**Software Development Life Cycle (SDLC)**

Software development life cycle is a project management model which defines different stages that provide model for the development and lifecycle management of the system. It defines tasks performed at each step in the software development process. SDLC is a way to measure and improve the development process. SDLC process helps to produce high quality, effective and cost-efficient system. The seven different phases of SDLC are listed below:

1. Planning and Requirement analysis
2. Analysis
3. Design
4. Development
5. Test
6. Deploy
7. Support & Maintenance

**Requirement analysis:** It is the first stage involved in SDLC where project lifecycle starts. It is the phase where overall direction of the project is identified by creating a project strategy documents. In this cycle Business Analyst will collect the functional and system requirements of the business process, the user requirements, and the operational requirements.

**Planning:**

It is the second phase of SDLC. During this phase people like Architect, Product Owner, Project Owner, team lead, database architect they sit together and plan for the project. After understanding the project requirement, the team will determine the cost and resources for implementing the analyzed requirements, they will discuss about the tools, database, that will be used for the entire project development. The number of developers needed, what kind of teams, does it have UI or not it will all be decided in this planning phase.

**Analysis:**

In the analysis phase the same people will get involved whoever was involved in planning phase. During this phase the team will analyze the requirement and decide about the project different layers that will be used in the project like UI layer, middle layer, database and so on.

**Design:**

A set of direction setting strategies and conceptual design of the project is prepared. When requirements analysis is completed tools and technologies to be used are identified. It is the phase where you look at the many potential solutions and narrow down the choices to determine the most effective and efficient way to construct the solution. The Design Phase answers the questions about "how" you will build the best solution.

**Development:** The development stage is the part where developers start writing code and build the application based on the analysis and design prepared in earlier phases of SDLC. The application is built according to the earlier design documents and outlined specifications. Developers will follow any coding guidelines as defined by the organization. Developers perform Unit Testing and Integration testing to ensure everything is working fine. Code gets reviewed by Sr. members in the team, and once the development is completed, the product is sent forward for testing.

**Testing:** The developed product is tested by testers (QA Engineers). They go for both positive (as per requirements) as well as negative (how to break the product, moto is to find flaws) testing. If defects are found the product is resent to the development team to fix it. Once the defect gets fixed testers check it again and perform regression testing (testing the whole product). Once all is good, the product will become ready to handover it to client.

**Deployment:** It is considered as one of the most important stages in SDLC. Once the application is tested, it is deployed in the production environment or UAT (User Acceptance testing) is done depending on the customer expectation. Deployment is considered as one of the longest phases in SDLC.

**Support and maintenance:** After the deployment of an application on the production environment, if any issues come up, or any necessary upgrades needed, and needs to be fixed or any enhancement is to be done is taken care by the developers.

Requirement Analysis:

**Who participate?**

Business Analyst, Project Manager, Designer and Customer

**What artifacts?**

Problem Statement, Data Flow diagrams, logical model, business algorithms and use cases.

**What tools?**

Word Document, Excel

**Architecture:** Project coordinator & Business expert set up a gathering with the client to assemble all the information like what the client needs to build, who will be the end client, what is the goal of the product. Before making an item, a center arrangement or information of the item is extremely important. When the necessity is perceived, the SRS (Software Requirement Specification) record is made. The developers should completely follow this report and furthermore ought to be reviewed by the client for future reference.

**Who participate?**

Project manager, Business analyst.

**What artifacts?**

SRS (Software Requirement Specification)

**What tools?**

**Design:** It is the third step in SDLC phase. A set of direction setting strategies and conceptual design of the project is prepared. When requirements analysis is completed tools and technologies to be used are identified. It is the phase is where you look at the many potential solutions and narrow down the choices to determine the most effective and efficient way to construct the solution. The Design Phase answers the questions about "how" you will build the best solution.

**Who participate?**

Developers and Architect

**What artifacts?**

User interface modal document, physical and logical database design

**What tools?**

MySql

**Development:** The development stage is the part where developers start writing code and build the application based on the analysis and design prepared in earlier phases of SDLC. The application is built according to the earlier design documents and outlined specifications. Developers will follow any coding guidelines as defined by the organization.

**Who participate?**

Developers

**What artifacts?**

New User Manual

**What tools?**

Compiler, Interpreter, Debugger

**Testing:** Testing phase starts once the development of code is completed. In this phase the developed code is tested thoroughly, any defects, or bugs found are assigned to developers to get them fixed. Testing is achieved by writing test cases and executing these test cases. Retesting, regression testing is done until the point at which the software is as per the customer’s expectation.

**Who participate?**

Lead testers, Load and performance testers

**What artifacts?**

New User Manual

**What tools?**

Junit, Web driver etc.

**Deployment:** It is considered as one of the most important stages in SDLC. Once the application is tested, it is deployed in the production environment or UAT (User Acceptance testing) is done depending on the customer expectation. Deployment is considered as one of the longest phase in SDLC.

**Who participates?**

Lead Developers, Project manager, Scrum master.

**What artifacts?**

Infrastructure planning documents, New User Manual etc.

**What tools?**

Ant, Make.

**Support and maintenance:** After the deployment of an application on the production environment, if any issues come up, or any necessary upgrades needed, and needs to be fixed or any enhancement is to be done is taken care by the developers.

**Who participates?**

Developers, project team

**What artifacts?**

User guide manual

**What tools?**