

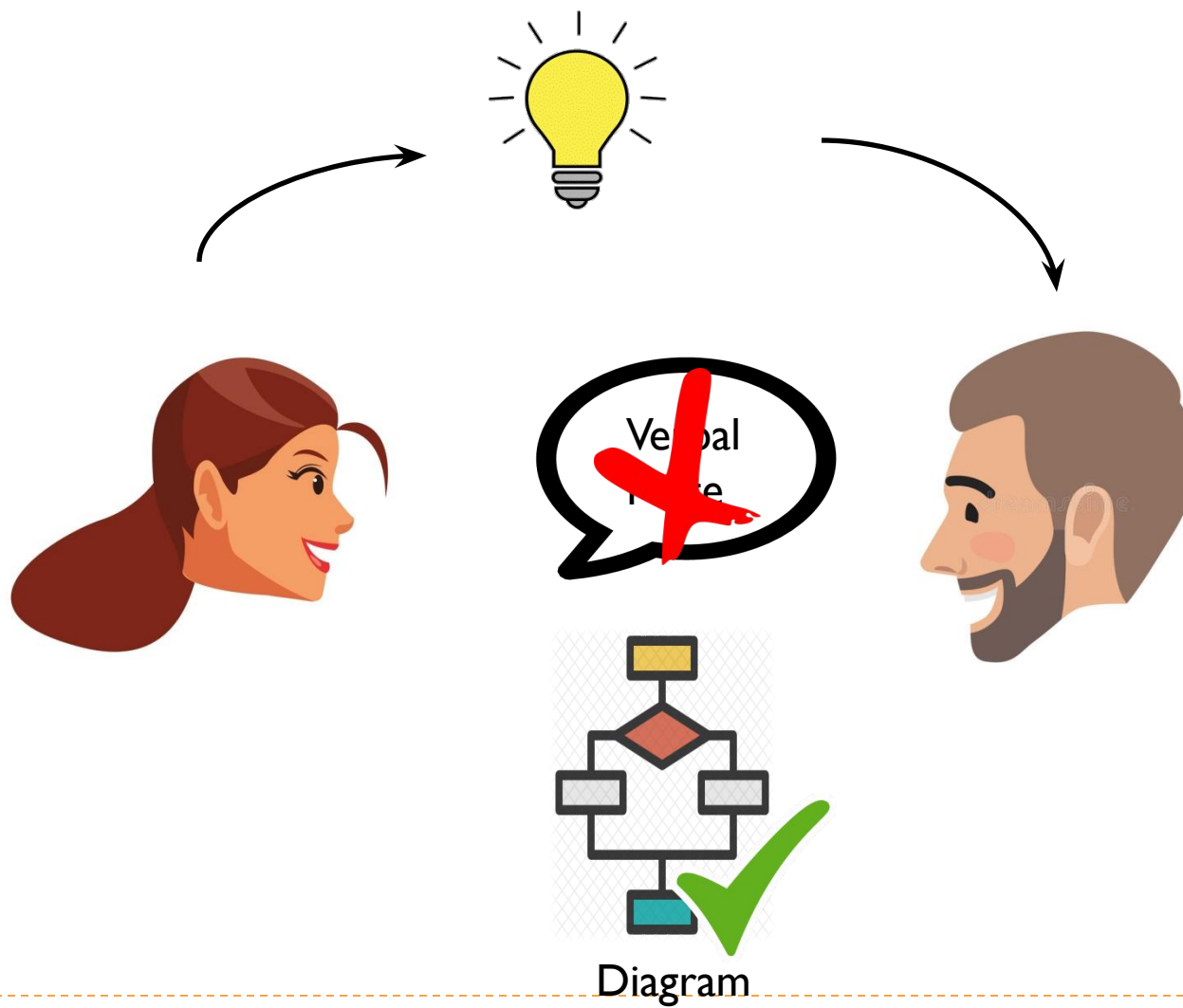
SOFTWARE ENGINEERING

CSE 470 – Use Case Diagram

BRAC University



Inspiring Excellence



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.

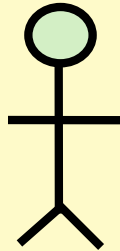


Use Case consists of 4 elements

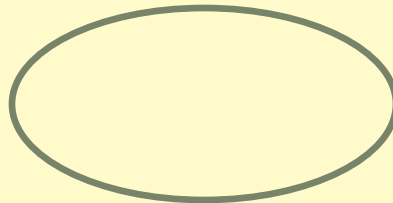
System



Actor



Use Cases



Relationships



System



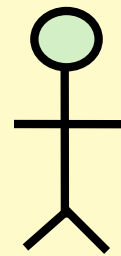
1. A system can be a website, app, game software etc.
2. It is shown with a boundary in the diagram
3. A boundary rectangle is placed around the perimeter of the system to show how the actors communicate with the system.

