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FACULTY OF ENGINEERING & TECHNOLOGY

BCS-503: Object Oriented Techniques

Lecture-05

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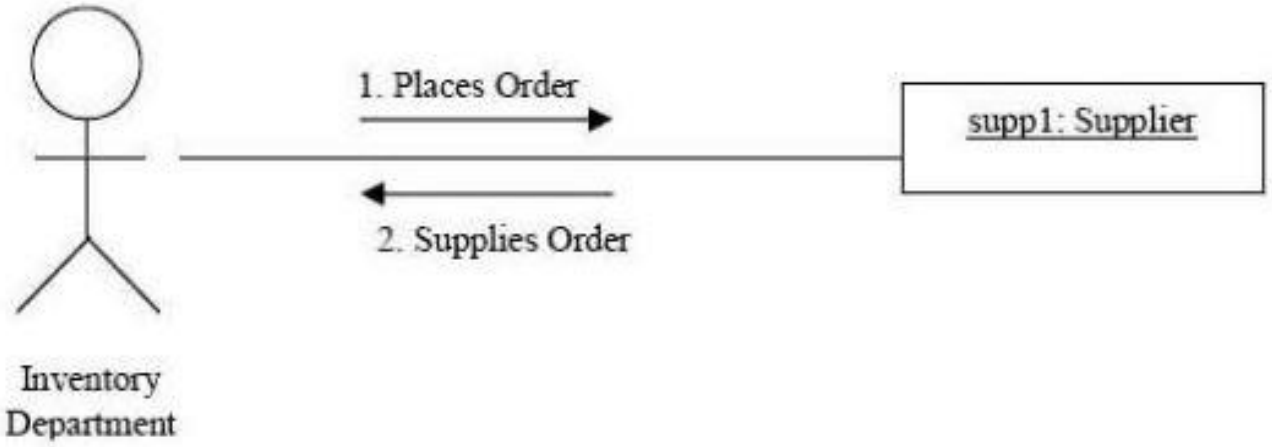
OBJECTIVES

In this PPT, you will learn to:

- ❖Communication Diagrams
- ❖Sequence Diagrams
- ❖State Machine Diagrams
- ❖Activity Diagrams
- ❖Package Diagrams
- ❖Component Diagrams

COMMUNICATION DIAGRAMS

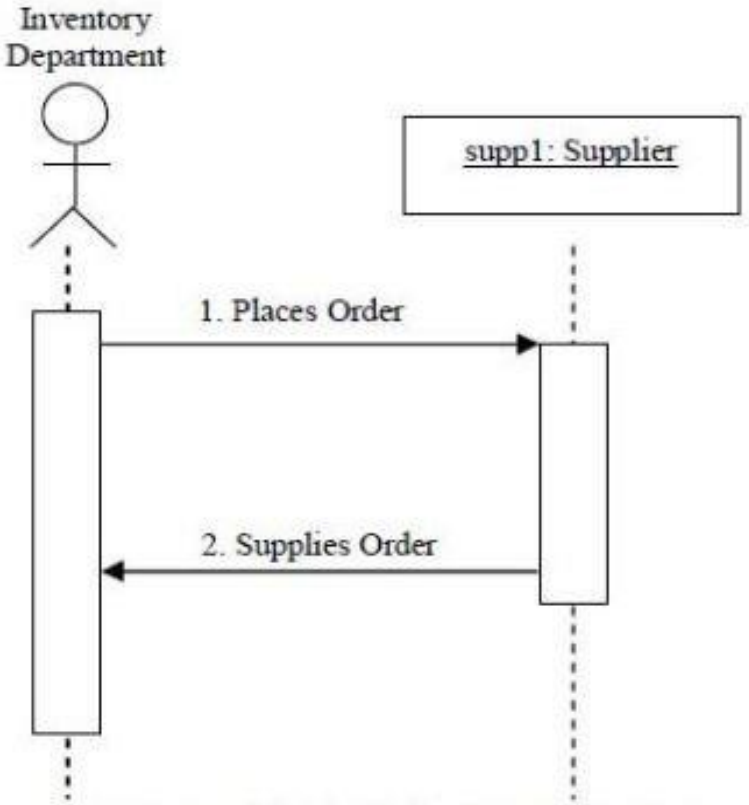
- Communication diagrams represent interaction between objects in the form of messages.
- Communication diagrams are also called as collaboration diagrams.



