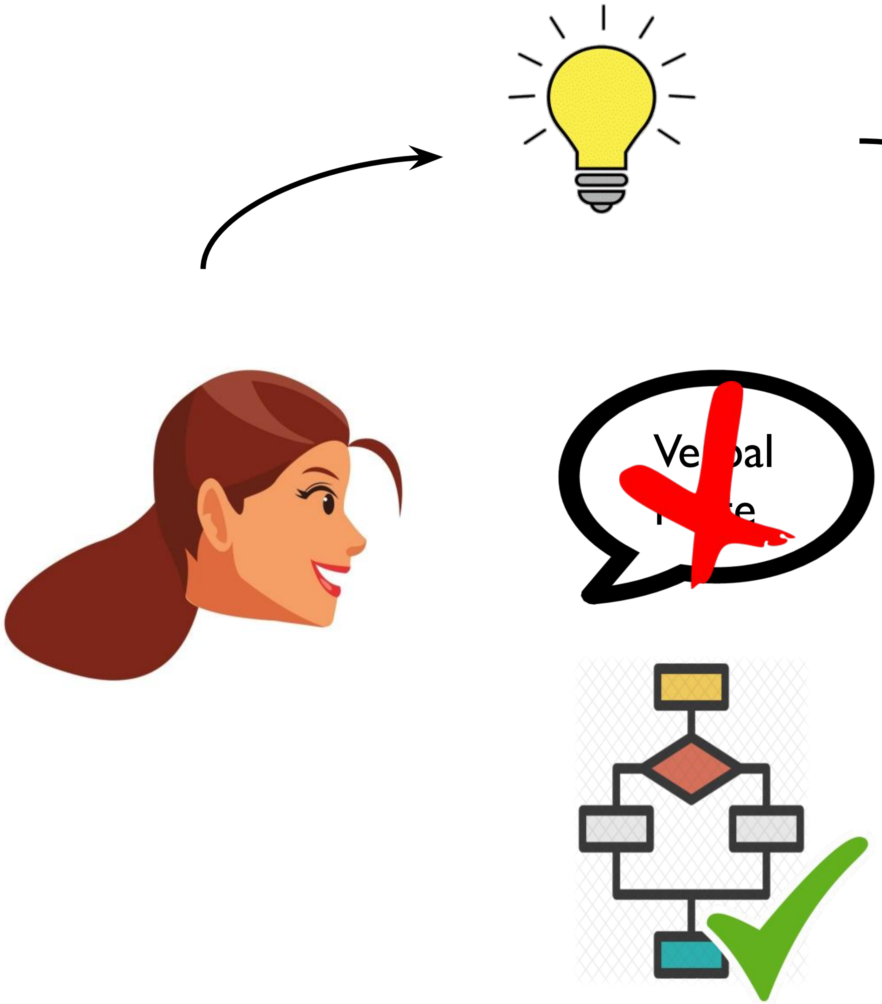
CSE 470 – Use Case Diagram

BRAC University



Diagram

What is a Use Case

- Its used as one of the ways of requirement gathering and refinement
- A scenario-based technique in the UML.
- A formal way of representing how a business system interacts with its environment Illustrates the activities that are performed by the users of the system
- A sequence of actions a system performs that yields a valuable result can be portrait in use case .

