BANNARI AMMAN INSTITUTE OF TECHNOLOGY
An Autonomous Institution Affiliated to Anna University - Chennai, Accredited by NAAC with A+ Grade
Sathyamangalam - 638401 Erode District, Tamil Nadu, India

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Project ID: 18

Project title: Course Registration

Technical Components:

Component	Tech Stack
Front End	• Angular (JS Framework)
Back End	• Express.js (Web framework for Node.js) • Node.js (JavaScript runtime environment)
Database	• MongoDB (NOSQL Database)
API	• REST Ful API / GraphQl APIs

PROBLEM STATEMENT:

Develop a Course Registration System that allows students to register for department-specific mandatory courses, electives, and add-on courses, supporting student and administrator roles. Students will manage course registrations, ensuring prerequisites are met and avoiding scheduling conflicts, while administrators will handle course catalogs, registration periods, and issue resolution. The system features a comprehensive course catalog, user-friendly interfaces, notifications for deadlines, and robust reporting and analytics. It must be secure, scalable, and efficiently handle concurrent users. Deliverables include a fully functional system, detailed documentation, and test reports, evaluated based on functionality, usability, performance, security, and documentation quality, aiming to streamline the registration process for all users.

PROJECT-FLOW:

Purpose:

The purpose of the Course Registration System is to streamline the process of registering for department-specific mandatory courses, electives, and add-on courses, ensuring an efficient, user-friendly experience for students and administrators. It aims to facilitate easy course management, prerequisite checking, and conflict resolution while providing secure, scalable support for concurrent users. The system includes comprehensive course catalogs, intuitive interfaces, timely notifications, and detailed reporting and analytics, ultimately enhancing the overall registration process and administrative oversight.

Scope:

The Course Registration System will enable students to register for mandatory departmental courses, electives, and add-on courses. It includes developing a comprehensive course catalog, managing registration periods, and ensuring prerequisites and scheduling conflicts are addressed. The system will feature user-friendly interfaces for students and administrators, notifications for deadlines, and robust reporting and analytics for registration tracking. It will support secure, scalable operations to handle high concurrent user volumes, with thorough documentation and test cases ensuring reliability and ease of use.

Business Context:

The Course Registration System will streamline course registration for students, featuring a comprehensive catalog, intuitive interfaces, and automated checks for prerequisites and scheduling conflicts. It will provide timely notifications, robust reporting, and analytics, supporting data-driven decision-making. Designed for high concurrent user volumes with security and scalability, the system will enhance user experience, reduce administrative overhead, and ensure a seamless educational environment, backed by comprehensive documentation and thorough testing for reliability.

Consideration:

1. **User-Friendly:** Make the system easy to use for both students and administrators.
2. **Scalable:** Ensure it can handle many users at once, especially during busy registration times.
3. **Secure:** Protect student data and prevent unauthorized access.
4. **Compatible:** Work well with existing systems used by the institution.
5. **Flexible:** Allow easy updates to courses and settings as needed.
6. **Accessible:** Ensure all students, including those with disabilities, can use the system.
7. **Support:** Provide training and help for users to adopt the system smoothly.
8. **Accurate Data:** Maintain data accuracy and consistency.
9. **Compliant:** Follow legal and regulatory requirements.
10. **Feedback:** Gather user feedback for ongoing improvements.

Dependencies:

1. **Technology Tools:** Choose the right tools and software to build the system, like programming languages and databases.

2. **Data Access:** Make sure we can get the correct information we need, like course lists and student records.

3. External Tools: Use other tools that can help us, like ones for sending notifications or analyzing data.

4. Setting Up: Get everything ready, like servers and databases, to run our system smoothly.

5. Security: Keep the system safe from hackers by using things like passwords and encryption.

User personas:

- **Student User Persona:** A student highly motivated and enjoys participating in various extracurricular activities to enhance her skills and network with peers.

- **Administrator User Persona:** An administrator responsible for managing student activities at the university. He's organized, detail-oriented, and committed to ensuring a smooth experience for all users.

User Stories:

- **Student User Story:**

  Register for Department Courses: As a student, I want to register for my department's mandatory courses easily.

- **Administrator User Story:**

  Course Management: As an administrator, I want to manage the department courses offered by our institution.

Functional Requirements:

1. User Authentication: Users should be able to log in securely with their credentials to access the system.

2. Course Search and Selection: Students should be able to search for courses by department, course code, or title and select their desired courses for registration**.**

3. Prerequisite Checking: The system should verify whether students meet the prerequisites for each course they intend to register for.

4. Registration Management: Students should be able to add, drop, or modify their course registrations within specified registration periods.

5. Elective Course Selection: Students should have the option to choose elective courses from a list of available options, both within and outside their department.

6. Add-on Course Registration: Students should be able to register for additional courses that offer supplementary skills or certifications.

7. Course Catalog Management: Administrators should be able to create, update, and delete course listings, including department courses, electives, and add-on courses.

8. Registration Period Management: Administrators should set up and manage registration periods, including opening and closing registration, and setting rules for adding or dropping courses.

9. Conflict Resolution: The system should detect and resolve scheduling conflicts when students attempt to register for overlapping courses.

