

## Tutorial 3: Class diagram Under Modelio

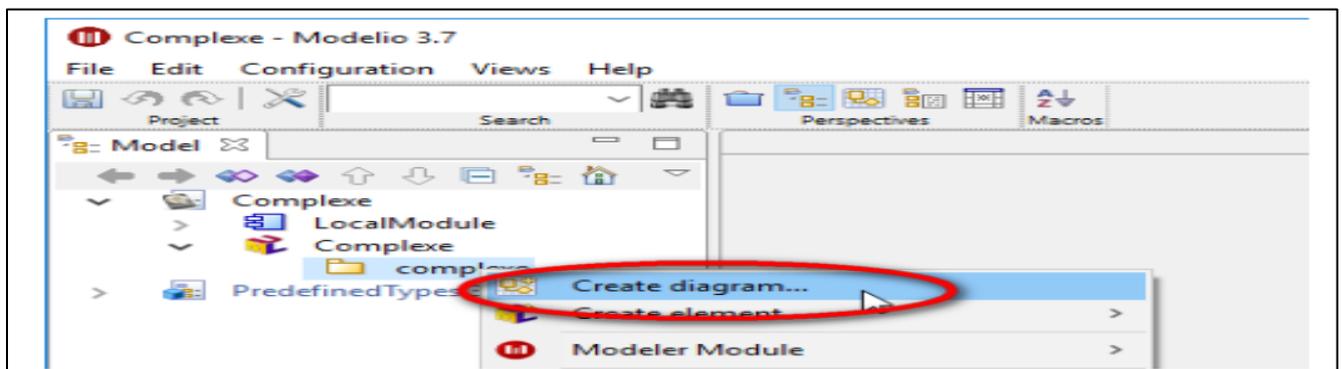
**Recall:** The class diagram is a (static) structure diagram which allows us to represent:

- Classes (attributes + methods)
- Associations (relationships) between classes.

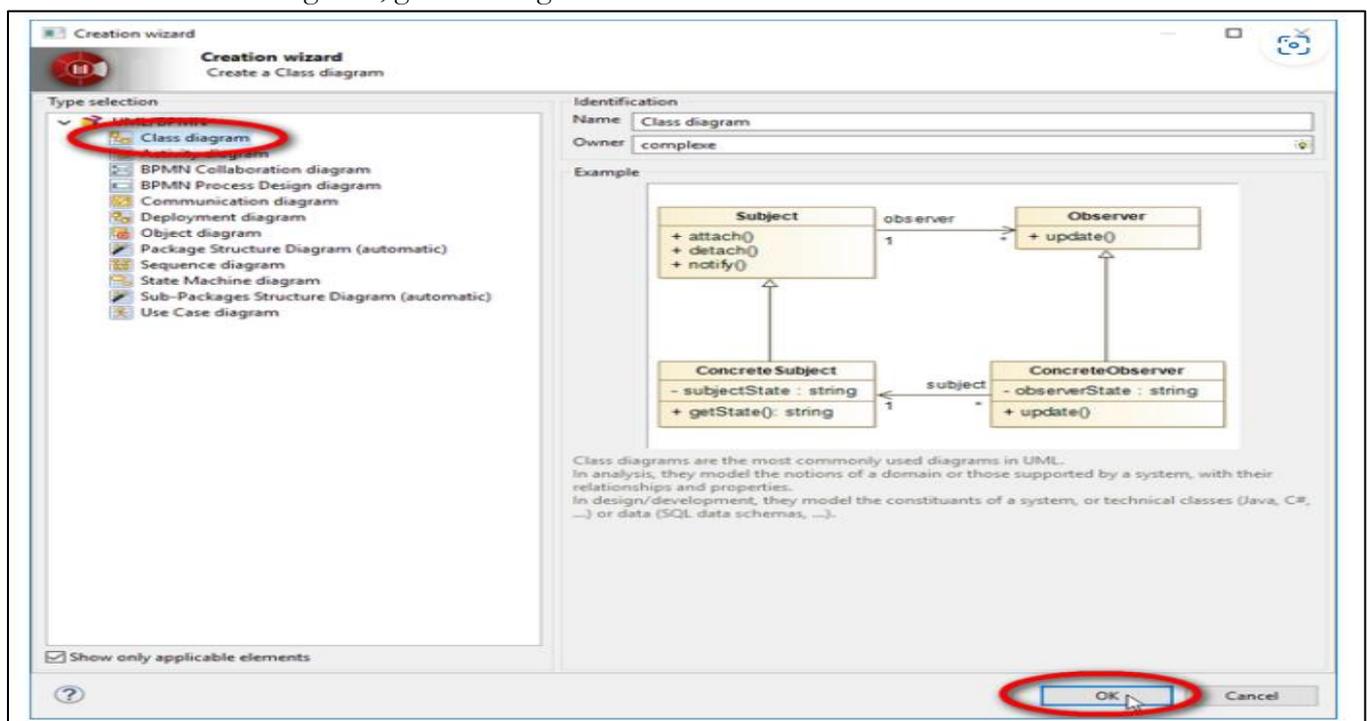
The class diagram is the most important UML diagrams, it is the only one that is mandatory when modeling a system.

