Application Design Patterns

What are Design Patterns?

- This topic is covered in more detail in CSE 460 – Software Analysis and Design
  - Taught by the best instructor ever

What are Design Patterns?

- A Design Pattern is a structured documented solution to a design problem that emphasizes
  - Design Problem Description
  - Descriptive Name
  - Solution Structure (e.g., Class Diagrams)
  - Solution Behaviour (e.g., State or sequence diagrams)

What are Design Patterns?

- Solution to a recurring problem in a context”
  - Context : What is the environment like?
  - Problem : What do I want to do?
  - Solution : How do I do it?

Design Patterns

- Design Patterns started out as general problem/solutions
- Since then we have created patterns that are
  - Problem Domain specific – E.g., Banking
  - Framework specific – J2EE, .Net
  - Language specific – Java, C#

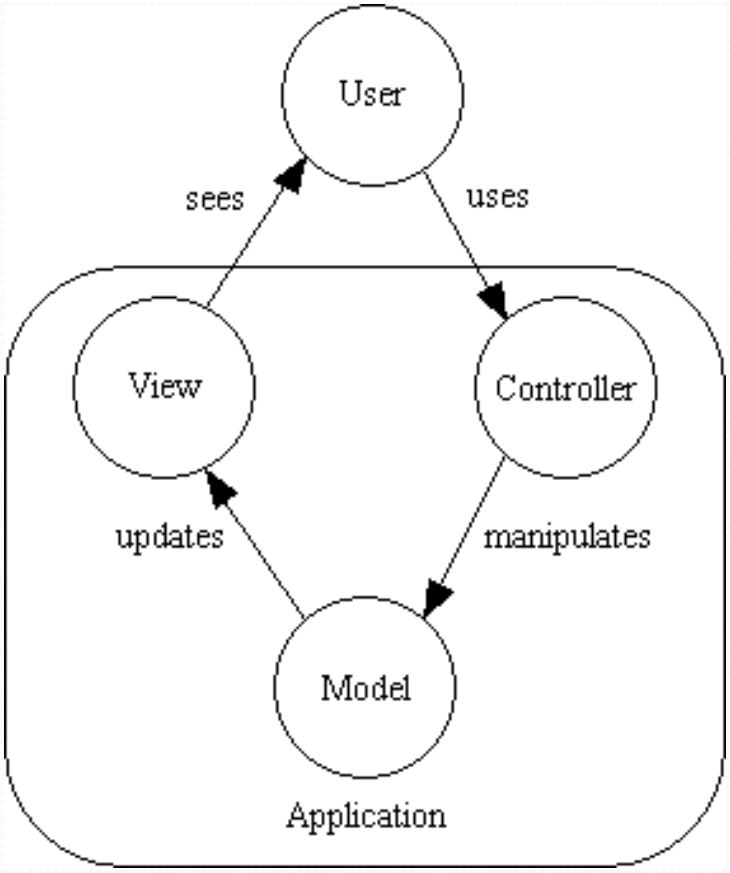
Design Patterns are:

- Abstractions
- Discovered, not created
- Difficult to see the appropriate granularity
- Mined from good designs
- Refactoring targets

