Laboratory

Study Case

GestAca

Software Engineering

CS School
DSIC – UPV

Year 2024-2025

A company focused on providing educational services needs an application to manage its activities. To this end, it has asked ISWSoft the development of software providing the following description:

The company offers courses in classrooms located at its headquarters to the students who enroll. In addition, it offers the possibility of having courses being taught externally with lecturers commuting to an external location.
A course has a name, a description, a start date, duration (number of sessions), a timetable, a maximum number of enrollments and a total cost. Courses are taught by lecturers. The company hires several lecturers who may teach different courses. Whenever a course is scheduled, it is assigned a code (numerical code) and one or more lecturers to teach it. A lecturer may not teach two courses with overlapping timetables.

Any person may enroll in a course by providing his(her) personal data to administration staff: name, address, postal code and bank account to make payments. At any time a student may drop out of a course. Lecturers must provide not only their personal data (name, address and postal code) but also a social security number.

Payments on courses may be made in two ways: full payments on which the student pays the full tuition of the course in advance (in this case a 10% discount is automatically applied) or monthly payments on which at the beginning of each month a payment order is generated against the student's bank account. The monthly payment amount is calculated dividing the total tuition by the number of pre-established months. The number of months to pay is fixed for all students and cannot be negotiated.

The company has several classrooms where courses are taught. Each room has a name (1B01, 1B02, 2F, Meeting room, …) and a maximum capacity. Before the course starts an available room must be assigned in which the course will be taught. Of course, there is a limited number of enrolments on a course (max capacity of the course). In addition, there may not be any overlaps in the timetables of courses assigned to the same classroom. If the enrollment on a course is close to the maximum capacity, the course may be assigned to another classroom with more capacity if there is one available. In all course sessions lecturers check student's attendance and identify the missing students.

As it has been said, the company offers courses taught externally. A customer may hire a course and, in this case, it is the customer who offers the classroom and manages the enrollment of students. In this case there is a unique payment, and it is made when the course is hired by the customer.

The system must manage all the previous requirements. In addition, it must offer administrators the normal CRUD operations for courses, classrooms and lecturers. Administration staff oversees enrolling/dropping out students. Search operations for courses, students and timetables will also be needed. Finally, the system will also provide reports for administration staff such as: courses, students enrolled on a course, courses of a student, timetable of a classroom, timetable of a lecturer and missing attendance of a student.