### A) Creating a class diagram.

1. Create a project.
2. Expand the project tree, right-click and click on "Create diagram...":



1. Select "Class diagram", give the diagram a name and click on the "OK" button:

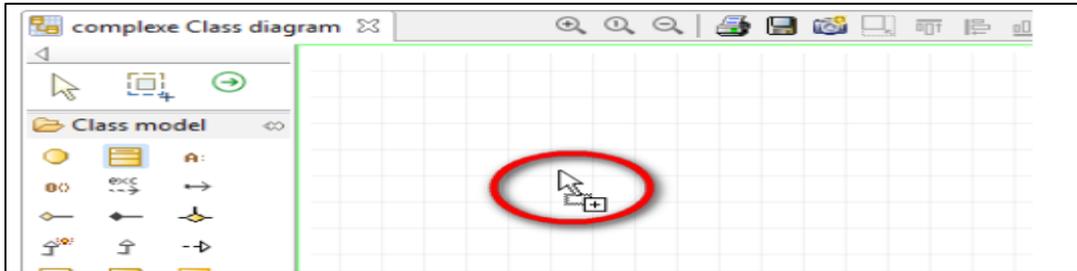


2. Adding elements to the class diagram

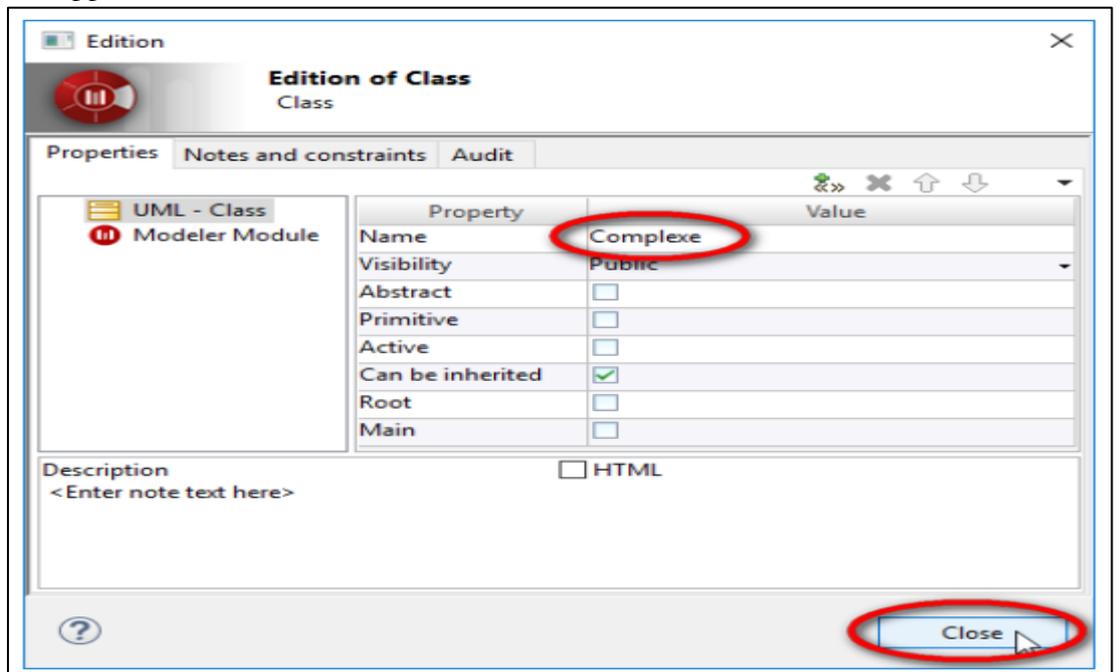
- **New class:** In the tool palette, click on “Class - Create a class”:



