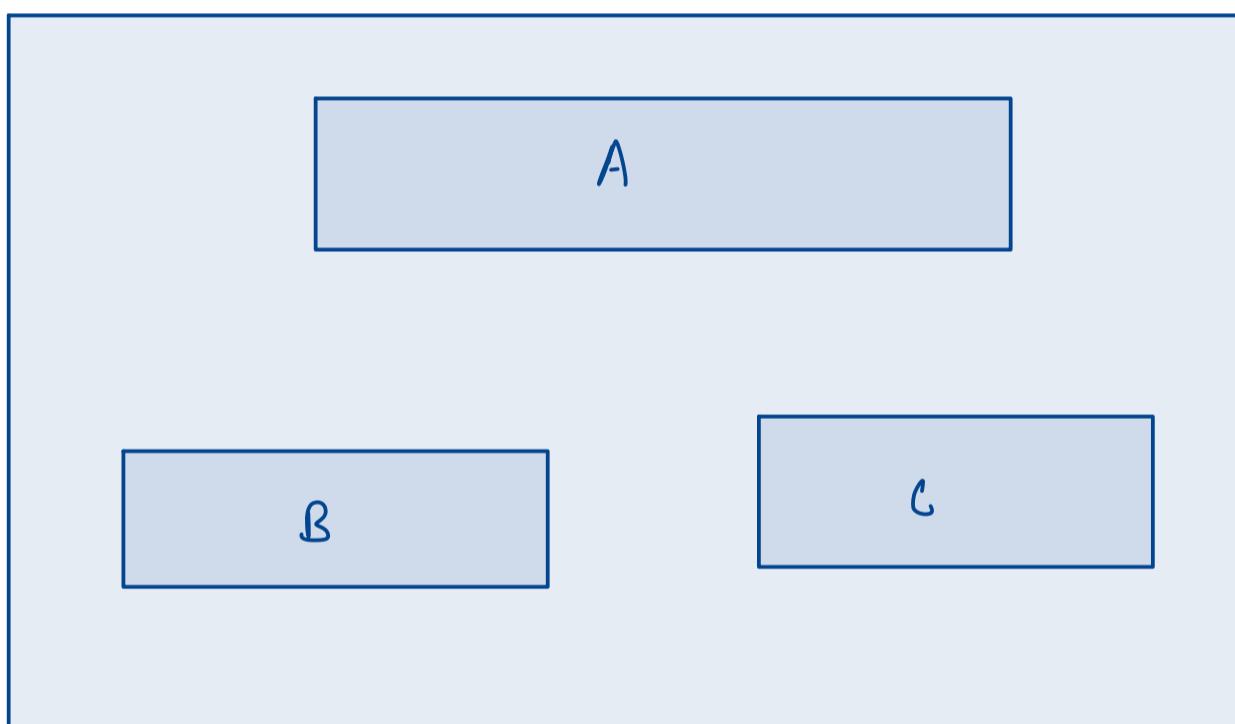
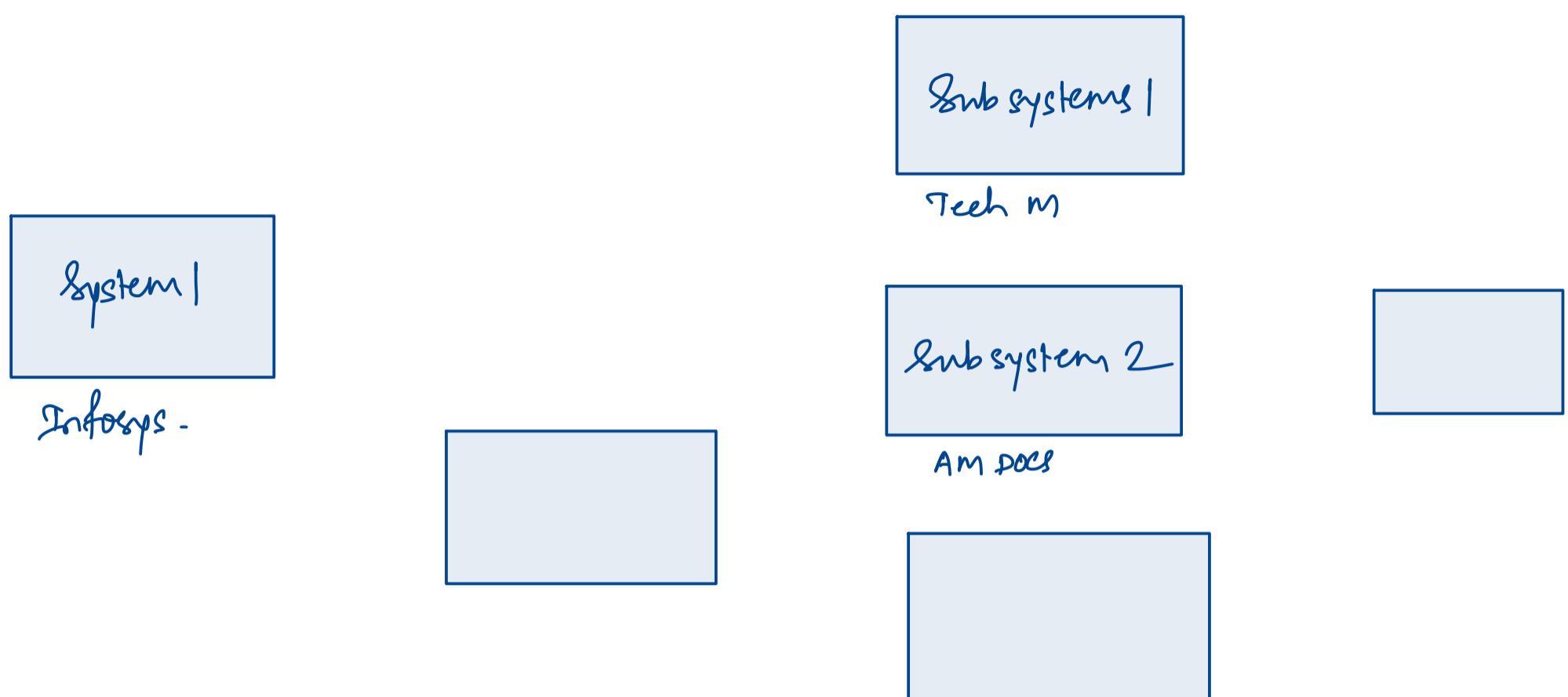
↑  
Checking size of file       $> 25 \text{ mb}$   
 $< 25 \text{ mb}$   
 $= 25 \text{ mb}$ .

