

Chapter2. Information Hiding

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NOTE TAKING AREA

The longer you postpone coding, the sooner you will be finished.

Software engineering

Design overview: design is a trial-and-error process, and the process is not the same as the outcome of that process. There is an interaction between requirements engineering and design.

Software design caveats: no definite formulation, no stopping rule, no simply true or false solutions.

Software design principles: abstraction, modularity, coupling, and cohesion, information hiding, limited complexity, hierarchical structure.

- Abstraction: procedural abstraction, data abstraction.
- Modularity: structural criteria about individual modules and interconnections.
Key concept: cohesion (high) and coupling (low).
- Information hiding: breaking a program into modules.
 - Design decisions that are likely to change independently should be secrets of separate modules.
 - Interfaces between modules are considered unlikely to change.
 - Motivation: accommodating change.

Information hiding and decomposition

Decomposition criteria: functional decomposition, information hiding decomposition.

Information hiding:

- Decide likely to change part and stable part.
- Put change part in its own module.
- Assign each module an interface that hides the change part and only exposes stable part.
- Ensure the clients of a module depend only on the stable interface and not the implementation.

Benefit: each change will affect one module only.

Types of secrets: algorithms (procedural abstraction), data representations (abstract data types), characteristics of a hardware device, where information is acquired, user interface.

CUE COLUMN

Key word in context (KWIC)

Find description of problem in PPT Lecture 3.

Modularization: analyze change part and un-change part, divide them.

Information hiding: abstract.

KWIC observations: similar at runtime, different in code.

Compounding factors: independent development, comprehensibility.

SUMMARIES

1. Software engineering and 6 design principles.
2. Information hiding and decomposition, 5 types of secrets.