

Gradely

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Aim of the document

The aim of this document is to represent the project structure of the application named 'Gradely'.

The goal of this application is to provide people a simple way to manage their university career.

Overview

The presented system has the scope to allow professors, students and secretaries of an university to manage their personal and career data. Professors will find a personal dashboard for courses management, reception scheduling, and exam grading.

Students will be able to enroll to degree and subject courses, and to exams through their dashboard, as well as requesting a reception to a professor.

Secretaries are going to be entitled to complete their daily tasks of verbalizing and checking everything that goes through the system from a bureaucratic point of view, such as verifying if a student has paid all their taxes, attended all the mandatory classes and passed all the exams before validating their degree.

Hardware and software requirements

Hardware

In order to run the system on servers the hardware requirements will be scaled according to the usage, the biggest drive memory occupancy will be for the database, and will be depending on the size of the user pool.

We have made an estimation of 50k/100k active users, on the period of an academic year we estimate that there will be: 10k exams, 500k/1M exam enrollments, 5M/10M notifications.

Basing on an average size of 512B per record, this translates in 5TB of data storage units needed.

While the main memory needed for the System operation will be scaled to the average usage, we based our calculations on an average of 2k simultaneously connected users, with peaks as high as 15k, considering an average of 50MB of RAM for every 5 simultaneously connected users this adds up to 128GB.

A total number of 16 3GHz CPU cores will cover the system's processing.

System operation on the client side will be very low, any average personal computer will run it without any sort of problems since the biggest part of the load will be on the database.

Software

Client side, the software needs the presence of state of the art Java Runtime Environment version 19 or higher. The software is OS-independent since it is developed with Java language.

Server side, a MySQL installation (version 8 or higher) must be present on the database hosting machine.

Glossary

	Word	Meaning
Career		The set of all the academical achievements of a student, such as passed exams and the relative grades, conferred degrees with relative grades
Reservable exams		An exam to which an enrollment can be executed
Manageable exams		An exam of which results have to be inserted and which is not yet verbalized

User stories

Cantarini

- 1) As a professor, I want to insert students' grades so that the “segreteria” can verbalize them.
- 2) As a professor, I want to insert exams dates and reservations deadlines, so that my students can reserve their seats in advance and I can then choose a room with enough seats to accommodate them all.
- 3) As a student, I want to reserve a seat at exams, so that I will have a seat the day I want to take the tests.
- 4) As a student, I want to have a log in protected personal dashboard, so that I can manage my tax payments, my courses subscriptions, my exams reservations and my 'career'.

Cantone

- 1) As a student, I want to reserve a seat at exams, so that I can be sure I'll have a seat the day I want to take the tests.
- 2) As a teacher, I want to insert exams dates and reservations deadlines, so that my students will be able to reserve their seats in advance and I'll be able to choose the right room.
- 3) As a degree course admin, I want to create pages for all the classes of the degree course I admin, so that students can join the courses and get all the info about lessons and exams.

