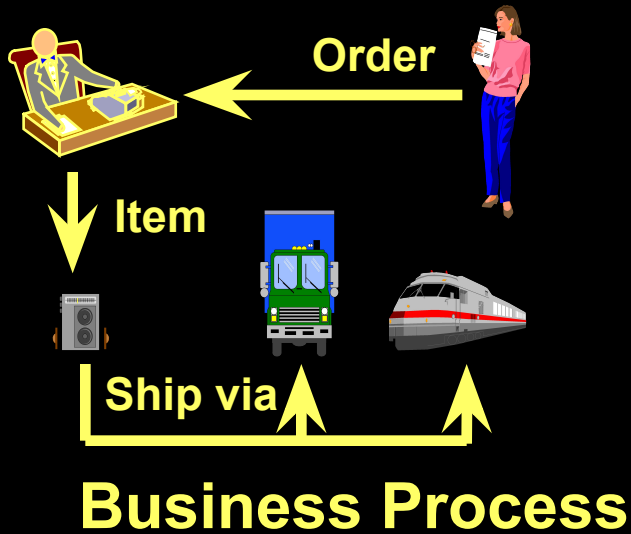


Тема 1: Визуальное моделирование и UML

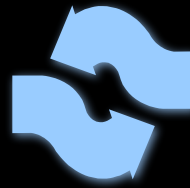
Where Are We?

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

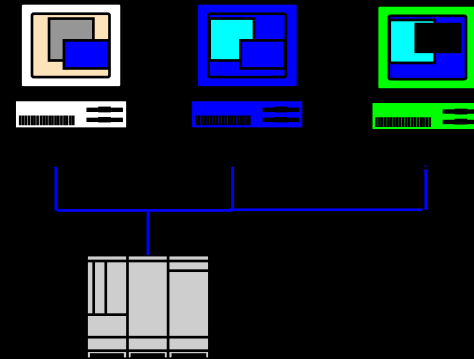
What Is Visual Modeling?



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



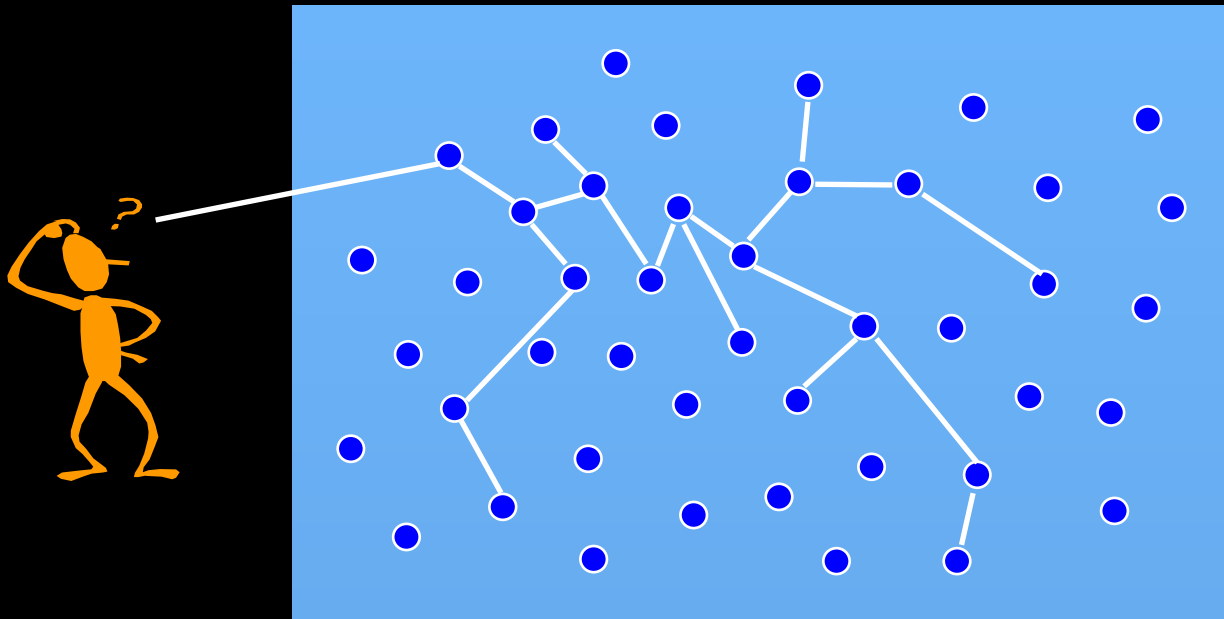
Visual Modeling is modeling using standard graphical notations



