Subject: Principles of Software Engineering
Subject Code: 66661
CMT 6/1

Chapter:02
Topic: Understand the basics of software development life cycle (SDLC)

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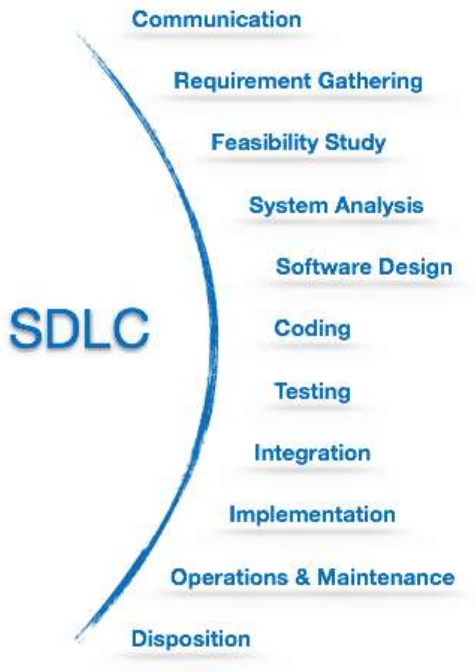
Introduction

Software Development Life Cycle (SDLC) is a process used by the software industry to design, develop and test high quality softwares.SDLC is A framework that describes the activities performed at each stage of a software development project.

Software development life cycle activities

SDLC provides a series of steps to be followed to design and develop a software product efficiently. SDLC framework includes the following steps:



❖ Communication

This is the first step where the user initiates the request for a desired software product. He contacts the service provider and tries to negotiate the terms. He submits his request to the service providing organization in writing.

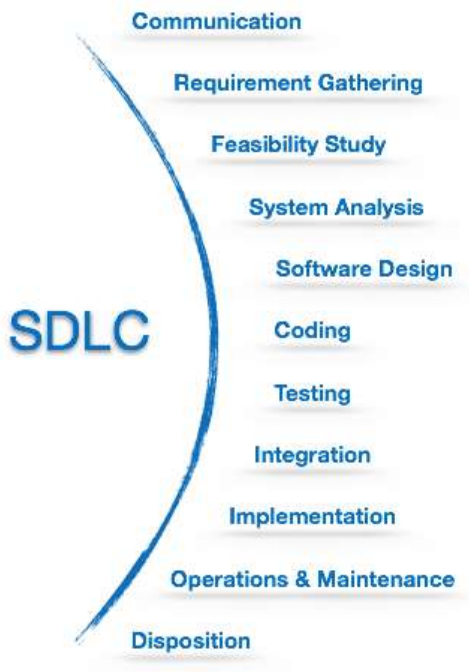
Software development life cycle activities

❖ Requirement Gathering

This step onwards the software development team works to carry on the project. The team holds discussions with various stakeholders from problem domain and tries to bring out as much information as possible on their requirements.

The requirements are collected using a number of practices as given –

- ✓ studying the existing or obsolete system and software,
- ✓ conducting interviews of users and developers,
- ✓ referring to the database or
- ✓ collecting answers from the questionnaires.



Software development life cycle activities

❖ Feasibility Study

After requirement gathering, the team comes up with a rough plan of software process. At this step the team analyzes if a software can be made to fulfill. It is found out, if the project is financially, practically and technologically feasible for the organization to take up. There are many algorithms available, which help the developers to conclude the feasibility of a software project.

❖ System Analysis

At this step the developers decide a roadmap of their plan and try to bring up the best software model suitable for the project. System analysis includes Understanding of software product limitations, learning system related problems or changes to be done in existing systems.

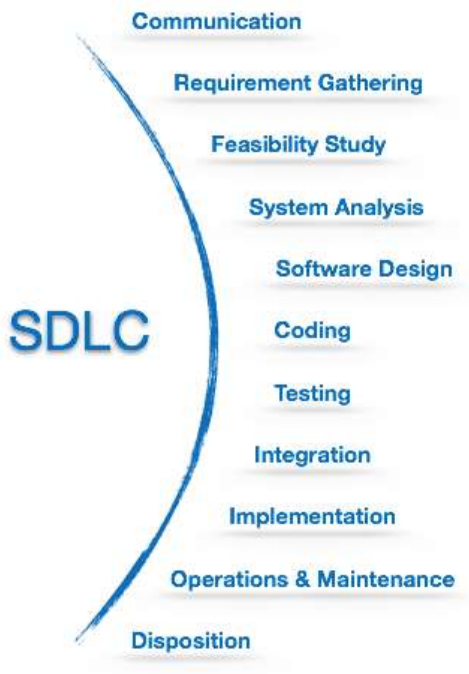
Software development life cycle activities

❖ Software Design

Next step is to bring down whole knowledge of requirements and analysis on the desk and design the software product. The output of this step comes in the form of two designs; logical design and physical design. Engineers produce meta-data and data dictionaries, logical diagrams, data-flow diagrams and in some cases pseudo codes.