Functional requirements

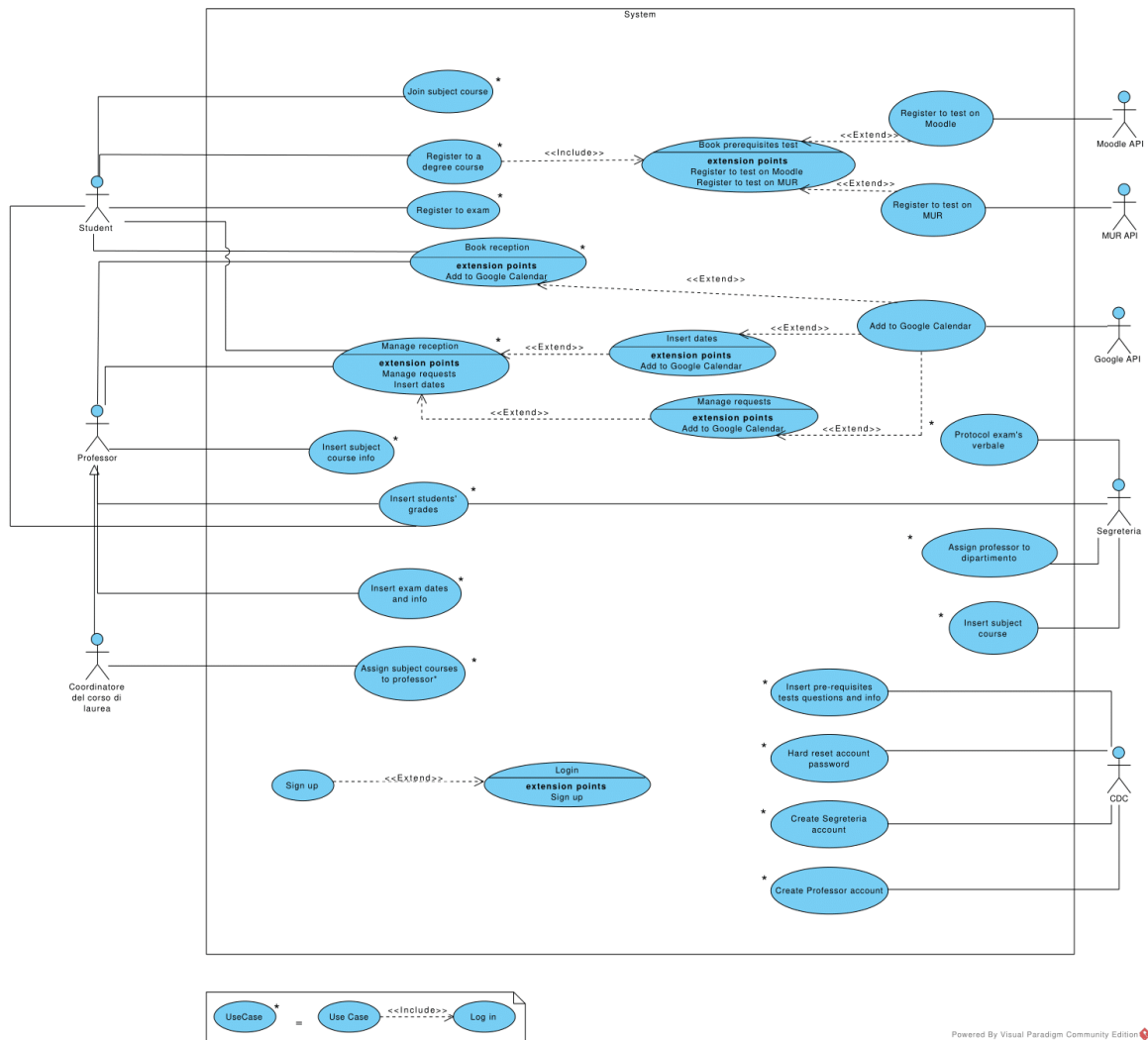
Cantarini

- 1) The system shall provide a personal role-based dashboard, after the login. When displaying the dashboard, the system shall provide access to the following functionalities:
 - a) For the students' dashboard, taxes payments management, courses subscriptions management, exams reservations management, career management, services and licenses activation, and personal info management.
 - b) For the professors' dashboard, taught courses visualization, exams dates insertion and students' grades insertions (for each exam date), and personal info management. In addition, for the professors who are "Coordinatore del corso di laurea", single subject courses management.
 - c) For the secretary, incoming taxes management, verbalization requests, and degree course enrollment requests.
- 2) The system shall provide a list of taxes from the current academic year, either paid or not, with the possibility to pay then directly or to download the payment module.
- 3) The system shall provide a notification system that show notification of action which involves the user to which the notification is intended.

Cantone

- 1) The system shall provide a list of all the *reservable exams*, and the possibility to reserve a seat for each of them, to students
- 2) The system shall provide a list of all the *manageable exams*, and the possibility to edit dates and registrations deadlines for each of them, to teachers
- 3) The system shall provide a subject course creation form with the possibility to choose which students can join it, basing on their degree course and surname, to degree course admins

