

Faculty Management System



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System Overview

FACULTY MANAGEMENT SYSTEM

System Overview

Faculty Management System: is a comprehensive platform designed to streamline administrative processes and enhance academic interactions within a university environment. This system integrates various functionalities to facilitate efficient management of student and doctor-related tasks, improving overall productivity and academic outcomes. This system solves the problem of manual course registration and manual students attendance and other problems, intended to assist doctors in dealing with their courses lectures attendance, material and tests , and provide an easy way for students to access their courses material, assignments, tests, and grades.



Problem Analysis

FACULTY MANAGEMENT SYSTEM

PROBLEM #1

Elements	Description
The problem of	GPA doesn't show in the student's result
Affects	<ul style="list-style-type: none">• Students• Affairs
The result of which is	<ul style="list-style-type: none">• Students be under stress will their calculate their it.• Too much Students don't know how to calculate it.• Students may calculate it incorrectly.• Affairs have to save all students GPA in paper files.
Benefits of a new system	<ul style="list-style-type: none">• Students will find it easy to know their GPA.• Students can find all their previous terms and years GPA stored on the system.• Affairs doesn't have to store all students' GPA in paper.

PROBLEM #2

Elements	Description
The problem of	Manual Students' Attendance
Affects	<ul style="list-style-type: none">• Students• Doctors
The result of which is	<ul style="list-style-type: none">• Students have to write their names using paper• Too much paper for each lecture.• Students can write their absence friends and take their attendance without attend• Doctors have to make sure that only attended students' name is in the paper.
Benefits of a new system	<ul style="list-style-type: none">• Doctors don't have to worry about the attendance it will be taken as soon as he press the start button.• Only attended students will take their attendance.• Students won't have to use any paper.• Save time.

PROBLEM #3

Elements	Description
The problem of	Students can't reach previous years courses material
Affects	<ul style="list-style-type: none">• Students• Doctors
The result of which is	<ul style="list-style-type: none">• When student finish his term exams he can't access courses material.• Even if student didn't pass any course he can't access this course material again and have to buy the total material package.• Doctors face too many problems with their course failed studentts.
Benefits of a new system	<ul style="list-style-type: none">• Students can access all their previous courses material any time.• System will deal will accessibility of failed students with courses material without doctors intervention.

PROBLEM #4

Elements	Description
The problem of	Students can't buy each course material all alone
Affects	<ul style="list-style-type: none">• Students• Doctors
The result of which is	<ul style="list-style-type: none">• Students can't buy any course material alone without buying other courses material.• If Student failed in one course he can't buy its material alone that not an option.• Price of courses material is too much for student to buy.• Doctors face some problems with failed students in their courses.
Benefits of a new system	<ul style="list-style-type: none">• Student can buy any course material alone without have to buy all courses material.• Failed students can buy course material they failed in.• This may be less expensive for students because they don't have to buy all courses material they can buy any course material they want.

PROBLEM #5

Elements	Description
The problem of	Manual Course Registration using paper
Affects	<ul style="list-style-type: none">• Students• Affairs
The result of which is	<ul style="list-style-type: none">• Take too much time and waste too much paper for all student.• Affairs have to check that if each student fill his data and do course registration operation correctly or not.• This causes crowding on Affairs' office.
Benefits of a new system	<ul style="list-style-type: none">• Students can register to courses online from anywhere using their phone and they don't have to go to affair office to do that.• Affairs don't have to review all students' data system will check it.• Reducing paper use and preserving the environment.• Save time.

System Request

FACULTY MANAGEMENT SYSTEM

OVERVIEW

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Sponsors

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Business needs

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Business Requirements

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Business Value

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Special Issues

Sponsors

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Business Needs:

Efficient Administrative Processes:

The university requires a streamlined system to manage student enrollment, course selection, grading, and attendance tracking to reduce administrative burdens and improve efficiency.

Enhanced Student Experience:

There is a need to provide students with access to real-time academic information, including grades, course schedules, and assignments, to enhance their educational experience and support academic success.

Improved Faculty Interaction:

Faculty members need tools to efficiently manage attendance, grade assignments, and communicate with students to enhance teaching effectiveness and student engagement.

Business Requirements:

Student Enrollment and Course Management

The system should allow students to enroll in courses, select their department, and manage their academic schedules..

Academic Performance Tracking

Students should have access to their grades, GPA calculation, assignments, and examination schedules.

Attendance Monitoring

The system should accurately track student attendance using face recognition technology to ensure accurate attendance records.

Business Requirements:

Faculty Integration:

Faculty members should have access to student information, including grades, attendance records, and course progress, to facilitate effective teaching and communication

Security and Compliance:

The system must adhere to stringent security protocols to safeguard student and faculty data and ensure compliance with privacy regulations.

User Training and Support:

Comprehensive training and support resources should be provided to faculty, staff, and students to ensure successful adoption and utilization of the system.

Business Value:

Increased Efficiency

The system will streamline administrative processes, reducing paperwork and manual data entry, thus saving time and resources.

Enhanced Student Satisfaction:

Students will benefit from improved access to academic information, leading to greater satisfaction and academic success.

Financial Reward

A modest percentage 5% from the generated income directly attributed to the improved facility management efficiency. Additionally(20,000\$) for the implementation and maintenance of the system.

Business Value:

Improved Faculty Effectiveness

Faculty members will have access to valuable data and tools to enhance teaching effectiveness and student engagement, ultimately improving academic outcomes.

Competitive Advantage

A modernized student management system will enhance the university's reputation and competitiveness, attracting high-quality students and faculty.

Business Issues:

Resistance to Change:

There may be resistance from faculty and staff to adopt new systems and processes, requiring effective change management strategies to overcome.

Tight Deadline

The project deadline is approaching rapidly, necessitating efficient project management and prioritization of key features.

Security Concerns

Given the sensitive nature of student and faculty data, stringent security measures must be implemented to safeguard against data breaches and ensure compliance with privacy regulations.

Feasibility Study

FACULTY MANAGEMENT SYSTEM

Economic Feasibility : Benefits

Development Costs

- **Development team salaries**
- **Consultant fees**
- **Development training**
- **Hardware & software**
- **Office space & equipment**
- **Data conversion costs**
- **Software upgrade**
- **Software licensing**
- **Hardware repairs**
- **Hardware upgrade**

Operational Costs

- **Operational team salaries**
- **User training**

Economic Feasibility : Benefits

Tangible Benefits

- Improved faculty scheduling
- Streamlined administrative processes
- Enhanced communication between faculty and administration
- Better data management
- Cost savings through efficiency improvements
- Marketing opportunities for attracting faculty

Intangible Benefits

- Increased faculty satisfaction
- Higher retention rates
- Improved academic outcomes
- Enhanced reputation of the institution
- Greater collaboration among faculty members

Technical Feasibility

Familiarity with the application

- **Resistance to Change:** Faculty members may resist adopting new technologies or processes, leading to slower implementation and potential inefficiencies.

- **Training Requirements:** Adequate training for faculty and staff is essential to ensure the system is used effectively and to minimize disruptions.

Familiarity with the Technology

- **Integration Challenges:** Integrating the new system with existing systems and processes may be complex and time-consuming.

- **Data Security Concerns:** Storing sensitive faculty and student information requires robust security measures to prevent data breaches.

Technical Feasibility

Project Size

With only four team members, resource constraints can face significant challenges in terms of manpower, expertise, and time availability. Developing a comprehensive Faculty Management System requires diverse skill sets, including software development, database management, user interface design, and project management. A small team may struggle to cover all these areas effectively.

Compatibility

The System is designed to seamlessly integrate with existing systems to facilitate the exchange of data. APIs (Application Programming Interfaces) are implemented to enable interoperability, allowing the FMS to retrieve data from other systems, such as student information databases, HR systems, and course management platforms.

Organizational Feasibility



Strategic Alignment

The primary objective of the FMS is to optimize faculty management processes, including scheduling, attendance tracking, and performance evaluation. These objectives match well with the main goals of the institution, which are to make operations smoother, enhance academic results, and ensure faculty members are satisfied.

User Acceptance

Initially, there may be resistance to change among faculty members as they adjust to the new system. However, as they become familiar with its benefits and experience how it streamlines their work, they are likely to embrace it and find it enhances faculty productivity, as it makes their tasks more efficient and accurate.

Organizational Feasibility



Timeline

As the project deadline rapidly approaches, efficient project management is essential, especially considering the resource constraints of a small team consisting of only four members. Developing a comprehensive Faculty Management System requires a diverse range of skills, which may pose challenges for such a limited team.

Risk Assessment

While there are risks associated with implementing a faculty management system, such as resistance to change and integration challenges, the potential benefits, including improved efficiency and faculty satisfaction, justify the investment.

Functional Requirements

FACULTY MANAGEMENT SYSTEM

User (Student):

1. User Authentication:

- The student should be able to log in using either:
 - Username & Password
 - Face ID
- Upon login, the system should verify the credentials against the database.
- Students can't create their accounts; they must use pre-existing credentials

2 . Student Management:

- Students should be able to:
 - View dashboard.
 - View the attended lecture and the absence.
 - View his grades report.
 - Check for new quizzes.
 - Students should be able to log out of the system.
 - Students should be able to choose his courses based on his credit hours.
 - Students will have an alert if he was absence for more than 3 lectures in the course.

