

Activity Diagrams

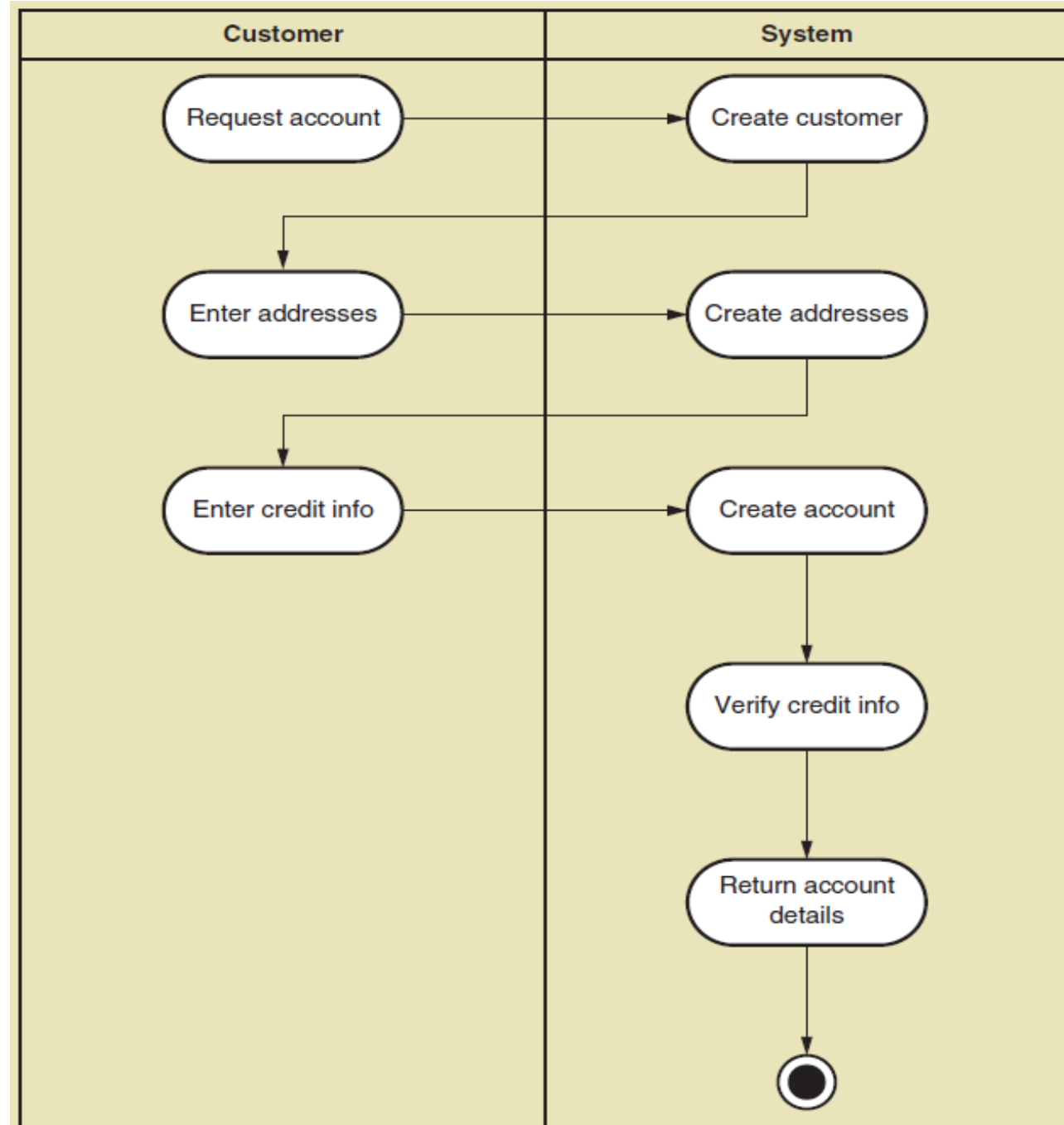
Activity Diagrams

- Used to document **workflow** of business process activities for **each use case** or scenario
- Standard UML 2.0 diagram
- Can support any level of use case description; a supplement to use case descriptions
- Helpful in developing system sequence diagrams

