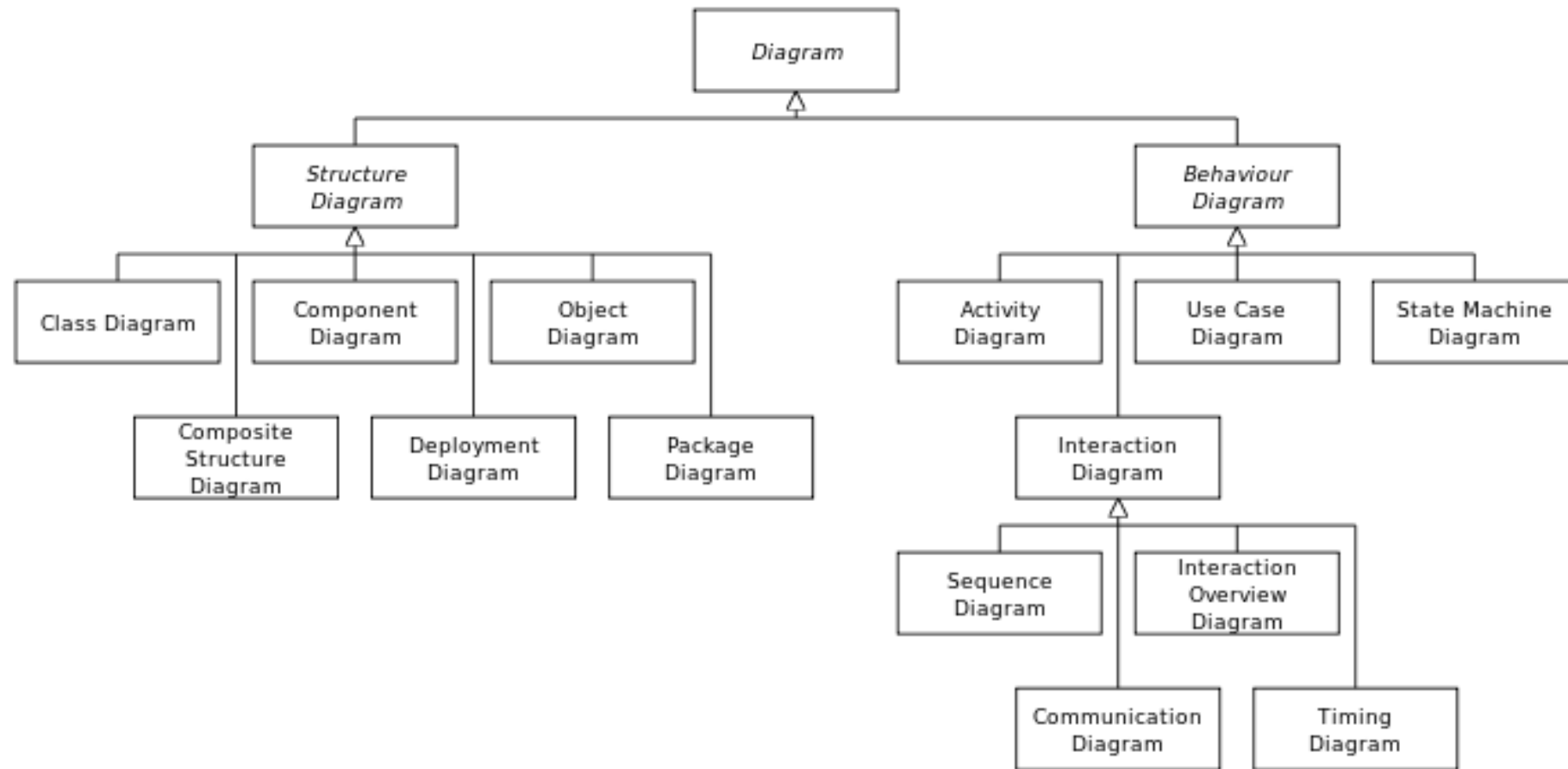


SAD

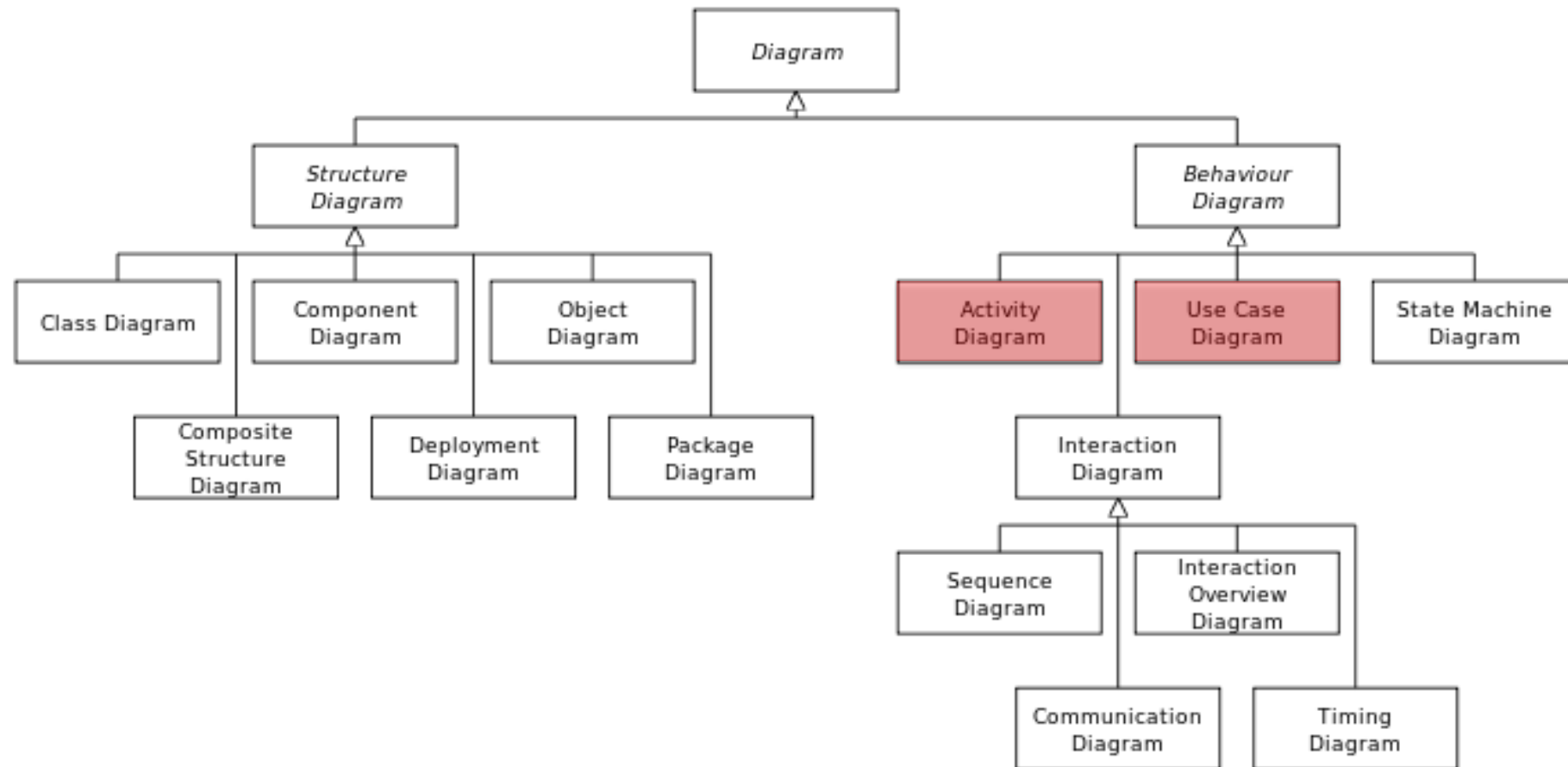
Lecture 7

Eng. Joud Khattab

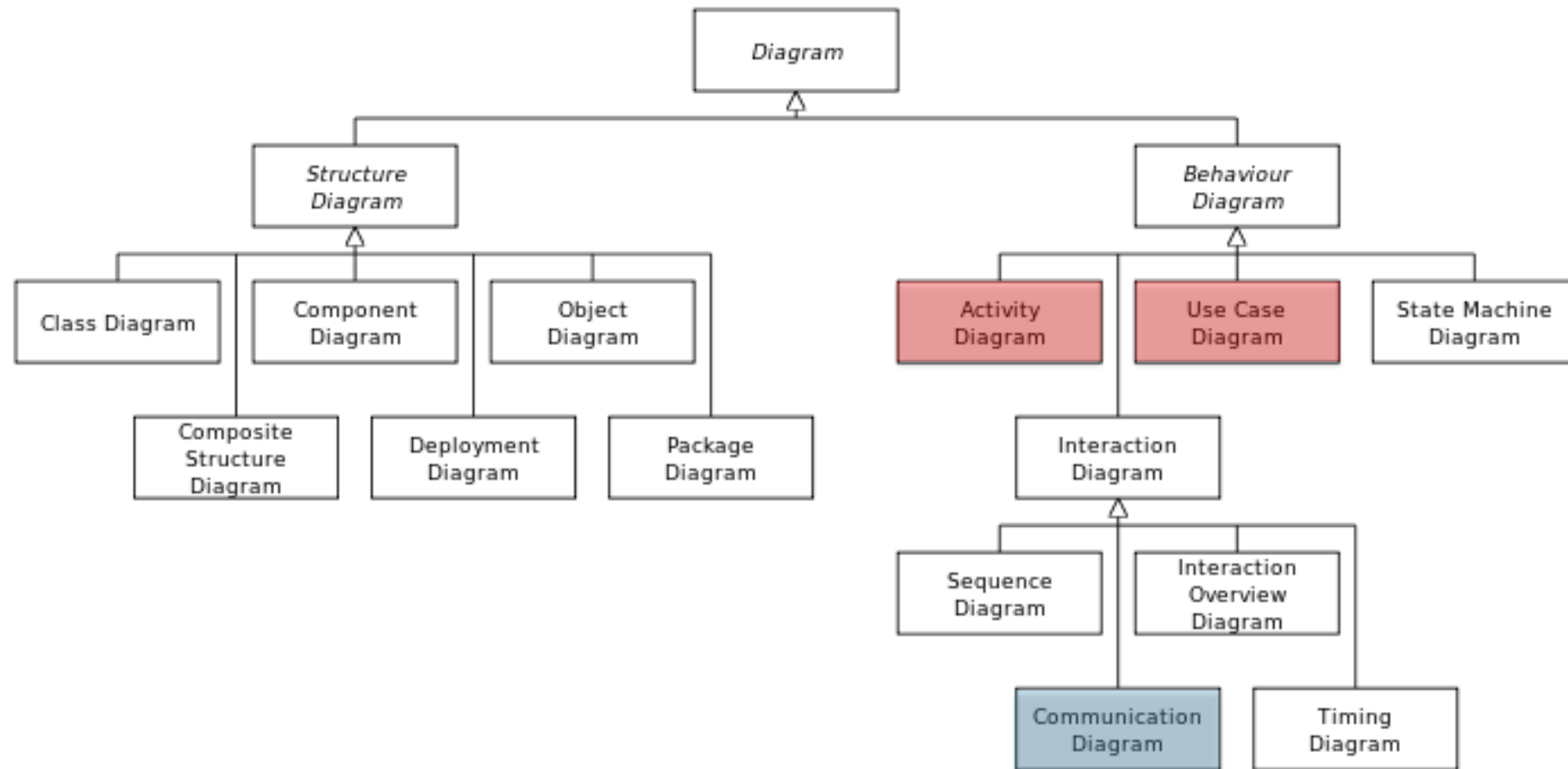
UML



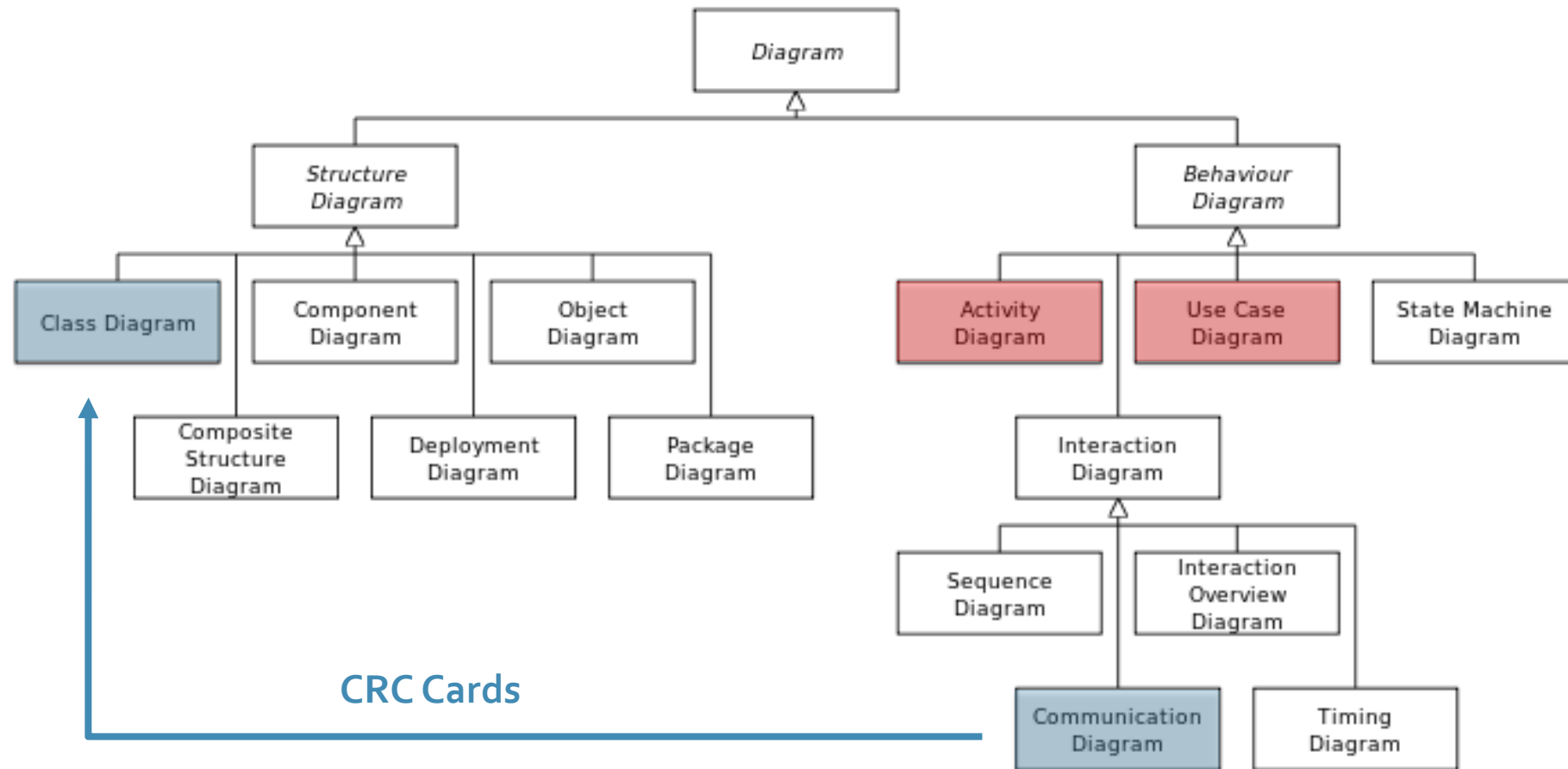
UML



UML



UML



Heading to Implementation

Collaboration Diagram



CRC Cards



Class Diagram



