Experiment 6 : Sketch Sequence & Collaboration Diagram for a Learning Management System

Aim: To Sketch Sequence & Collaboration Diagram for a Learning Management System

Theory: A sequence diagram is a type of interaction diagram that visualizes the interactions between objects or components in a system in a time-ordered sequence. It is a powerful tool in software development for understanding the flow of messages, calls, or events between different parts of a system.

Components and Objects:

- Sequence diagrams typically represent the interactions between various components or objects within a system.
- Components or objects are represented by rectangular boxes, often labeled with their names or roles.

Lifelines:

- Each component or object in a sequence diagram is represented by a lifeline, which is a vertical dashed line extending downwards from the component's or object's box.
- Lifelines represent the lifespan or existence of the corresponding component or object during the execution of the sequence.

Messages:

- Messages represent interactions or communications between components or objects in the system.
- Messages are depicted by horizontal arrows or lines between lifelines.
- Messages may be synchronous, asynchronous, or recursive, depending on whether they block the sender until a response is received, proceed without waiting for a response, or involve a component calling itself, respectively.
- Synchronous messages are represented by solid arrows, while asynchronous messages are represented by dashed arrows.

Activation Bars:

- Activation bars, also known as execution occurrences, represent the period during which a component or object is actively processing a message.
- Activation bars are drawn as boxes or rectangles on the lifeline corresponding to the component or object.
- They indicate the duration of time spent processing a particular message.

Return Messages:

- Return messages are used to indicate the flow of control back to the sender after a message has been processed.
- They are represented by arrows or lines from the receiver back to the sender.

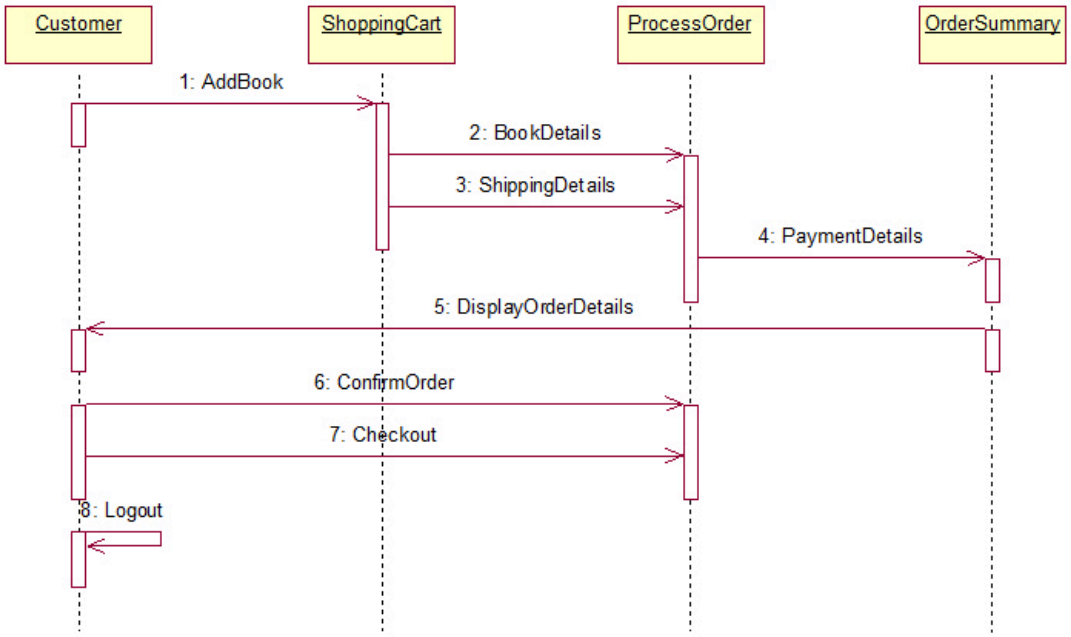
Constraints and Conditions:

- Sequence diagrams may also include constraints, conditions, or annotations to provide additional information about the interactions, such as loop conditions, guard conditions, or timing constraints.

Interaction Frames:

- Interaction frames, also known as combined fragments, allow developers to represent alternative or concurrent behaviors within a sequence diagram.
- Interaction frames are used to model conditional branching, iteration, parallelism, or other complex interaction patterns.

Sequence diagram:



A collaboration diagram, also known as a communication diagram, is a type of interaction diagram that illustrates the interactions and relationships between objects or components in a system. It emphasizes the structural organization of objects and the messages exchanged between them to accomplish a particular task or scenario.

