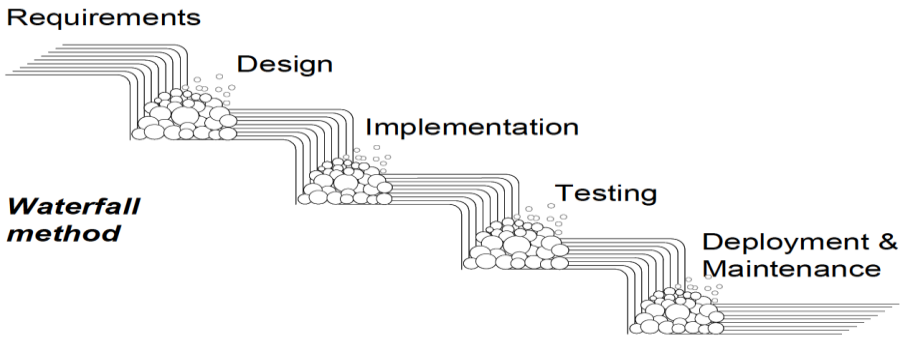
Waterfall Model

The waterfall model is a sequential (non-iterative) design process, used in software development processes, in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of conception(or requirements), design, implementation, testing and deployment. Despite the development of new software development process models, the Waterfall method is still the dominant process model with over a third of software developers still using it.



➢ Requirements

- **Objectives:** The purpose of this phase is to gather all the possible needs and problems that a software application is to address & solve. Communication between the client and the developer has to be very clear.
- **Activities:** Activities carried out in this phase include listing of the basic requirements of the software, possible modifications in it, possible issues that may arise in future, listing of target environments, cost effectiveness, etc.
- **Outcome:** As an outcome of this phase, the developer will have a clear idea of the software that is required by the client. The purpose of the software will become clear.

➢ Design

- **Objectives:** The main purpose if this stage is to create a blueprint that will satisfy all documented requirements, then to identify all inputs, processes and outputs needed for the software implementation.
- **Activities:** The designs concerning the logical layout such as forms and reports, database, interface, etc. and those of physical layout such as actual database, functions, memory management, etc. are developed.
- **Outcome:** At the end of the design phase we have a system design specification document (SDS). This is a document that contains all of the information needed to develop the system.

➢ Implementation

- **Objectives:** In this phase, the actual software is developed by taking inputs from the previous phases.
- **Activities:** The developer develops the actual software by taking in account all the requirements and designs and prepares the required product.
- **Outcome:** The product gets developed in this phase but it is yet to be tested and delivered to the client.

➢ Testing

- **Objectives:** The purpose of this phase is to verify each and every component of the developed product and also its behavior in different environments.
- **Activities:** The product undergoes tests for error detection and performance analysis regarding speed, stability, memory management, portability, etc.
- **Outcome:** After this phase, the product becomes completely ready to be deployed to the target users.

➢ Deployment and maintenance

- **Objectives:** The objective is to deploy the product to the target users and also to provide maintenance for further updates and possible errors.
- **Activities:** The product is delivered to the user or released in the market and all the possible issues, if they arise, are resolved.
- **Outcome:** The product finally reaches the target users and its constant analysis is performed.

A case study:

Studying the requirements for an online ticket booking software for trains.

- **Usage requirements:**
  - Available trains as per the route entered.
  - Available berths and their location.
  - Rate of different types of tickets.
  - Ticket booking options.
  - PNR number.
  - User verification.
  - Online payment methods.
  - Real time status of every train.
  - Ticket cancellation facility.
  - PDF copy of the ticket generated.
  - Food ordering facility for the journey.

- **Technical requirements:**
  - Should be compatible with every mainstream browser.
  - Should be simple and user friendly.
  - The app for the same should run on Android OS, Windows OS and iOS and it should be of 15 MB at max.
  - No advertisements.
  - Constant updates and maintenance should be provided.