Computer System

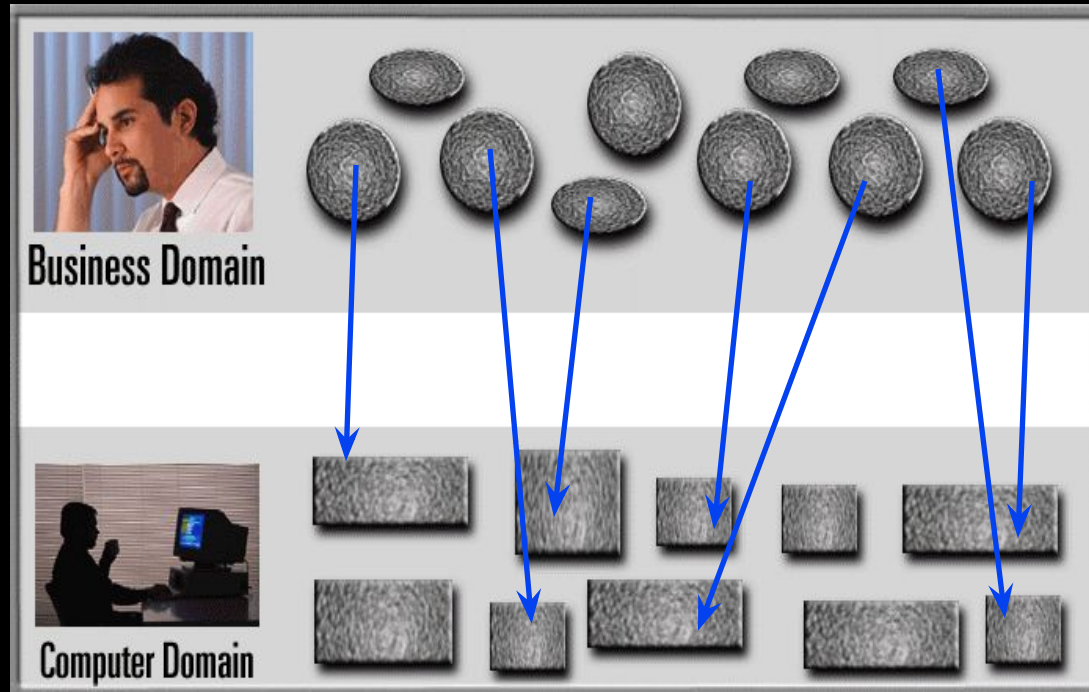
Visual Modeling Captures Business Processes

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



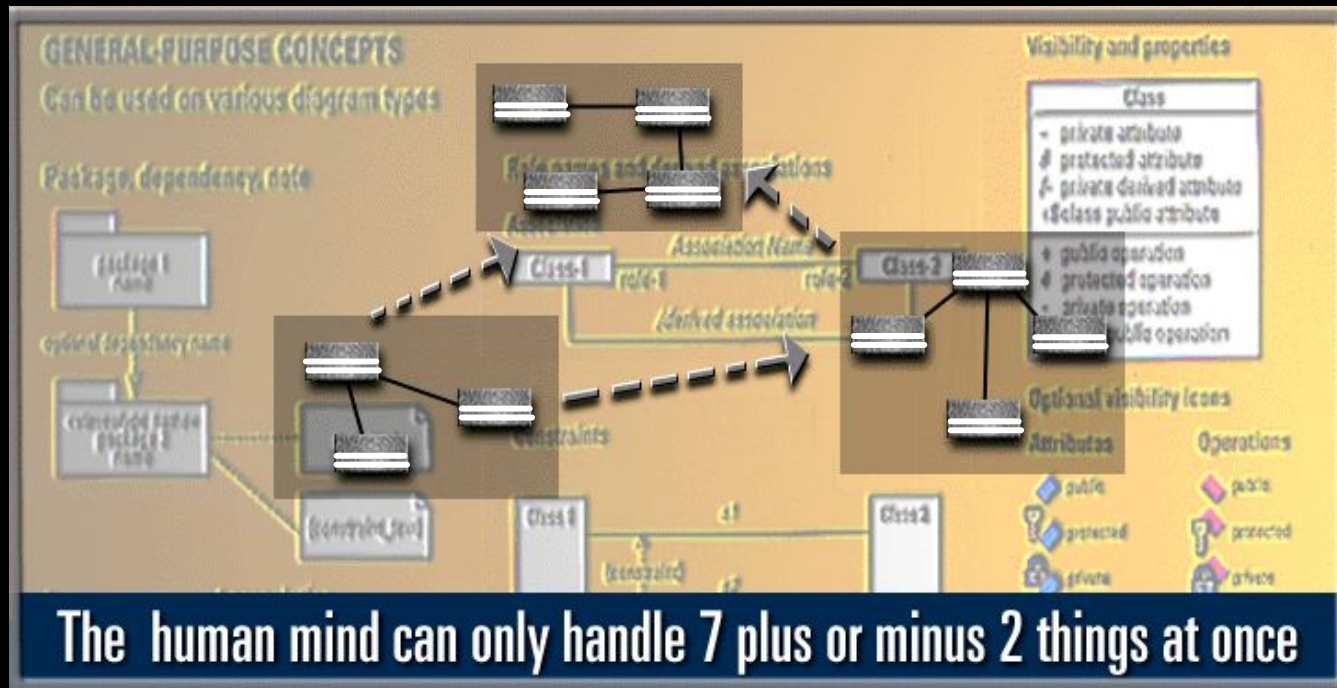
Visual Modeling Is a Communication Tool

Use visual modeling to capture business objects and logic.



Use visual modeling to analyze and design your application.