UML Activity Diagram for Use Case

Create Customer Account

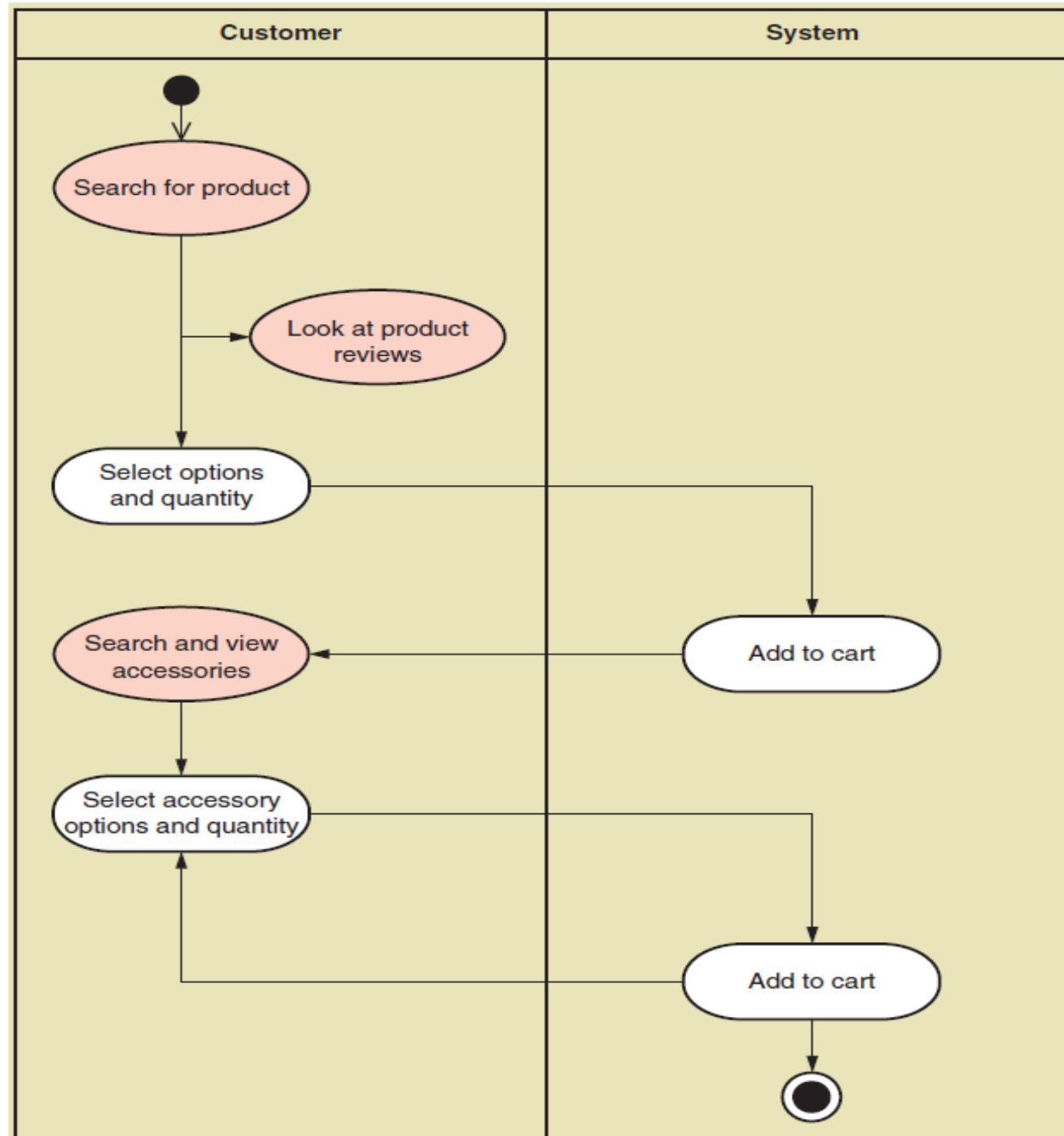
Note: this
shows flow of
activities only