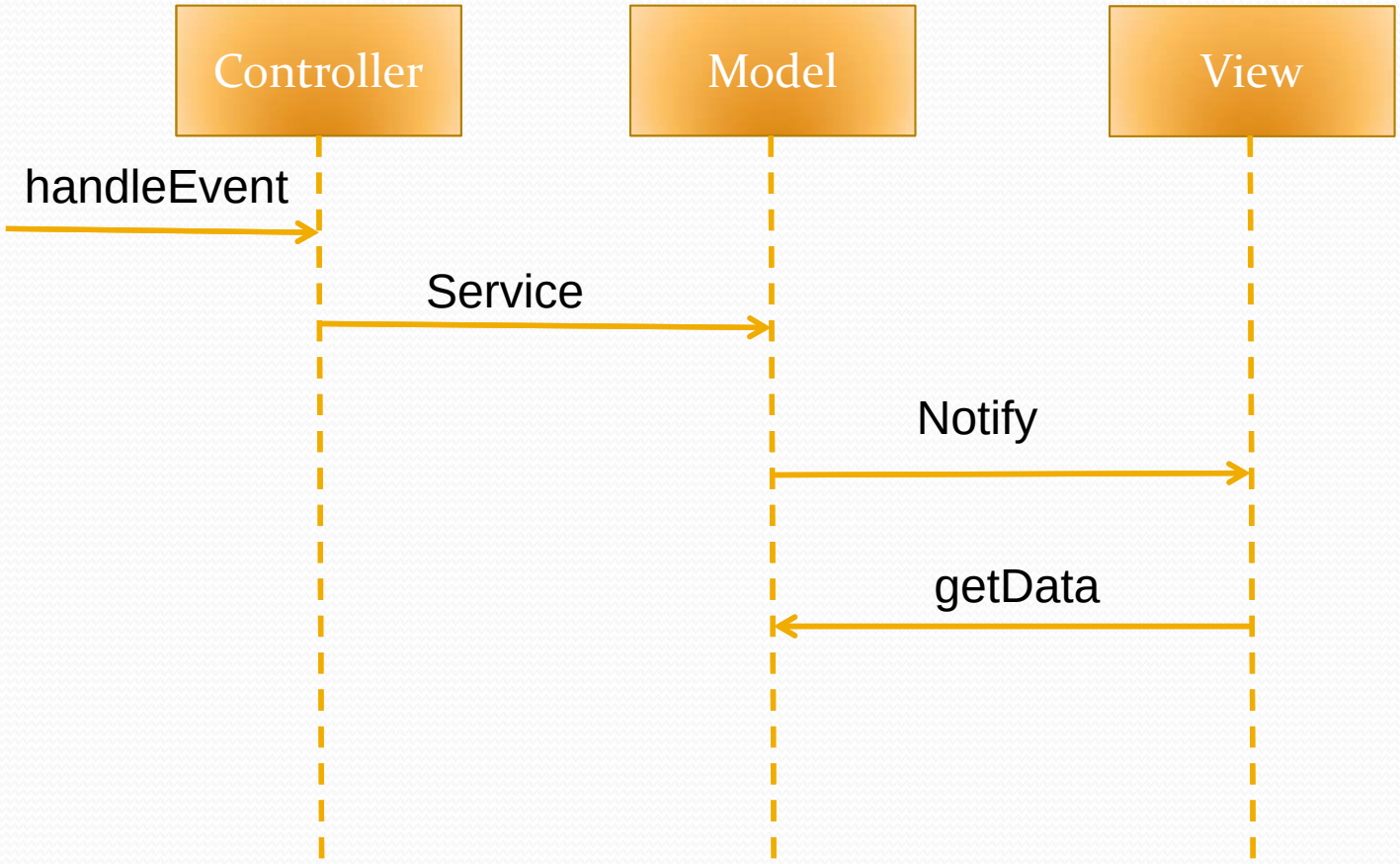
Model-View-Controller

- This Design Pattern is universally used with Web Site development

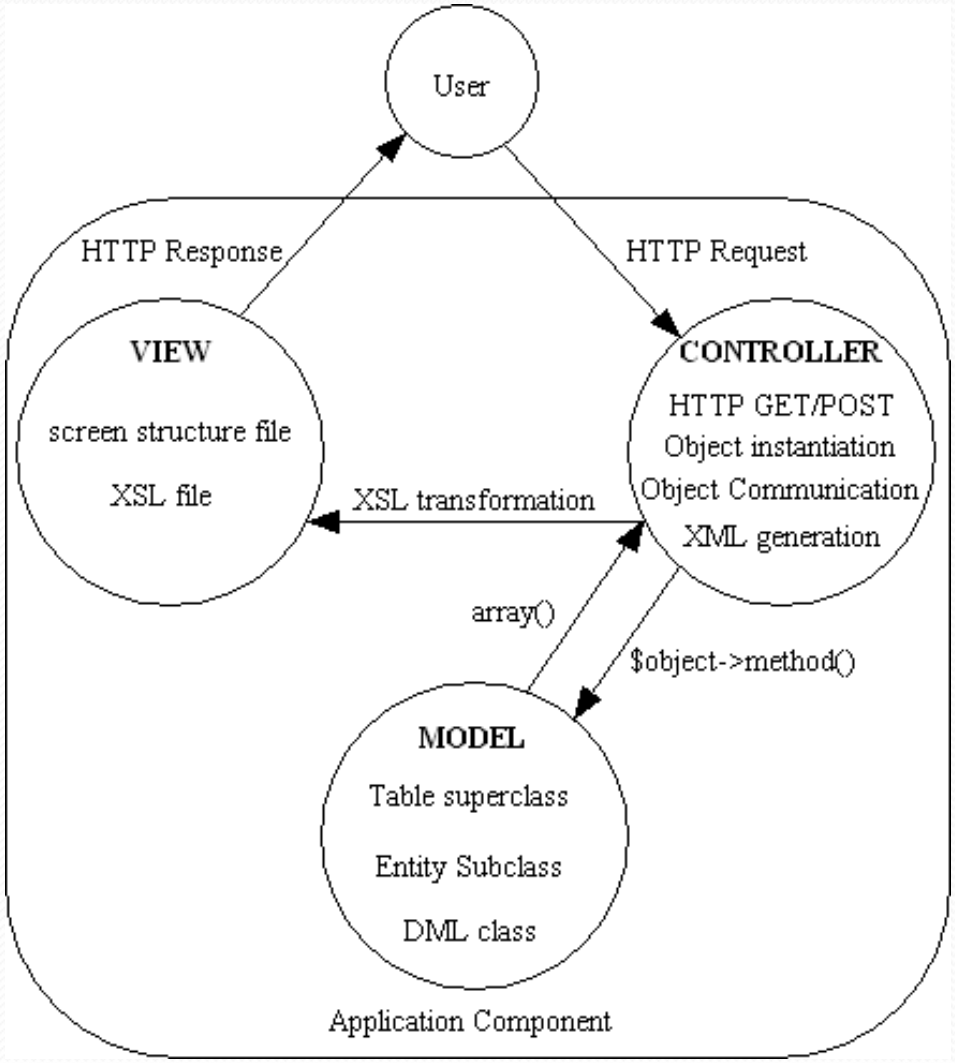
The MVC Paradigm – Basic Model



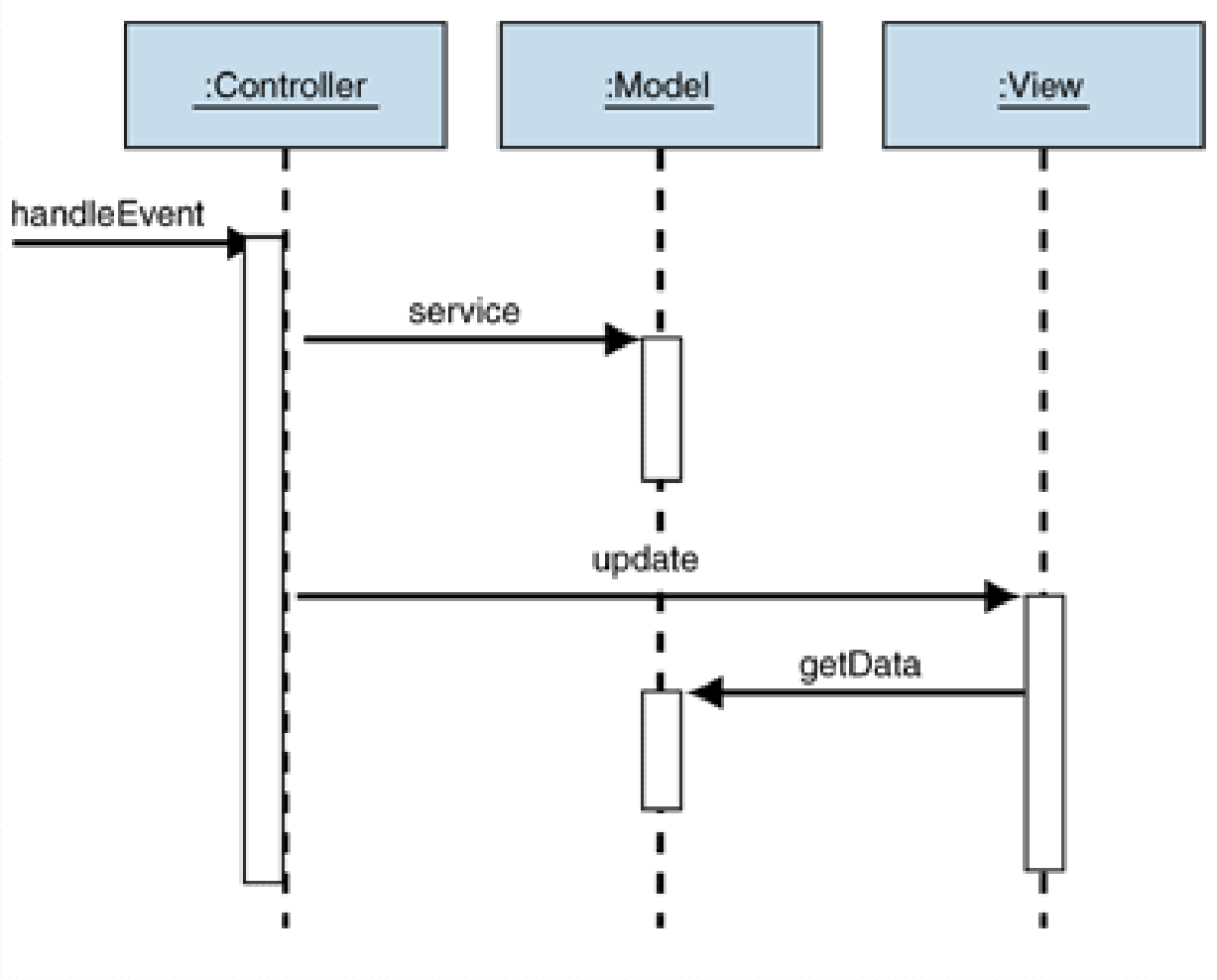
MVC – Basic Interactions



