**Phases In the waterfall method:**

The waterfall method generally contains the following phases:

**1.Requirement Analysis:**

* In this phase, all project requirements are gathered and documented in detail.
* Stakeholders define the project's scope, goals, and constraints.

**2.System Design:**

* Based on the requirements, the system architecture and design are created.
* The goal is to produce design documents that guide the development phase.

**3.Implementation (Coding):**

* The design is made using the tools and technologies provided

**4.Deployment:**

* The system is deployed to the production environment for use.

**5.Maintenance:**

* After deployment, the system is monitored and maintained to ensure smooth operation.
* Updates, bug fixes are performed as required.

**Agile method:** it is an incremental and iterative model used for developing a s/w or application

The term agile means ability to respond to changes from requirement technology and people

This model is generally used in:

* E-commerce application
* Social media platforms
* Banking apps such as YONO

**Advantages of agile method:**

* Requirement changes are allowed at any stage of development
* Releases will be very fast
* Customers no need to wait for longer times
* Good communication between all the teams
* Easy to adapt to the model

**The only disadvantage of agile is:**

Less focus on design and documentation

**Testing:**

The testing is basically of three types:

**White box testing:** in this testing the tester has full knowledge about the internal architecture, design and code. (unit, integration)

* The code is tested by the user using different test cases

**Black box testing:** in this testing the tester doesn’t have any prior knowledge about the code or internal structure (performance, stability, reliability, scalability)

* In this testing the functionality of an application is tested

**Gray box testing:** In this testing the testers have partial knowledge about the system architecture and code

**Terminology used in DevOps:**

* **Bugs:** these can be defined as the fault in the software that causes unintended results (button not functioning properly)
* **Errors:** Errors can be defined as the mistakes in the code developed by the developer
* **Defect:** Defect can be defined as the error accepted by the developer or a deviation from the expected results
* **Failure:** A failure can be defined as the inability of a system or application to meet the required expectation or outcome

**Tools used in DevOps:**

1. Planning/coding/SCM: Git, JIRA
2. Building code: Maven, Gradle, Apache ANT
3. Testing: Selenium testing with python
4. Integration: Jenkins (CI/CD)
5. Deployment: Docker, Kubernetes
6. Operations: Ansible
7. Monitoring: Terraform