

# Deployment Diagrams Get Physical

**Shawn Bohner**  
Office: Moench Room F212  
Phone: (812) 877-8685  
Email: [bohner@rose-hulman.edu](mailto:bohner@rose-hulman.edu)



**ROSE-HULMAN**  
INSTITUTE OF TECHNOLOGY

# Plan for Today

- ❖ **Deployment diagrams**

- ❖ **Course recap**

- ❖ **Course evaluations**

- ❖ **Design Studio: Team 14 – Reusable Food**

**Thursday: In-class  
project work day**

# Deployment Diagrams

# Deployment Diagrams

- ❖ **Recall two key Architectural views:**
  - Logical Architecture
  - Deployment Architecture
- ❖ **Deployment Diagrams provide the means to express how the physical components of the system are organized**

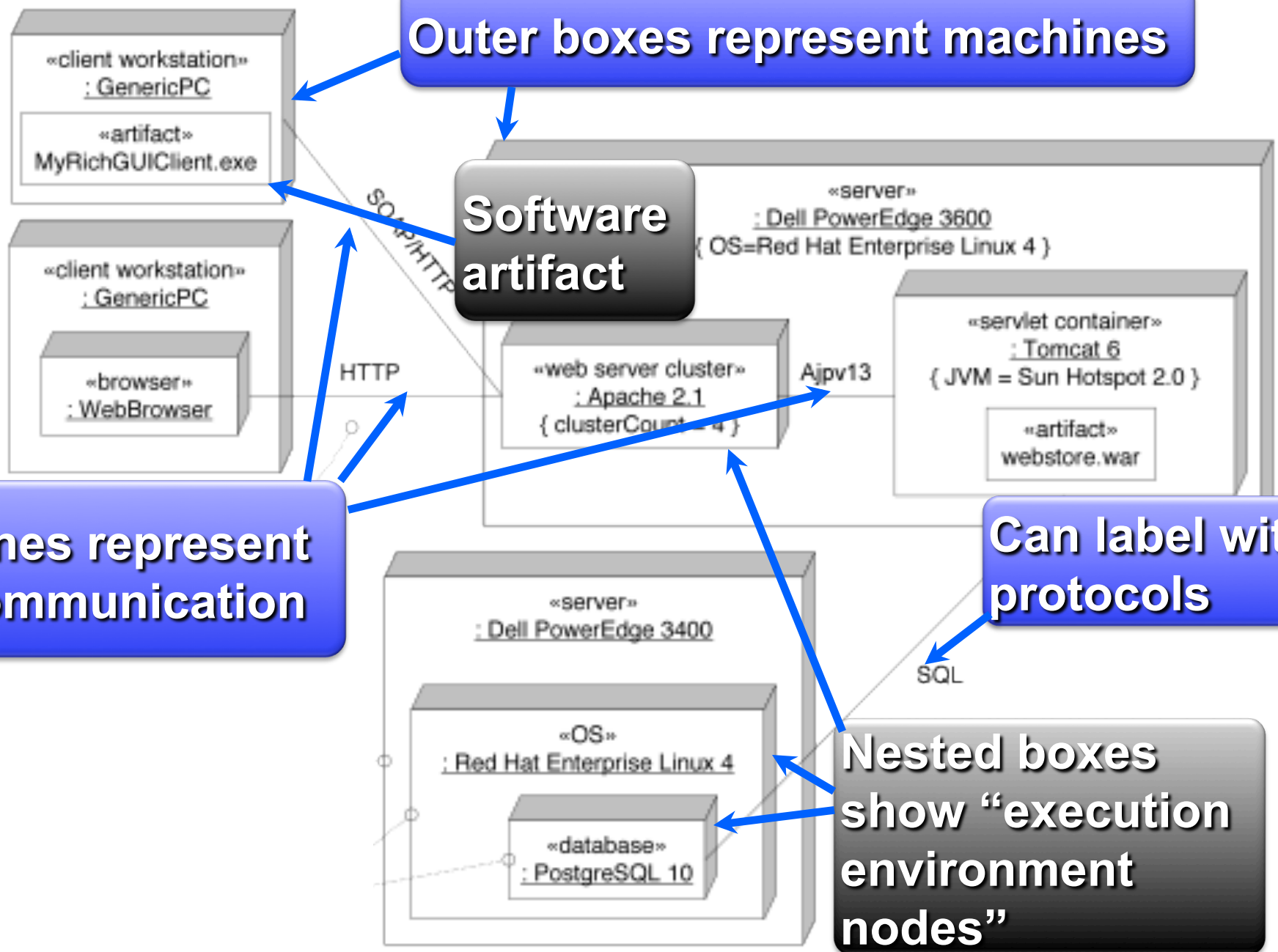
Outer boxes represent machines

Software artifact

Lines represent communication

Can label with protocols

Nested boxes show "execution environment nodes"



