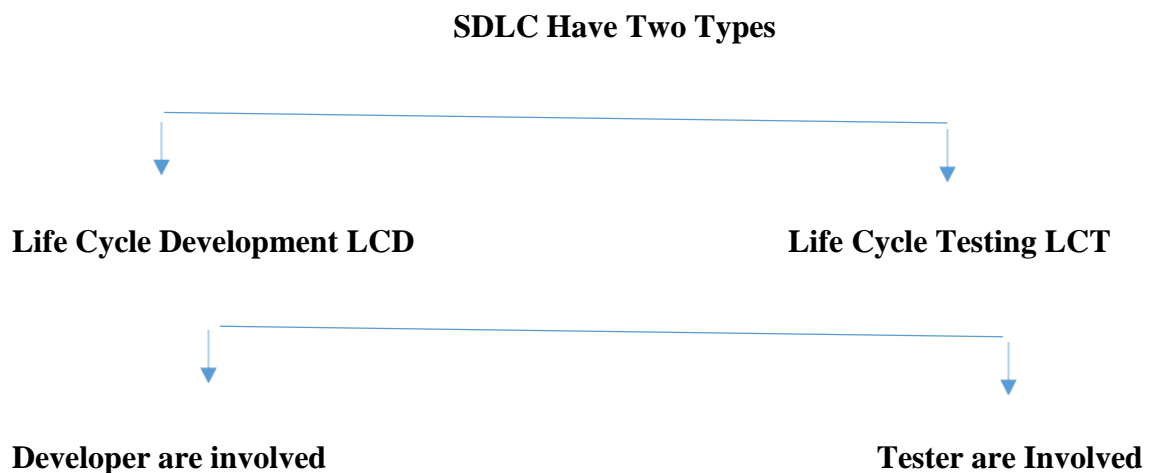


Process-

- Process a way to develop & test the software/ application
 1. SDLC (software development life cycle)
 2. Waterfall model/ Process
 3. V-Model/ Process
 4. **Agile model/process**
- **Who will decide the Process**
- If Client has IT department – then Client will decide the Process ex. HSBC
- If Client not has IT department – then Company will decide the Process ex. Cred
- **Process decided**
- Ex. HSBC company → Client has IT department → Wipro → Project process by Client
- Ex. Cred → Client don't IT department → Accenture → Project process will decided your company

SDLC – Software Development Life Cycle

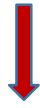


SDLC-

It is a process used by the software industry to design, develop and test the high quality software.

SDLC is process which includes following stages (06 stages)

Information Gathering



Analysis



Design



Coding



Testing



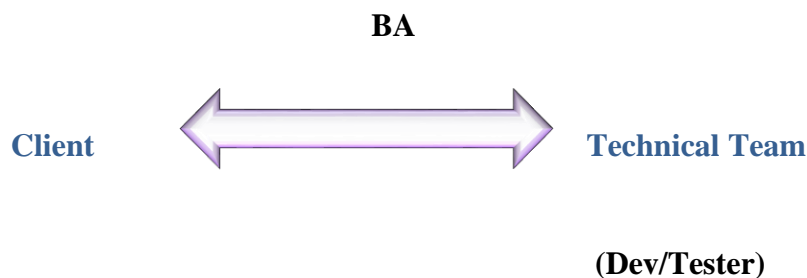
Maintains

- SDLC different stage

1. **Information gathering / BRS** (Business requirement specification) → BA → Collect the requirement from Client
2. **Analysis/ SRS** (Software requirement specification) → BA → Functional requirements
3. **Design** → **Designer** → prepare the HDL (High level design), LLD (Low level design)
4. **Coding** → **Developer** → developer will do coding on LLD
5. **Testing** → **Tester** → Tester will **TCD** (Test case designed), **TCE** (Test case execution)
6. **Support/ maintenance** → Application/ software support