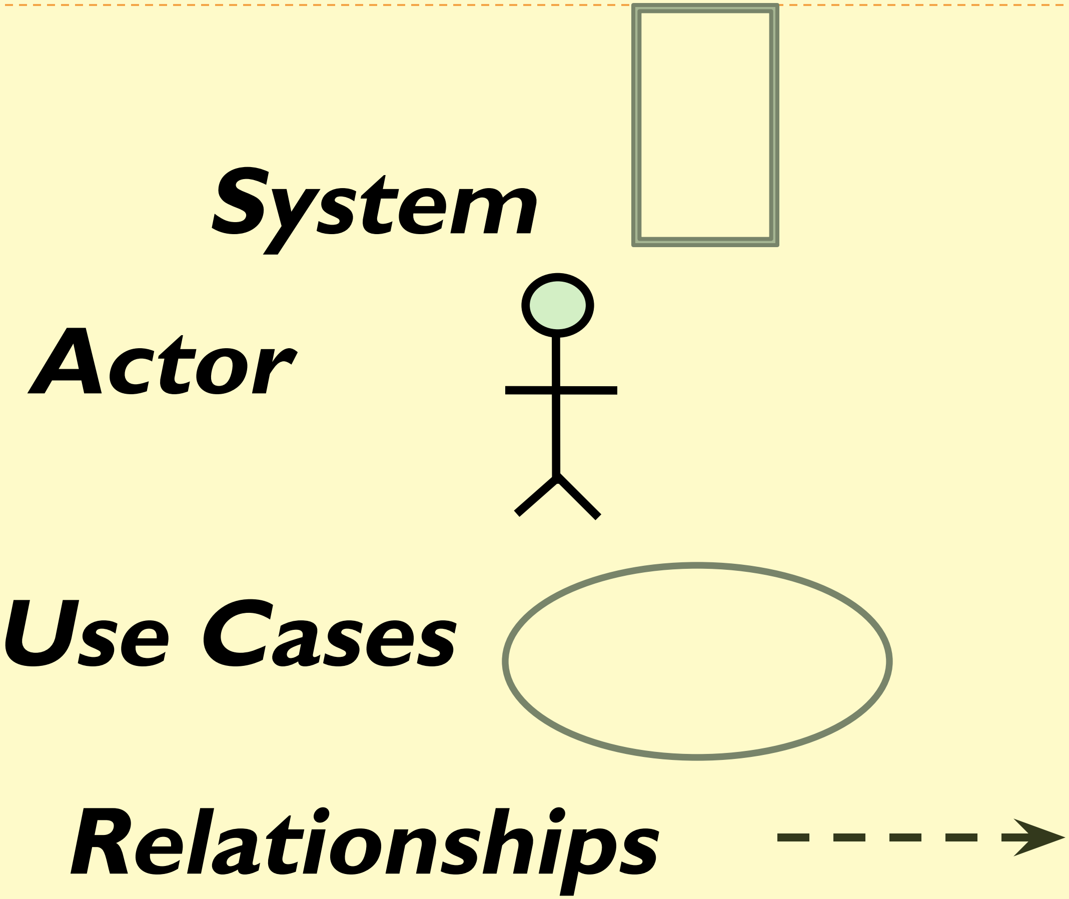
Scenario

Use case diagrams are closely connected to scenarios. A **scenario** is an example of what happens when someone interacts with the system

Sample Scenario

An appointment scheduling app is offered to the patients.A patient can log in to the system, search and make appointments. These appointments are set by management people of the doctors.The patients can also pay for the appointments through the app.

Use Case consists of 4 elements



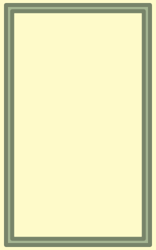
System

Actor

Use Cases

Relationships

System



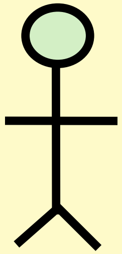
1. A system can be a website, app, game software etc.
2. It is shown with a boundary in the diagram
3. A boundary rectangle is placed around the perimeter of the system to show how the actors communicate with the system.

