SDLC MODELS

Presented by

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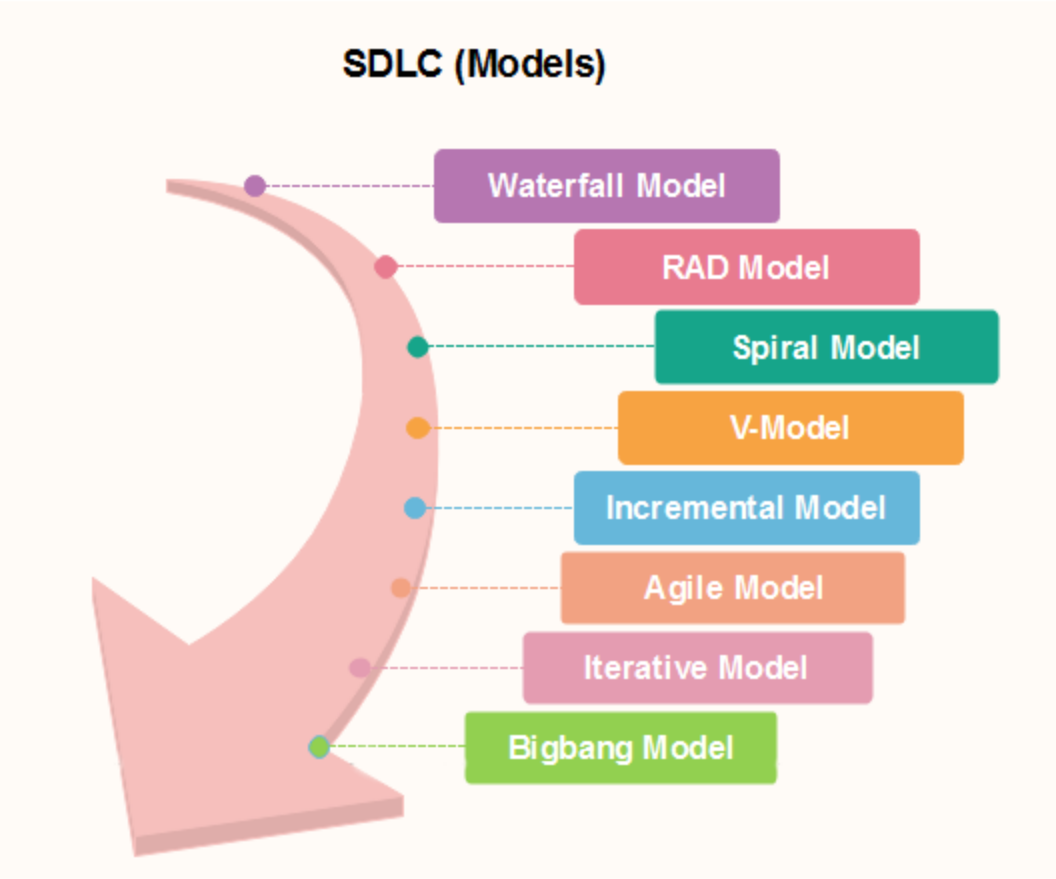
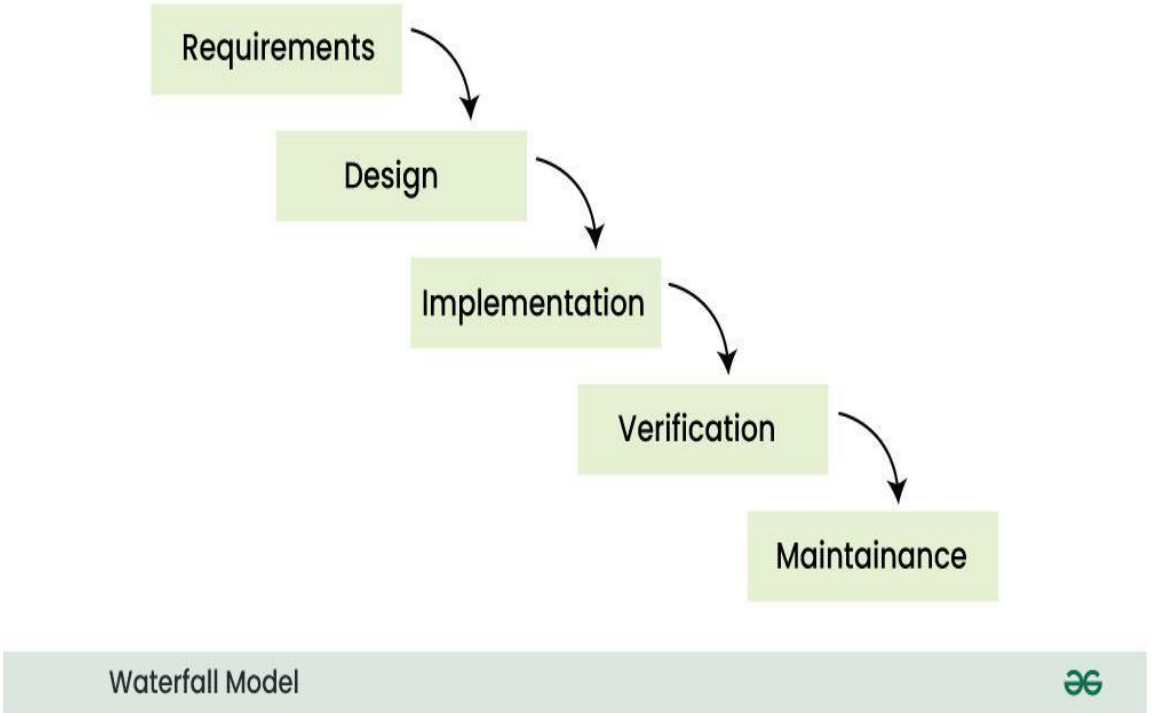
SDLC Models

