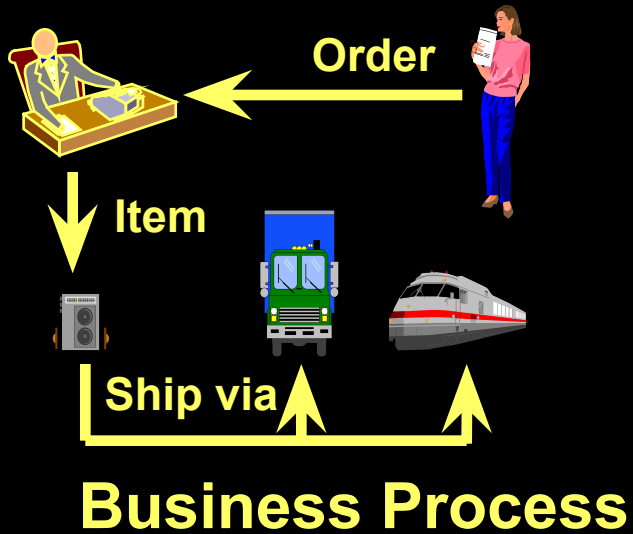


# Тема 1: Визуальное моделирование и UML

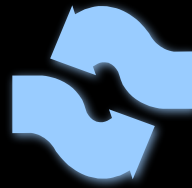
# Where Are We?

- ★♦ What is visual modeling?
- ♦ What is the UML?
- ♦ UML diagrams
- ♦ Extending UML notation

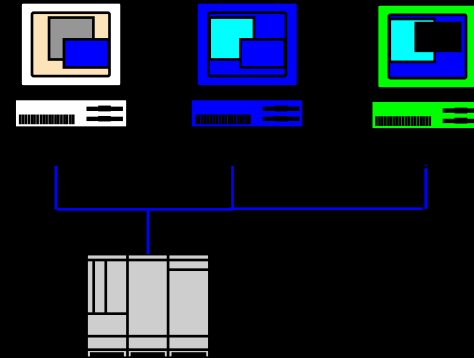
# What Is Visual Modeling?



***“Modeling captures essential parts of the system.”***  
*Dr. James Rumbaugh*



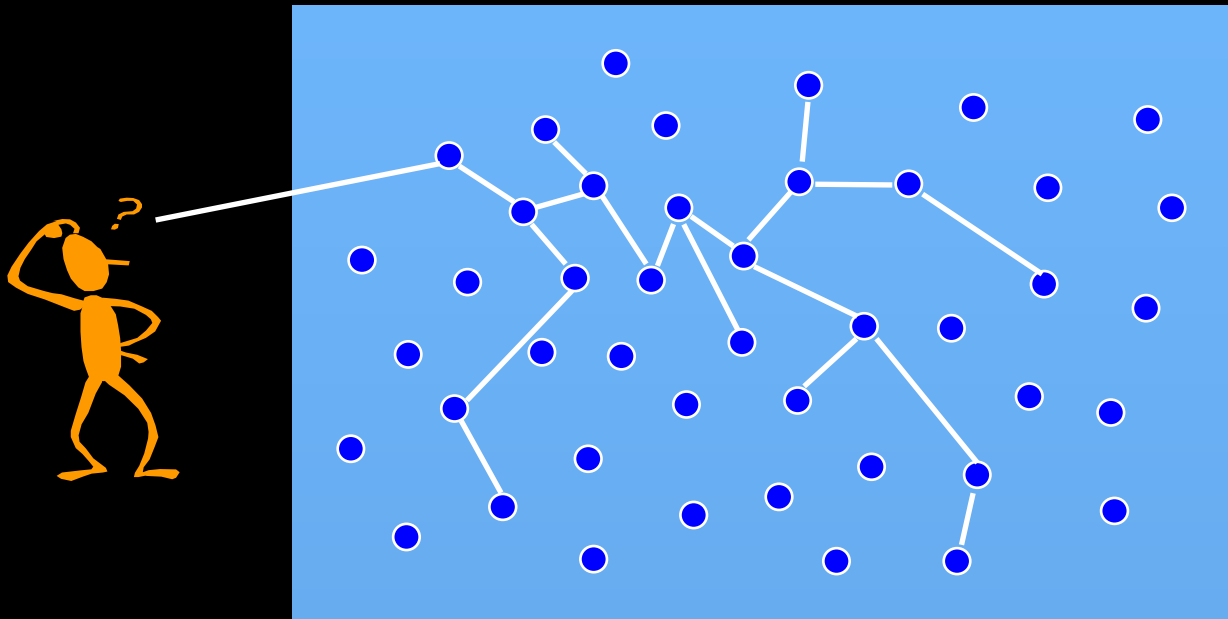
***Visual Modeling is modeling using standard graphical notations***



**Computer System**

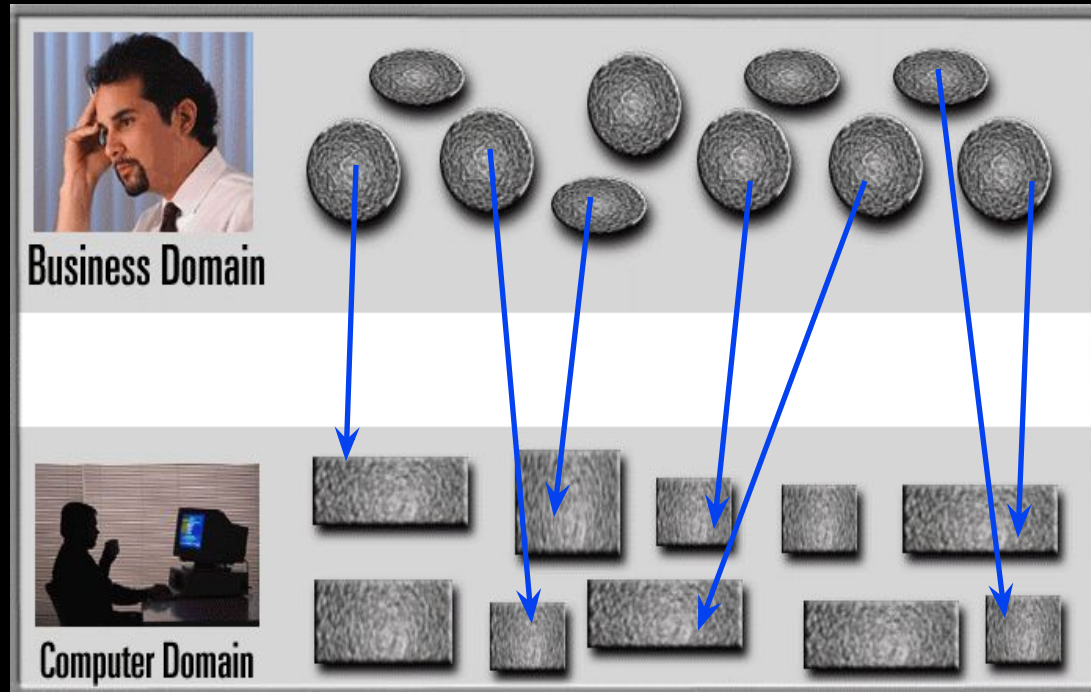
# Visual Modeling Captures Business Processes