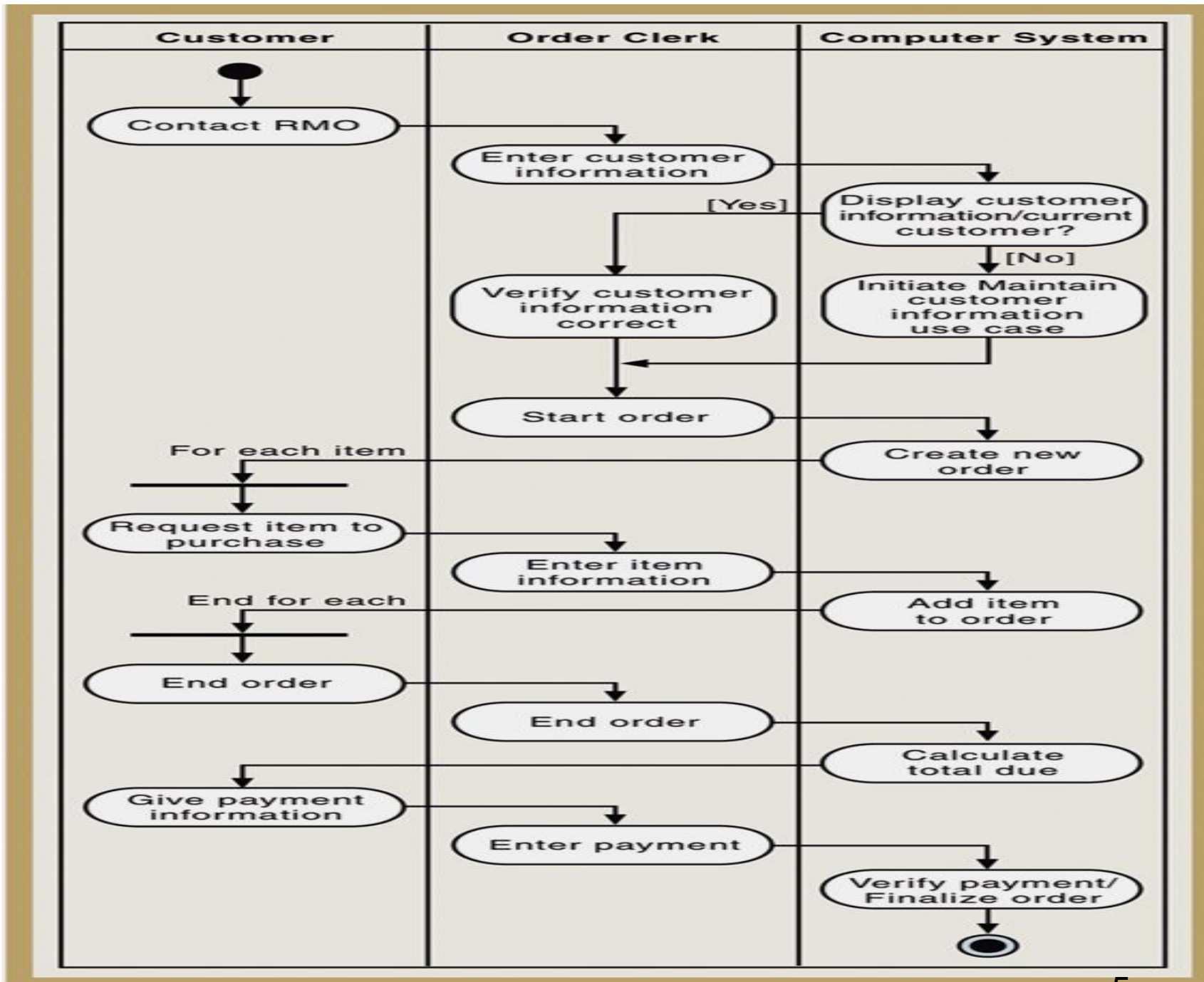
UML Activity Diagram for Use Case

Fill shopping cart

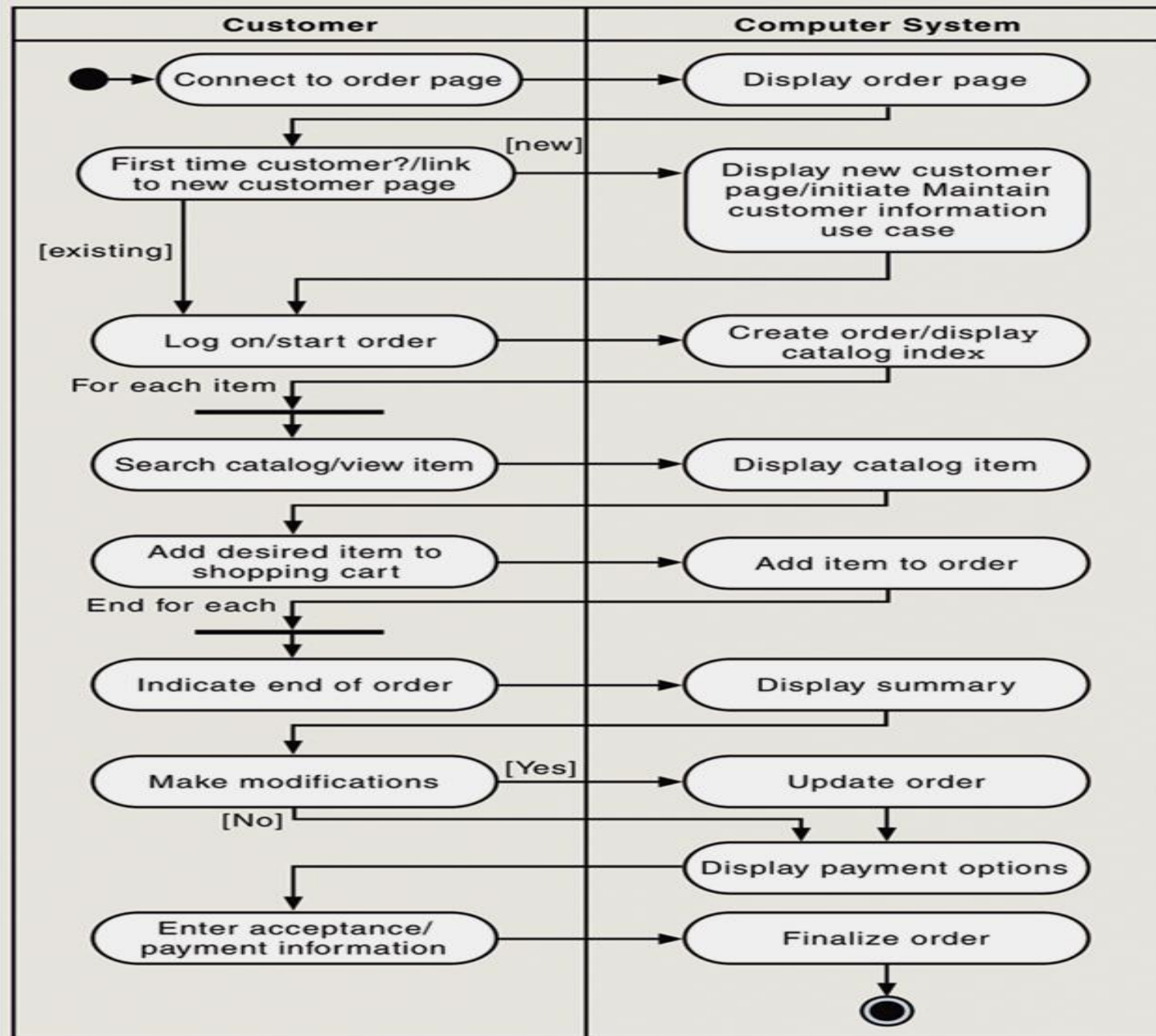
Note: this shows use case with `<<includes>>` relationship