Software Development life cycle (SDLC) is a spiritual model used in project management that defines the stages include in an information system development project, from an initial feasibility study to the maintenance of the completed application

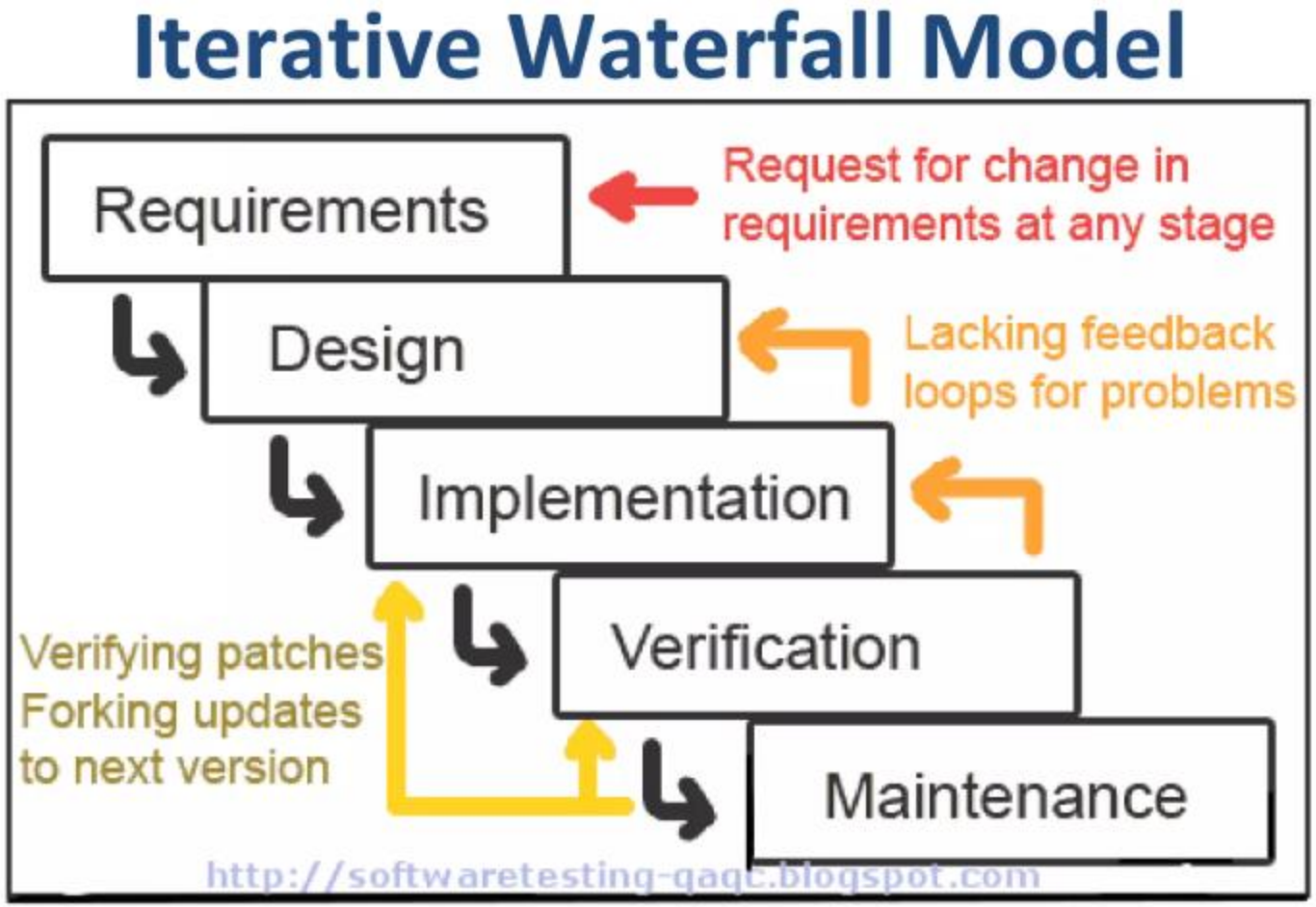


Water Fall Model



- Waterfall model is a famous and good version of SDLC(System Development Life Cycle) for software engineering. The waterfall model is a linear and sequential model, which means that a development phase cannot begin until the previous phase is completed. We cannot overlap phases in waterfall model.

Waterfall Model Contd..



Waterfall Model Contd..

Advantages and Disadvantages

Advantages of Waterfall Model

- This model is simple and easy to understand.
- This is very useful for small projects.
- This model is easy to manage.
- The end goal is determined early.
- Each phase of this model is well explained.
- It provides a structured way to do things.
- This is a base model, all the SDLC models that came after this were created keeping this in mind, although they worked to remove its shortcomings.
- In this model, we can move to the next phase only after the first phase is successfully completed so that there is no overlapping between the phases.