Appointment System

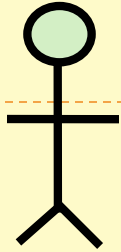


Actors

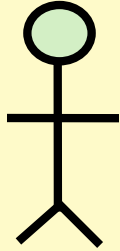
1. An Actor is outside or external the system.
2. It is Represented by stick figure
3. It is preferred to be named as a descriptive noun phrase
4. It can be a:
 - Human
 - Peripheral device (hardware)
 - External system or subsystem
 - Time or time-based event



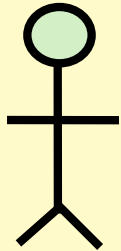
Alex Patient



Patient



Payment
System



Management

Actors

Primary
Actors

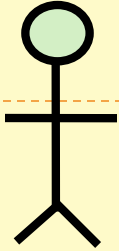
Secondary
Actors

Primary Actors
initiates the use case
of the system.

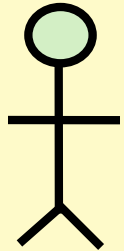
Secondary Actors
reacts to the use
case of the system.



Primary Actors

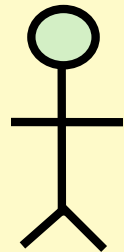


Patient



Management

Secondary Actors



Payment
System

Use Cases

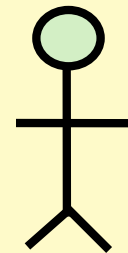
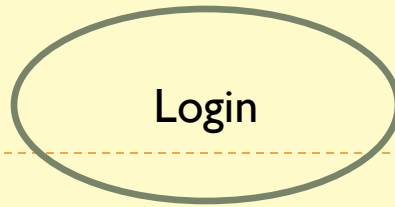
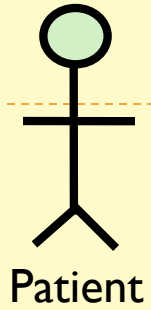
1. A use case represented by an oval shape.
2. It represents some action that accomplishes some task of the system
3. The tasks can be found from the user scenario, generally the verbs of the scenario represents the tasks to be completed.
4. Inside the oval shape we need to write the task it completes.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



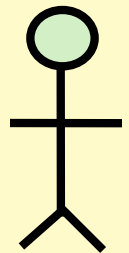
Sample Scenario

*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.*





Payment
System



Management

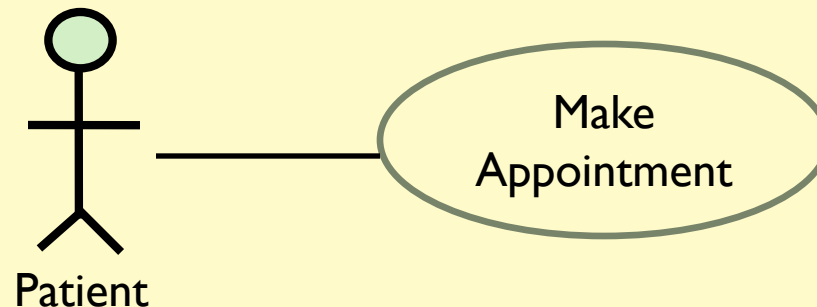


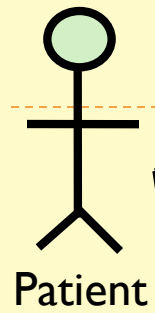
Relationships

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.





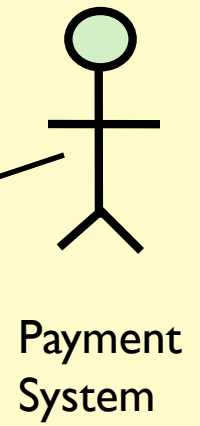
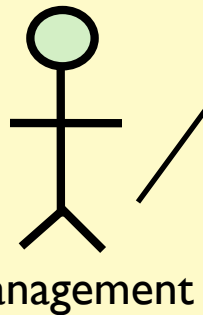
Login

