

# Algorithms and Computational Thinking

## Autumn 2016

Thursday, 15th December 2016

### Exercise 13 - Inheritance and Polymorphism

During the last two lectures, you learned oriented object programming concepts such as classes, objects, interfaces, inheritance as well as polymorphism. This week, you will discover a Scala project containing all these concepts. This project focuses on the creation of students, a professor and a course. We can also create registrations that link a student and a course. The professor can set grades of students if an exam has been performed. And a registrations of students are removed if they succeed the course at the end of the semester, otherwise they need to retake the exam. The entry point of this project is the file *UnilProject.scala*.

The exercise of today consists in understanding the Scala project and translating it in Python or Swift by creating a Python IntelliJ project or a Xcode project respectively. At the end of the implementation, you should be able to obtain the same output as the Scala project, i.e., all the output displayed in *UnilProject.scala*.

**Warning :** If you have some errors after unarchiving the zip file of the Scala project due to the creation of system files, open a terminal window and write *dot\_clean scalaprojectpath*.

If you have some doubts or problems to understand some parts of the Scala project and to implement the other, you can find some help by reading these websites :

<https://openclassrooms.com/courses/apprenez-la-programmation-avec-scala>,  
<https://openclassrooms.com/courses/apprenez-a-programmer-en-python>  
and <https://openclassrooms.com/courses/decouvrez-le-langage-swift>.