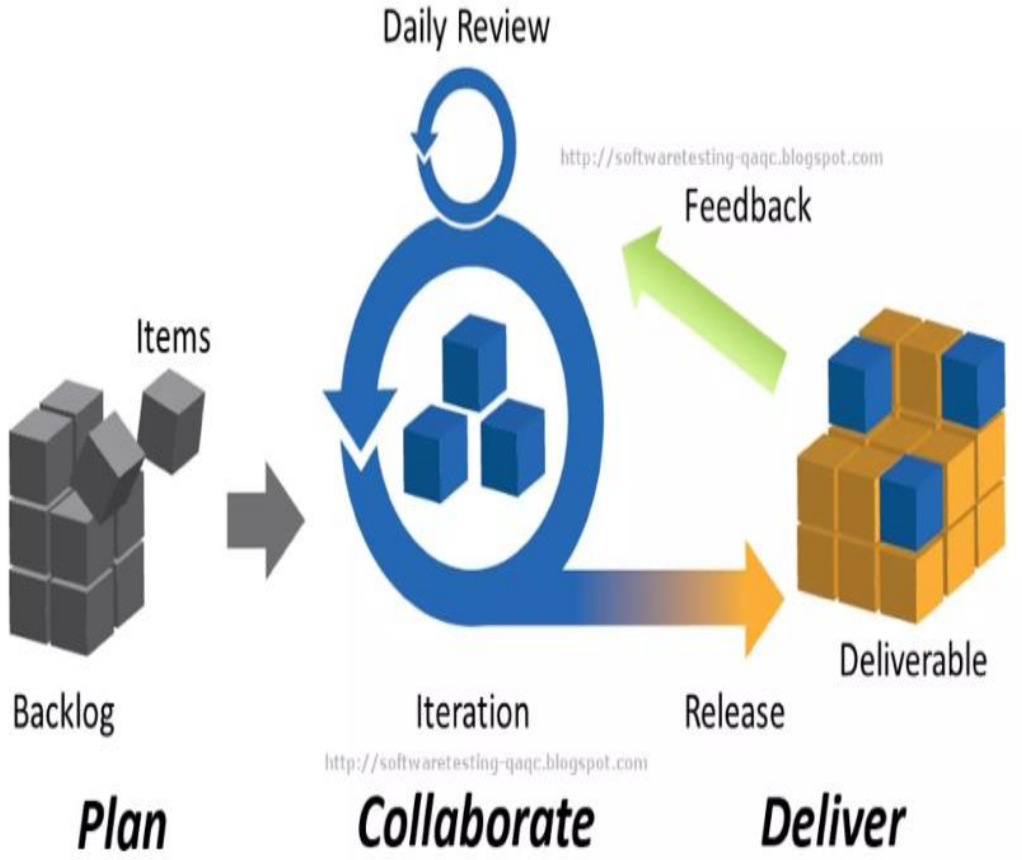
Disadvantages of Waterfall Model

- In this model, complete and accurate requirements are expected at the beginning of the development process.
- Working software is not available for very long during the development life cycle.
- We cannot go back to the previous phase due to which it is very difficult to change the requirements.
- Risk is not assessed in this, hence there is high risk and uncertainty in this model.
- In this the testing period comes very late.
- Due to its sequential nature this model is not realistic in today's world.
- This is not a good model for large and complex projects.

Agile Model

Agile model is a combination of iterative and incremental models, that is, it is made up of iterative and incremental models.

- In Agile model, focus is given to process adaptability and customer satisfaction.
- In earlier times, iterative waterfall model was used to create software. But in today's time developers have to face many problems. The biggest problem is that in the middle of software development, the customer asks to make changes in the software. It takes a lot of time and money to make these changes.
- In the agile model, the software product is divided into small incremental parts. In this, the smallest part is developed first and then the larger one.
- And each incremental part is developed over iteration.
- Each iteration is kept small so that it can be easily managed. And it can be completed in two-three weeks. Only one iteration is planned, developed and deployed at a time.



Agile Project Management: Iteration

Principles of Agile Model

•There is a customer representative in the development team to maintain contact with the customer during software development and to understand the requirement. When an iteration is completed, stakeholders and customer representatives review it and re-evaluate the requirements.
•Demo of working software is given to understand the customer's requirements. That is, it does not depend only on documentation.
•Incremental versions of the software have to be delivered to the customer representative after a few weeks.
