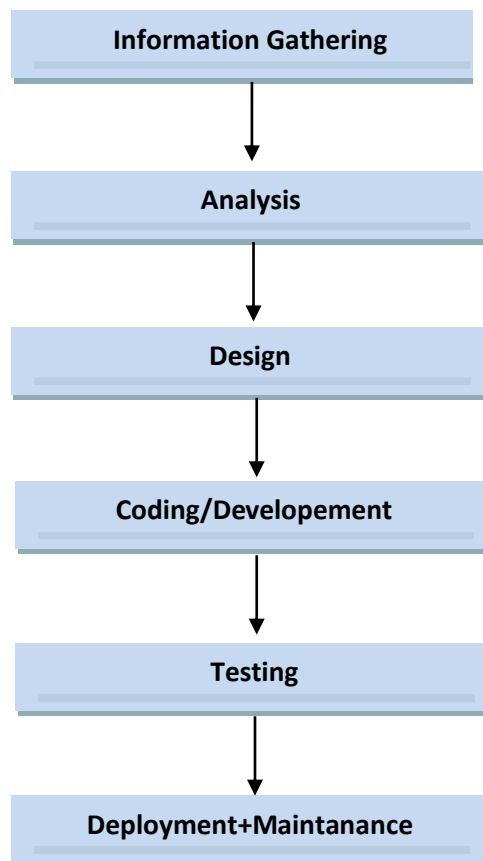# SDLC(Software Developement LifeCycle)

- **SDLC:** This is the generic process for developing any software, Also it is the systematic approach to build the software as per the customers requirement.

- **Phases Of SDLC:**

```
┌─────────────────────────────┐
│   Information Gathering      │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│          Analysis           │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│           Design            │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│     Coding/Developement     │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│          Testing            │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│   Deployment+Maintanance    │
└─────────────────────────────┘
```

1. Information Gathering:

- Business Analyst **(BA) is responsible** for the **information gathering.**
- In this phase BA collects the all information related to the Project and create a **BRS(Business Requirement Specifications)** Document
- **BRS** document consist of All the information(**High Level Information**) related to the project
- We can say BRS is the **bridge** between **Client and BA.**

2. Analysis:

- In this phase BA plays important role for conversion of **BRS to SRS/FRS**
- **SRS (Software Requirement Specification)**
- **FRS(Function Requirement Specification)**
- **This Documents are created by taking the reference of the BRS Document.**

Difference betwen BRS and SRS-

1. BA prepare an **BRS** doc which consist of high level requirements of the project

   EX- **Ecom Site**

   Requirements- Sign Up Page, Home Page, Contact Page, Links..
2. SRS document provide the **detailed information** related to the project

   EX- **Ecom Site**

   Requirements:

   Sign Up Page- Page should have **User Name** and **Password** Fields
   This field should be in the form of **text box** and it can accept maximum **10 char**, Password field can accept **alpha numeric** char with the minimum **1 special** char. Also the sign up page consist of **login button** and if the user tried with the invalid credentials then he can see the warning message.

BRS (Business Requirement Specification)

SRS/FRS-

Functional Flow Diagram	Functional Requirements	Snapshot/Screencast

Functional Flow Diagram:

Flow of the software as follow- (Ecom Site)

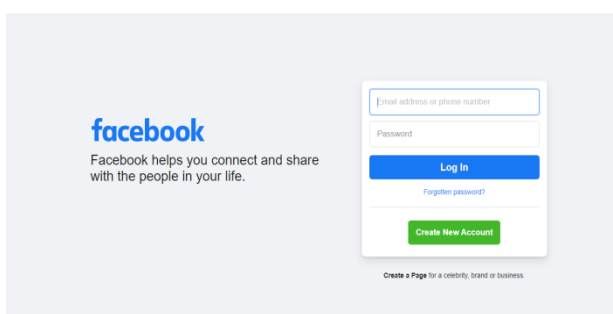Login → Select Category → Select Product → Buy Now → Make A Payment → Order Placed

Functional Requirements:

2.Ex- Select Categoty: if user search for a iPhone then result shoud show iPhones only, Result can be for 64GB/128GB/256GB and for differnt colours Search result not show other company mobile as we are searching only for iPhone.
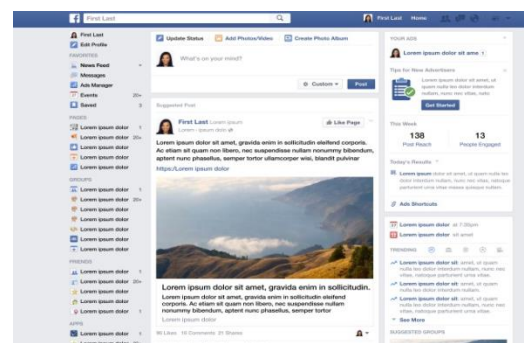
Snapshot:

- BA creates the screenshot/screencast with the help of **IRise tool**
- It is the visualization of the functionality before the developement of the product
- Snapshoot gives an idea to the developer that how the software looks like.
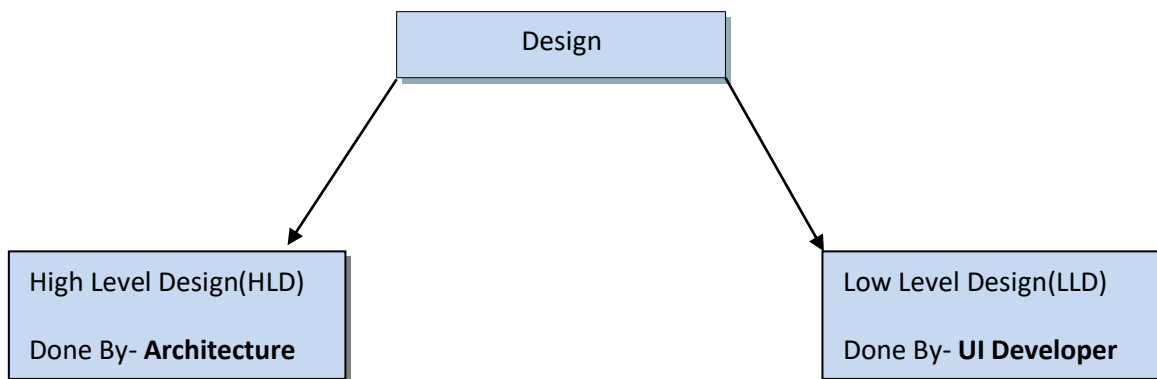
Sample Login Page: **Sample Home Page:**

3.Designing:

- It is done by the Architecture and UI Developer
- **In designing phase Architect and UI developer, take care of the HLD(High Level Design) and LLD(Low Level Design) respectively.**
- **LLD-** are done with the help of **snapshot** provided in the SRS/FRS document.

```
                    Design

   High Level Design(HLD)          Low Level Design(LLD)

   Done By- Architecture           Done By- UI Developer
```
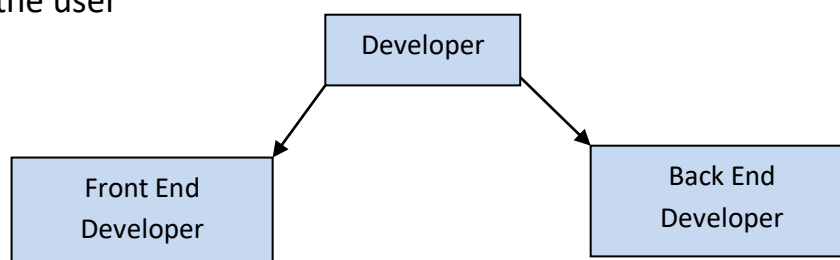
High Level Design:

- **HLD:** It is done by the **Architecture.**
- It contains **Design of working of main module.**
- Also it contains **Relation and Dependency** of the main module.

Low Level Design:

- **LLD:** It is done by the **UI Developer.**
- **It contains static logic of every sub module**
- **In LLD, module dependency are created with the reference of the HLD**

4.Coding:

- With the help of SRS Doc. coding is done by the **Developer**
- Developer writes the program wrto the functionality for the Application
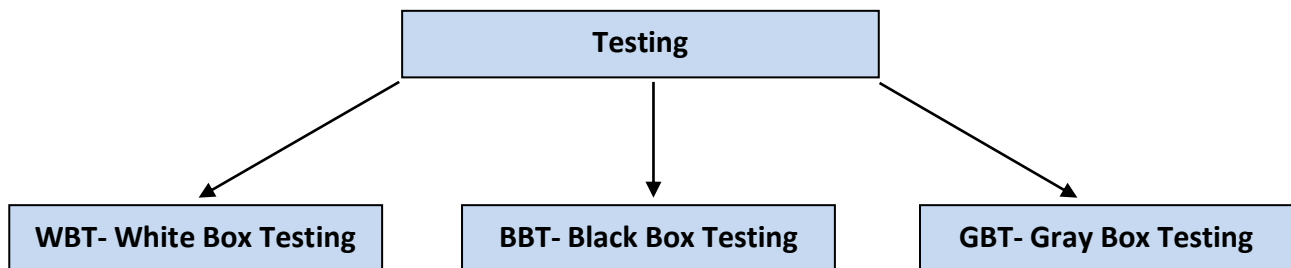- Program is a set of instruction to perform the specific action performed by the user

```
                  Developer

   Front End                      Back End
   Developer                      Developer
```

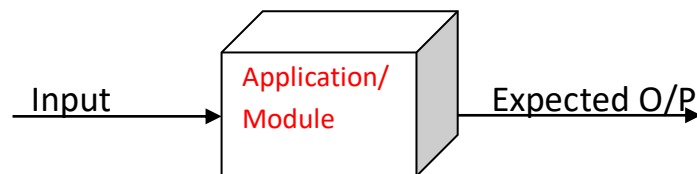**Front End Dev** developed the UI Functionality, Functional Flow

Back End Dev developed the Data Management Flow, Data Gathering, Data Security

5. Testing:

- Testing is a process which ensure the correctness and completeness of the functionality wrto the requirements(BRS/FRS)
- In this phase we ensure that the application/software is bug free.
- In this phase we check the Functional behaviour, Performance, UI behaviour, build/application quality.
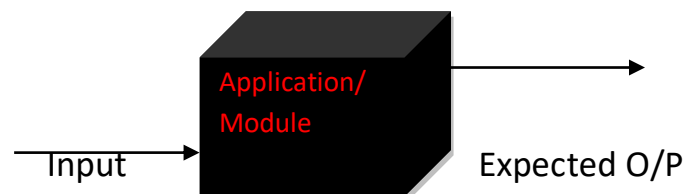
```
                        ┌──────────────────┐
                        │     Testing      │
                        └──────────────────┘
         ┌───────────────────┬───────────────────┐
         ▼                   ▼                   ▼
┌─────────────────┐ ┌─────────────────┐ ┌─────────────────┐
│ WBT- White Box  │ │ BBT- Black Box  │ │ GBT- Gray Box   │
│    Testing      │ │    Testing      │ │    Testing      │
└─────────────────┘ └─────────────────┘ └─────────────────┘
```

WBT:

```
                    ┌─────────────────┐
          Input     │  Application/   │   Expected O/P
          ─────────▶│    Module       │──────────────▶
                    └─────────────────┘
```

- WBT performed by the **developer**, As they are **aware** about the internal structure/ **Coding knowledge** of the application.
- While performing the WBT dev. Consider **only positive scenarios**.
- WBT is also known as **Unit Level Testing**

BBT:

```
                    ┌─────────────────┐
                    │  Application/   │──────────────▶
          Input     │    Module       │
          ─────────▶└─────────────────┘   Expected O/P
```

- In this testing **Internal Structure** is **hidden** from the **Tester/us.**
- According to the user requirements mentioned in the BRS/FRS we test the application/software.
- In this testing **Coding Knowledge** is **not required**
- In BBT we check the **positive** as well as the **negative scenarios**, to make sure the application/software is bug free.

GBT:

- This is the combination of the **WBT** and **BBT. (GBT = WBT + BBT)**
- In GBT tester should have the coding knowledge, While performing this testing we check the positive as well as negative scenarios.

6. Deployment/Maintenance

Deployment:

- After the development and testing we ensure that the application/software is working as expected.
- Once the testing done we provide **end to end functionality demo** to the **customer** before the application/software delivery
- Also we provide **User Manuals**, **Slideshow**, **Videos** for the better understandings.
- Once the Client/Customer approve it, Then we deliver that product to them.

Maintenance:

- After the product delivery, we need to take care of the issues/bugs logged by the client.
- For taking care of it we have **KPO** and **BPO** teams.
- **KPO**: These are the **Technical** Experts which handles the clients problem.
- **BPO**: These are the first person who directly interacted with the customers/clients issue. They are non tech / intermediate persons.