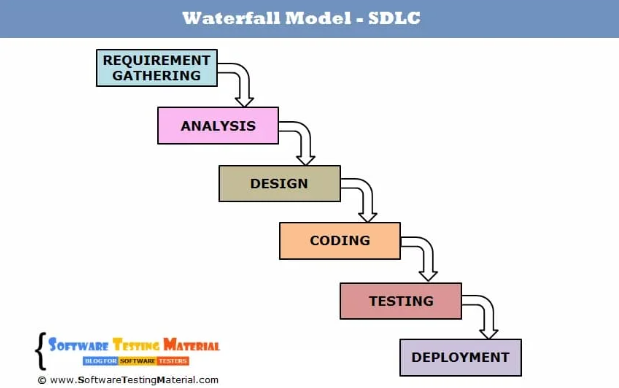
**Devops Notes By Alan**

**Waterfall Method:**

What is the Waterfall methodology? The Waterfall methodology—also known as the Waterfall model—is **a sequential development process that flows like a waterfall through all phases of a project** (analysis, design, development, and testing, for example), with each phase completely wrapping up before the next phase begins

## What is Waterfall methodology?

Waterfall Model methodology which is also known as Liner Sequential Life Cycle Model. Waterfall Model followed in the sequential order, and so project development team only moves to next phase of development or testing if the previous step completed successfully.



* This is old method first manufacturing companies used to use then constructions and later software companies used.
* Here in this method work will be done one by one step.
* In this method customer only can see the end product, they don’t have visibility on the current status on the product while working.

## Advantages of Waterfall Model:

* It is one the easiest model to manage. Because of its nature, each phase has specific deliverables and a review process.
* It works well for smaller size projects where requirements are easily understandable.
* Faster delivery of the project
* Process and results are well documented.
* Easily adaptable method for shifting teams
* This project management methodology is beneficial to manage dependencies.

## Limitations of Waterfall Model:

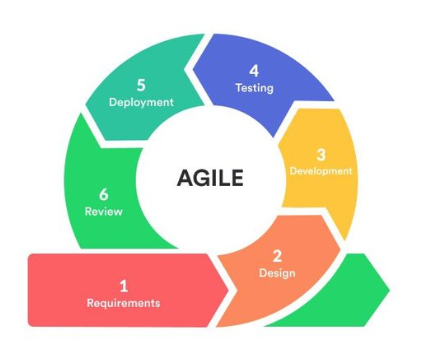
* It is not an ideal model for a large size project
* If the requirement is not clear at the beginning, it is a less effective method.
* Very difficult to move back to makes changes in the previous phases.
* The testing process starts once development is over. Hence, it has high chances of bugs to be found later in development where they are expensive to fix.

**Agile Methodology:**

In [software development](https://en.wikipedia.org/wiki/Software_development), **agile** (sometimes written **Agile**)[[1]](https://en.wikipedia.org/wiki/Agile_software_development#cite_note-1) practices include requirements discovery and solutions improvement through the collaborative effort of [self-organizing](https://en.wikipedia.org/wiki/Self-organizing_communities) and [cross-functional](https://en.wikipedia.org/wiki/Cross-functional_team) teams with their [customer(s)](https://en.wikipedia.org/wiki/Customer)/[end user(s)](https://en.wikipedia.org/wiki/End_user),[[2]](https://en.wikipedia.org/wiki/Agile_software_development#cite_note-Collier_2011-2) adaptive planning, evolutionary development, early delivery, [continual improvement](https://en.wikipedia.org/wiki/Continual_improvement_process), and flexible responses to changes in requirements, capacity, and understanding of the problems to be solved

## What is the Agile methodology?

Agile methodology is a practice that helps continuous iteration of development and testing in the software development process. In this model, development and testing activities are concurrent, unlike the Waterfall model. This process allows more communication between customers, developers, managers, and testers.



* In this method we can able to deliver the software to the client early. Because in this process we can develop the software in stages.
* First we may develop major options then we will focus on the sub parts, so client will be happy.
* Client will have the clear picture in this methos where his product and what is the status.