Implementation

COLLABORATION DIAGRAM

Collaboration Diagram

- Also called a **communication** diagram or **interaction** diagram.
- Collaboration diagrams illustrate interactions between objects. Messages being sent between classes and objects (instances).

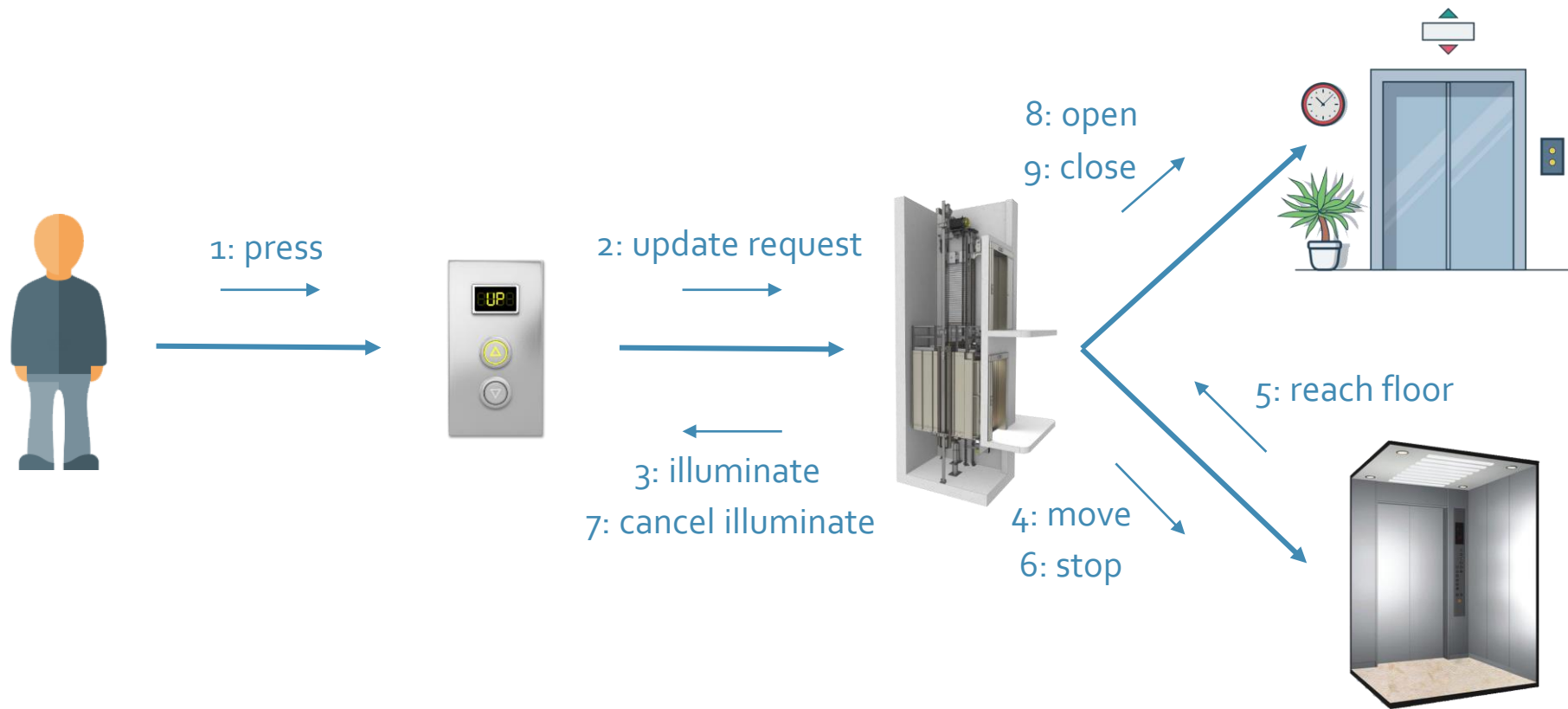
Collaboration Diagram

- A collaboration diagram resembles a flowchart that portrays the roles, functionality and behavior of individual objects as well as the overall operation of the system in real time.
- Collaboration diagrams are best suited to the portrayal of simple interactions among objects.