Activity Diagram
for use case:
Create Telephone
Order



Activity Diagram
for use case:
Create Web Order

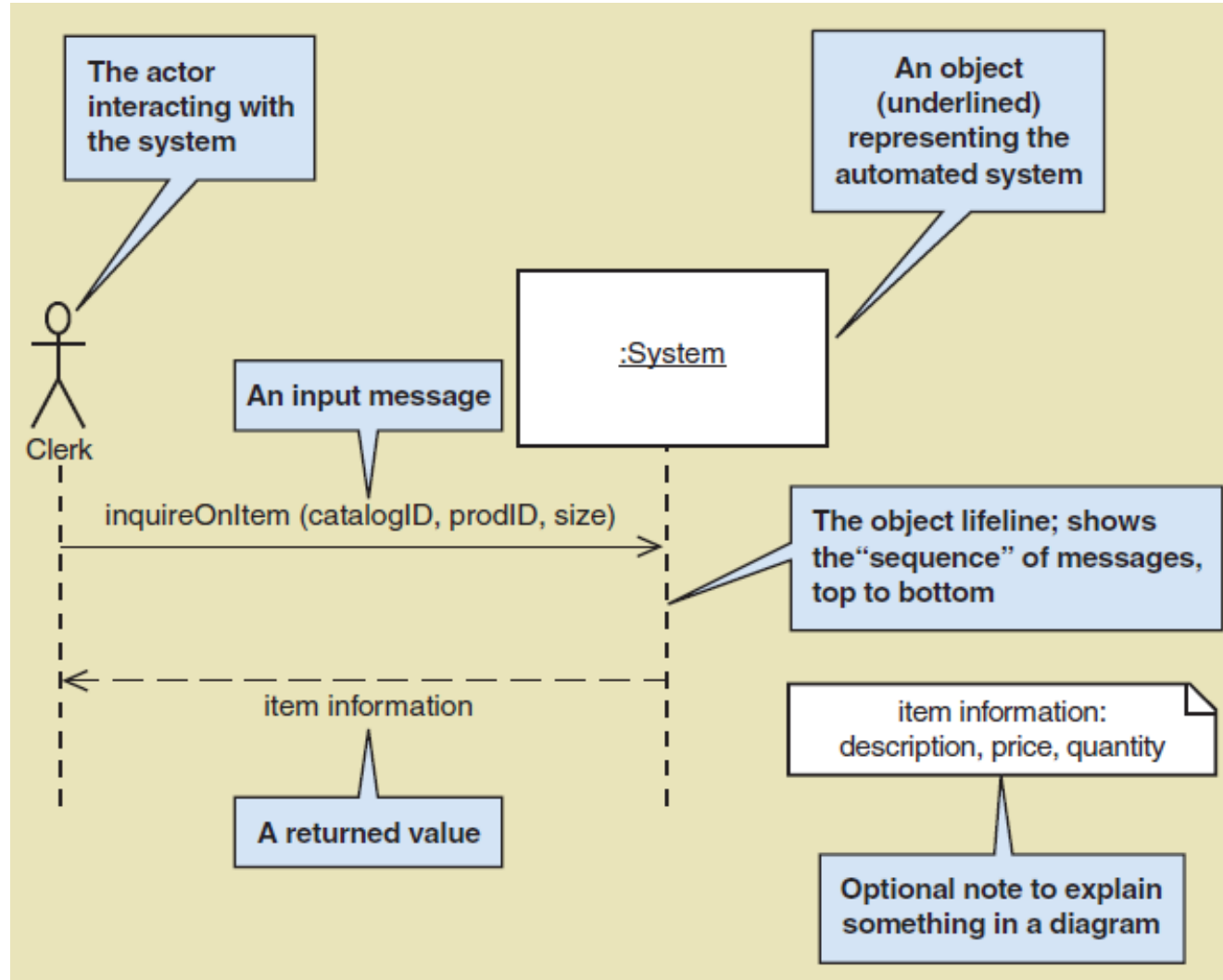


System Sequence Diagram

System Sequence Diagram (SSD)

- A UML sequence diagram
- Special case for a sequence diagram
 - Only shows actor and one object (System)
 - The one object represents the complete system
 - Shows input & output messaging requirements for a use case
- Actor, :System, object lifeline
- Messages