*Use-case analysis is a technique to capture business processes from a user's perspective.*



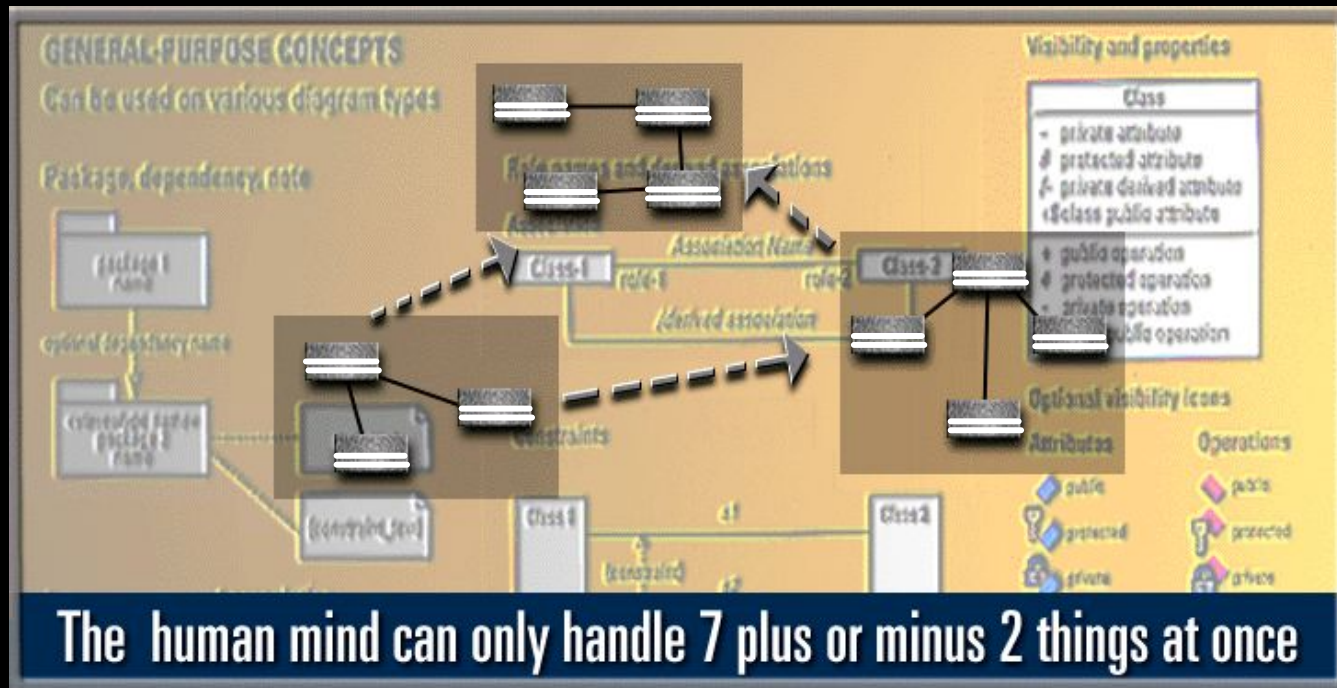
# Visual Modeling Is a Communication Tool

Use visual modeling to capture business objects and logic.