Use case overview diagram



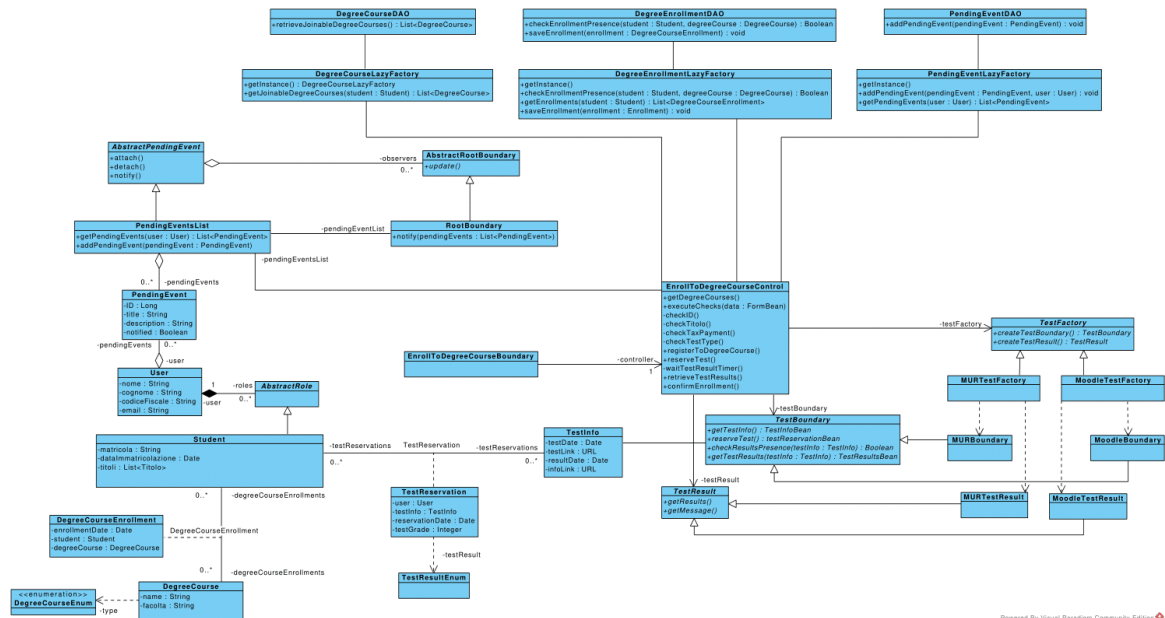
Storyboards

Please refer to the attached .html.

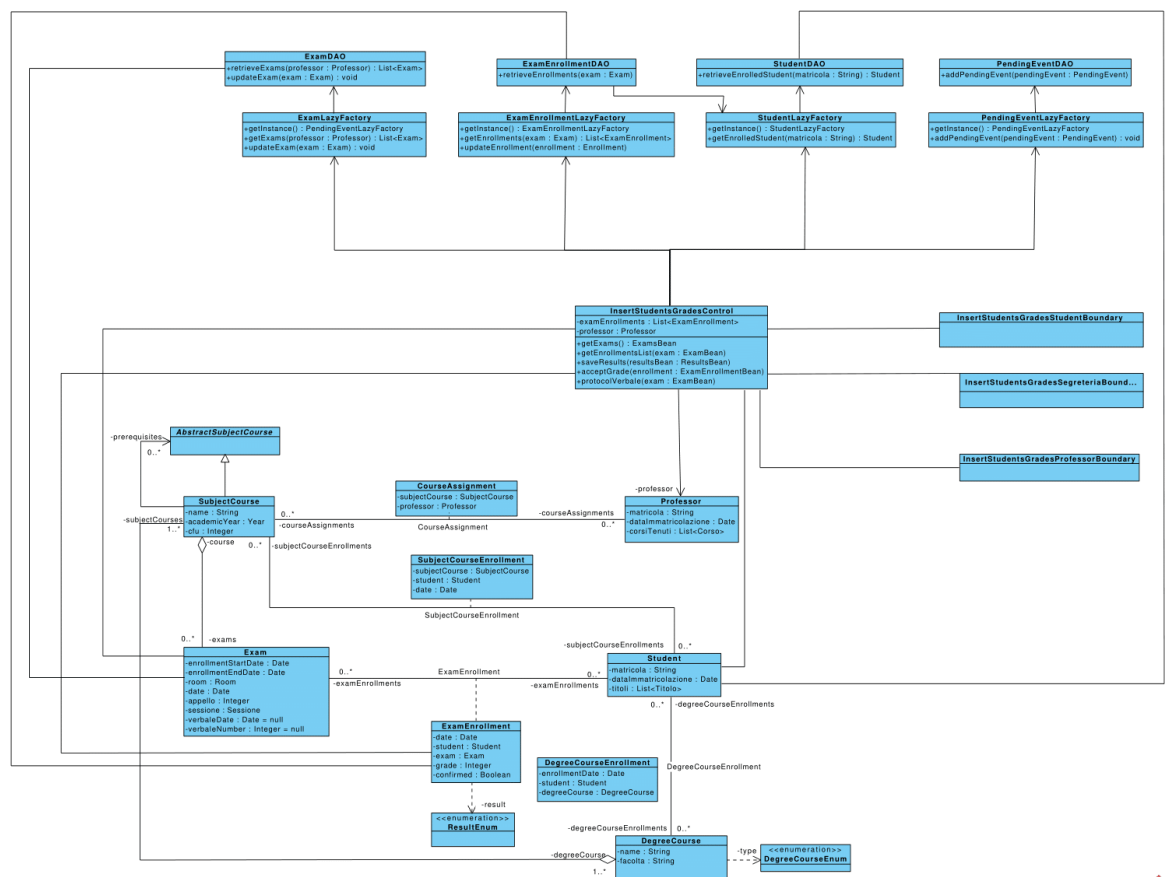
Design

VOPC

Please also refer to the attached entity class diagram.