EXAMPLE

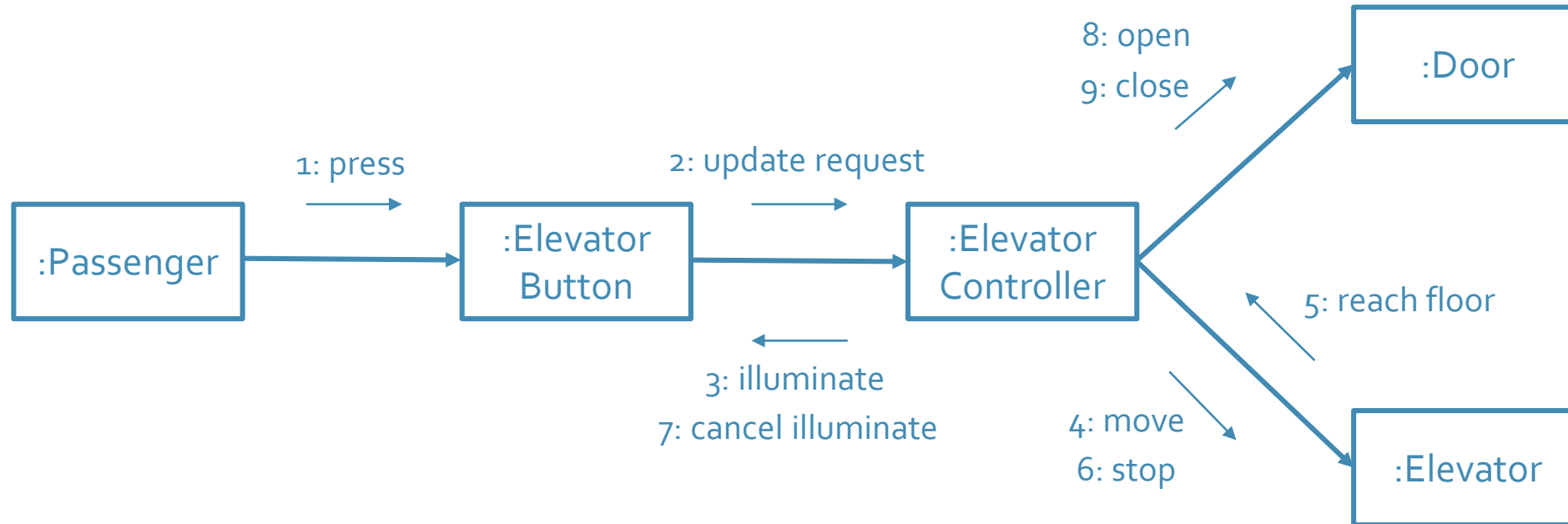
Elevator

Collaboration Diagram Elevator Example



Collaboration Diagram

Elevator Example

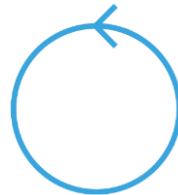


Collaboration Diagram Elements & Kinds

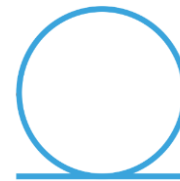
- There are three primary **elements** of a collaboration diagram:
 - Objects
 - Links
 - Messages
- Collaboration diagram object kinds:



Boundary



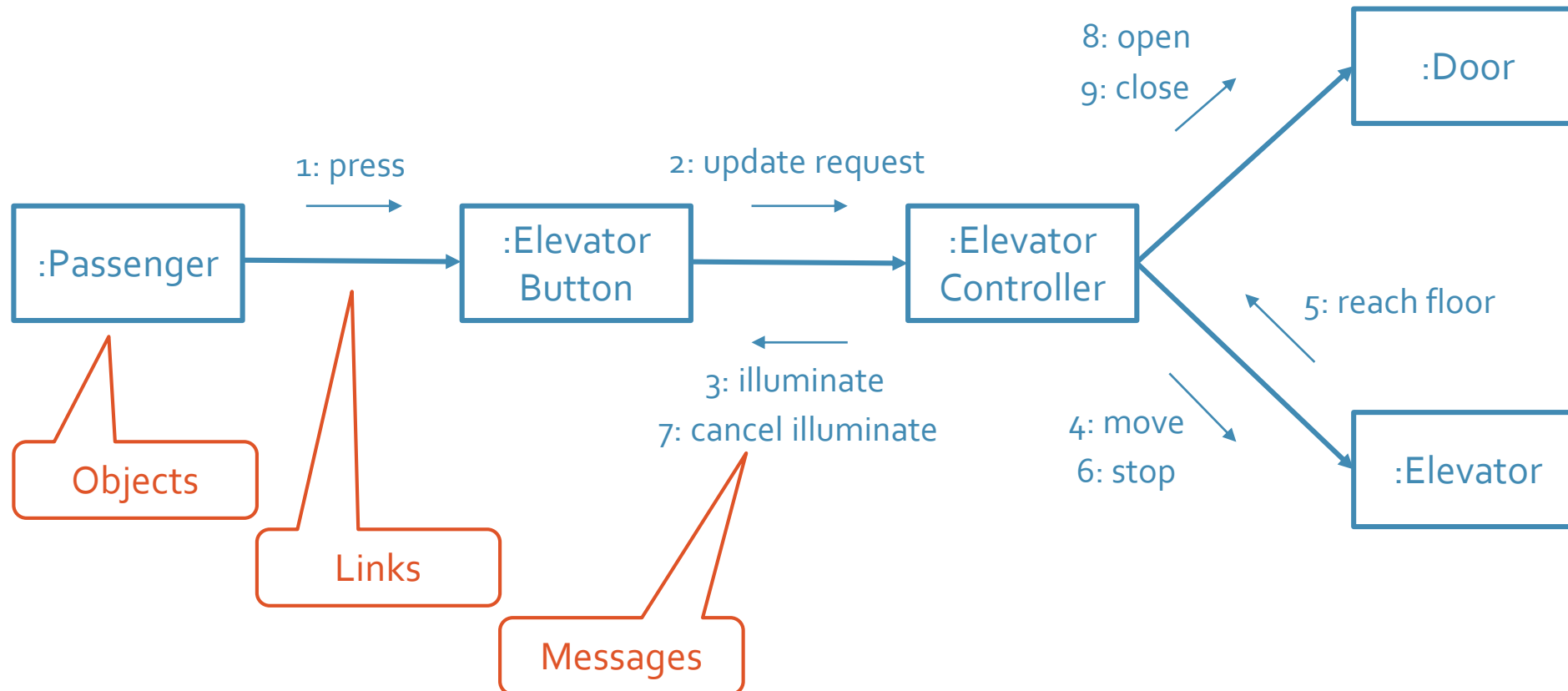
Controller



Entity

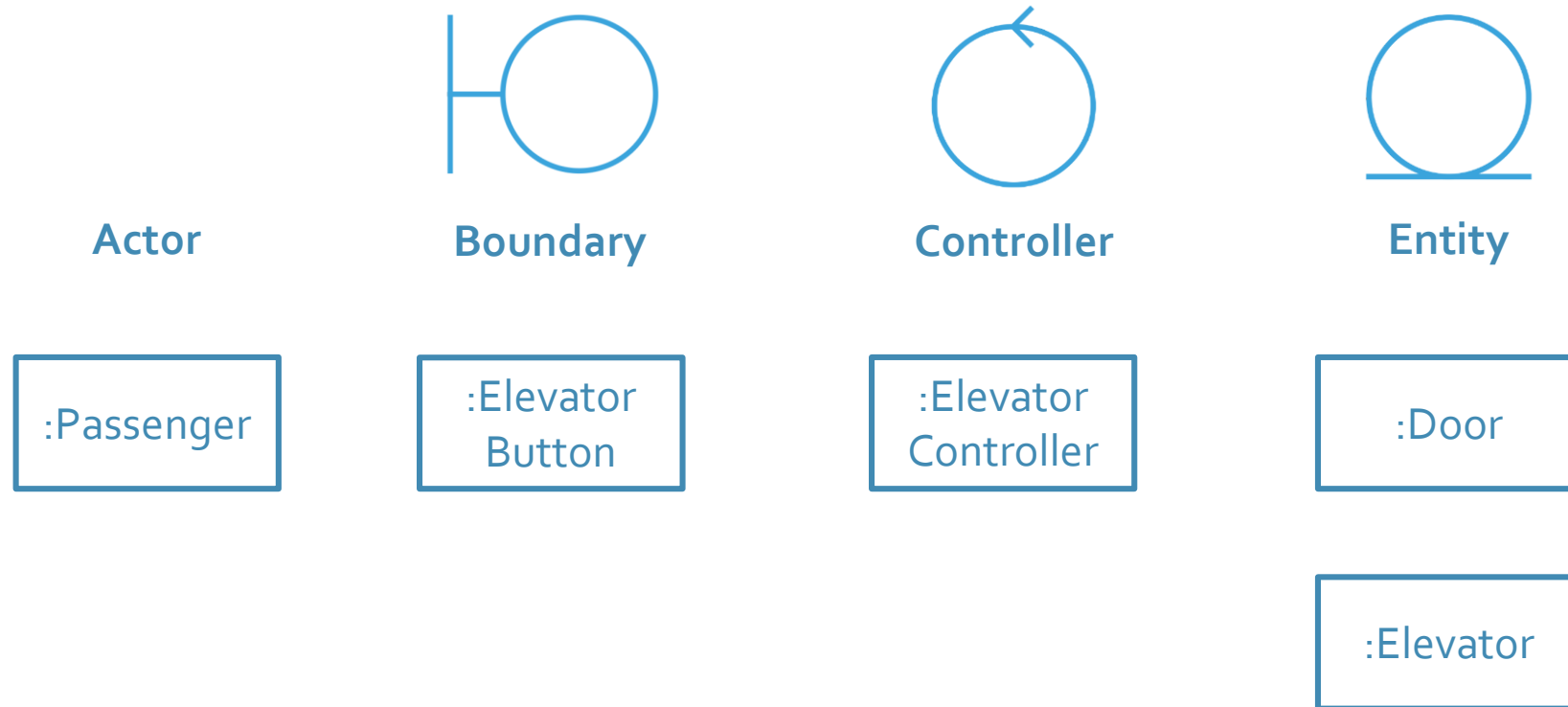
Collaboration Diagram

Elevator Example



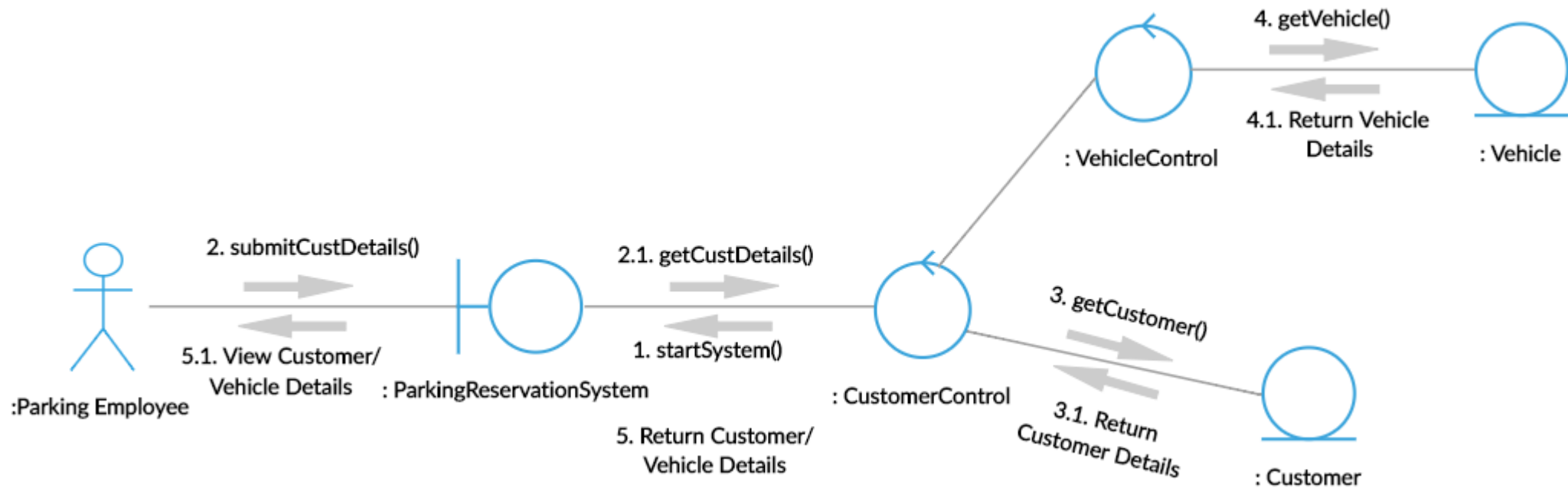
Collaboration Diagram

Elevator Example



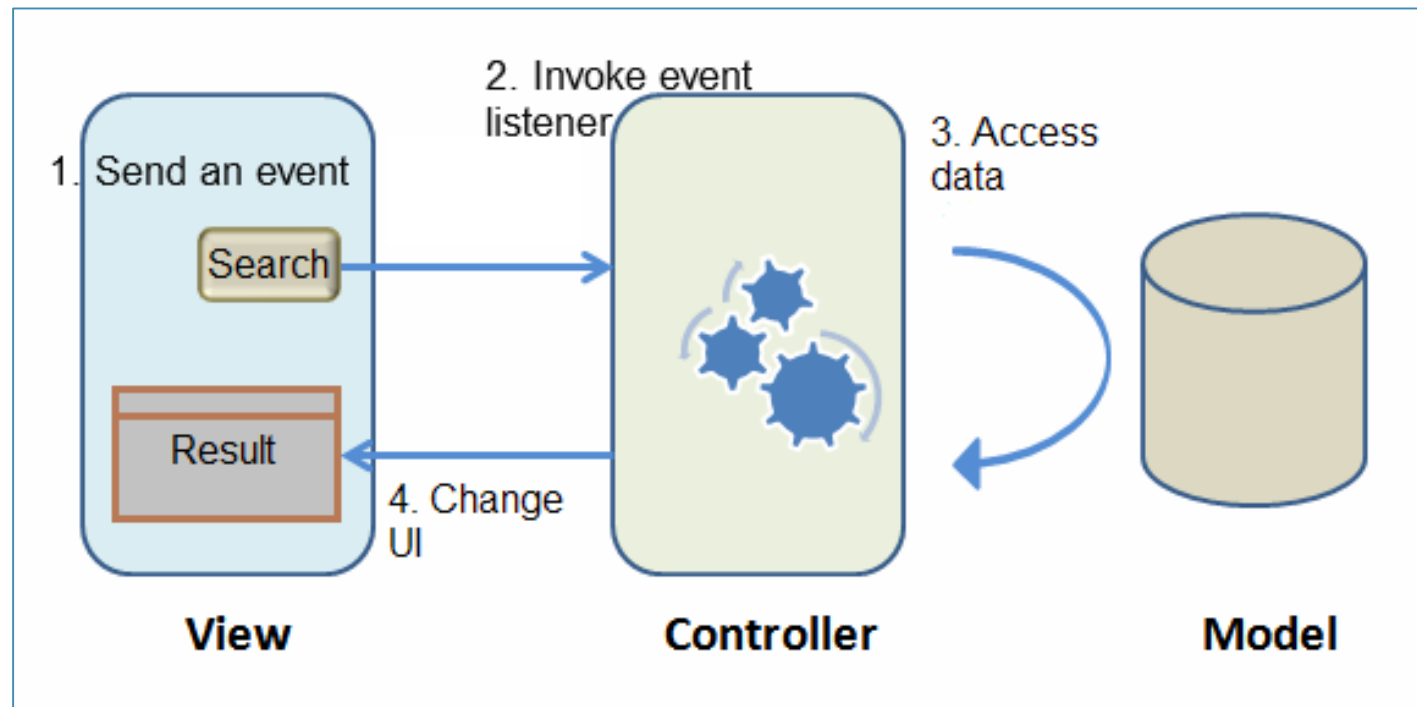
Collaboration Diagram

Parking System Example



MVC

3 Tiers Architecture



MVC Frameworks



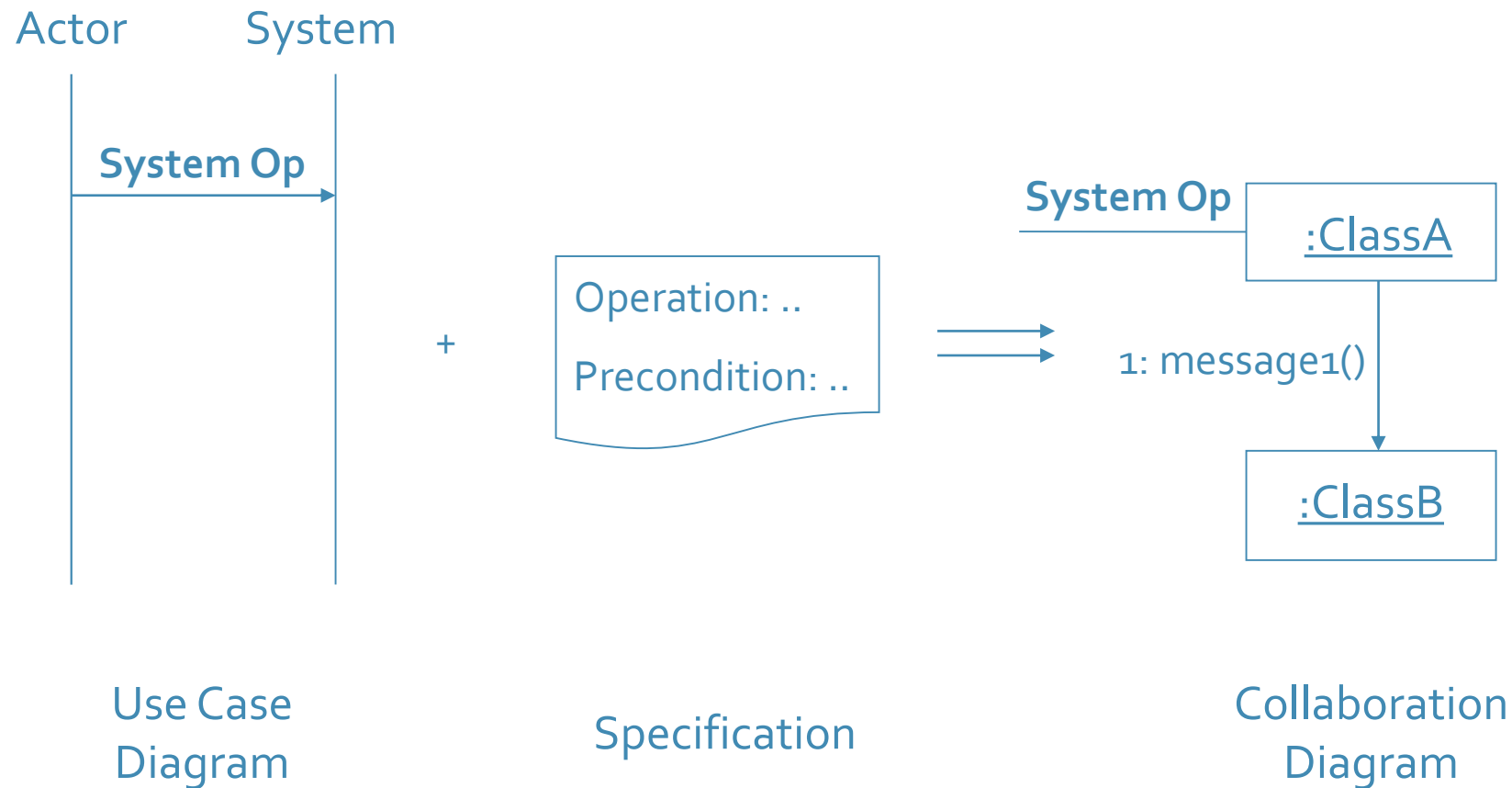
FROM USE CASE TO COLLABORATION

Udemy Example

From Use Case to Collaboration