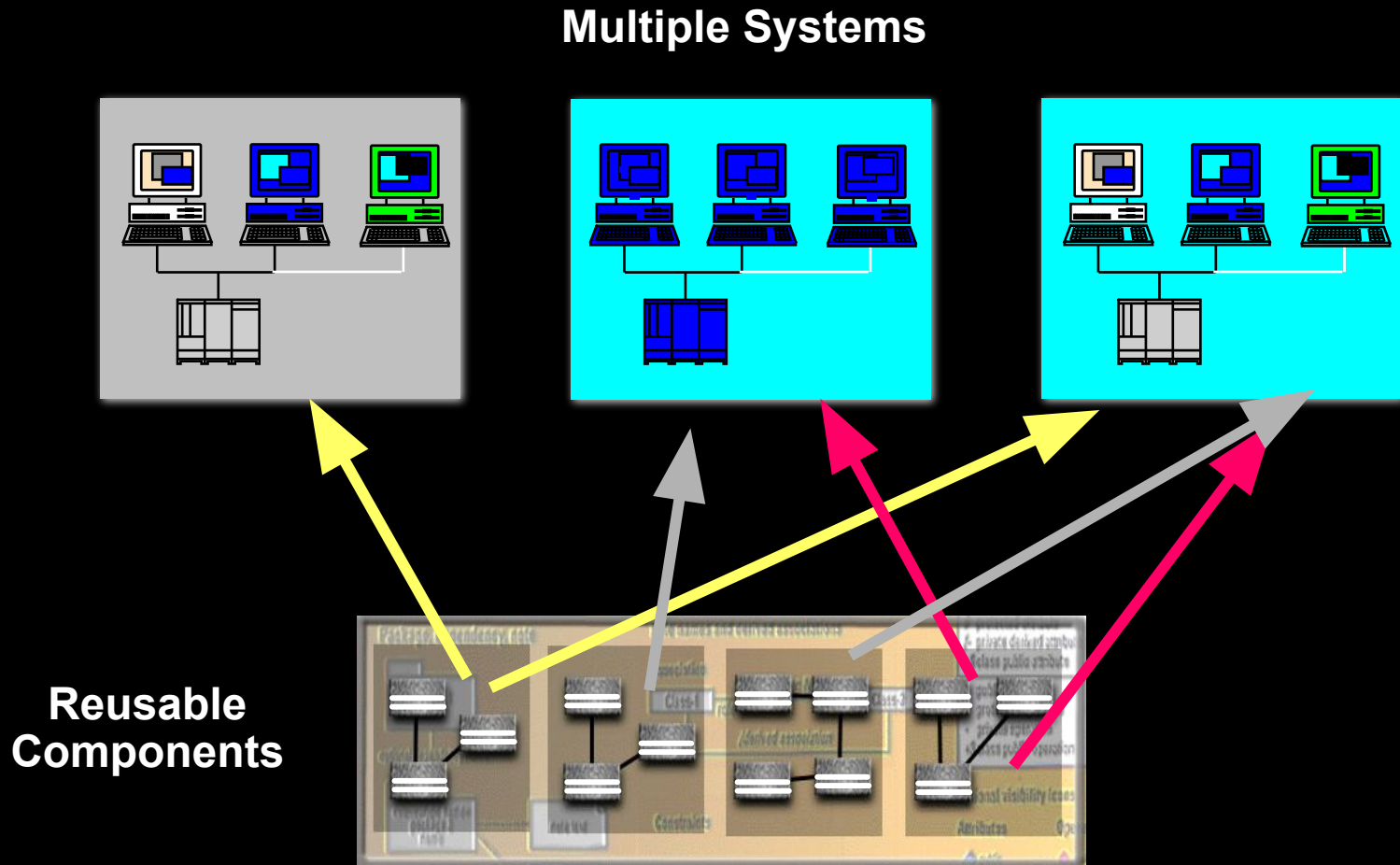


Use visual modeling to analyze and design your application.

# Visual Modeling Manages Complexity



# Visual Modeling Promotes Reuse



# Where Are We?

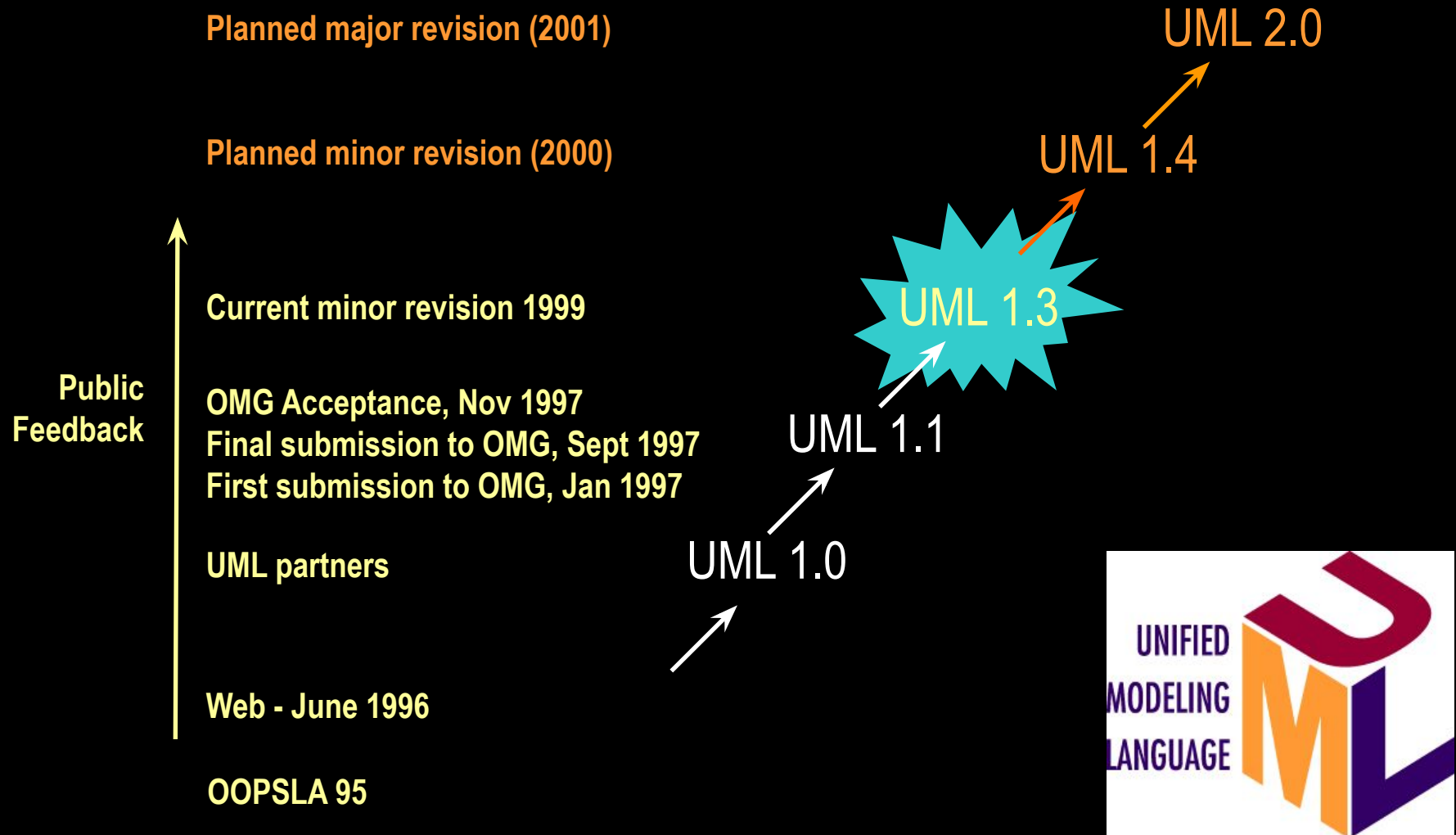
- ◆ What is visual modeling?
- ★◆ What is the UML?
- ◆ UML diagrams
- ◆ Extending UML notation



