Software Development Life Cycle (SDLC)

- Software Development Life Cycle (SDLC) is a process used by the software industry to design, develop and test high quality softwares.

- The SDLC aims to produce a high-quality software that meets or exceeds customer expectations, reaches completion within times and cost estimates.

- SDLC is the acronym of Software Development Life Cycle.

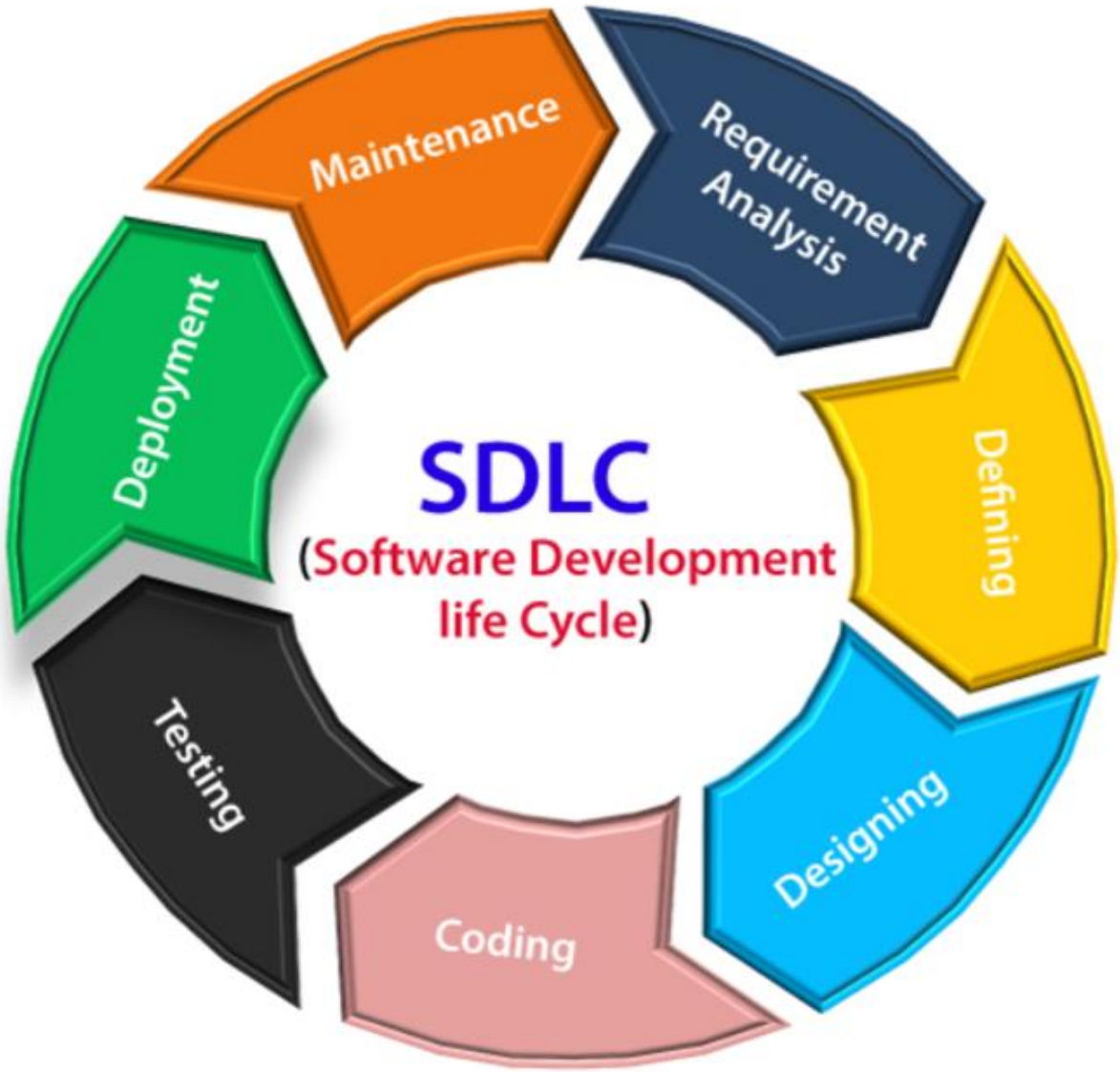
- It is also called as Software Development Process.

- SDLC is a framework defining tasks performed at each step in the software development process.

What is 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.

- SDLC Cycle represents the process of developing software. SDLC framework includes the following steps:



The stages of SDLC are as follows:

Stage1: 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 or SMEs in the industry.
- Planning for the quality assurance requirements and identifications of the risks associated with the projects is also done at this 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.

- Stage2: 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.

- Stage3: 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.

- Stage4: 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.

- **Stage5: Testing**

- 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.

- During this stage, unit testing, integration testing, system testing, acceptance testing are done.

- Stage6: Deployment

- 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.

- Stage7: 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.

SDLC Models

- There are various software development life cycle models defined and designed which are followed during the software development process. These models are also referred as Software Development Process Models". Each process model follows a Series of steps unique to its type to ensure success in the process of software development.
- Following are the most important and popular SDLC models followed in the industry –
- **Waterfall Model**
- **Iterative Model**
- **Spiral Model**
- Other related methodologies are Agile Model, RAD Model, Rapid Application Development and Prototyping Models.