SOEN 343
Software Design

Section H Fall 2006

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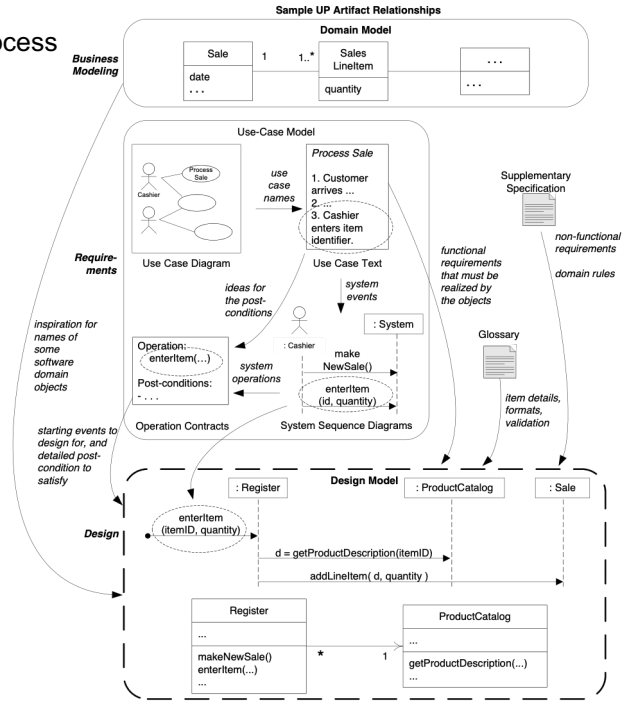
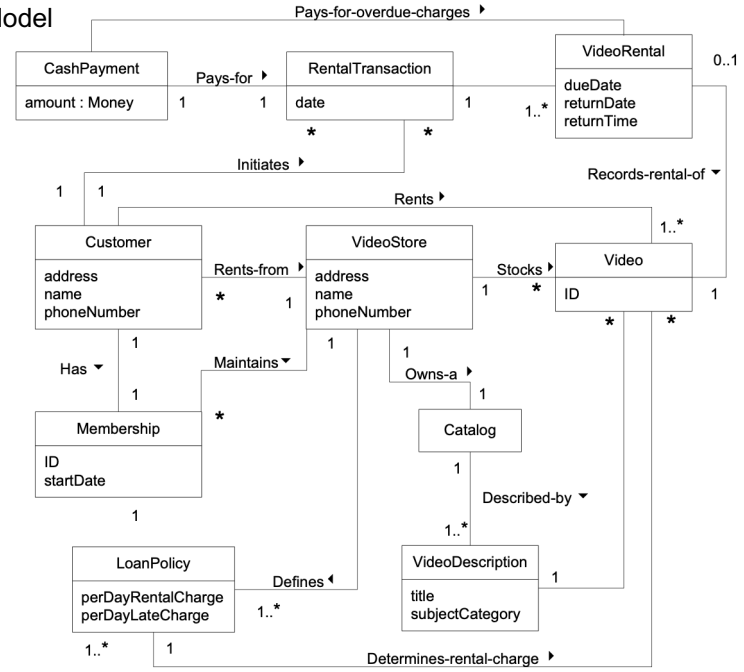
http://www.cs.concordia.ca/~gregb/home/soen343h-f06.html