Appointment System

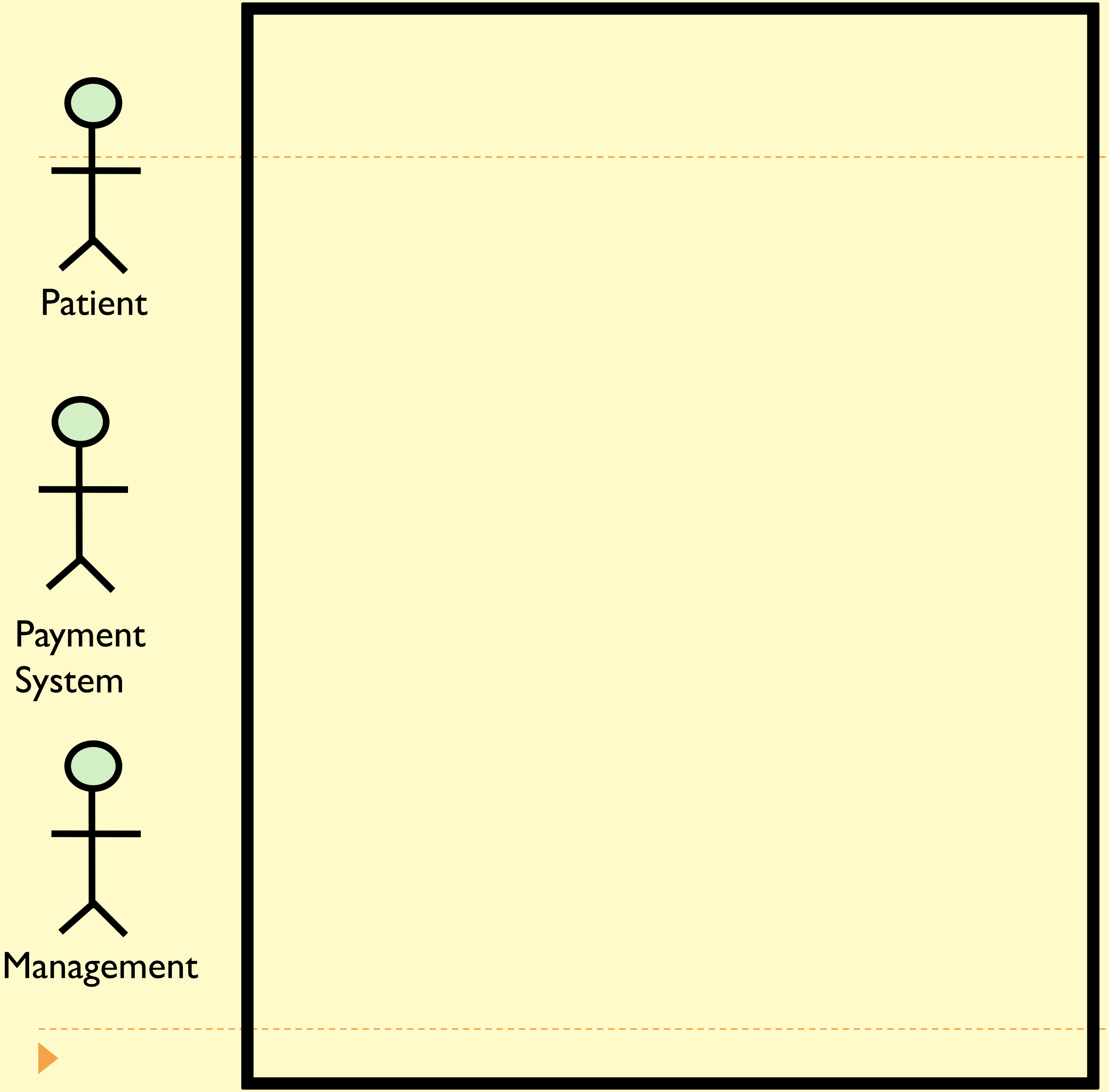
Actors

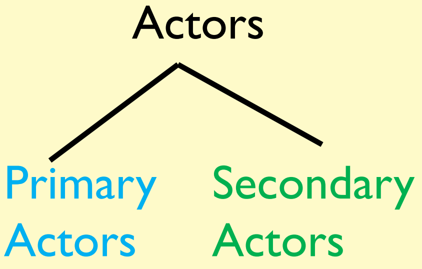
1. An Actor is outside or external the system.
2. It is Represented by stick figure
3. It is preferred to be named as a descriptive noun phrase
4. It can be a:

- Human
- Peripheral device (hardware)
- External system or subsystem
- Time or time-based event



~~Alex~~ Patient




Actors

Primary Actors

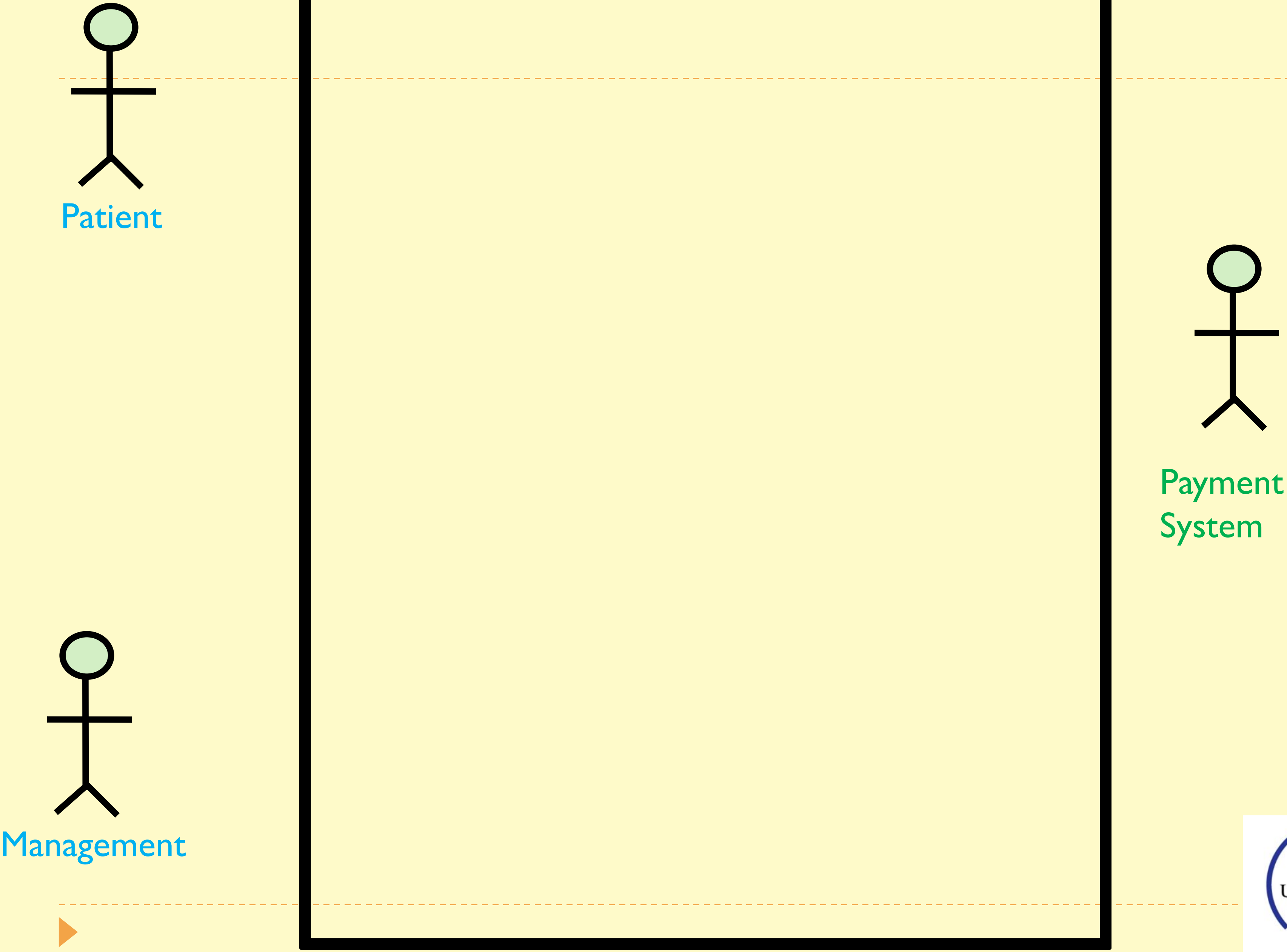
Secondary Actors

Primary Actors initiates the use case of the system.

