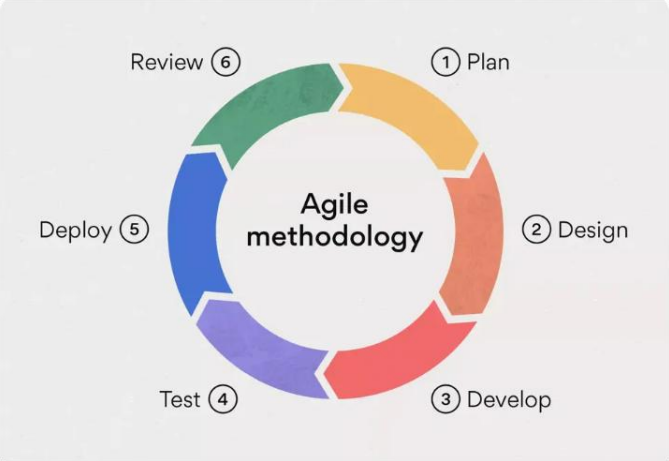
Agile Model

Agile is a flexible, iterative project management approach focusing on quick delivery through small, incremental releases and continuous feedback. Utilizing short cycles called “sprints” and cross-functional collaboration, it embraces changing requirements to ensure the product remains aligned with evolving user needs.



1. Plan

- ✧ The team discusses what they want to build in this upcoming cycle.
- ✧ They select specific features from the "Product Backlog" and estimate how long they will take.
- ✧ A “Sprint Plan” or a list of tasks to complete.

2. Design

- ✧ The team figures out how to build the selected features.
- ✧ Designers create the look (UI/UX), and architects decide the technical structure (database, API).
- ✧ Design mock ups and technical blueprints.

3. Develop

- ✧ The “building”phase.
- ✧ Programmers write the actual code to make the features work.
- ✧ Working software features (though they might still have bugs).

4. Test

- ✧ QA checks the work.
- ✧ Testers look for bugs or errors in the code.If any they send it back to remove the bug.
- ✧ Verified, bug-free code.

5. Deploy

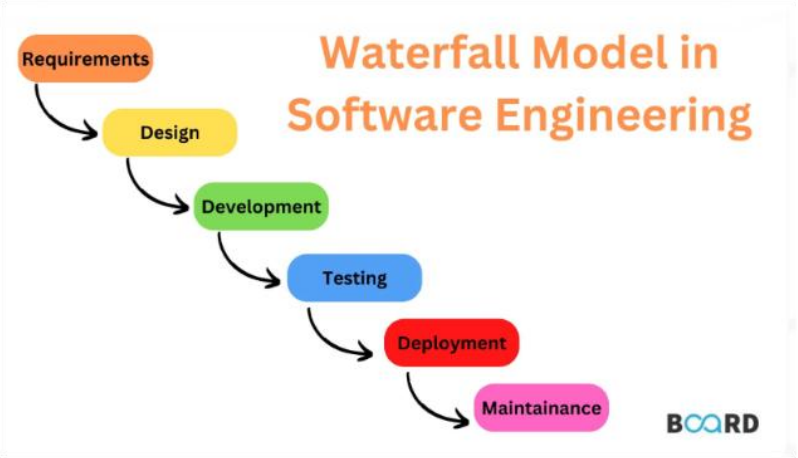
- ✧ The software is released.
- ✧ The code is moved to a server where users (or the client) can actually access and use it.
- ✧ It is Live.

6. Review

- ✧ The team gathers feedback.
- ✧ They show the work to the client to see if they like it. They also try to improve it.
- ✧ Feedback for the next “Plan” phase.

Waterfall Model

The Waterfall Model is a linear software development approach where projects progress sequentially through distinct phases, completing each before the next begins.



1. Requirement(What Phase)
- ✧ To understand exactly what the software needs to do.
- ✧ The business team and clients discuss needs. They document every rule, feature, and function the software must have.
- ✧ A document called the SRS(Software Requirement Specification) is made.

2. Design(Blueprint Phase)
- ✧ To plan how the software will be built technically.
- ✧ Architects and designers create the structure.
- ✧ Technical diagrams and design documents is made.