System Sequence Diagram (SSD) Notations

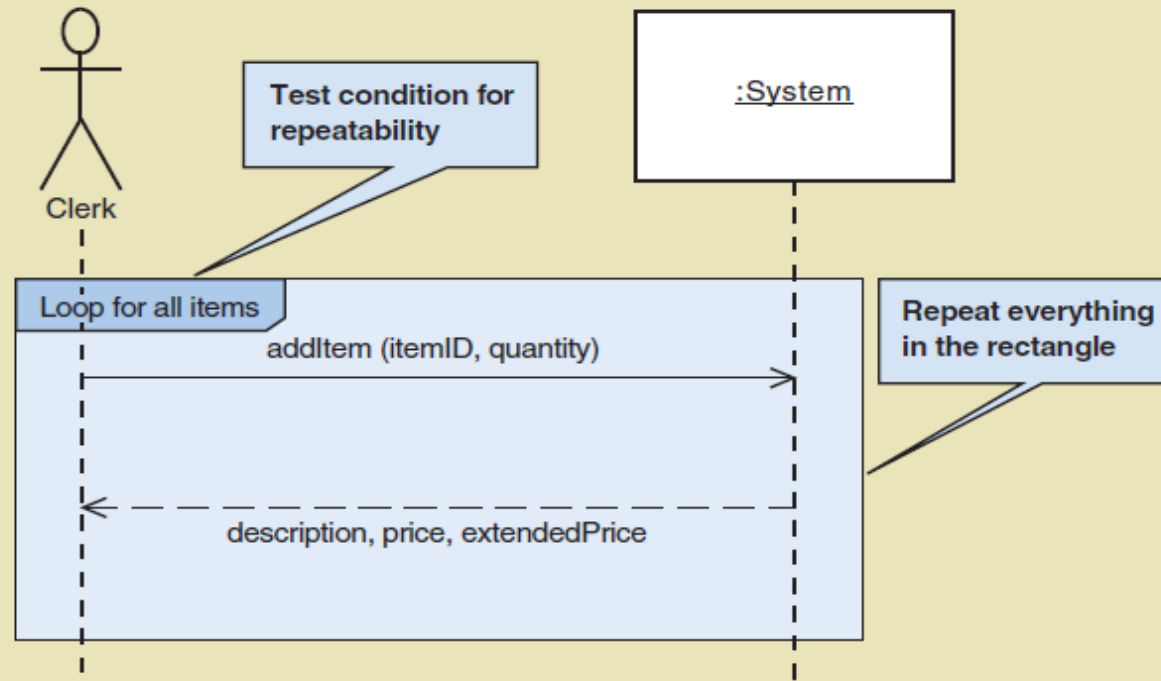


Message Notation

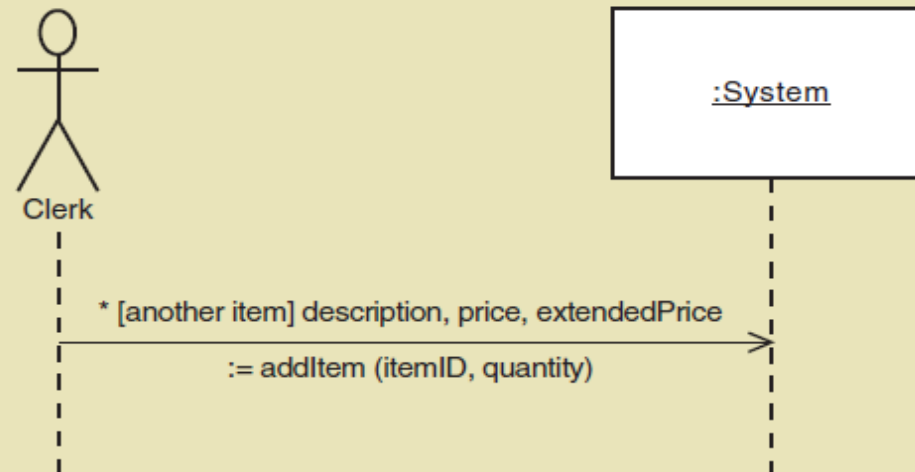
[true/false condition] return-value := message-name (parameter-list)

- An asterisk (*) indicates repeating or looping of the message.
- Brackets [] indicate a true/false condition. This is a test for that message only. If it evaluates to true, the message is sent. If it evaluates to false, the message isn't sent.
- Message-name is the description of the requested service. It is omitted on dashed-line return messages, which only show the return data parameters.
- Parameter-list (with parentheses on initiating messages and without parentheses on return messages) shows the data that are passed with the message.
- Return-value on the same line as the message (requires :=) is used to describe data being returned from the destination object to the source object in response to the message.