- For each system operation:
 - Identified in the Use Case Diagrams, and
 - Described in a Use Case Specifications.
- Design a system of interacting objects to perform the operation.
- **The collaboration diagram will indicate:**
 - The objects participating in the collaboration.
 - The sequence of messages {message(parameters), sender, receiver} exchanged to achieve the task involved.

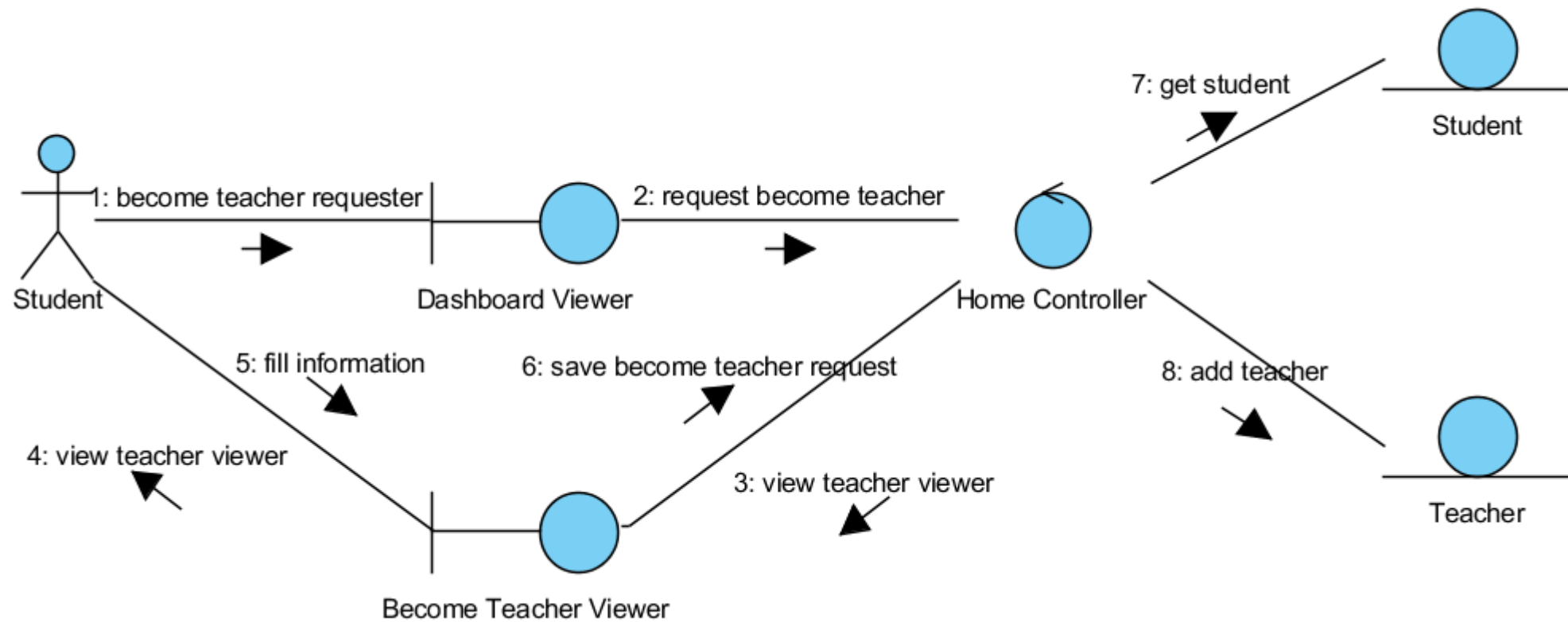
From Use Case to Collaboration



Become Teacher

	Become Teacher	
Actor	student	
Brief Description	Let the student make his own courses.	
Pre-conditions	logged in.	
Post-conditions	Student becomes a teacher.	
Flow of event	Actor	System
	1. click become teacher button	
	2. add some information	
	3. click submit button	
		4. validate request
		5. student become teacher
Critical scenarios	<ul style="list-style-type: none"> Validation error: show message to notify actor that there is some missing information. Exit without submit: show message to notify actor that the edited information won't be saved. 	

