



Use Case Diagrams: A High-Level Overview

Seneca Polytechnic

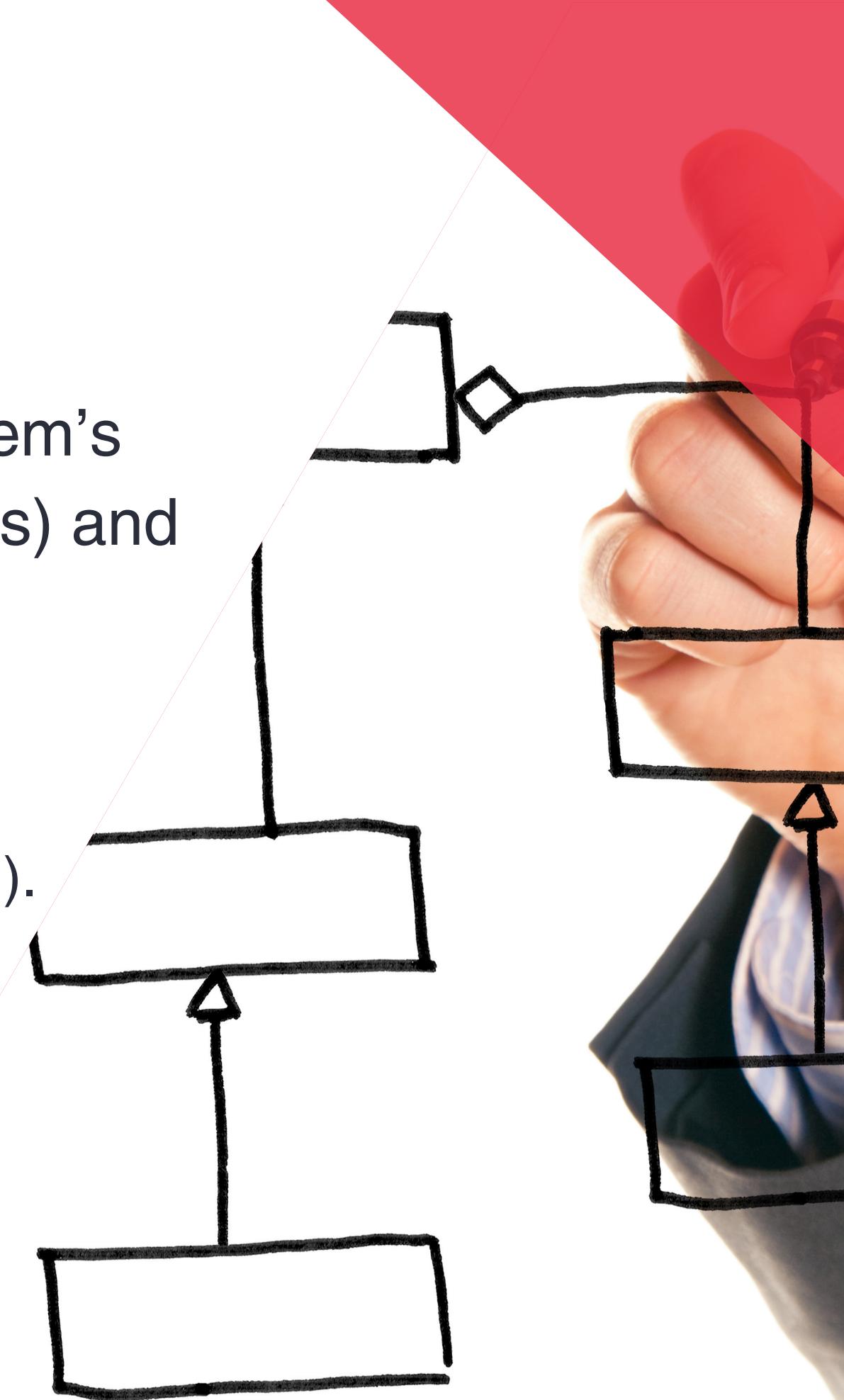
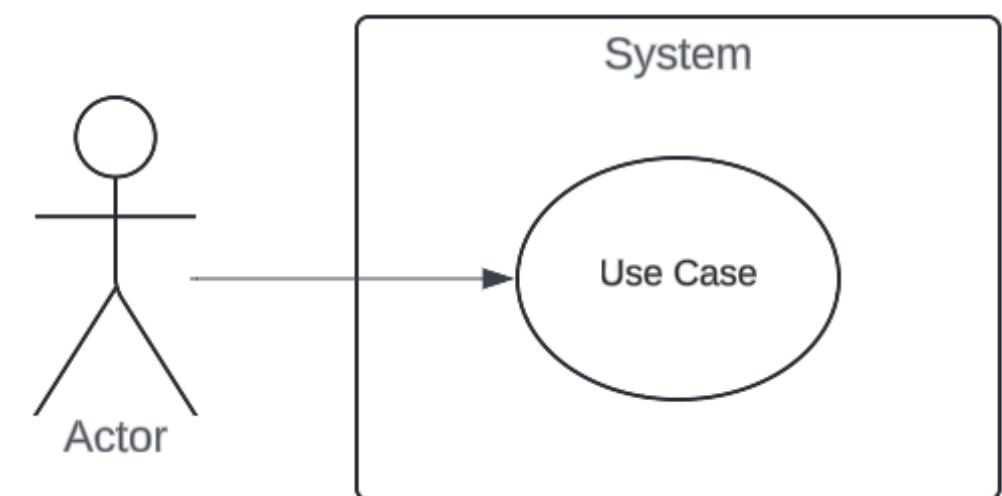