# Uses for Deployment Diagrams

- ❖ Describe physical deployment of software artifacts to hardware devices
- ❖ Summarize configuration of hardware and software devices

# Course Recap

# Course Themes

- ❖ **Object-oriented design as assignment of responsibilities**
- ❖ **Using design principles and patterns to think about object-oriented designs**
- ❖ **Using design principles, patterns, and notations to communicate design ideas**
- ❖ **Begin practicing the art and science of object-oriented design**



# Notations Used

# Notations Used

Analysis

- ❖ Domain models (DM)
- ❖ System sequence diagrams (SSD)
- ❖ Operation Contracts

Architecture

- ❖ Logical architecture diagrams
- ❖ Package diagrams

Logical Design

- ❖ Design class diagrams (DCD)
- ❖ Interaction diagrams (ID)
  - Sequence diagrams (SD)
  - Communication diagrams (CD)

Bus. Process Modeling

- ❖ Activity diagrams

Physical Design

- ❖ Deployment diagrams

# GRASP Principles

Q3

# GRASP Principles

1. Low Coupling
2. High Cohesion
3. Information Expert
4. Creator
5. Controller
6. Polymorphism
7. Pure Fabrication
8. Indirection
9. Protected Variations

# Gang of Four Design Patterns

# Gang of Four (GoF) Design Patterns

## ❖ Behavioral

- Strategy
- Observer
- Template Method
- State
- Command

## ❖ Creational

- Factory Method
- Abstract Factory
- Singleton

## ❖ Structural

- Adapter
- Composite
- Façade
- Proxy
- Decorator

*Others:* Interpreter, Chain of Responsibility, Iterator, Mediator, Memento, Visitor, Builder, Prototype, Bridge, Flyweight