Search
Appointment

Set
Appointment

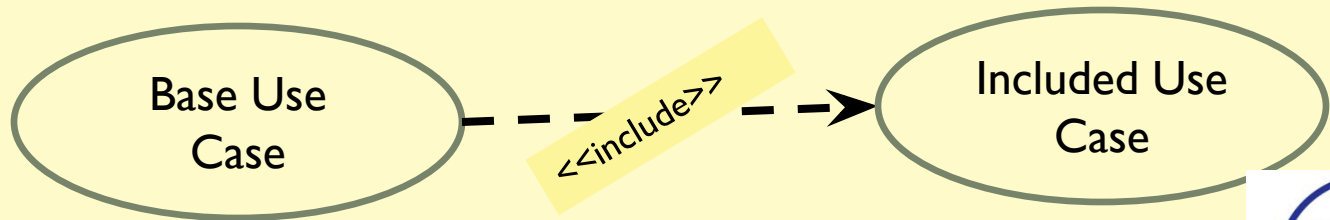
Make
Appointment

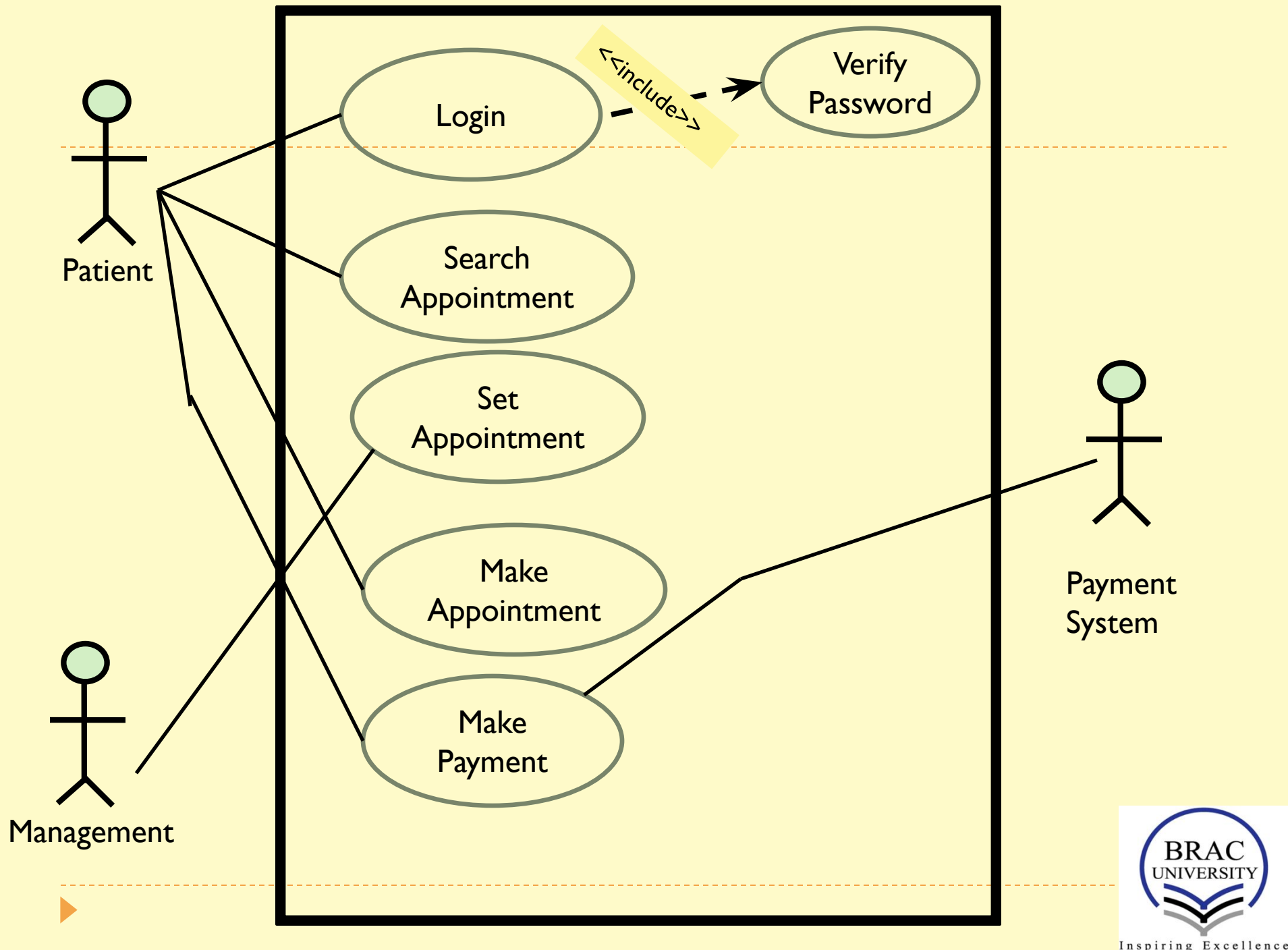
Make
Payment



Include

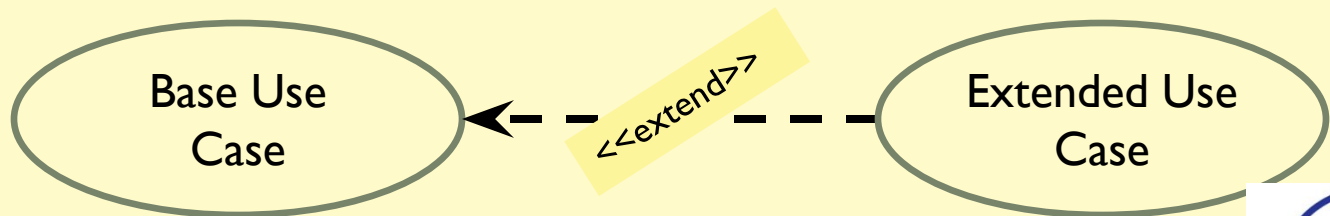
1. It shows dependency between a base use case and an included use case.
2. Every time the base use case is executed, the included usecase is also executed. In other words, the base use case needs the included use case to complete its task.