Secondary Actors reacts to the use case of the system.

Primary Actors

Secondary Actors



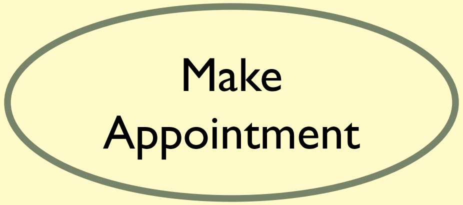
Patient

Management

Payment System

Use Cases

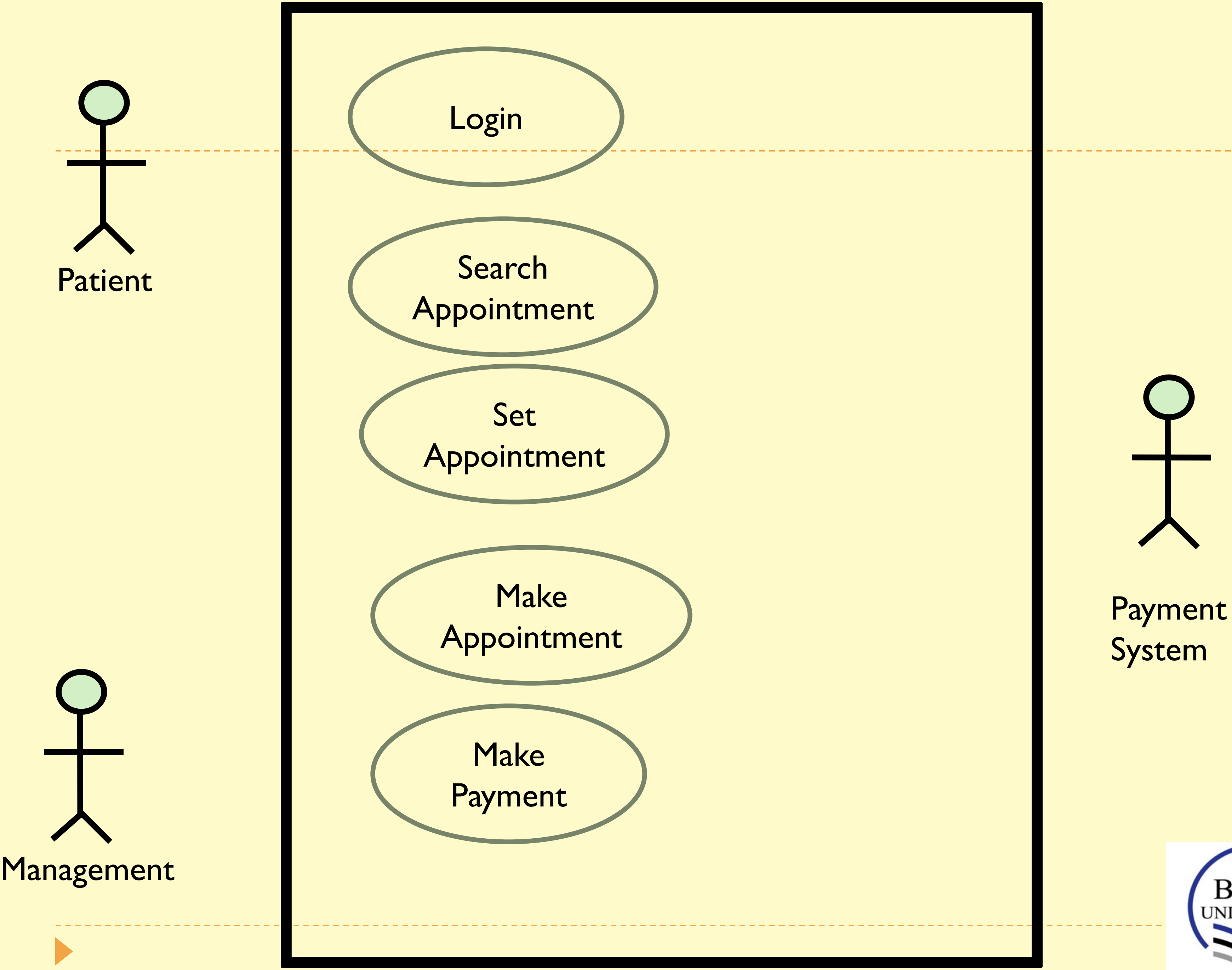
1. A use case represented by an oval shape.
2. It represents some action that accomplishes some task of the system
3. The tasks can be found from the user scenario, generally the verbs of the scenario represents the tasks to be completed.
4. Inside the oval shape we need to write the task it completes. Its preferred to write it in *Verb-Noun* format.



