

Assignment 6

Title:

Prepare and implement the Sequence Model for NBA Attainment System.

Problem Statement:

- Prepare a Sequence Model. Identify at least 5 major scenarios (sequence flow) for the NBA Attainment System.
- Draw Sequence Diagram for every scenario by using advanced notations using UML2.0 Implement these scenarios by taking reference of design model implementation using a suitable object-oriented language.

Objective:

- To study and use communication.
- Draw sequence diagram
- To implement a sequence diagram.

Theory:

Sequence Diagrams:

A sequence diagram is a Unified Modeling Language (UML) diagram that illustrates the sequence of messages between objects in an interaction. a sequence diagram consists of a group of objects that are represented by lifelines and the messages that they exchange overtime during the interaction. A sequence diagram shows the sequence of messages passed between objects. Sequence diagrams can also show the control structures between objects.

The sequence diagram consists of the following Symbols:

Object Symbol:

Represents a class or object in UML. The object symbol demonstrates how an object will behave in the context of the system. Class attributes should not be listed in this shape.



Activation box:

Represents the time needed for an object to complete a task. The longer the task will take, the longer the activation box becomes.



Actor symbol:

Shows entities that interact with or are external to the system.

There are three actors in our system: HOD, Teacher, Subject Coordinator.

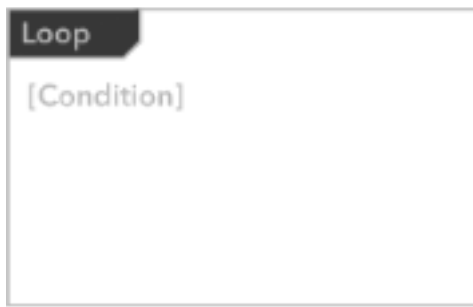


Option loop symbol:

Used to model if/then scenarios, i.e., a circumstance that will only occur under certain conditions.

In NBA Attainment system's diagram option loop symbol is used after validating that is if correct then perform condition 1 else condition 2.

They are used in various models to branch for condition where user input is valid.



Synchronous message symbol:

Represented by a solid line with a solid arrowhead. This symbol is used when the sender must wait for a response to a message before it continues. The diagram should show both the call and the reply.



Asynchronous message symbol:

Represented by a solid line with a lined arrowhead. Asynchronous messages don't require a response before the sender continues. Only the call should be included in the diagram.



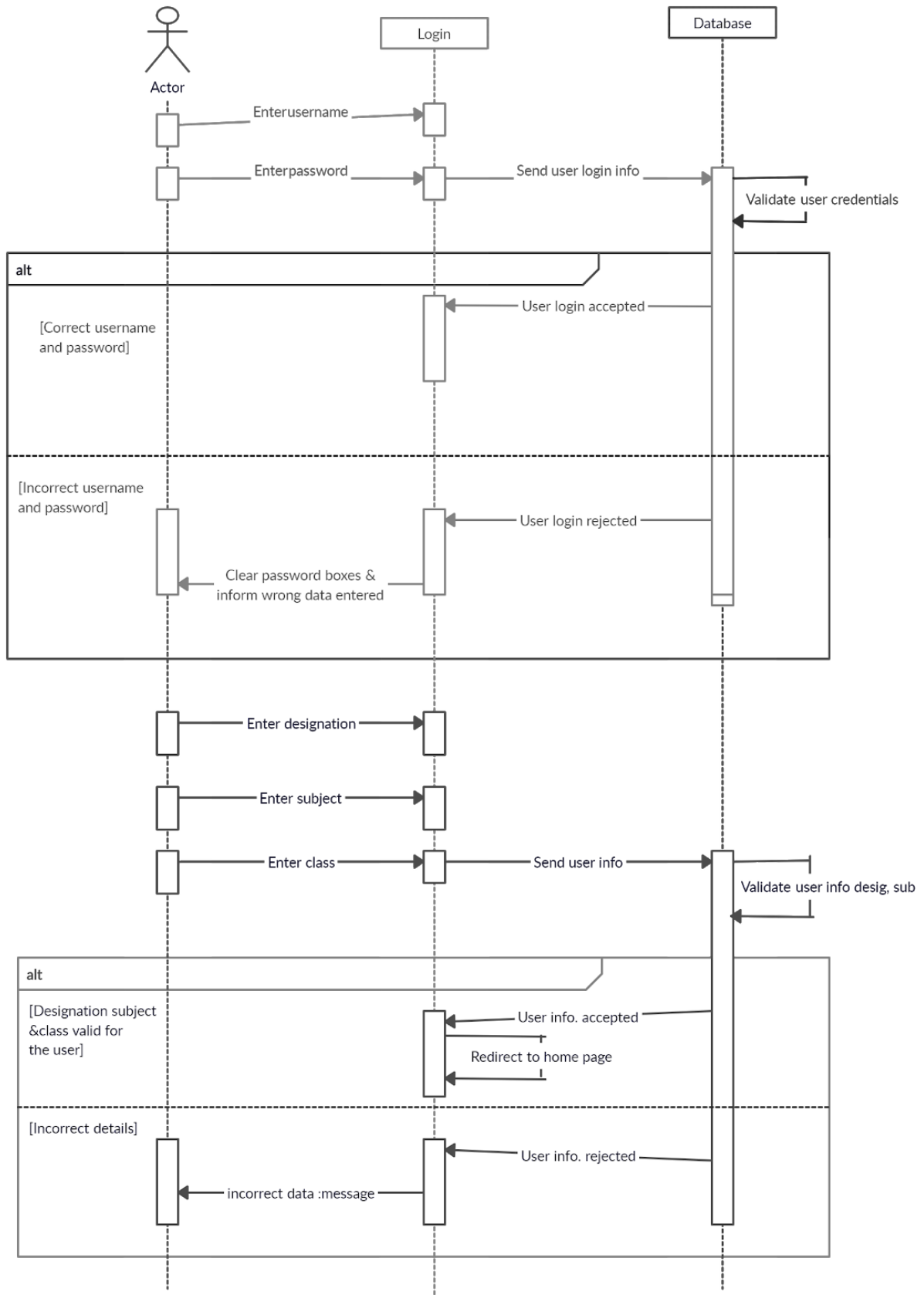
Asynchronous return message symbol:

Represented by a dashed line with a lined arrowhead.



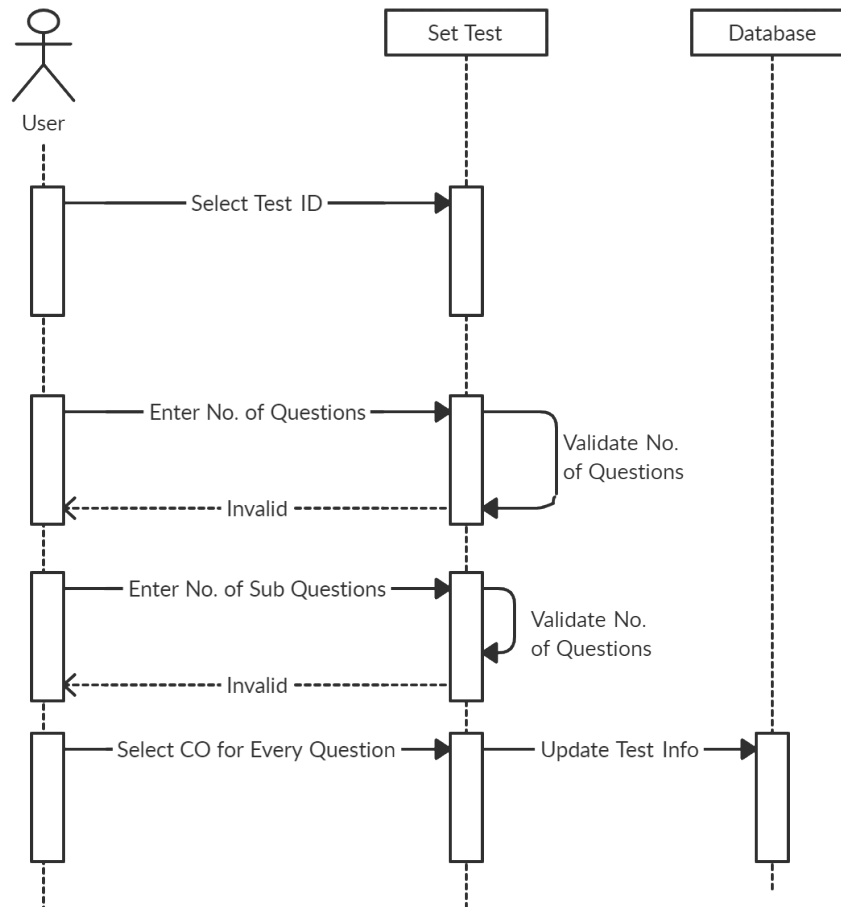
USE CASE 1: LOGIN

This use case has an actor, who deals with 2 objects viz. Login page and database. Several messages are being passed amongst the objects throughout the entire lifetime.