# What Is the Unified Modeling Language?

- ◆ The UML is the standard language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system.
- ◆ The UML combines the best from
  - Data modeling
  - Business modeling
  - Object modeling
  - Component modeling

# History of the UML



# UML Concepts

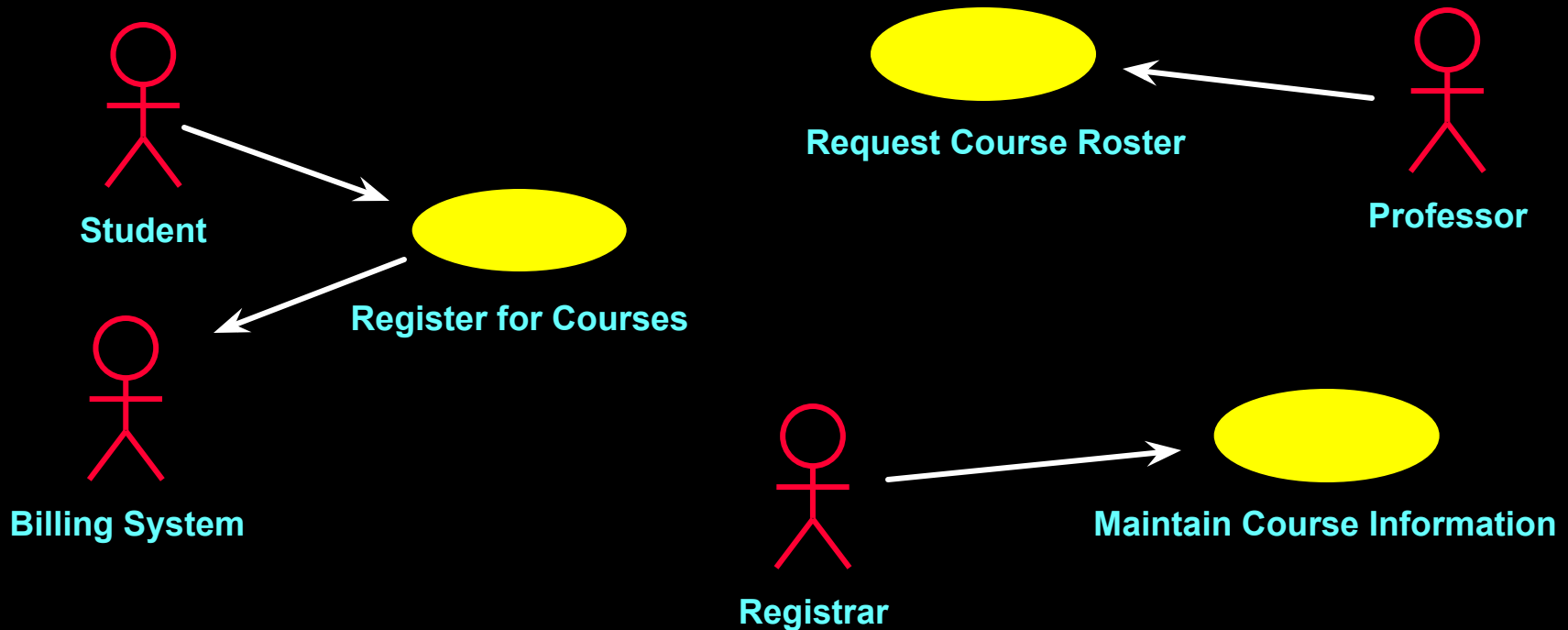
- ◆ The UML may be used to visually model
  - The interaction of your application with the outside world.
  - The behavior of your application.
  - The structure of your system.
  - The architecture of your enterprise.
  - The components in your system.

# Where Are We?

- ◆ What is visual modeling?
- ◆ What is the UML?
- ★◆ UML diagrams
- ◆ Extending UML notation