## Advantages of the Agile Model:

* It is focused client process. So, it makes sure that the client is continuously involved during every stage.
* Agile teams are extremely motivated and self-organized so it likely to provide a better result from the development projects.
* Agile software development method assures that quality of the development is maintained
* The process is completely based on the incremental progress. Therefore, the client and team know exactly what is complete and what is not. This reduces risk in the development process.

## Limitations of Agile Model

* It is not useful method for small development projects.
* It requires an expert to take important decisions in the meeting.
* Cost of implementing an agile method is little more compared to other development methodologies.
* The project can easily go off track if the project manager is not clear what outcome he/she wants.

**Waterfall VS Agile Methodology:**

**Key Difference Between Waterfall and Agile**

* Waterfall is a Liner Sequential Life Cycle Model whereas Agile is a continuous iteration of development and testing in the software development process.
* In Agile vs Waterfall difference, the Agile methodology is known for its flexibility whereas Waterfall is a structured software development methodology.
* Comparing the Waterfall methodology vs Agile which follows an incremental approach whereas the Waterfall is a sequential design process.
* Agile performs testing concurrently with software development whereas in Waterfall methodology testing comes after the “Build” phase.
* Agile allows changes in project development requirement whereas Waterfall has no scope of changing the requirements once the project development starts.

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| **Agile vs Waterfall** | | |
| S.No | **Agile** | **Waterfall** |
| 1 | It separates the project development lifecycle into sprints. | Software development process is divided into distinct phases. |
| 2 | It follows an incremental approach | Waterfall methodology is a sequential design process. |
| 3 | Agile methodology is known for its flexibility. | Waterfall is a structured software development methodology so most times it can be quite rigid. |
| 4 | Agile can be considered as a collection of many different projects. | Software development will be completed as one single project. |
| 5 | Agile is quite a flexible method which allows changes to be made in the project development requirements even if the initial planning has been completed. | There is no scope of changing the requirements once the project development starts. |
| 6 | Agile methodology, follow an iterative development approach because of this planning, development, prototyping and other software development phases may appear more than once. | All the project development phases like designing, development, testing, etc. are completed once in the Waterfall model. |
| 7 | Test plan is reviewed after each sprint | The test plan is rarely discussed during the test phase. |
| 8 | Agile development is a process in which the requirements are expected to change and evolve. | The method is ideal for projects which have definite requirements and changes not at all expected. |
| 9 | In Agile methodology, testing is performed concurrently with software development. | In this methodology, the “Testing” phase comes after the “Build” phase |
| 10 | Agile introduces a product mindset where the software product satisfies needs of its end customers and changes itself as per the customer’s demands. | This model shows a project mindset and places its focus completely on accomplishing the project. |
| 11 | Agile methodology works exceptionally well with Time & Materials or non-fixed funding. It may increase stress in fixed-price scenarios. | Reduces risk in the firm fixed price contracts by getting risk agreement at the beginning of the process. |
| 12 | Prefers small but dedicated teams with a high degree of coordination and synchronization. | Team coordination/synchronization is very limited. |
| 13 | Products owner with team prepares requirements just about every day during a project. | Business analysis prepares requirements before the beginning of the project. |
| 14 | Test team can take part in the requirements change without problems. | It is difficult for the test to initiate any change in requirements. |
| 15 | Description of project details can be altered anytime during the SDLC process. | Detail description needs to implement waterfall software development approach. |
| 16 | The Agile Team members are interchangeable, as a result, they work faster. There is also no need for project managers because the projects are managed by the entire team | In the waterfall method, the process is always straightforward so, project manager plays an essential role during every stage of SDLC. |

**Scrum Process:**

Agile scrum methodology is **a project management system that relies on incremental development**. Each iteration consists of two- to four-week sprints, where the goal of each sprint is to build the most important features first and come out with a potentially deliverable product.

**What is difference between Agile and Scrum methodology?**

The key difference between Agile and Scrum is that while **Agile is a project management philosophy that utilizes a core set of values or principles, Scrum is a specific Agile methodology that is used to facilitate a projec**