❖ Coding

This step is also known as programming phase. The implementation of software design starts in terms of writing program code in the suitable programming language and developing error-free executable programs efficiently.



Software development life cycle activities

❖ Testing

An estimate says that 50% of whole software development process should be tested. Errors may ruin the software from critical level to its own removal. Software testing is done while coding by the developers and thorough testing is conducted by testing experts.

❖ Integration

Software may need to be integrated with the libraries, databases and other program(s). This stage of SDLC is involved in the integration of software with outer world entities.

❖ Implementation

This means installing the software on user machines. At times, software needs post-installation configurations at user end.

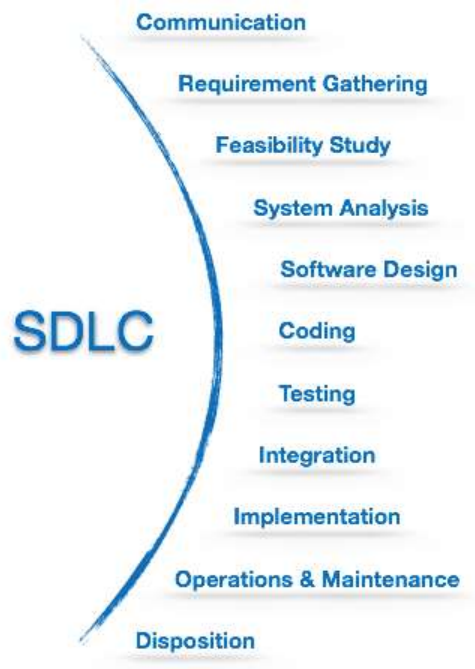
Software development life cycle activities

❖ Operation and Maintenance

This phase confirms the software operation in terms of more efficiency and less errors. The software is maintained timely by updating the code according to the changes taking place in user end environment or technology.

❖ Disposition

This phase includes archiving data and required software components, closing down the system, planning disposition activity and terminating system at appropriate end-of-system time.

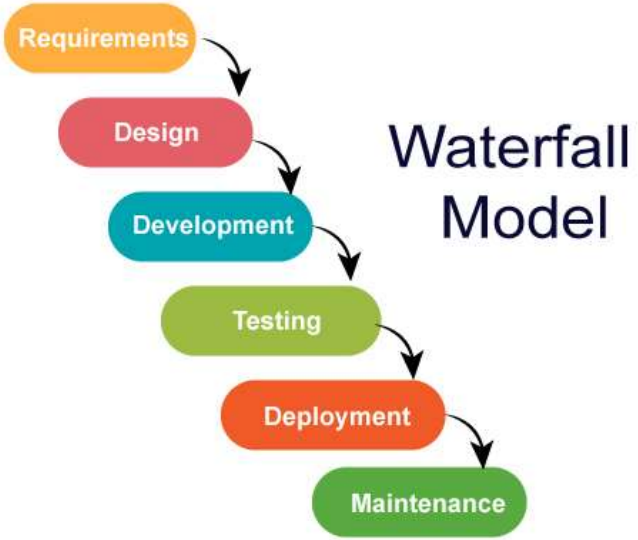


Software development paradigm

The software development paradigm helps developer to select a strategy to develop the software. A software development paradigm has its own set of tools, methods and procedures, which are expressed clearly and defines software development life cycle.

