

## Basic Class Diagram Examples

**Name of the Class**

**Important Characteristics**  
(Properties, Attributes)

**Responsibilities** (Behavior  
functions, Methods)

**Visibility**  
Private: label '-'  
Public: label '+'

Customer
-name : string = John Doe -customerID : string = Room-1 -contact : string -creditLimit : float
+reportCustomerInfo() : string +changeCreditLimit() : float +checkOrder() : int

Heater
-location -status
+turnOn() +turnOff() +reportState()

Heater
-location : string = Room-1 -status : int = 0
+turnOn() : int +turnOff() : int +reportState() : int

tempSensor
-temperature : float = 27 -location : string = Room-1
+reportCurrentTemp() : float +calibrate() : int

RFID_tag
+idLabel : string -location : string -tagInfo : string -rfidType : char
+wakeUp() : char +reportidInfo() : string

activeTempSensor
+temperature : int = 63 -location : string = Room-1 -setpoint : int = 65
+reportCurrentTemp() : float +calibrate() : int +establishSetPoint() : int

Source: Chapter 2 The Object Model, pp. 39-74, of the book: Object-Oriented Analysis and Design with Applications, 3<sup>rd</sup> edition, by G. Booch, R.A. Maksimchuk, M. W. Engle, B. Young, J. Conallen, and K.A. Houston

### Objects and Relationship Examples

- \*\* Links: Peer-to-Peer or Client/Supplier relationship
- \*\* Aggregation: a Whole/Part Hierarchy

#### Three Roles of a Link Relationship:

##### Controller object:

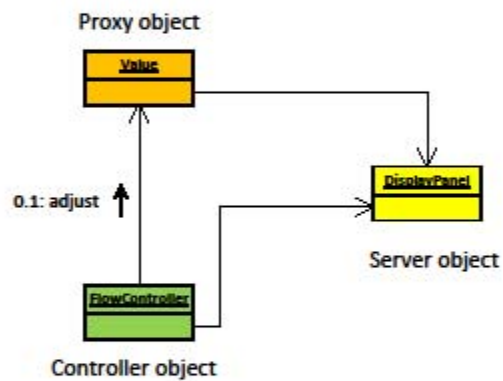
- \* Can operate on other objects
- \* But is not operated by other object

##### Server object:

- \* Doesn't operate on other objects
- \* It is only operated on by other objects

##### Proxy object:

- \* It can both operate on other objects and be operated on by other objects



#### Links relationship

### Objects and Relationship Examples

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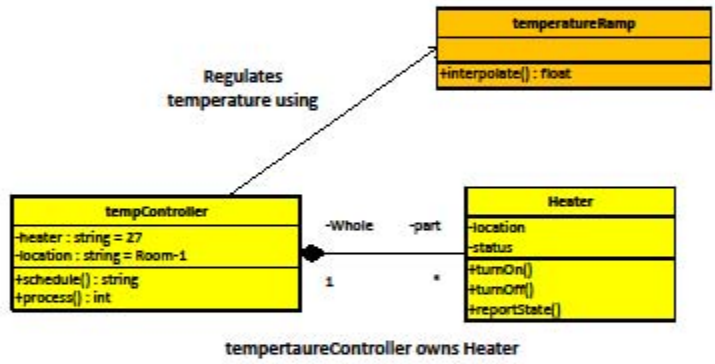
Aggregation Relationships:

With Physical Containment (Example):

- \* Airplane is composed on: wings, engines, landing gears, and so on

Without Physical Containment:

- \* Shareholder owns a share
- \* Whole/Part relationship



### Aggregation relationship

Source: Chapter 3 Classes and Objects, pp. 78-119, of the book: Object-Oriented Analysis and Design with Applications, 3<sup>rd</sup> edition, by G. Booch, R.A. Maksimchuk, M. W. Engle, B. Young, J. Conallen, and K.A. Houston