**Student Management System Phase 2 – Report**

# Description of your proposed platform

Give an overview of how your application works

Our platform is a student management system built for the CSE department at Qatar University. It supports three types of users: students, instructors, and administrators. Each user has access to specific features such as course registration, grade submission, and course validation.

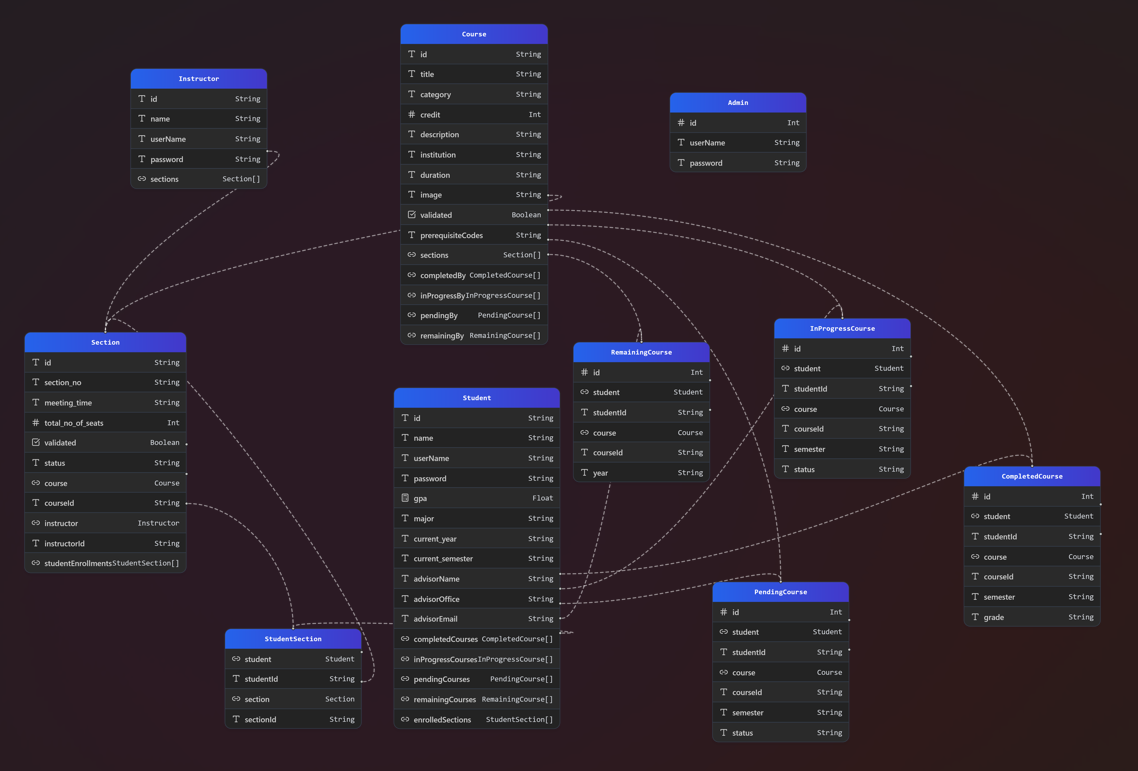
In Phase 1, we created the full interface using HTML, CSS, and JavaScript. Data was stored in JSON files. Students could log in, search for courses, register if they met the conditions, and view their academic progress. Instructors could access their classes and submit grades. Administrators were able to validate or remove courses and create new classes.

