FAKULTI TEKNOLOGI DAN KEJURUTERAAN ELEKTRONIK & KOMPUTER

SESSION 2023/2024 SEMESTER 1

BENR 2423
DATABASE AND CLOUD SYSTEM

TITLE:
SMART ATTENDANCE MANAGEMENT SYSTEM

LECTURER:
PROFESSOR MADYA DR. SOO YEW GUAN

FAKULTI TEKNOLOGI DAN KEJURUTERAAN ELEKTRONIK DAN KOMPUTER
SESSION 2023/2024 SEMESTER 1
BENR2423 DATABASE AND CLOUD SYSTEM
ASSIGNMENT PROJECT EVALUATION FORM

Group Members:

Student Name	Student Number	Signature
SITI NURHAZIQAH BINTI ABDUL HAMID	B022210033	
NOR ALIFAH ILYANA QUEK BINTI BADRUL JOHARI	B022210030	
SHAHIRA ATHIRA BINTI SHAH RIZA	B022210041	

	Rubrics					CLO/PO	Marks
Cloud and database development skillset	A complete application with clear and precise comment, main program functions. Detail development progress, track records and team works can be seen on Github.	A good application developed with most of the main program functions has been presented. Important development details can be seen on Github, but lacking team working records.	An average application with lacking few important API. Partial implementation of application security. Not much development progress can be seen on Github.	A basic application with only few APIs. No consideration on the application security. No development progress can be seen on Github.	No submission	CLO3/PO5	/10
	4	3	2	1	0		
Project Functionality	The system is hosted on the cloud and working properly. All test procedures are provided in Postman.	The design of system is carried out, but partially working. Most test procedures are provided in Postman.	The design of system is carried out, but partially working. No procedures are provided.	The design of system is carried out, but not working accordingly. No procedures are provided.	No submission	CLO3/PO5	/10
	4	3	2	1	0		
Total (x/20)							

INTRODUCTION

In the dynamic realm of higher education, universities are continually seeking forward-thinking solutions to elevate campus operations and provide an enhanced experience for students and faculty. One such groundbreaking initiative is the implementation of a Smart Attendance Management System, a project designed to revolutionize how universities monitor and record student attendance. This innovative system harnesses the power of cutting-edge technologies like Azure and MongoDB to create a seamless and robust framework for attendance tracking.

The Smart Attendance Management System is a digital solution that replaces traditional manual attendance registers with an automated platform tailored to the complexities of university life. This project aims to eliminate the cumbersome task of manual attendance taking, providing professors and university administrators with more accurate and real-time data. Picture a scenario where attendance is effortlessly recorded, optimizing valuable class time for engaging and meaningful academic pursuits.

Playing a pivotal role in the success of this project is Azure, Microsoft's cloud computing platform. Offering a secure and scalable infrastructure, Azure ensures that the Smart Attendance Management System operates with efficiency and reliability. The cloud-based architecture of Azure facilitates seamless integration, providing a centralized hub for data storage and management. With Azure, universities can enjoy the benefits of a flexible and accessible solution that adapts to the dynamic nature of higher education environments.

Complementing Azure's capabilities is MongoDB, a NoSQL database that enhances the system's agility and responsiveness. MongoDB's document-oriented structure allows for efficient storage and retrieval of data, ensuring that attendance records are easily accessible and can be analysed for valuable insights. As universities continue to grow and evolve, MongoDB provides the scalability needed to accommodate increasing amounts of data without compromising performance.

Together, the Smart Attendance Management System, Azure, and MongoDB form a powerful trio that not only modernizes attendance tracking but also sets the stage for a more technologically advanced and efficient university experience. Embracing these innovative solutions, universities pave the way for a future where administrative tasks are streamlined, freeing up valuable time for educators and administrators to focus on academic excellence and the holistic development of their students.