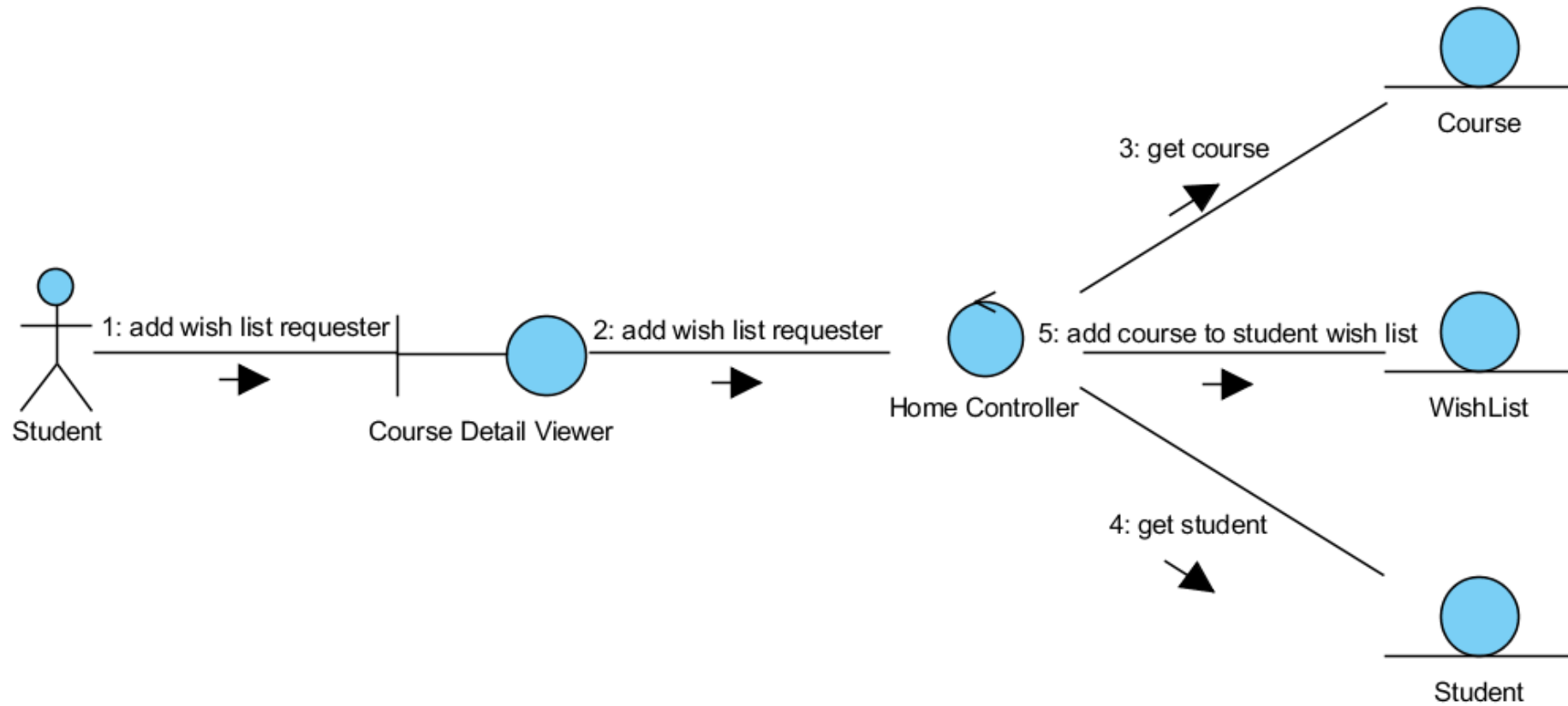
Become Teacher



Add to Wish list

	Add to Wish list	
Actor	student	
Brief Description	allow student to add a course to his wish list	
Pre-conditions	<ul style="list-style-type: none">• Logged in.• Course details page is open.	
Post-conditions	add course to student wish list	
Flow of event	Actor	System
	1. click wish list button	
		2. add course to student wish list
Critical scenarios	<ul style="list-style-type: none">• None.	

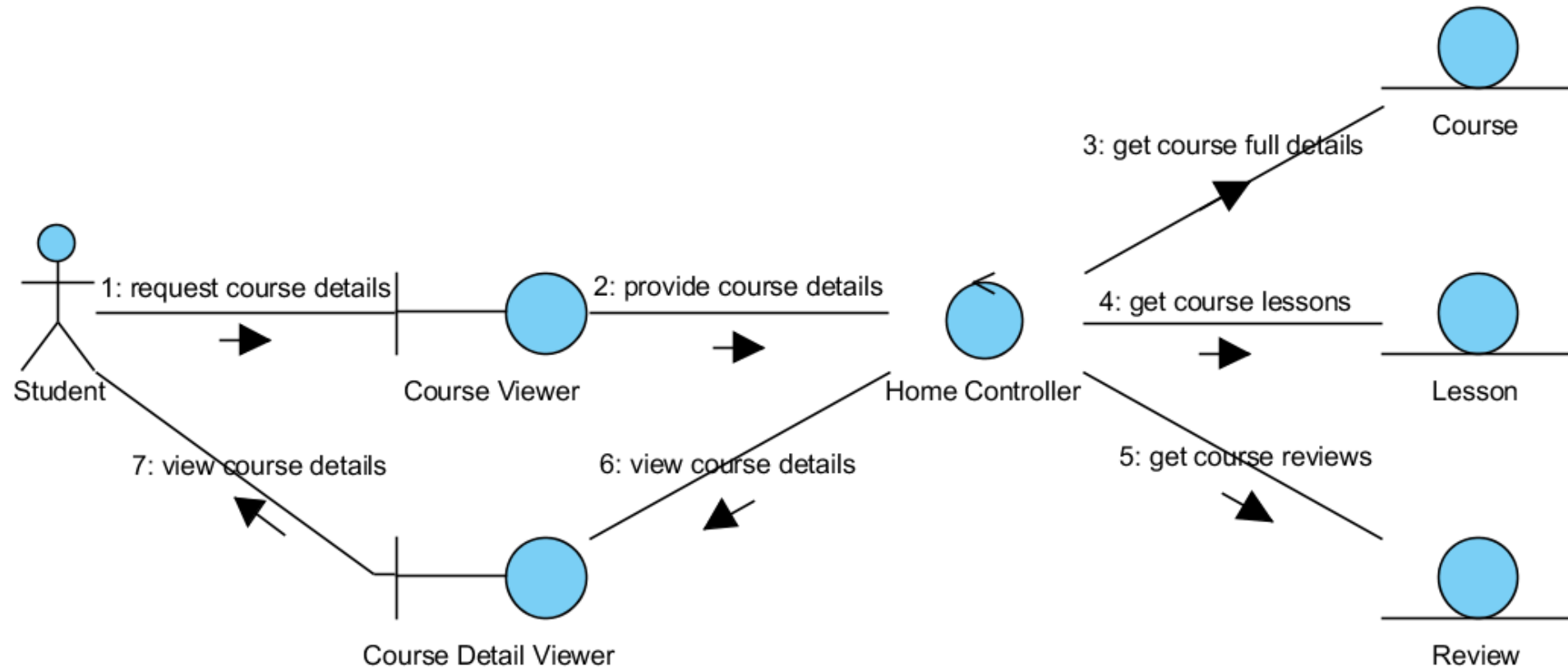
Add to Wish list



View Course Details

	Course Details	
Actor	student	
Brief Description	show full details of an offered course	
Pre-conditions	list of courses is shown	
Post-conditions	none	
Flow of event	Actor	System
	1. click more detail button to specific course	
		2. retrieve course details
		3. view course details in new page
Critical scenarios	<ul style="list-style-type: none">• None.	

View Course Details



CRC CARDS

Class Responsibility Collaboration Cards

CRC Cards



List Class Attributes if it was an **Entity** Class