



System Design : Class Diagram

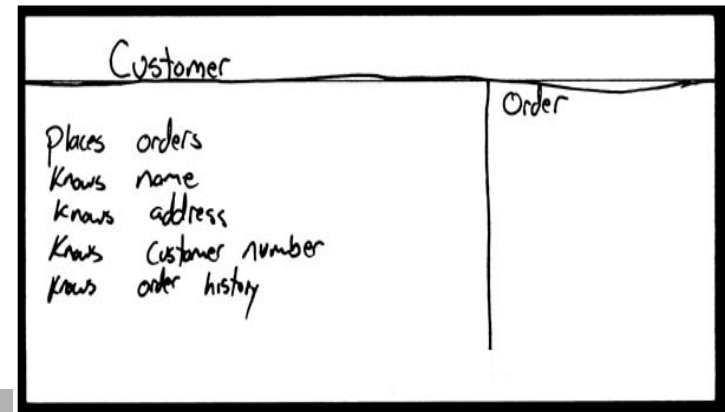
Munawar, PhD

Design phase

- ❖ **design: specifying the structure of how a software system will be written and function, without actually writing the complete implementation**
- ❖ **a transition from "what" the system must do, to "how" the system will do it**
 - What classes will we need to implement a system that meets our requirements?
 - What fields and methods will each class have?
 - How will the classes interact with each other?

How do we design classes?

- ❖ **class identification from project spec / requirements**
 - nouns are potential classes, objects, fields
 - verbs are potential methods or responsibilities of a class
- ❖ **CRC card exercises**
 - write down classes' names on index cards
 - next to each class, list the following:
 - **responsibilities**: problems to be solved; short verb phrases
 - **collaborators**: other classes that are sent messages by this class (asymmetric)
- ❖ **UML diagrams**
 - class diagrams (today)
 - sequence diagrams
 - ...



UML class diagrams

❖ What is a UML class diagram?

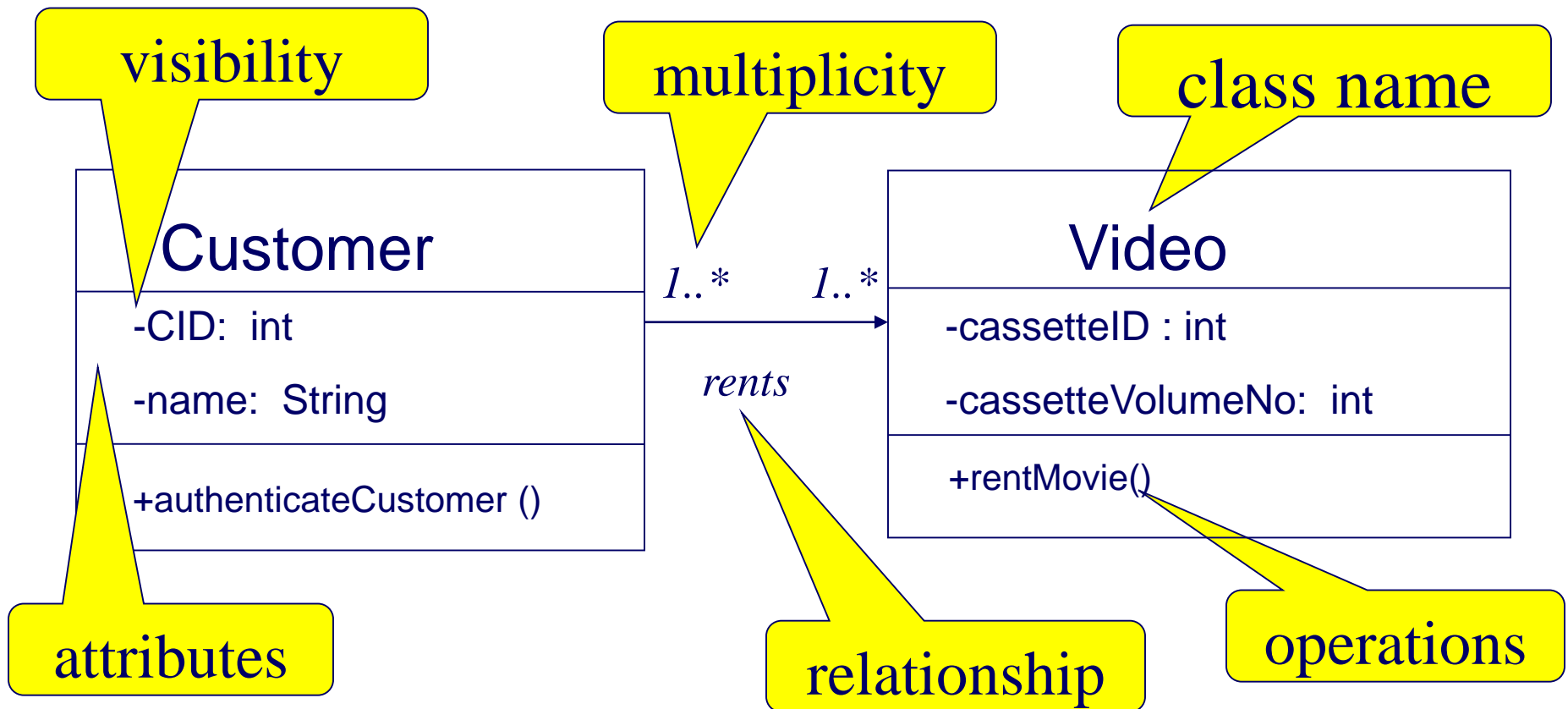
- **UML class diagram:** a picture of the classes in an OO system, their fields and methods, and connections between the classes that interact or inherit from each other

❖ What are some things that are not represented in a UML class diagram?

- details of how the classes interact with each other
- algorithmic details; how a particular behavior is implemented

Example of a Class Diagram

Video Rental System



Lab Activities

- ❖ Discuss within your group to describe **class diagram** for your case study



Thank You !

Munawar, PhD