CS 353 Database Systems
Project Proposal

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1. INTRODUCTION

With the increase in technological developments, technology became our eyes and ears. We are using technology in our daily life. Similar to this, universities are using web based systems for their course applications and student assessments. Every university has its own student system. For instance, we are using STARS system in our university. It has different parts(for students, for instructor etc.). We are planning to create STARS like database system with friendly user interface. Also we are going to include some additional usages. We are using Moodle system in order to submit our assignments in Bilkent. We are planning to integrate Moodle like system into our system.

2. PROJECT DESCRIPTION

ARS is an extensive online academic database system planned to support both the students and the faculty members. For students, it allows them to enroll into courses, submit their assignments, track their course performance. For Instructors, it offers a convenient platform on which they can choose which courses to offer while giving them options to set or modify the requirements and grading criteria for said courses. ARS also allows Instructors and TA's a simple and easy way to grade exams and assignments.

Instructors "offer" courses which make it available to students. And offered course then is divided into sections depending on how many instructors chose offer this course and how many students pre-registered to it. Multiple sections may be assigned to a single instructor

depending on the number of pre-registered students. Instructors can also input grades into exam entities which are identified by the unique combination of student and course primary keys plus the exam_number attribute.

Students can access to offered courses and pre-register them through ARS. When pre-register period ends, pre-registered students are divided into sections. Instructors offering this course then can set a student limit for course sections. System would then prevent students from enrolling into sections which has reached the student limit. When a course assignment is given, a new assignment entity would be created for each registered student. Each assignment entity has deadline, assignment number and type attributes from start. When student uploads their assignment as a file, it is also placed inside the created entity. TA's can access those entities to download/view submitted files and grade them.

2.1 Why use a database for ARS system?

To accomplish ARS' intended goals, we need a safe, reliable and ordered way to store and access relevant data. It also needs to be considered that such a system like would have to keep track of hundreds of teaching staff and thousands of students while also keeping tracks of all the offered courses, assignments and etc. A database is the best and most reliable way to organize and keep such large amounts of interconnected data.

2.2 How database is going to be used as part of the ARS system?

The database will store relevant data about instructors, teaching assistants and students along with data about courses, course sections, exams, assignments. Instructors will be able to

offer courses and set course requirements and grading criteria. TA's will have access to assignments students submitted depending on their departments meaning TA's of CS department will be able to access CS assignments. Students will be able to use this system to enroll in courses by picking from available sections while also keeping track of their schedules, grades and attendances. They will also be able to submit their course assignments through ARS.

3. REQUIREMENTS

3.1 Functional Requirements

Students

Students should be able to pre-register and/or enroll into courses. They should also be able to submit their assignments and keep track of their course performance.

Instructors

Instructors should be able to choose which courses they will teach. They should also be able to access students exams and grade them. Lastly they should be able to set grading criteria and requirements for a course.

Teaching Assistants

Teaching assistants should be able access student assignments uploaded into the system and grade them.