**You've come a long way**

**You're beginning to talk and think like  
software designers and architects!**

# **Course Evaluations**

## **A Mechanism for Improvement**



# **Design Studio:**

## **Team 14: Reusable Food**

**~5 minutes:**

**Team describes problem and current solution (if any)**

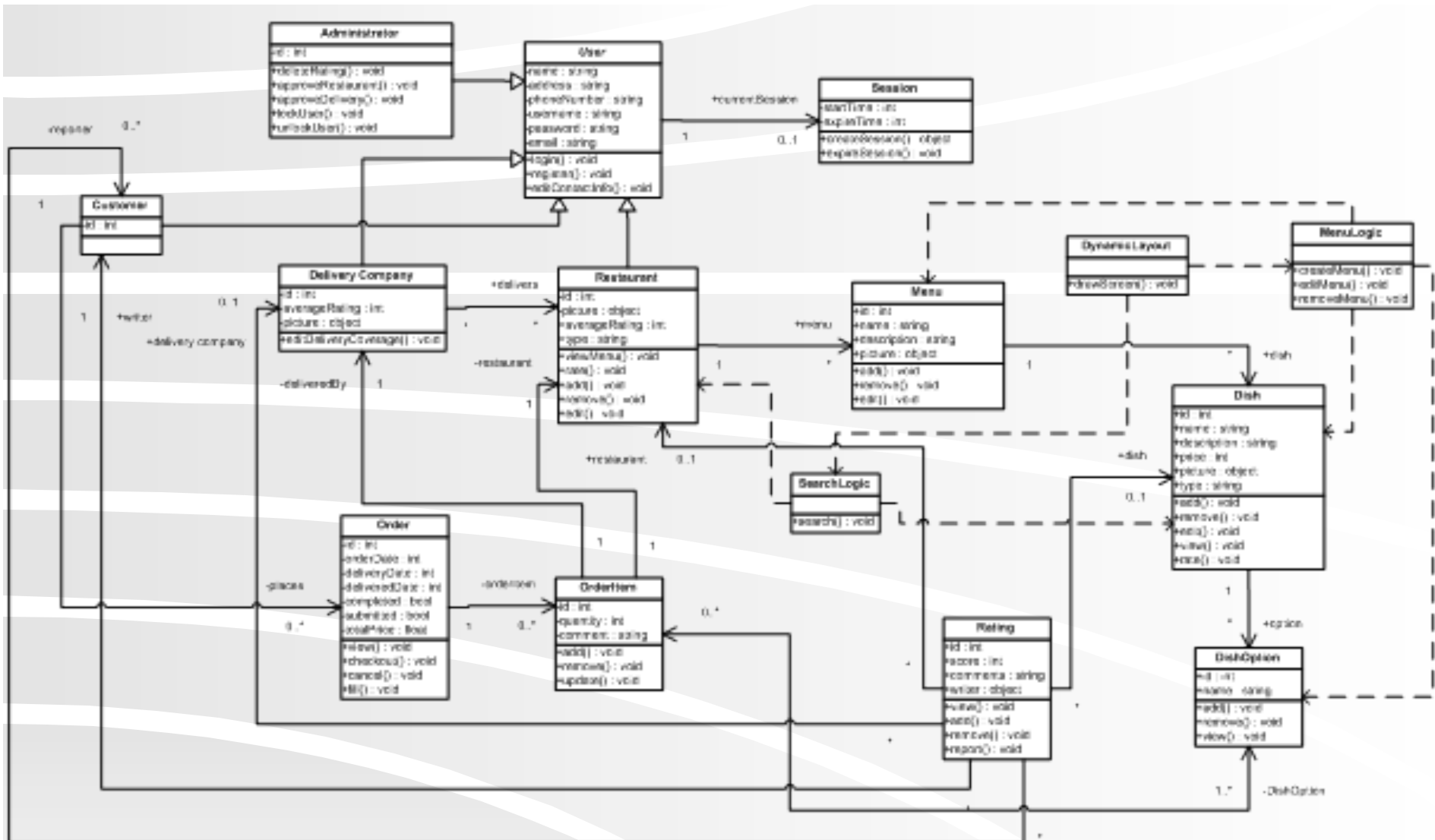
**~3 minutes:**

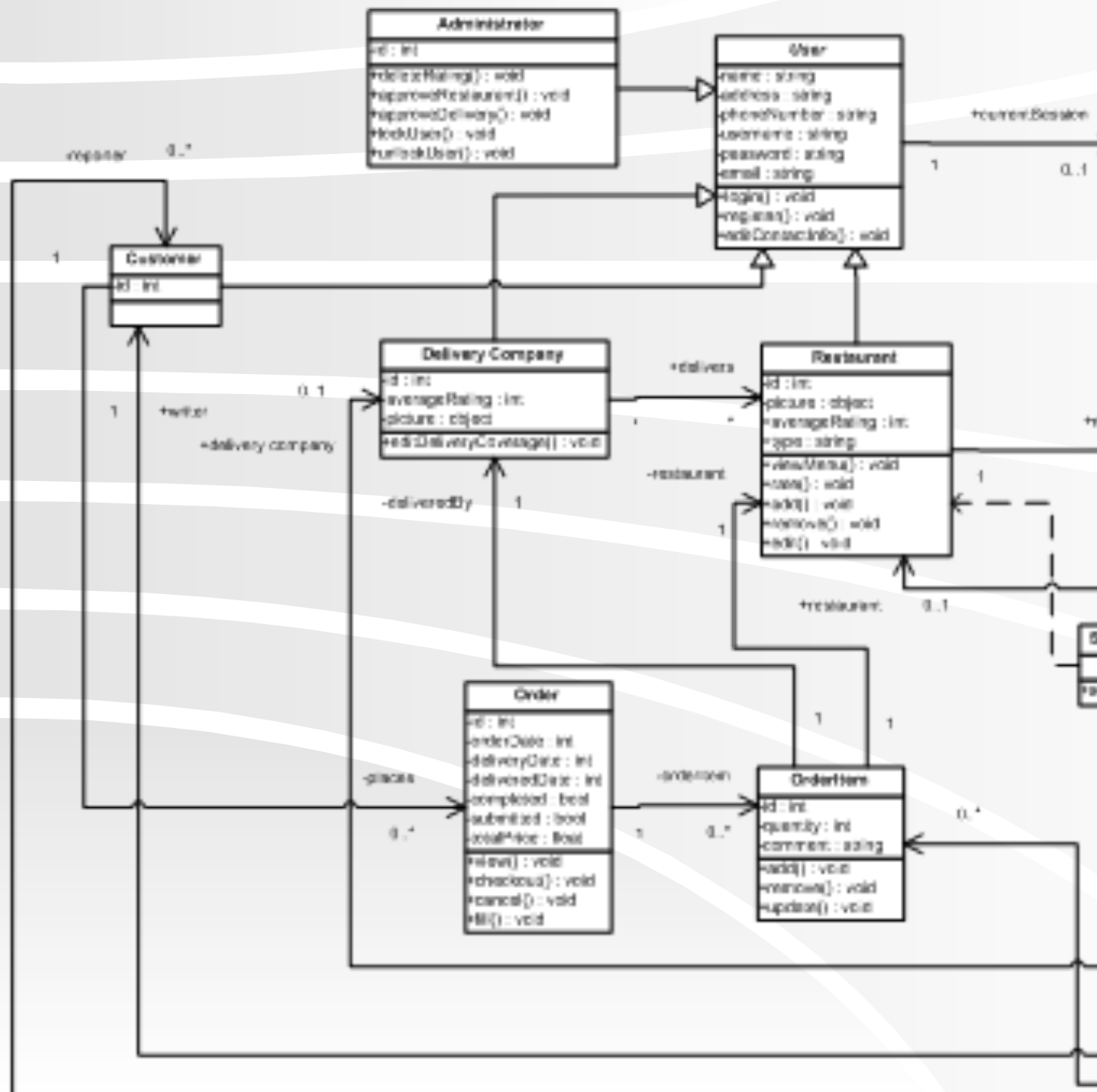
**Class thinks about questions, alternative approaches**

