GroupName: Albert&Friends

Christian Jay Barbas,

Albert Velasco,

James Bernard Verdeflor

Kenneth Devon Valeriano

Project X: Automated Attendance System (Use Case)

Scenario: Mark Student Attendance

Actors:

- **Primary Actor:** Lecturer
- **Secondary Actors:** Student, Administrator

Preconditions:

- The lecturer must be logged into the system.
- The class session must be scheduled in the system.
- Students must be registered in the system.

Main Flow:

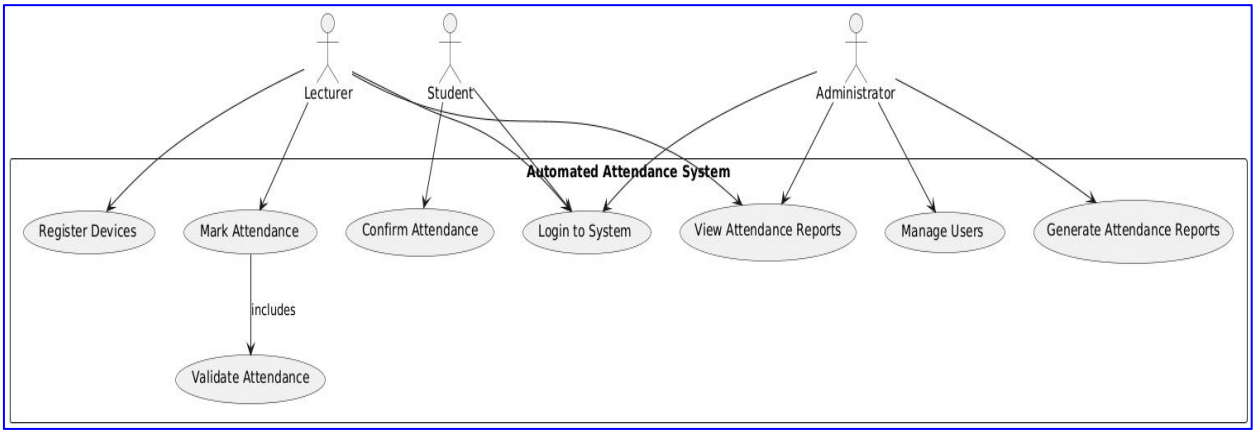
1. The lecturer logs into the system.
2. The lecturer selects the course and class session.
3. The system displays the list of enrolled students.
4. The lecturer chooses the attendance marking method (e.g., QR code, biometric, manual).
5. Students mark their attendance using the selected method.
6. The system validates the student's presence.
7. Attendance records are updated in real-time.
8. The lecturer submits the attendance record.
9. The system stores the attendance data in the database.
10. The system generates an attendance report.

Alternate Flows:

- **Invalid Student Attempt:** If a student who is not registered for the course tries to mark attendance, the system denies access and notifies the lecturer.
- **Missed Attendance:** If a student fails to mark attendance within the given timeframe, the system marks them absent.
- **Offline Mode:** If the internet is unavailable, the system stores attendance data locally and syncs once connected.

Postconditions:

- Attendance records are successfully stored in the database.
- Reports are accessible to lecturers and administrators.
- Students can view their attendance status.



Scenario: Generate Attendance Report

Actors:

- **Primary Actor:** Administrator
- **Secondary Actor:** Lecturer

Preconditions:

- The administrator or lecturer must be logged into the system.
- Attendance records must be available in the system.

Main Flow:

1. The administrator logs into the system.
2. The administrator navigates to the **Reports** section.

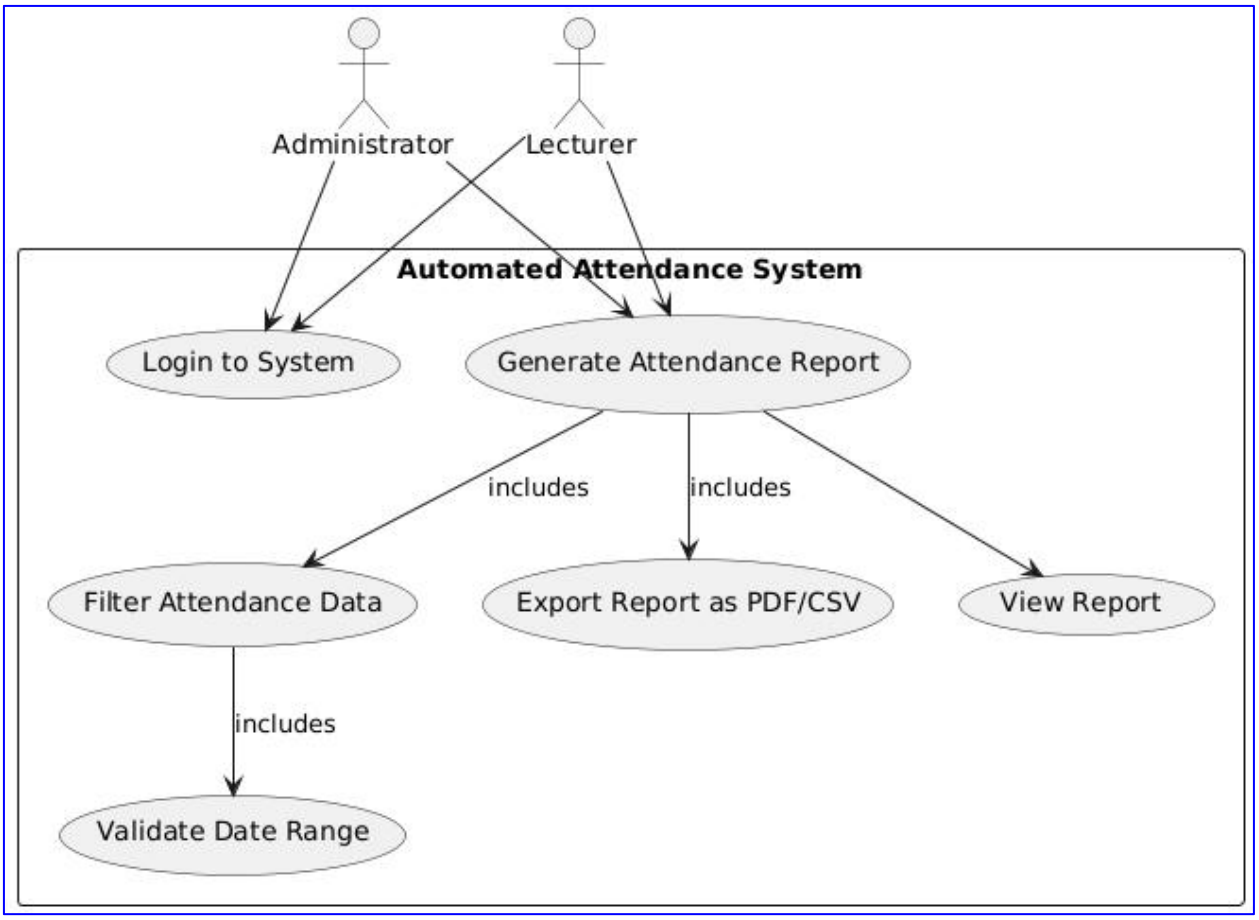
3. The system provides filters (e.g., by course, date range, student, lecturer).
4. The administrator selects the desired filters.
5. The administrator requests to generate the report.
6. The system processes the request and retrieves relevant attendance data.
7. The system formats the report (e.g., table, PDF, CSV).
8. The system displays the generated report.
9. The administrator downloads or prints the report.

Alternate Flows:

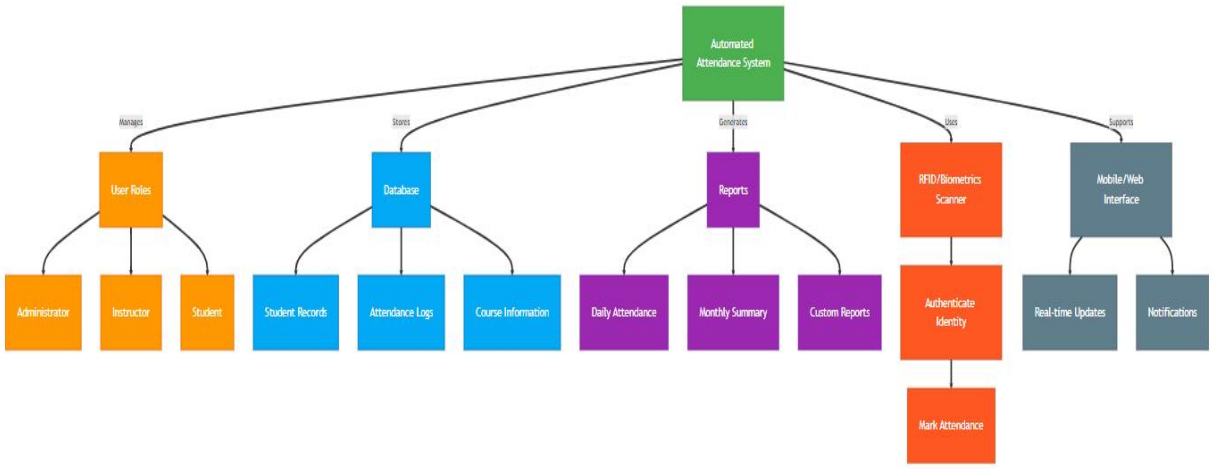
- **Invalid Date Range:** If the selected date range has no attendance records, the system notifies the user and prompts them to adjust the filters.
- **Export Options:** The administrator may choose to export the report in different formats (e.g., CSV, PDF).
- **Access Restriction:** A lecturer can only generate reports for the classes they are assigned to, while administrators have full access.

Postconditions:

- The requested attendance report is generated and available for download.
- The administrator or lecturer can use the report for record-keeping or further analysis.



Project X: Automated Attendance System (Conceptual Diagram)



Project X: Automated Attendance System (Traceability Matrix)

UC1 - Authentication & Access Control

UC2 - Attendance Recording

UC3 - Device Registration & Tracking

UC4 - Student Enrollment & Management

UC5 - Reporting & Data Access

Requirement ID	Sub Requirement ID	Description	UC1	UC2	UC3	UC4	UC5
R1	R1.1	The system shall support three primary roles: Lecturer, Student, Administrator.	✔				
	R1.2	Only registered lecturers shall be able to record attendance.	✔	✔			
	R1.3	Only registered devices shall be authorized for attendance recording.		✔	✔		
	R1.4	Administrators shall have full control over system data (CRUD on students, lecturers, devices, and courses).	✔	✔	✔	✔	✔
R2	R2.1	Lecturers can record attendance using a registered device.		✔	✔		
	R2.2	Attendance data shall be stored in a cloud-based MySQL database.		✔			✔
	R2.3	Attendance shall be linked to a course, student, lecturer, date, and time.		✔		✔	✔
	R2.4	Attendance shall be retrievable in real-time.		✔			✔
R3	R3.1	A lecturer shall be able to register multiple devices.			✔		
	R3.2	The system shall track the location of registered devices.			✔		

	R3.3	Only registered devices shall access the attendance system.		✔	✔		
R4	R4.1	Students shall be able to enroll in courses through the system.				✔	
	R4.2	The system shall store and manage student details (Name, ID, Profile Picture).				✔	
	R4.3	The system shall allow adding, updating, and deleting student records.				✔	
R5	R5.1	The system shall generate attendance reports.		✔			✔
	R5.2	Reports shall be accessible to lecturers and administrators.	✔	✔			✔
R6	R6.1	The system shall allow lecturers to capture student photos.		✔		✔	
	R6.2	Photos shall be securely stored as files with student IDs and names in the database.		✔		✔	
	R6.3	The system shall ensure secure access to stored images.	✔	✔		✔	
R7	R7.1	The system shall use a REST API to interact with the database.	✔	✔	✔	✔	✔
	R7.2	All interactions (attendance, enrollment, reporting) shall be handled via API.	✔	✔	✔	✔	✔

	R7.3	API requests shall be authenticated and authorized.	✔	✔	✔	✔	✔
R8	R8.1	Unit Testing for attendance, enrollment, etc.	✔	✔	✔	✔	✔
	R8.2	System Testing to validate end-to-end workflows	✔	✔	✔	✔	✔
	R8.3	User Acceptance Testing (UAT) to confirm system meets user needs.	✔	✔	✔	✔	✔