SSD Message Examples with Loop Frame



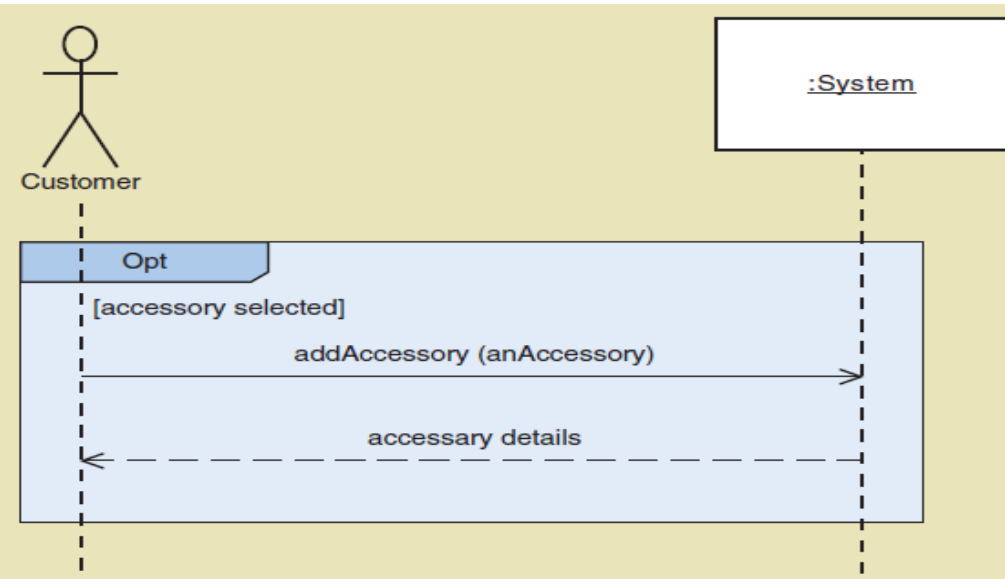
(a) Detailed notation



(b) Alternate notation

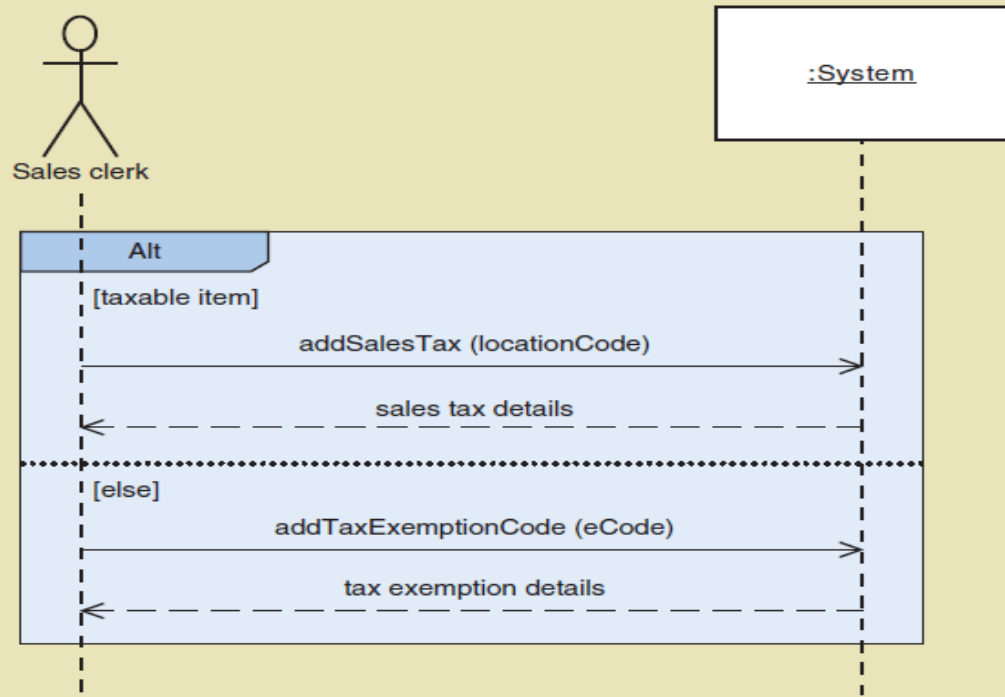
SSD Message Examples

Opt Frame
(optional)



(a) Opt frame notation

Alt Frame
(if-else)

