Object-oriented Design

Topics

- Purpose
  - To transform analysis model into a blueprint of software construction
- OOD Methods
- OOD Models
  - Software Architecture
  - Data Design
  - Interface Design
  - Component-level Design
  - Deployment Design

Object-oriented Design

- It transforms the analysis model created in object-oriented analysis into a design model that serves as a blueprint for software construction.

- It must describe the specific data organization of attributes and the procedural detail of individual operations.

Five Basic Principles of Design

- Linguistic modular units

- Few interfaces

- Small interfaces/Weak Coupling

- Explicit interface

- Information Hiding

Object-oriented Design Methods

- Booch Method

  - It involves a "micro-development" process and a "macro-development" process.

- Coad and Yourdon Method

  - It addresses not only the application but also the infasturcture for the application.

- Jacobson Method

  - It emphasizes the traceability of the OOSE analysis model.

Object-oriented Design Methods

- Rambaugh Method

  - It encompasses a design activity that encourages design to be conducted at two different levels of abstraction. System design focuses on the layout for the components that are needed to complete the product. Object design emphasizes the detailed layout of an individual objects.

- Wirfs-Brock Method

  - It defines a continuous tasks in which analysis leads seamlessly into design.

Common Steps to All OOD

- STEP 1: Define the subsystems of the software by determining data-related subsystems (entity design), control-related subsystems (controller design), and human interaction-related subsystems (boundary design). This should be guided by the software architecture of choice.

- STEP 2: Define Class and Object Design

- STEP 3: Define Message Design

OO Design Main Work Products

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- Data Design

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Summary

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