Make Appointment

Sample Scenario

*An appointment scheduling app is offered to the patients. A patient can **log in** to the system, **search** and **make appointments**. These appointments are **set** by management people of the doctors. The patients can also **pay** for the appointments through the app.*



Patient

Management

Login

Search Appointment

Set Appointment

Make Appointment

Make Payment

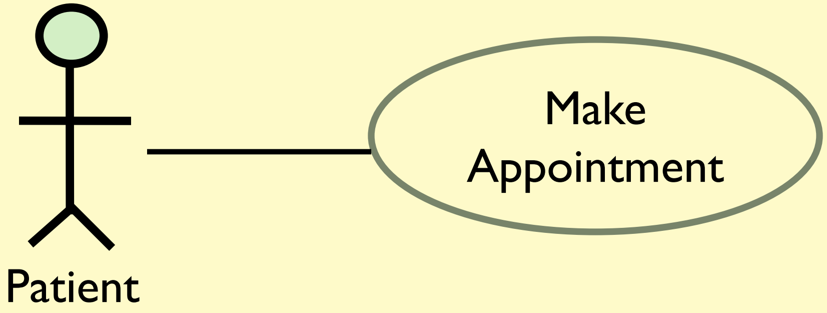
Payment System

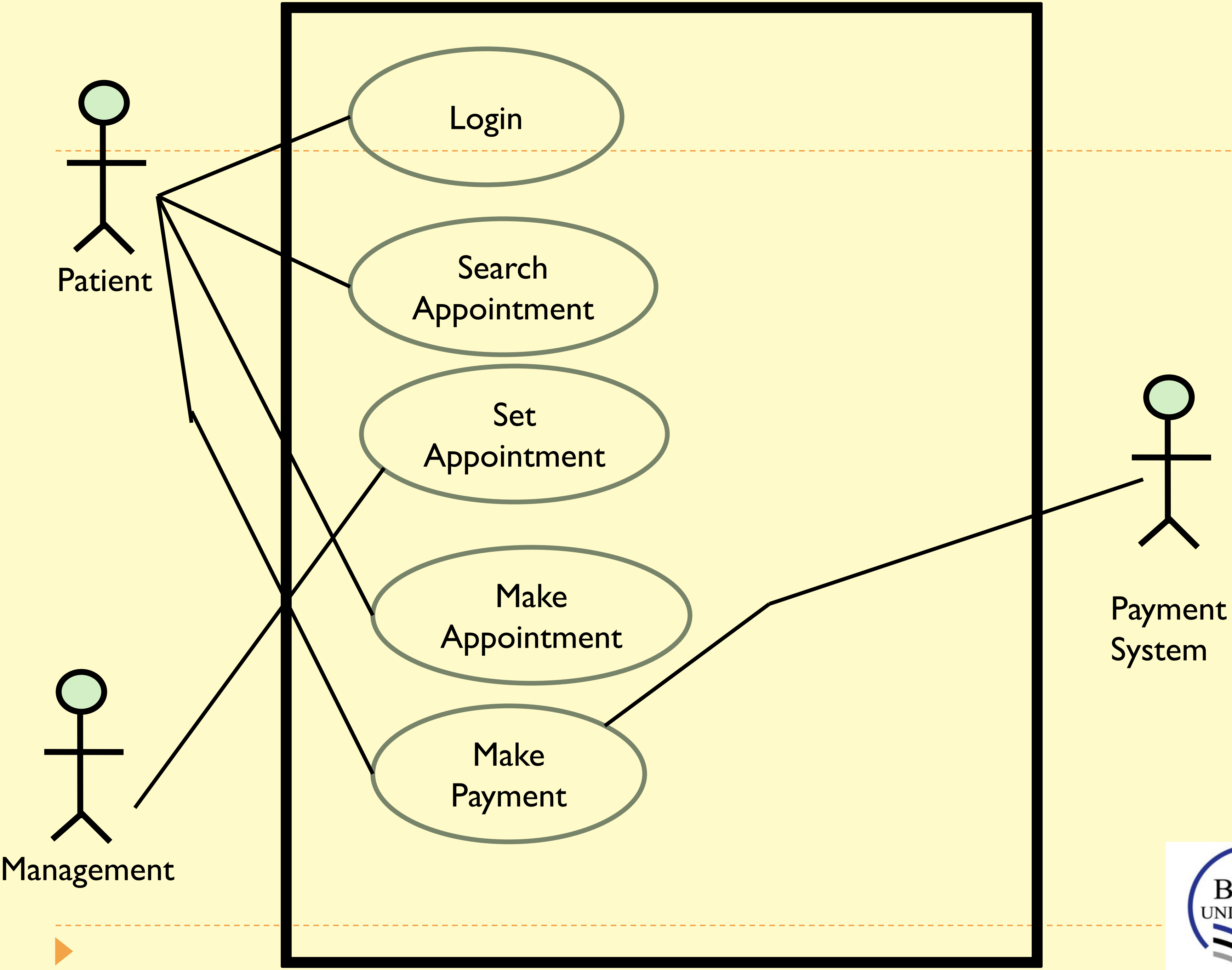
Relationships

1. It represents communication between actor and usecase OR usecase and usecase
2. Relationships are of 4 types
   - Association
   - Include
   - Extend
   - Generalization

Association

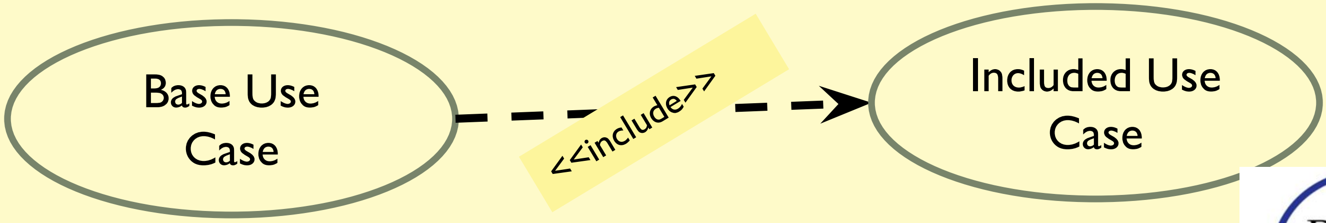
1. It signifies a basic communication or interaction between an actor and usecase.
2. For example, Patients makes appointment is an interaction in the system.
3. It is shown using a solid line between an actor and usecase.