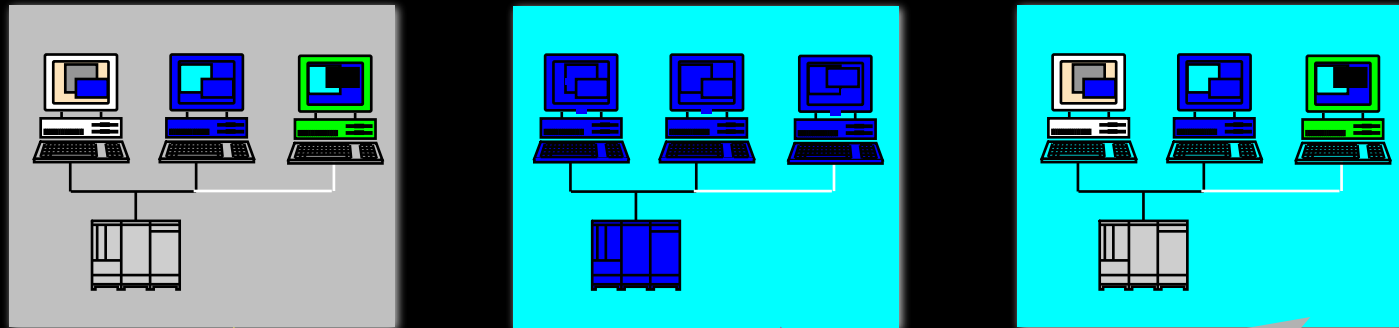
Visual Modeling Manages Complexity



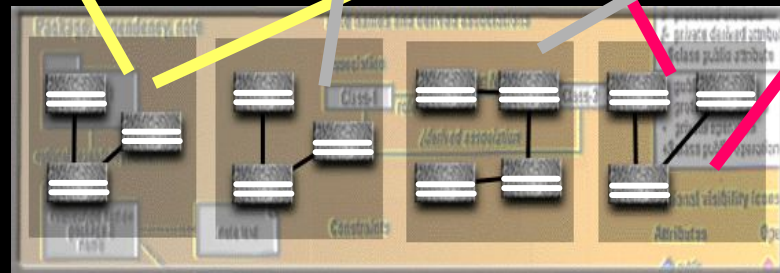
The human mind can only handle 7 plus or minus 2 things at once

Visual Modeling Promotes Reuse

Multiple Systems



Reusable Components



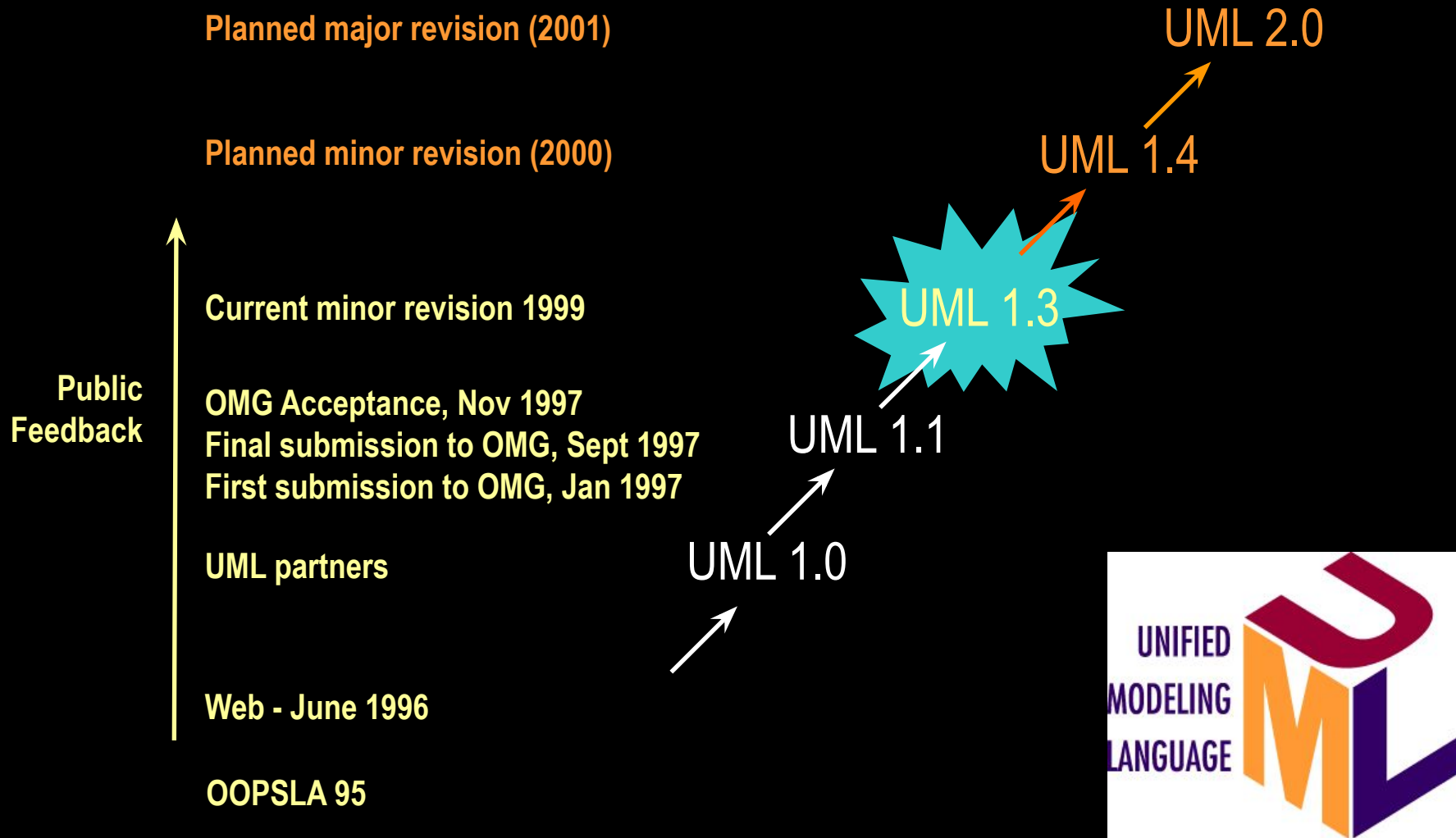
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What Is the Unified Modeling Language?