3 . Course Registration:

- Students should be able to register for new courses using QR codes and his registered course will be added to his information

User (Student):

4 . Educational Data:

- Students should have access to their educational data, which includes:
 - Previous courses and degrees.
 - Current courses.
 - Student ID ,Password, Full Name , level , Semester .
 - Total GPA , Educational email & Educational Password.

5. Quiz Management:

- If the student logged out of the exam he will not be able to log in again.
- Students should be able to:
 - Check for new quizzes.
 - Submit quizzes.
 - View quiz grades/exams.

6. Dashboard:

- Once logged in, the student should have access to a dashboard which should display:
 - (Student ID , Name , level , Semester, Educational email, Current courses, Current Quiz, Section for Educational Data

User (Doctor):

1. User Authentication:

- The doctor should be able to log in using either:
 - Username & Password
 - Face ID
- Upon login, the system should verify the credentials against the database

2. Quiz Management:

- Doctor should be able to:
 - Add new quiz.
 - Delete a quiz.
 - End a quiz.

3. Dashboard:

- Doctor can view the dashboard.

4. Doctor Management:

- Doctor should be able to view all that data as an information about him:
 - Doctor ID, Name, Specialization.

User (Doctor):

5 . Educational Processes:

- Doctors should be able to add course material:
 - Books.
 - Slides.
 - Pdfs.
 - Links.

6. Student Management:

- Doctor should be able to access Student records For his Course.
- Doctor should be able to set a degree of tasks for the students.
- Doctor should be able to update a degree of tasks for the students.
- Doctor should be able to take lecture attendance:
 - Manual
 - Face ID
- Doctor should be able to access student records for his courses.
- Doctor should be able to search for student using their (ID, Name) to view their attendance, degrees in his course.

User (Affairs):

1. User Authentication:

- The affairs staff should be able to log in using either:
 - Username & Password
- Upon login, the system should verify the credentials against the database

2. Student Management:

- Affairs staff should be able to manage student-related tasks such as:
 - Registration
 - Enrollment
 - Scholarships
 - GPA
- Affairs staff should be able to add new student and delete student from the system.
- Affairs staff should be able to view all students information.

3. Dashboard:

- Affairs stuff can view the dashboard.
- Affairs stuff can view (ID, Name) as an information about them.

User (Affairs):

4. Doctor Management:

- Affairs staff should be able to manage doctor-related tasks such as:
 - Registration
 - Assign course for the doctor
 - Scholarships
 - GPA
- Affairs staff should be able to add new doctor from the system.
- Affairs staff should be able to delete a doctor from the system.

5. Course Management:

- Affairs staff should be able to:
 - Add course
 - Delete course
 - Manage schedule

User (Admin):

1. User Authentication:

- The admin should be able to log in using either:
 - Username & Password

2. Login Process:

- Upon login, the system should verify the credentials against the database.

3. Dashboard:

- Once logged in, the admin should have access to a dashboard displaying relevant information such as:
 - Admin ID
 - Name
 - System status
 - Important notifications

User (Admin):

4. User Management:

- Admin should have the authority to manage user accounts including:
 - Creating new accounts.
 - Modifying existing accounts.
 - Deactivating or deleting accounts

5. System Configuration:

- Admin should be able to configure system settings including:
 - Security Settings.
 - Database Configurations.
 - Access control.

6. Report and Analysis:

- Admin should have access to reports and analytics regarding system usage, performance, and other relevant metrics.
- They should be able to generate custom reports as needed.