3. It is shown using a dashed arrow from the base use case to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

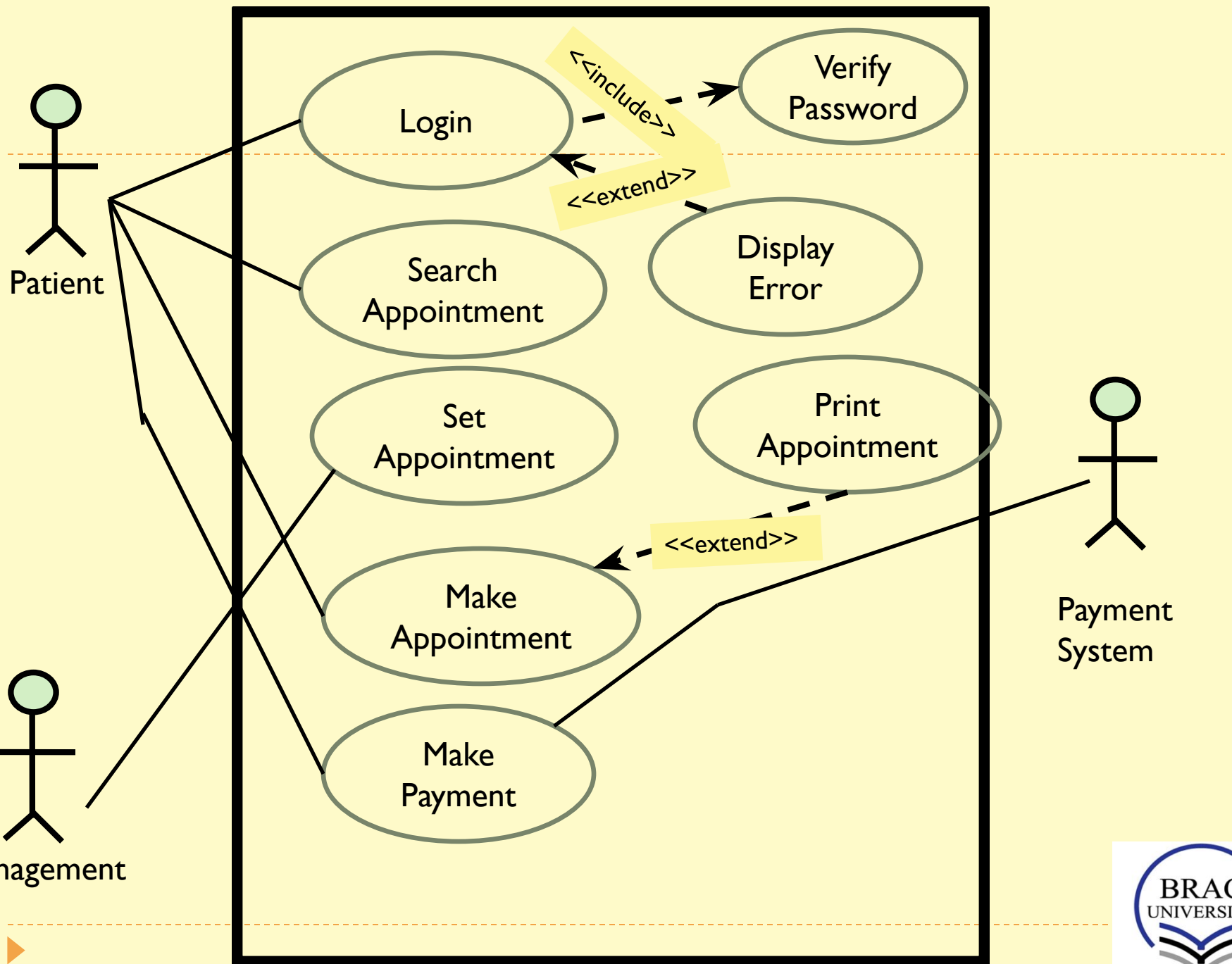




Extend

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.





Generalization

1. A parent use case can be generalized by specific use cases
2. Specific use cases inherit 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.

