PROJECT TITLE: HOTEL MANAGEMENT SYSTEM

Contents

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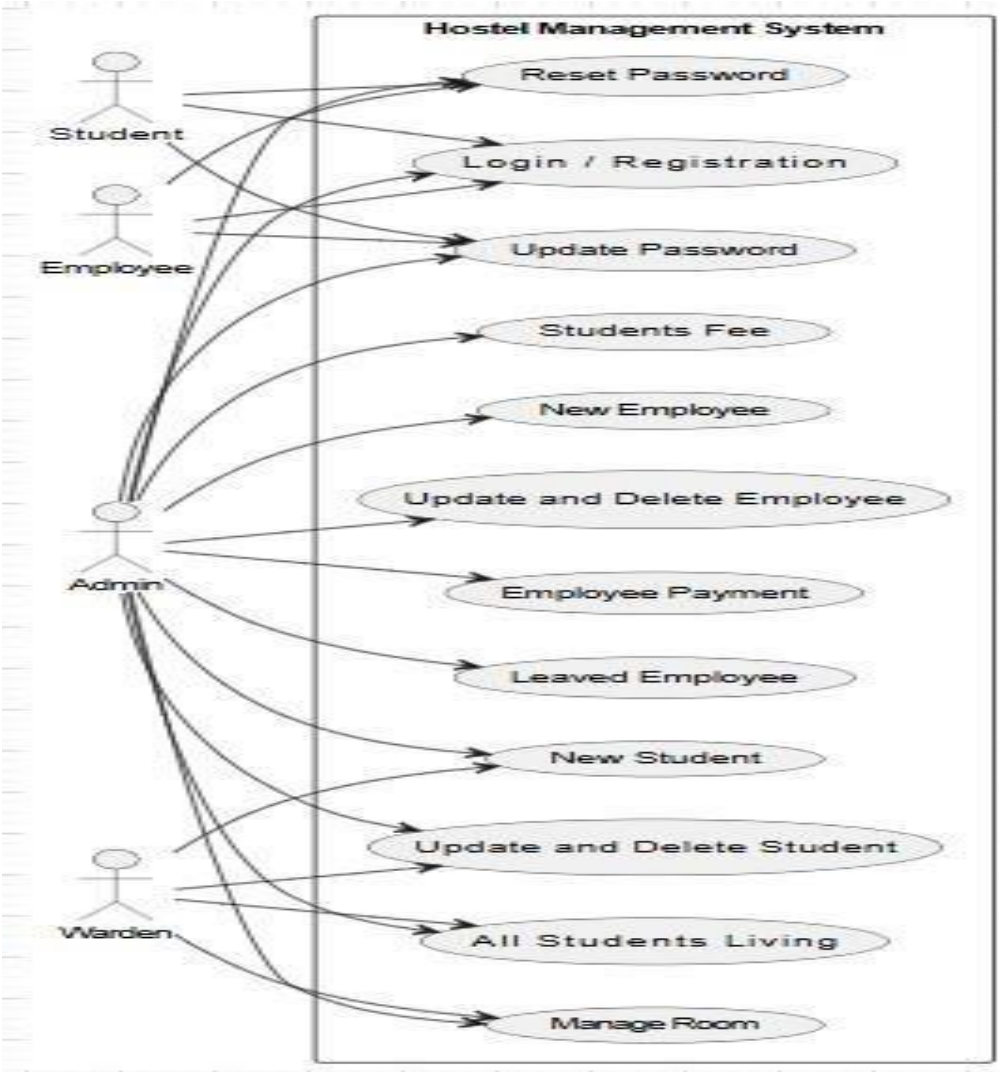
REGISTRAION NO: SP23-BSE-012



Use Case Name:

Manage Room

Primary Actor:

Hostel Manager / Admin **Secondary Actors:**
Maintenance Staff, Room Allocation System, Hostel Warden **Stakeholders and**

Interests:

- **Hostel Manager / Admin**: Needs to allocate, update, and maintain rooms for students or employees, ensuring proper occupancy records and room conditions.
- **Maintenance Staff**: Responsible for ensuring that rooms are properly maintained and cleaned.
- **Hostel Warden**: Manages room allocation for students/employees, ensures room conditions are suitable for habitation.

Preconditions: 1. The hostel has rooms available in the system for allocation

or maintenance.