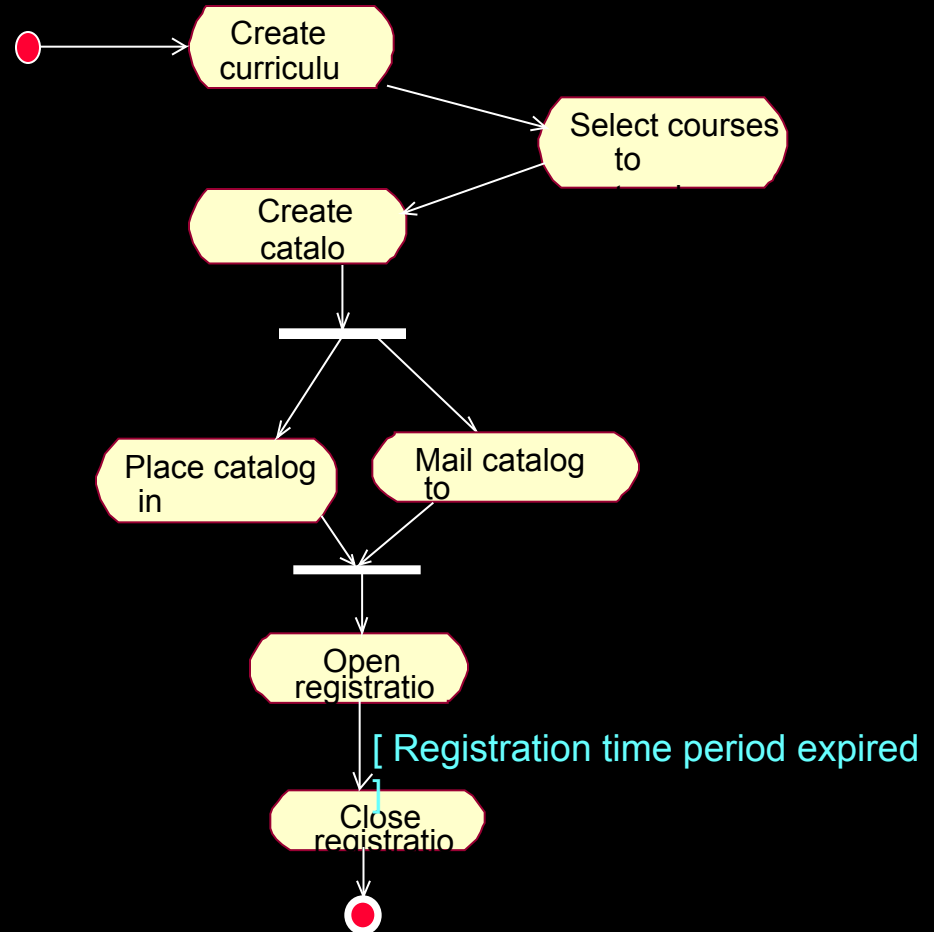
# Use-Case Diagram

- ◆ A use-case diagram is created to visualize the interaction of your system with the outside world.



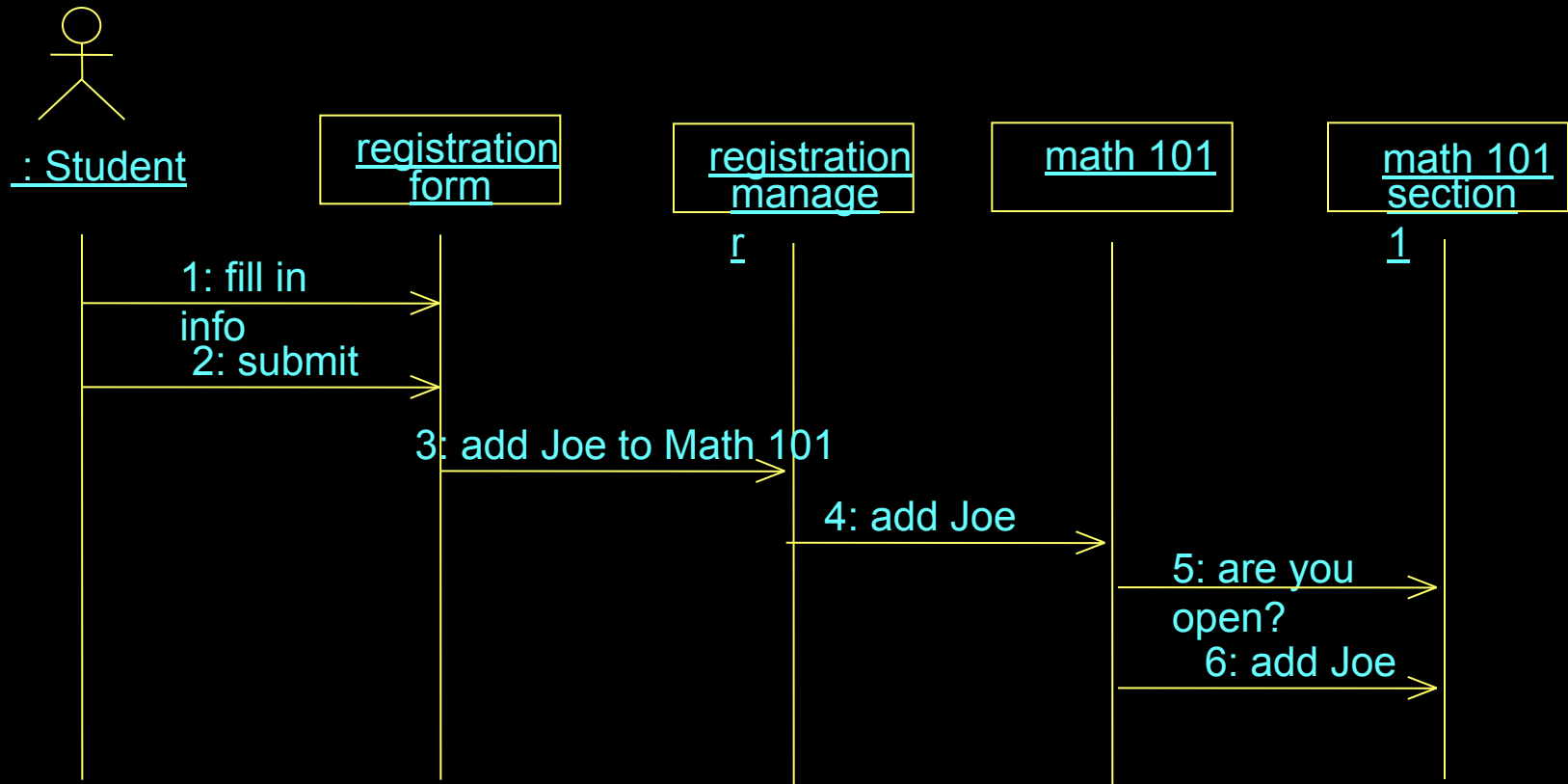
# Activity Diagram

- ◆ An activity diagram shows the flow of events within our system.