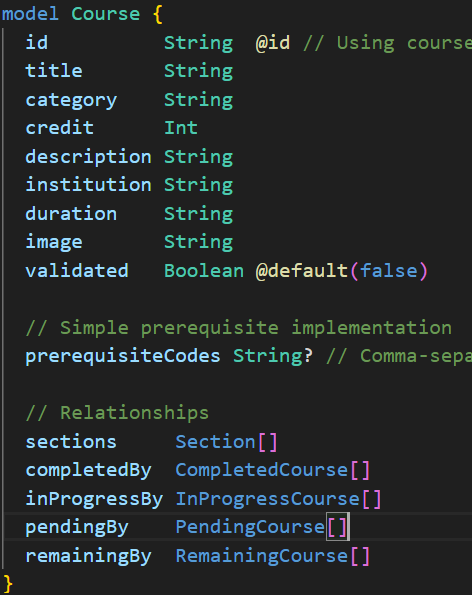
In Phase 2, we moved the data to a real relational database using Prisma ORM and SQLite. We built a repository using Prisma Client to handle data operations, with filtering and aggregation done directly in the database through queries.

We also added a new statistics page for administrator, built with Next.js and React. This page shows various academic statistics such as failure rates, GPA trends, course popularity, and instructor activity. The data is served through an API using Prisma queries.

Authentication is handled using NextAuth, with support for both GitHub and username/password login.

# Data Model





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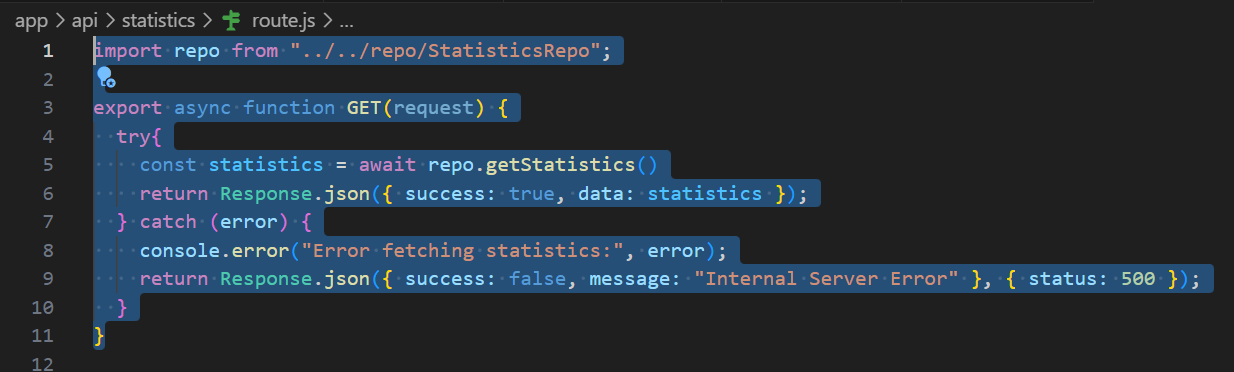
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# Web API, Server Actions and repository

GET /api/statistics: Calls getStatistics() from StatisticsRepo and returns the statistics in JSON.



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# Implemented statistics use case

# User Interface

We put the statistics page under the Admin role only not the student nor the instructor

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CredentialsProvider:

username: admin1@example.com

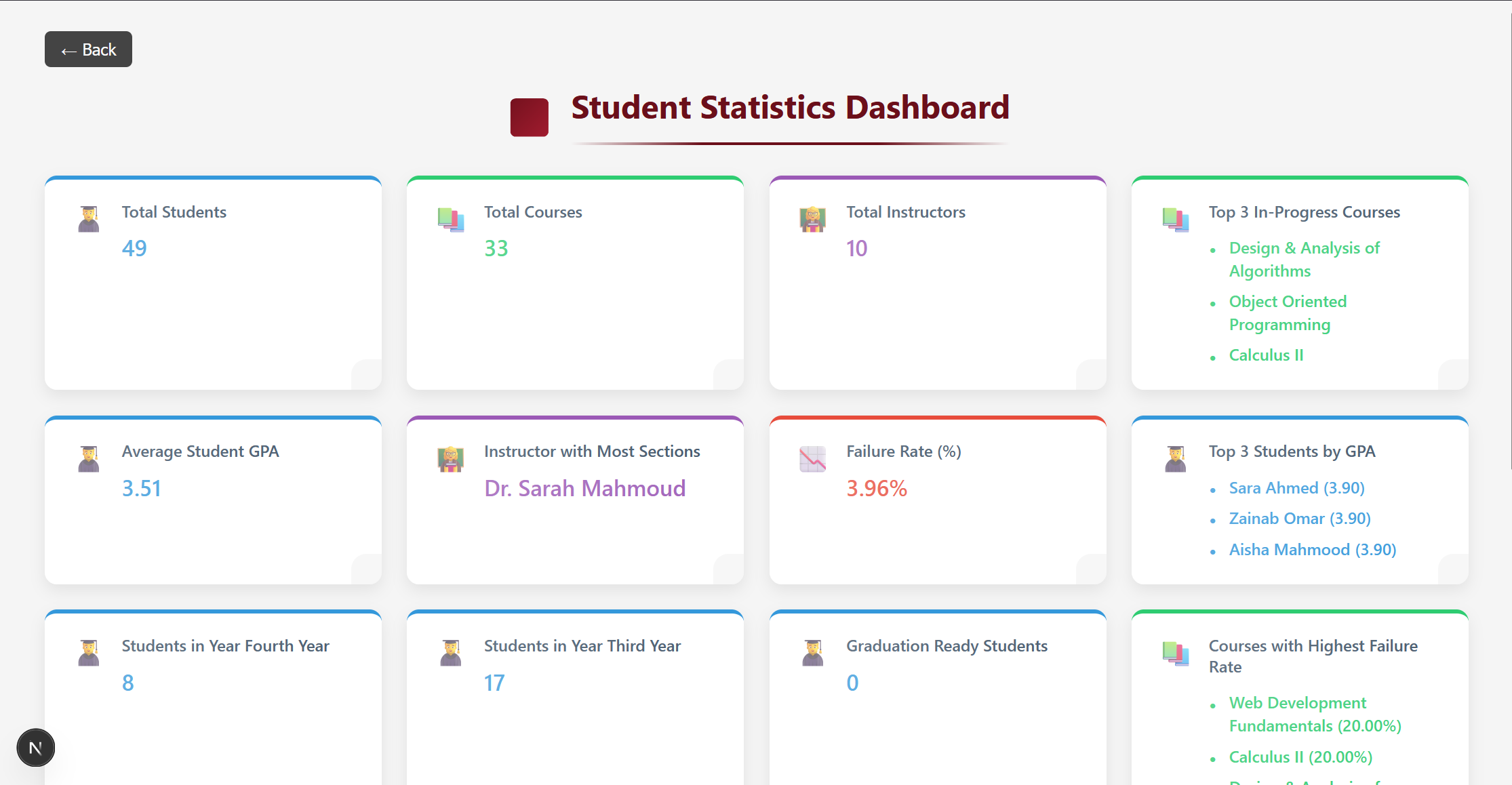
Password: admin123

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GitHubProvider

The frontend dashboard displays a list of statistics in a card/grid format. Each card shows the title and value returned by the getStatistics() method.



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# Implemented queries

**Implemented Queries in Repository:**

1. Total Students
2. Total Courses
3. Total Instructors
4. Top 3 In-Progress Courses
5. Average Student GPA
6. Instructor with Most Sections
7. Failure Rate
8. Top 3 Students by GPA
9. Students per year (excluding Second Year)
10. Graduation Ready Students
11. Top 3 Courses by Failure Rate
12. Validated vs Non-Validated Courses
13. Most Popular In-Progress Course
14. Average Sections per Instructor
15. Students with No Completed Courses

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# Data used in the statics

**Student Table**: for GPA, current year, remaining/completed courses

**Course Table**: for titles and validation

**Instructor Table**: for names and section count

**InProgressCourse Table**: for current enrollments

**CompletedCourse Table**: for grades and completions

**Section Table**: for instructor-course relationships

# Conducted tests

Test for Statistics API

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