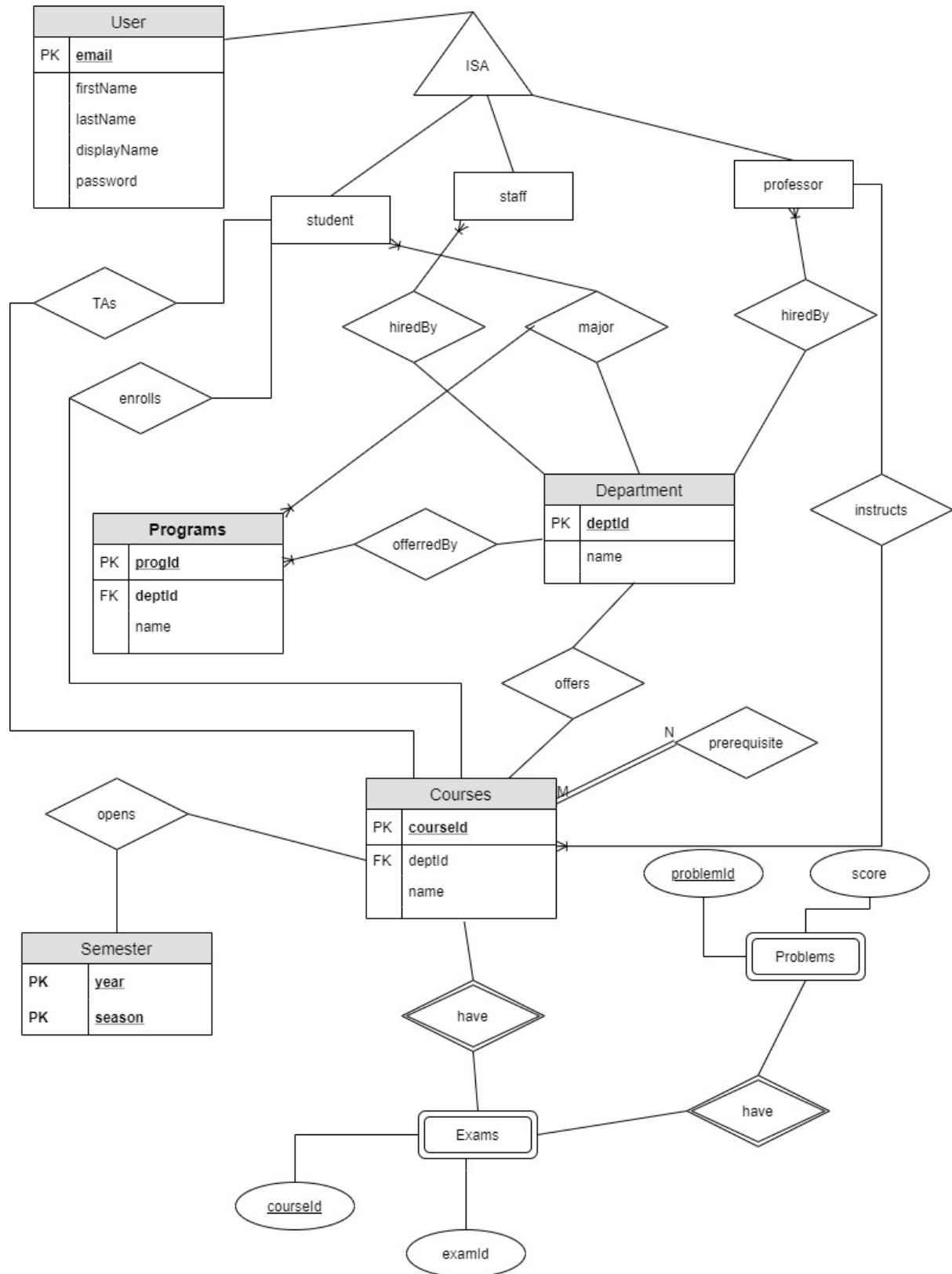
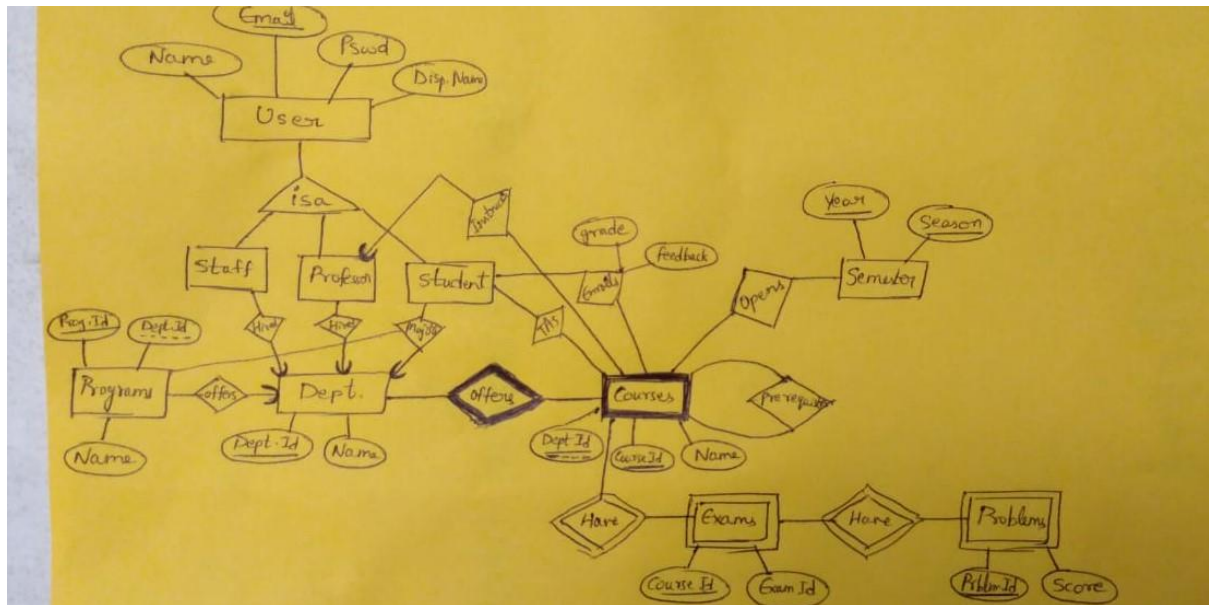


