NORTH SOUTH UNIVERSITY

Center of Excellence in Higher Education

Project Name: University Course Registration System

Groups Members Details:

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Brief Description of the Project

The **University Course Registration System** aims to provide a streamlined, efficient, and automated platform for students to register for courses in an academic institution. The system is designed to replace traditional manual methods with a centralized, digital approach, reducing errors, improving accessibility, and ensuring a fair and transparent registration process.

Students will be able to browse available courses, check prerequisites, view class schedules, and enroll in courses based on their eligibility. Faculty members and administrators will have tools to manage course offerings, set enrollment limits, and track student registrations. The system will also enforce academic policies such as credit limits, prerequisites, and department approval where required.

By implementing this system, the institution can reduce paperwork, improve administrative efficiency, and provide a user-friendly experience for all stakeholders.

End Users of the Project

The primary end users of the **University Course Registration System** include:

1. **Students** – The main users who will browse, register for, and manage their courses.
2. **Faculty Members** – Instructors who will manage course offerings, student enrollments, and scheduling.
3. **University Administrators** – Responsible for configuring the system, setting course availability, approving special enrollment requests, and overseeing the registration process.
4. **Department Heads** – Users with access to monitor departmental courses, faculty assignments, and student enrollments.
5. **Admin** – Responsible for maintaining the system, fixing issues, and implementing updates.

Functional Requirements/Specifications

The system will include the following core functionalities:

1. **User Authentication and Role Management**
    - Secure login for students, faculty, and administrators.
    - Role-based access to different system features.
2. **Course Browsing and Registration**
    - Students can search for courses based on subject, department, or instructor.
    - Real-time seat availability updates.
    - Pre-requisite verification before course enrollment.
3. **Faculty and Administrator Features**
    - Faculty can manage student enrollments and view class lists.
    - Administrators can approve course overload requests and adjust enrollment limits.
4. **Timetable Management**
    - Automated scheduling to prevent time conflicts.
    - Students can view their registered courses in a weekly timetable format.
5. **Waitlist Management**
    - When a course is full, students can join a waitlist.

    - Automatic enrollment from the waitlist when a spot opens.
6. **Notification System**
    - Email or in-app notifications for successful registration, waitlist updates, and course cancellations.
7. **Audit and Reporting Tools**
    - Administrators can generate reports on enrollment statistics, student progress, and faculty assignments.

Non-Functional Requirements/Specifications

The system must meet the following non-functional requirements:

1. **Performance**
    - The system should support a large number of concurrent users, especially during peak registration periods.
    - Response times should be minimal for browsing and enrollment actions.
2. **Scalability**
    - The architecture should allow easy expansion to accommodate growing student populations and additional courses.
3. **Security**
    - Data encryption for student information.
    - Multi-factor authentication for sensitive administrative functions.
4. **Availability**
    - The system should maintain **99.9% uptime** to ensure uninterrupted access during registration periods.
5. **Usability**
    - The UI should be intuitive and accessible on both desktop and mobile devices.
    - The design should comply with accessibility standards for users with disabilities.
6. **Backup and Recovery**
    - Regular data backups should be scheduled to prevent data loss.
    - The system should support disaster recovery mechanisms.

Entity Relationship Diagram (ER):

