Architecture Modeling

Overview

- More about layered architecture
- UML package diagram
- Case study: POS system
Layered Architecture

• Logical Architecture
  – Large-scale organization of SW classes into packages (or namespaces), subsystems, and layers

• Layer
  – Coarse-grained grouping of classes having responsibility for major aspects of a system
    • Strict – only higher layers call lower layers
    • Relaxed – higher layer may call any lower layer below
    • Responsibilities of objects in a layer are strongly related

UML package diagram

• To organize elements and diagrams into groups
• To show packages and dependencies between the packages
• Can illustrate layered architecture
  – A layer, such as UI layer, can be modeled as a package named UI
  – Depicts relations between packages that make up a model
Legends with JDK Packages

**Package:** a general purpose mechanism to group together semantically related elements.

**Class:** a member of the package. It can be represented as a brief or detailed class diagram or simply text.

Members of a package can be classes or other packages.

**Dependency:** to show “use” relationship.

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Case Study: POS system

- 3-layer architecture
  - User interface
  - Application logic and domain objects
    - Software objects representing domain concepts, such as *Sale*
  - Technical services
    - General-purpose objects and subsystems that provide supporting services, such as interfacing with database or error logging
    - Usually application-independent and reusable across system
What is the relationship between SSDs and Layers?

Messages illustrated on SSDs correspond to messages sent from UI layer to the domain layer.