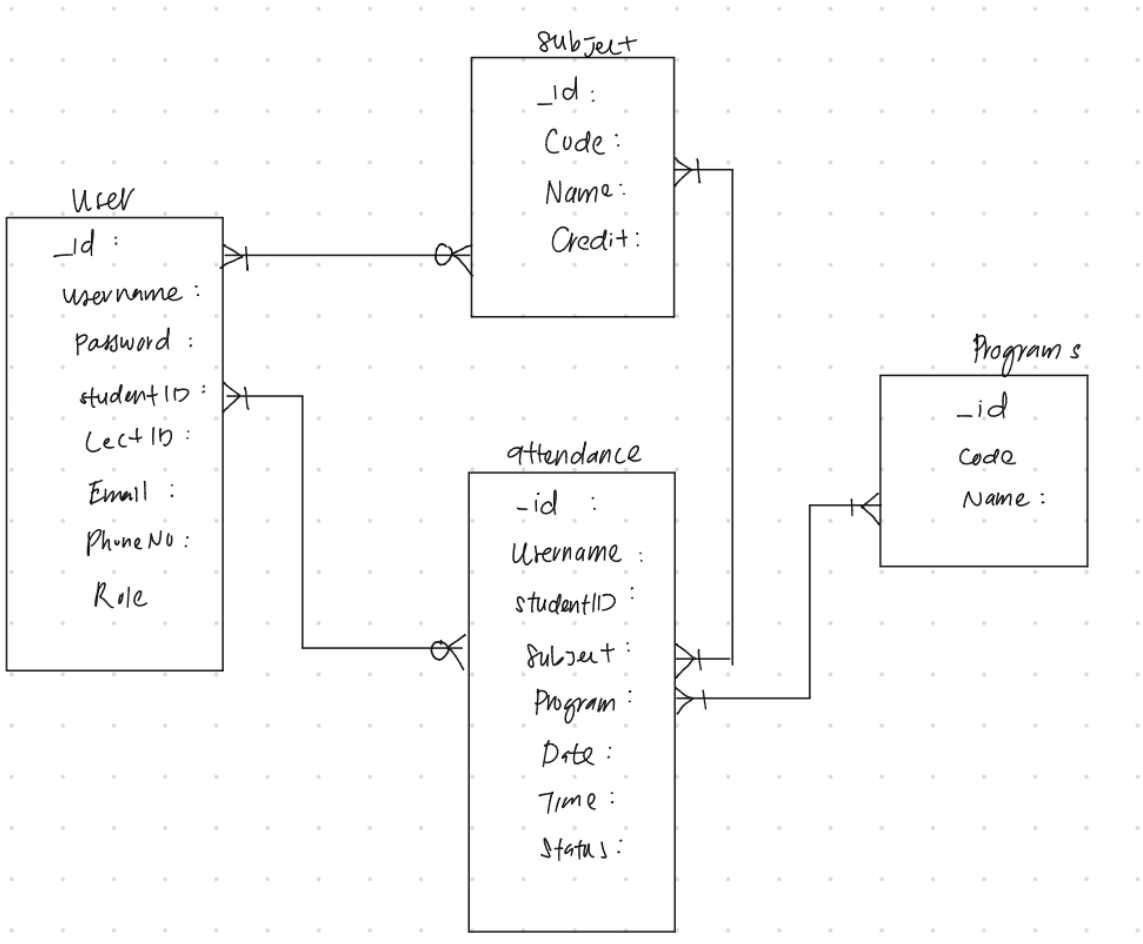
GITHUB LINK:

https://github.com/Haziqahamid/AssignmentE_Database

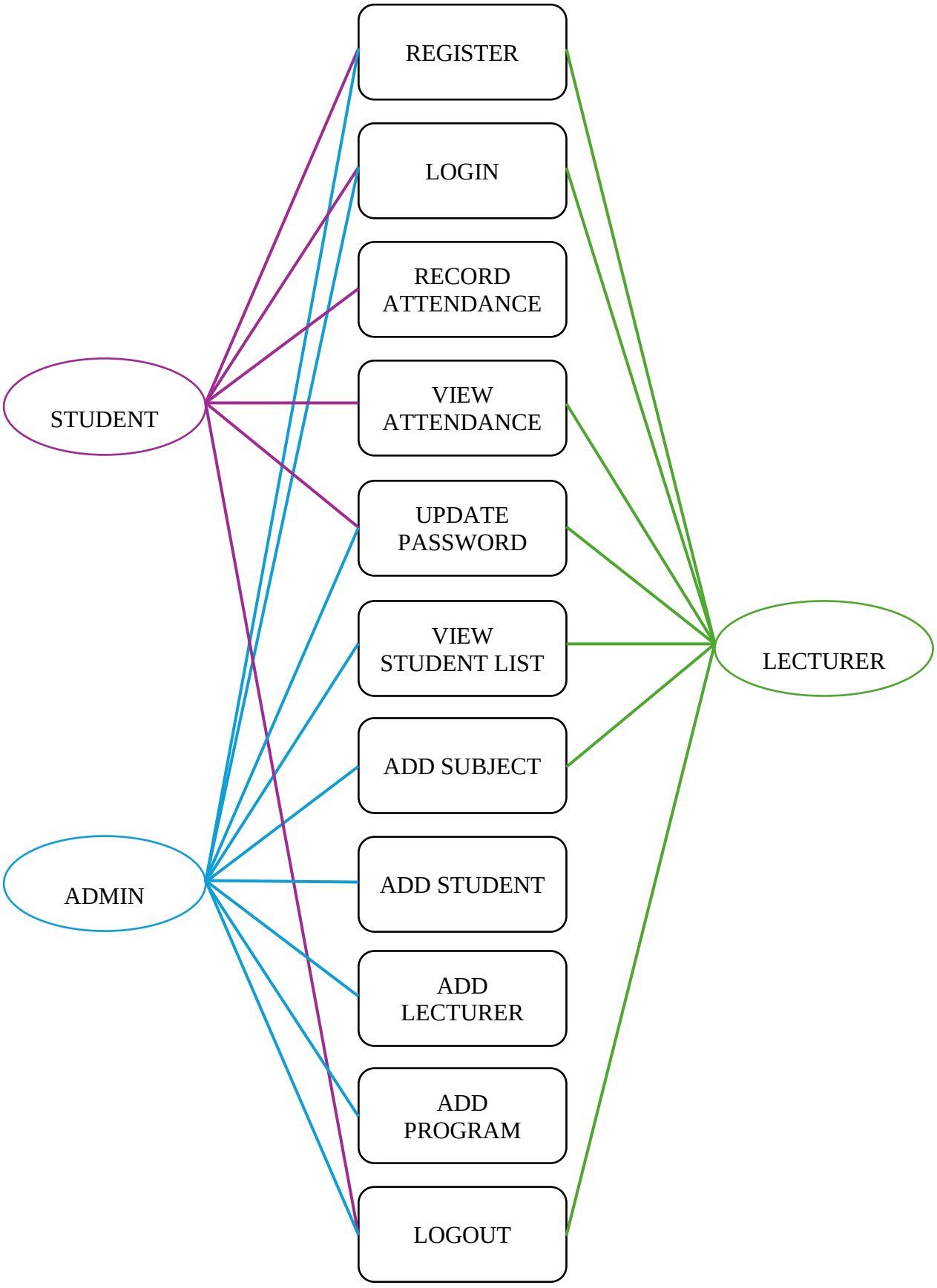
AZURE LINK:

https://portal.azure.com/#@utem.edu.my/resource/subscriptions/2dd2b83a-b6eb-400c-91b0-74acae83dd81/resourceGroups/AssignmentEDatabase_group/providers/Microsoft.Web/sites/AssignmentEDatabase/vstscd

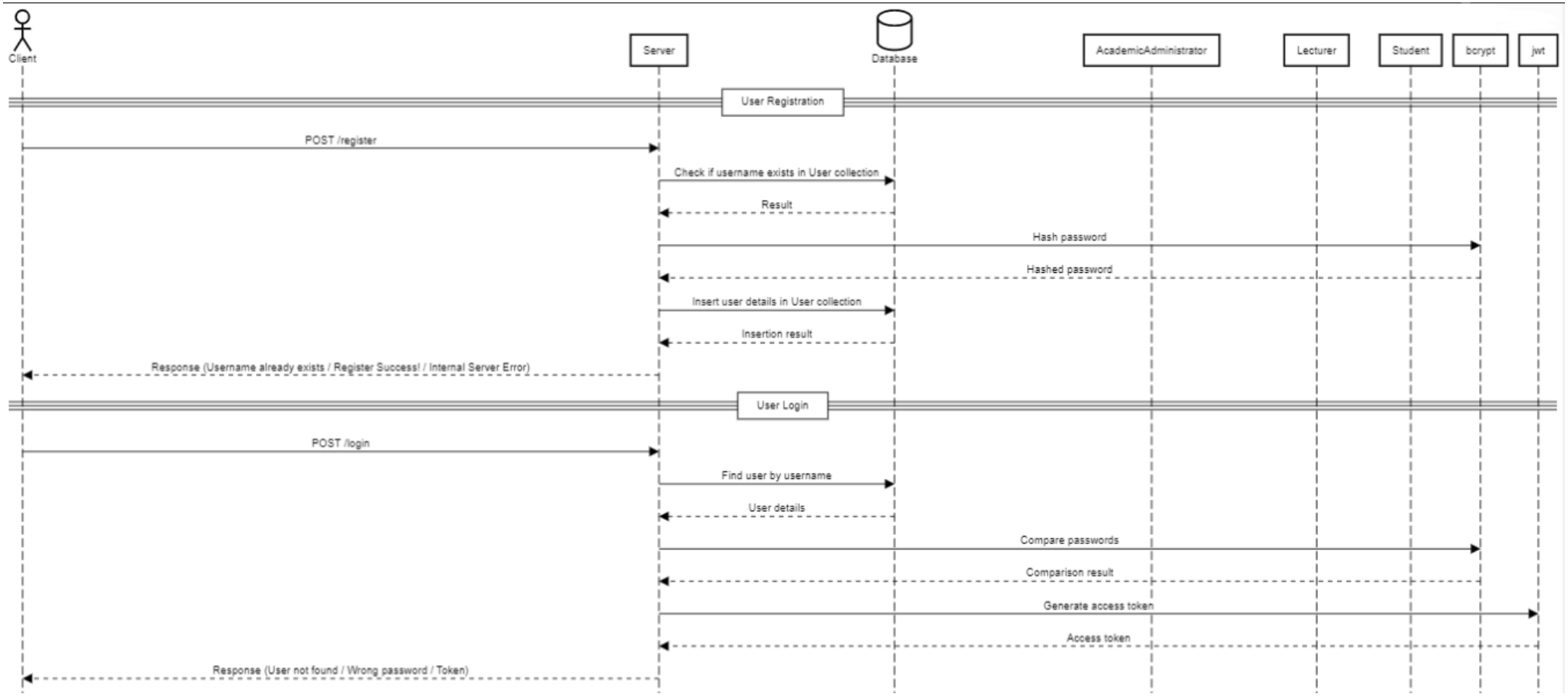
DATA MODELLING DIAGRAM

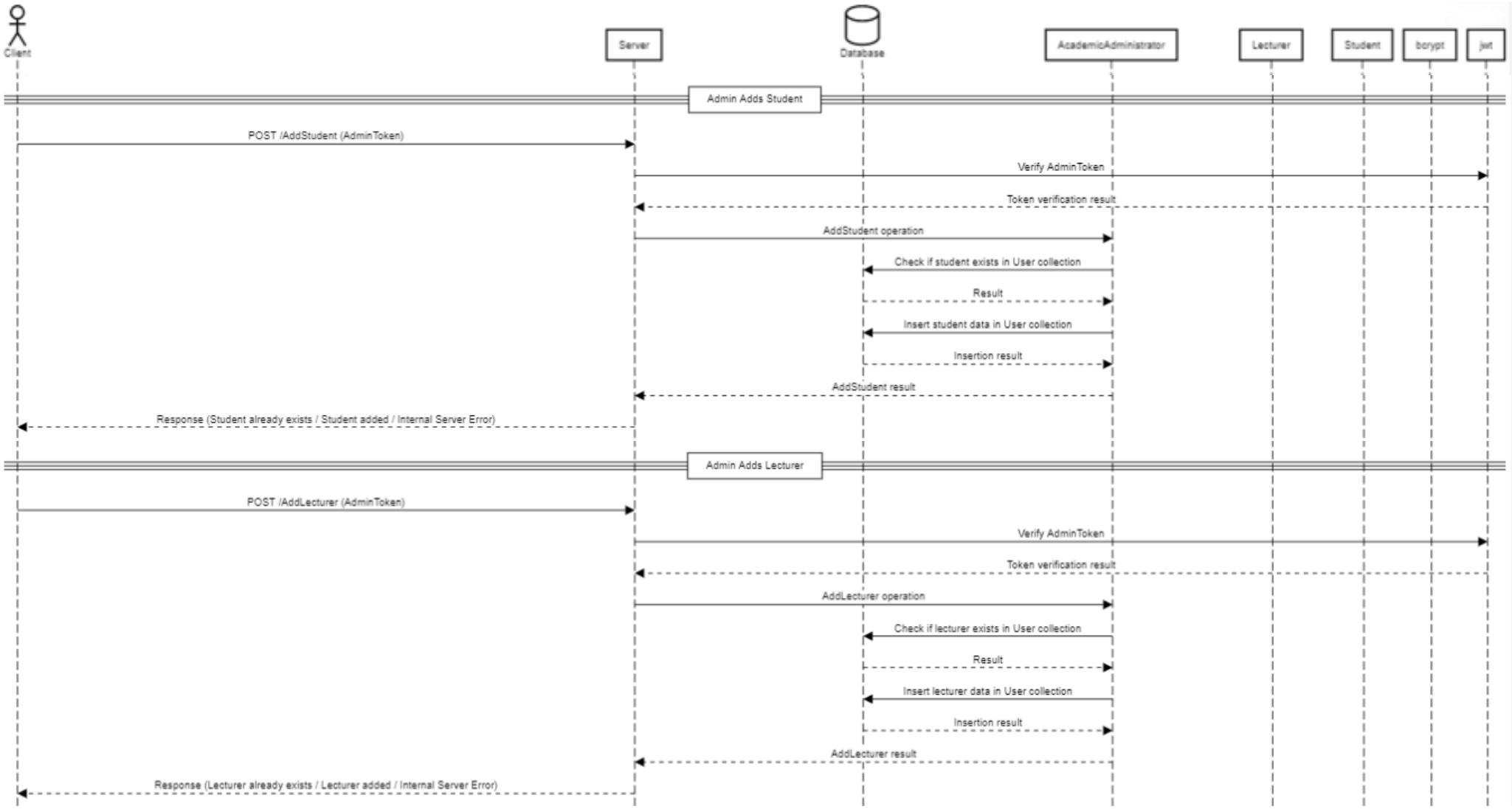


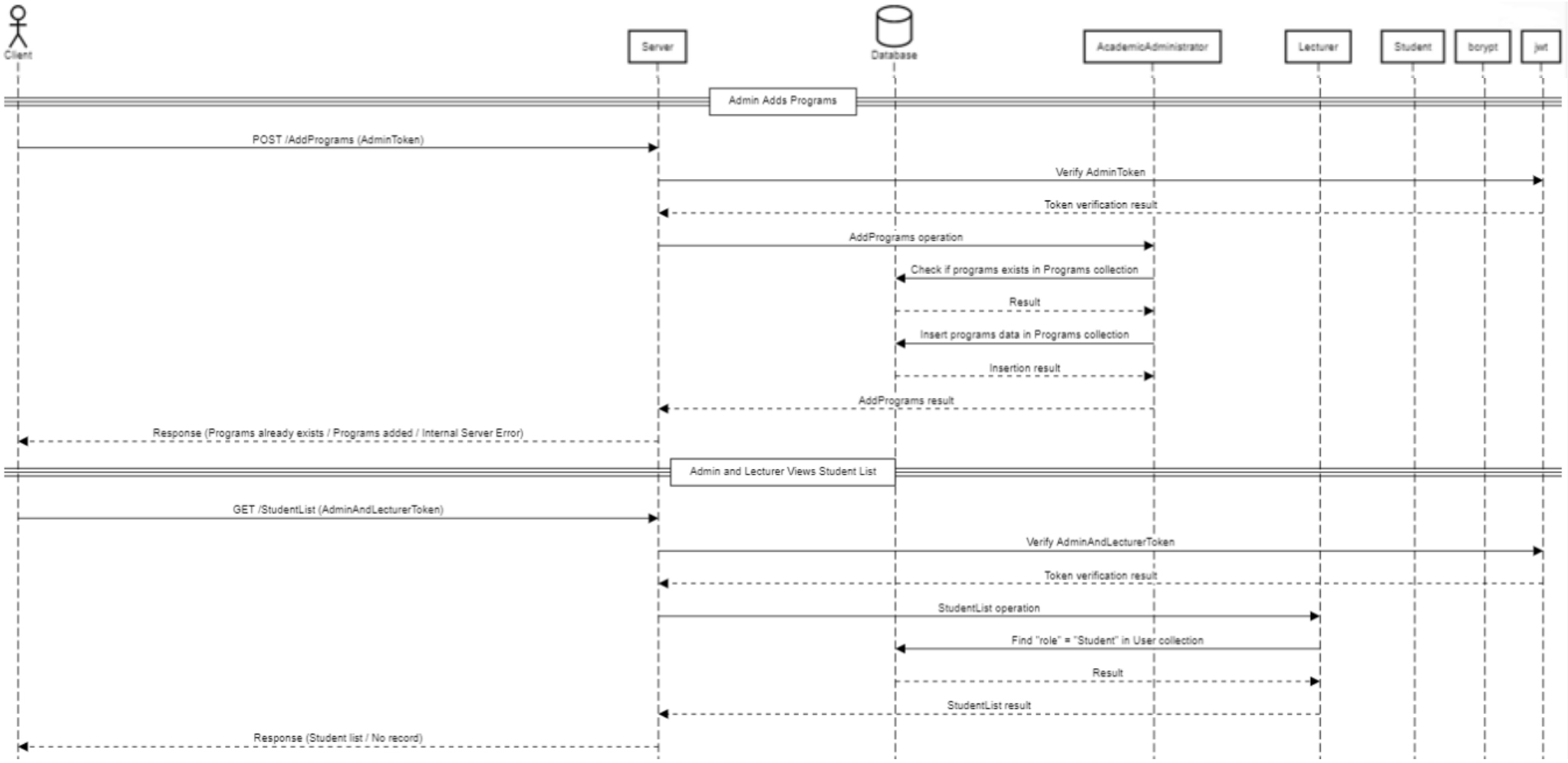
USE CASE DIAGRAM

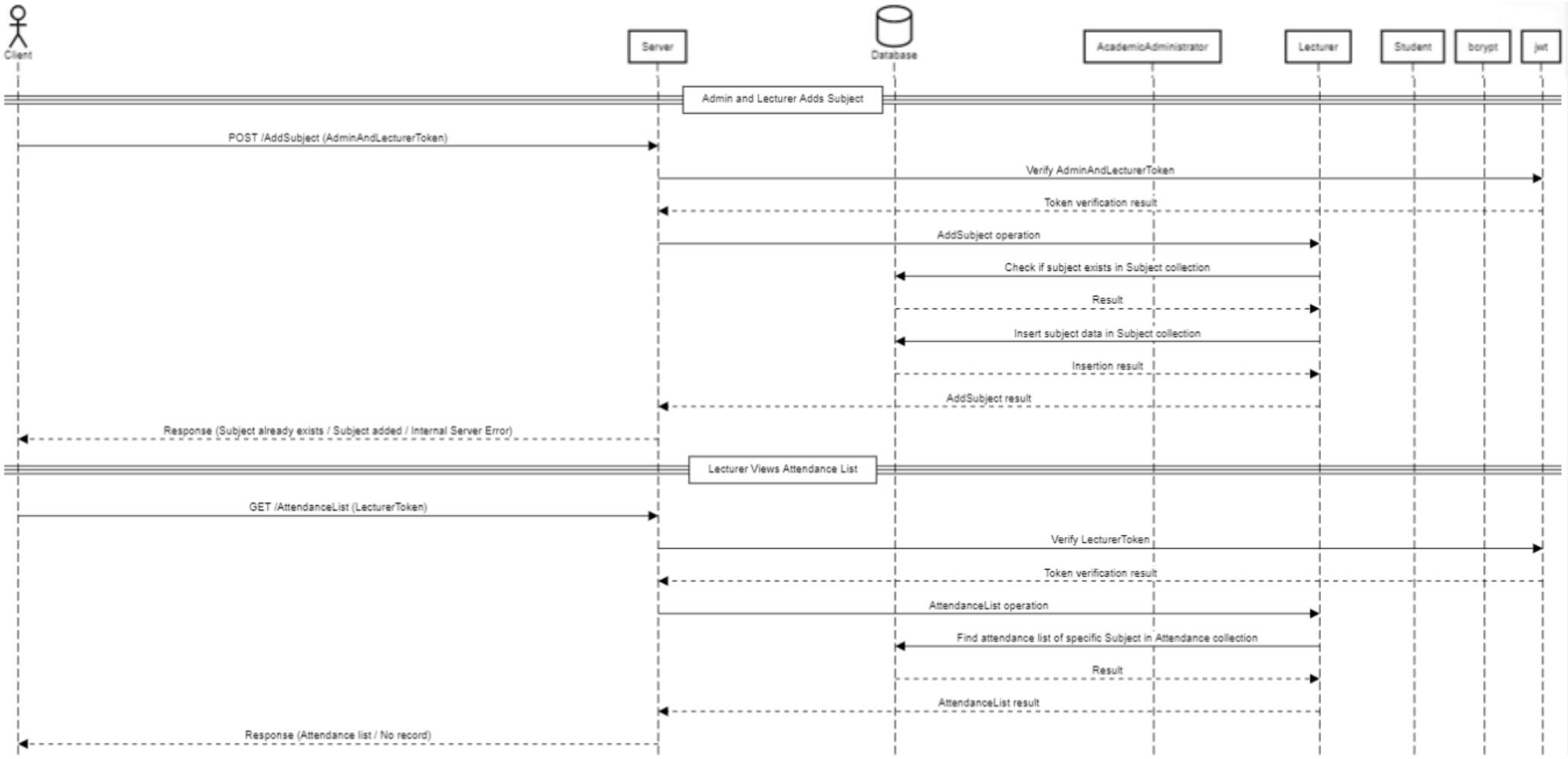


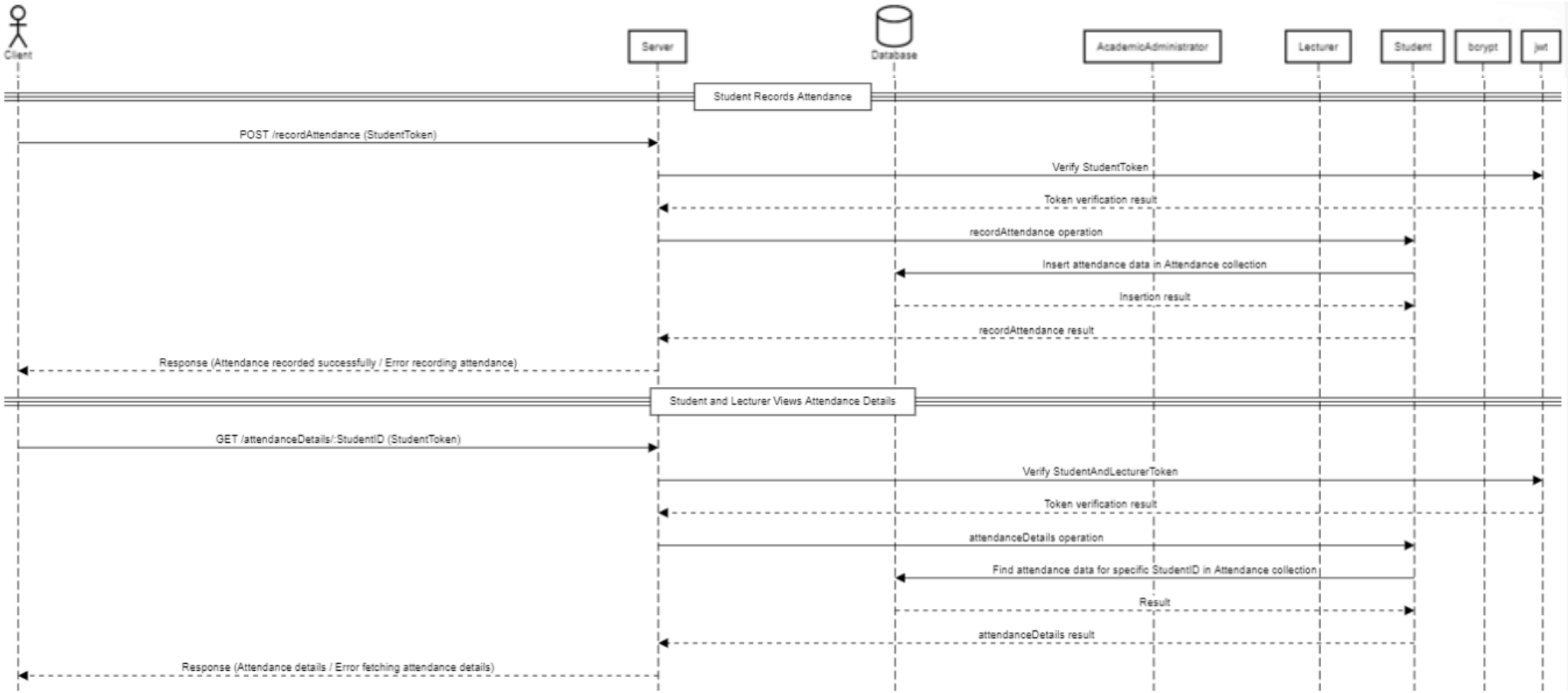
SEQUENCE DIAGRAM

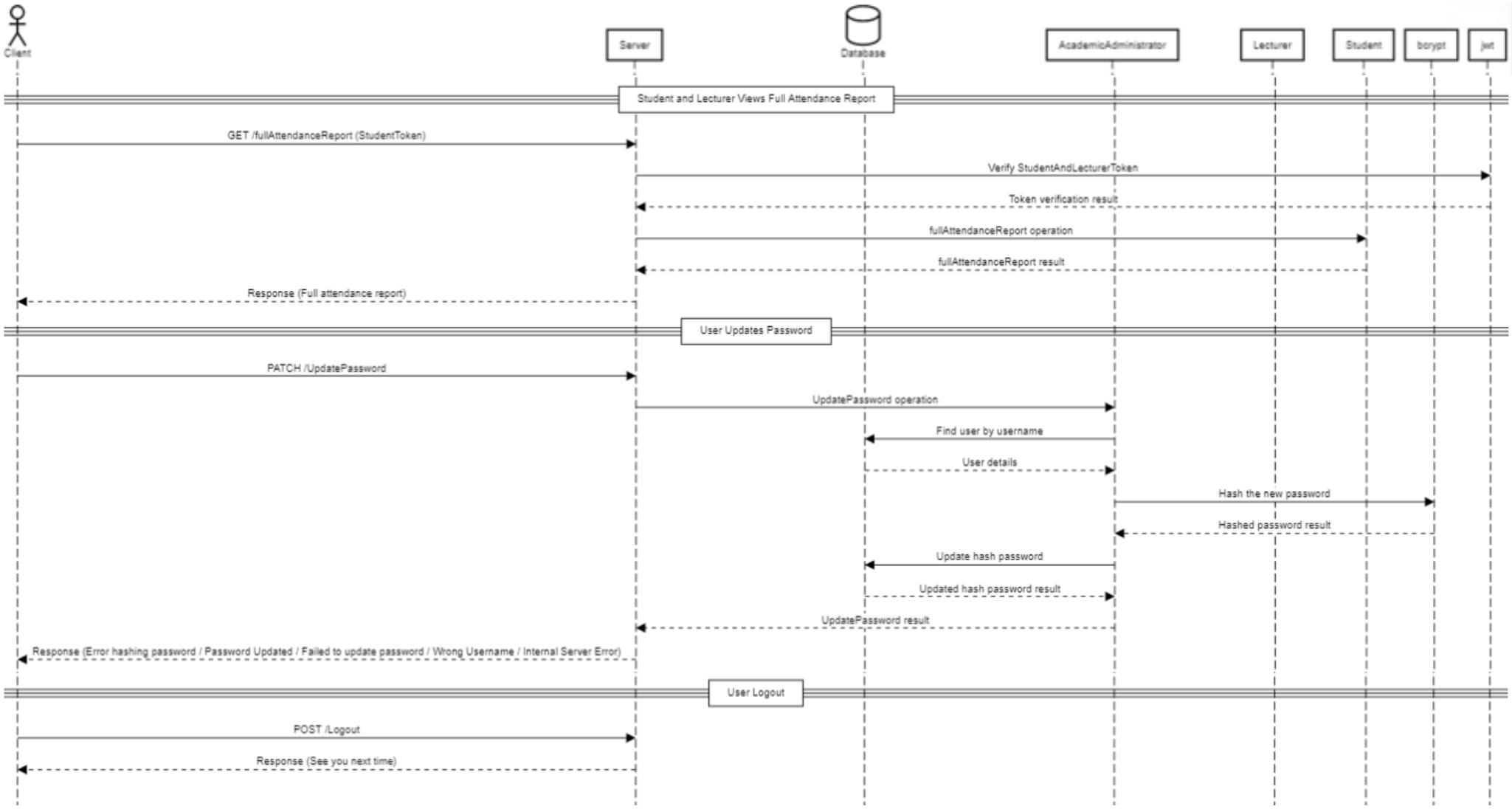



Client
Server
Database
AcademicAdministrator
Lecturer
Student
bcrypt
jwt
Admin Adds Student
POST /AddStudent (AdminToken)
Verify AdminToken
Token verification result