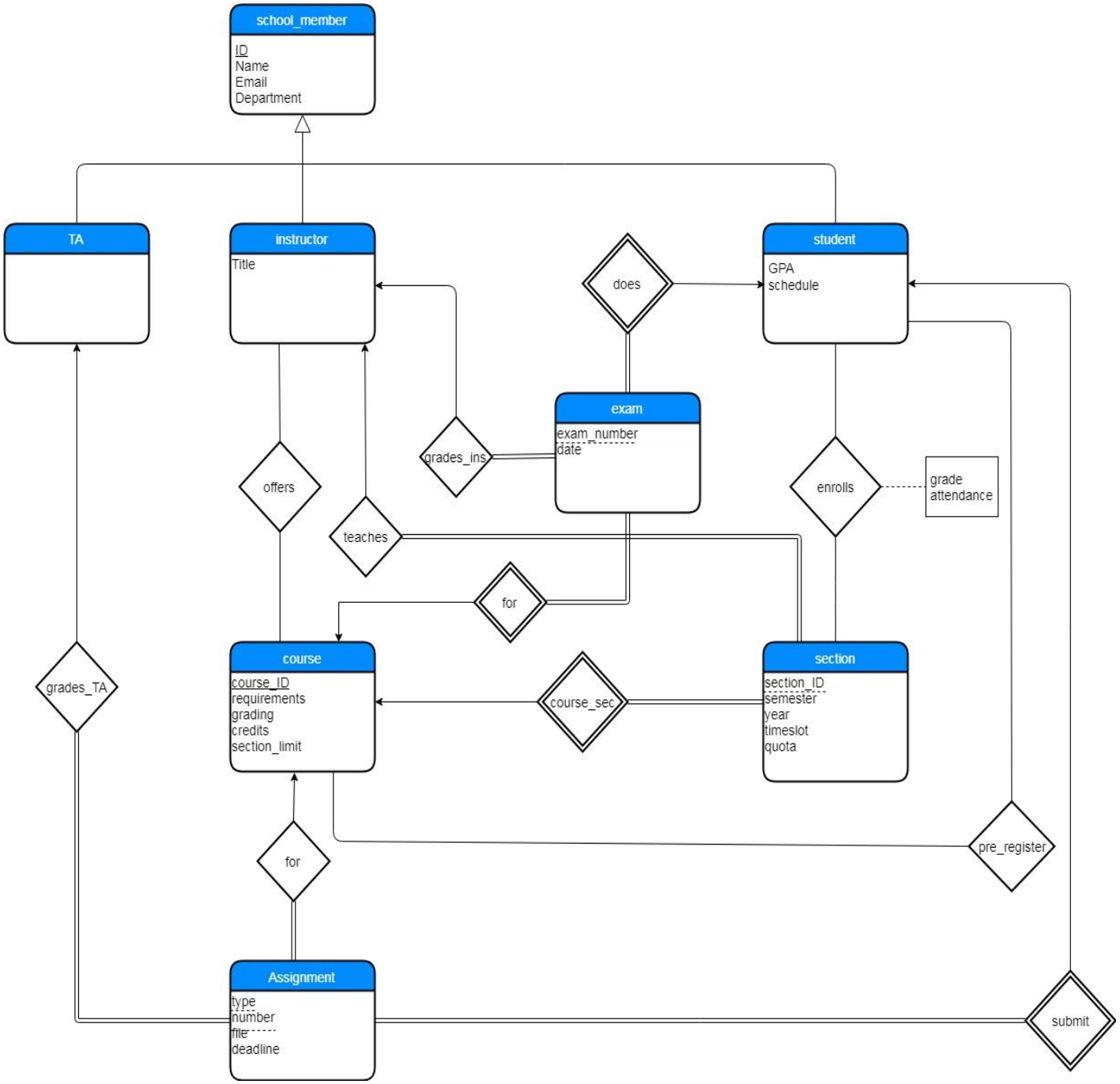
3.2 Non-Functional Requirements

- Students should be able to view their schedules.
- An option for a student to filter available course sections according to his/her open timeslots.

4. LIMITATIONS

- Every section will have its quota and quota can not be exceeded.
- TA's can not open new courses.
- There will be submission limit for each assignment.
- Students can not see other students' grades.
- There will be course limit for student and a student can not exceed that limit.
- TA's can not see students' other courses than they are assisting.

5. ENTITY RELATIONSHIP DIAGRAM



6. CONCLUSION

We designed a relational database diagram for our system ARS. ARS is similar to STARS system but it has some differences. Major difference is integrating Moodle like assignment submission and grading system to the main student system. There will be three different users which are students, TA's and instructors. Teachers can create courses and grade exams. TA's can grade related assignments. Students can see their performance via ARS.

7. WEBSITE

Web Site link: https://bryanocanner.github.io/ARS/

GitHub Repository: https://github.com/bryanocanner/ARS

8. REFERENCES