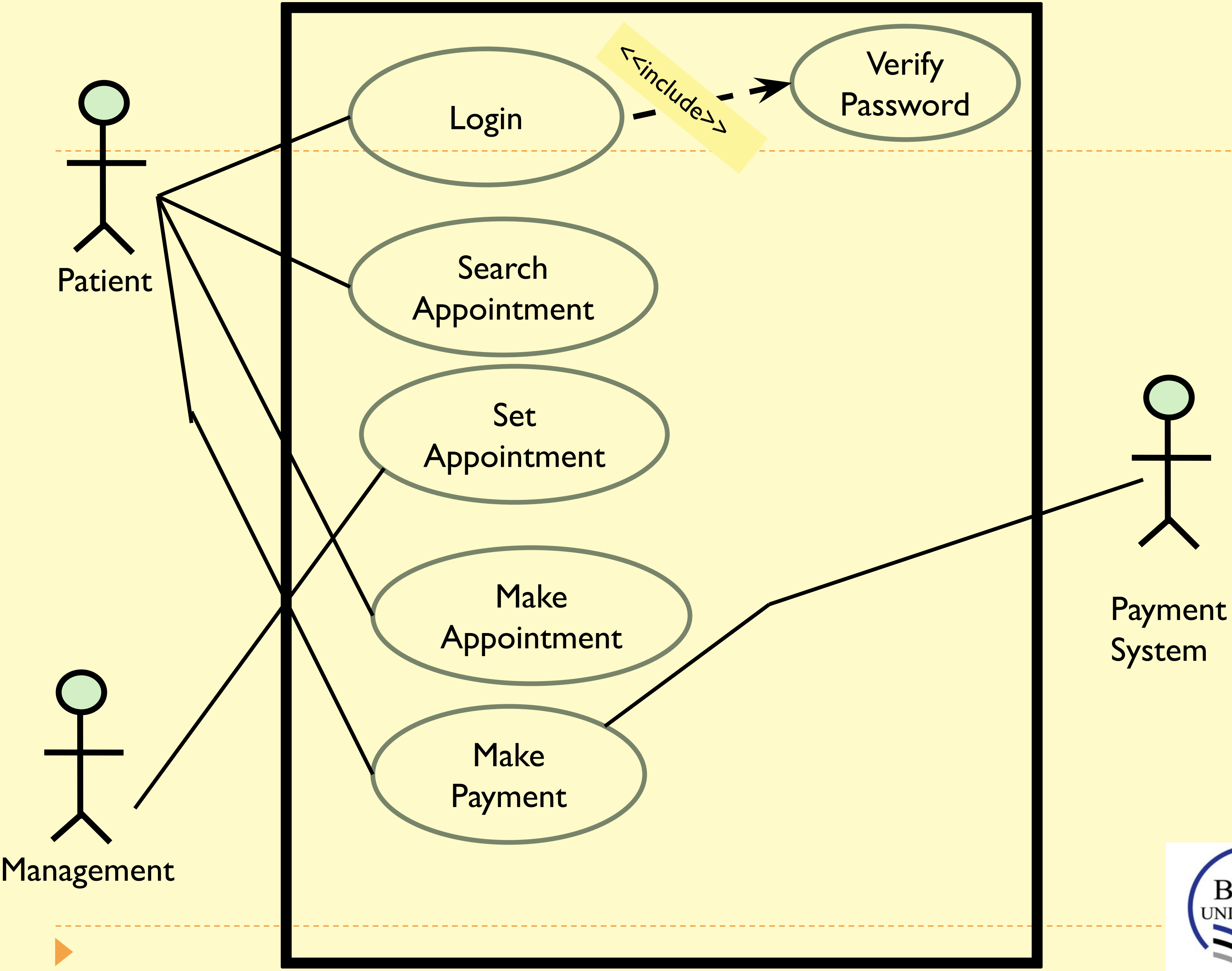



Login
Search Appointment
Set Appointment
Make Appointment
Make Payment
Patient
Management
Payment System

Include

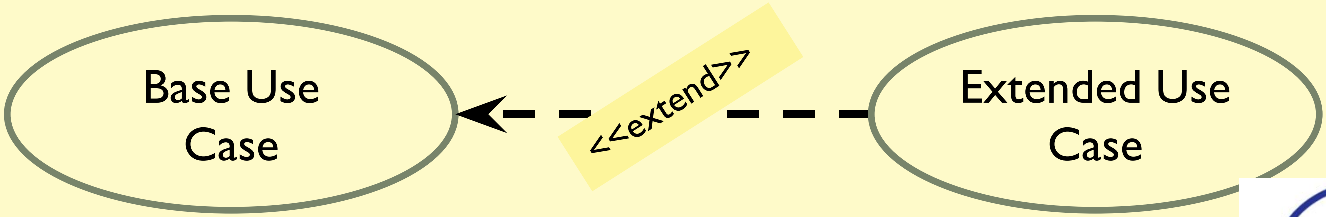
1. It shows dependency between a base use case and an included use case.
2. Every time the base use case is executed, the included usecase is also executed. In other words, the base use case needs the included use case to complete its task.
3. It is shown using a dashed arrow from the base use case to the included use case. The word "include" also needs to be written on the dashed arrow between double chevrons.