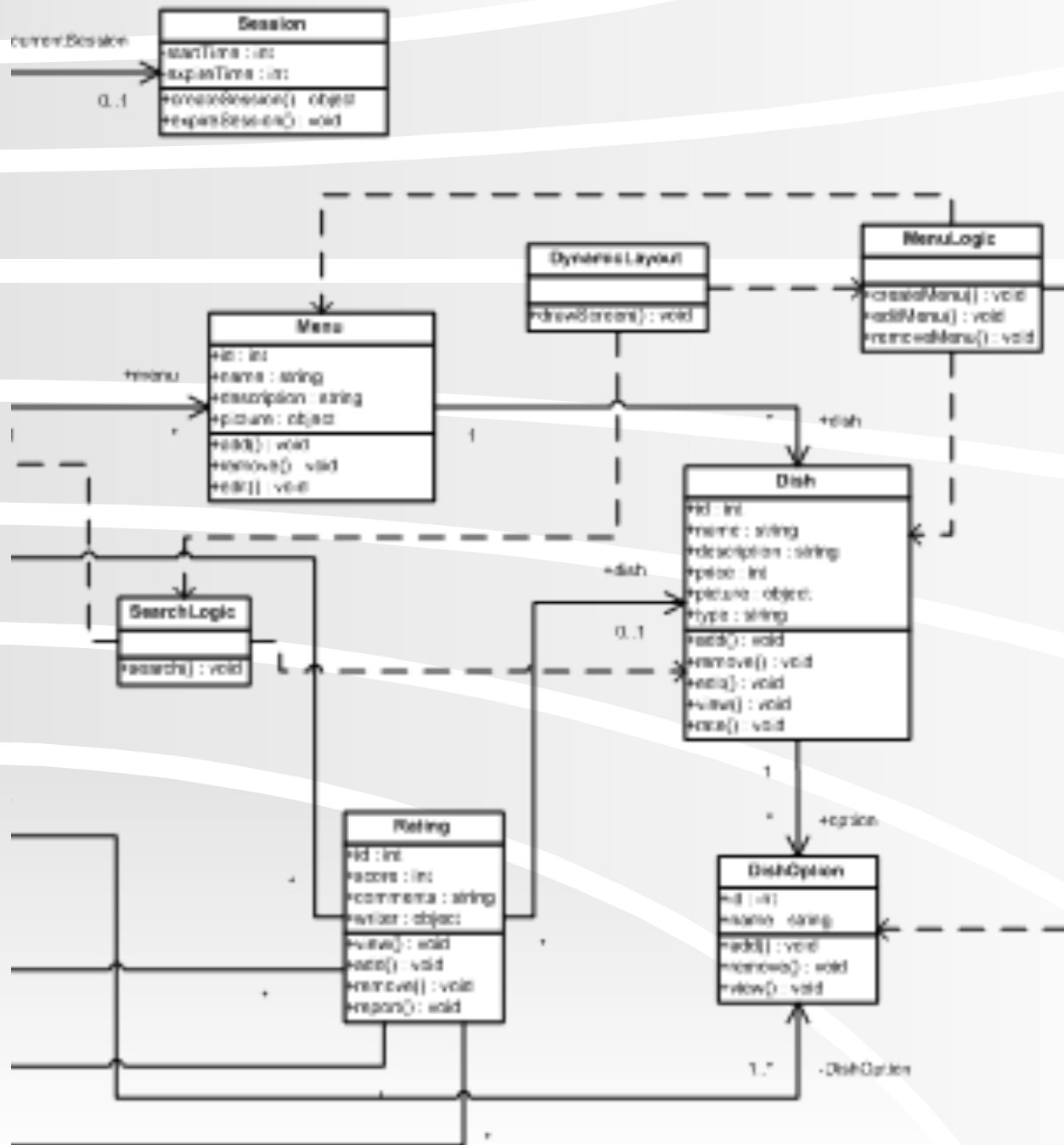
**Q5**

**~12 minutes:**

**On-board design with team modeling and instructor advising/facilitating**







# Homework and Milestone Reminders

- ❖ **Milestone 5 – Iteration 3 Junior Project System with finalized Design Document**
  - **Final Project Due by 11:59pm Friday, February 19<sup>th</sup>, 2010.**
- ❖ **Go to Senior Project Expo at the Student Union Building in Lobby outside of Kahn Room.**