Marmara University Engineering Faculty

Department of Computer Engineering

CSE3063 - OBJECT ORIENTED SOFTWARE DESIGN

ITERATION #1

REQUIREMENTS ANALYSIS DOCUMENT (RAD)

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Introduction

The aim of the project is to ensure that the students can send the courses they choose to the approval of the advisor, taking into account the grade point average that the students have up to the semester they are in, the courses they pass or fail, the prerequisites of the courses they fail, and the credits they have completed.

Problem description

In our project, a course registration system will be created for computer engineering students at Marmara University. In addition, students, advisors, the semester the student is in (freshman, senior), the courses that the students stay, the semesters that the students are in (fall/spring) will be created randomly.

After students and advisors are randomly created, each random student will have a random advisor. The reason for this is that students must send the courses they choose to the advisor's approval.

In order for the student's course registration system to work correctly, the things that the advisor should consider are primarily to ensure that the student cannot take the (conditional) courses of the courses he/she has stayed. In addition, the courses taken should not overlap and their hours should be determined. In addition, the credits of the courses taken by the student and the curriculum of the courses must be approved by the advisor.

In the list of courses offered in the course registration system, if the course that the student took or failed in the previous semester is opened again in that semester, the student must take this course first. In addition, if the student meets the credit conditions, they should be able to choose the courses for that semester. After these course selections are made, the student should send these selected courses to the advisor's approval. The advisor examines the courses chosen by the student, approves or rejects them.

The advisor's approval of the students chosen courses is subject to certain conditions.

These conditions are listed below:

-The section quota of the selected course is not full.

-If the selected course has a prerequisite course, it must be passed by the student

-If a credit requirement is required for the selected course, this credit requirement must be provided by the student.
-Any two courses chosen must not overlap for more than one hour
-The student should only take the courses included in the curriculum.

If even any of these conditions are not met, the advisor rejects the courses chosen by the student.

If any of the rejected courses of the student is a technical elective course, the student can enroll in another technical elective that is opened in that semester and the quota is not full. If one of these rejected courses is not a technical elective course, the student cannot take this course that semester and must wait for the course to be opened in another semester.

After the course registration process is completed, the student's approved course selections are recorded on the transcript and appear on the course taken tab.

Fully Dressed Use Case

Actors: Student, Advisor, Registration System, Course

1. Determining which grade the student is in, the period in which she will be registered and the list of the courses she has passed
2. Appointment of an advisor to the student registration system
3. The registration system adds the failed courses to the system.
4. The enrollment system must present the transcript to the student before enrolling
5. The registration system lists the compulsory courses that the student must enroll in and the compulsory courses belonging to the current semester.
6. The student should choose from the courses in the list presented.
7. The student must send the list of courses added to the registration system to the approval of the advisor in charge.

8. According to the list sent by the student, the advisor checks for conflicts and also checks whether the courses are credited and conditional.

9. After the student's required course eligibility is checked, she sends the course request and if the quota is not full, the student is successfully registered.

10. The student must register for the required courses in the drop-down list.

11. Students must successfully or unsuccessfully register themselves for the courses offered by the registration system

Alternative Flow: If there is an overlap in classes for more than an hour and it is mandatory to take that class

8a. There is no alternative for the courses that students are required to take during the semester if they cannot register for that course.

8b. If the student does not take a course, she acts according to the other courses in the curriculum.

Alternative Flow: If there is more than one conflict in elective courses

8c. If more than one course overlaps in technical elective courses, the student can choose from other elective courses offered to her/his.

8d. The student sends his/her choice of elective course randomly to the advisor's approval.

Alternative Flow: If the course to be taken by the student is full and the course is compulsory for the student

9a. Since the course that the student must choose is a compulsory department course, there is no option to choose another course.

9b. If the student cannot take the compulsory course, he/she should choose other compulsory courses.

Alternative Flow: If the student cannot complete the credit and prerequisite requirement and this course is compulsory for them

9c. If the student cannot meet the credit and prerequisite conditions, she cannot take the course because the compulsory course does not have an option like elective courses.