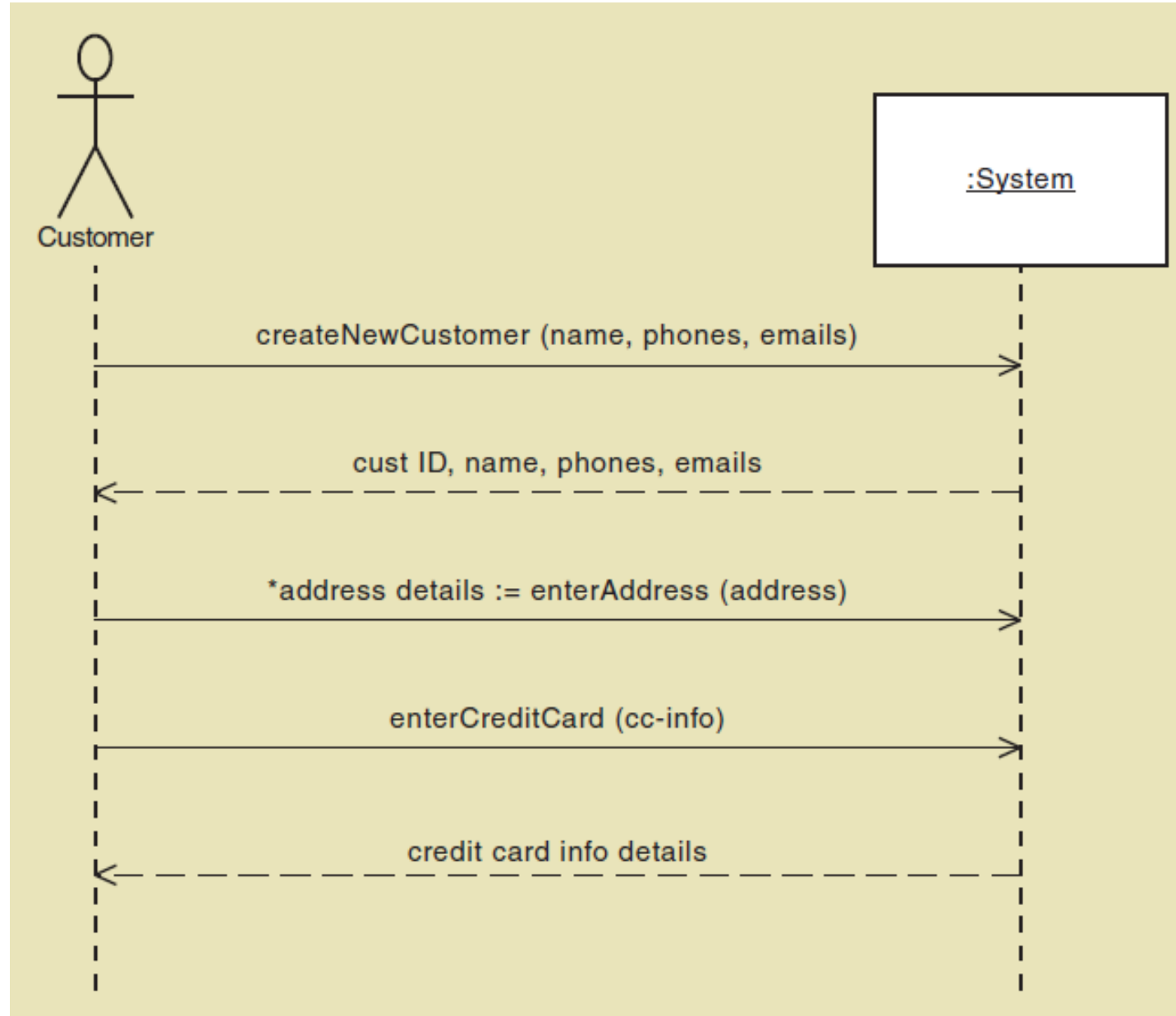


(b) Alt frame notation

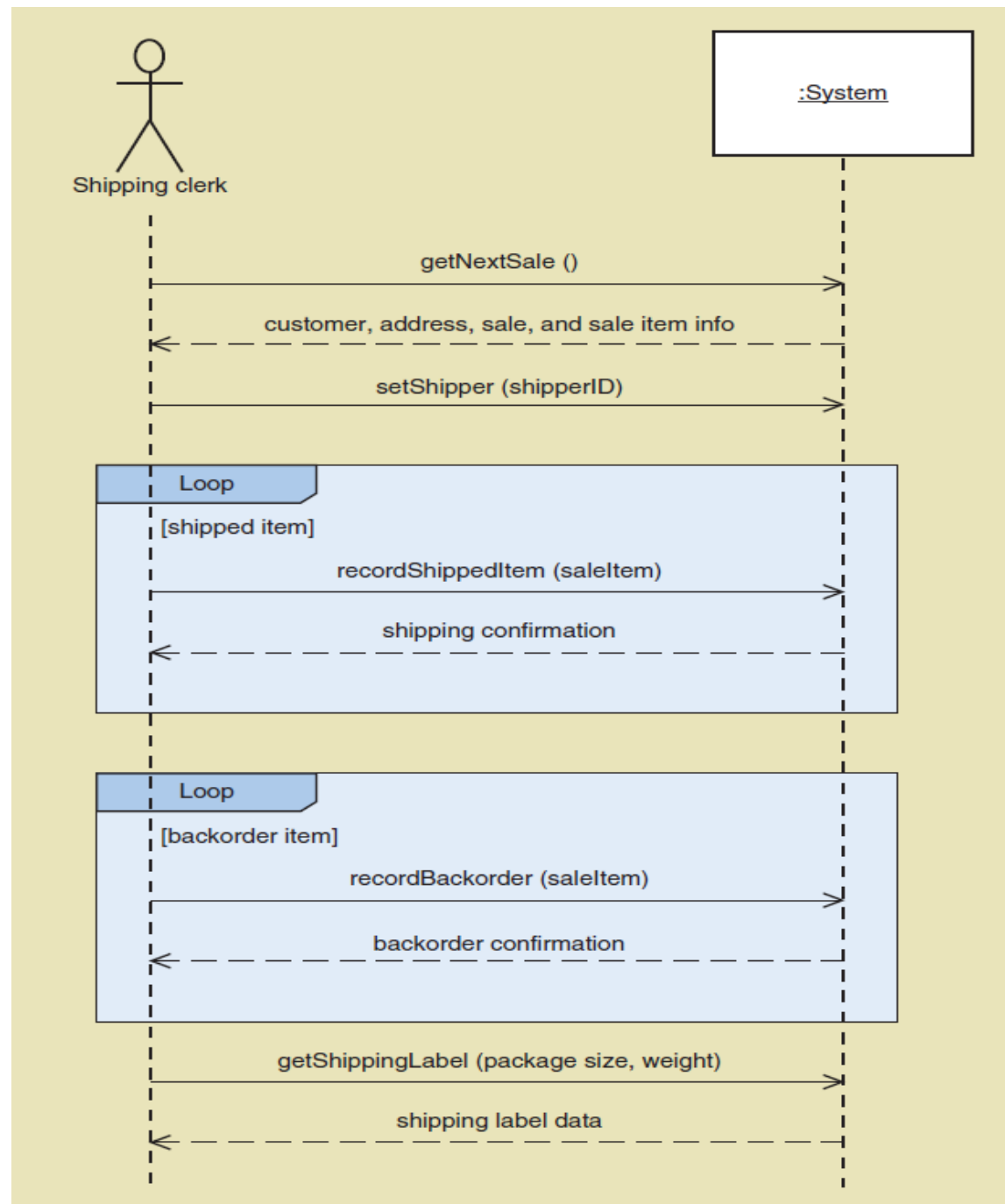
Steps for Developing SSD

1. Identify input message
 - See use case flow of activities or activity diagram
2. Describe the message from the external actor to the system using the message notation
 - Name it verb-noun: what the system is asked to do
 - Consider parameters the system will need