Project Report - 1

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E/R Schema:





Relational Database Schema:

The following tables have been created:

- Student
 - Professor
 - Staff
 - Department
 - Programs
 - ProfHire
 - StaffHire
 - Courses
 - Majors
 - Prerequisites
 - Semester
 - StudentRegister
 - CoursesOpen
 - Enrolls
 - Exams
 - Problems
- The Student, Professor and Staff tables contain the individual email, username, name, dispName (which is optional and hence we excluded the NOT NULL option for this attribute) and password attributes
- The department table consists of department id and the department name.

- The Programs table consists of the program id, department id and the program name. The department id is the foreign key and we used “on delete cascade” to ensure that once the department is deleted, the programs it offers also get deleted.
- The proffhire and staffhire tables ensure that they are hired by the department which are in turn shown by taking the department id as the foreign key
- The courses table is the major table. It has the course id as the primary key and the department id as the foreign key. It also has the TA Email, the instructor email and the enrolled and the maximum enrolled as the other attributes. The check condition of maxenrolled ensures that students don't register in a course which is already full.
- The majors table has the student majoring in certain department only to pursue certain programs covered.
- The prerequisites table is a recursive relation to the courses entity itself.
- The semester table has the year and a season as the attributes as well as the primary keys.
- The studentregister table has the records of in which semesters the student has registered. This is used when verifying that the student registers to the semester before registering to any course.
- The enrolls table verifies that the student is enrolled in the course. This is where the grades in only the certain maintained range A/B/C/D/F are checked.
- The exams and the problems table consist of the exams of courses and the problems of the respective exams.

Further Discussion:

Advantages and Disadvantages:

- The Advantages include the duplicity of the data is avoided as much as possible.
- All the entities and relationships are properly divided and mentioned into the tables compactly.
- The disadvantages would be that we tried but failed in implementing the scores of the individual students without including duplicity, but which can be achieved through making multiple joins among relations.
- We might have overlooked the normal forms while designing the databases.