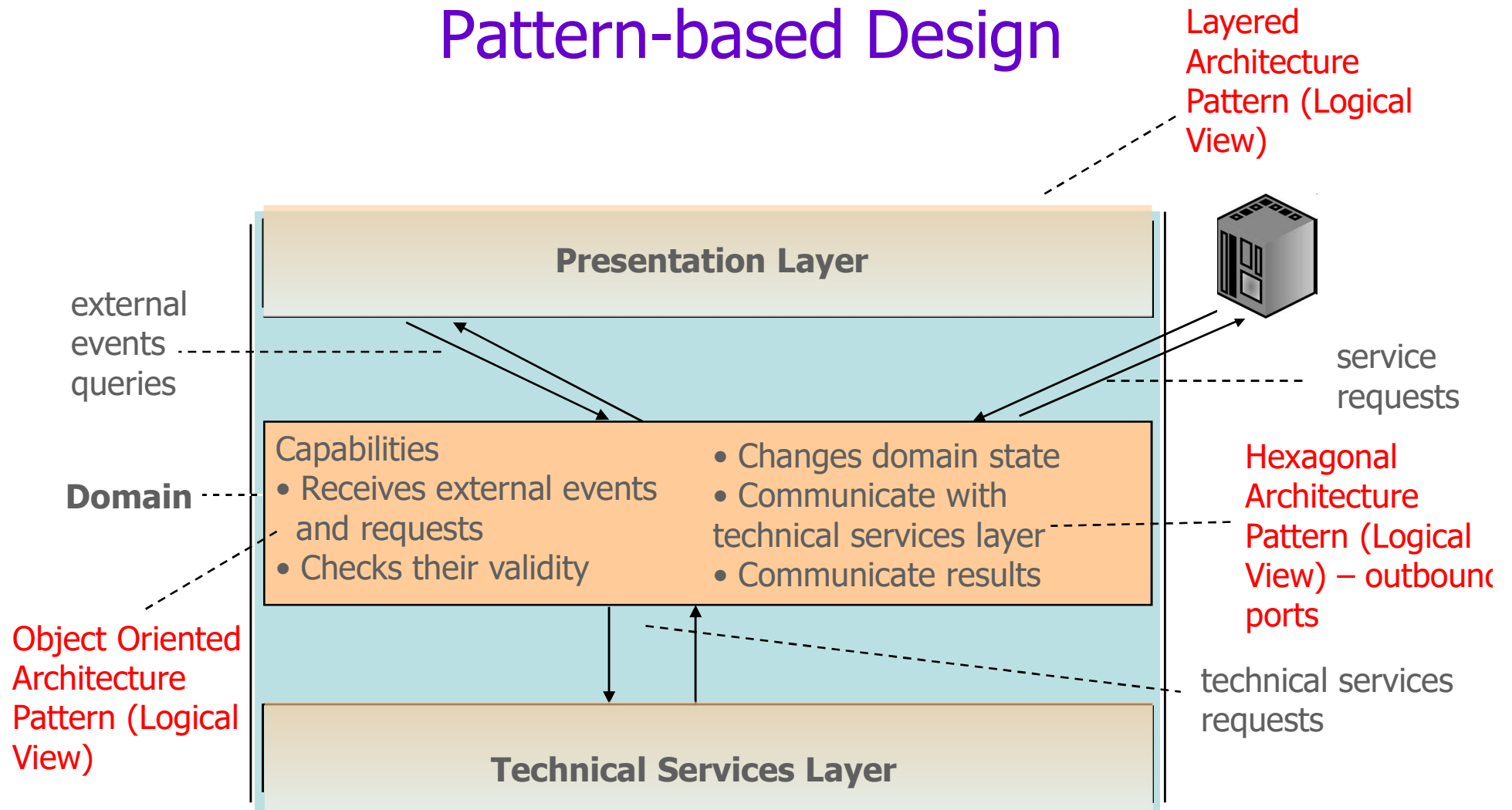


# Domain Layer Design

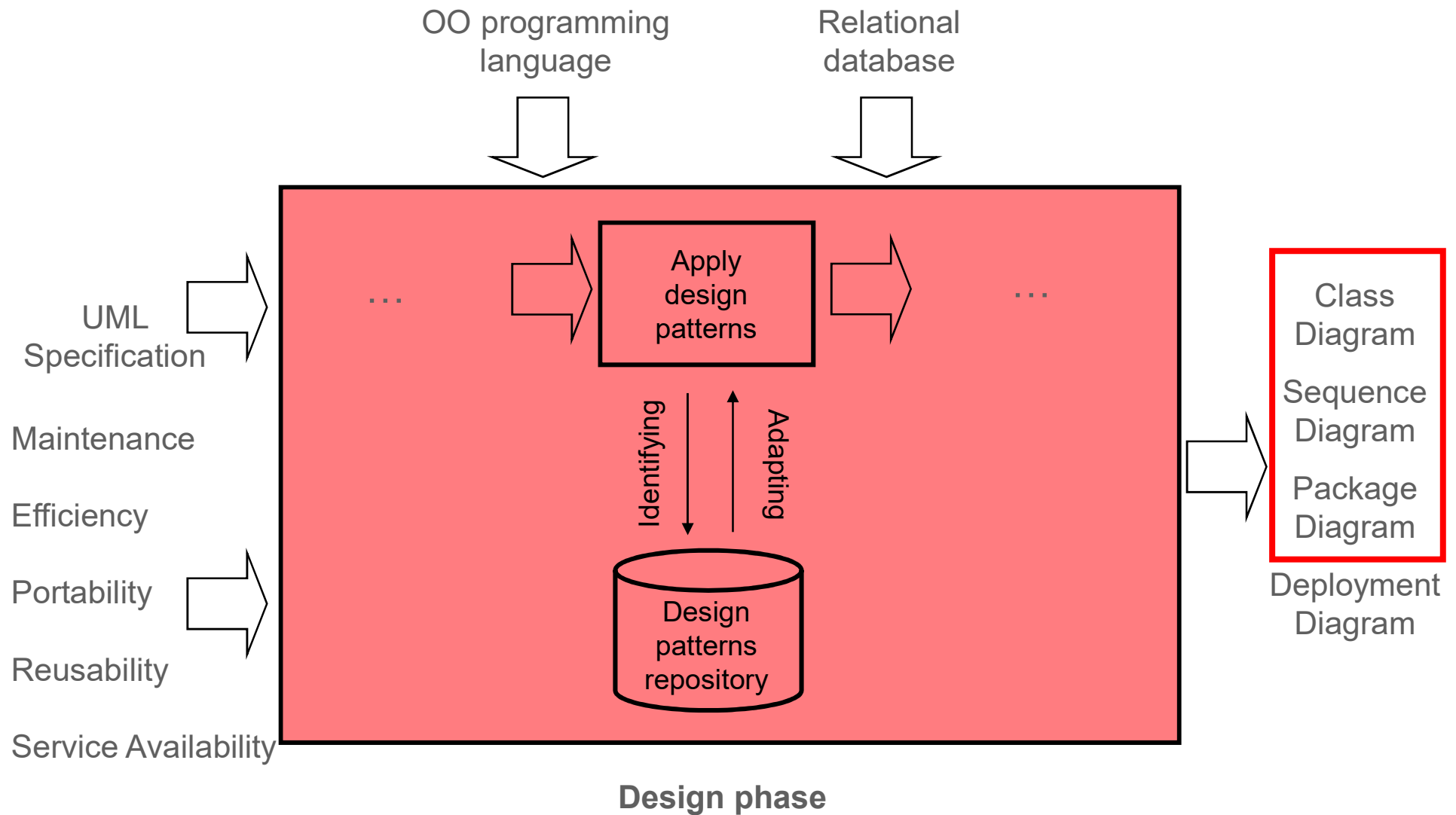
# Domain Layer Design

- Pattern-based Design
- Patterns for Domain Layer
- Case Study
- References

# Pattern-based Design



# Pattern-based Design



# Patterns for Domain Layer

- Patterns that determine the layers' structure. Proposed by Fowler (2003).
- Domain layer:
  - Great influence in the assignment of responsibilities to layers
  - Dominant patterns: *Domain Model*, *Transaction Script*
  - They determine the services and patterns that are offered by the data layer (*Data Mapper*, *Row Gateway*, *Active Record*)
  - Throughout this unit, we assume that *Domain Model* is applied

# Patterns for Domain Layer

- General purpose-patterns that may be applied to the domain layer. Proposed by GoF (1995) and adapted by several authors to their own methods, e.g. Larman (2005).
  - Controller
  - Expert
  - State
  - Adapter
  - Abstract Factory
  - Singleton
  - Strategy
  - etc...