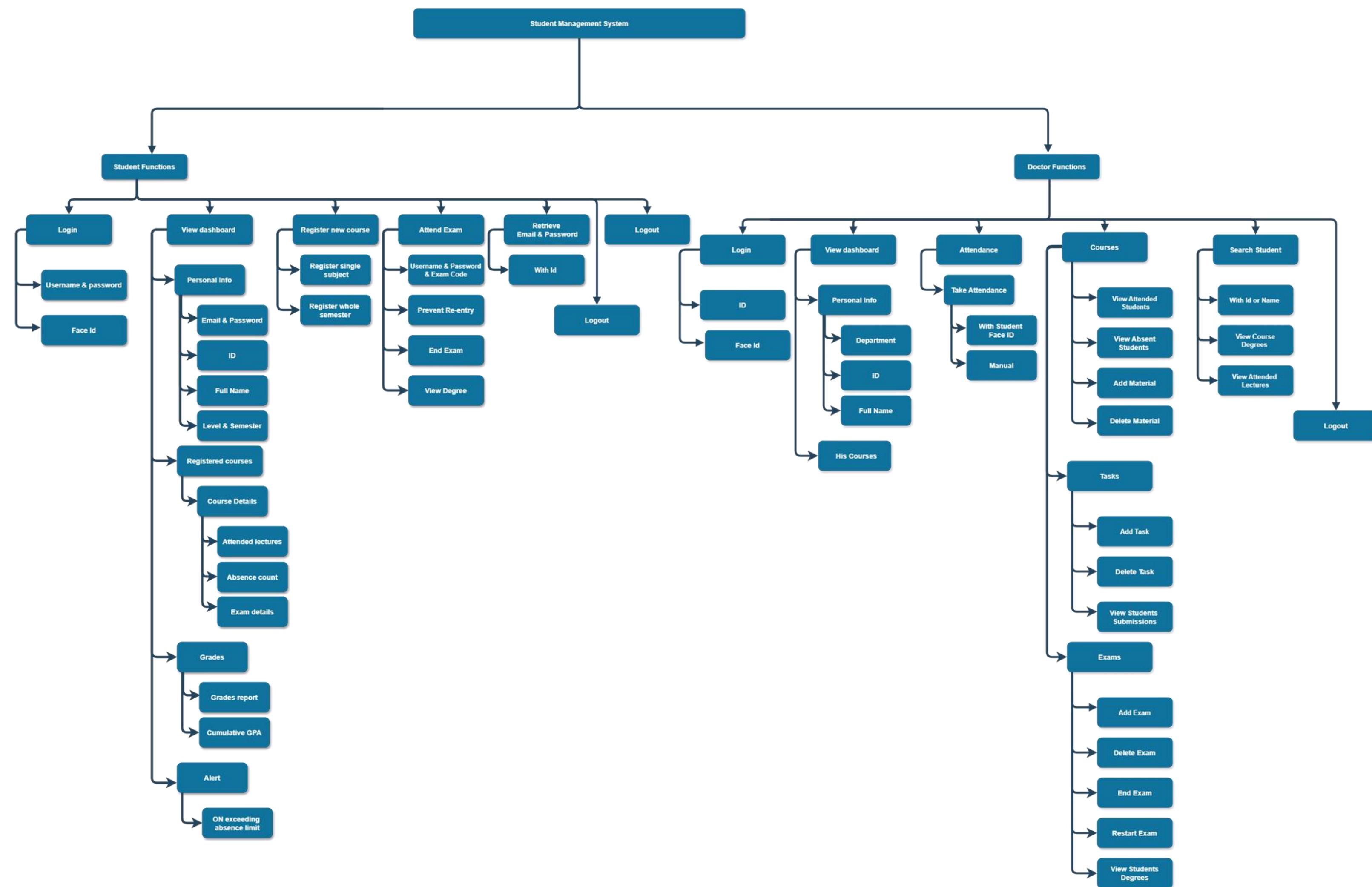
Non-functional Requirements

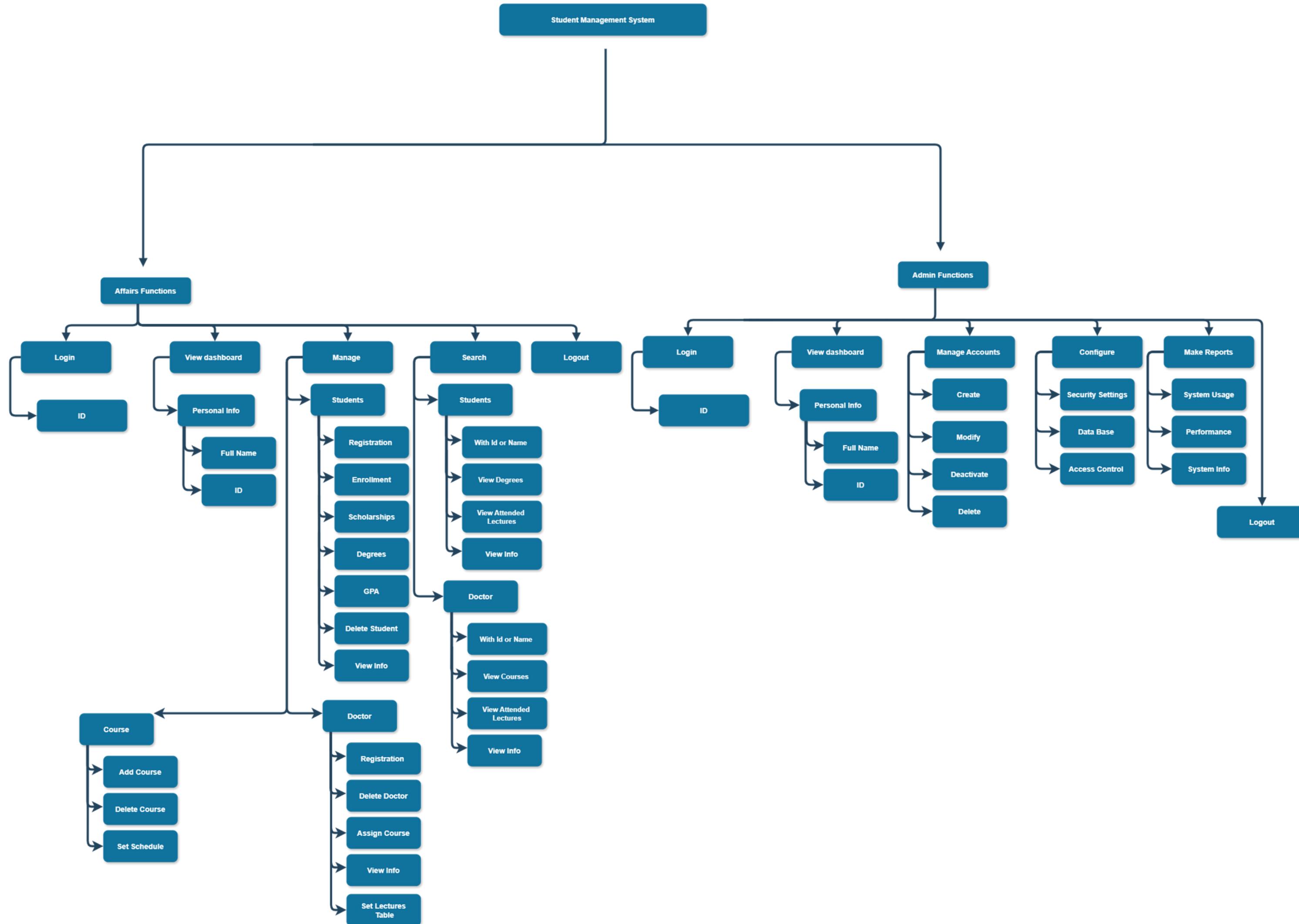
FACULTY MANAGEMENT SYSTEM

Requirements	Description	Must	Preferable
Security and encryption	Ensure that student's educational records can only be alerted by system admin.	✓	
	Ensure that password rules are clear.	✓	
	Ensure that each user can only access, manage the system according to his own restrictions (account type & ID) .	✓	
	Ensure that all derived system secured and trusted.	✓	
	The system should use a security protocol when sending data over the internet.	✓	
	The student's courses material will be blocked if his material QR code's details doesn't match with his username and he will have to contact with the admin to solve it.	✓	
Integration with other systems	The ability to integrate with e-mail system to send absence alerts to student if the number of missed lectures exceeds three lectures.	✓	
Logs	Ensure that system have fully detailed action logging, with easily retrieval interface.	✓	
Performance	Ensure that the system is able to withstand 800 users at one time.	✓	
	Ensure that the system provides acknowledgement for the user interface within three seconds.	✓	
Errors exception and handling	Ensure that the system will keep record of every error .	✓	
	Ensure that standard error pages will appear in case of any errors. .	✓	
	Ensure that all the errors of the system will be handled by the admin.	✓	

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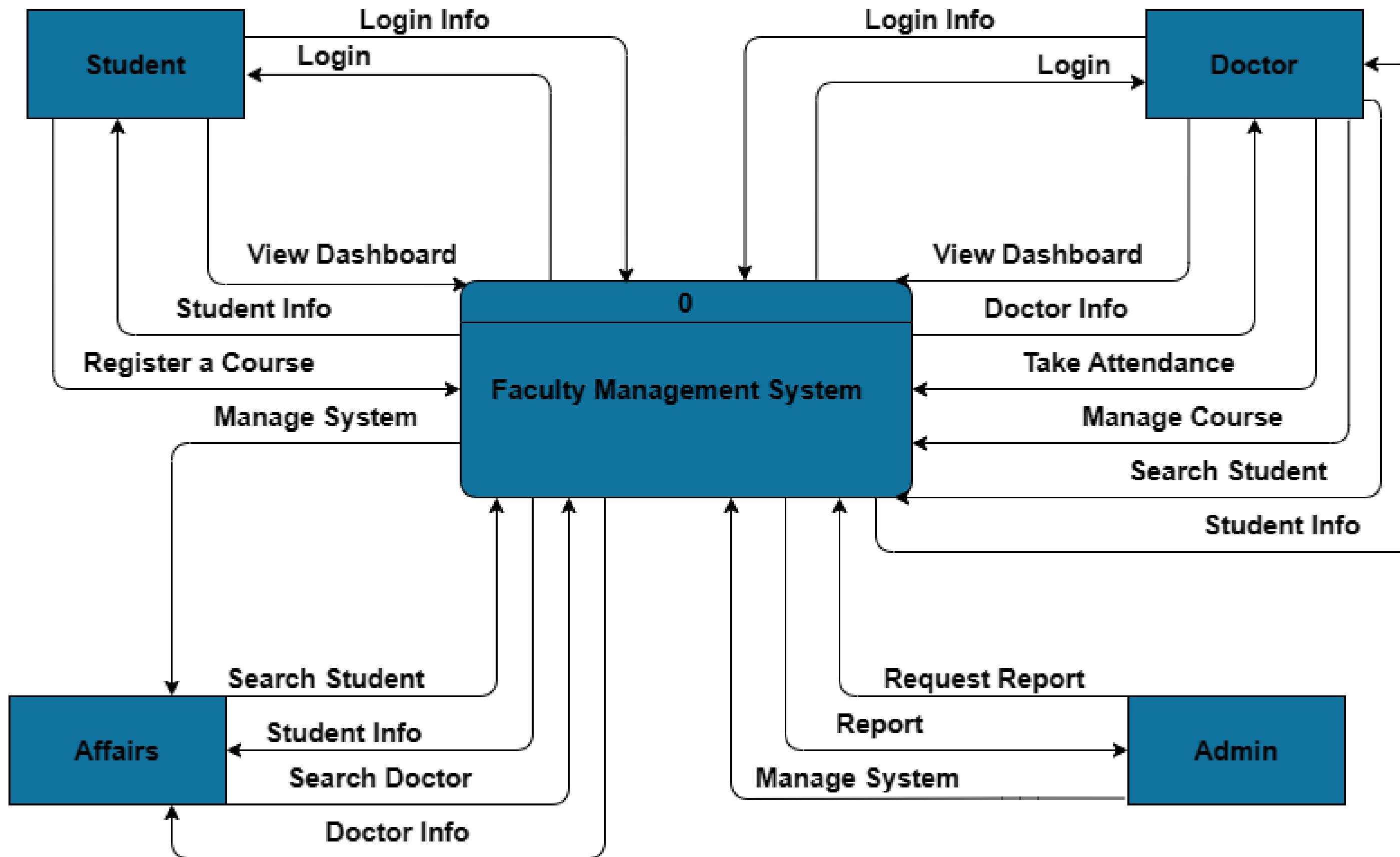




