Description

In Assignment 1 you had to create an ERD diagram for a website that would allow students and lecturers to access course content (OURVLE clone). You have been hired as a backend engineer by a new school that is opening up to create a course management system. You are given the task of designing the database, creating the database and creating an API that can be used by a frontend service such as a web application or mobile app.

Your API must allow the following

- **Register User**
  - A student/lecturer should be able to create an account.
  - A user should be able to register with a userid and password
  - A user can be an admin, lecturer or student
- **User Login**
  - A student/lecturer should be able to with credentials
- **Create Course**
  - An admin should be able to create a course
  - Only admins should be able to create a course
- **Retrieve Courses**
  - Retrieve all the courses
  - Retrieve courses for a particular student
  - Retrieve courses taught by a particular lecturer
- **Register for Course**
  - Only one lecturer can be assigned to a course
  - Students should be able to register for a course
- **Retrieve Members**
  - Should return members of a particular course
- **Retrieve Calendar Events**
  - Should be able to retrieve all calendar events for a particular course.
  - Should be able to retrieve all calendar events for a particular date for a particular student.
- **Create Calendar Events**
  - Should be able to create calendar event for a course

- **Forums**
  - Should be able to retrieve all the forums for a particular course
  - Should be able to create a forum for a particular course
- **Discussion Thread**
  - Should be able to retrieve all the discussion threads for a particular forum.
  - Should be able to add a new discussion thread to a forum. Each discussion thread should have a title and the post that started the thread.
  - Users should be able to reply to a thread and replies can have replies. **(Think reddit)**
- **Course Content**
  - A lecturer should have the ability to add course content
  - Course content can includes links, files, slides
  - Course content is separated by sections.
  - Should be able to retrieve all the course content for a particular course
- **Assignments**
  - A student can submit assignments for a course.
  - A lecturer can submit a grade for a particular student for that assignment.
  - Each grade a student gets goes to their final average.
- **Reports**
  - All courses that have 50 or more students
  - All students that do 5 or more courses.
  - All lecturers that teach 3 or more courses.
  - The 10 most enrolled courses.
  - The top 10 students with the highest overall averages.

Submission

1. An ERD diagram for this application. You must convert these to tables and these tables must be normalized.
2. You must create a database based on this design. You will be required to show the sql scripts that were used to create the database.
3. You are required to have data inserted in your database based on the following specifications.
   a. You must have at least 100,000 students.
   b. You must have at least 200 courses.
   c. No student can do more than 6 courses
   d. A student must be enrolled in at least 3 courses.
   e. Each course must have at least 10 members.
   f. No lecturer can teach more than 5 courses.
   g. A lecturer must teach at least 1 course.

4. You are required to show the sql queries that inserted all this data.
5. You must create a REST API that will show functionality for the features outlined above. You are allowed to use any framework you please. You are not allowed to use an ORM which means raw sql queries must be used to retrieve and manipulate data.
6. You will submit a postman collection for the API. You will be required to prove that your API is working with said postman collection during presentation.
7. You are required to do this project in groups of 4-5. You will be required to present the functionality outlined above. Each member of the group will need to state their responsibility in the group and how they contributed to the final project. This should be stated in the same pdf the erd will be submitted in.

Bonus

Create a frontend application that makes use of the API you create. Your frontend application can be a website or a mobile app.