- ◆ 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

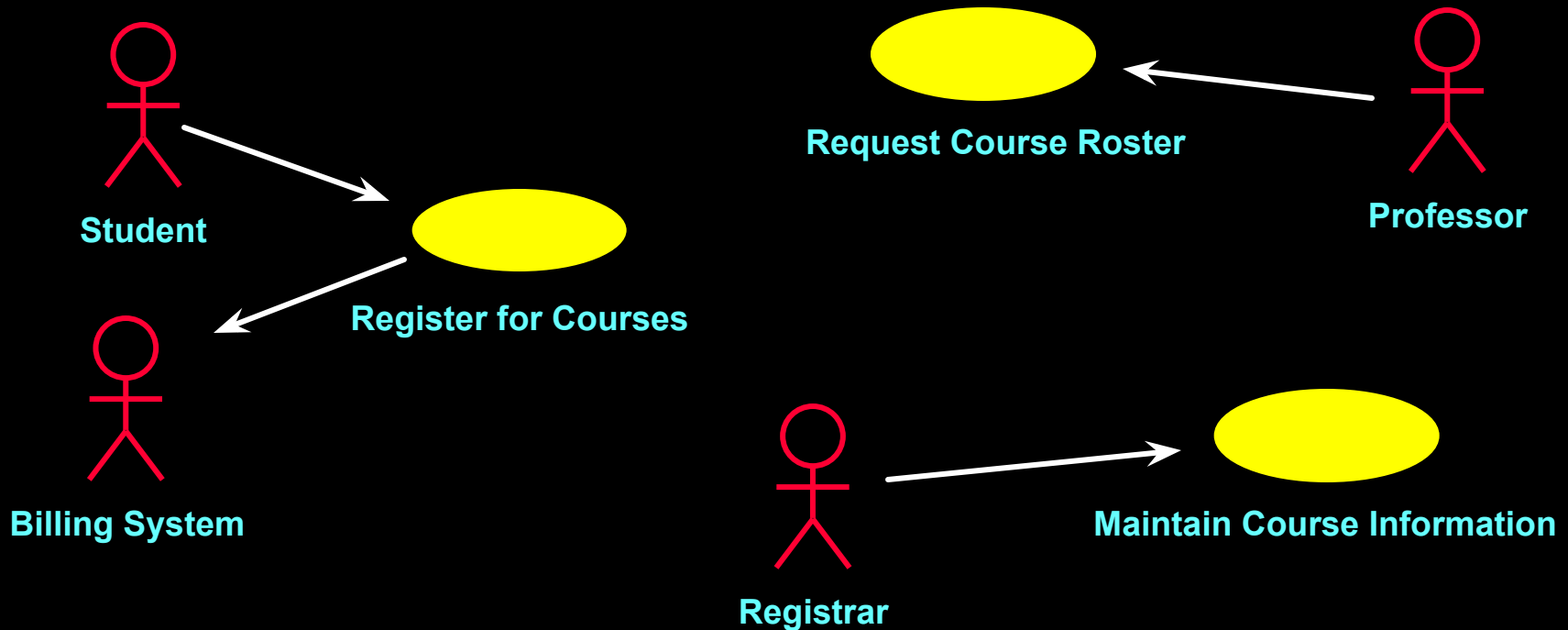
- ◆ The UML may be used to visually model
 - The interaction of your application with the outside world.
 - The behavior of your application.
 - The structure of your system.
 - The architecture of your enterprise.
 - The components in your system.

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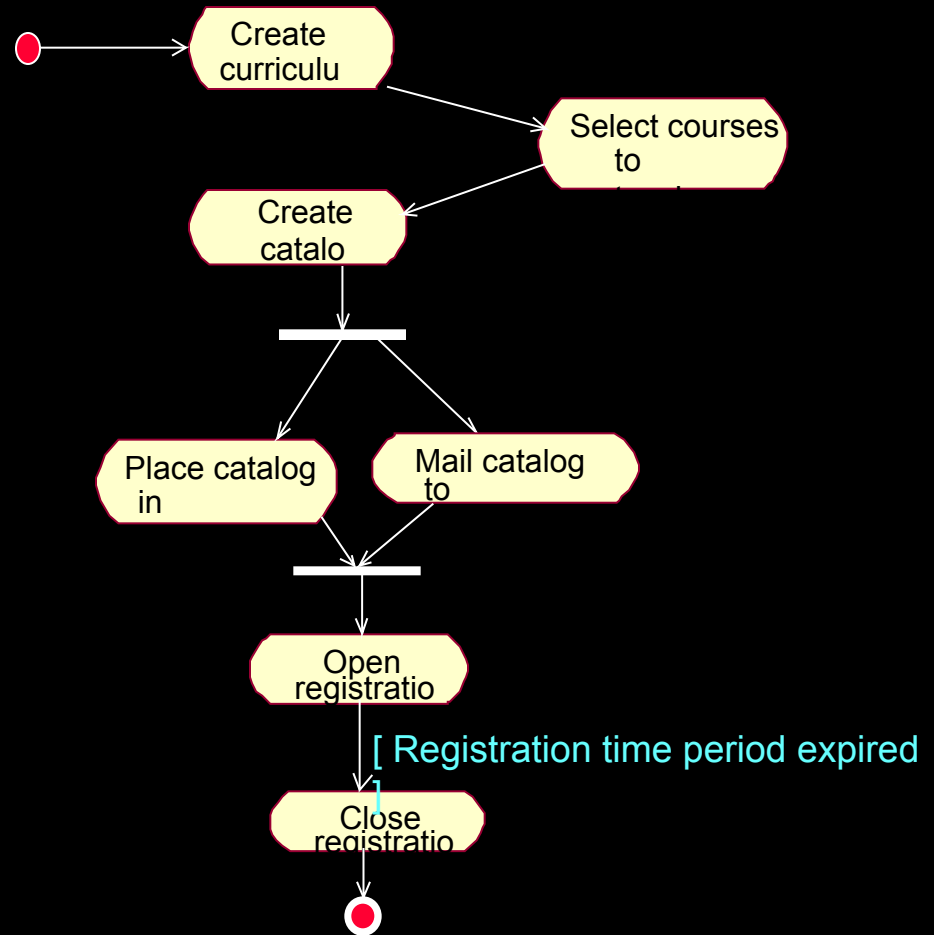
Use-Case Diagram