# Case Study

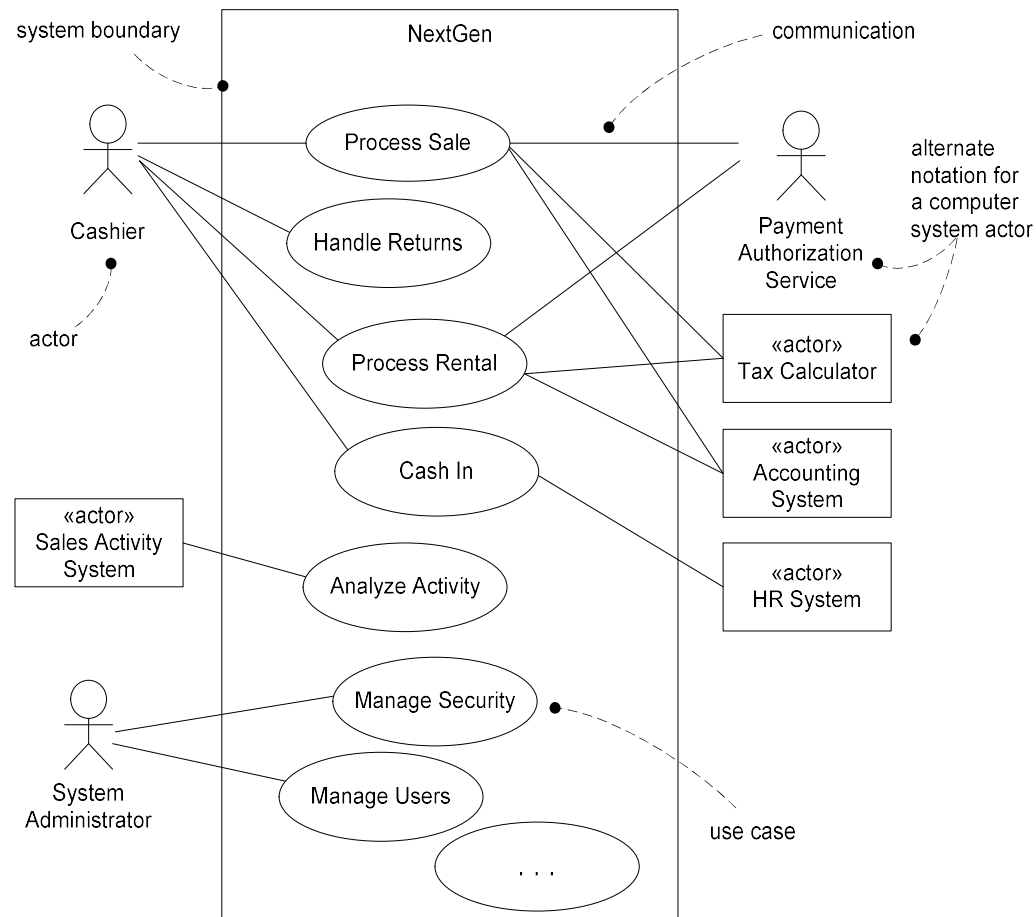


- NextGen is a point-of-sale system (POS) used to record sales and handle payments.
- It is typically used in a retail store. It includes hardware components as a computer and bar code scanner; and software to run the system.
- It interfaces to various service applications, such as a third-party tax calculator and inventory control. A POS system must be relatively fault-tolerant; that is even if remote services are temporarily unavailable (such as the inventory system), it must still be capable of capturing sales and handling at least cash payments.
- A POS system increasingly must support multiple and varied client-side terminals and interfaces.