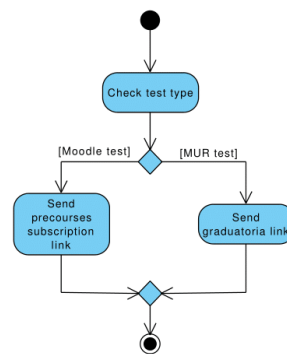
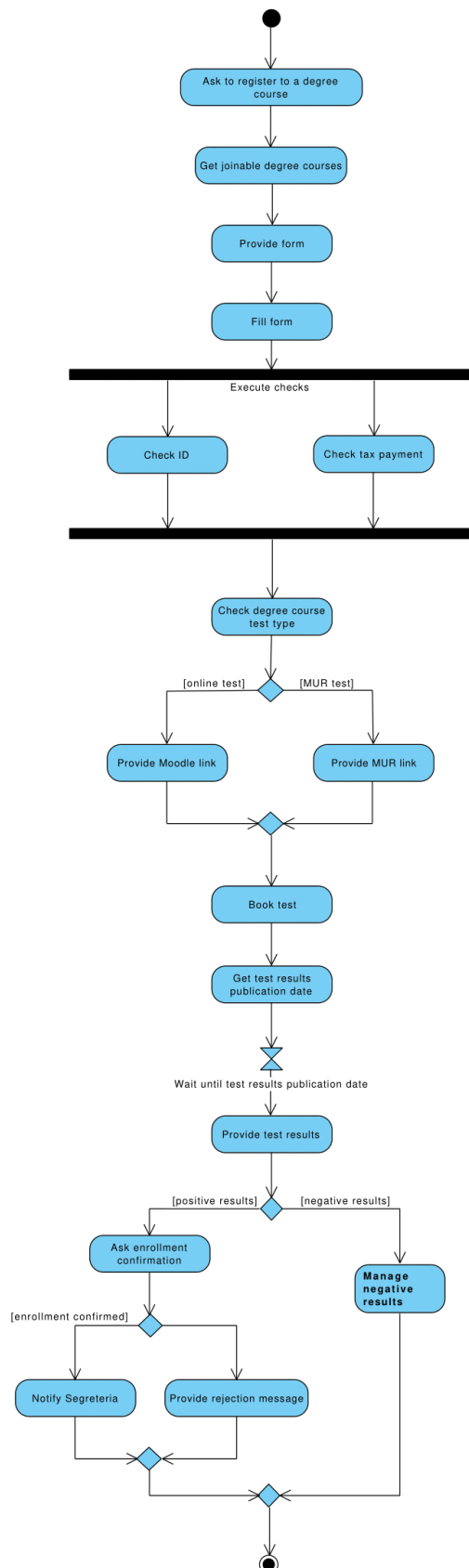


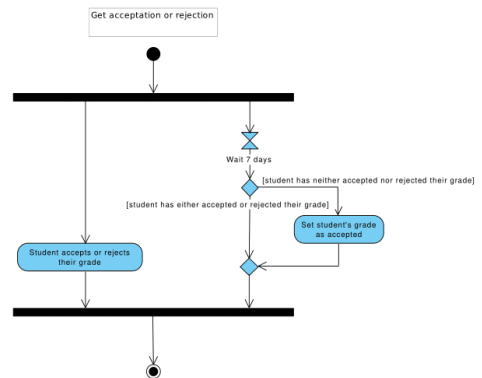
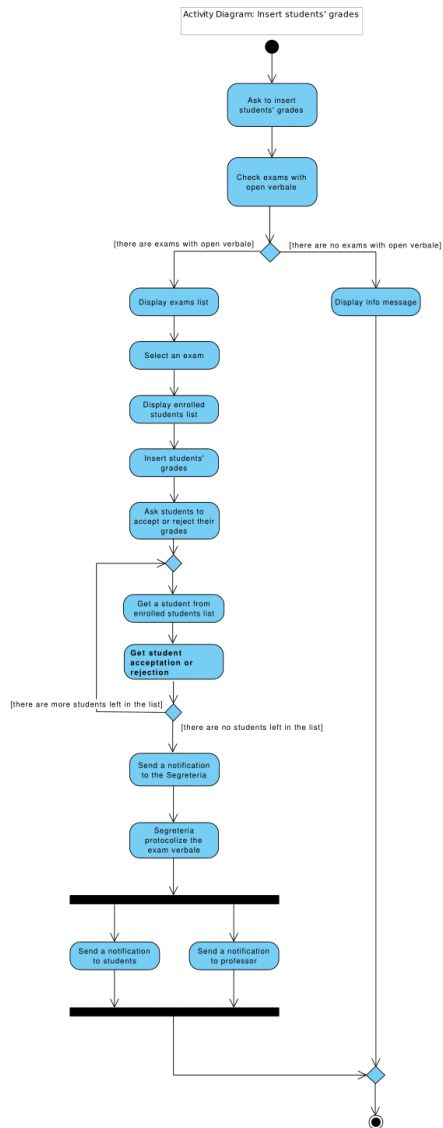
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Activity diagram





Sequence diagrams

Please refer to the attached PDF files.

State machine diagram