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



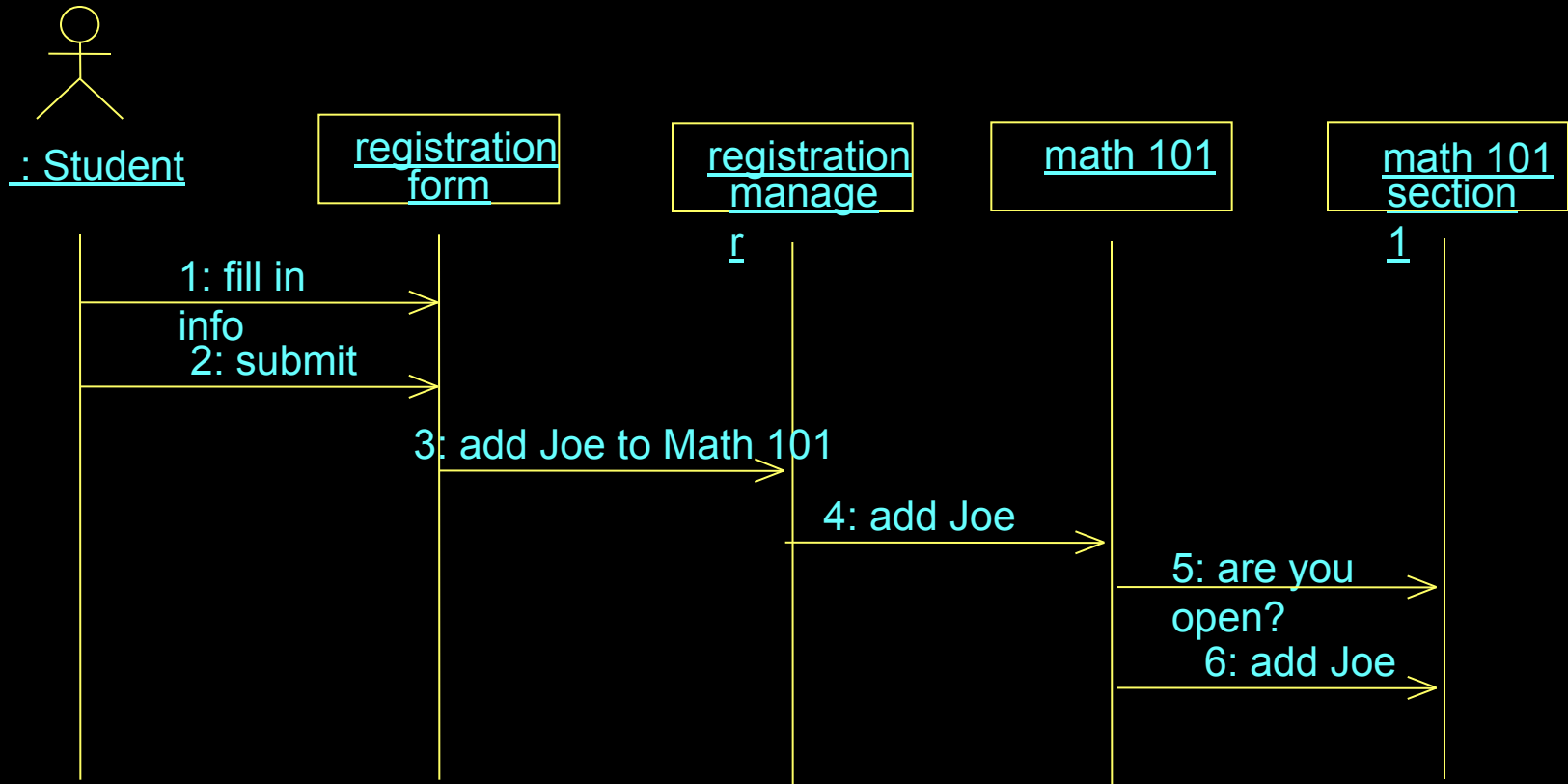
Activity Diagram

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



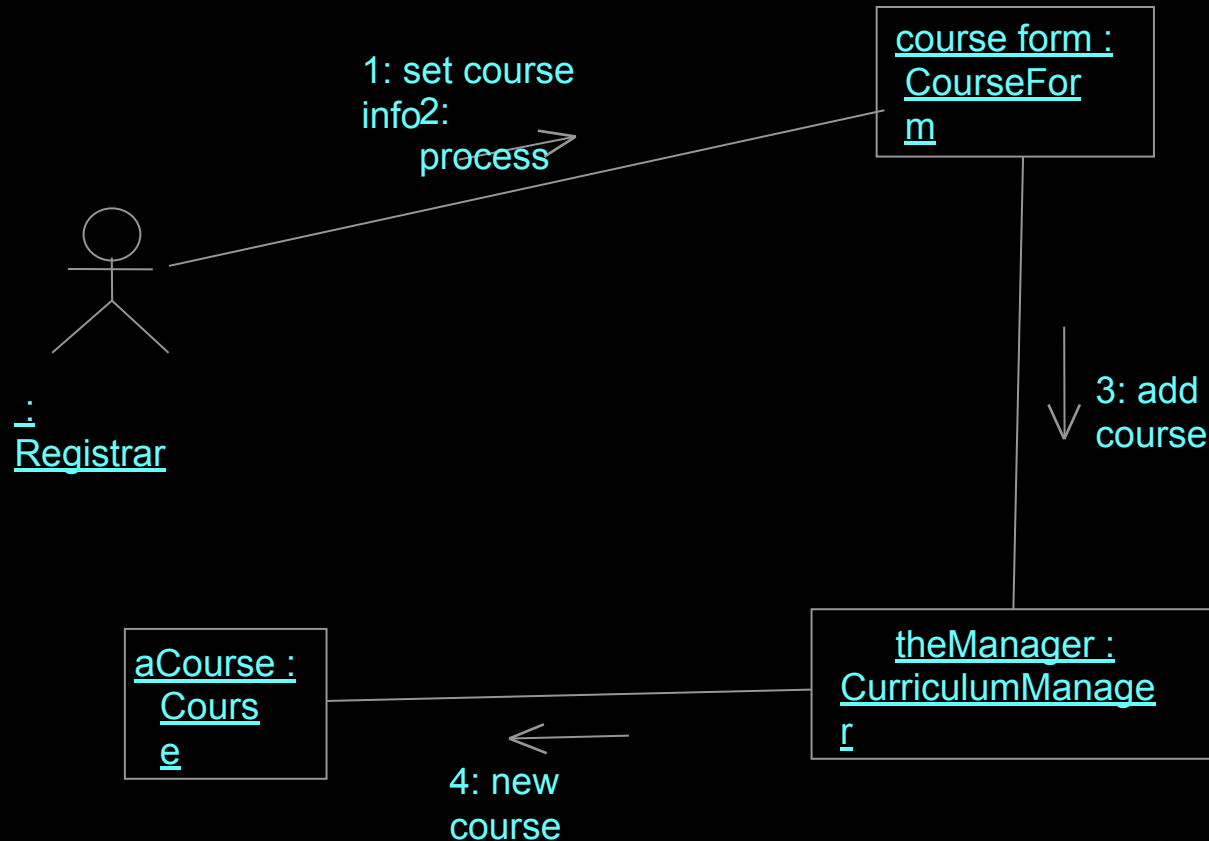
Sequence Diagram