What Are Use Case Diagrams?

Use case diagrams provide a visual representation of a system's functionality. They capture interactions between users (actors) and specific actions (use cases). Key elements include:

Use Cases: Represent specific functionalities within the system.

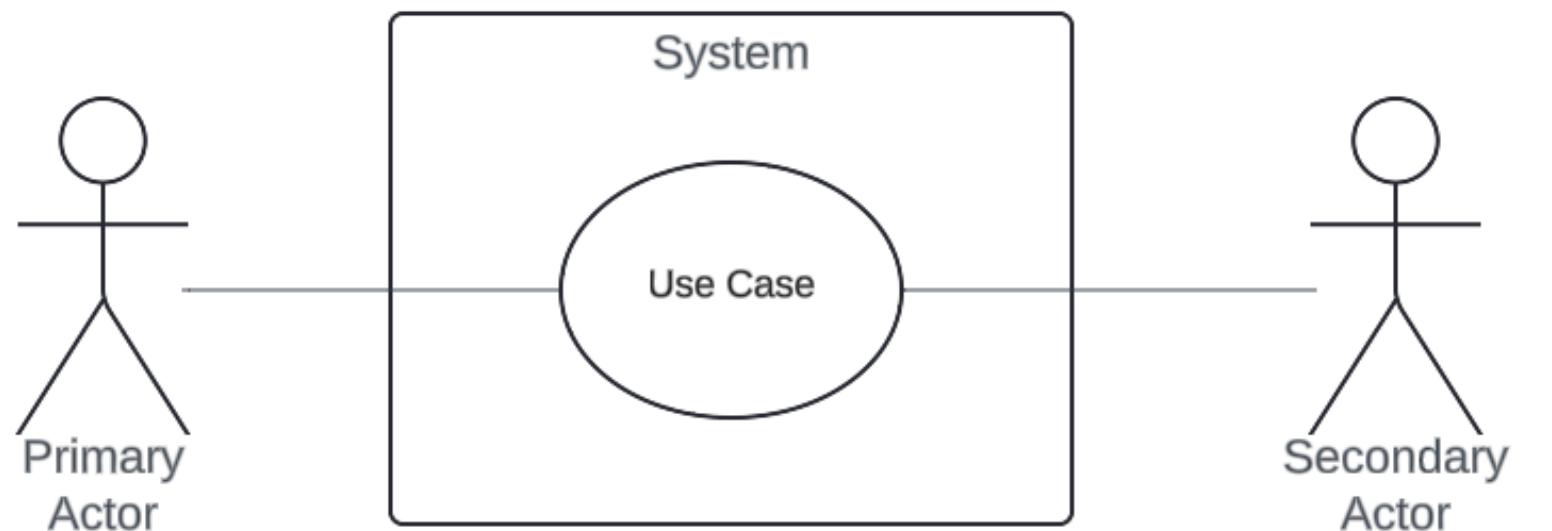
- Notation: Bubble with a descriptive title (verb-noun combination).
- Example:



Use Case Diagrams

Actors: External entities interacting with the system.

- Primary actors trigger use cases; secondary actors are involved indirectly.
- Example:



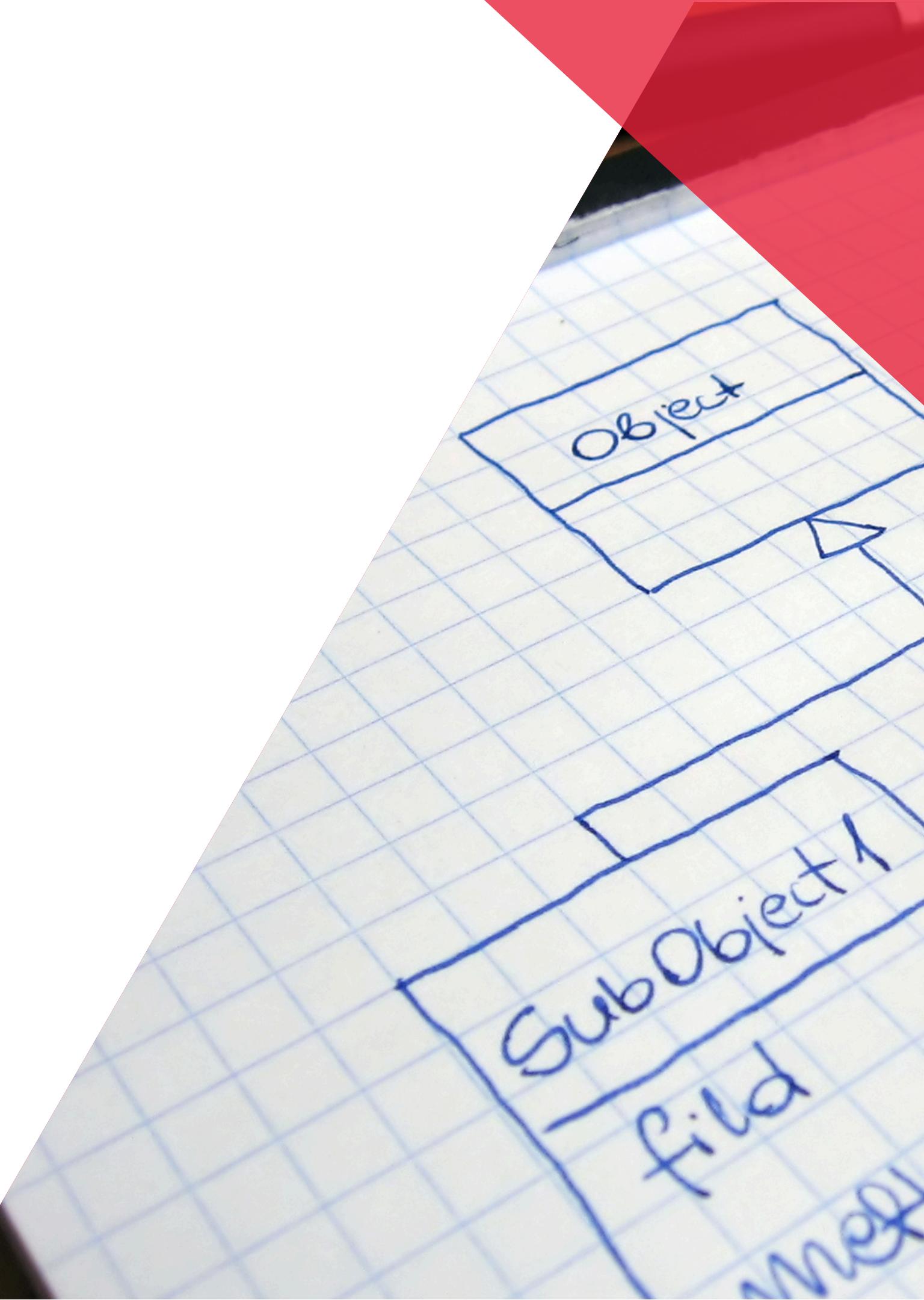
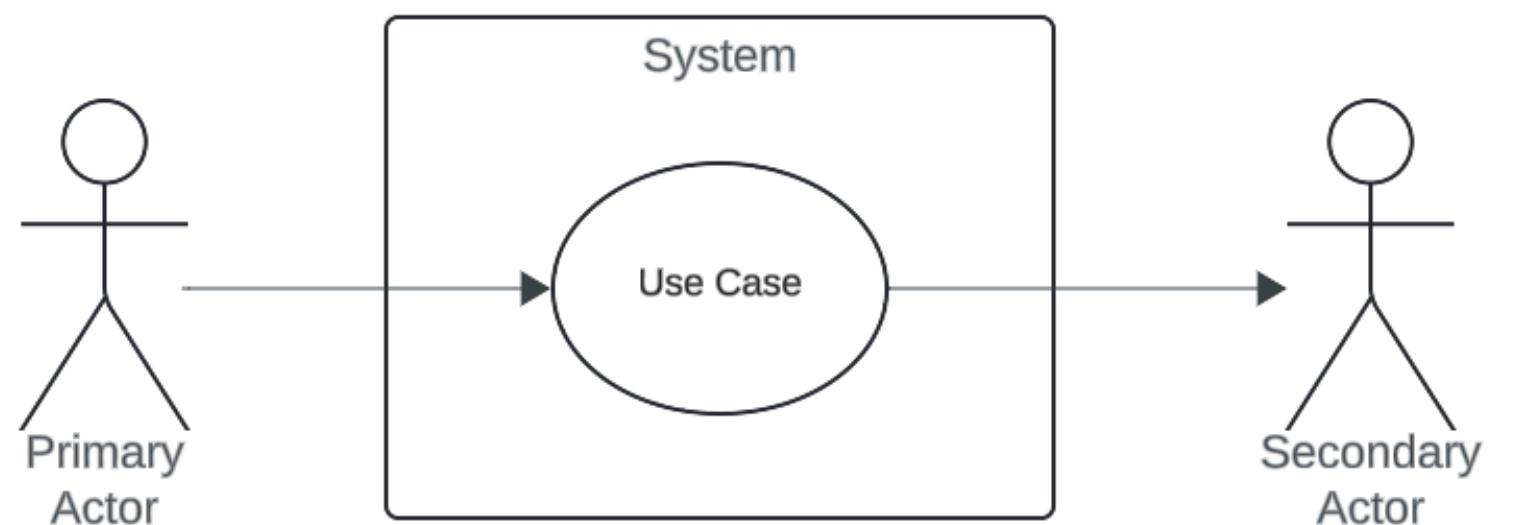
A close-up photograph of a pen tip resting on a piece of paper. The paper contains handwritten code for a `CreditCard` class, showing attributes like `type`, `number`, `expMonth`, and `expYear`. The code is written in a cursive style, with some words in bold. The background shows a portion of a UML Use Case Diagram with a "System" boundary and a "Use Case" circle.

```
type : CreditCard
number : String
expMonth : String
expYear : String
```

