**SOFTWARE DEVELOPMENT LIFE CYCLE**

* SDLC is a process used by the software industry to design ,develop and test high quality software.
* It aims to produce high quality software that meets or customer expectations and reaches completion within time limit or cost estimation.

**Importance of SDLC:**

* Enhance the software quality
* Defines the global to the team thet means Developer’s known what to build the code and Tester’s known what and how to test the code
* Effective documentation and reduced dependencies
* Effective resource utilisation
* Effective cost and time definition
* Customer Expectation

**Phases Of SDLC:**

* 1. Project kick off and Initialisation
  2. Requirement gathering and analysis
  3. Design
  4. Implementation / Development
  5. Testing
  6. Deployment
  7. Maintenance

**Project kick off and Initialisation:**

* It is nothing but we have initialise the process of the project.

**Requirement Gathering And Analysis:**

* During this phase, all the relavant information collected from the customer to develop a product as per their expectations.
* Business Manager or Project Manager to set up a call with customer and gather all the information about the product like what the customer want to build , what is the purpose of the product and who will be the end user of the project.

**Designing:**

* During this Phase, requirement gathered in SRS(Software Requirement Specifiication)document is used as an input and system architecture that is used as an implementation system development is derived.

**Implementation Or Development:**

* Implementation or development starts, once the developer get the design document, the software design translated into the source code.
* All the component of the software is implemented in this phase

**Testing**:

* Testing starts once the code is complete and modules are released for testing
* The developed software is tested thoroughly and any defects found are assigned the developer to get them fixed.
* Deployment:
* Once the product is tested, it is deployed in to the production environment or UAT(User Acceptance Testing) is done depending on the customer expectation.

**Maintenance**:

* In this phase , After the deployment of the product of the production environment, maintenance of the product.
* If any issue comes up and need to be fixed or any enhancement is done by the customer and taken care by the developer.

**Unit Testing:**

* It is also known as separate testing. Every day, the developer’s tests our own part of the project whether it is properly working or not
* It is a daily basis activity.

**Types of SDLC**

* + - Waterfall Model
    - Verification or validation model
    - Iterative Model
    - Agile Model
    - Big Bang Model
    - Spiral Model

**Waterfall Model:**

It is a step by step process model

* Requirement and Analysis
* Design
* Implementation or Development
* Testing
* Deployment
* Maintenance

**Advantages:**

* Stable project requirement
* Clear project objectives
* Strict sign of requirement

**Disadvantages:**

* Never Backward
* Difficult response to change
* Time consuming

**Verification and Validation Model – (V Model)**

* It is type of software testing verification or validation normally illustrated by V model
* Verification:
* It is a process to capture the specification of the software.
* Validation:
* It is process to capture the customer specification.

Acceptance Plan

System Plan

Integration Plan

Unit Test Plan

**Advantages:**

* Simply and easy to use.
* Avoids the defects of the projects.
* Works well for small projects where requirements are easily understood.

**Disadvantages:**

* Very rigid and least flexible
* Software is developed during the implementation phase so no early prototype of the software produced.

**Iterative Model:**

* It is repeating process of the software testing.
* At each iteration design modification are changed and added new functionalities of the project.

Advantages:

**Advantages:**

* More time is given for designing
* Less time is spent on Documentation
* More flexible and less costly

**Disadvantages:**

* Each phase of iteration is rigid and do not overlap to each other .