

What is SDLC?

The Software Development life cycle (SDLC) is a well-structured process that guides software development projects from start to finish. It provides a clear framework for planning, building, and maintain software, ensuring that development is systematic and meets quality standards.

Phases of SDLC

- 1.Requirement Analysis
- 2.Feasibility study
- 3.Design
- 4.Coding
- 5.Testing
- 6.Deployment
- 7.Maintenance

Phase1: Requirement Analysis

→ It is the first phase of SDLC in which all the necessary information is collected from the customer to develop the software as per their expectation.

→Some important question like: what is the need of software, who will be the end-user, what is the future scope of that software etc. are discussed.

→The main aim of this phase is to collect the details of each requirement of the customer so that the developers will clearly understand what they are developing and how to fulfill the customer's requirements.

Phase2: Feasibility Study

→It is the second phase of SDLC in which an organization discusses about the cost and benefits of the software.

→it is an important phase because profits from the software plays an important role as if cost is very high then company may face loss.

→After the feasibility study, the project may be accepted, accepted with modification or rejected.

→It measures how much beneficial the product is for the organization.

Phase3: Design

→It is the third phase in which architects start working on logical designing of the software.

→In this phase a SRS (System Requirement Specification) document is created which contains all logical details like how the software will look like, which language will be used, database design, modular design etc.

→This phase provides a prototype of the final product.

→Basically, all it includes is design of everything which has to be coded.

Phase4: Coding

→When the designing of the software is completed, then, a group of developers start coding of the design using a programming language.

→The interface of the software and all its internal working according to design phase is implemented in coding phase.

→A number of developers code the modules and then all modules are arranged together to work efficiently.

→It is the longest phase of SDLC.

Phase5: Testing

→Once the software development is completed, then it is sent to the testers. The testing team starts testing the functionality of the entire system.

→In this phase, the software is checked for bugs or errors.

→Whenever a bug is found, then the software is resent to the coders to fix it and then overall software is re-tested.

→This is done to verify that the entire application works according to the customer requirement.

Phase6: Deployment

→After overall testing of the software and after checking that is bug free, then the software is launched and available for the users to use it.

→Even after deployment of the software, if any bugs or errors are still found then the software is re-evaluated by the maintenance team and then it is re-deployed with a new version.

Phase7: Maintenance

→The maintenance team look over the software usage and users feedback.

→Maintenance is necessary to eliminate errors in the system during its working life and to tune the software.

→The bug fixing upgrade and enhancement of the software is looked over by the maintenance team.

2.What is software testing?

Software testing is the process of evaluating and verifying that a software application or system meets its requirements and functions as expected.it involves testing to identify bugs or defects and ensure quality.

4 levels of Software testing

1. Unit Testing

2. Integration Testing

3. System Testing

4. User Acceptance Testing

1. Unit Testing

- A unit test is a type of software test that focuses on testing individual components of a software product.

2. Integration Testing

- Integration testing is the process of checking how well different software modules work together to ensure they interact correctly.

3. System Testing

- System testing is the process of testing the entire software system to make sure it meets all requirements and works correctly in real world scenarios.

4. User Testing

- User Acceptance testing is the final stage of software testing where real users check if the software works as intended and meets their business needs before it goes live.

3.What is RDBMS?

A Relational Database Management System (RDBMS) is a software application that manages and organizes data in a relational database. It stores data in tables with rows and columns, allowing for structured access and manipulation through languages like SQL.

4.What is SQL

SQL (Structured Query Language) is programming language used to interact with database.

5. Write a query to create the table in Structured Query Language.

```
CREATE TABLE table _name
(
    Column_name1 datatype constraint,
    column_name2 datatype constraint,
    column_name3 datatype constraint,
);
```

6. Write a query to insert data into table.

```
INSERT INTO TABLE_NAME  
(column1, column2, column3, ..., columnN)  
VALUES  
(value1, value2, value3, ..., valueN);
```

7. Write a query to update data into table with validations.

```
UPDATE TABLE_NAME  
SET "column_name1"='value1',"column_name2"='value2'  
WHERE "ID"="value"
```

8. Write a query to delete data from table with validations.

```
DELETE FROM table _ name WHERE condition;
```

9. Write a query to insert new column in existing table.

```
ALTER TABLE table _ name  
ADD COLUMN column _ name
```

10. Write a query to drop table and database.

```
DROP TABLE table _name;
```

11. Write a query to find max and min value from table.

```
SELECT MAX (price) from products;  
SELECT MIN (price) from products;
```