Waterfall Model Overview

Introduction

The Waterfall Model is a fundamental software development methodology that outlines a linear and sequential approach. Each stage must be completed before moving to the next.

Stages of the Waterfall Model

1. **Requirements analysis and definition**:

- Establishing the system's services, constraints, and goals in consultation with system users.

- Defining them in detail to serve as a system specification.

2. **System and software design**:

- Allocating the requirements to either hardware or software systems.

- Establishing an overall system architecture.

- Identifying and describing the fundamental software system abstractions and their relationships.

3. **Implementation and unit testing**:

- Realizing the software design as a set of programs or program units.

- Verifying that each unit meets its specification.

4. **Integration and system testing**:

- Integrating and testing individual program units or programs as a complete system.

- Ensuring that the software requirements have been met.

- Delivering the system to the customer.

5. **Operation and maintenance**:

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- Installing the system and putting it into practical use.
- Correcting errors not discovered in earlier stages.
- Improving the implementation of system units.
- Enhancing the system's services as new requirements are discovered.

Additional Notes

The Waterfall Model is particularly appropriate for:

- Embedded systems where the software has to interface with hardware systems.
- Critical systems requiring extensive safety and security analysis.
- Large software systems that are part of broader engineering systems developed by several partner companies.