

# Assignment Module-1

## 1. What is SDLC?

SDLC is a step-by-step process to build and develop quality software or application.

There are several phases in SDLC such as,

- Requirement Analysis
- Design
- Coding or Development
- Testing
- Deployment

1. **Requirement Analysis** : In this phase business analyst, project manager and client sit and gather all the requirement for the project or product. They are discussed and making CRS document and analysis project cost and estimation of time. After completion of CRS document one more document will be prepared as per CRS document which is called SRS (software requirement specification). This document is important for build or develop quality project or it will help to complete all the client requirement.
2. **Design** : In this phase design team prepared design or model for the project or product as per software requirement specification document.
3. **Development** : In this phase developers team start working to develop the project/product as per client requirement. Developers are actually start coding for development the right and quality product.
4. **Testing** : In testing phase, test team will planning to test actual project/product. Firstly, they will write test cases, test scenarios for the application or websites as per the SRS document. After that they are start working to test application or websites as per test cases and scenarios.
5. **Deployment** : In this phase, After completion of the project/product company and client planning to release in the market for the customer
6. **Maintenance** : In this phase company provide services after completion of project as per the contract between company and customer.

SDLC provide various models to use for development,

- Waterfall Model
- Bohem's Spiral Model
- Incremental iterative model
- V- model (Validation and verification Model)

## **2. What is software testing?**

Software testing is a process to testing the software or application to find the bugs, defect or error. Moreover, software testing is important to check clients all the requirements are matched or not.

## **3. What is agile methodology.**

Agile model is an iterative and incremental process model.

Customer will no wait for longer period of time, because in agile model we develop test and deliver a piece of software every time with few number of functionalities.

In agile process model we can accommodate changing requirements.

In agile process model we can break small incremental build.

There will be a good communication between business analyst, project manager, developers and testers.

In this model we can work simultaneously in every iteration such as planning, requirements analysis, design, coding, testing, unit testing, and acceptance testing.

Each iteration typically last from 1 to 4 weeks.

### **Advantages:**

- Realistic approach to the developer
- Requirement changes are allowed
- Deliver in small phases to the customer
- Resources required are minimum
- Functionality can be developed rapidly and demonstrated
- Delivery early practical working solution
- Easy to manage
- Give flexibility to developers
- Little or no planning required

### **Disadvantages :**

- Less focus on documentation and design since we deliver software very fast
- Not suitable for handling complex dependencies
- Risk sustainability, maintainability, and extensibility

## **4. What is SRS (Software Requirement Specification).**

SRS stand for Software Requirement Specification.

This document is prepared by the management team, project manager and business analyst.

SRS document is very important in SDLC development model.

In this document, all clients requirements are clearly mention and all the phases will be developed and tested with the help of SRS document.

SRS is the complete description of the software to be developed

Requirements are categorized in several ways, such as

- Customer Requirement Specification
- Functional Requirement and
- Non- functional Requirement.

## **5. What is OOPS.**

Oops stand foe Object Oriented Programming System.

It is a programming paradigm in which software design involve around data or object rather then logic or function.

## 6. Write Basic Concepts of oops

**Class** : Class is not a real world entity, it is just a prototype or template or blueprint. Class does not occupy any memory. Class contain data member and member function. or class is a collection of object.

**Object** : Object is a real world entity, which have properties and functionality.

Object occupy space in memory. Object given to permission to class functionality to class.

**Encapsulation** : Encapsulation is defined as the wrapping up a data under the single unit. It is the mechanism that binds the data and code together. The main purpose of encapsulation is provide security.

**Inheritance** : Inheritance means creating a class from an existing class. There are several types of inheritance in OOPS,

- Single inheritance
- Hierarchical inheritance
- Multiple inheritance
- Multilevel inheritance
- Hybrid inheritance.

**Abstraction** : Abstraction means Displaying the essential information and hiding the details.

**Polymorphism** : The meaning of polymorphism is having a many forms. One name multiple form.

## 7. Explain Waterfall model and phases?

Waterfall model is step-by-step process to its various development phases build quality product.

In waterfall model, first phase are completed then and only then we can go to next phase. And we can not go back in this model.

This model is Used for small project and short-term project.

In this model requirement are frozen and very well clear and documented.

Phase,

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**Advantages :**

- Simple and easy to understand and use
- Easy to manage due to the rigidity of the model. Each phase has specific deliverables and a review process.
- Phases are processed and completed one at a time.
- Work well for small project.
- Clearly defined stages
- Easy to arrange tasks
- Process and results are well documented.

**Disadvantages :**

- Not used for large project.
- We can not rework in this model
- High amount of risk and uncertainty.
- Not a good model for large complex project and object oriented project.
- Cannot accommodate changing requirement.

## 8. Write phases of spiral model.

Spiral model is a very widely used in software industry as it is synch with the natural development process of the product. E.g. Learning with the maturity and also involves minimum risk for customer as well as development firm or industry.

- When cost there are budget constraints and risk evolution is more important.
- For medium to high risk project.
- Long term project commitment because of potential change to economic priorities as the request changes with time
- Not sure about risk
- Request are complex and need evolution to get clarity.
- New product line which should be released in phase to get enough customer feedback.
- Significant changes are expected in the product during the development cycle.

**Advantages :**

- Changing requirement is allowed
- Allows to extensive use of prototype
- Requirement can be captured more accurately
- User see the system earlier
- Development can be divided in a small part and more risky part can be developed earlier which help to better risk management

**Disadvantages :**

- Management is more complex
- Not suitable for smaller and low risk project
- Process is complex
- Spiral model can go indefinitely
- End of project may not be known early

**9. Agile model Principle.**

- I. Customer satisfaction through early and continuous software delivery, customer are happier when they received working software at regular interval, rather then waiting for long period of time to release.
- II. Accommodate changing requirement through the development process, the ability to avoid delays when a requirement of features request changes.
- III. Frequent delivery working software.
- IV. Collaboration between the business stakeholder and developed through the project.
- V. Support trust and motivate the people involved
- VI. Enable face to face interaction
- VII. Working software is the primary measure of the process.
- VIII. Agile processes to support a consistent development process.
- IX. Attention to technical details and design enhance agility.
- X. Simplicity
- XI. Self-organization team encouraging great architectures, requirements and design.
- XII. Regular reflection can how to became more effective.