Then click where you want to drop the element:

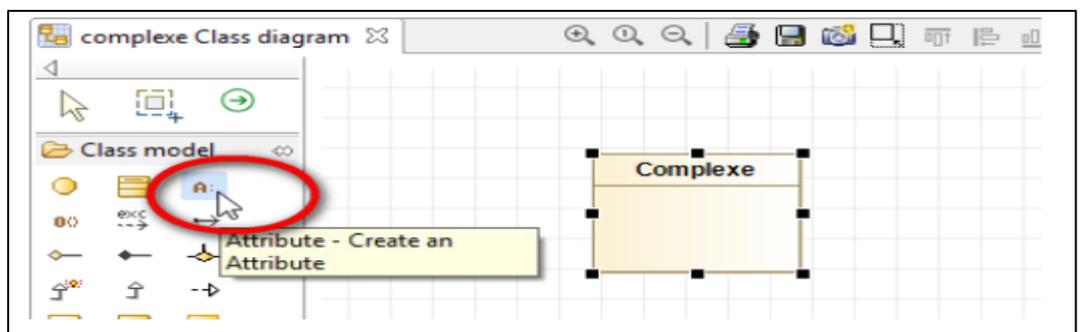


The initial state appears at the clicked location:

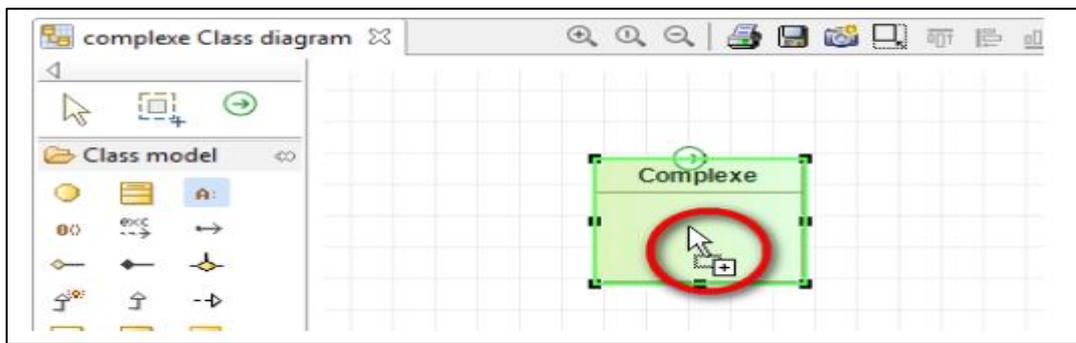


- **Attribute**

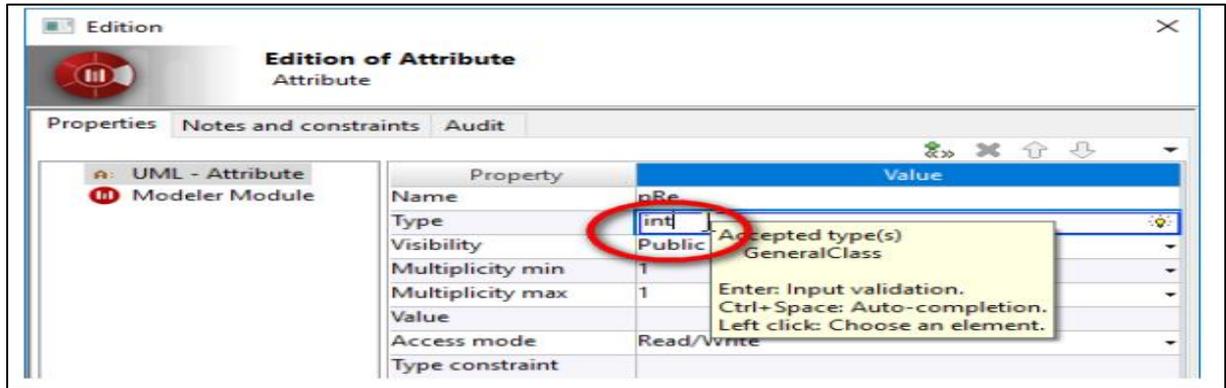
**Reminder:** an attribute is a variable internal to the class. It can also be referred to as a member variable or property. In the tool palette, click on "Attribute - Create an Attribute":



Then click in the class where you want to create the new attribute:



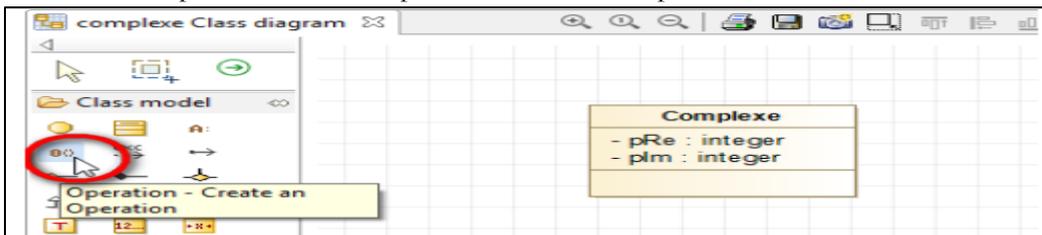
Double-click on the attribute. A dialog box opens. Indicate the name of the member variable, its visibility (public, private,...):



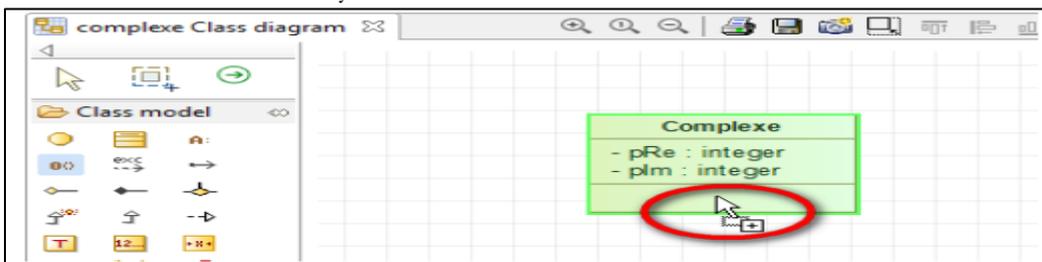
- **Method**

Recall: a method is an internal function of the class.

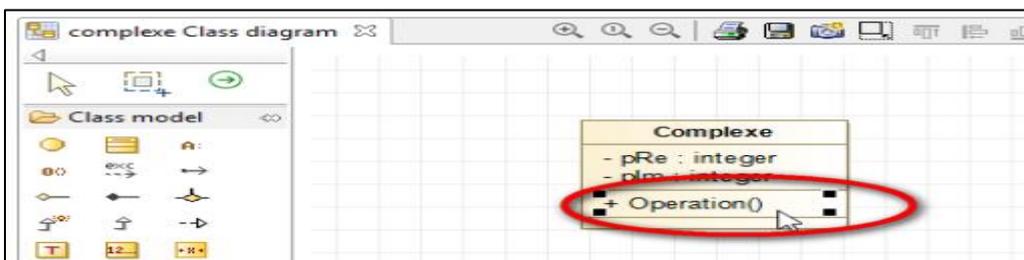
In the tool palette, click on "Operation - Create an Operation":