Use Case Diagrams

Associations: Connect actors to use cases.

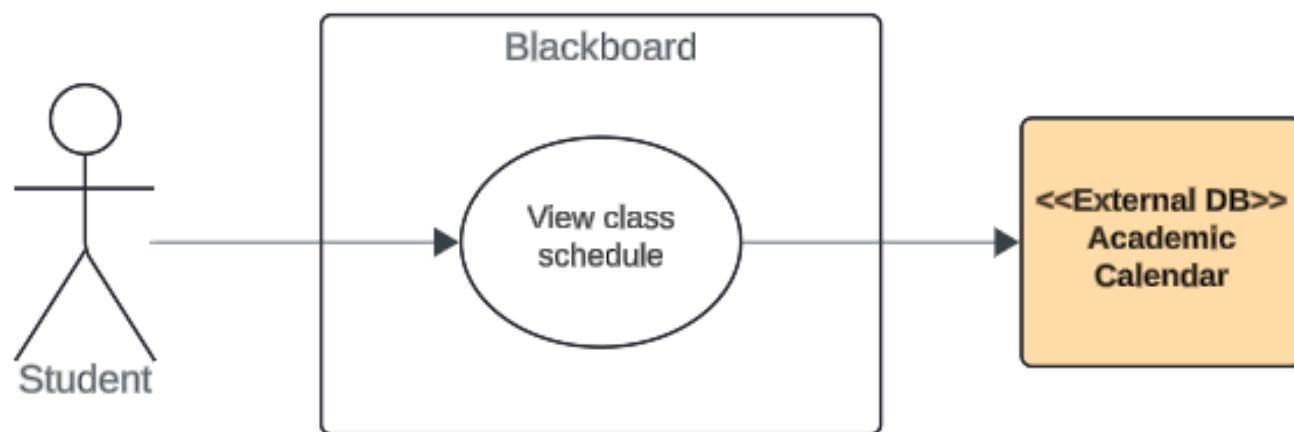
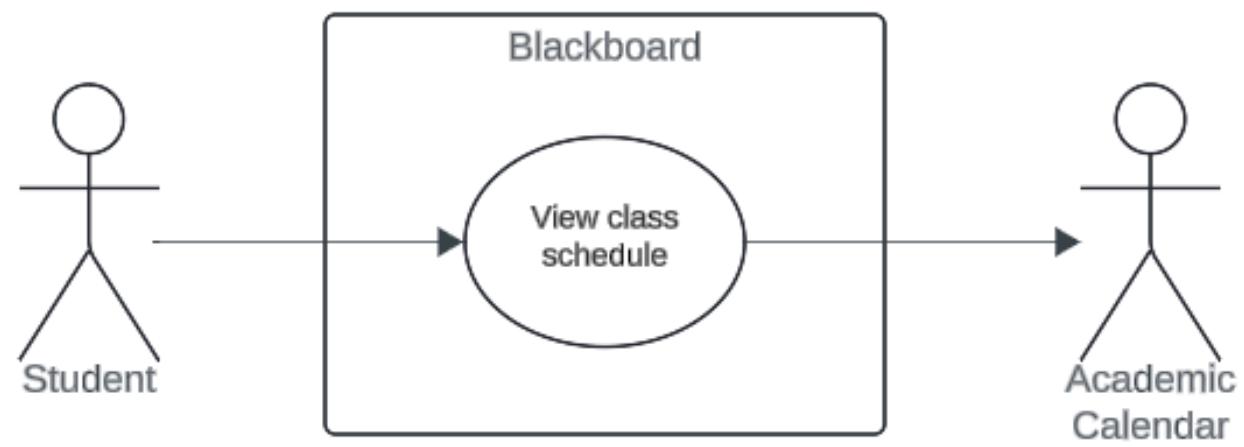
- Arrowheads indicate actor roles:
 - Arrow away from actor: Primary actor
 - Arrow toward actor: Secondary actor
- Example:



Use Case Diagrams

Stereotyping: Denote special actor types (e.g., <>external system>>).

- Example:

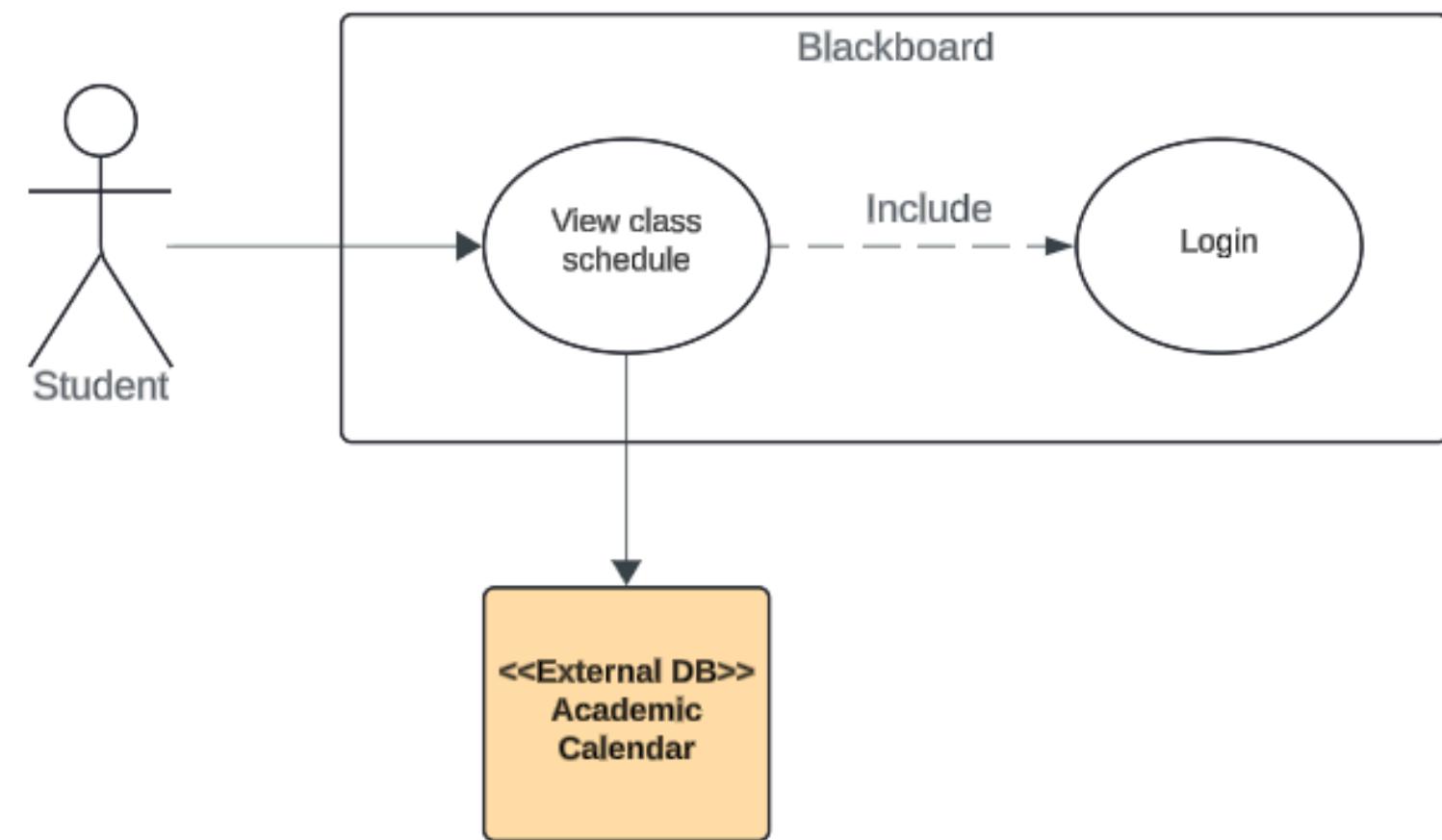


Use Case Relationships

Include Relationship

- Extract reusable functionality (e.g., login) into an independent use case.
- Base use case depends on included use case.
- Notation: Dashed or dotted arrow.