2. The system has accurate records of all rooms, including room numbers, current occupants, and room status.
3. The user (Hostel Manager/Admin) is logged in and has the necessary permissions to manage rooms.
4. The system is functioning and can update room allocation, status, and maintenance records.

Postconditions:

1. Room status is updated correctly (e.g., vacant, occupied, under maintenance).
2. Room is assigned to the relevant student, employee, or guest if available.
3. Room maintenance is tracked, and relevant tasks are assigned to the maintenance staff.
4. Reports on room occupancy and status are updated for record-keeping and auditing purposes.
5. Notifications are sent to the concerned parties (e.g., student, warden, maintenance staff) when a room is allocated or requires attention.

Main Success Scenario (Basic Flow):

1. **Trigger:** The Hostel Manager/Admin needs to perform a room management action (e.g., allocate, update status, schedule maintenance).
2. **Hostel Manager Action:**
    - The Hostel Manager logs into the **Hostel Management System**.
    - The system displays an overview of **all rooms** in the hostel, including their status (e.g., available, occupied, under maintenance).
3. **Room Allocation (if applicable):** ○ The Hostel Manager navigates to the **Room Allocation** section and selects an available room.
    - The system displays a list of **available rooms** (with the room's size, type, and other relevant details).
    - The Hostel Manager selects the room and assigns it to a **new student, employee, or guest**.
    - The system updates the room's **status** to **occupied** and records the occupant's details.
4. **Room Status Update (if applicable):**
    - If the room status needs updating (e.g., marking a room as **under maintenance** or **vacant**), the Hostel Manager selects the room and updates the **status**. ○ The system prompts the Hostel Manager to provide details about the status update (e.g., maintenance issues or reasons for vacancy).
5. **Room Maintenance (if applicable):** ○ If the room requires maintenance (e.g., cleaning, repairs), the Hostel Manager can select the **maintenance option**. ○ The system notifies the **Maintenance Staff** about the required tasks and provides them with room details. ○ Maintenance staff records completion of tasks, and the room status is updated to **ready for occupancy** or **vacant** once maintenance is done.

6. **Reports Update:**
    - The system automatically updates the room **occupancy report**, including details of current occupants, vacant rooms, and maintenance status.
    - The **Room Status Report** is generated for auditing and tracking purposes.
7. **Notification Sent:**
    - The system sends a **notification** to the concerned parties (e.g., student/employee about room allocation, maintenance staff about maintenance tasks, warden about room status changes).

Alternative Flows (Extensions):

1. **Room Allocation to a New Occupant:**
    - **Step 3A:** If the room is not available, the system prompts the Hostel Manager to either choose a different room or add the new occupant to a waiting list.
    - **Step 3B:** The Hostel Manager can view **pending allocations** and choose a room accordingly.
2. **Room Maintenance Required:** ○ **Step 5A:** If the room is in need of cleaning or repairs, the system notifies the **maintenance staff** to schedule the necessary tasks. ○ **Step 5B:** The maintenance staff updates the status once the tasks are completed, and the room is marked as **ready for occupancy**.
3. **Room Reallocation:**
    - **Step 3A:** If a student/employee requests to move to a different room, the system allows the Hostel Manager to **reassign the room** and automatically update the status of the old room to **vacant**.

Exception Flows:

1. **Room Not Found:**
    - If the system cannot find the selected room (due to incorrect room number or system issues), the system alerts the Hostel Manager. ○ The Hostel Manager is prompted to verify the room number or try again with a different room.
2. **Room Overbooking:**
    - If a room has already been allocated to someone else (e.g., due to a system error), the system alerts the Hostel Manager and asks them to select a different room.
3. **Maintenance Issue Not Addressed:**
    - If the maintenance staff fails to complete their task in a timely manner (e.g., due to resource shortage), the system generates an **alert** for follow-up actions and escalates the issue to the Hostel Manager.
4. **User Permissions Error:** ○ If a user without appropriate permissions (e.g., non-admin staff) tries to manage room allocations, the system denies access and shows an **Access Denied** message.