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



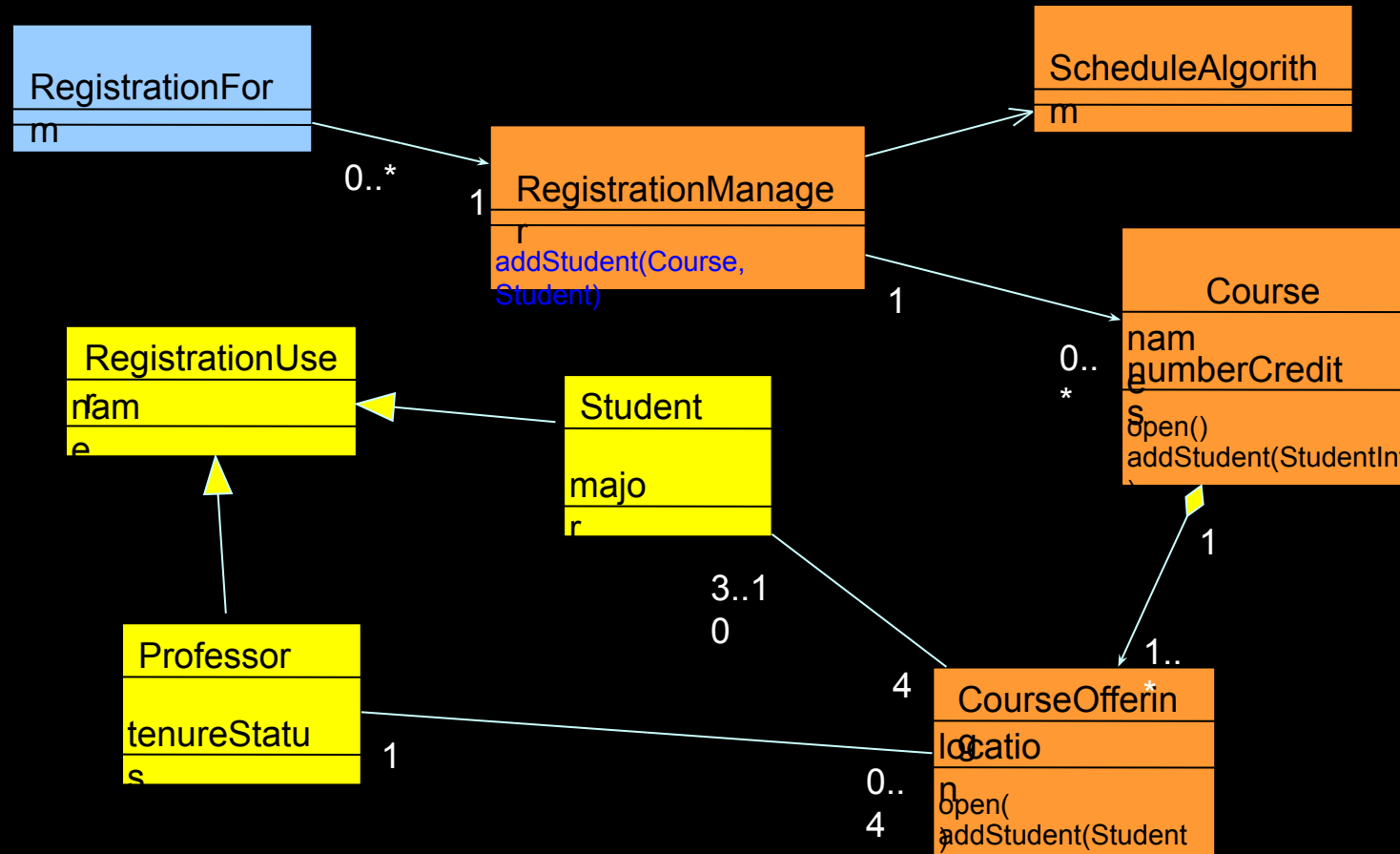
Collaboration Diagram

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



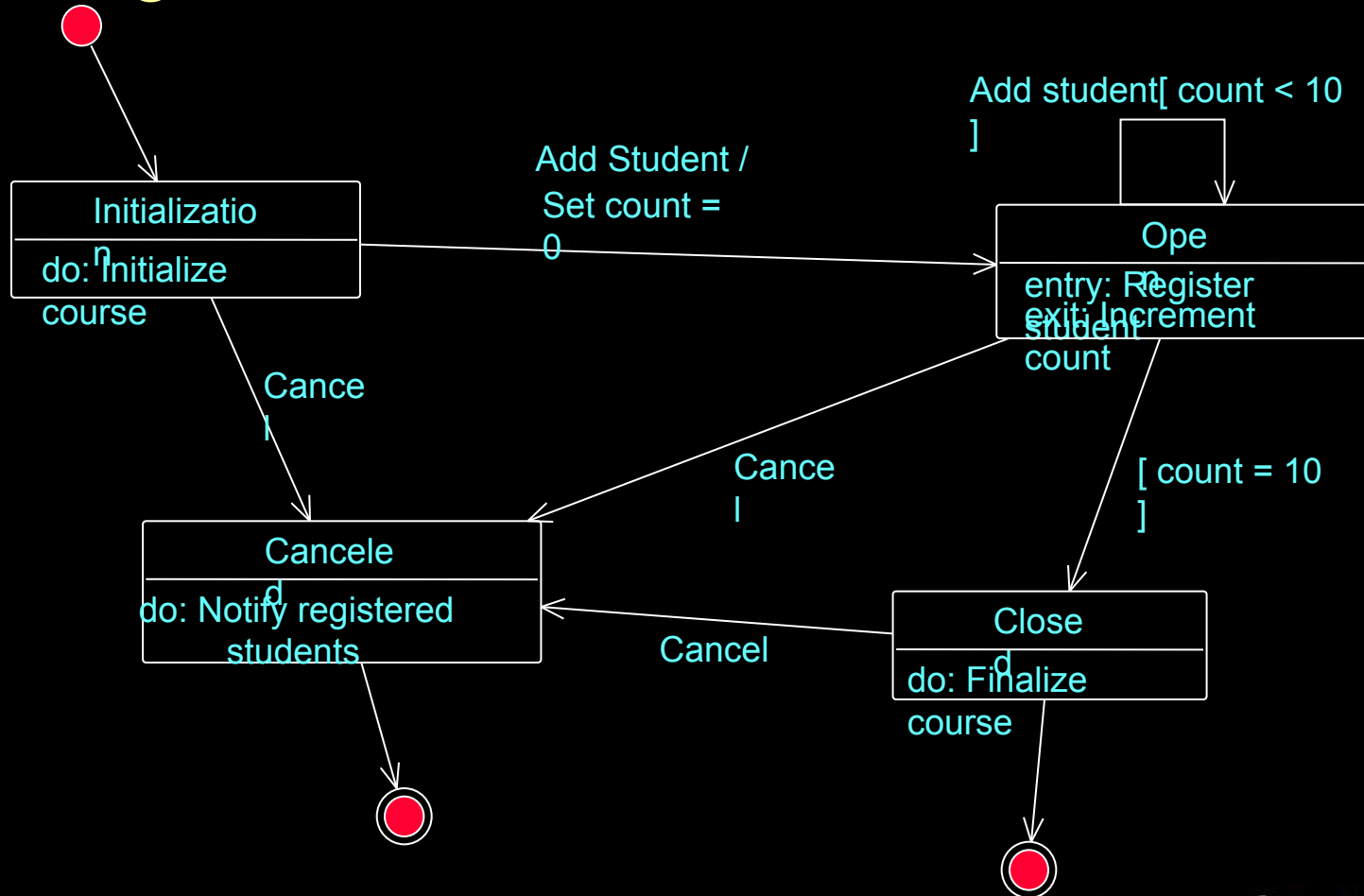
Class Diagram