Objects and Links:

- Collaboration diagrams depict objects as nodes or symbols representing various entities within the system.
- Objects are interconnected by links or lines that represent communication pathways or relationships between them.

- Links may be directional or bidirectional, indicating the flow of messages or information between objects.

Messages:

- Messages represent interactions or communications between objects in the system.
- Messages are depicted as arrows or lines between objects, indicating the direction of communication.
- Messages may be synchronous or asynchronous, depending on whether they require an immediate response or proceed without waiting for a response, respectively.
- Synchronous messages are represented by solid arrows, while asynchronous messages are represented by dashed arrows.

Roles and Instances:

- Collaboration diagrams may include the notion of roles and instances to differentiate between the types and instances of objects participating in the interaction.
- Roles represent abstract classifications or categories of objects, while instances represent specific occurrences or instantiations of objects.
- Roles are often depicted as labels or stereotypes attached to objects, indicating their role or function within the system.

Association Links:

- Association links represent relationships or associations between objects in the system.
- They indicate that objects are related or connected in some way, such as through containment, dependency, inheritance, or aggregation.
- Association links are depicted as lines or connectors between objects, often labeled with the type of association or the nature of the relationship.

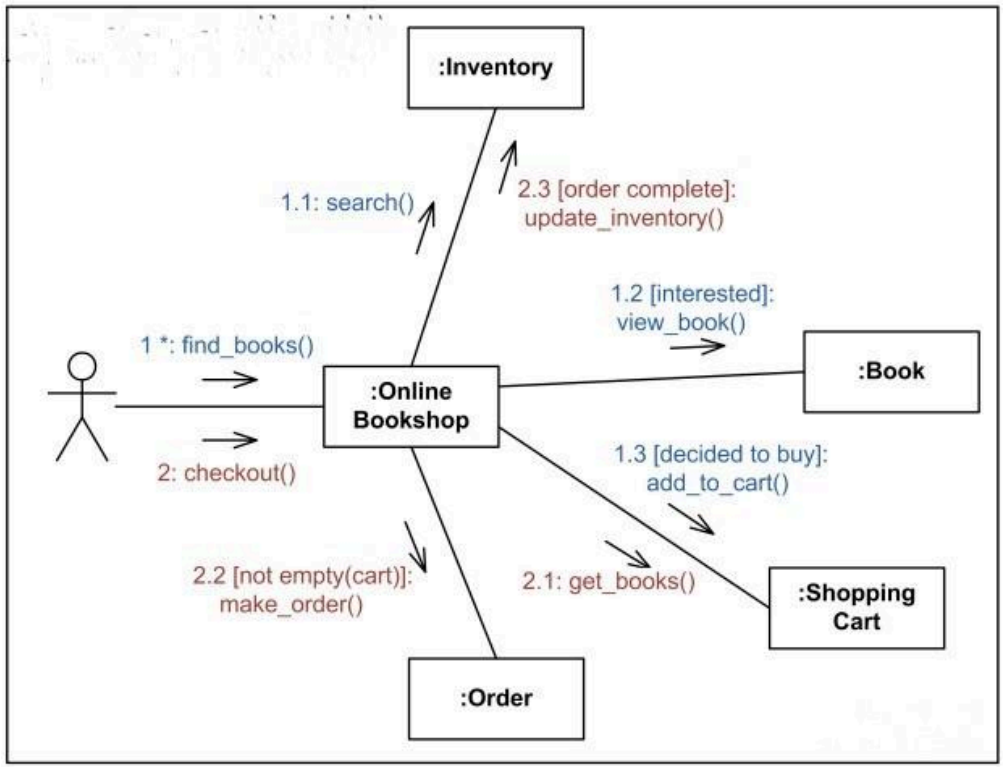
Multiplicity:

- Multiplicity is used to specify the cardinality or number of instances of one object that can be associated with another object.
- It indicates whether the association between objects is one-to-one, one-to-many, many-to-one, or many-to-many.
- Multiplicity constraints are often indicated near the association links using notation such as "1..*" or "0..1".

Self-Association:

- Self-association occurs when an object is associated with itself, either directly or indirectly.
- It represents relationships or interactions within an object's own context or state.
- Self-association is depicted as a loop or line connecting an object to itself.

Collaboration Diagram:



Conclusion:

For Faculty Use

Correction Parameters	Formative Assessment [40%]	Timely completion of Practical [40%]	Attendance / Learning Attitude [20%]	
Marks Obtained				