System Modeling

Lecture # 23

Lecture by Engr. Sidra

Use Case Modeling

– Use cases were developed originally to support requirements elicitation and now incorporated into the UML.

– Each use case represents a discrete task that involves external interaction with a system.

– Actors in a use case may be people or other systems.

– Represented diagrammatically to provide an overview of the use case and in a more detailed textual form
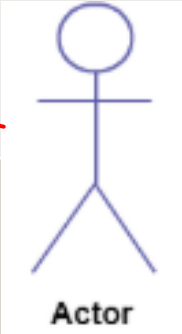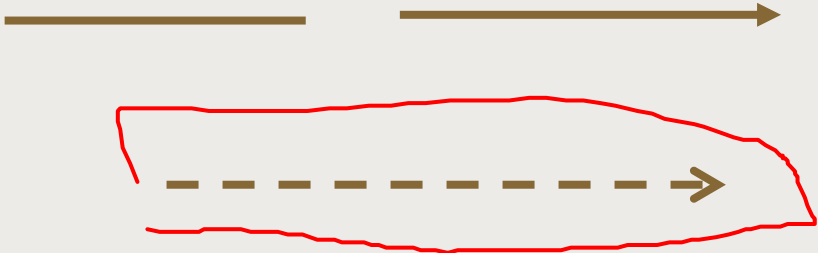
Transfer data Use-Case

Tabular Description of Transfer Data Use case

| MHC-PMS: Transfer data	
Actors	Medical receptionist, patient records system (PRS)
Description	A receptionist may transfer data from the MHC-PMS to a general patient record database that is maintained by a health authority. The information transferred may either be updated personal information (address, phone number, etc.) or a summary of the patient's diagnosis and treatment.
Data	Patient's personal information, treatment summary
Stimulus	User command issued by medical receptionist
Response	Confirmation that PRS has been updated
Comments	The receptionist must have appropriate security permissions to access the patient information and the PRS.

Use case Diagram

| Notations	Symbols
System: To define the scope of the use case and drawn as a rectangle. This an optional element.	System Name
Use Case: Represents a function or an action within the system.	use case
Actors: Any entity that performs a role in one given system. This could be a person, organization or an external system.	Actor
Relationship: There are five types of relationships in a use case diagram. • Association between an actor and a use case • Generalization of an actor • Extend relationship between two use cases • Include relationship between two use cases • Generalization of a use case	
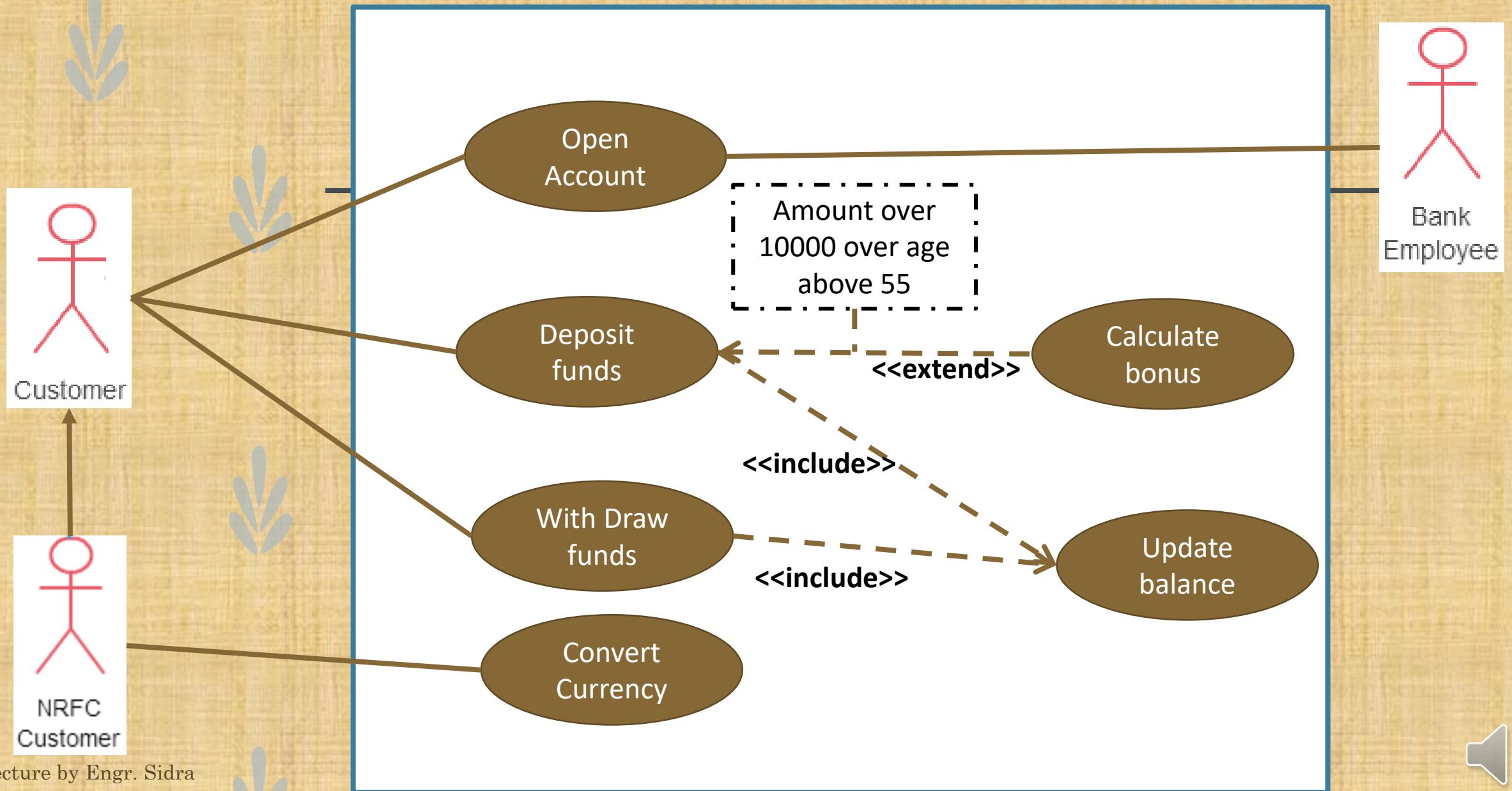
Sequence Diagrams

