**The Waterfall Model is a classical software development methodology that was first introduced by Winston W. Royce in 1970¹. It is a linear and sequential approach to software development that consists of several phases that must be completed in a specific order. Let's break down the key phases of the Waterfall Model:**

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**Requirements:**

In this initial phase, written requirements are composed. These requirements describe the project's functional and non-functional needs, constraints, risks, dependencies, success metrics, and timelines. Cost estimates are also included. The goal is to create a clear understanding of what the project aims to achieve.

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**Design:**

**The design phase involves creating two levels of design:**

1. **High-Level Design (HLD):**

* This describes the purpose, scope, and general traffic flow of each component. It also outlines integration points.

1. **Detailed Design:**

* Subject matter experts (SMEs) implement the HLD design with precise details. Clarity in the written documentation is crucial, especially if different teams handle design and implementation.

**Implementation:**

Implementation teams work based on the design to create, code, implement, and test the solution. If changes are needed during this phase (due to unforeseen issues or changes in system function), a new design must be created and approved before completing the implementation.

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**Verification:**

Acceptance tests are deployed and executed during the verification phase. The built solution is tested against the initial requirements to confirm that it meets expectations. If any shortfalls are identified, they are addressed.

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**Maintenance:**

After project completion, a dedicated ownership team handles planned changes, defect fixes, and updates. Maintenance ensures the system remains functional and up-to-date.

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**The Waterfall Model emphasizes fixed dates, requirements, and outcomes. Each stage can only proceed once the previous stage is completed and signed off. While it provides structure, it can be less flexible compared to agile methodologies. Keep in mind that modern software development practices have evolved beyond the Waterfall Model, but understanding its principles can still be valuable for historical context and comparison**