3. Identify any special conditions on input messages
 - Iteration/loop frame
 - Opt or Alt frame
4. Identify and add output return values
 - On message itself: aValue:= getValue(valueID)
 - As explicit return on separate dashed line

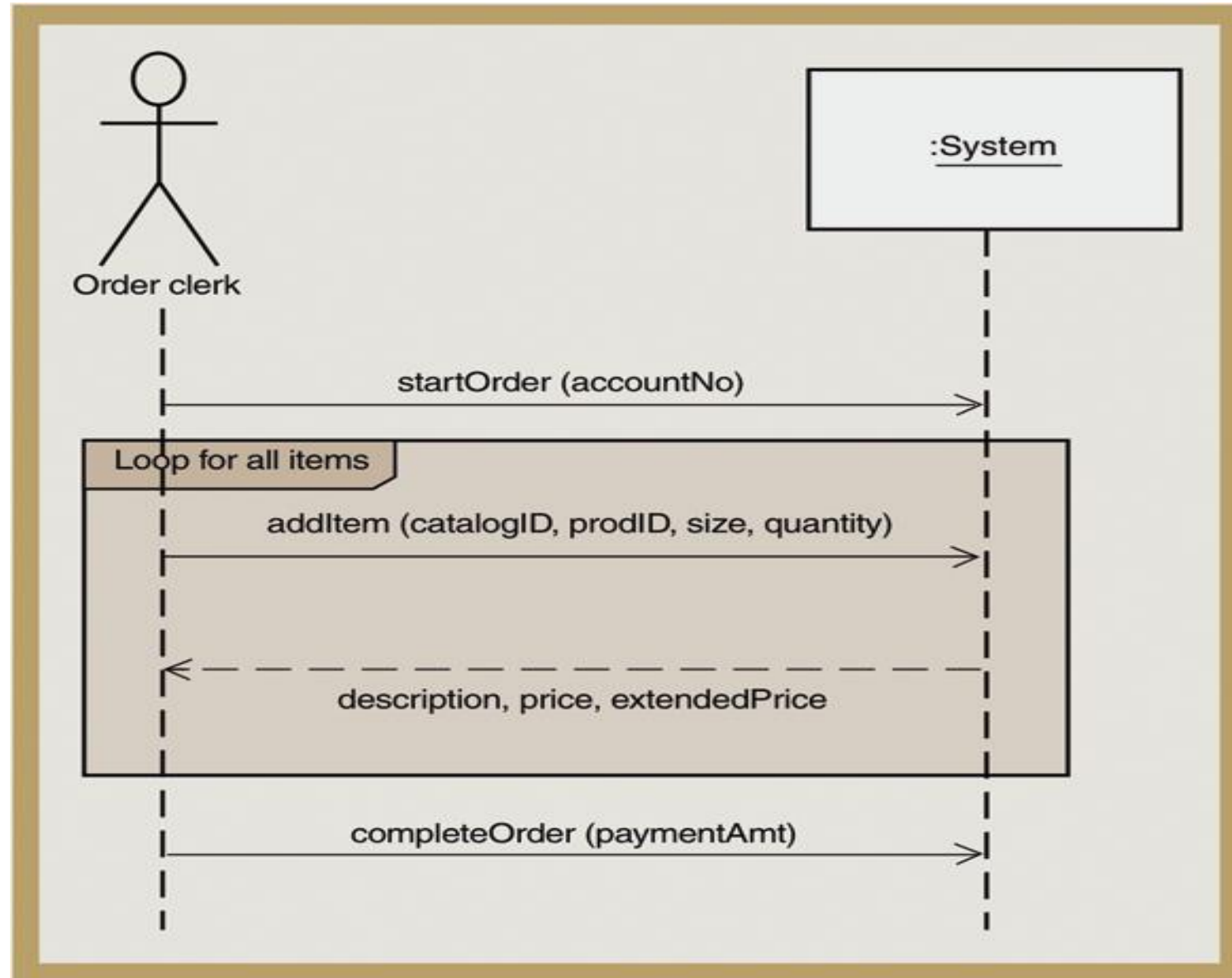
SSD for
*Create
customer
account*
Use case



SSD for *Ship items* Use Case



SSD for
Create
Telephone
Order
Use Case



SSD of the
Create
Web Order
Use case