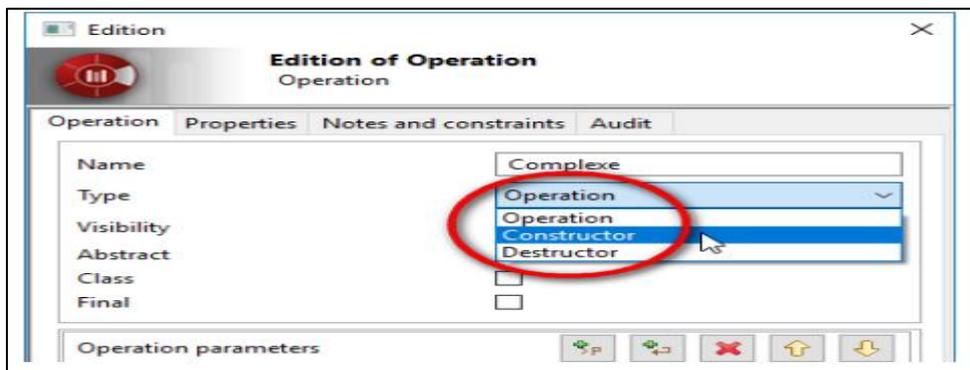
Then click in the class where you want to create the new method:



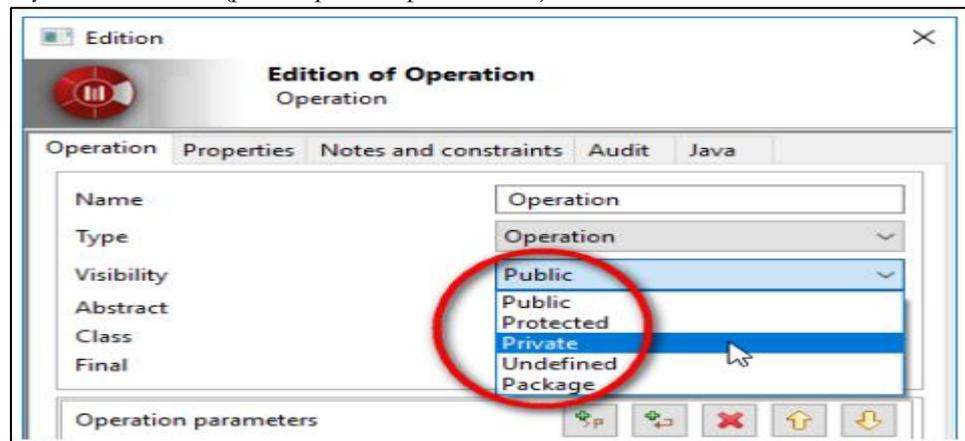
Double click on the method:



The method properties dialog box opens. Indicate the type of method:

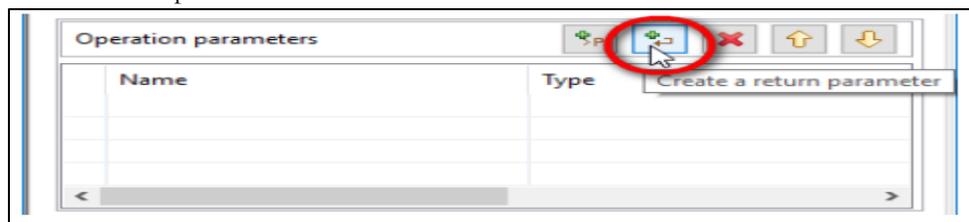


Define the visibility of the method (public, private, protected,...):