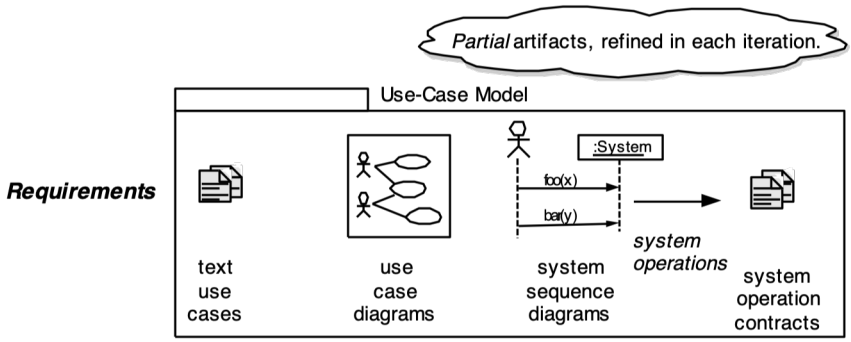
Larman's Design Process



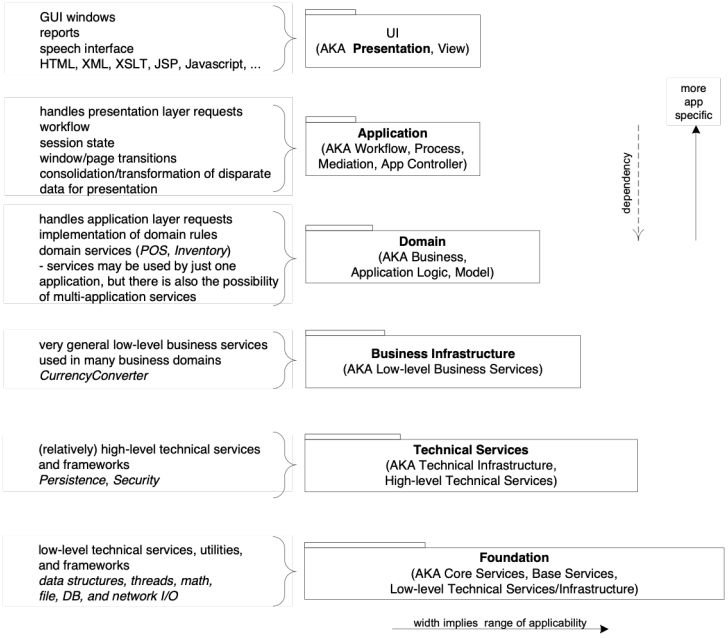
Domain Model



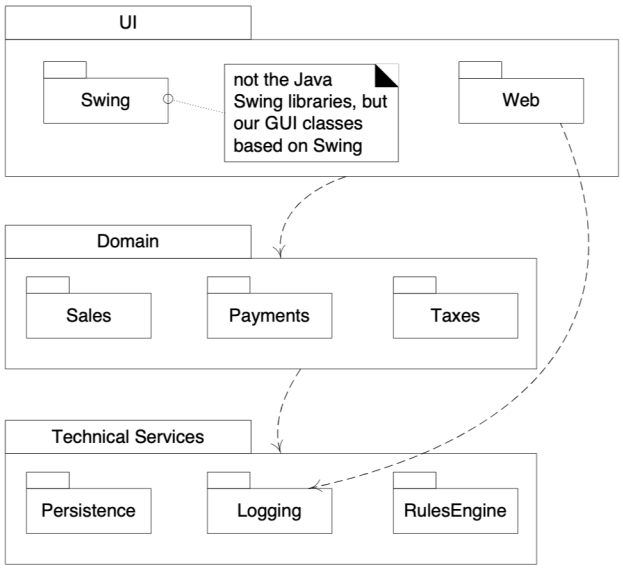
Use Case Model

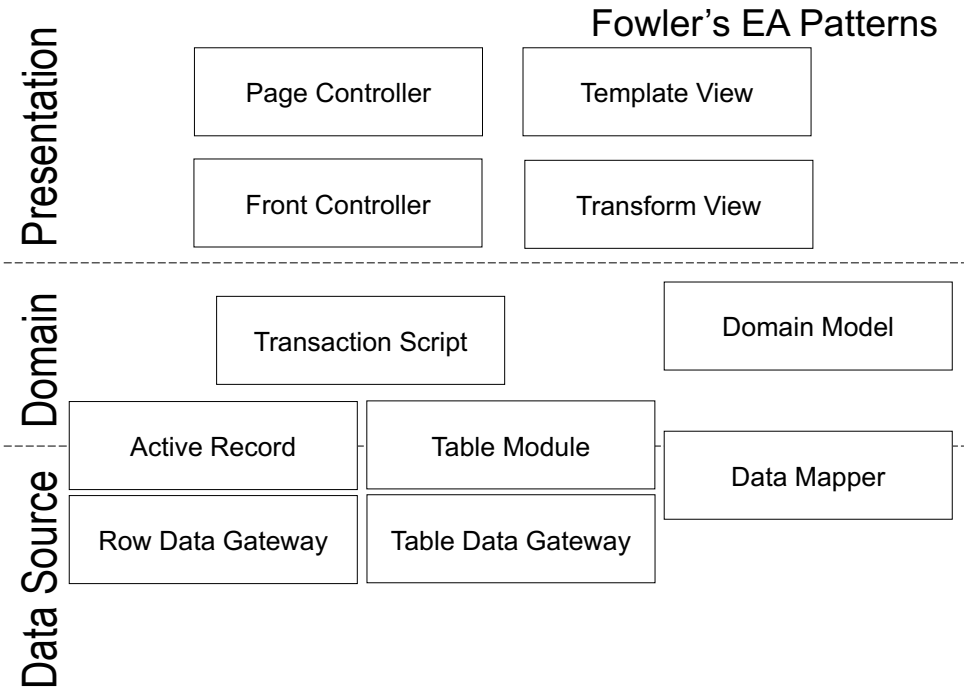


Typical Software Architecture Layers



Typical Software Architecture Layers (Simplified)





What is Design?

Developing a blueprint (plan) for a mechanism that performs the required task,

… taking into account all the constraints, &

… making trade-offs between constraints when they are in conflict.

What is OO Analysis and Design

- Object-Oriented Analysis
  - Important domain concepts or objects?
  - Vocabulary?
  - Visualized in the *Domain Model*
- Object-Oriented Design
  - Design of software objects
  - Responsibilities
  - Collaborations
  - Design patterns
  - Visualized in the *Design Model*

Important Concepts

Model
- Abstraction hiding (unimportant) details
- Eg, cover of Larman's book

GRASP Principle
- for assigning responsibility

Design pattern
- Solution to design problem in context
- Eg, Command pattern

Responsibility-Driven Design (RDD)

- Detailed object design is usually done from the point of view of the *metaphor* of:
  - Objects have responsibilities
  - Objects collaborate
- Responsibilities are an abstraction.
  - The responsibility for persistence.
    - Large-grained responsibility.
  - The responsibility for the sales tax calculation.
    - More fine-grained responsibility.