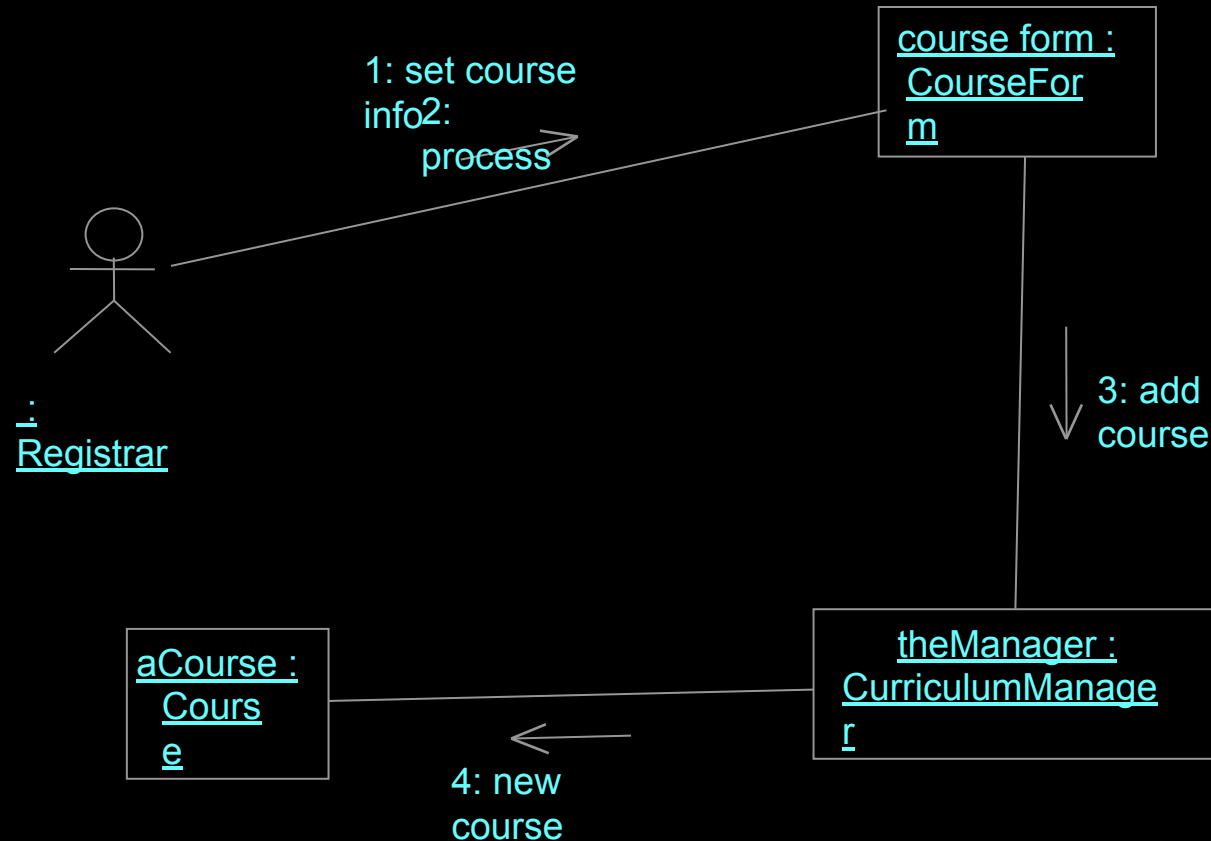
# Sequence Diagram

- ◆ A sequence diagram shows step by step what must happen to accomplish a piece of functionality provided by the system.



# Collaboration Diagram

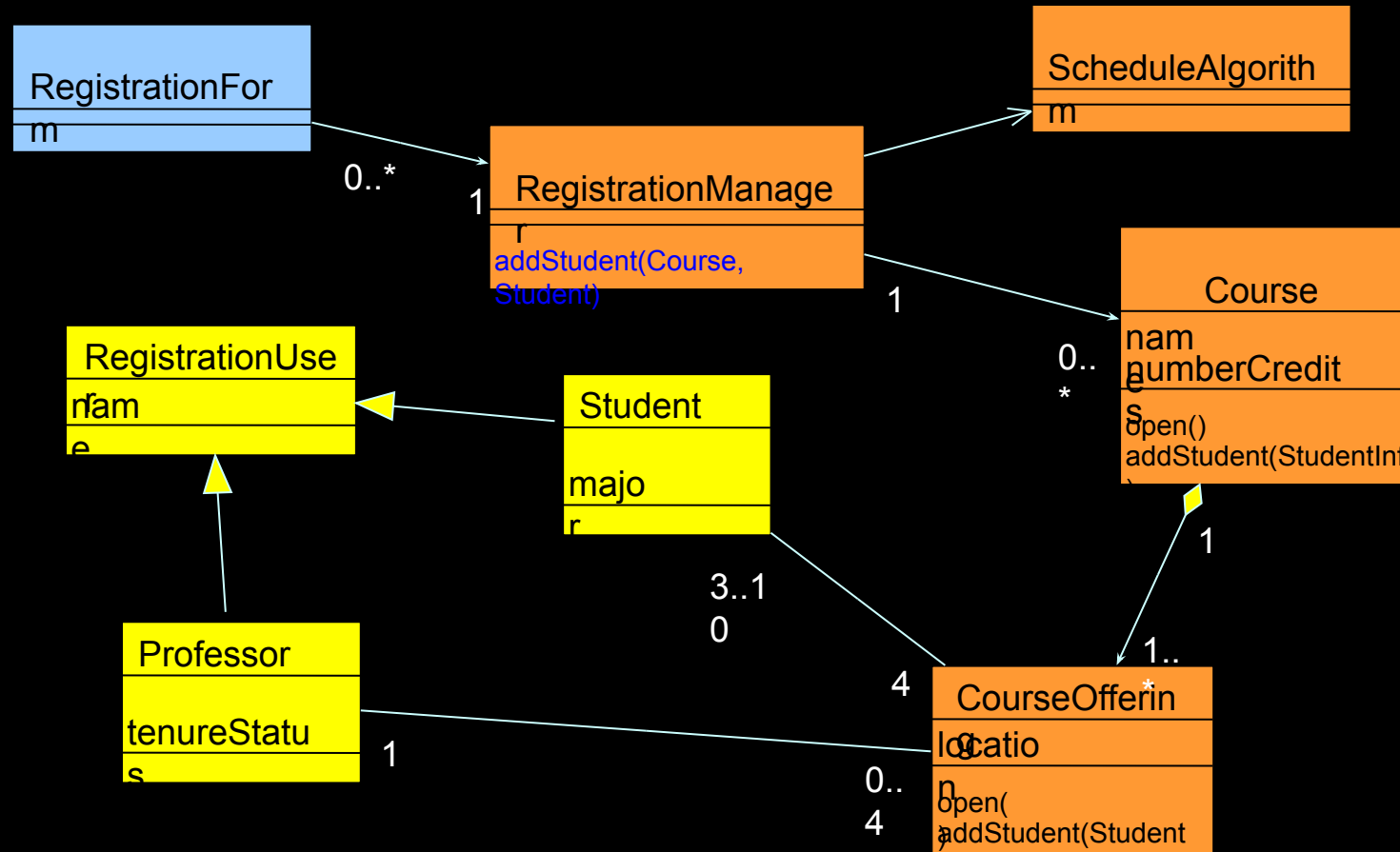
- ◆ A collaboration diagram displays object interactions organized around objects and their links to one another.





