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PROJECT 1

Report on Database Development and Application Implementation

Task Overview

I have been given a task by the Computer Engineering Department to create a relational database to support a new software application. This application will manage various functions such as course enrollment, fee payments, personal information of students, lecture assignments, and teaching assistant assignments. I also have to create an application using Next.js 14 that has a dashboard, register, and login features. A thorough explanation of the actions done to meet these standards may be found below.

Database Development

Database Management System: PostgreSQL, which is renowned for being the world's most advanced open-source database.

1. Database Creation

- **Database Name**: student management

2. Table Creation

Tables and their attributes:

1. **Students**

   - Student_id (Primary Key)
   - first_name
   - last_name
   - date_of_birth
   - email
   - phone number

2. **Course**

- Course_id(Primary Key)
- Course_name
- Course_code

3. Fees_payments
- Payment_id(Primary Key)
- Student_id(Foreign Key)
- Amount_paid
- Payment_date
- Total_fees

4. **CourseEnrollment**

- Enrollment_id(Primary Key)
- Student_id(Foreign Key)
- Course_id(Foreign Key)
- Enrollment_date

5. **Lectures**

- Lecturer_id(Primary Key)
- First_name
- Last_name
- Email

6. **Lectures_Courses**

- Assignment _id(Primary key)
- Lecturer_id(Foreign Key)
- Course_id(Foreign Key)

7. **TA**

- Ta_id(Primary Key)
- First_name
- Last_name
- Email

8. **TA_course**

- Assignment_id(Primary Key)

- Lecturer_id(Foreign Key)
- Ta_id(Foreign Key)

Application Development

Framework: Next.js 14

Features Implemented:

1. **Login Page**: Allows users to log in.
2. **Register Page**: Allows new users to register.
3. **Dashboard**: Displays user-specific information after logging in.

Project Submission

GitHub Repository: All source code, database scripts, and a database backup have been pushed to a GitHub repository.

Repository URL: GitHub Repository

Conclusion

This project encompasses the creation of a comprehensive relational database using PostgreSQL, which supports various functionalities essential for managing a university's administrative tasks. Additionally, a Next.js application was developed to provide a user interface for interacting with the database. The entire project has been documented, and all source code has been submitted to the provided GitHub repository.