

## **CSL 301 - Introduction to Database Systems**

### **Course Project Addendum--- Extra Work for Team Size-1**

#### **General Instructions:**

- Students may use the given idea and develop it into a full-scale project proposal. We are just giving a just high level idea of the project and by no means a full specification.
- You are allowed C/ C++, JAVA, PHP and Python for these projects. For any other language, you should first get an approval.

#### **Application Description**

**(Team of size-1 should be doing this part in-addition to Mongo-DB part defined in the original project specification)**

You are required to design and implement an multi-user database application for managing the academic portal of an academic institute. You should be able to encode several of the real world concepts into the application. For the sake of convenience, we would be focusing on creating a portal which is a subset of the academic policies of our institute. Consider the following stakeholders.

- Students
- Faculty
- Faculty Advisor.

#### **Design a database which comprises of the following concepts:**

1. Course Catalogue: This contains all the list of courses which can be offered in IIT Ropar. For each course, we have information on its credit structure (L-T-P) and list of pre-requisites (if any).
2. Course Offerings: Each semester, a faculty offers one or multiple courses. These courses should be present in the course catalogue. With each course offering, the instructor also provides a list of batches which are allowed to register in the course. In addition, instructor may also define additional constraints (e.g., CGPA > 7.0. You need to put a stored procedure for this)
3. Student Registration: A student views the courses floated for their batch and registers for one or more courses. However, the number of credits he/she is allowed is governed by the scheme governed by the institute (1.25 times the average of the credits earned in the previous two semesters).
4. Ticket Generation: If a student wishes to enroll for courses which are beyond what is allowed by the credit-limit and the course-offering-restrictions, then he/she raises a ticket. This ticket goes to the faculty advisor. After the faculty advisor approves, the registration is added.
5. Grade entry by Course Instructors

**Various Checks, Stored Procedures, Constraints and Privileges to be implemented:**

1. A student is not allowed to register for courses which are scheduled in the same time-slot.
2. A student is not allowed to register for courses without clearing the pre-req.
3. Also he/she not allowed to register for more than the allowed credit limit (unless his tickets are approved).
4. Implement a stored procedure to compute the current CGPA of the student.

**Portals to be Implemented:**

- Each of the key entities such as student, faculty and faculty advisor should have a portal to undertake their regular duties.