– Sequence diagrams are part of the UML and are used to model the interactions between the actors and the objects within a system.

– A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place.

– We can also use the terms event diagrams or event scenarios to refer to a sequence diagram.

– A sequence diagram shows the sequence of interactions that take place during a particular use case or use case instance.

– The objects and actors involved are listed along the top of the diagram, with a dotted line drawn vertically from these.

– Interactions between objects are indicated by annotated arrows.

Sequence Diagram (Registration)
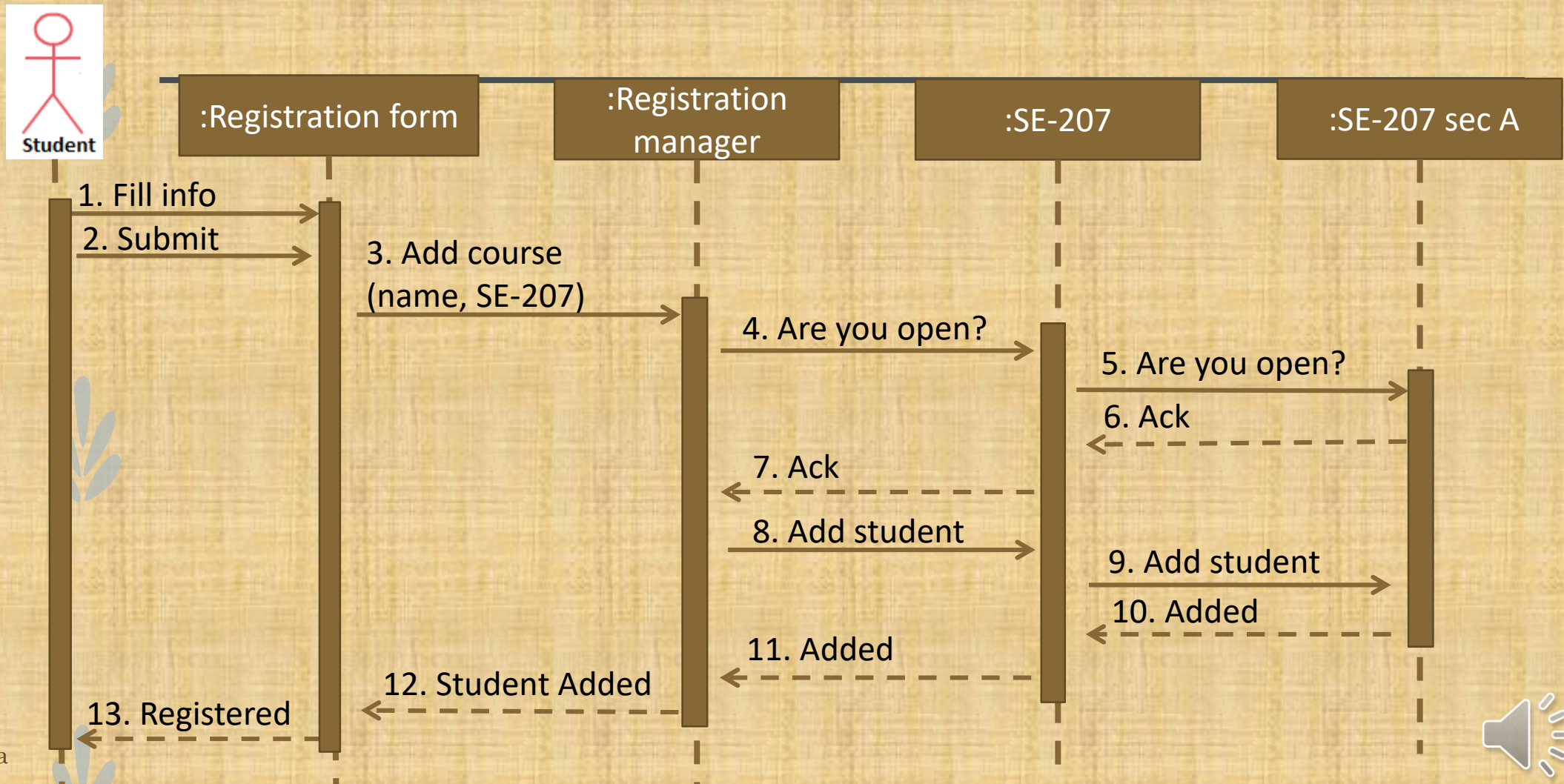
Sequence Diagram (To view Patient Information)