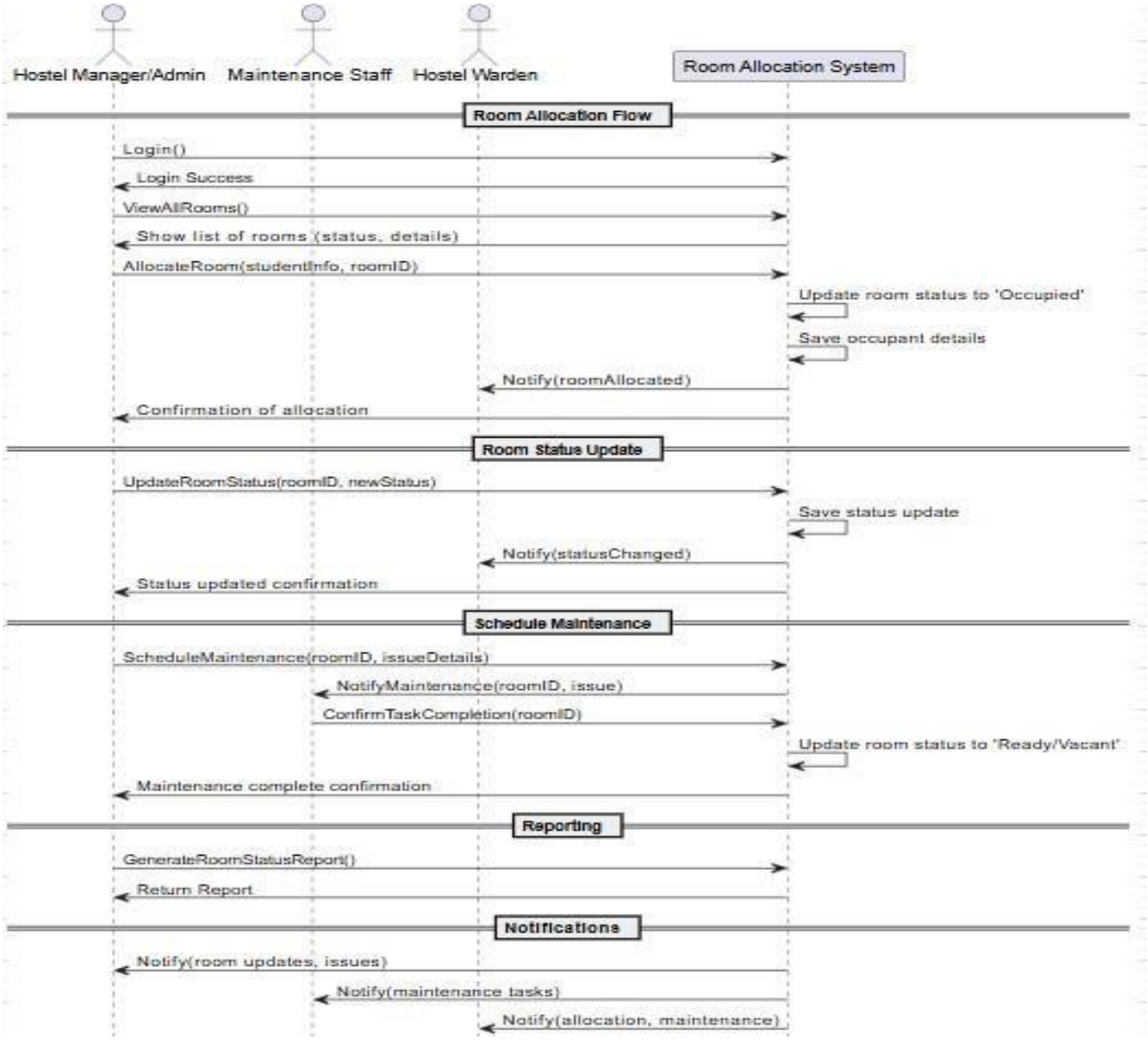
Trigger:

- The trigger for this use case is the **need to manage rooms** within the hostel, including allocating rooms, updating their status, and scheduling maintenance.