# Case Study



- Use Case Diagram

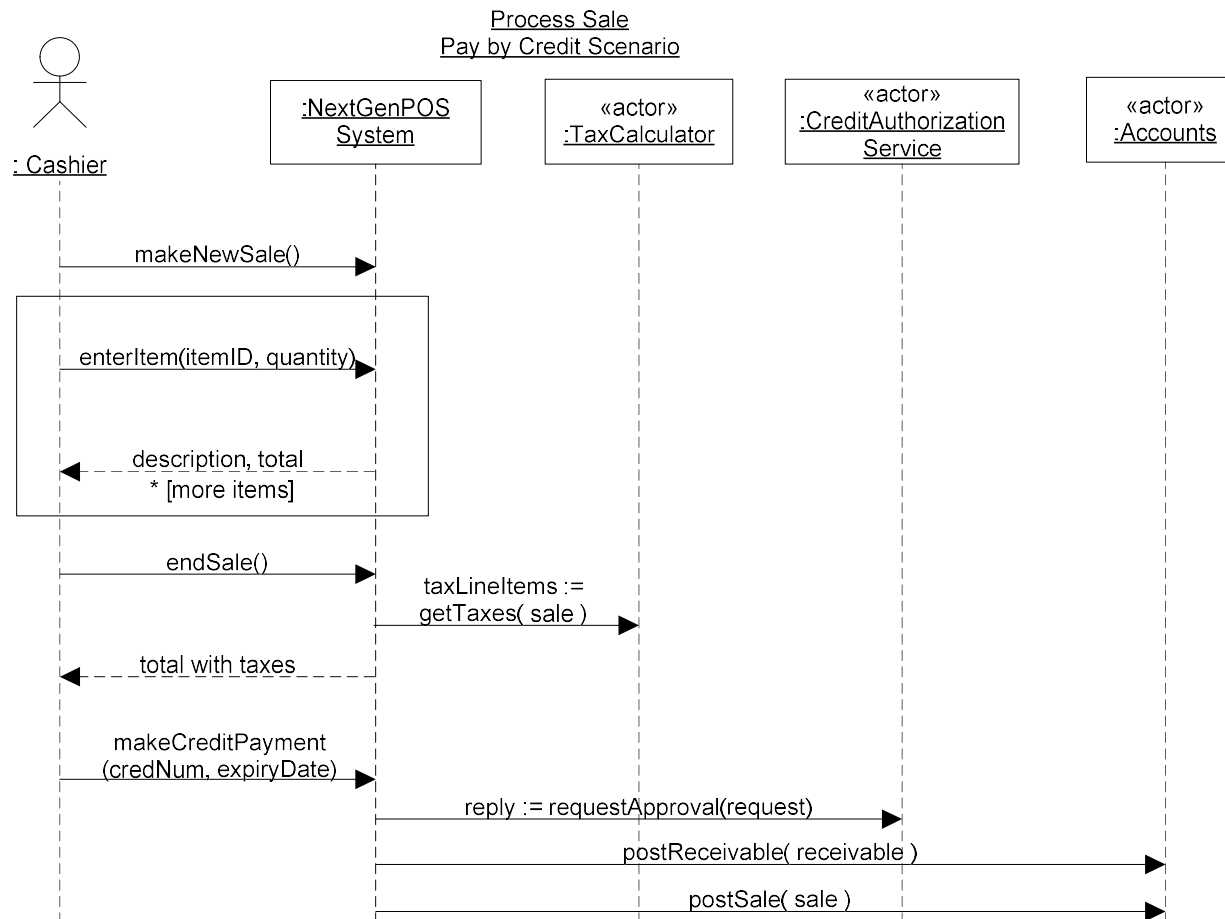


\*Example extracted from Larman (2005)