Information gathering

- BA is responsible for information gathering
- Information gathering means requirement gathering
- In these stage **BA will interact with Client & collect requirement related to client business**
- In these stage BA will **prepared a BRS (business requirement specification)**
- **BRS** defines **business related requirement for the application**
- **Ex.** Client business/project → End user a Platform/ application → End user bedding → Client will take charge from end user → Application = Dream 11
- **Ex.** Client Project – Platform – End user application login – access / plane – service you see - Hotstar/ amzone Prime
- BRS documents we don't get (developer & tester)
- **BA is taking Requirement from clients/Customers & Preparing BRS document**
Simply it acts as **bridge between**

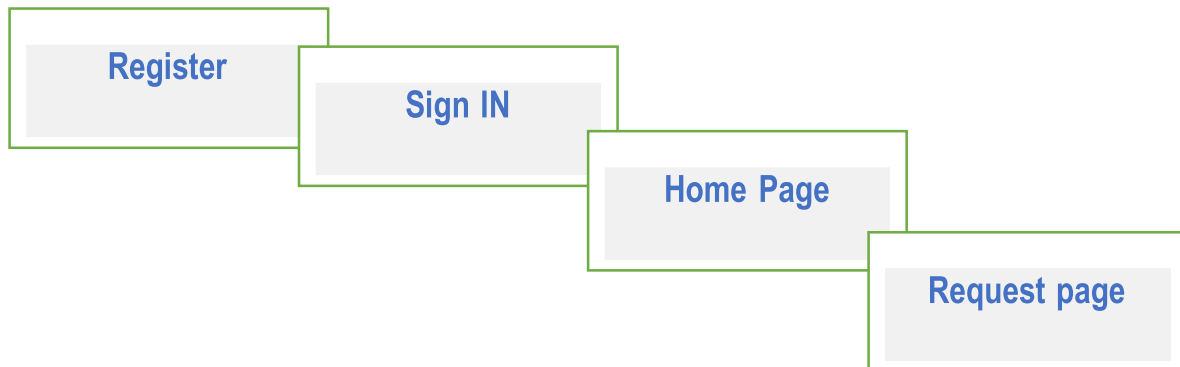


Analysis

- In analysis stage, **BA is working**
- BA will communicate to the client & collect requirement from Client, against these **requirement related to functionality of the application**
- BA again prepared a documents **SRS (Software requirement specification)**
- SRS also called **FRS (functional requirement specification)/ CRS (customer requirement specification)**
- SRS defines **software/ functional requirement to be development & system requirement that will used**
- **Ex.** Paytm – Recharge Module → Mobile no. text box (10 digits no.) & Circle selection & operator text box → Browser planes new tab
- **SRS** will contains

1. **Functional requirement** (Project – multiples requirement)
2. **Functional flow diagram** – (Step by Step flow)
3. **Use Case** –(specify requirement/ 1 requirement)
 - A. **Description** – Details about requirement
 - B. **Acceptance criteria**-Does & Don't about requirement
4. **Screen shot/ Snapshot/ Prototypes** – Application without functionality

1. Functional flow Diagram



- Represents step by step stages of Application/product
- Represents relation between the task
- Dependencies between the tasks

2. Functional requirement

Meeting the attributes which are required to complete specific function/Task

For Example – Register on Banking App

First name - Should accept Character only, Length | Special Char not allowed

Last name - Should accept Character only, Length | Special Char not allowed

DOB – DD-MM-YYYY format |Only Digits

Email Id - Should accept character, Special symbols, digit & decimal, length

Phone number -

Allowed only digit, length 10,

Country code +91

Submit button - ?