!Include Example

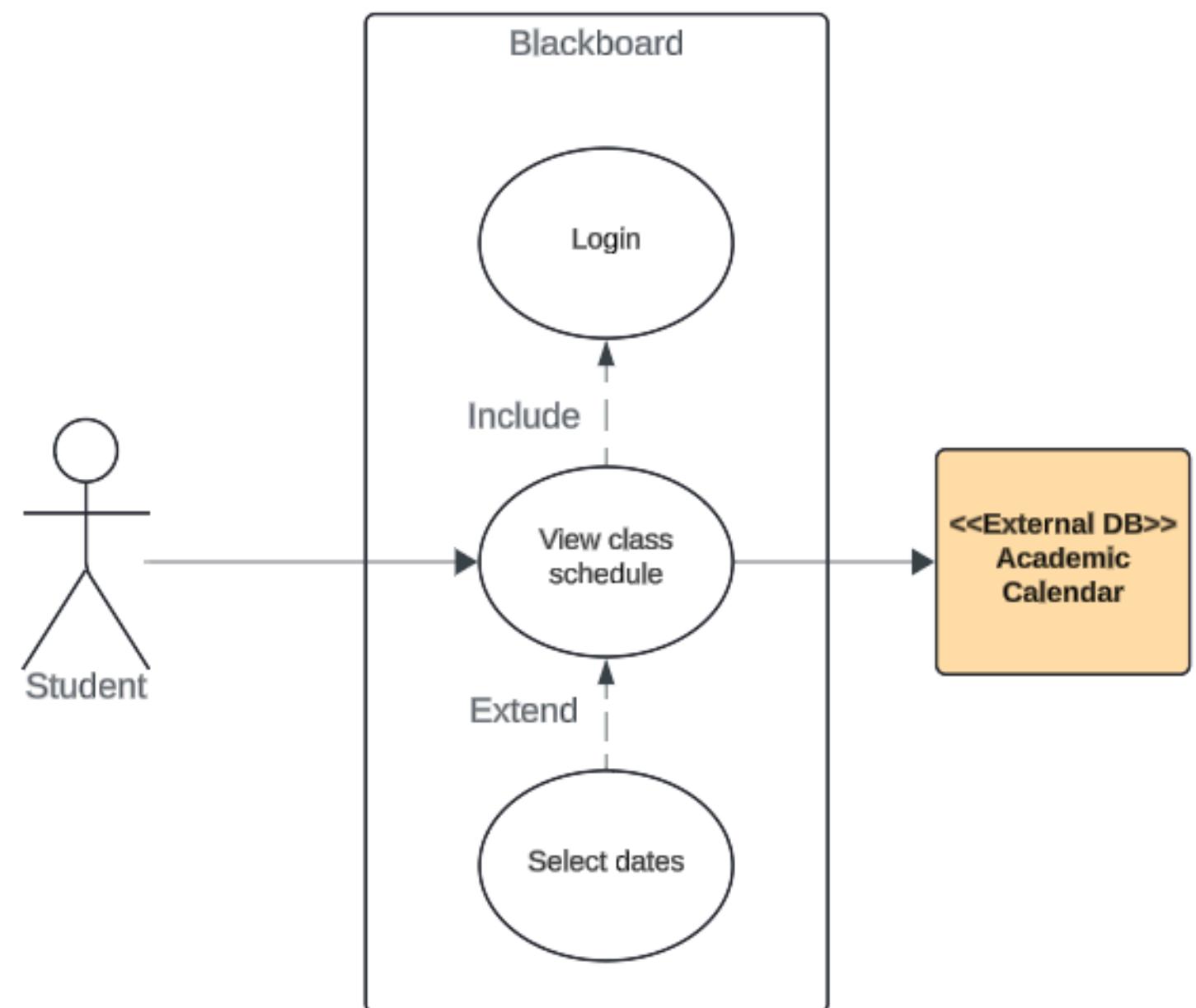


Use Case Relationships

Extend Relationship

- Add optional behavior to a base use case.
- Example: Enhance “View Event Schedule” with date filtering.
- Notation: Arrow from base to extended use case.