9d. The student must move on to the next lesson in the courses offered.

Alternative Flow: If the student cannot meet the prerequisite and the course to be taken is technical elective

9f. If the student cannot meet the prerequisite, she/he cannot take the technical elective course.

9g. The student creates a list of courses for which he/she has prerequisite and sends it to the advisor for approval.

9h. The advisor approves the student's course request from the registration system.

Functional Requirements

Functional requirements describe system behaviors. Functional Requirements can be divided into three main headings:

1- Priority

2- Critically

3- Risks

The functional requirements in the project are listed below:

- The system must provide an enrolled course for students.
- The system must provide transcripts for students.
- The system must provide courses that students need to register for.
- The system must adjust the relationship between course, prerequisite conditions, semester conditions and credit conditions for registration.
- The system should ensure that the student sees the courses that have been left before, that he needs to repeat, and that have just been opened to the student.
- The system should ensure that the student sends the course record to the advisor and that the advisor manages this process.
- If the student did not take that course, there must be a reason. There may be a reason related to the course quota, prerequisite, or curriculum.

Non-Functional Requirements

Non-functional requirements is a list what a customer wants criterias from the project (and its developers) while using it after the delivery :

1 - Availability

The system should not have any downtime, or if no downtime is impossible, the system should have as little downtime as possible.

2 - Maintainability

The code of the system should be reusable.

3 - Performance

The system should satisfy everything about efficiency. Response and startup times should be as short as possible.

4 - Safety

The system should avoid any damage to the environment or people. If there is no risk for damaging anything, it means the system is safe.

5 - Security

Security should be provided for the project. If the security is properly provided, the system is not going to give any access to intrusion.

Glossary

Registration: The process of registering courses.
Credit: The rate given per course in which students study throughout their university life.
Curriculum: Refers to the academic teachings and material covered in a course or program at a particular school.
Transcript: A certified record of a student with a full record of enrollment during a course of study, including all courses attempted, grades earned, and degrees and awards awarded.
Prerequisite: If a course has a prerequisite it means that another specific course(s) must be taken before entry to the course with the prerequisite.

Semester: One half of an academic year.

Quota: Subjects that limit the number of students that can enroll.

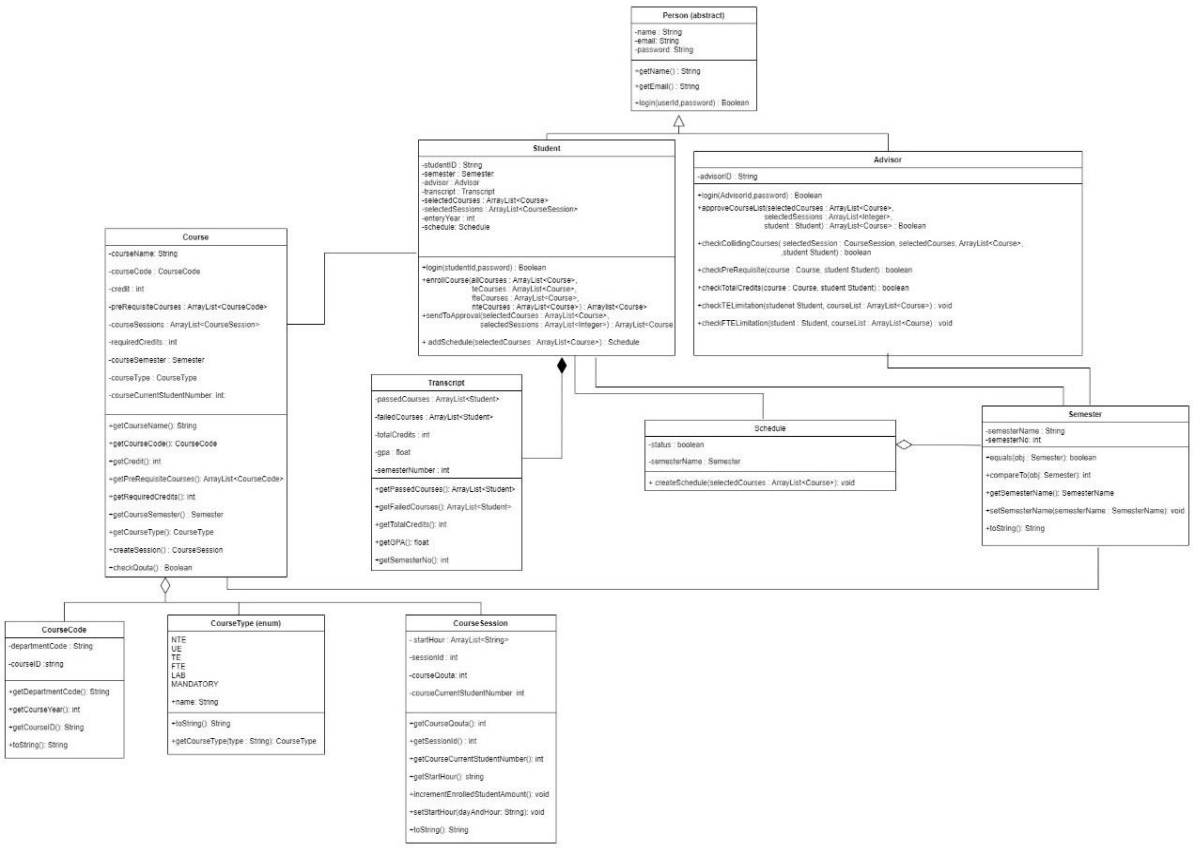
Lab: Laboratory. Practical lessons added to some departmental courses.

