Object-Oriented Methodology HW 06

2024 Fall Semester

21 CST H3Art

Short answer questions

What is the difference between generalization in a domain model class diagram and generalization in a design class diagram (DCD)?

In a design class diagram, it represents inheritance between software classes, focusing on implementation details and the reuse of code, methods, and attributes.

In a DCD, generalization represents inheritance relationships between conceptual classes that capture real-world entities or concepts.

How are GRASP and GoF patterns related?

GRASP provides principles for assigning responsibilities to classes and objects, while GoF patterns are specific design patterns that provide solutions to common software design problems. GRASP can be seen as guiding principles that help in deciding which GoF pattern to apply.

What is the difference between Low Coupling and High Cohesion in the context of object design?

Low Coupling refers to minimizing dependencies between classes, which makes the system easier to maintain and change.

High Cohesion refers to keeping related functionalities within a single class, making it more understandable and focused on a specific purpose. Together.

How can operation contracts be used in use case realizations?

Operation contracts define preconditions and postconditions, clarifying system behavior for each use case step.

Based on operation contracts in homework 5, apply GRASP to realize the operation with interaction diagrams.

Operation Contract: authorizePurchase

- Operation: `authorizePurchase(cardInfo)`
- Cross Reference: Use Case: Buy a Product
- Preconditions:
  - Valid credit card information (`cardInfo`) must be provided by the customer.
  - The system must be online and able to access the credit authorization service.
- Postconditions:
  - If the credit card is valid and has sufficient funds:
    - The purchase is authorized.
  - Otherwise:
    - The purchase is denied, and an authorization failure is recorded.

Interaction diagram for authorizePurchase
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