③ Requirement - forward

Same as reply  
just FW instead of RE.

In this way find out scenarios for other requirement

How we are going to work in system integration architecture?



A or B & C.

Suppose → A → email  
B → alternative email  
C → mobile no.

requirement → Either email or alternative mail & mobile no.

Different possibilities

a	b	c	O/P
Y	Y	Y	pass
Y	Y	N	pass
Y	N	Y	pass
Y	N	N	pass
N	Y	Y	fail
N	N	N	fail
N	N	Y	fail

A i.e. condition1 is pass

or

B+C i.e. condition is pass.

Requirement - Show me language %. → Statistical analysis.

Suppose example of canara .bank.

### functions

- ① Login
- ② Switch to lite version.

lets consider login.

Release

↓  
R 4.0 - canaraBank - login ← function.

Scenarios for sign in

R 4.0 - canaraBank - login - Uid - pwd - captcha - English - Sign in

R 4.0 - canaraBank - login - Uid - pwd - captcha - Marathi - Sign in

R 4.0 - canaraBank - login - Uid - pwd - captcha - Hindi - Sign in

R 4.0 - canaraBank - login - Uid - pwd - captcha - Gujarati - Sign in

R 4.0 - canaraBank - login - Uid - pwd - captcha - Tamil - Sign in

R 4.0 - canaraBank - login - Uid - pwd - captcha - Telugu - Sign in

R 4.0 - canaraBank - login - Uid - pwd - captcha - Kanada - Sign in

## Scenarios for activate user ID

[fun] → Activate/unlock User ID.

for corporate user

R 4.0 - canaraBank - Activate VID - VID - Date of incorporation -  
corporate user - PAN - Pan number - Account number - clear

R 4.0 - canaraBank - Activate VID - VID - Date of incorporation -  
corporate user - passport - passport number - Account number - clear.

R 4.0 - canaraBank - Activate VID - VID - Date of incorporation -  
corporate user - PAN - Pan number - Account number - unlock user