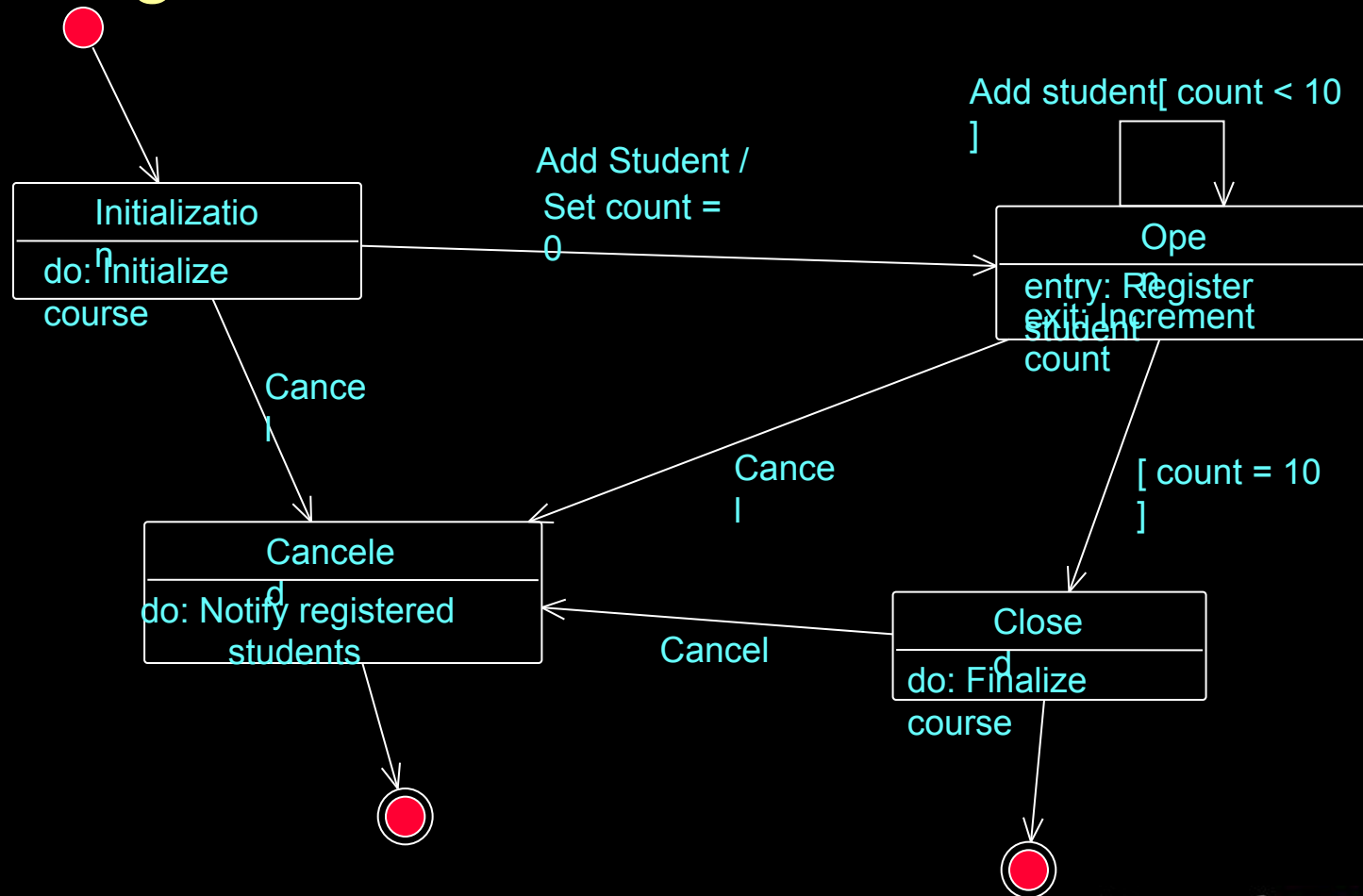
# Class Diagram

- ◆ A class diagram shows the structure of your software.