•In this model it is advised that the size of the development team should be small (5 to 9 people) so that the team members can communicate face to face.
•Agile model focuses on the fact that whenever any changes have to be made in the software, it should be completed quickly.
•In agile development, two programmers work together. One programmer does the coding and the other reviews that code. Both the programmers keep changing their tasks, that is, sometimes one does coding and sometimes someone reviews.

Some Agile Methods

- Scrum
- Crystal methods
- DSDM
- Feature driven development (FDD
- Lean software development
- Extreme programming (xp)

Agile Model Contd…

Advantages and Disadvantages

Advantages

- In this, two programmers work together due to which the code is error free and there are very few mistakes in it.
- In this the software project is completed in a very short time.
- In this the customer representative has an idea of each iteration so that he can easily change the requirement.
- This is a very realistic approach to software development.
- In this, focus is given on teamwork.
- There are very few rules in this and documentation is also negligible.
- There is no need for planning in this.
- It can be managed easily.
- It provides flexibility to developers.

Disadvantages

- It cannot handle complex dependencies.
- Due to lack of formal documentation in this, there is confusion in development.
- It mostly depends on the customer representative, if the customer representative gives any wrong information then the software can become wrong.
- Only experienced programmers can take any decision in this. New programmers cannot take any decision.
- In the beginning of software development, it is not known how much effort and time will be required to create the software.

When Should Waterfall vs Agile Be Used?

Waterfall best in:

- Clear, stable requirements
- Predictable projects (e.g., construction, manufacturing)
- Regulatory compliance projects
- Fixed timelines and budgets

Agile Best in:

- Unclear or changing requirements
- Complex, exploratory, or innovative projects (e.g., software, R&D)
- Need for rapid, iterative delivery
- High collaboration and flexibility

ThankYou

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