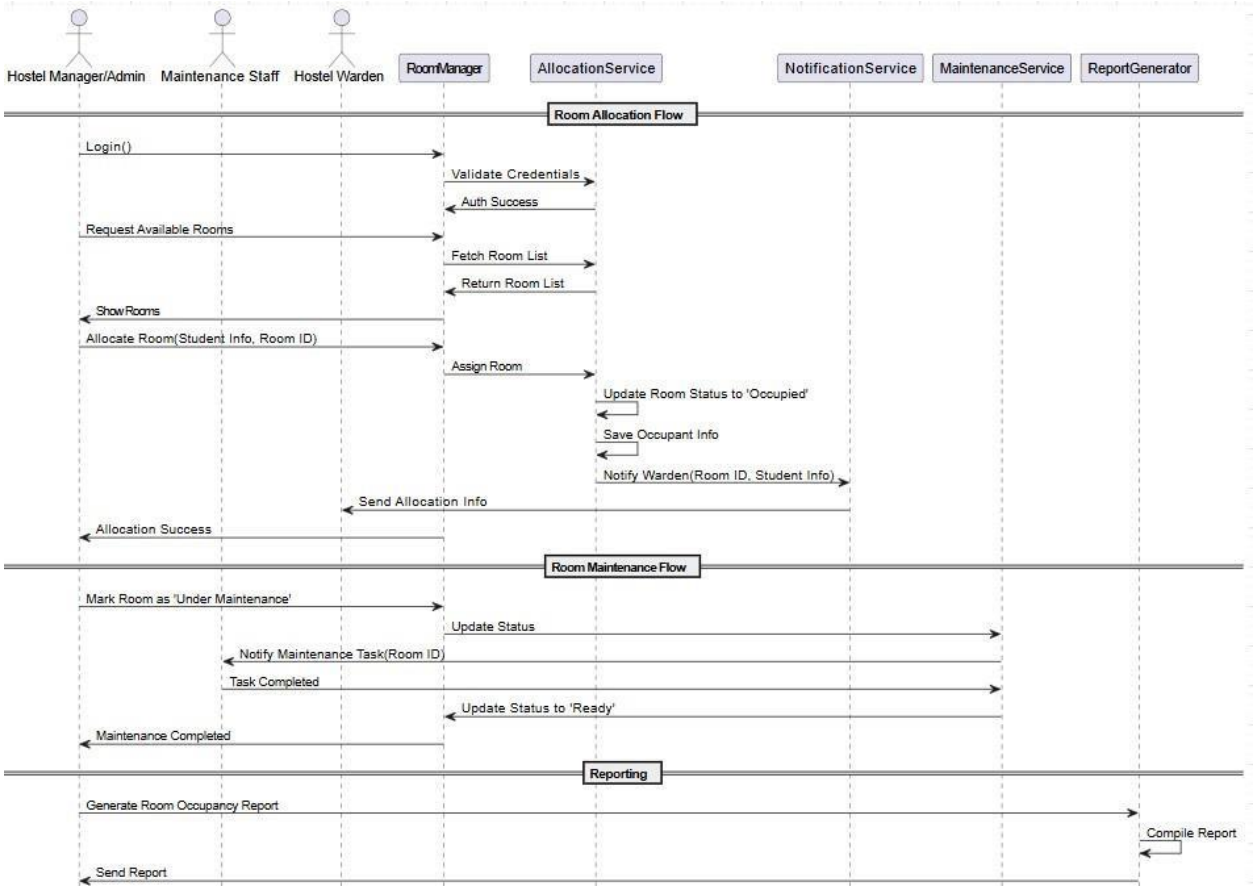
Special Requirements:

- **Data Security & Privacy:** Only authorized personnel (Hostel Manager, Admin) should have permission to modify room allocations and update room statuses.
- **Real-Time Updates:** The system must ensure that room status changes (vacancy, maintenance, allocation) are reflected in real time to avoid overbooking and confusion.
- **Maintenance Tracking:** The system should allow the **maintenance staff** to track progress on maintenance tasks and provide feedback on completed jobs.
- **Automated Notifications:** The system must send automated notifications to the concerned parties (student, employee, maintenance staff, and warden) whenever a room status is changed or allocated.
- **Reporting:** The system should support detailed reports on **room occupancy**, **maintenance schedules**, and **room availability**, which are important for auditing and operational analysis.
- **Scalability:** The system should be scalable to accommodate different room types, occupancy limits, and multi-building hostels.

