[**SDLC**](file:///C:\Users\This%20Pc\Documents\my%20notes\devops\SDLC.pdf)**: - Software Development Life Cycle**

It is a procedure to develop the software.

It is a process of creating or altering systems and the models and methodologies that people use to develop these systems.

Any SDLC should result in a high quality system that meets or exceeds customer expectations, reaches completion within time and cost estimates, works effectively and efficiently and is inexpensive to maintain and cost effective to enhance.

Different procedures / models are available to develop a software namely,

**1) Waterfall model**

It is a traditional model

It is a sequential design process, often used in SDLC, in which the progress is seen as flowing steadily downwards (like a waterfall), through the different phases as shown in the figure,

REQUIREMENTS COLLECTION

FEASIBILITY STUDY / ANALYSIS

**HLD**

DESIGN

**LLD**

CODING / PROGRAMMING

TESTING

INSTALLATION

MAINTAINENCE

**Requirements Collection :-**

- done by Business Analysts and Product Analysts

- gathering requirements

- translates business language into software language

**For ex,** let us consider the example of a banking software.

**Feasibility Study :-**

- done by software team consisting of project managers, business analysts, architects, finance, HR, developers but not testers

- architect – is the person who tells whether the product can be developed and if yes, then which technology is best suited to develop it.

- here we check for,

- technical feasibility

- financial feasibility

- resource feasibility

**Design :-**

There are 2 stages in design,

HLD – High Level Design

LLD – Low Level Design

HLD – gives the architecture of the software product to be developed and is done by architects and senior developers

LLD – done by senior developers. It describes how each and every feature in the product should work and how every component should work. Here, only the design will be there and not the code.

**For ex,** let us consider the example of building a house.

**Coding / Programming :-**

- done by all developers – seniors, juniors, freshers

- this is the process where we start building the software and start writing the code for the product.

**Testing :-**

- done by test engineers

- it is the process of checking for all defects and rectifying it.

**Installation :-**

- done by installation engineers

- to install the product at a client’s place for using after the software has been developed and tested.

**For ex,** consider the example of a software to be developed and installed at Reliance petrol bunk.

**Maintenance:-**

- here as the customer uses the product, he finds certain bugs and defects and sends the product back for error correction and bug fixing.

- bug fixing takes place

- minor changes like adding, deleting or modifying any small feature in the software product

100 % testing is not possible – because, the way testers test the product is different from the way customers use the product.

**Service – based companies and Product – based companies**

**Service – based companies: -**

They provide service and develop software for other companies

They provide software which is and specified as per the client company’s requirement and never keep the code of the developed product and does not provide the software to any other company other than the client company.

Ex – Wipro, Infosys, TCS, Accenture

**Product – based companies :-**

The develop software products and sell it to many companies which may need the software and make profits for themselves

They are the sole owners of the product they develop and the code used and sell it to other companies which may need the software.

Ex – Oracle, Microsoft

**Drawbacks of Waterfall Model :-**

In waterfall model, backtracking is not possible i.e, we cannot back and change requirements once the design stage is reached. Change in requirements – leads to change in design – thus bugs enter the design – which leads to change in code which results in more bugs. Thus the requirements are freezed once the design of the product is started.

Drawback of requirements freezing – the customer may not be satisfied if the changes he requires is not incorporated in the product. The end result of waterfall model is not a flexible product.