Communication Diagram for the Order Processing System

SEQUENCE DIAGRAMS

- Sequence diagrams represent interaction between objects in the form of messages ordered in sequence by time.
- You can draw a sequence diagram for any given system by using the classes and use cases identified for the system.

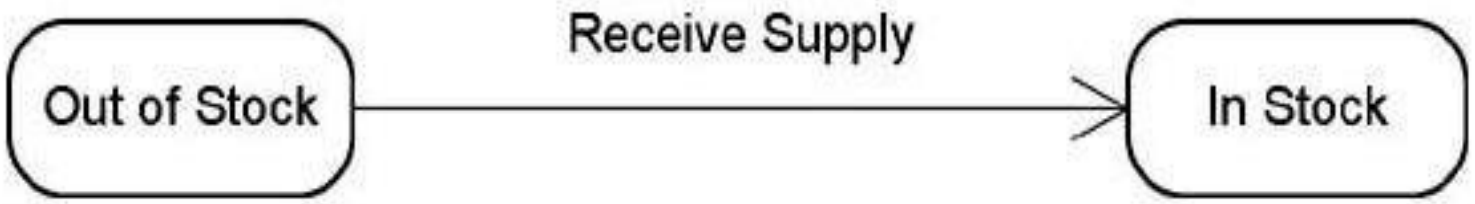


Sequence Diagram for the Order Processing System

STATE MACHINE DIAGRAMS

- A state machine diagram shows how a class reacts when an event occurs.
- You can draw a state machine diagram by using the classes and the use cases identified for the system.
- A state machine diagram is also called as a state diagram or a state chart diagram.

The following figure shows the state diagram for the `Parts` object in an order processing system.

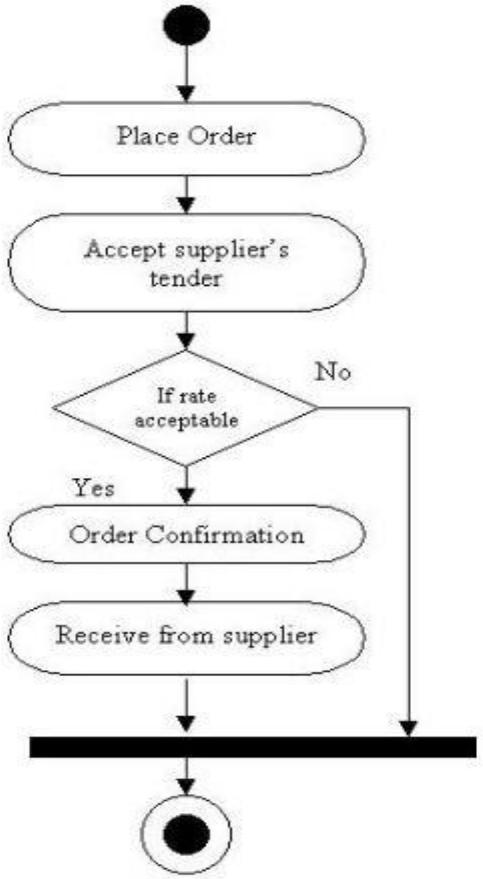


State Machine Diagram for the Parts Object in an Order Processing System

ACTIVITY DIAGRAMS

- Activities are a representation of the various operations performed by a class.
- An activity diagram depicts the flow of control from one activity to another.
- You can draw activity diagram by identifying the activities performed by the various classes of the system.

The following figure shows the flow of the activities for the order processing system.