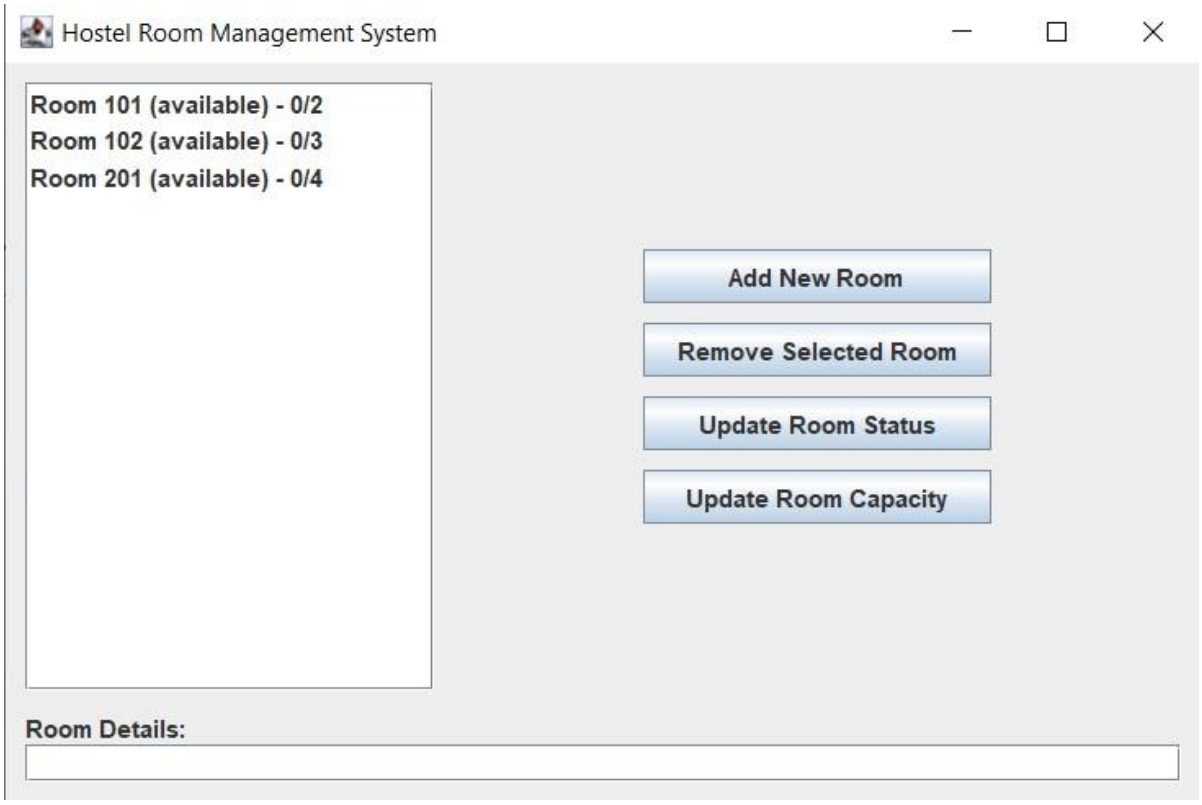
System Sequence Diagram:



Sequence Diagram:



UI Prototype:

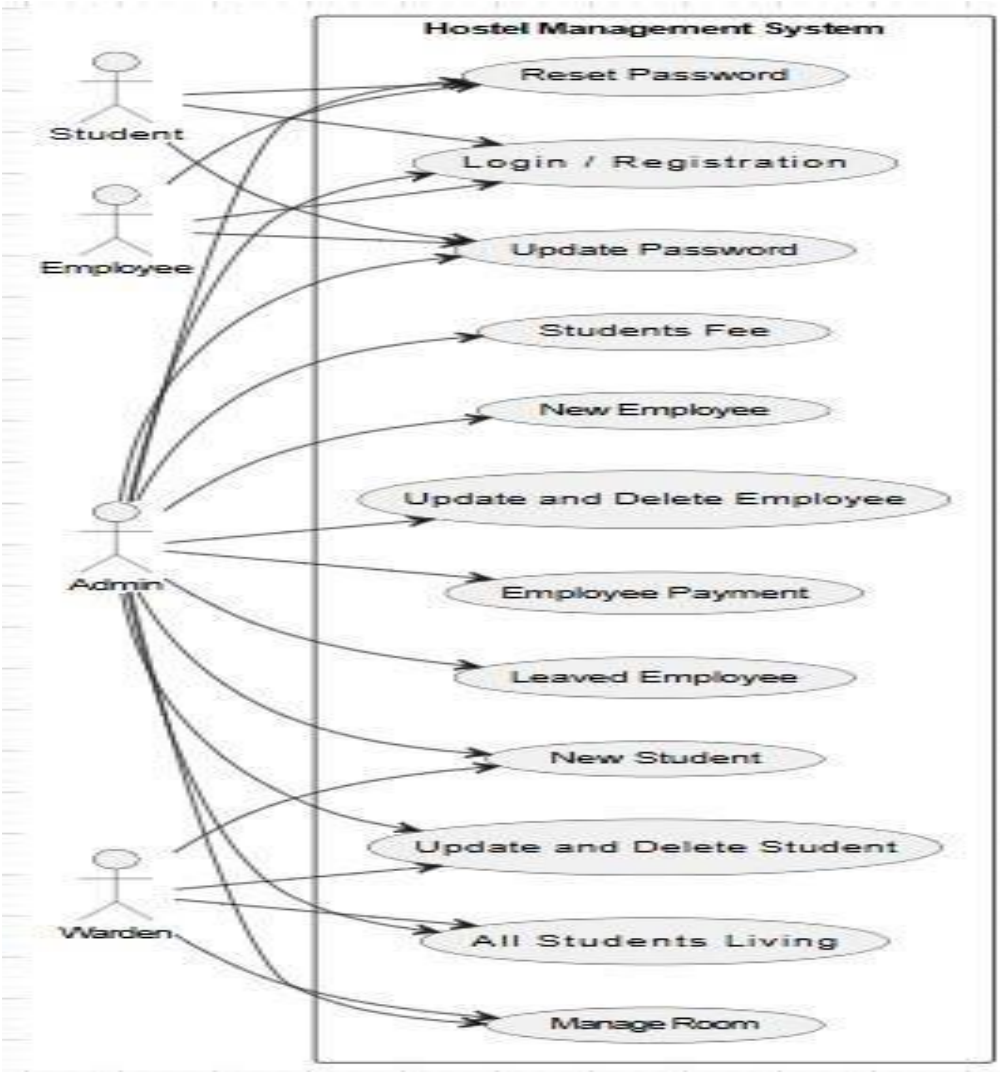


NAME: SARDAR ZAIN

REGISTRATION NO : SP23-BSE-013

TASK:

DOCUMENTATION AND CODING FOR ONLY LOGIN USECASE



Full Address Use Case (LOGIN)

Use Case: User Login

Use Case ID: UC-001
Primary Actor: User
Goal: Securely authenticate users and grant access to role-specific functionalities.
Scope: Authentication System

Description:

This use case describes the process by which a user (student, employee, or admin) logs into the system using valid credentials. Upon successful authentication, the user is redirected to a personalized dashboard with features and permissions tailored to their role.

Trigger:

The user clicks on the "Sign In" or "Login" button from the application or website.

Preconditions:

1. The user must be registered in the system.
2. The user must possess valid login credentials (email/ID and password).
3. The system and its authentication services must be operational.

Postconditions:

Success:

- The user is authenticated and redirected to their role-specific dashboard.
- The login timestamp and last login details are updated in the system logs.

Failure:

- The system displays appropriate error messages without granting access.

Main Flow (Normal Flow):

1. **User Accesses Login Interface:**
    - The user navigates to the login page via a URL or application.
2. **User Inputs Credentials:**
    - The user provides a valid username (email or ID) and password.

3. **System Validates Credentials:**
    - The system verifies if the username exists in the database.
    - If the username exists, the system compares the provided password against the stored hash.
4. **Successful Authentication:**
    - The user is logged in.
    - The system redirects the user to their respective dashboard (Student, Admin, or Staff).
    - The login event is logged with a timestamp.
5. **Access to Functionalities:**
    - The user is granted access to features and data as per their assigned role.

Alternative Flows (Invalid Inputs):

- **A1: Invalid Username:**
    - Condition: The entered username does not exist.
    - System Response: “User does not exist.”
- **A2: Invalid Password:**
    - Condition: The username exists but the password is incorrect.
    - System Response: “Your password is incorrect.”

Exceptional Flows:

- **E1: Connection Timeout:**
    - Condition: The network connection times out during login.
    - System Response: The user is notified: “Connection timeout. Please check your internet connection and try again.”