10. Notifications: The system should send notifications to students about important registration dates, deadlines, and any changes to their registered courses.

11. Reporting and Analytics: Administrators should have access to reporting and analytics features to track course registrations, enrollment numbers, and departmental statistics.

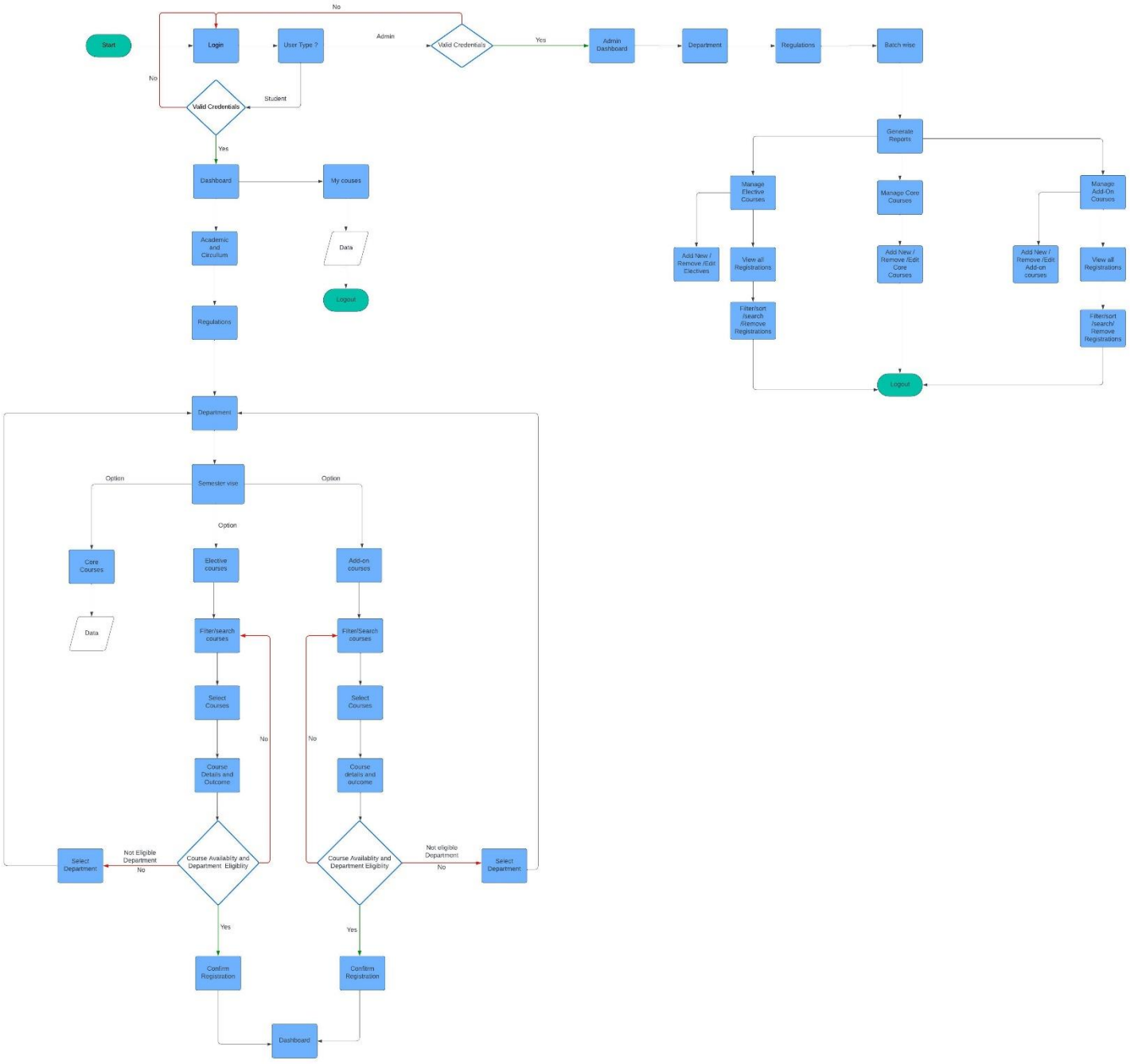
12. Admin Dashboard: Administrators should have access to an intuitive dashboard to manage courses, view registration statistics, and handle student inquiries and issues.

13. User Profile Management: Users should be able to update their profiles, including contact information and course preferences.

14. Accessibility: The system should be accessible to all users, complying with relevant accessibility standards to accommodate users with disabilities.

15. Data Security: The system should implement security measures to protect student data and ensure the integrity and confidentiality of information.

FLOW CHART: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Admin
Valid Credentials
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Admin Dashboard
Department
Regulations
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Student
Valid Credentials
No
Yes
Dashboard
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Logout
Academic and Circulum
Regulations
Generate Reports
Manage Elective Courses
Manage Core Courses
Manage Add-On Courses
Add New / Remove /Edit Electives
View all Registrations
Filter/sort /search /Remove Registrations
Add New / Remove /Edit Core Courses
Add New / Remove /Edit Add-on courses
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Select Department
Not Eligible Department
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Select Department
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Confirm Registration
Confirm Registration
Dashboard