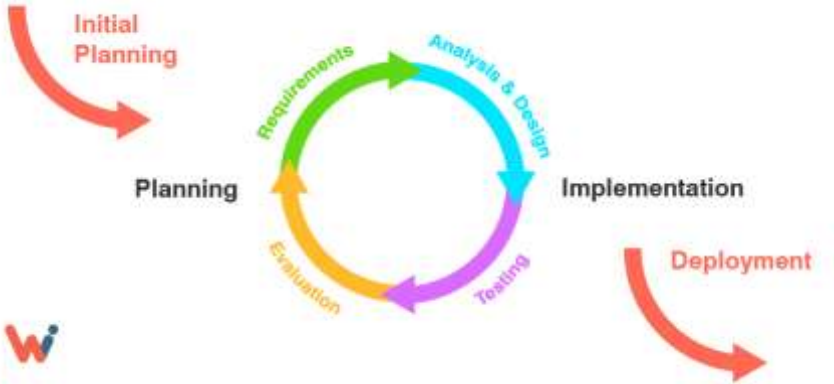
Waterfall model

Waterfall model is the simplest model of software development paradigm. It says the all the phases of SDLC will function one after another in linear manner. That is, when the first phase is finished then only the second phase will start and so on.



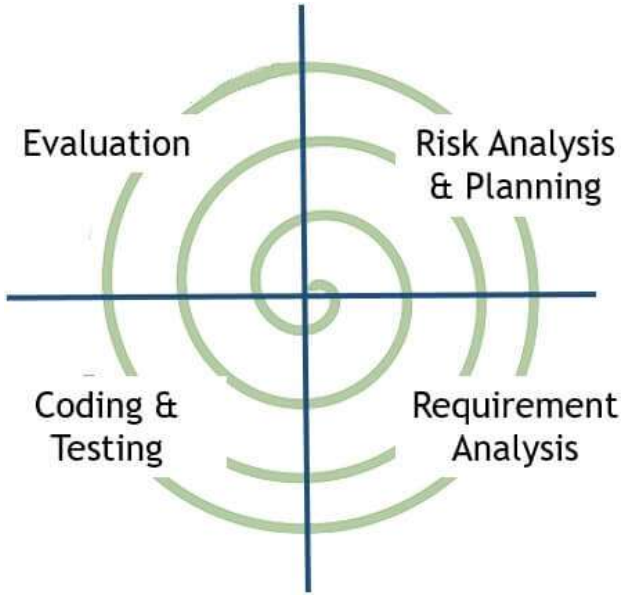
Iterative Model

This model leads the software development process in iterations. It projects the process of development in cyclic manner repeating every step after every cycle of SDLC process.



Spiral model

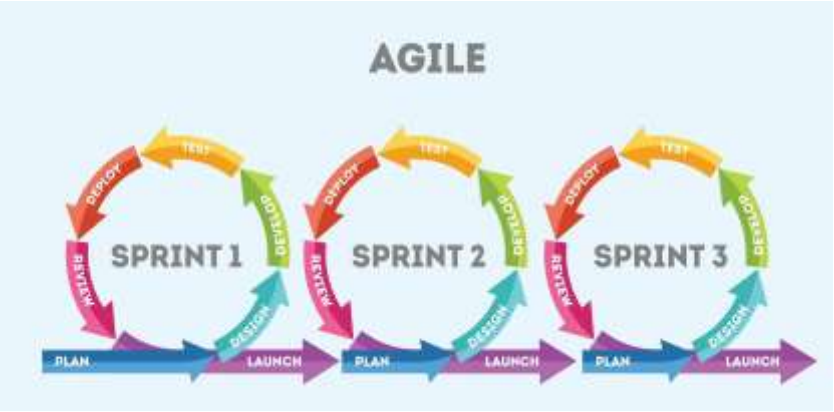
Spiral model is a combination of both, iterative model and one of the SDLC model. It can be seen as if you choose one SDLC model and combine it with cyclic process (iterative model).



Spiral Process Model

Agile development

Agile development is a broad term that can refer to any project management methodology that uses an iterative and flexible approach. Scrum is a specific type of agile development that focuses on short, time-boxed sprints.



State the agile manifesto

The Agile Manifesto is a document that identifies 4 key values and 12 principles that its authors believe software developers should use to guide their work. Formally called the Manifesto for Agile Software Development, it was produced by 17 developers during an outing on Feb.

List agile manifesto items

The Agile Manifesto consists of four key values:

- Individuals and interactions over processes and tools.
- Working software over comprehensive documentation.
- Customer collaboration over contract negotiation.
- Responding to change over following a plan.

List key principles of agile

The 12 Principles are the guiding principles for the methodologies that are included under the title "The Agile Movement." They describe a culture in which change is welcome, and the customer is the focus of the work. They also demonstrate the movement's intent as described by Alistair Cockburn, one of the signatories to the Agile Manifesto, which is to bring development into alignment with business needs.

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Any Question?

THANK YOU!