This is the functional requirement

3. Use Case –(specify requirement/ 1 requirement)

Description – Details about requirement

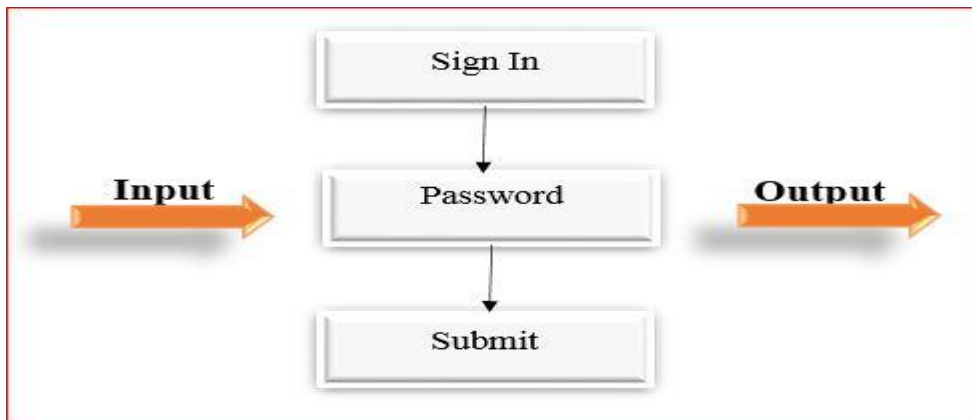
Acceptance criteria-Does & Don't about requirement

Use cases– Test scenarios – Test cases – Testing – entire system – start to end

Use case testing is a technique that helps to identify test cases that cover the entire system, from start to finish.

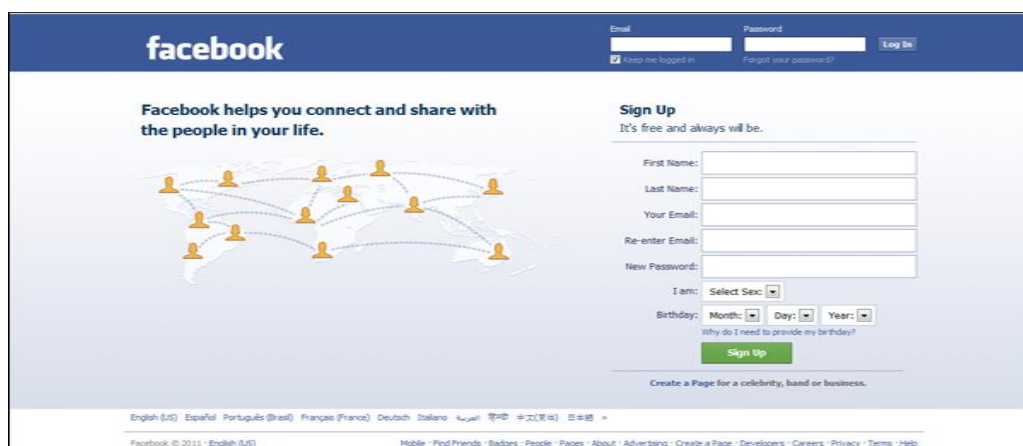
- Use case is combination of - **Input + Process + Output**
- Checking the functionality for available input , process & output

E.g. Use case for online shopping



4. Snapshot - Application without functionality

- Snapshot is format/Review/Prototype
- Snapshot provides idea to Developer how SW supposed to be look like
- Snapshot created by BA
- Uses **Irise** Software for snapshot creation
- Visualization of functionality before development of product
- IRise with 8.11 Version



- When BA will completed the SRS documents, then BA will sent these documents to developer & tester
- BA will sent these **documents throw Mail to Developer & Tester team**
- Developer & Tester team will do the analysis/ understand the documents
- If we have **doubt about SRS documents, then developer & Tester team will communicate to BA (For communicate we will conduct meeting)**

Difference between BRS & SRS?

