1. Explain the different phases in the waterfall method.
2. Research and give some examples of where the waterfall model is used.
3. Advantages and disadvantages of the waterfall method.
4. Waterfall method divides a project into different activities where every activity is dependent on the previous activity and corresponds to a specialization of tasks. It provides a disciplined approach and requires less iteration. The waterfall method’s progress flows in largely one direction (“downwards like a waterfall”) through phases of analysis, design, implementation, testing, deployment & maintenance.
   * **Analysis**

In this phase, we’re required to research the business domain, models & schema of the project. Through analysis, requirements are created, that help the project to give a higher overview of the project.

* + **Design**

After analyzing the project, we need to design the software architecture based on the requirements from the analysis phase. In this phase, we’ll focus on selecting the hardware and software of the project. In the end, we’ll be creating valuable documentation in this phase.

* + **Implementation**

We will need to construct the entire project in this phase based on the documentation provided in the Design phase. Here, we’ll be doing the actual coding part or the implementation part of the project.

* + **Testing**

We can’t deploy the project without testing to save ourselves many errors that may arise in the implementation phase. We’ll be testing the entire implementation in this phase. This phase includes unit testing, integration testing, etc. that helps ensure that product is reliable and resilient in the real world.

* + **Deployment**

After testing the entire project in the testing phase, we’re ready to deploy the project. This is where our project gets live and gets into the real world.

* + **Maintenance**

However, the tests are done, or how many tests are done, we can’t be 100% sure of program resilience. In our last phase, we usually maintain the completed code by resolving any errors that may arise later. This phase can also be used for adding new features in near future.

1. Waterfall method is one of the simplest methodologies for any kind of software development. As an example, until the 2000s large number of systems were using the waterfall method to build their software. For example, Customer Relationship Management (CRM) Systems, Human Resource Management Systems, and Inventory Management Systems. But as the evolution of technology grew rapidly, large-scale enterprise systems were created over a period of 2 to 3 years but were redundant by the time they were completed. By the time applications were built there were plenty of upgrade technologies that could replace the whole system easily. However, there are some areas where the waterfall method is still continued and preferred. For example, in a system where human life is on the line, where system failure could result in casualties.
2. Advantages of the waterfall method

* Disciplined method & well-defined documentation.
* It results in a resilient system.
* The projects will usually be short.
* Technologies used in the project are well understood.

Disadvantages of the waterfall model

* Systems will be difficult to update & upgrade.
* Technologies get deprecated quickly.
* Bad for dynamic software where user requirements change rapidly.
* Bad for complex and object-oriented projects.
* No working product is produced until the last stage of the project.