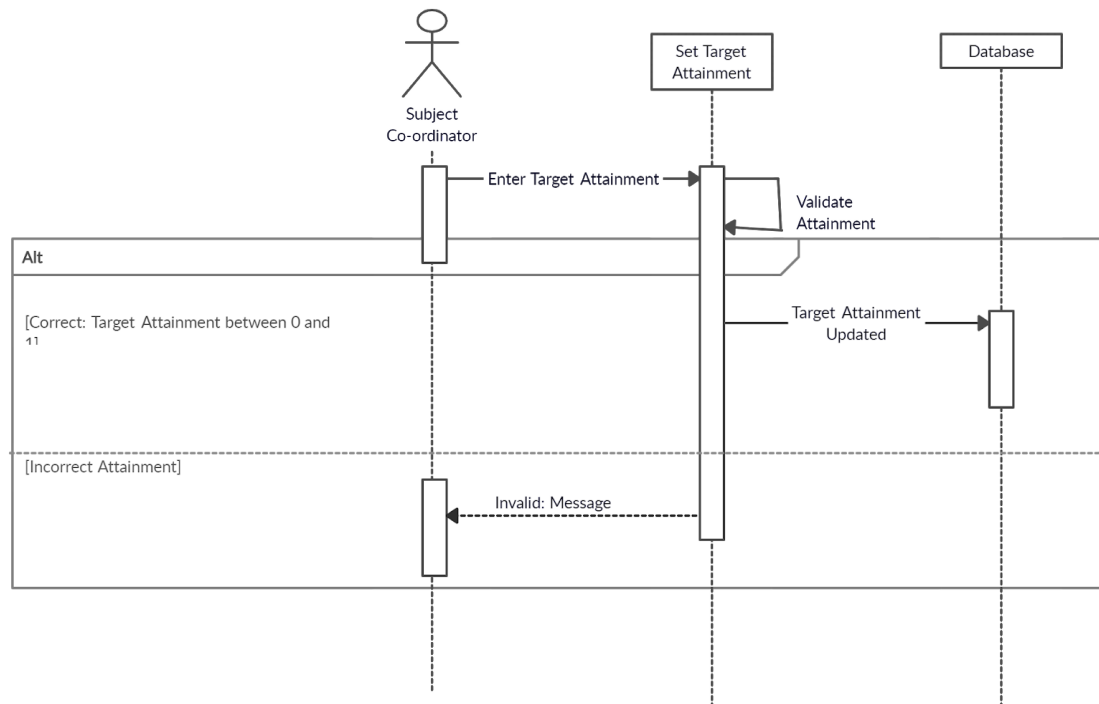
USE CASE 2: SET TEST

This use case has an actor, who deals with 2 objects viz. set test and DBMS. Several messages are being passed from the activation box amongst the objects throughout the entire lifetime.



