

Information System Design

IT60105

Lecture 17

Collaboration Diagrams

Lecture #17

- What is a Collaboration diagram?
- Basic components in any Collaboration diagram and their notations
- Sequence diagram vs. Collaboration diagram

Interaction Diagrams

- Interaction diagrams model how groups of objects collaborate in some behavior
- There are two types of interaction diagrams
 - Sequence diagrams
 - Collaboration (also known as Communication) diagrams

Collaboration Diagram

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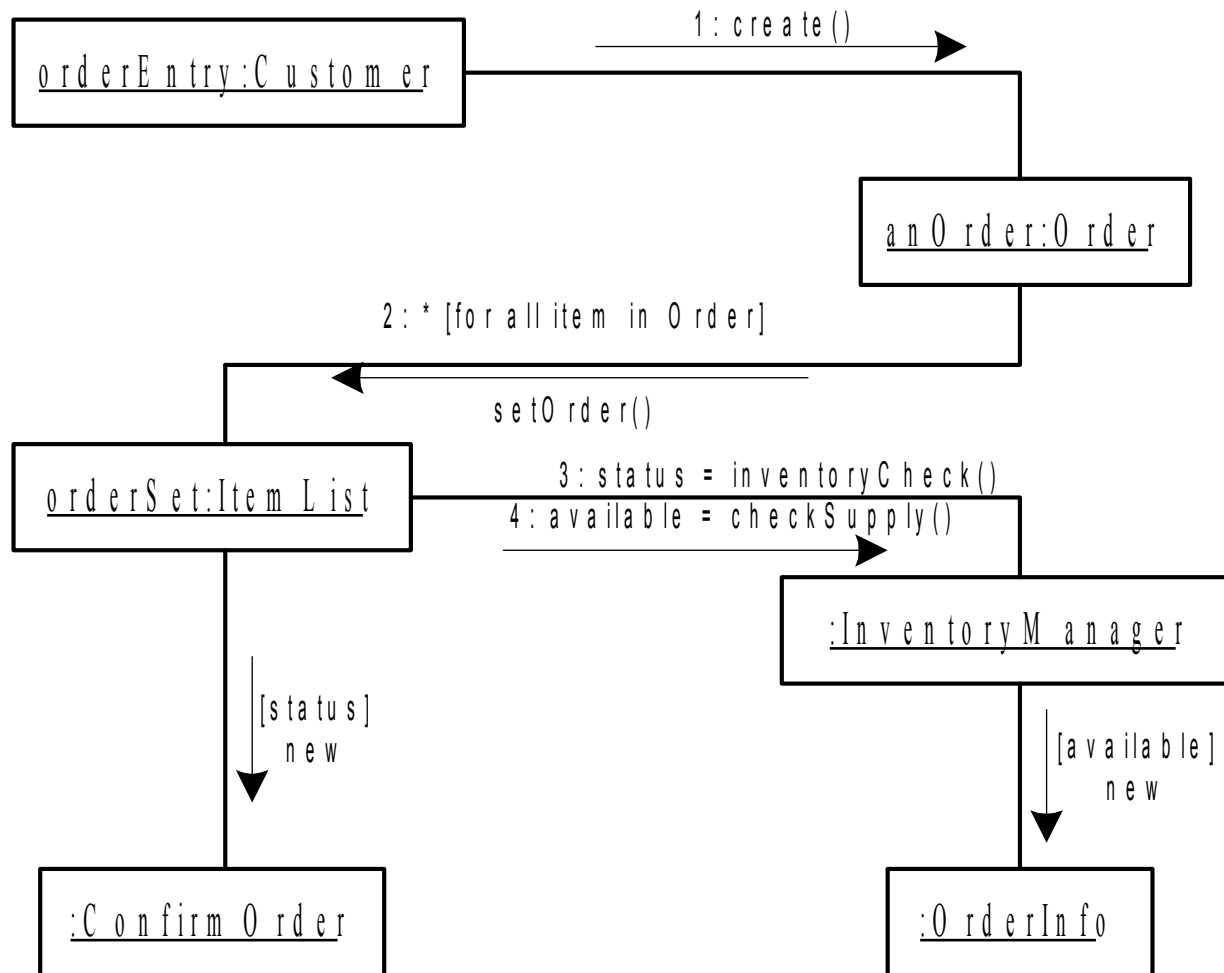
What is a Collaboration Diagram

- The second form of the interaction diagram is the collaboration diagram
- A collaboration diagram shows both the structural and behavioral aspects, explicitly.
 - The structural aspect of a collaboration diagram consists of object and the links existing between them
 - The behavioral aspect is described by a set of messages exchanged among the different collaborations
- In the collaboration diagram, an object is also called **collaborator**

Basic of Collaboration Diagram

- A collaboration diagram contains the following things:
 - Objects drawn as rectangles
 - Links between the objects shown as lines connecting as lines connecting the linked objects
 - Messages shown as text and an arrow that points from a client object to a respondent object
- Let us consider an example of a collaboration diagram in Process Order use case of the OLP system

Example: Collaboration Diagram



Note: Collaboration Diagram

- In collaboration diagram, the sequence indicated by numbering the messages
- Here, we have used the simple numbering scheme. The UML also allows decimal scheme [as in DFD] to document the hierarchical messaging
- Example ??

Sequence Diagram vs. Collaboration Diagrams

- There are two basic features by which Sequence diagram differs from the Collaboration diagram
 - Object life time
 - In sequence diagram, there is a object line represent the existence of an object over a period of time. There is no object life time in collaboration diagram
 - Focus of control
 - In sequence diagram, there is the focus of control to show the period of time during which object is performing an action. There is no focus of control in collaboration diagram

Sequence Diagram vs. Collaboration Diagrams

- Sequence diagram provides a way to look at scenario in a time based order – what happen after what etc. Customer easily can read and understand this type of diagram. Hence, they are very useful in the early analysis phases as well as in coding phase
- Collaboration diagram tend to provide the big picture for a scenario since the collaborations are organized around the object links to one another. These diagrams seem to be used more in the design phase of development

Problems to Ponder

- Obtain sequence diagrams for the following
 - Heap sort
 - Binary Search
 - Dining Philosophers problem
 - Tower of Hanoi problem
 - “Login Verification” procedure
 - All use cases in OLP
- Given a sequence diagram draw a collaboration diagram and vice-versa