BRS	SRS
Business requirement specification	Software requirement specification
This document generally consists of complete scope of the project, performance, requirement, and usability.	In SRS document all functional and non-functional requirements are covered.
BA people prepares BRS	BA people prepares SRS
From client BA collects the requirements and prepares BRS document	SRS is derived from BRS
Gathering Customer requirements	Gathering Software & Technical Req.
Use cases are not present in BRS	Use cases are present in SRS.
Overall req.	Detail req.
E.g., Banking Domain Sign Up page Home Page Account Information Contact List	Sign Up page-Logo,UN,PW Number, Special Character
Ex. Investment banking domain Kite Register Login 2FA Dashboard Watch list Order Position Fund Profile	Ex-functional requirement Register FN LN Pan Mb.No. DOB Email id Login UN PW Login button Forgot PW

Design

- When BA will sent SRS documents to designer
- **In** Designer stage designer is working
- Designer will be prepared **HDL** (High level design) & LLD (low level design)
- Ex. **HDL**- Paytm project – Recharge module - **UI (user interface)** design, OR **API/ service design**
- System architecture develops the design It have two stages
 1. HLD – High level design
 2. LLD – Low level design

HLD – High level design

- High level design is developed by System architecture or design architecture
- Designing Structural functionality of Main module Known as External Design
- Include relation dependency of main module
- It includes what & how any main modules work
- Understand architecture of entire application from main module to sub module

LLD-Low Level Design

- Defines static logic of every sub modelling
- Designing Structural functionality of Sub module know as internal design
- Low level design is created by front end developer

Coding

- Coding means programming
- One line is code
- Multiple line is known as coding/programming
- It is set of programing language designed, written by programmer known as coding
- In coding stage developer is working
- Developer will do coding on LLD (Low level design)
- Ex. **LLD** – Paytm project – Recharge module – Mobile no. tab/page –
Mobile no – 10 digits
Circle selection – drop down
Operator selection- drop down
Amount – text box (1 to 99999999 rs)

Developer- There are two types

Front End developer/Coding – UI, Functional checking, flow, process developed by Front End developer

Back End developer/coding – data management, data gathering, data security, algorithm section is done at the back end section developed by Back End Developer

Developer who is work on front end development as well as back end development called as full stack developer

Testing

It is a process to check

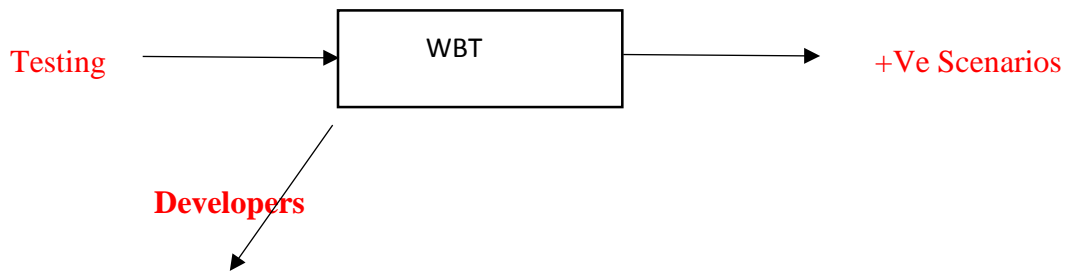
Completeness & correctness of software/ Application w.r.to customers' requirement

Testing having three types of testing –

- I. White box Testing
- II. Black Box Testing
- III. Grey Box Testing

White box Testing [Clear Box testing, Glass Box testing, TransparentTesting]

- It is a coding level testing approach to check or test completeness & correctness of program
- White box testing is done by developer/coder
- In white box testing only developer are involved
- It is called as code level testing, unit testing, clear box testing, glass box testing, transparent testing
- Once the coder complete programming or coding then coder checks or tests their own codes & if any bugs found then coder has to solve it
- Coder checks & test only positive scenario/ executes only positive scenario
- Coder aware about the internal coding/structure of the application
- Coder tests own code & make sure there is no bug before deploying the code
- Coder can't send the code to the tester without doing white box testing