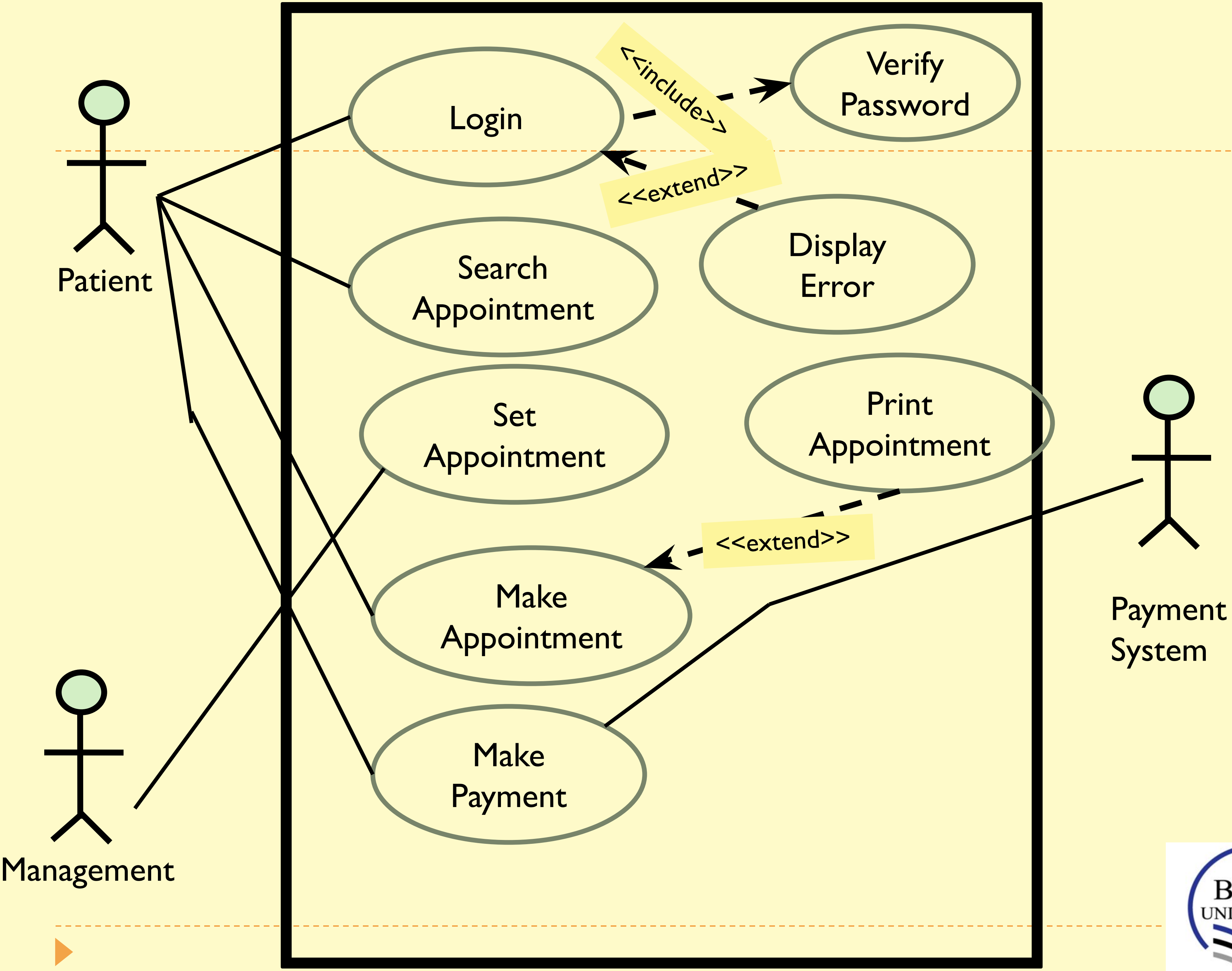



Patient
Login
<<include>>
Verify Password
Search Appointment
Set Appointment
Make Appointment
Make Payment
Payment System
Management

Extend

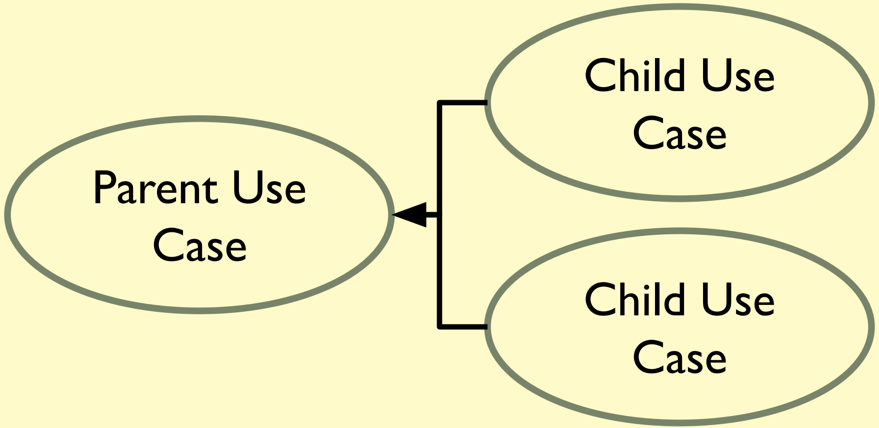
1. It shows extension of the base use case by an extended use case.
2. Every time the base use case is executed, its not mandatory to execute the extended use case. It may execute some times.
3. It is an extension of the behaviour of base use case.
4. It is shown using a dashed arrow to the base use case from the extended use case. The word "extend" also needs to be written on the dashed arrow between double chevrons.