!Extend Example

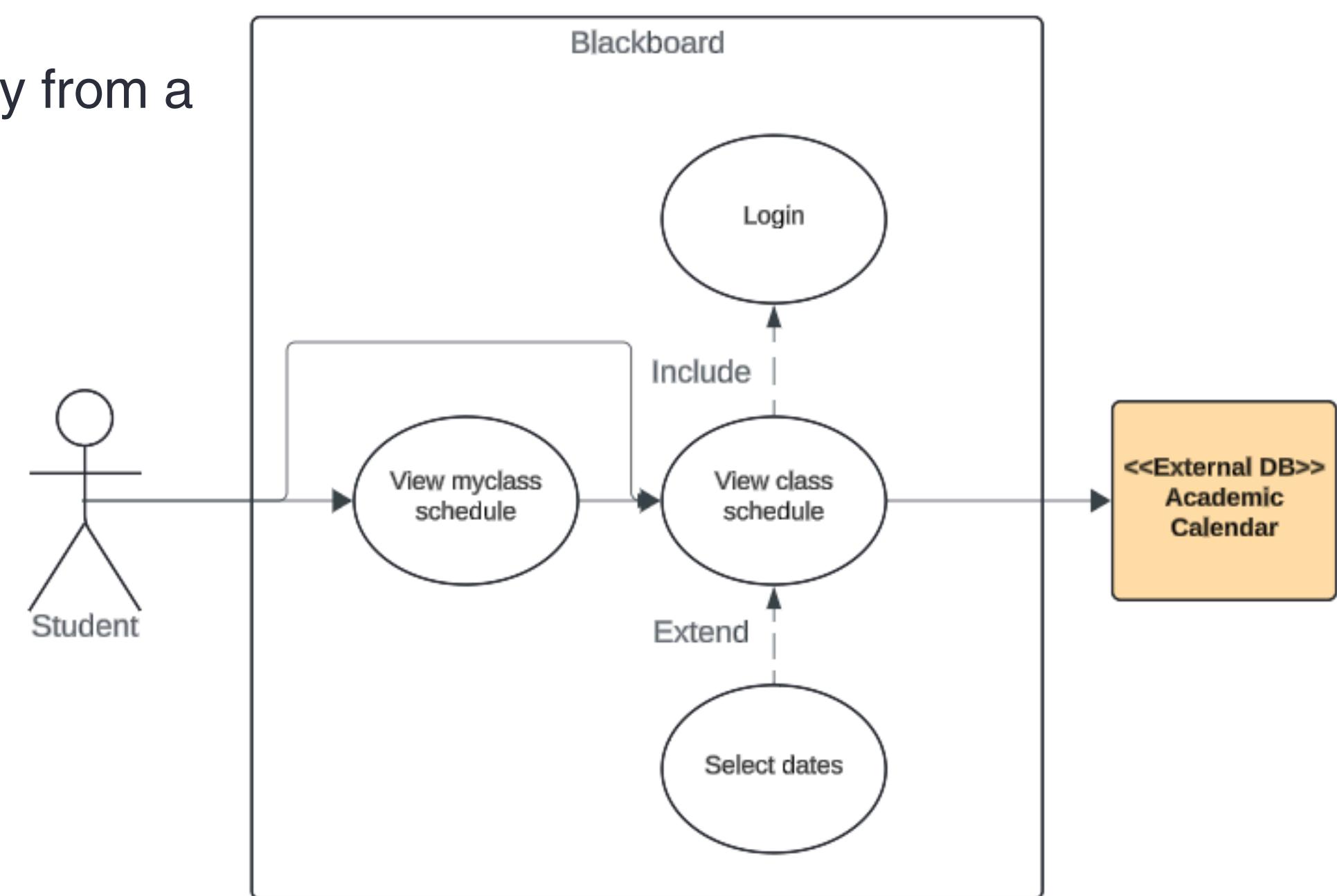


Use Case Relationships

Generalization Relationship

- Specialized use case inherits functionality from a generalized use case.
- Notation: Arrow with hollow arrowhead.

