Software Development Life Cycle (SDLC):

SDLC is a process followed for a software project, within a software organization. It consists of a detailed plan describing how to develop, maintain, replace and alter or enhance specific software. The life cycle defines a methodology for improving the quality of software and the overall development process.

The development team must determine a suitable life cycle model for a particular plan and then observe to it. Without using an exact life cycle model, the development of a software product would not be in a systematic and disciplined manner.

Suppose a software development issue is divided into various parts and the parts are assigned to the team members. From then on, suppose the team representative is allowed the freedom to develop the roles assigned to them in whatever way they like. It is possible that one representative might start writing the code for his part, another might choose to prepare the test documents first, and some other engineer might begin with the design phase of the roles assigned to him. This would be one of the perfect methods for project failure.

Software Development Life Cycle consists of the following stages:

1. Planning and Requirement Analysis :

- Requirement Analysis is the most important and necessary stage in SDLC.
- The senior members of the team perform it with inputs from all the stakeholders and domain experts.
- Planning for the quality assurance requirements and identification of the risks associated with the project is also done in the planning stage.
- Business analyst and Project organizer set up a meeting with the client to gather all the data like what the customer wants to build, who will be the end user, what is the objective of the product. Before creating a product, a core understanding or knowledge of the product is very necessary.

2. Defining Requirements:

- Once the requirement analysis is done, the next stage is to certainly represent and document the software requirements and get them accepted from the project stakeholders.
- This is accomplished through SRS- Software Requirement Specification document which contains all the product requirements to be constructed and developed during the project life cycle.

3. Designing the Software:

- The next phase is about to bring down all the knowledge of requirements, analysis, and design of the software project. This phase is the product of the last two, like inputs from the customer and requirement gathering.
- A design approach clearly defines all the architectural modules of the product along with its communication and data flow representation with the external and third party modules.

4. Developing the project:

- In this phase of SDLC, the actual development begins, and the programming is built. The implementation of design begins concerning writing code. Developers have to follow the coding guidelines described by their management and programming tools like compilers, interpreters, debuggers, etc. are used to develop and implement the code.

5. Testing the Product:

- After the code is generated, it is tested against the requirements to make sure that the products are solving the needs addressed and gathered during the requirements stage.
- However, this stage refers to the testing only stage of the product where product defects are reported, tracked, fixed and retested, until the product reaches the quality standards defined in the SRS.

6. Deployment of Project:

- Once the software is certified, and no bugs or errors are stated, then it is deployed.
- Then based on the assessment, the software may be released as it is or with suggested enhancement in the object segment.After the software is deployed, then its maintenance begins.

7. Maintenance:

- Once when the client starts using the developed systems, then the real issues come up and requirements to be solved from time to time.This procedure where the care is taken for the developed product is known as maintenance.