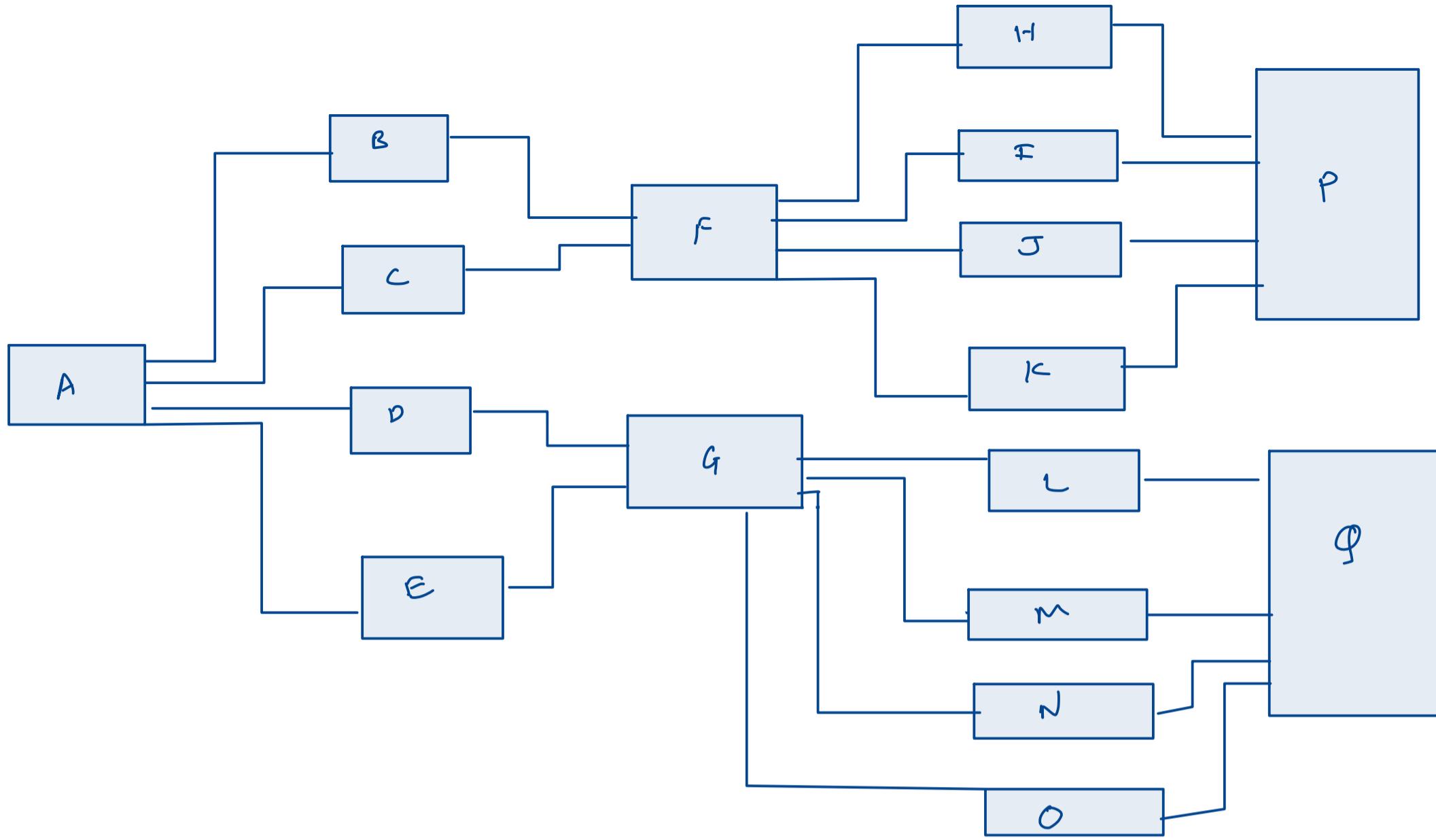
R 4.0 - canaraBank - Activate VID - VID - Date of incorporation -  
corporate user - passport - passport number - Account number - unlock user.

R 4.0 - canaraBank - Activate VID - VID - Date of incorporation -  
corporate user - PAN - Pan number - Account number - Activate user

R 4.0 - canaraBank - Activate VID - VID - Date of incorporation -  
corporate user - passport - passport number - Account number - Activate user

- R 4.0 - canaraBank - Activate VID - VID - Date of Birth -  
Retail user - PAN - Pan number - Account number - clear
- R 4.0 - canaraBank - Activate VID - VID - Date of Birth -  
Retail user - passport - passport number - Account number - clear.  
- Aadhar -  
- Debit/credit card -
- R 4.0 - canaraBank - Activate VID - VID - Date of Birth -  
Retail user - PAN - Pan number - Account number - unlock user
- R 4.0 - canaraBank - Activate VID - VID - Date of Birth -  
Retail user - passport - passport number - Account number - unlock user.  
- Aadhar -  
- Debit/credit card -
- R 4.0 - canaraBank - Activate VID - VID - Date of Birth -  
Retail user - PAN - Pan number - Account number - activate user
- R 4.0 - canaraBank - Activate VID - VID - Date of Birth -  
Retail user - passport - passport number - Account number - activate user  
- Aadhar -  
- Debit/credit card .

- Q. How many corporate users are trying to activate their user ID by using pan no. or passport .
- Q. What are source system in your project .
- Q. What are the functions of your project .



A-B-F-H-P

A-B-F-I-P

A-B-F-J-P

A-B-F-K-P

A-C-F-H-P

A-C-F-I-P

A-C-F-J-P

A-C-F-K-P

## Test strategy

It outlines the testing approach and every thing else that surrounds it

## Test plan

We can called as a super document that list every think there is know and need

A document that defines the scope, objective, approach to the test the software application.

Test plan is a document that lists all the activities in QA project, schedules them,

defines

the scope of the project,

roles and responsibilities,

risks,

entry and exit criteria,

test objective,

and anything else that you can think of

## Data migration project

Where have you involved in data migration?

Oracle to Hadoop / Big data.