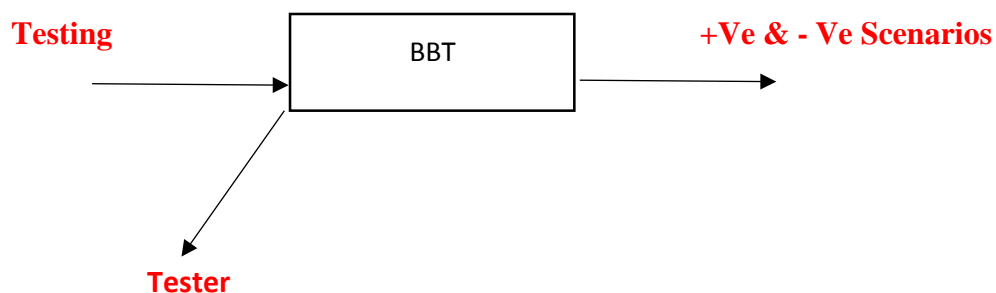


Black Box Testing

- In the black box testing, tester verifies/validate internal functionality of application depends on external functionality or external interface (front end)
- BBT is done by tester
- It's a build level testing technique
- It's called as system & functional testing
- In BBT overall functionality of application/software is checked step by step
- In BBT, tester execute positive & negative scenario
- Tester not aware about internal functionality of the application so to validate internal functionality depends on the external functionality
- Ex – Sign up page

If you fill-up the sign up page & press submit button, then this button is a process to store entered data

So, tester to check whether the data is stored correctly or not this is internal functionality, & fill-up the data is a external functionality & submit button is a process



Positive scenario – E.g. Mobile number 10 digit

Negative scenario - ?

Gray box Testing –

- Gray box testing is a combination of white box testing and black box testing
- Tester are involved in this type of testing
- To perform gray box testing, tester need or should have programming language knowledge
- Whenever final software is handover to the tester, tester checks its functionality & if any defect/fault occurs in the output of function in such a case tester makes some changes in code itself instead of assigning to the developer
- **Advantage** – Time & Efforts savage

Difference between WBT & BBT

WBT (White Box testing)	BBT (Black Box testing)
1. WBT is performed by developer	1. BBT is performed by Tester
2. WBT is 2 types - Unit Testing - Integration Testing	2. BBT is 2 types - Sanity Testing/ Smoke testing - System & functional testing - Re-testing, etc
3. In WBT check, Logic for Code, Condition statement, Loop statement, branches, etc	3. Tester will do the check some coverage – Input domain coverage, error handling coverage, Backend coverage, etc
4. WBT also called as code level testing	4. BBT also called as System & functional testing
5. It's a coding level testing technique	It's a build level testing technique
6. It is known as clear box Glass Box Transparent Testing	It is called as system & function testing
7. In WBT developers tested their own code	In BBT Tester test end to end functionality
8. Check for + scenario	Check for +Ve & –Ve scenarios
9. Aware about internal structure	Not Aware about internal structure

Testing having 2 ways

1. TCD- Test case design
2. TCE- Test case execution

Customer – Req.

BA-Collect the req.

BA-Prepare BRS

BA – Prepare SRS

After the completion of the SRS document. BA sent this document to the developer & tester

Developer

After getting the document

Developer understand the req.

Design

HLD/LLD

Coding

Testing/Unit

Integration testing

Tester

After getting the document

Tester understand the req.

