

Waterfall

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1 Introduction

Waterfall is the classic linear process flow. It is simple to use and was one of the first software development methodologies.

In a waterfall model, the whole development life-cycle is broken up into non-overlapping phases, often:

- Requirements: gather requirements, creating a requirements specification document.
- Design: analyze requirements and design the software solution, creating a system design and architecture documentation.
- Implementation: using design documentation, software is built in *small* units, with unit tests, etc.
- Integration: the units from previous phase are integrated into the working system.
- Deployment: The product is deployed/released to the customer.
- Maintenance: The system may require regular maintenance during its lifetime.

2 Application

The waterfall approach is most applicable for situations where requirements are well understood, requirements are stable and non-ambiguous, technology stack is understood and is stable, and project is relatively short in duration (to avoid things changing mid-stream).

3 Advantages

The waterfall model is easy to understand and use. Requirements get solidified up-front, and design is made stable before any development starts. Easy understood milestones, with required documentation produced at the end of each phase.

4 Disadvantages

The primary disadvantage is the lack of revision. Once the system is being tested, it is expensive to go back and change things that were not part of the original design or requirements—and there is no automatic revision process setup to ensure that what gets built is what the users asked for.

There is no working software until the very end of the life-cycle.