Generalization Example

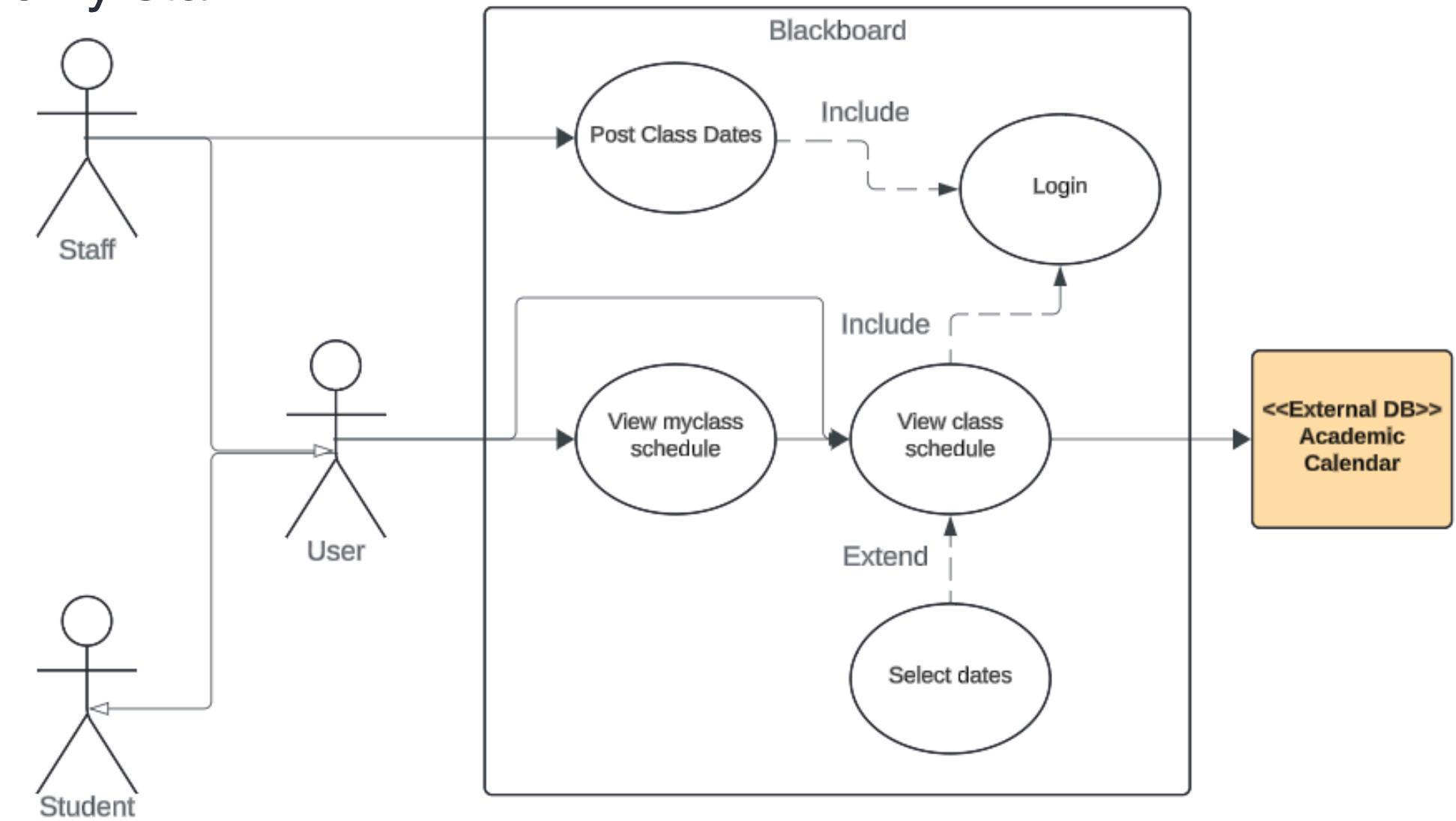


Use Case Relationships

Actor Associations

- Actors can have associations among themselves.
- Example: All users view event schedules; only staff can post events.

Actor Associations Example



Real-world examples

Real-world examples can enhance the understanding of use case diagrams. Let's incorporate some:

Online Shopping System:

- **Use Cases:**
 - “Browse Products”
 - “Add to Cart”
 - “Checkout”
 - “View Order History”
- **Actors:**
 - Customer (Primary)
 - Admin (Secondary)

Flight Booking System:

- **Use Cases:**
 - “Search Flights”
 - “Book Flight”
 - “Cancel Booking”
 - “Check-in”
- **Actors:**
 - Passenger (Primary)
 - Airline Staff (Secondary)

Real-world examples

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Library Management System:

- **Use Cases:**

- “Search Books”
- “Borrow Book”
- “Return Book”
- “Manage Inventory”

- **Actors:**

- Librarian (Primary)
- Member (Primary)



Summary and Q&A

1. What Are Use Case Diagrams?

- Visual representations of system functionality.
- Capture interactions between actors (users or external systems) and use cases (specific functionalities).

2. Elements in Use Case Diagrams:

- Use Cases: Represent specific tasks or goals.
- Actors: External entities interacting with the system.
- Associations: Connect actors to use cases.

3. Notations:

- Use case bubbles with descriptive titles (verb-noun combinations).
- Actors represented by bubbles or icons.
- Associations shown with arrows (primary and secondary roles).

4. Use Case Relationships:

- Include: Reusable functionality shared across use cases.
- Extend: Optional or additional behavior added to a base use case.
- Generalization: Specialized use cases inheriting from a generalized use case.

Thank You

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