AddStudent operation
Check if student exists in User collection
Result
Insert student data in User collection
Insertion result
AddStudent result
Response (Student already exists / Student added / Internal Server Error)
Admin Adds Lecturer
POST /AddLecturer (AdminToken)
Verify AdminToken
Token verification result
AddLecturer operation
Check if lecturer exists in User collection
Result
Insert lecturer data in User collection
Insertion result
AddLecturer result
Response (Lecturer already exists / Lecturer added / Internal Server Error)


Client
Server
Database
AcademicAdministrator
Lecturer
Student
bcrypt
jwt
Admin Adds Programs
POST /AddPrograms (AdminToken)
Verify AdminToken
Token verification result
AddPrograms operation
Check if programs exists in Programs collection
Result
Insert programs data in Programs collection
Insertion result
AddPrograms result
Response (Programs already exists / Programs added / Internal Server Error)
Admin and Lecturer Views Student List
GET /StudentList (AdminAndLecturerToken)
Verify AdminAndLecturerToken
Token verification result
StudentList operation
Find "role" = "Student" in User collection
Result
StudentList result
Response (Student list / No record)


Client
Server
Database
AcademicAdministrator
Lecturer
Student
bcrypt
jwt
Admin and Lecturer Adds Subject
POST /AddSubject (AdminAndLecturerToken)
Verify AdminAndLecturerToken
Token verification result
AddSubject operation
Check if subject exists in Subject collection
Result
Insert subject data in Subject collection
Insertion result
AddSubject result
Response (Subject already exists / Subject added / Internal Server Error)
Lecturer Views Attendance List
GET /AttendanceList (LecturerToken)
Verify LecturerToken
Token verification result
AttendanceList operation
Find attendance list of specific Subject in Attendance collection
Result
AttendanceList result
Response (Attendance list / No record)


Client
Server
Database
AcademicAdministrator
Lecturer
Student
bcrypt
jwt
Student Records Attendance
POST /recordAttendance (StudentToken)
Verify StudentToken
Token verification result
recordAttendance operation
Insert attendance data in Attendance collection
Insertion result
recordAttendance result
Response (Attendance recorded successfully / Error recording attendance)
Student and Lecturer Views Attendance Details
GET /attendanceDetails/:StudentID (StudentToken)
Verify StudentAndLecturerToken
Token verification result
attendanceDetails operation
Find attendance data for specific StudentID in Attendance collection
Result
attendanceDetails result
Response (Attendance details / Error fetching attendance details)


Client
Server
Database
AcademicAdministrator
Lecturer
Student
borypt
jwt
Student and Lecturer Views Full Attendance Report
GET /fullAttendanceReport (StudentToken)
Verify StudentAndLecturerToken
Token verification result
fullAttendanceReport operation
fullAttendanceReport result
Response (Full attendance report)
User Updates Password
PATCH /UpdatePassword
UpdatePassword operation
Find user by username
User details
Hash the new password
Hashed password result
Update hash password
Updated hash password result
UpdatePassword result
Response (Error hashing password / Password Updated / Failed to update password / Wrong Username / Internal Server Error)
User Logout
POST /Logout
Response (See you next time)