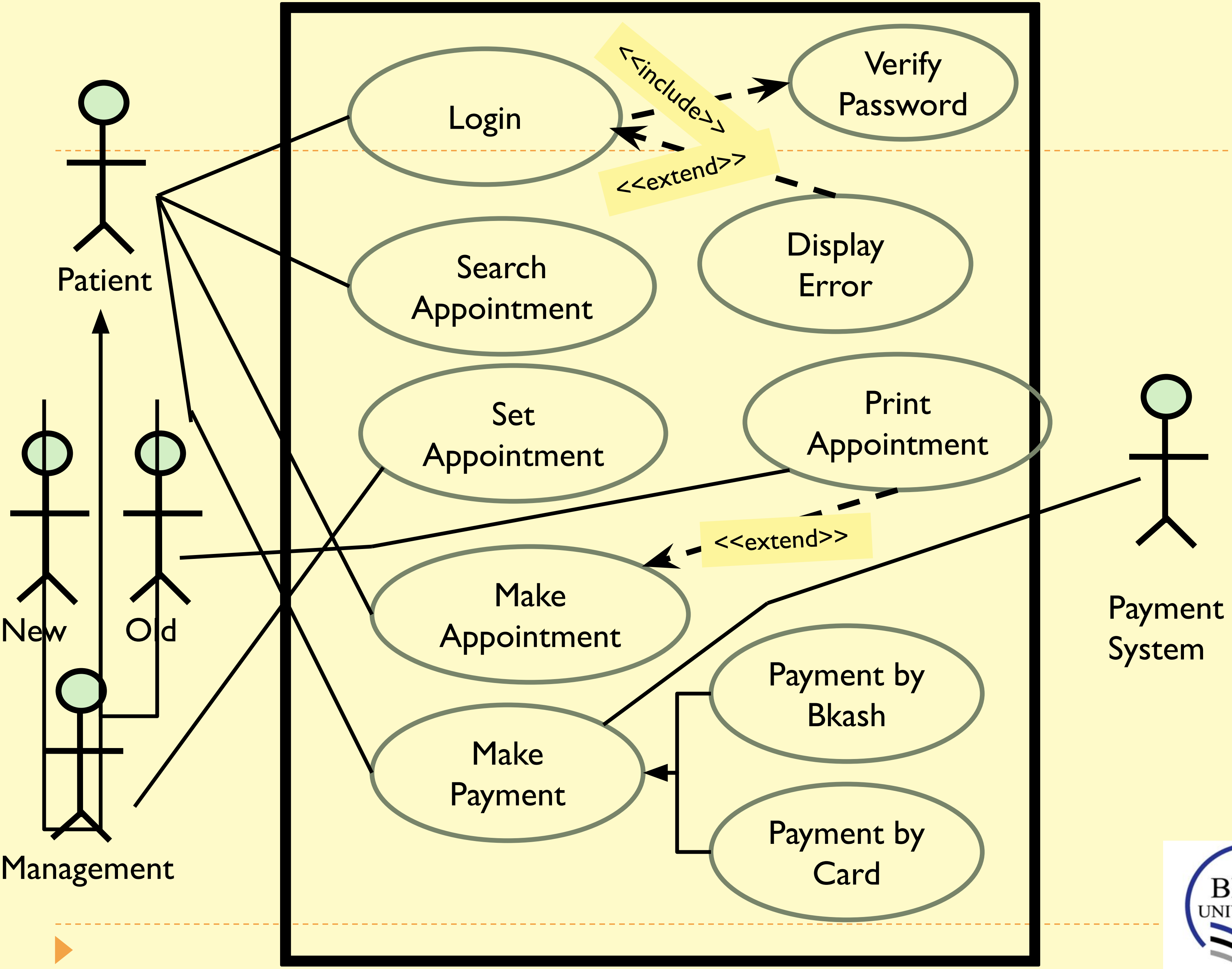



Patient
Management
Payment System
Login
Verify Password
<<include>>
<<extend>>
Display Error
Search Appointment
Set Appointment
Print Appointment
<<extend>>
Make Appointment
Make Payment

Generalization

1. A parent use case can be generalized by specific use cases
2. Specific use cases inherits the parent behaviour and also adds something new.
3. It is shown using a arrow to the parent use case from the child use cases.





Patient

New

Old

Management

Payment System

Login

Verify Password

<<include>>

<<extend>>

Display Error

Search Appointment

Set Appointment

Print Appointment

<<extend>>

Make Appointment

Make Payment

Payment by Bkash

Payment by Card