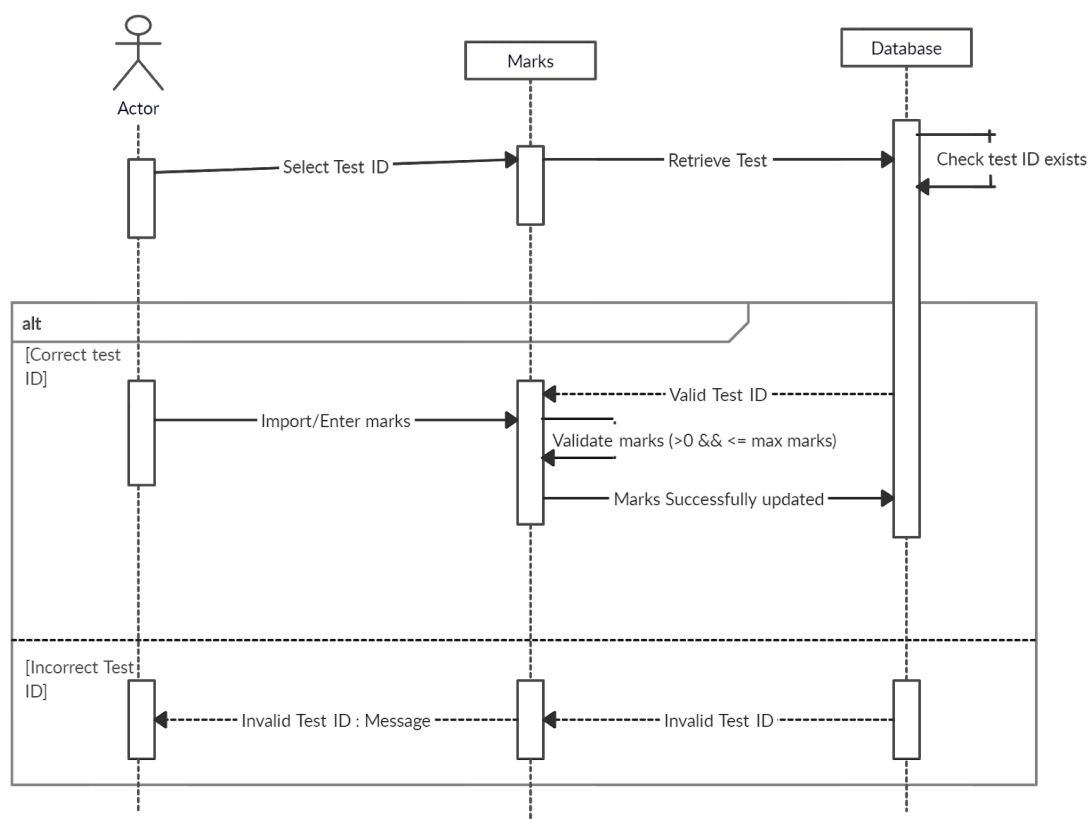
USE CASE 3: SET TARGET ATTAINMENT

This use case has an actor, who deals with 2 objects viz. set target and the database. Many messages are being passed from the activation box amongst the objects throughout the entire lifetime. There is also a 'validate' self message and option loop symbol to branch for validation of login.

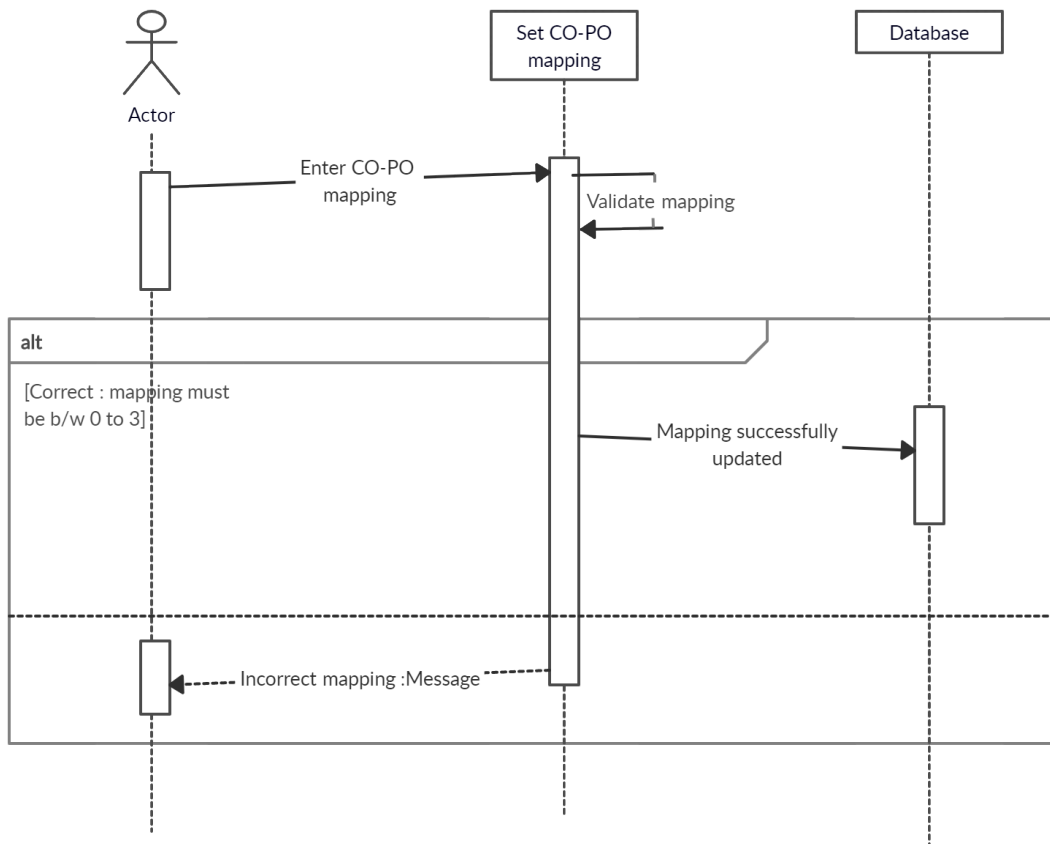


USE CASE 4: ENTER MARKS

This use case has an actor, who deals with 2 objects viz. enter marks and database. Several messages are being passed from the activation box amongst the objects throughout the entire lifetime.



USE CASE 5: CO-PO mapping



Conclusion:

Thus we have identified 5 major scenarios and prepared the sequence diagram for every scenario for the NBA Attainment System.