Test case design

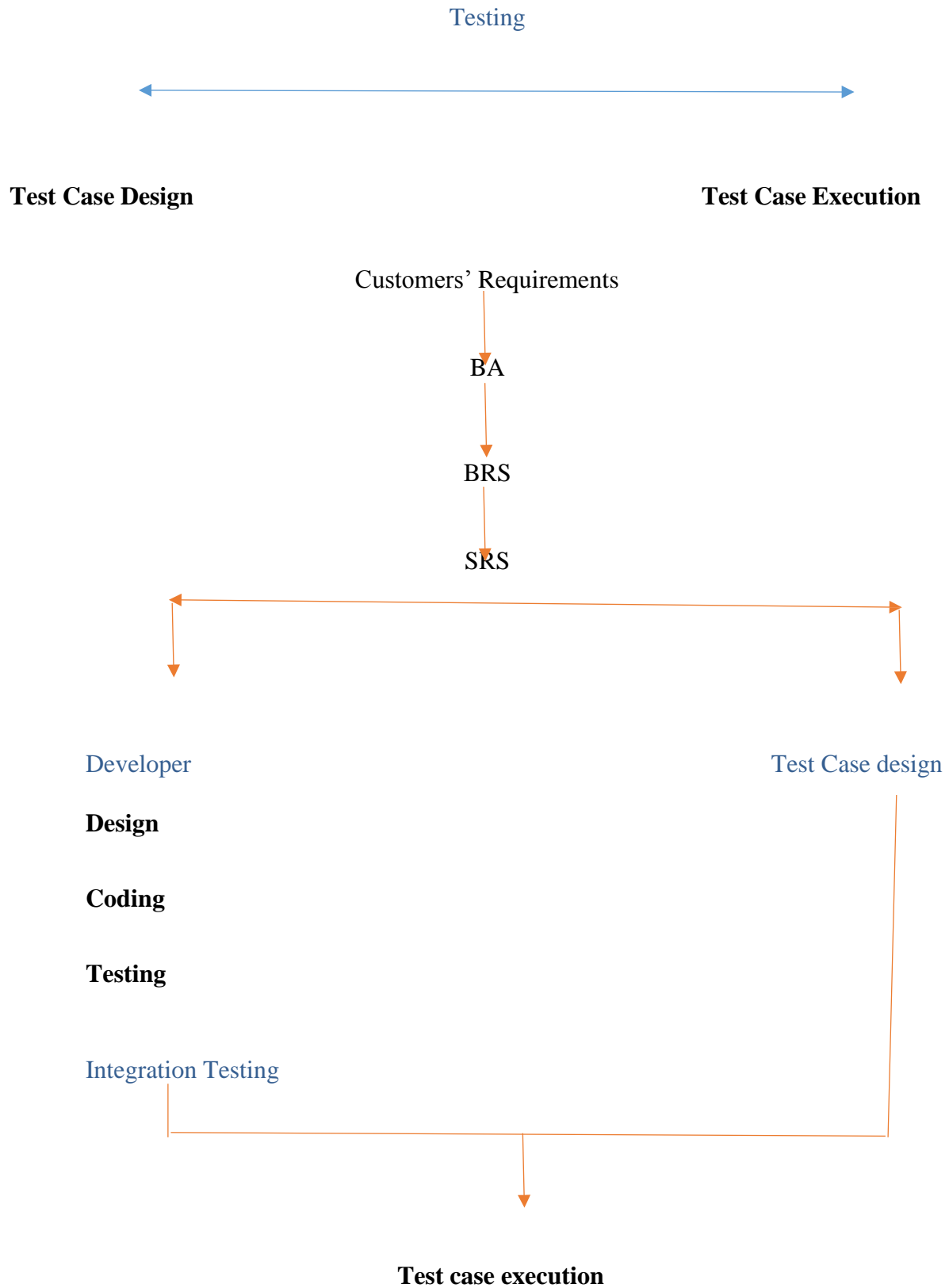
Test case review/Self/Peer/Internal/External

Test case execution

Review/ Pass/Fail

Defect review

Testing having two Types/ Ways



Maintenance

- After delivery of the project or application or software, if there is problem or any technical difficulty, in such case company has to fix it or service needs to be provided without any cost
- Maintenance has
 1. Technical support- KPO (Knowledge process outsourcing)
 2. Non-Technical Support- BPO (Business process outsourcing)
- Ex. Customer care
- In maintenance, we provide, technical & non-technical support after delivering the application without any cost called as maintenance
- Work on existing issue in application/software after delivery