Chapter 3

Case Studies

Case Study Focus

• Applications generally can be divided into 3 layers
  – User interface
  – Application logic
  – Other components/layers

• Focus on application logic layer because:
Sample Layers & Objects in OO System

- User Interface
- Application logic layer
- Other layers or components

- Minor focus: explore how to connect to other layers
- Primary focus of case studies: explore how to design objects
- Secondary focus

Learning Path Following Iterations

- Iteration 1: Introduces just those analysis and design skills related to iteration one.
- Iteration 2: Additional analysis and design skills introduced.
- Iteration 3: Likewise.
Case Study I: NextGen POS System

- NextGen point-of-sale (POS) system
  - Computerized application used (in part) to record sales and handle payments typically used in a retail store
- Components
  - Hardware: computer and bar code scanner etc.
  - Software
- Interfaces to various service applications, such as a third-party tax calculator and inventory control
- Must be relatively fault-tolerant
  - Even if remote services are temporarily unavailable (such as the inventory system), they must still be capable of capturing sales and handling at least cash payments
- Increasingly must support multiple and varied client-side terminals and interfaces
  - Thin-client Web browser terminal
  - Regular personal computer with graphical user interface
  - Touch screen input
  - Wireless PDAs, etc.

Case Study I: NextGen POS System

- Sold to different clients with disparate needs in terms of business rule processing
- Each client will desire a unique set of logic to execute at certain predictable points in scenarios of using the system, such as
  - When a new sale is initiated
  - When a new line item is added
- Need a mechanism to provide flexibility and customization.
- Using an iterative development strategy, we are going to proceed through requirements, object-oriented analysis, design, and implementation.
Case Study II: Monopoly Game System

- Domain and requirements not at all like business system such as the NextGen POS
- Still relevant and useful:
  - Domain modeling
  - Object design with patterns
  - Applying the UML
- Run as a simulation.
  - One person starts the game
  - Indicate number of simulated players
  - Watch while the game runs to completion
  - Presenting a trace of activity during simulated player turns