Session: Having more than one time slot option for a course.

GPA (Grade Point Average): The average of a student's scores for a particular period, usually on a scale of 1 to 4.0, with 4.0 being the best.

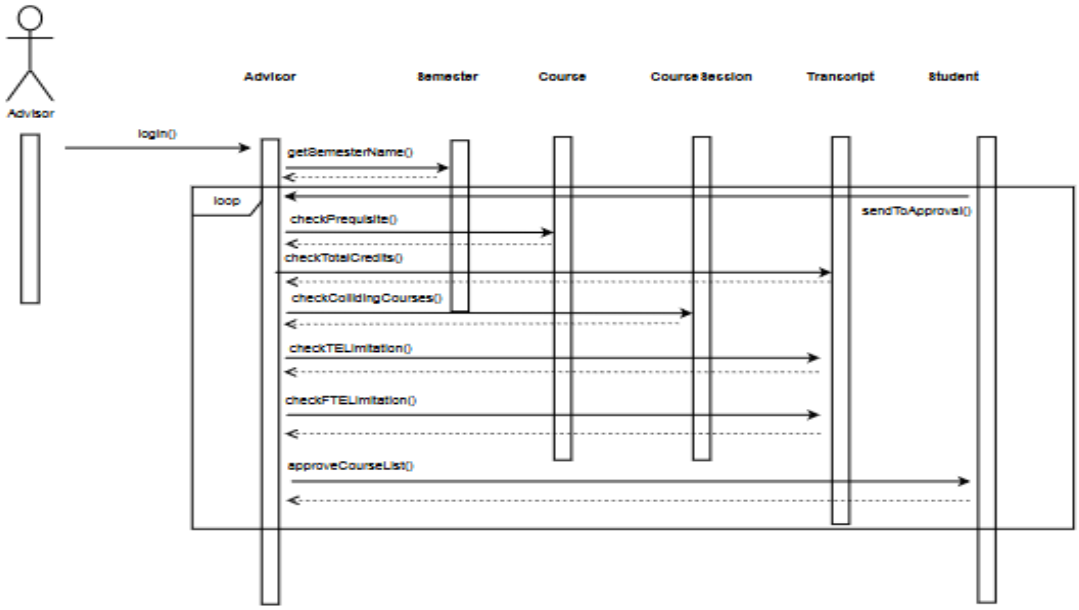
Department: A part of an organization.

UML CLASS DİAGRAM



SSD

1) Actor: Advisor



2) Actor: Student