

Object-Oriented Programming

Exercise series 1

Exercise 1

ULiège wishes to develop an application to handle the courses of the different faculties and their assignment to students and teachers. This program should be able to manage

- a set of students, each of them being identified by a (numerical) student ID, a first name and a last name,
- a set of teachers, each of them being identified by an ID, a first name and a last name,
- a set of courses, each of them being identified by a code (e.g., INFO0062), and featuring a title and a titular teacher,
- a calendar which associates a course with a quadrimester (Q1 or Q2), the room where it takes place, the day and time at which the course starts and its duration in hours,
- a set of curriculums, which describe courses to be followed during a single academic year,
- a set of study programs, which correspond to a sequence of curriculums.

Describe the classes that you would define in order to develop such an application. For each of them, answer the following questions :

- What are its variables? Are they class or instance variables?
- What operations would instances of this class be able to perform? What would be the interface of the corresponding methods?
- How many instances of this class would you expect the application to create in a typical usage scenario?

Note : This problem admits many different solutions.

Exercise 2

Open the files `Groceries.java`, `Item.java` and `GroceriesList.java` in a text editor. Have a look at them, and then answer the following questions.

- What are the classes defined in this Java program?
- What are the instance variables of these classes?
- What are the operations performed by the `main()` method?

Suggestion : Try to run this program on your computer! Do not hesitate to modify the `main()` method to change its sequence of actions, and observe the effects of such modifications.