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



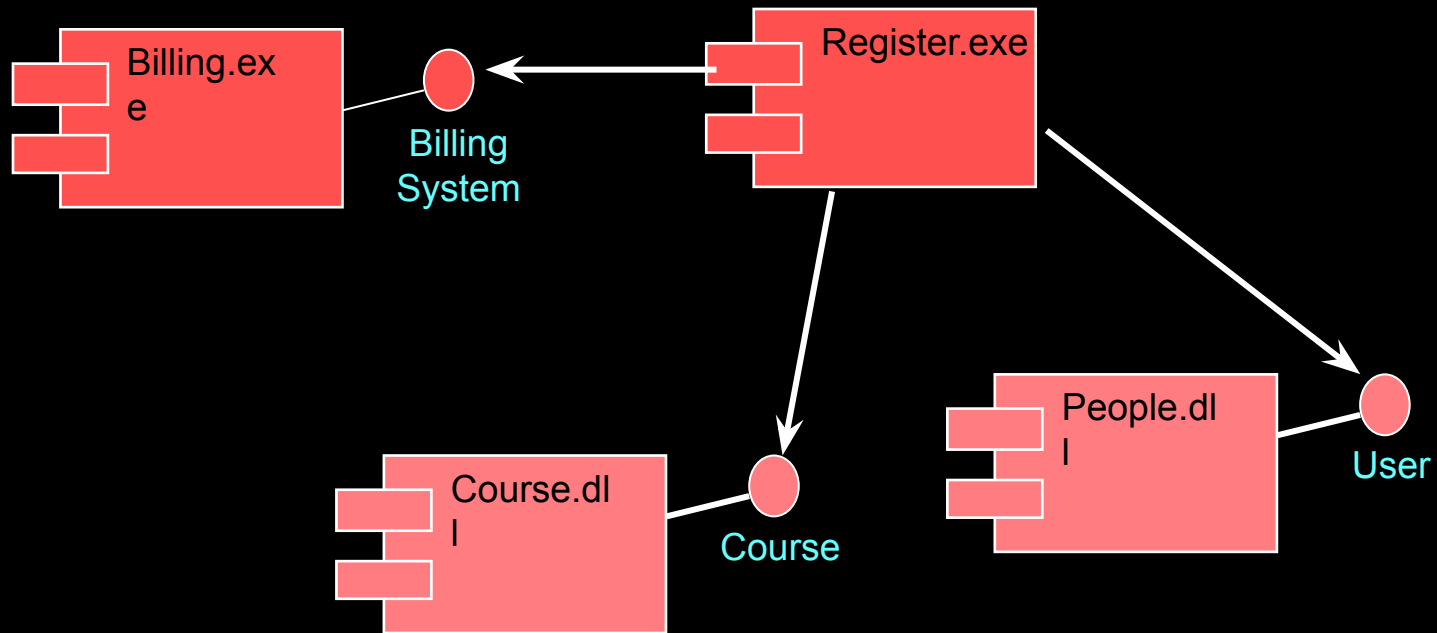
Statechart Diagram

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



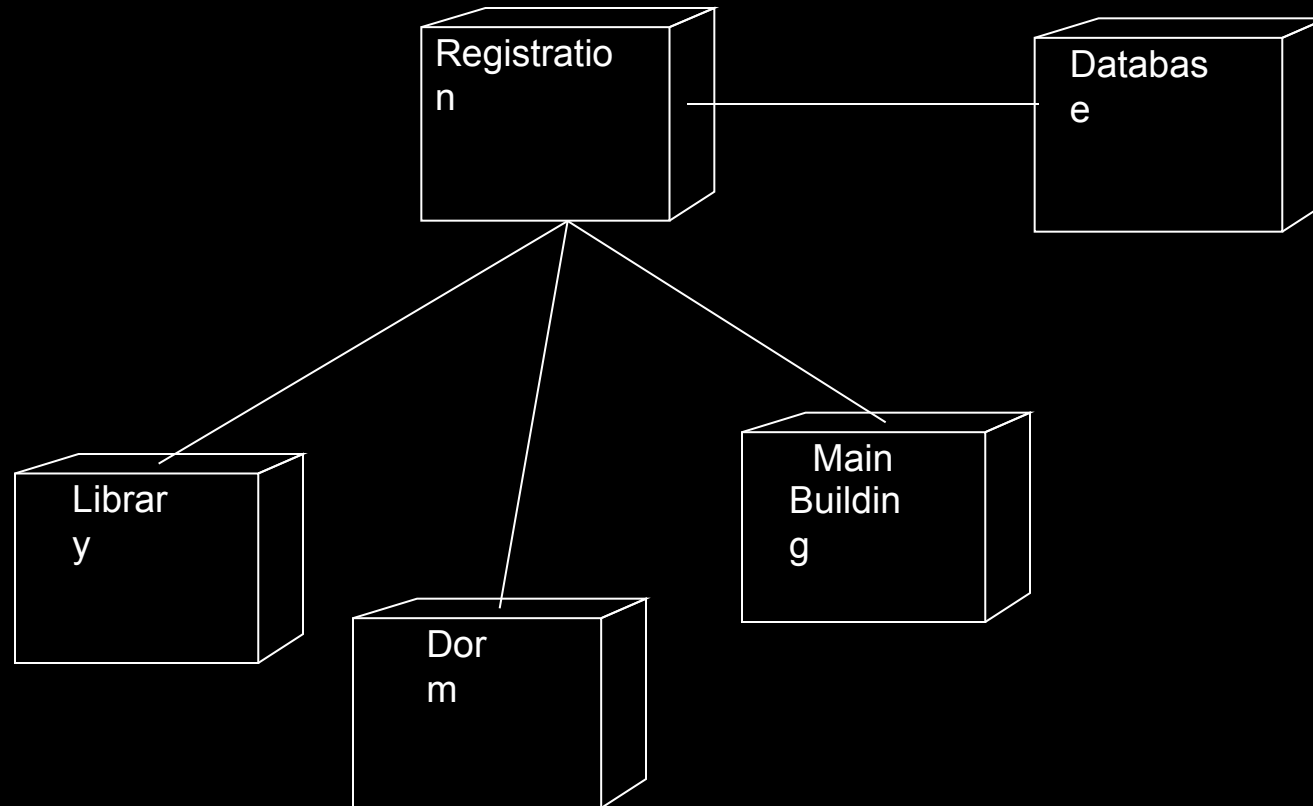
Component Diagram

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



Deployment Diagram

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



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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?