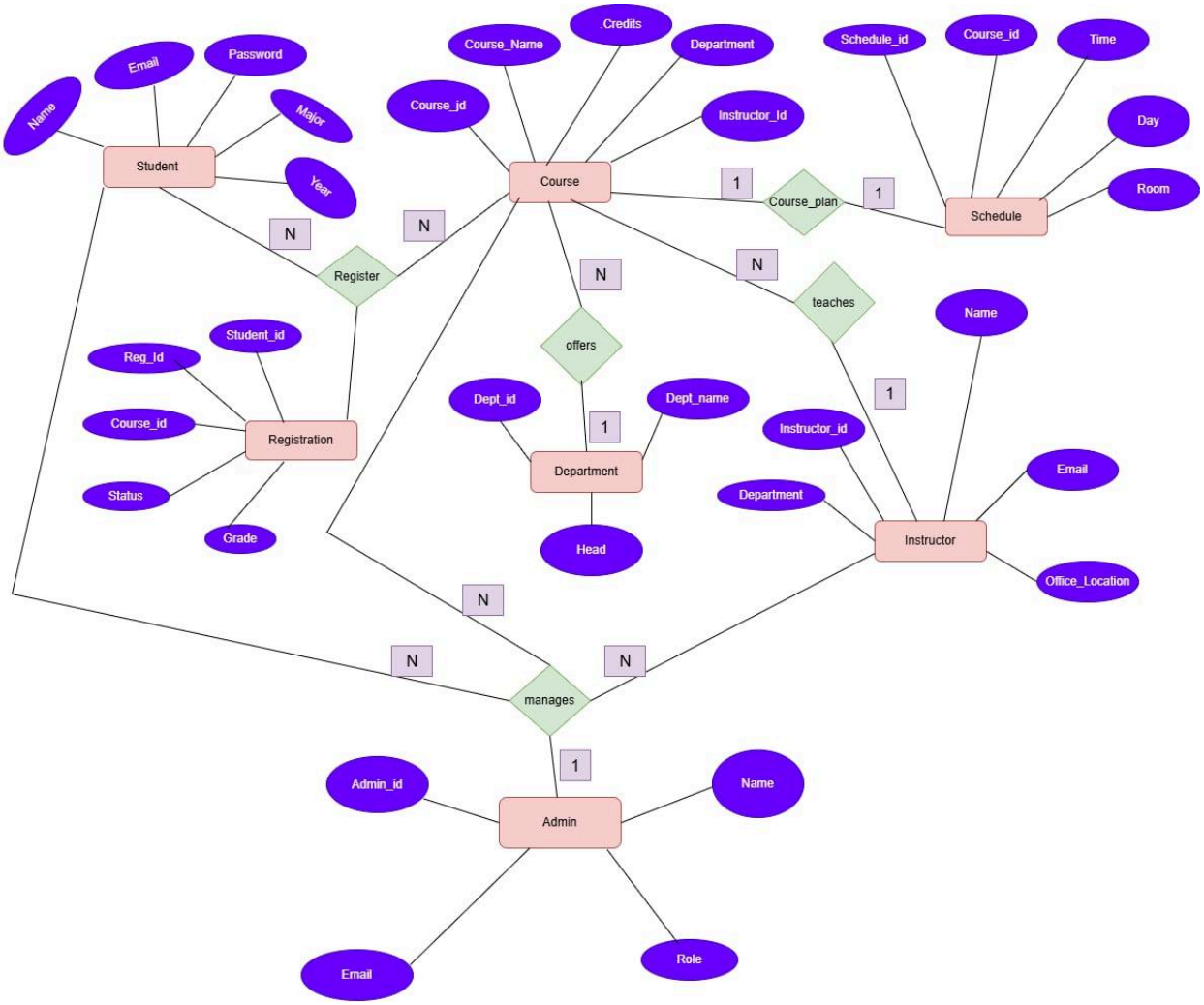

Figure 1: Entity Relationship Diagram

Use-case Diagram:

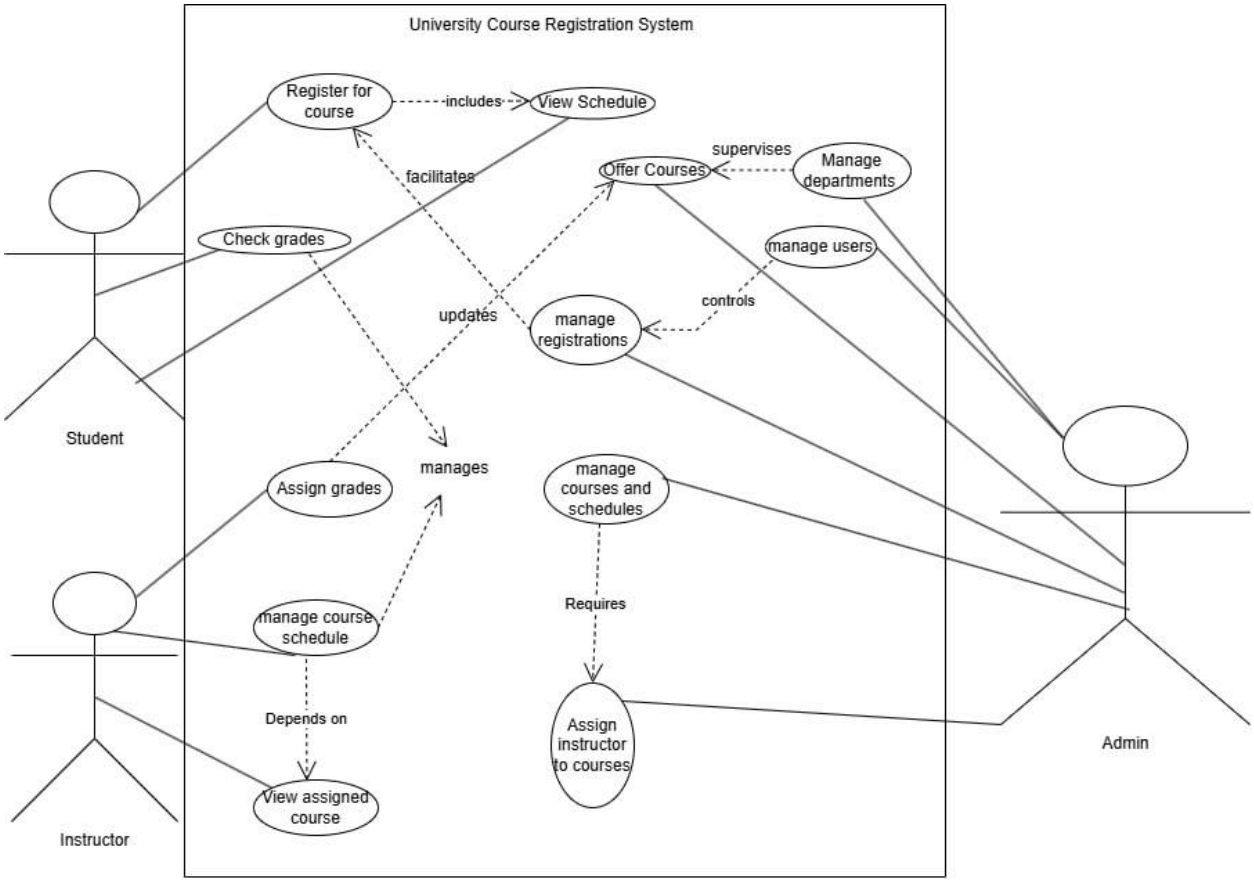

Figure 2: Use-case Diagram

Class and Sequence Diagram:

Figure 3: Class Diagram

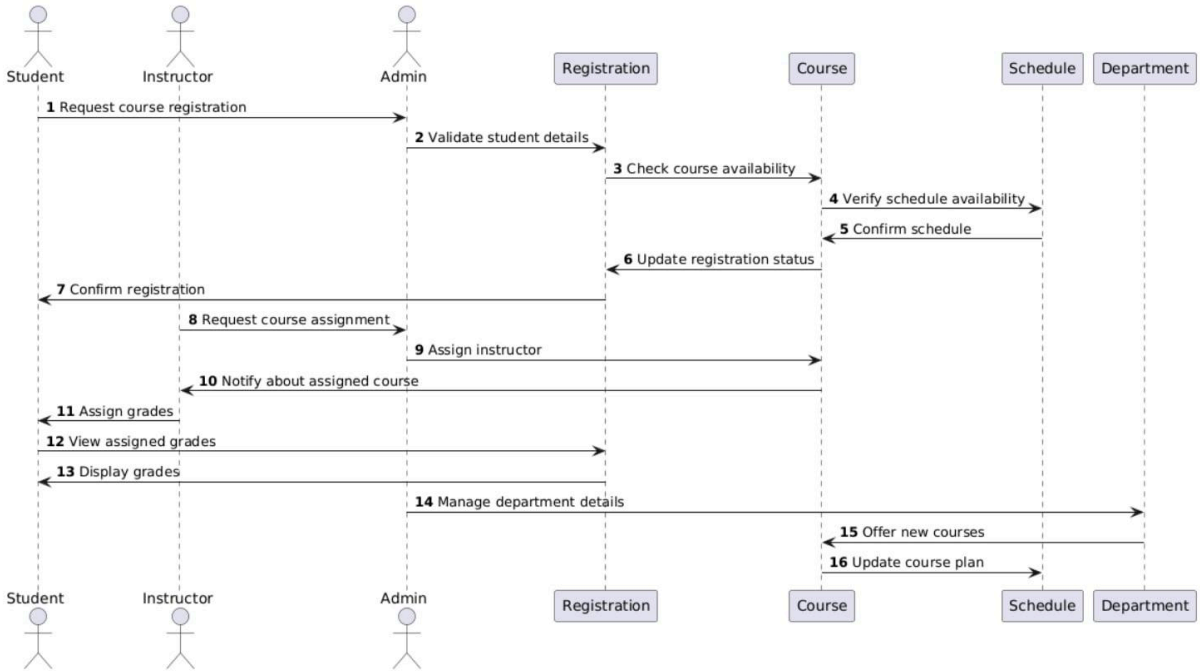

Figure 4: Sequence Diagram

GitHub Link:
https://github.com/fahimsakib007/University-Course-Registration-System