Extension Points:

- **Account Lockout Mechanism (Security Extension):**
    - Trigger: Multiple consecutive failed login attempts (e.g., 5 attempts).
    - Action: The system temporarily locks the account and notifies the user via email.
    - Unlocking may require admin intervention or user action via email verification.
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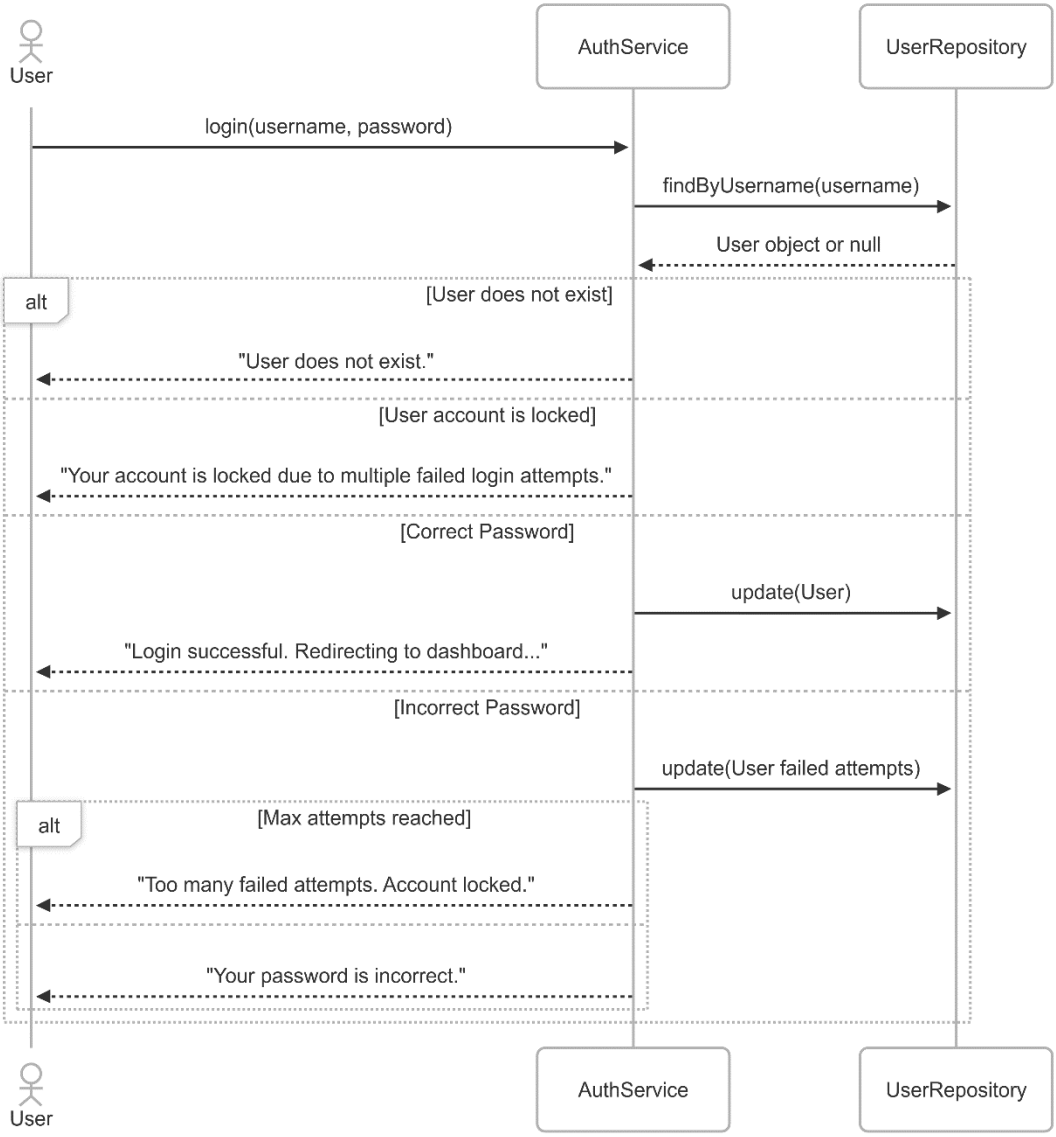
- **System sequence Diagram:**


User
AuthService
UserRepository
login(username, password)
findByUsername(username)
User object or null
alt
[User does not exist]
"User does not exist."
[User account is locked]
"Your account is locked due to multiple failed login attempts."
[Correct Password]
update(User)
"Login successful. Redirecting to dashboard..."
[Incorrect Password]
update(User failed attempts)
alt
[Max attempts reached]
"Too many failed attempts. Account locked."
"Your password is incorrect."
User
AuthService
UserRepository