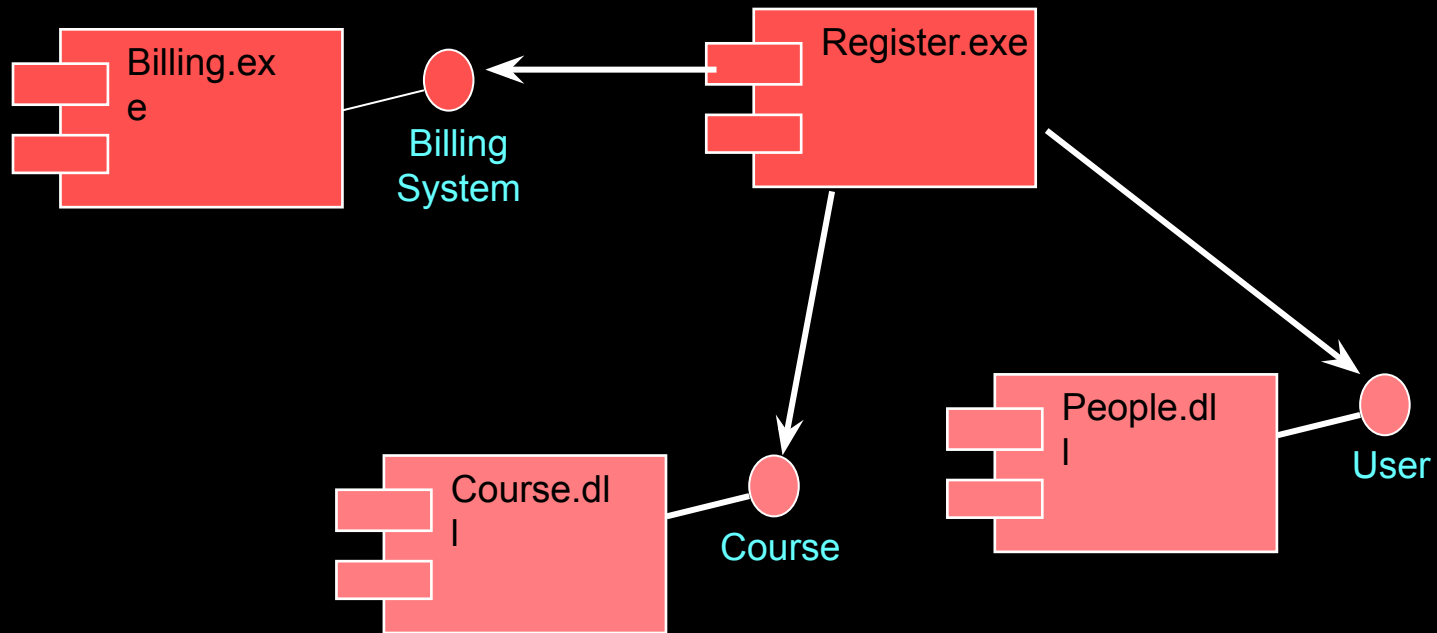
# Statechart Diagram

- ◆ A statechart diagram shows the lifecycle of a single class.



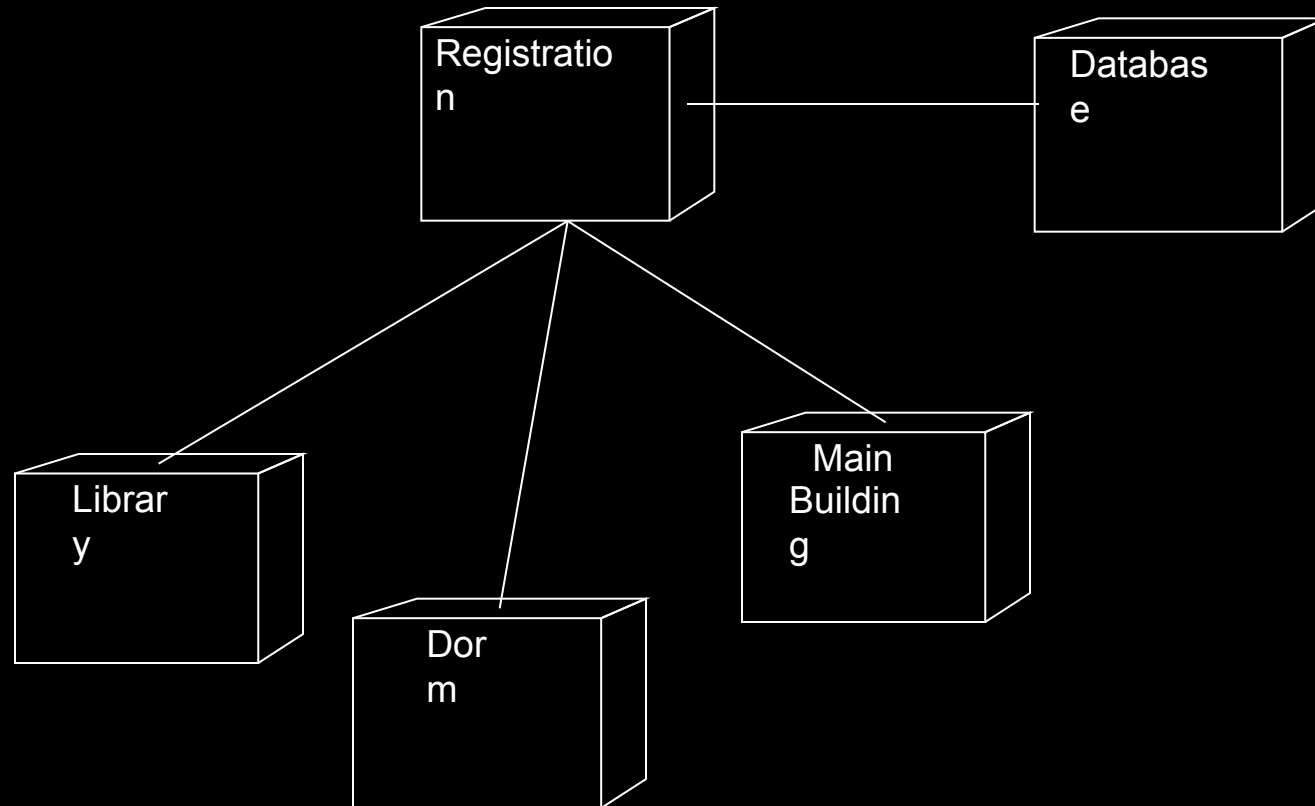
# Component Diagram

- ◆ A component diagram illustrates the organization and dependencies among software components.



# Deployment Diagram

- ◆ A deployment diagram visualizes the distribution of components across the enterprise.



# Where Are We?

- ◆ What is visual modeling?
- ◆ What is the UML?
- ◆ UML diagrams
- ★◆ Extending UML notation

# Extending the UML

- ◆ Stereotypes can be used to extend the UML notational elements.
- ◆ Stereotypes may be used to classify and extend associations, inheritance relationships, classes, and components.
- ◆ Examples
  - Class stereotypes: interface, exception, server page
  - Association stereotypes: identifying, non-identifying
  - Dependency stereotypes: include, extend
  - Component stereotypes: subsystem

# Review

1. Name two benefits of visual modeling.
2. What is the UML?
3. Name three UML diagrams.
4. What are stereotypes?