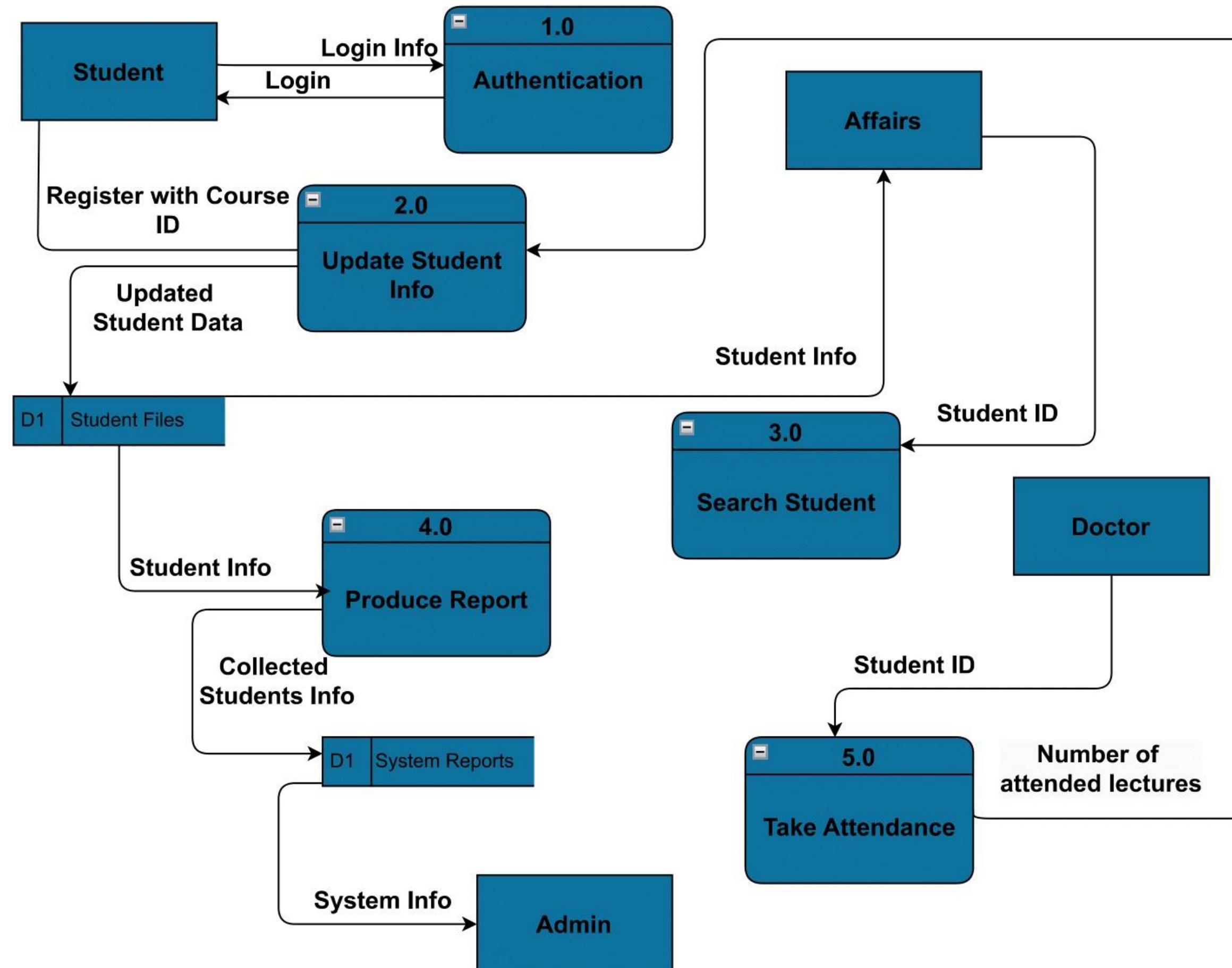
DFD

FACULTY MANAGEMENT SYSTEM

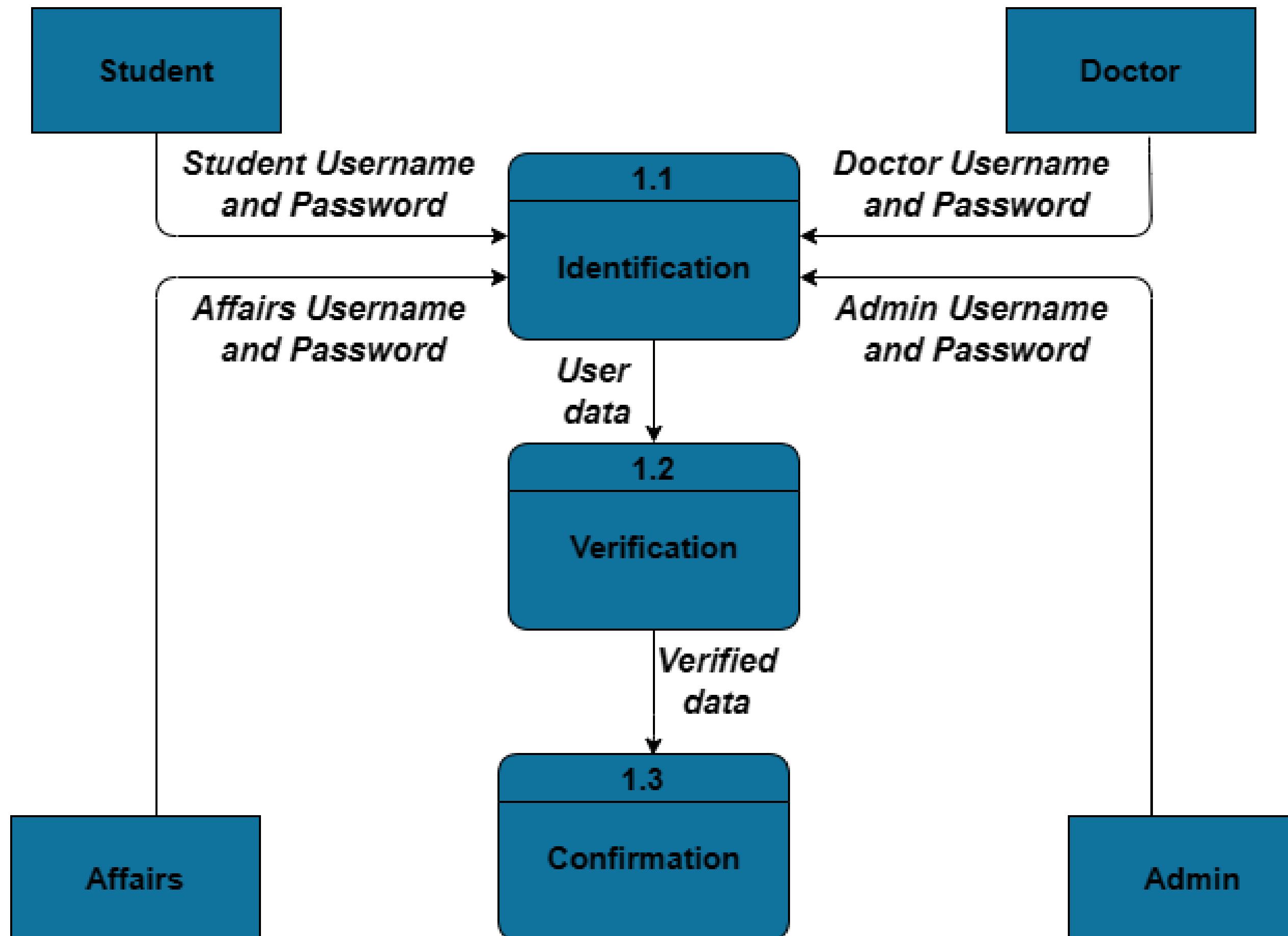
DFD Context Diagram



DFD Level 0



DFD Level 1



Use Case Scenario

FACULTY MANAGEMENT SYSTEM

Name:

Log-in

Actors:

Doctor - Affairs - Student

Pre-conditions:

Being registered in the system

Main scenario:

- user enter his data.
- the system checks if his data is correct
- User can sign into his profile.

Alternative scenario:

- If the sign in data in not correct.
- password is incorrect so the user can make a request to change his password.

Post-conditions

- User can open his profile.
- User can't open his profile.

Name:

View Dashboard

Actors:

Doctor - Affairs - Student

Pre-conditions:

Being logged-in in the system

Main scenario:

view user name , id , email

Alternative scenario:

error has happened please try again

Post-conditions

user view his data

Name:

Control Quiz

Actors:

Doctor - System

Pre-conditions:

Being Logged-in as a Doctor

Main scenario:

- Add Quiz
- Finish Quiz Time
- Update Quiz Info
- Delete Quiz
- View Report

Alternative scenario:

error has happened please try again

Post-conditions

Data submitted Successfully

Add Course Material

Name:

Actors:

Pre-conditions:

Main scenario:

Alternative scenario:

Post-conditions

Doctor - System

Being Logged-in as a Doctor

- Choose the desired course
- Upload files or update current

Error in load files try again

Attendance submitted Successfully

Access Student Record

Name:

Actors:

Pre-conditions:

Main scenario:

Alternative scenario:

Post-conditions

Doctor - System

Being Logged-in as a Doctor

- **search for Student and only show the data related to doctor course**
- **or Show all Data for Student Which in doctor course**

doctor not allow to view this record

Doctor view what he want

Name:

Actors:

Pre-conditions:

Main scenario:

Alternative scenario:

Post-conditions

Mange courses

Affairs- System

Being Logged-in as a Affairs

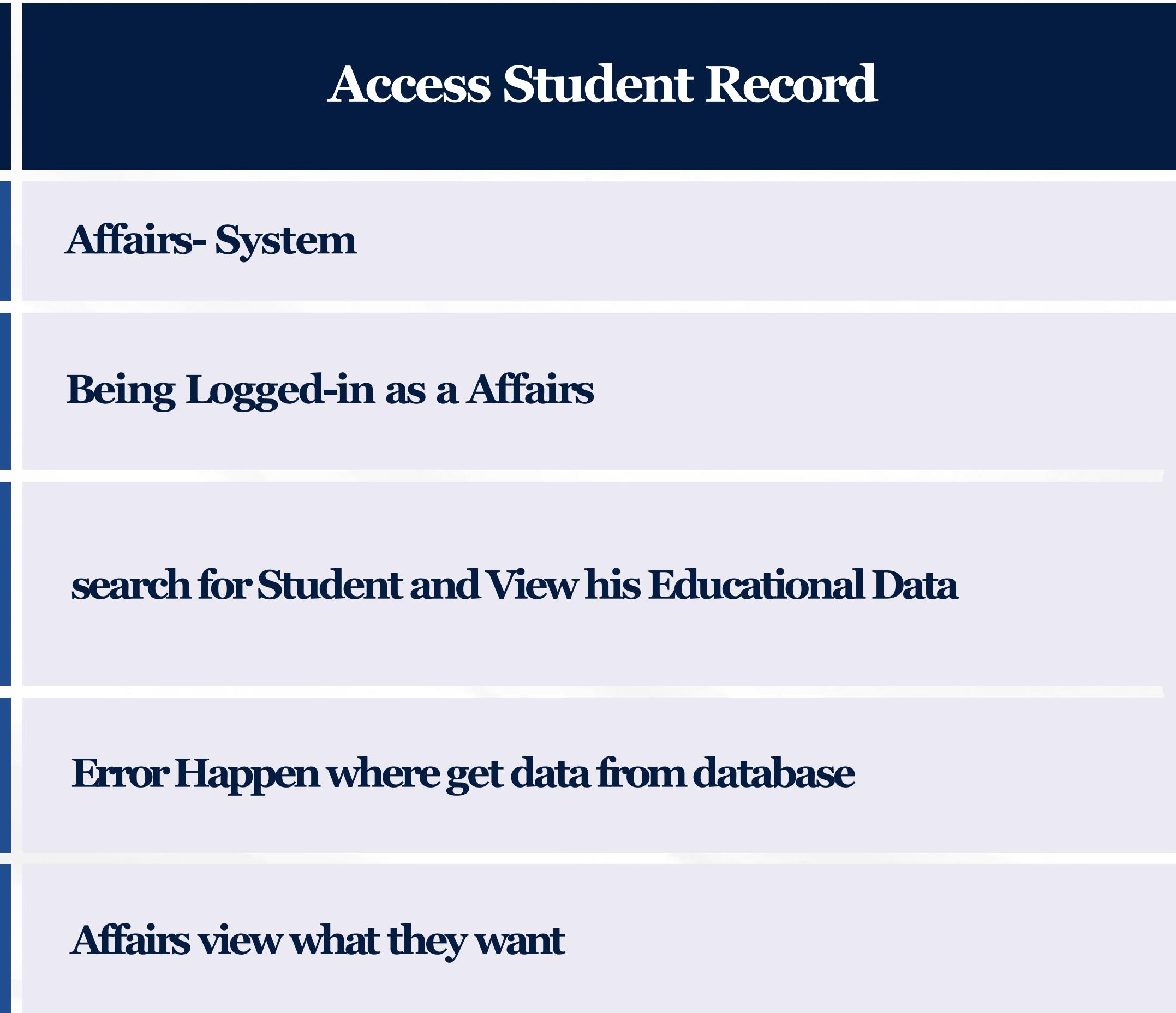
- Add Course code , name , credit , his doctor
- Update Course info

Error Happen where Set data in database

Course Data Updated

Name:	Mange Doctors
Actors:	Affairs- System
Pre-conditions:	Being Logged-in as a Affairs
Main scenario:	Update Doctor Courses
Alternative scenario:	Error Happen where Set data in database
Post-conditions	Doctor Data Updated

Name:
Actors:
Pre-conditions:
Main scenario:
Alternative scenario:
Post-conditions



Name:	Attend Quiz
Actors:	Student - System
Pre-conditions:	<ul style="list-style-type: none">• Being Logged-in as a Student• Student registered this course
Main scenario:	Enter the Quiz and Solve it
Alternative scenario:	Time is up, Student can't log in
Post-conditions	Student Answers were Submitted successfully

Course Registration

Name:

Actors:

Pre-conditions:

Main scenario:

Alternative scenario:

Post-conditions

Student - System

Being Logged-in as a Student

Add Course Qr-Code

This course does not in your Current Credit hours

Course Material Has been Submitted to this Student

Record Credit Hours

Name:

Actors:

Pre-conditions:

Main scenario:

Alternative scenario:

Post-conditions

Student - System

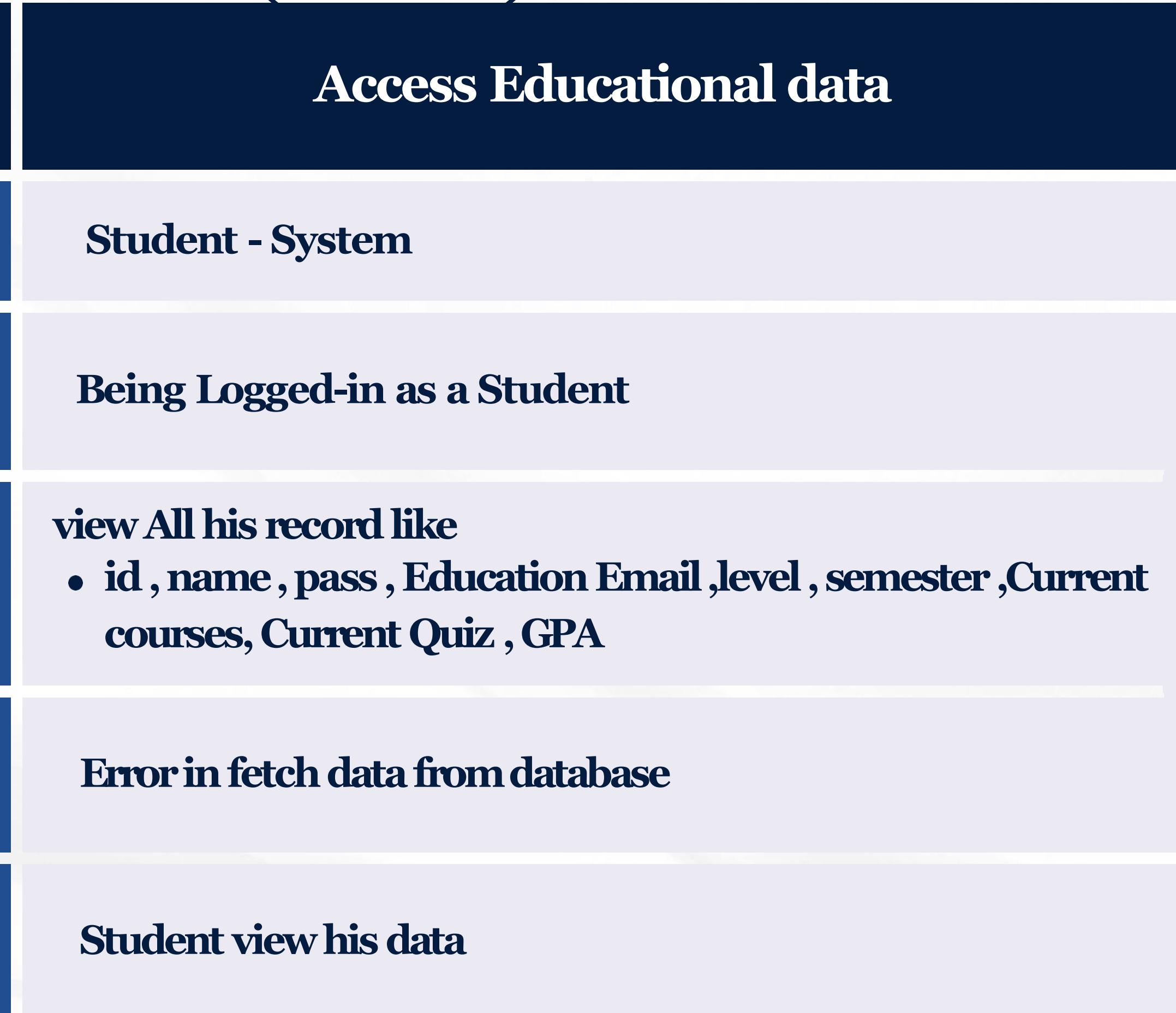
- **Being Logged-in as a Student**
- **your Current Credit hours is Zero**

Choose Available Courses

It cannot be registered because it exceeds your allowed hours

Credit Hours Had been Submitted for this Student

Name:
Actors:
Pre-conditions:
Main scenario:
Alternative scenario:
Post-conditions



Name:

Actors:

Pre-conditions:

Main scenario:

Alternative scenario:

Post-conditions

View Grades Report

Student - System

Being Logged-in as a Student

View All his Grade From Level 0 , to current level

Error in fetch data from database

Student view his data

Name:	Mange Account
Actors:	Admin- System
Pre-conditions:	Being Logged-in as a Admin
Main scenario:	<ul style="list-style-type: none">• Create Account for users in system• Delete Account• Update Account
Alternative scenario:	Error in fetch data from database
Post-conditions	Data submitted Successfully

Name:

Log-out

Actors:

Doctor - Affairs - Student

Pre-conditions:

logged-in in the system

Main scenario:

user log-out from system

Alternative scenario:

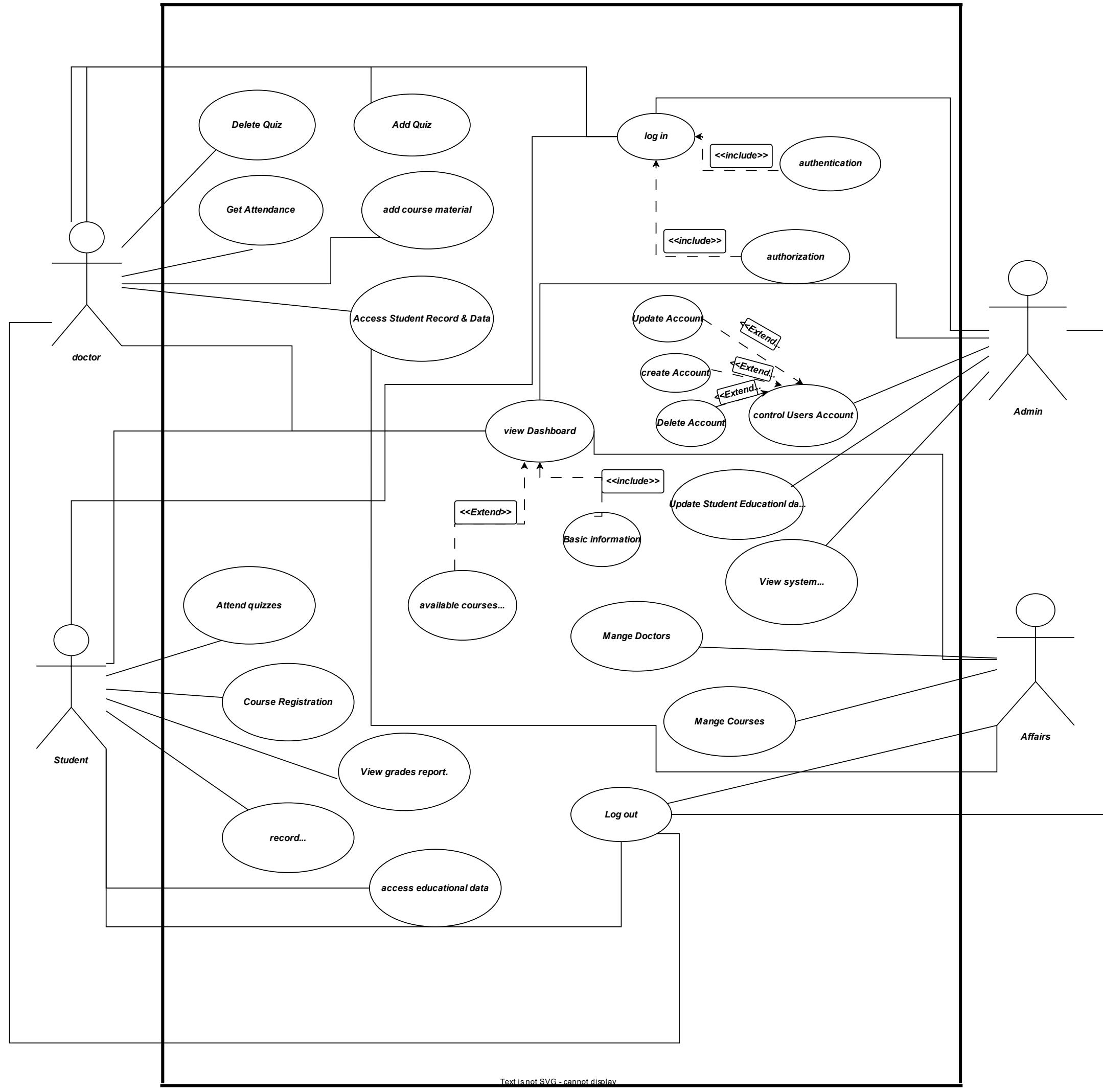
error has happened please try again

Post-conditions

User successfully logged-out

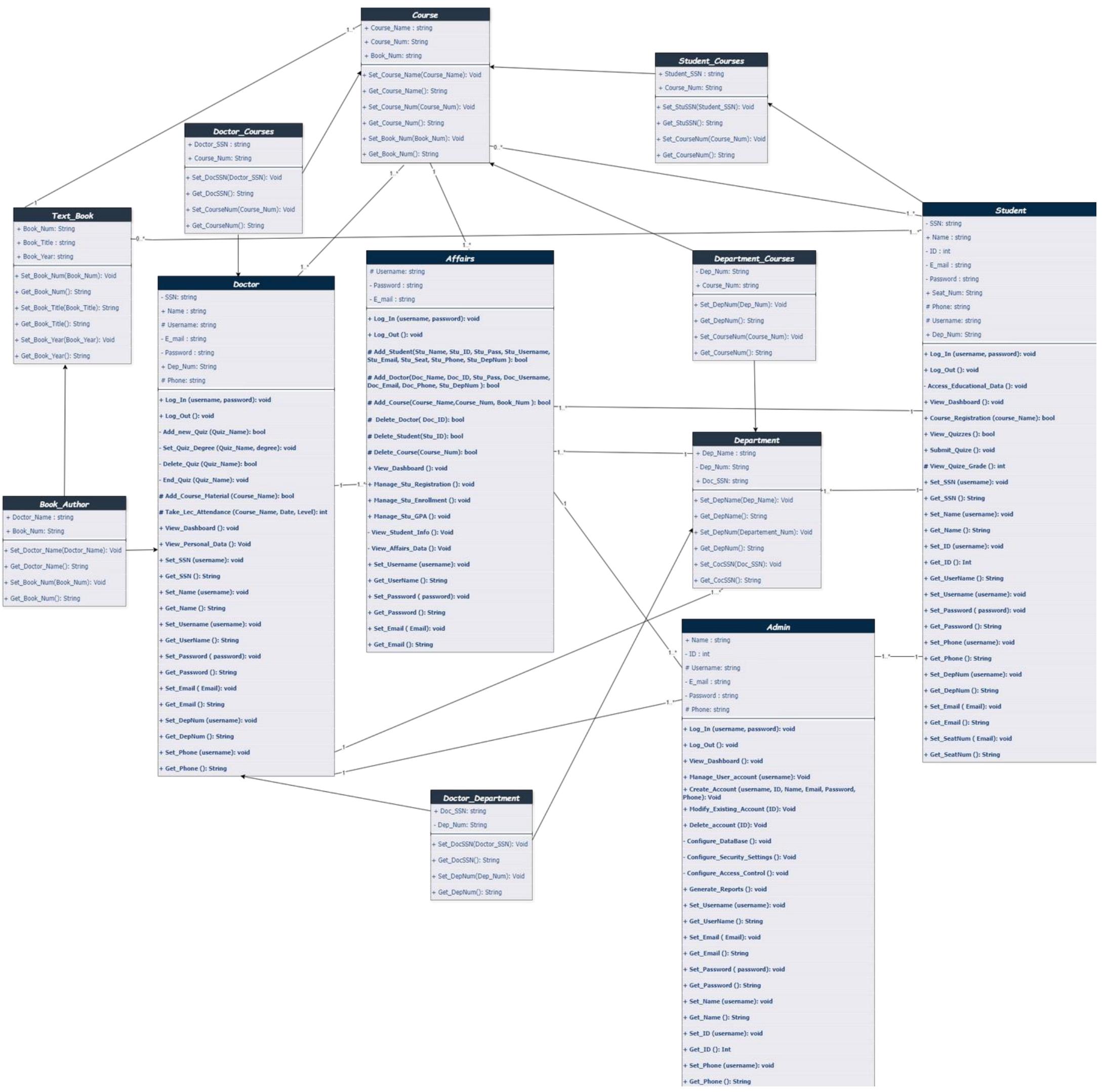
Use Case Diagram

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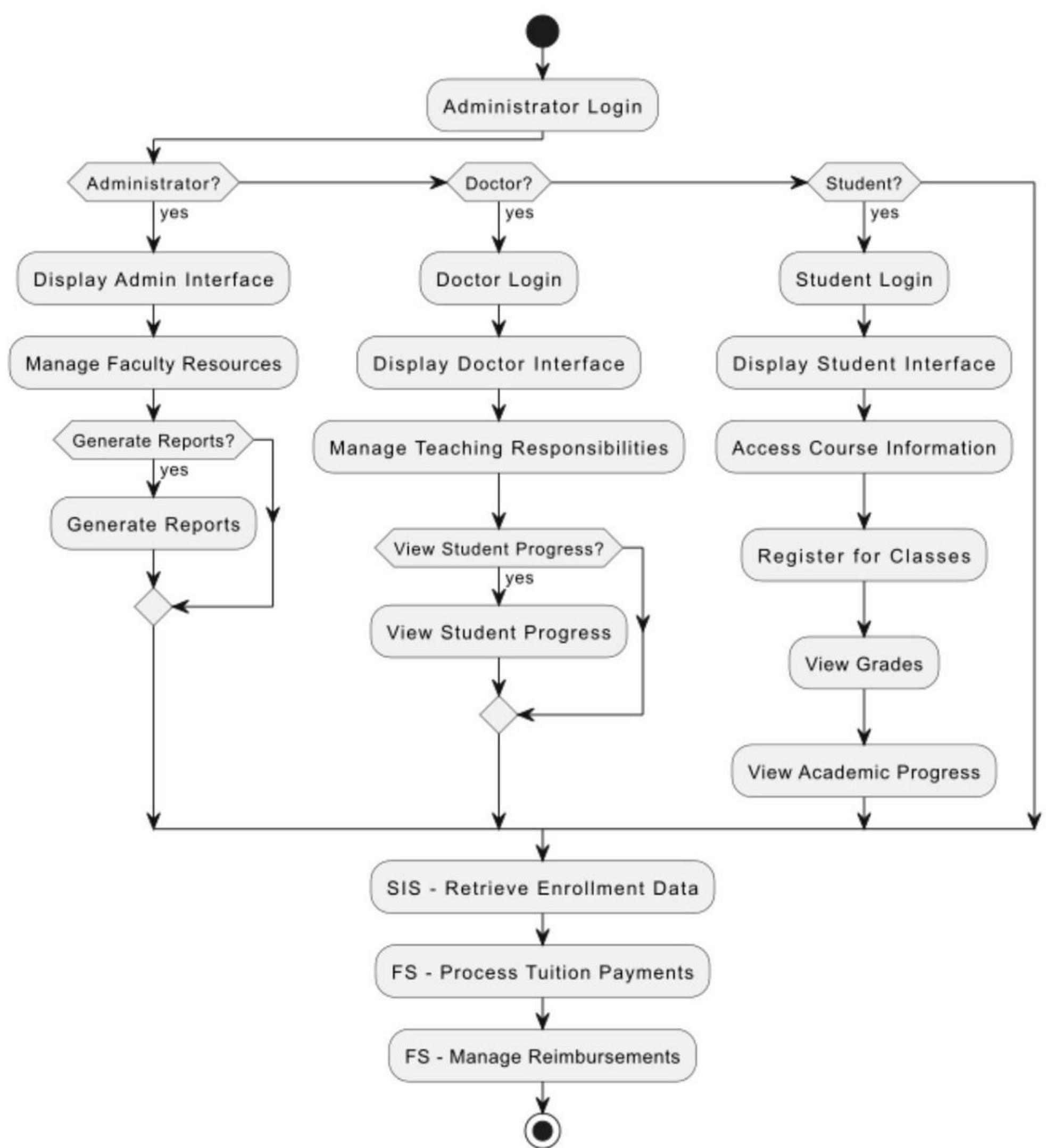
Class Diagram

