Class Modelling Concepts:

The purpose of class modeling is to describe objects in the system. It has the following concepts:

1. **Objects**
2. **Classes**
3. **Attributes**
4. **Operations**
5. **Link and Associations**
6. **Generalization and inheritance**
7. **Grouping constructs**

Class Modelling:

- Object modelling
- Static analysis diagram
- Objects and their relationships
- Describes the attributes and operations of the objects
- Class and object diagram

Objects:

- An object represents an **entity , concept , abstraction or thing** and meaning of the problem at hand
- Objects can be: Concrete, or Conceptual
- Objects serve two purposes:
    - Understanding of the real world

- Provides a practical basis for computer implementation
- The purpose of the object modeling is to describe objects
- All objects have identity and are distinguishable
- Object in a class share a common attributes and behaviour

Classes:

- A class is a definition of an object
- A class is a set of objects that share a common structure and a common behavior
- A class is a template for producing objects of a certain type
- Class Name - Singular nouns

Class Notation:

- OMT symbol is rectangle box
- A class is drawn as a rectangle with three compartments separated by horizontal lines
- Access modifiers

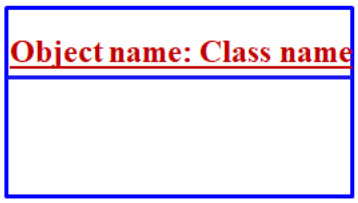
✓ + public

✓ - private

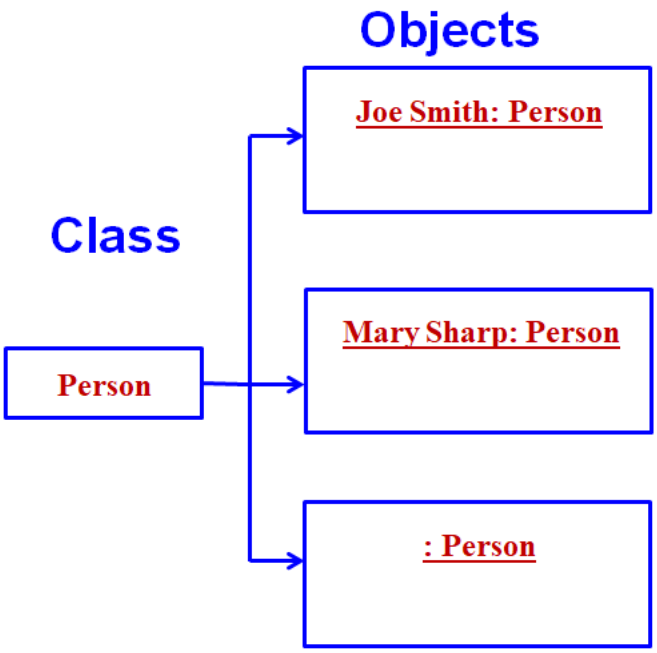
✓ # protected

Object Instance Notation:

- It describes object instances
- OMT symbol is also a box but with an object name followed by a colon and the class name



Class and Objects

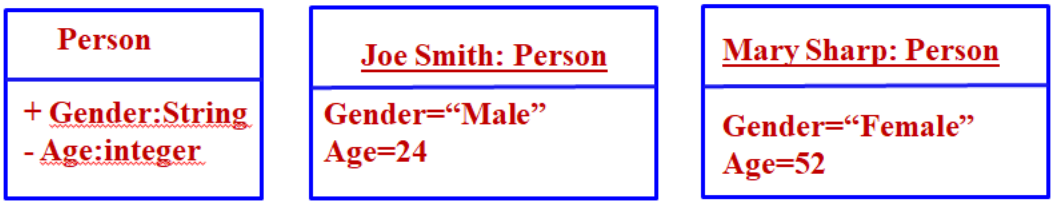


Attributes:

- A data value held by the objects in a class
- Attribute name is unique within class
- It should be a pure data value
- Attributes are listed in the second part of the box

- Attribute name may be followed by optional details, such as type and default value

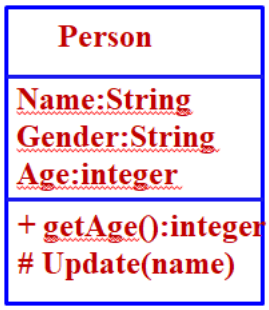
Attributes and values:



Class with Attributes

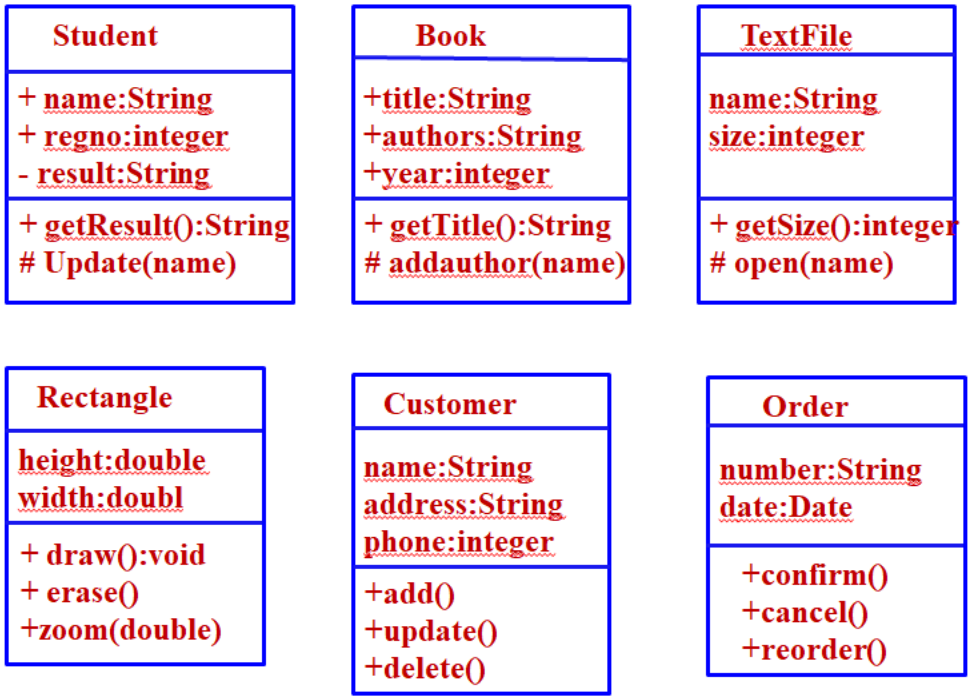
Objects with Values

Operations and Methods:



- An operation is a function or transformation that may be applied to object in a class
- All objects in a class share the same operations
- A method is the implementation of an operation for a class
- Each operation name may be followed by optional details, such as argument list and result type

Class Example



References:

1. Michael R Blaha, James Rumbaugh, Object_oriented Modeling and Design with UML, Second Edition, Pearson Education, 2013
2. Ali Bahrami. Object Oriented System Development, McGraw-Hill Higher Education, 2015