# Case Study



- System Sequence Diagram

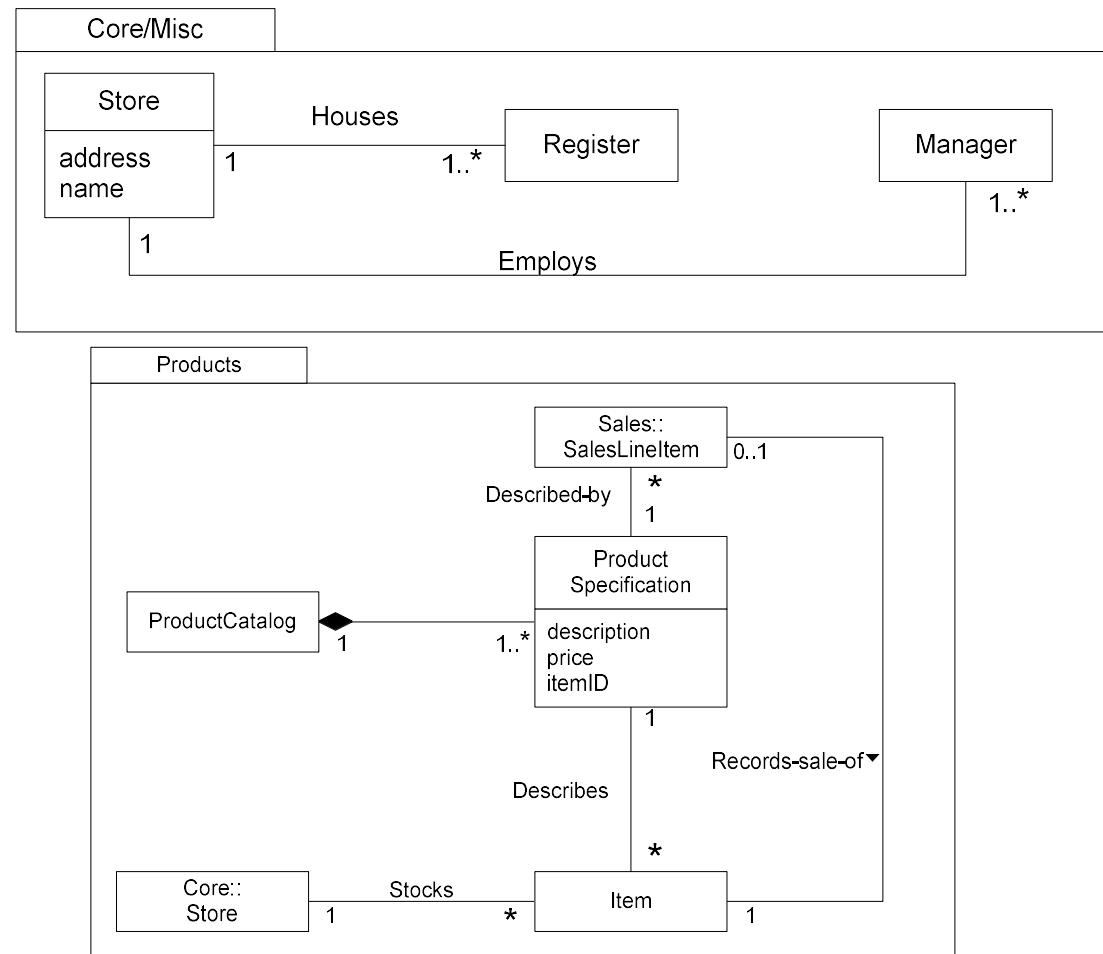


\*Example extracted from Larman (2005)



# Case Study

- Conceptual schema (partial)

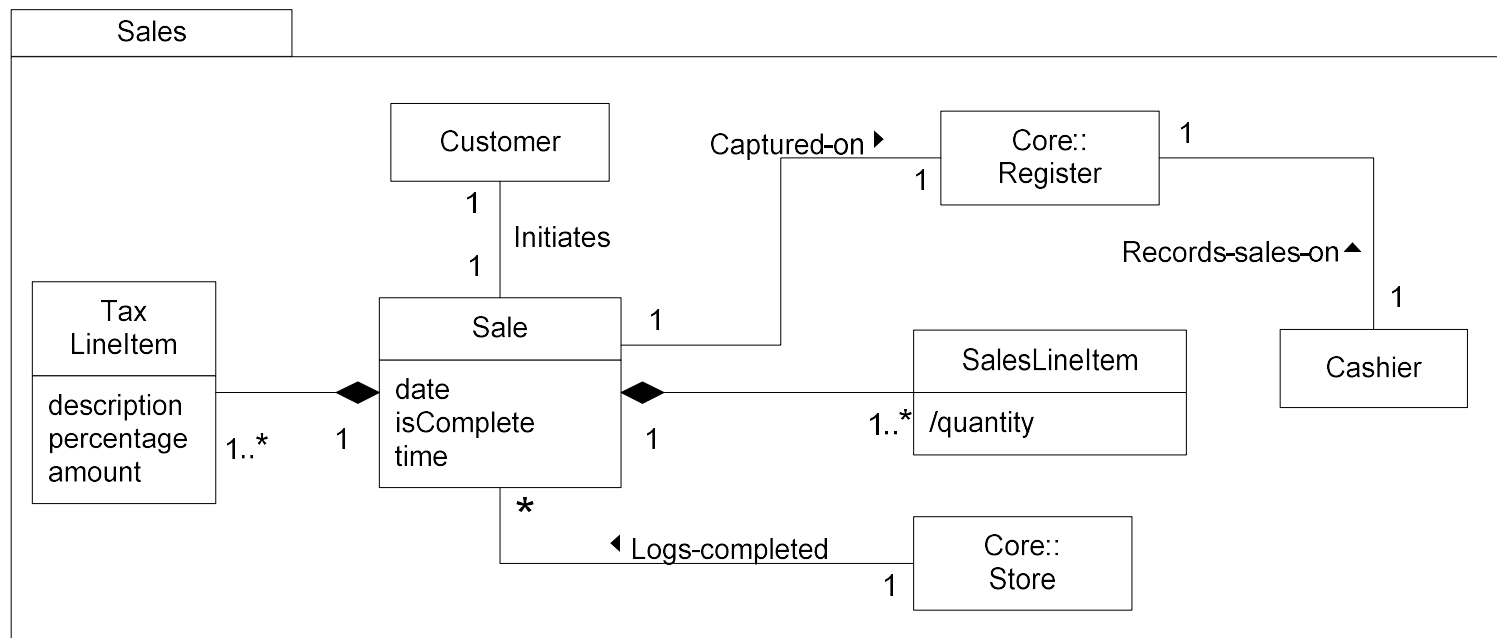


\*Example extracted from Larman (2005)

# Case Study



- Conceptual schema (partial)



\*Example extracted from Larman (2005)

# References

- *Design Patterns: Elements of Reusable Object-Oriented Software*  
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