

# Computer Engineering Department Project Report

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Project Title: Computer Engineering Department Software System

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## 1. Introduction

This project is aimed at building a software system for the Computer Engineering Department. The system includes a relational PostgreSQL database and a frontend built with Next.js 14. It supports login, register, and dashboard functionalities, as well as fee tracking and academic management.

## 2. Tools and Technologies

- PostgreSQL (Database)
- Next.js 14 (Frontend Framework)
- Tailwind CSS (Styling)
- Prisma (ORM)
- Git & GitHub (Version Control)

## 3. Database Design

The PostgreSQL database includes the following tables:

- Students
- Fee Payments
- Courses
- Enrollments
- Lecturers
- TAs
- Lecturer-Course

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- Lecturer-TA

It also includes a function that returns outstanding fees per student in JSON format.

## 4. Application Pages

- Login: User enters email and password to access the system.
- Register: New users create an account.
- Dashboard: Displays student and fee information.

Pages are organized using the App Router structure in Next.js 14.

## 5. How to Run the Project

1. Clone the repository: [https://github.com/BabyMasa/22167139\\_project1](https://github.com/BabyMasa/22167139_project1)
2. Run ``npm install`` in the ``nextjs-app/`` folder
3. Create a ``.env.local`` with the PostgreSQL connection string
4. Use ``psql`` to run the scripts in the ``database/`` folder
5. Start the app with ``npm run dev``

Make sure PostgreSQL is installed and running.

## 6. Conclusion

This project demonstrates integration between a relational database and a modern web framework.

It supports the management needs of the Computer Engineering Department effectively.