Application for a University

We need to design an application for a university which will be able to manage the following functions:
- Managing students
- Managing professors
- Managing careers
- Managing subjects and classes
- Managing exams and qualifications
- Managing schedules and classrooms
- Managing the schedule of a semester

Each career contains a number of subjects that must be passed in order to get the degree.

In each semester:
- A student can be taking one or more than one subject at the same time.
- A professor can be teaching one or more than one subject at the same time.
- A subject (eg. Physics 101) can be given in more than one class (for example, Tuesday morning course, Wednesday afternoon course, etc)

For example, in the first semester of 2024, the student Claire Johnson will be assisting to the following classes:
- Class 3022, Physics 101, Monday from 8:00 AM to 12:00 PM, Classroom 14
- Class 2199, Discrete Mathematics I, Tuesday from 9:00 AM to 11:00 AM, Classroom 3
- Class 9218, Oriented to objects programming, Tuesday from 12:00 PM to 3:00 PM, Classroom 319
- Class 4144, Chemistry I, Wednesday from 07:00 AM to 11:00 AM, Classroom 287.

While professor Juan Maldacena will be the teacher at the following classes:
- Class 3022, Physics 101, Monday from 8:00 AM to 12:00 PM, Classroom 14
- Class 3024, Physics 101, Monday from 4:00 PM to 8:00 PM, Classroom 14
- Class 3467, Quantum Physics I, Friday from 9:00 AM to 2:00 PM, Classroom 456
- Class 3468, Quantum Physics I, Friday from 3:00 PM to 8:00 PM, Classroom 456

After having handed in an exam, it will be inserted into the system like this:
- First Semester 2024, Class 3022, Student Claire Johnson, first exam, grade 8
- First Semester 2024, Class 3022, Student Claire Johnson, second exam, grade 7
- First Semester 2024, Class 3022, Student Claire Johnson, final exam, grade 7
- First Semester 2024, Class 2199, Student Claire Johnson, first exam, grade 5
- First Semester 2024, Class 2199, Student Claire Johnson, second exam, grade 9
- First Semester 2024, Class 2199, Student Claire Johnson, final exam, grade 8

Tasks

1. Design an Entity-Relationship model that adapts to this case
2. Design each transaction and their attributes in GeneXus
3. Create a Diagram on GeneXus, insert all the transactions into it and compare it to the ER model designed on step 1. If there are any differences, explain the reasons why.