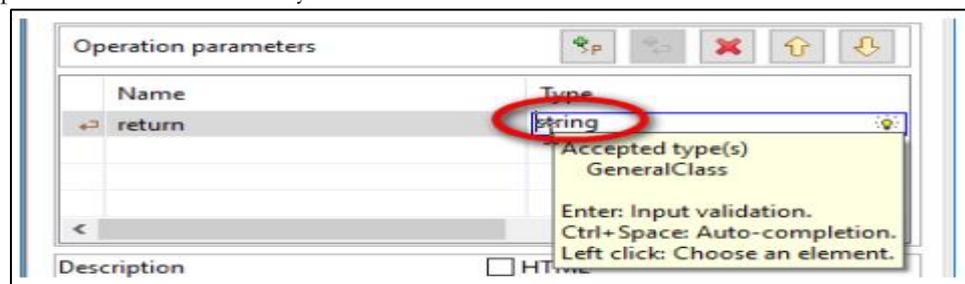


Define the return type of the method:

- Click on the "Create a return parameter" button:

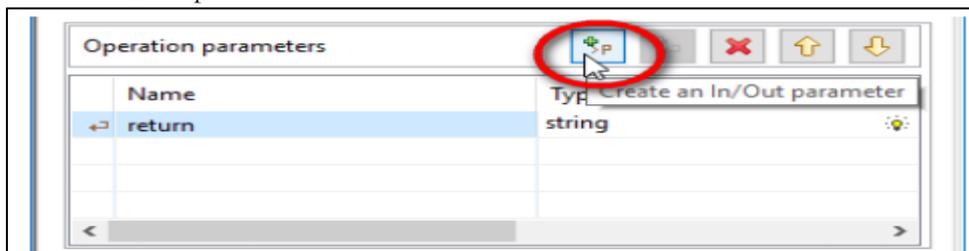


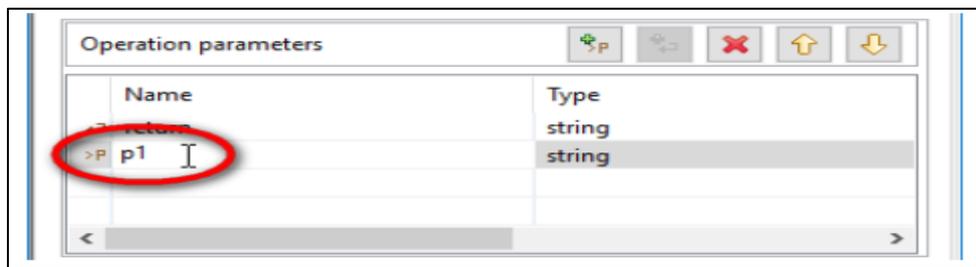
- Indicate the type of the value returned by the method:



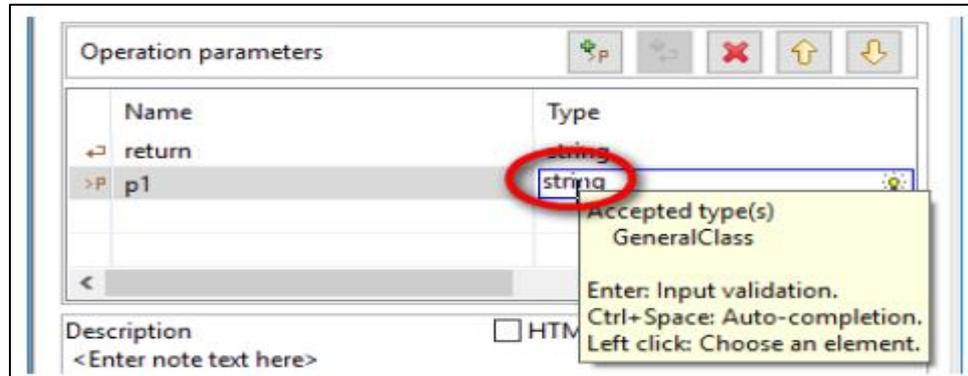
- Define the method parameter(s):

- Click on the "Create an in/out parameter" button:



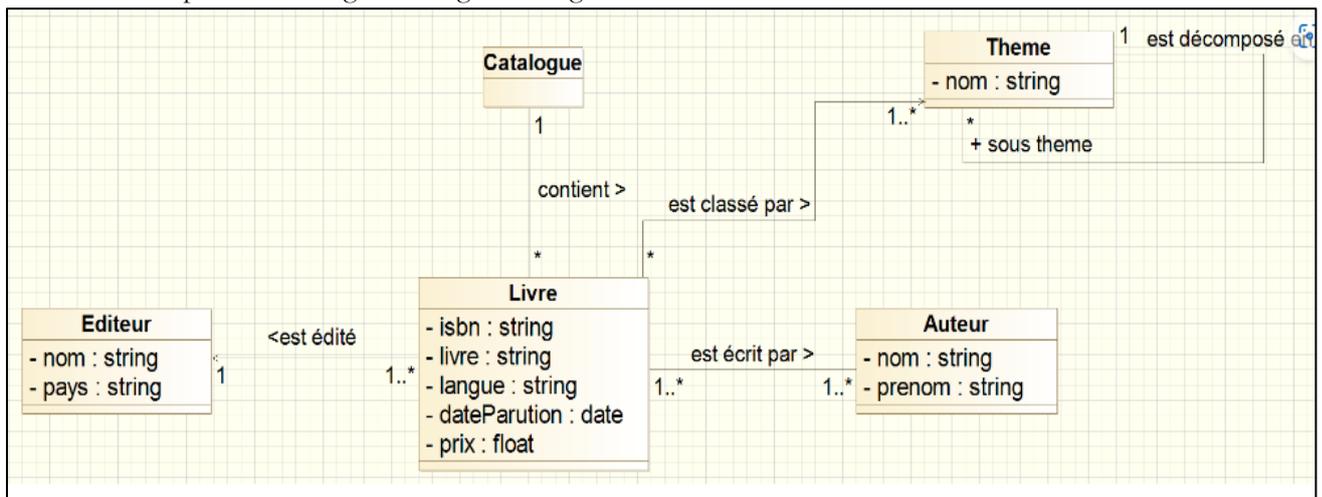


- Indicate the type of parameter:



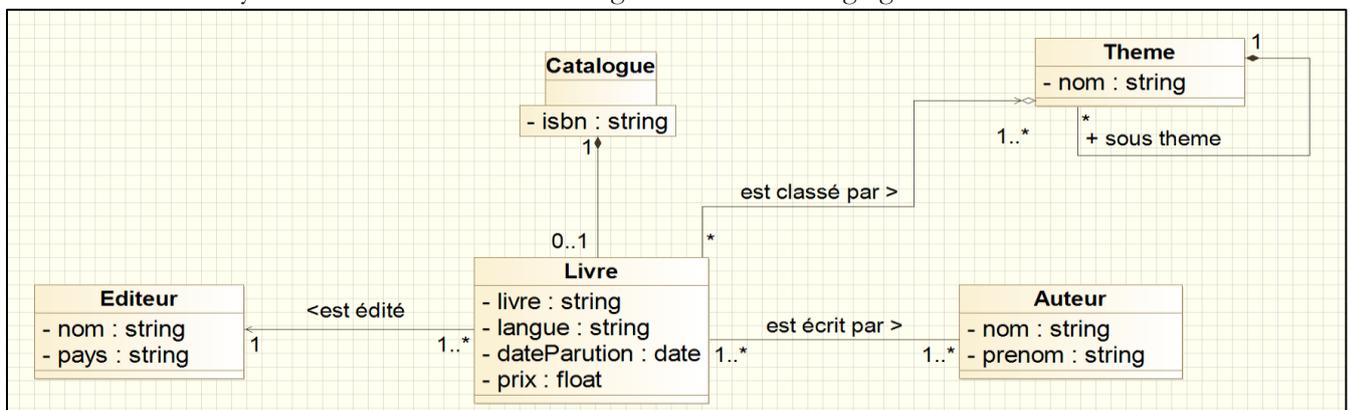
### Exercise 1:

1. Develop the following class diagram using modelio:



2. Interpret each element of this diagram.

3. Make the necessary modifications to obtain the diagram in the following figure:



4. What does isbn stand for? What is its role?

5. Interpret new changes.