3. Development(Build Phase)
- ✧ To turn the designs into a working product.
- ✧ Programmers (Developers) write the actual code.
- ✧ The source code and the functional software is made.

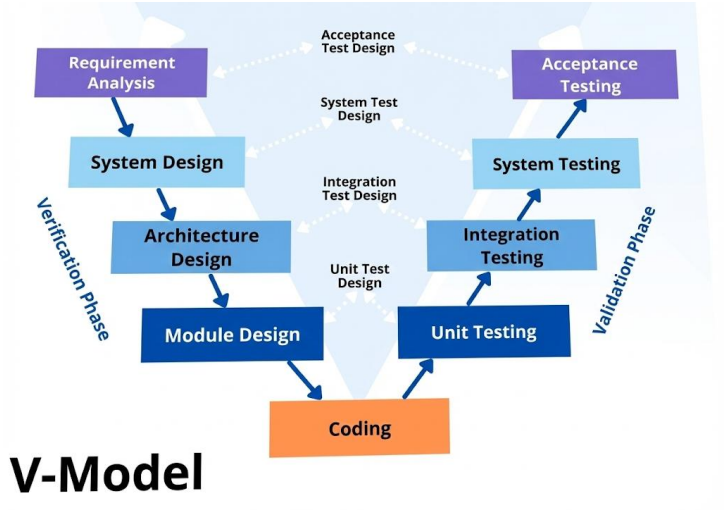
4. Testing(Quality Check Phase)
- ✧ To ensure the software has no bugs and meets the requirements.
- ✧ The QA team takes the software built in the previous step and tests it rigorously.
- ✧ A stable, bug-free application ready for release.

5. Deployment(Launch Phase)
- ✧ To make the software available to real users.
- ✧ The tested software is installed on the "Production" servers. It goes live.

6. Maintenance(Support Phase)
- ✧ To keep the software running smoothly over time.
- ✧ The work doesn't stop after launch. The team must fix new bugs,upgrade the system and make small changes as needed for reliability.

V Model

The V-Model (Verification and Validation) is an SDLC model where every development phase has a corresponding testing phase.



1. Requirement gathering

Gathering detailed user needs to define what the system must do.

2. System Analysis

Planning the complete system specifications and hardware requirements.

3. Software Design

Breaking the system into high-level components and defining how they interact.

4. Module Design

Creating detailed, low-level logic for each specific component or function.

5. Coding

Writing the actual source code based on the detailed design specifications.

6. Unit Testing

Verifying that individual lines of code or smallest parts function correctly.

7. Integration Testing

Checking that different modules communicate and work together properly.

8. System Testing

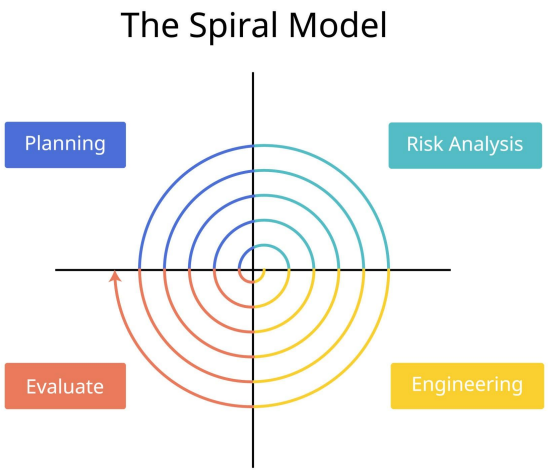
Validating the fully integrated application against the original system specs.

9. User Acceptance Testing(UAT)

The client confirms the software satisfies the initial business requirements.

Spiral Model

The Spiral Model is a risk-driven SDLC approach that combines the iterative nature of prototyping with the controlled structure of the Waterfall model.The project passes through four phases repeatedly in a “spiral,” allowing for incremental releases and constant refinement.



The Four Phases (Quadrants)

- Planning: Determining objectives, alternatives, and constraints for the specific iteration.
- Risk Analysis: Identifying potential dangers (technical or managerial) and resolving them, often through prototyping.
- Engineering: Developing, coding, and testing the software product for that iteration.
- Evaluation: The customer reviews the current progress and provides feedback to plan the next spiral loop.