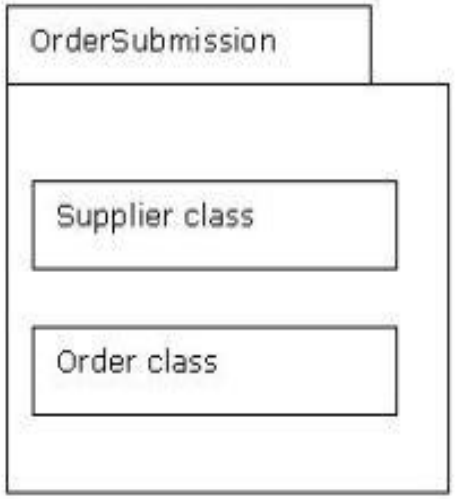


Activity Diagram for the Order Processing System

PACKAGE DIAGRAMS

- All the interrelated classes and interfaces of the system when grouped together form a package.
- Package diagrams represent all these interrelated classes and interfaces.
- Package diagrams help in representing the various packages of a software system and the dependencies between them.
- It also gives a high-level impression of use case and class diagrams.

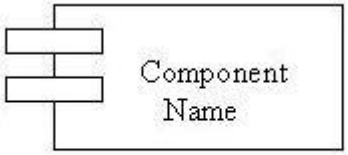
A package is depicted, as shown in the following figure.



OrderSubmission Package

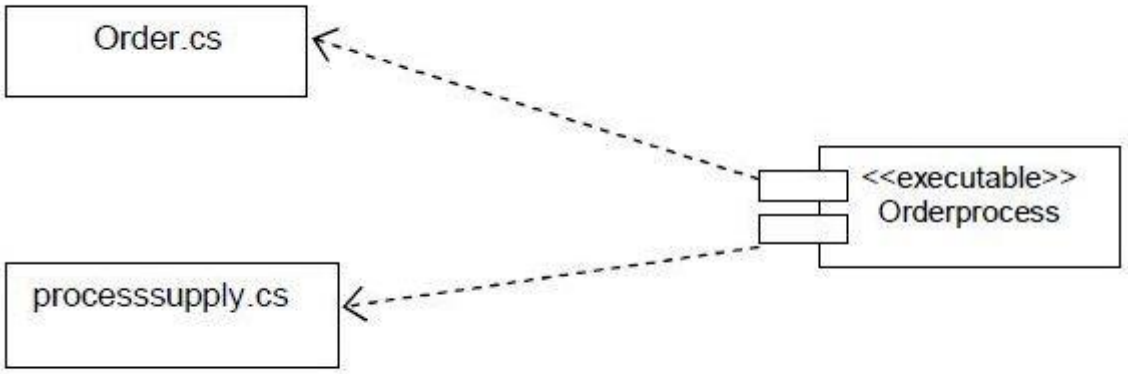
COMPONENT DIAGRAMS

- You combine packages or individual entities to form components.
- A component diagram depicts various components and their dependencies.



Graphical Notation for a Component

The following diagram shows the component diagram for the order processing system.



Component Diagram for the Order Processing System

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Multiple Choice Question:

Q1. What is a sequence diagram?

a) A diagram that shows interacting individuals along the top of the diagram and messages passed among them arranged in temporal order down the page

b) A diagram that shows messages superimposed on a diagram depicting collaborating individuals and the links among them

c) A diagram that shows the change of an individual's state over time

d) All of the mentioned

Multiple Choice Question:

Q2. What are the different interaction diagram notations does UML have?

a) A sequence diagram

b) A communication diagram

c) An interaction overview diagram

d) All of the mentioned

Multiple Choice Question:

Q3. Which of the following UML diagrams has a static view?

a) Collaboration

b) Use case

c) State chart

d) Activity

Multiple Choice Question:

Q4. Which diagram in UML shows a complete or partial view of the structure of a modeled system at a specific time?

a) Sequence Diagram

b) Collaboration Diagram

c) Class Diagram

d) Object Diagram

Multiple Choice Question:

Q5. Which of the following diagram is time oriented?

a) Collaboration

b) Sequence

c) Activity

d) None of the mentioned

Summary

In this PPT, you learned that:

- The UML diagrams are communication, sequence, state machine, activity, component and package.