The MVC Paradigm – Web Friendly



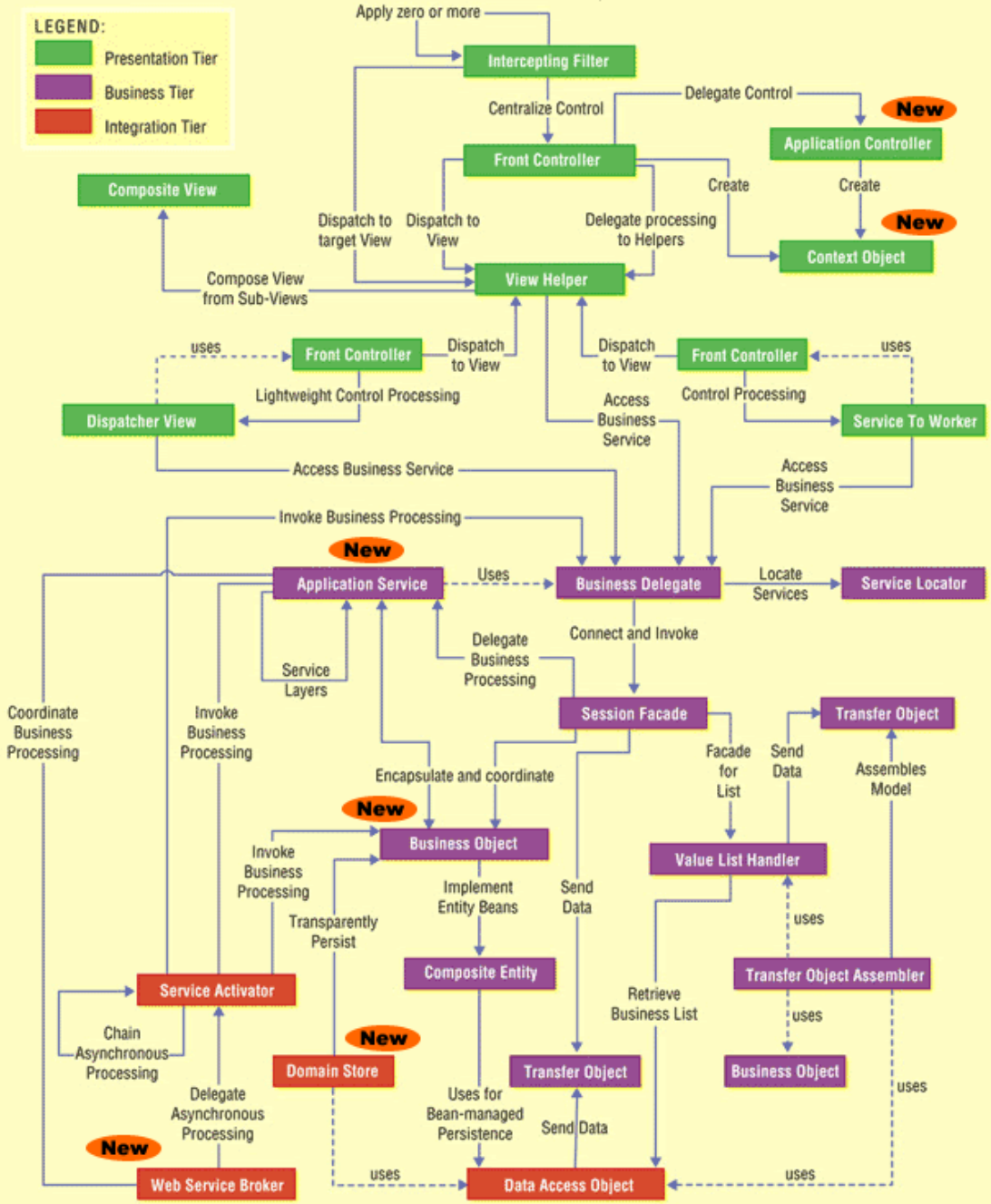
MVC - Interactions



Framework Design Patterns

- Java
  - Core J2EE Patterns
- .NET
  - Enterprise Solution Patterns Using Microsoft .NET

Core J2EE Patterns, 2nd Edition



J2EE Patterns Address 3 Tiers

- Presentation Tier
  - JSP, Servlets, UI Elements
- Business Tier
  - EJB and Business Objects
- Integration Tier
  - JDBC, JMS, Connectors

Walkthrough Pattern Usage

- Scenario
  - Student wants to access a Blackboard page
- Map to 3-Tier Architecture