FACULTY MANAGEMENT SYSTEM



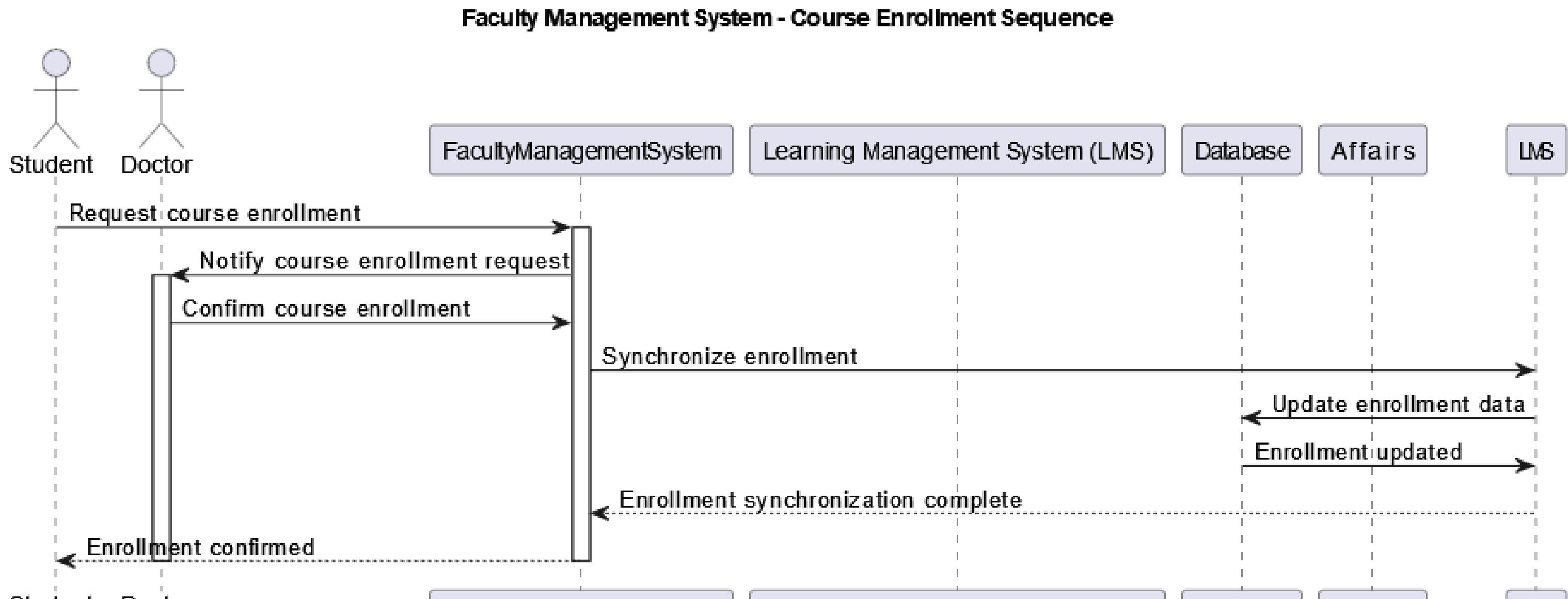
Activity Diagram

FACULTY MANAGEMENT SYSTEM

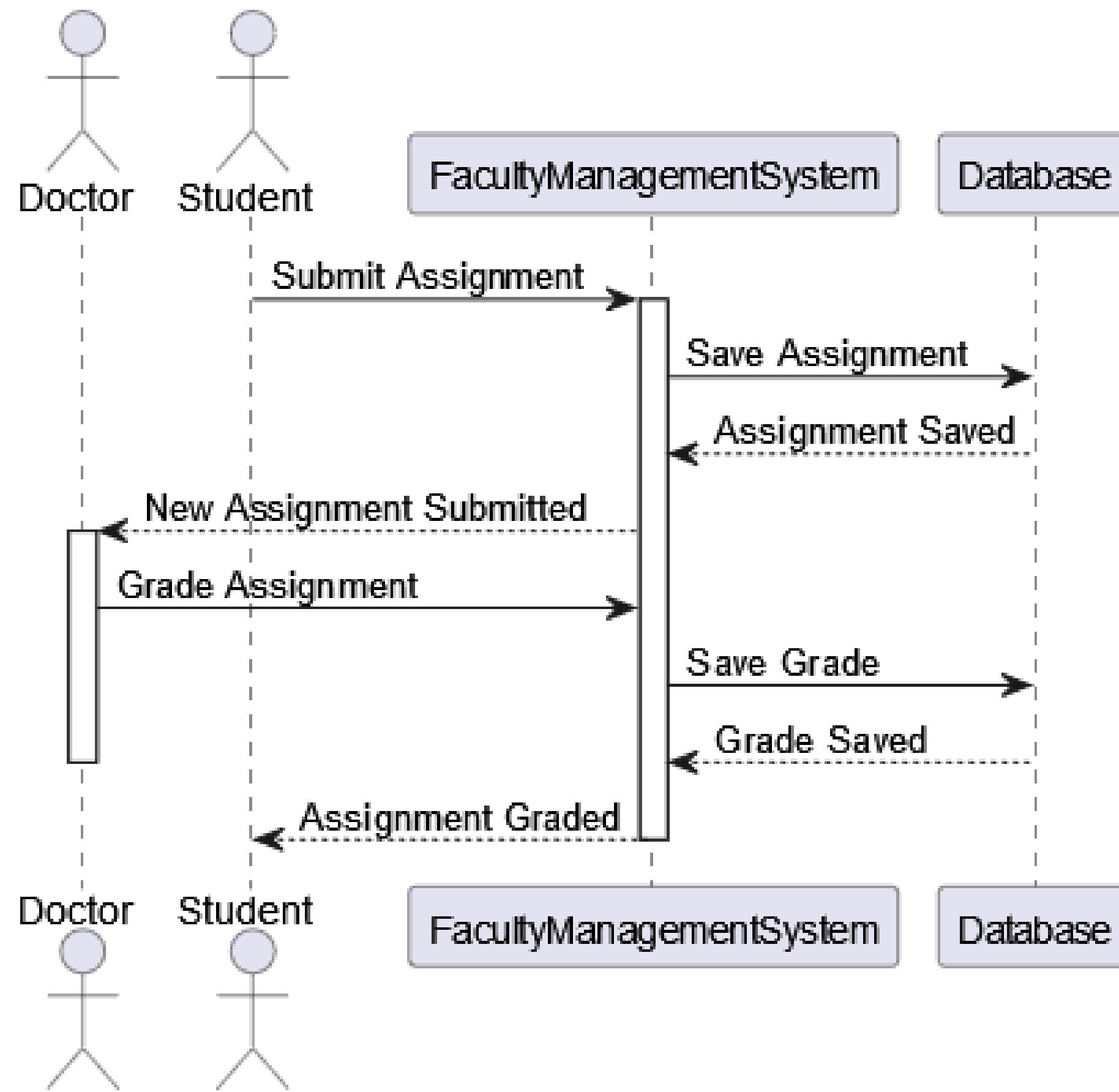


Sequence Diagram

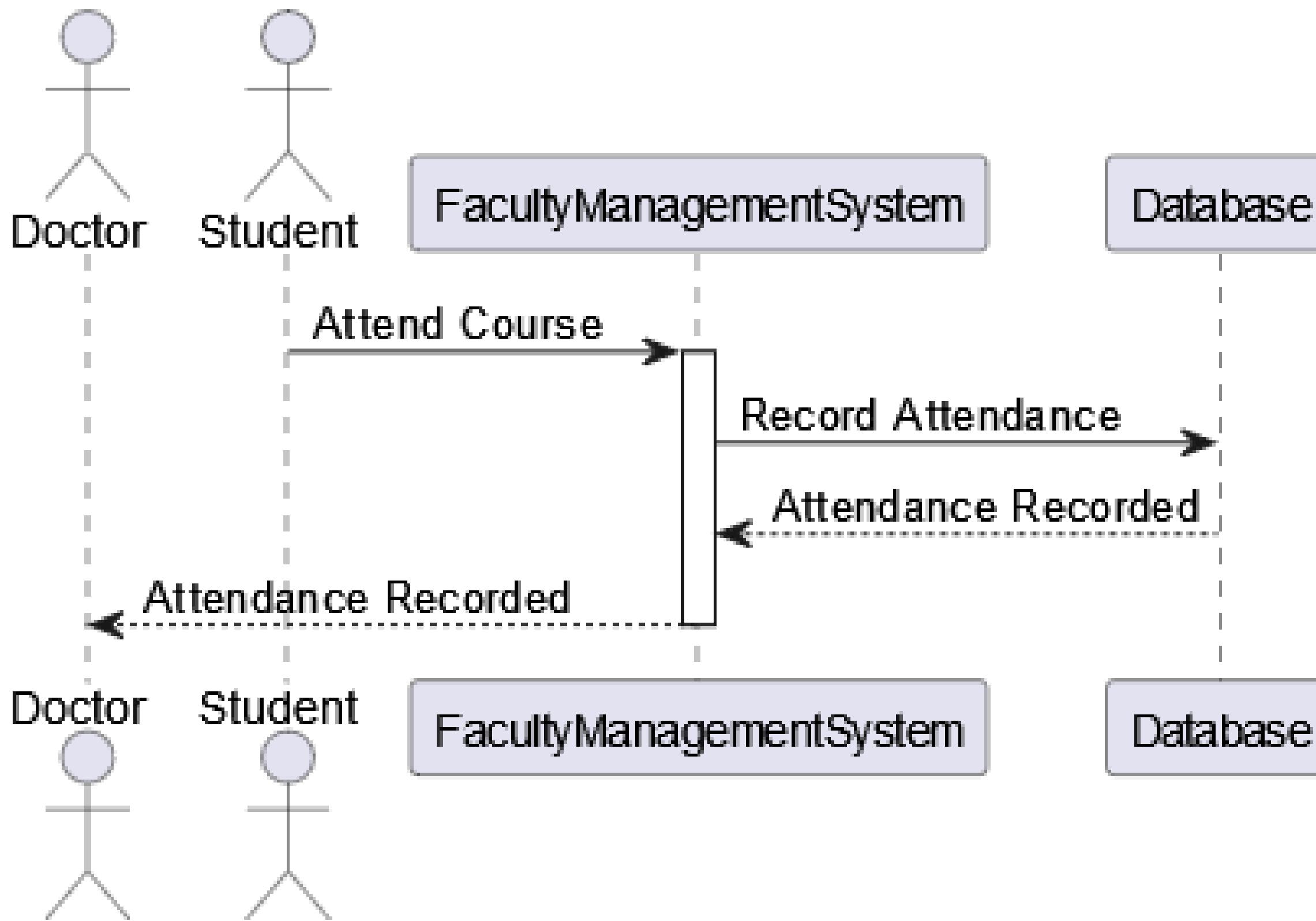
FACULTY MANAGEMENT SYSTEM



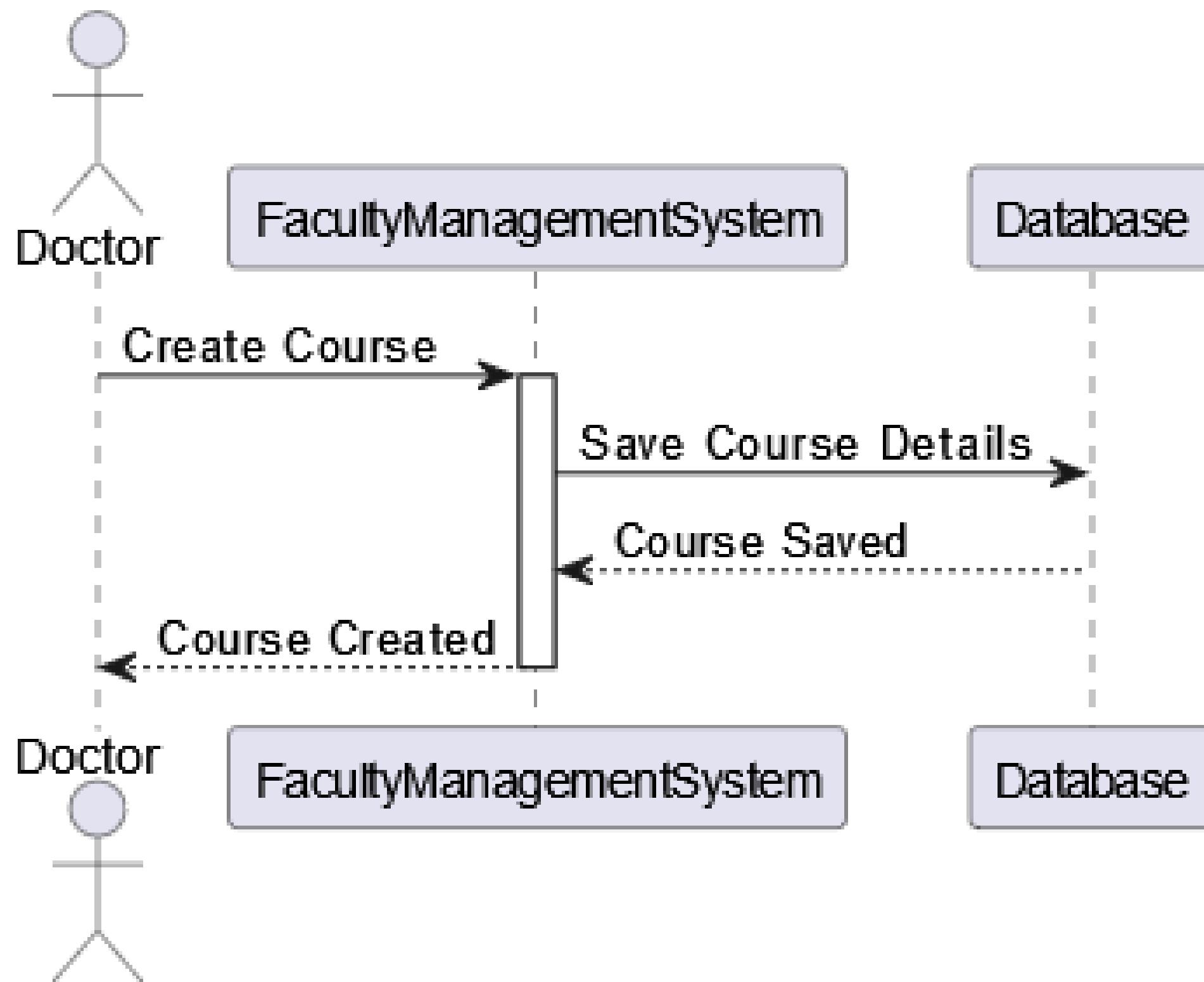
Faculty Management System - Assessment and Grading Sequence



Faculty Management System - Attendance Tracking Sequence



Faculty Management System - Course Management Sequence



Stakeholders

FACULTY MANAGEMENT SYSTEM

stakeholders

Description

Faculty Members

- Primary users of the system.
- Stakeholders would include professors, instructors, and teaching assistants.
- Concerns may involve usability, workload impact, and training needs.

Administrative Staff

- Responsible for managing faculty, scheduling classes, and overseeing academic operations.
- Stakeholders would include deans, department heads, and administrative assistants.
- Concerns may revolve around streamlining processes, reducing administrative burden, and improving communication.

stakeholders

Description

Students

- Direct beneficiaries of the faculty management system.
- Stakeholders would include current and prospective students.
- Concerns may include access to course information, communication with faculty, and the impact on the learning experience.

IT Department

- Responsible for implementing and maintaining the system.
 - Stakeholders would include IT managers, system administrators, and technical support staff.
- Concerns may involve system compatibility, data security, and resource allocation

stakeholders

Affairs Stakeholders:

Description

- **Responsibilities:** Overseeing various administrative and operational functions within the academic institution.
- **Academic Affairs Office:** Academic deans, department chairs, curriculum committees.
- **Faculty Affairs Committee:** Faculty members, HR representatives, department chairs.
- **Student Affairs Office:** Student affairs directors, counselors, student organization leaders.
- **Financial Affairs Office:** CFOs, budget analysts, finance managers.
- **External Affairs Office:** Communications directors, alumni relations officers, government relations specialists.
- **Research Affairs Committee:** Research deans, grant administrators, compliance officers.

Our Management Team



Marwa Abdelomnem

Front-end Developer



Malak Alsayed

DataBase developer



Mohamed Mohsen

back-end developer



Ahmed Fahmy

back-end developer