PROJECT TITLE: HOTEL MANAGEMENT SYSTEM

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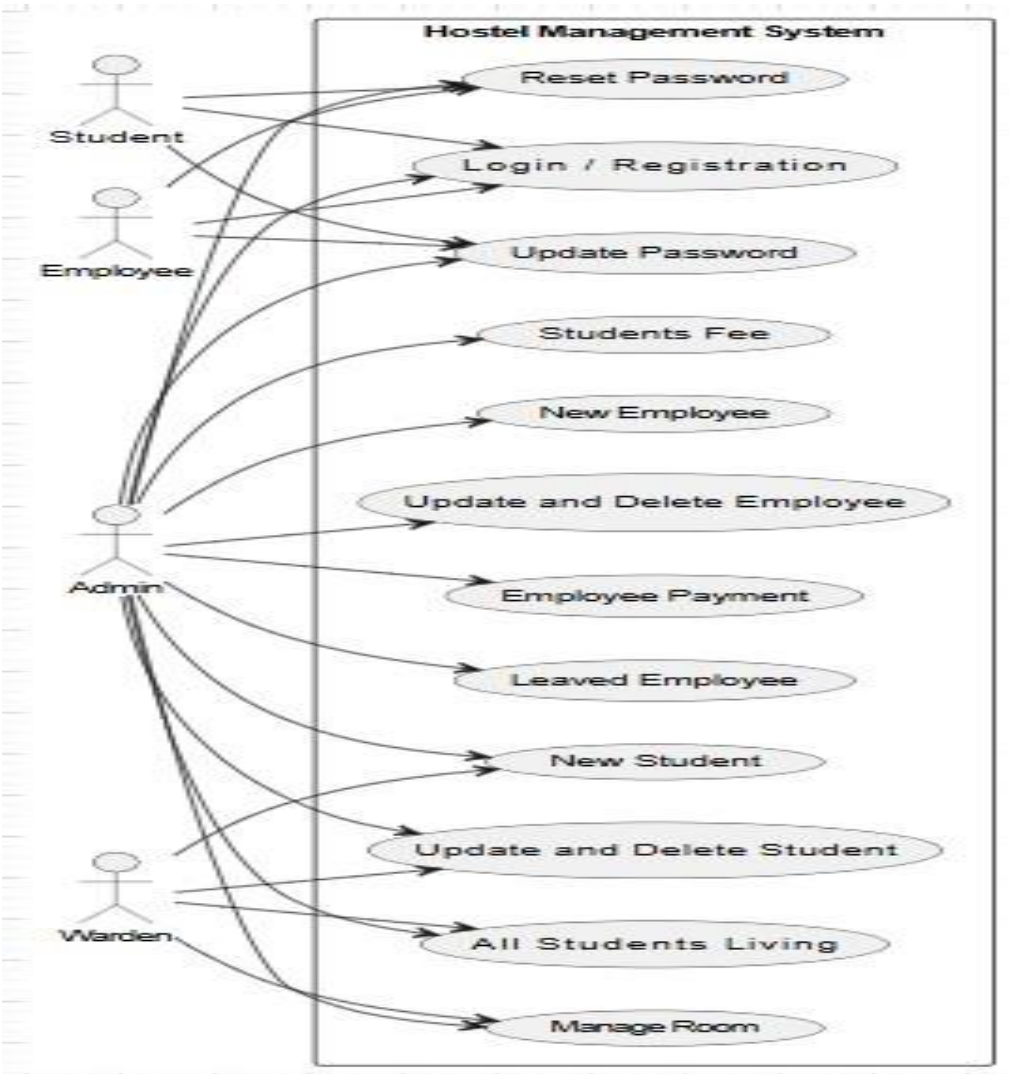
REGISTRAION NO: SP23-BSE-012



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.

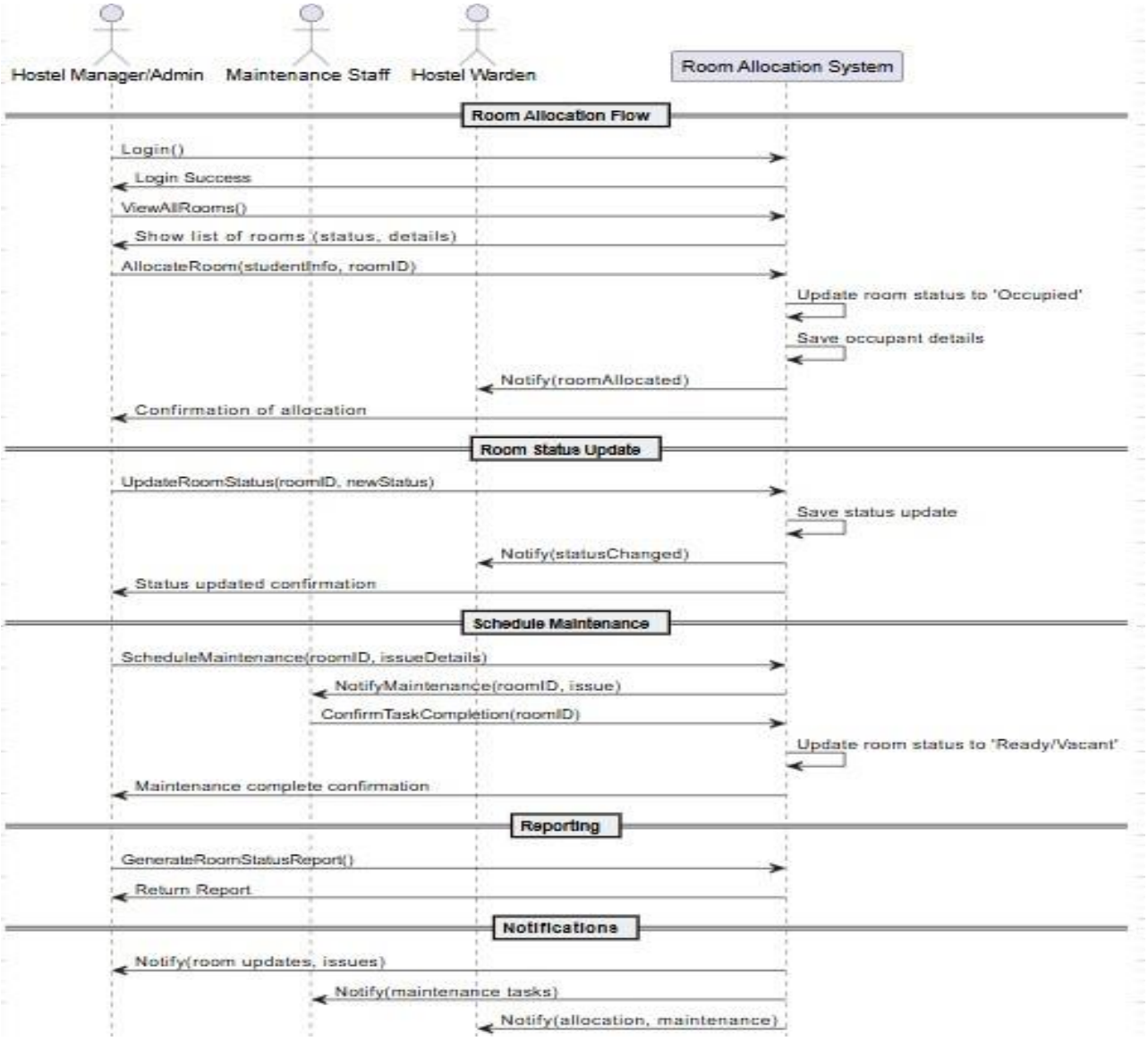
Trigger:

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

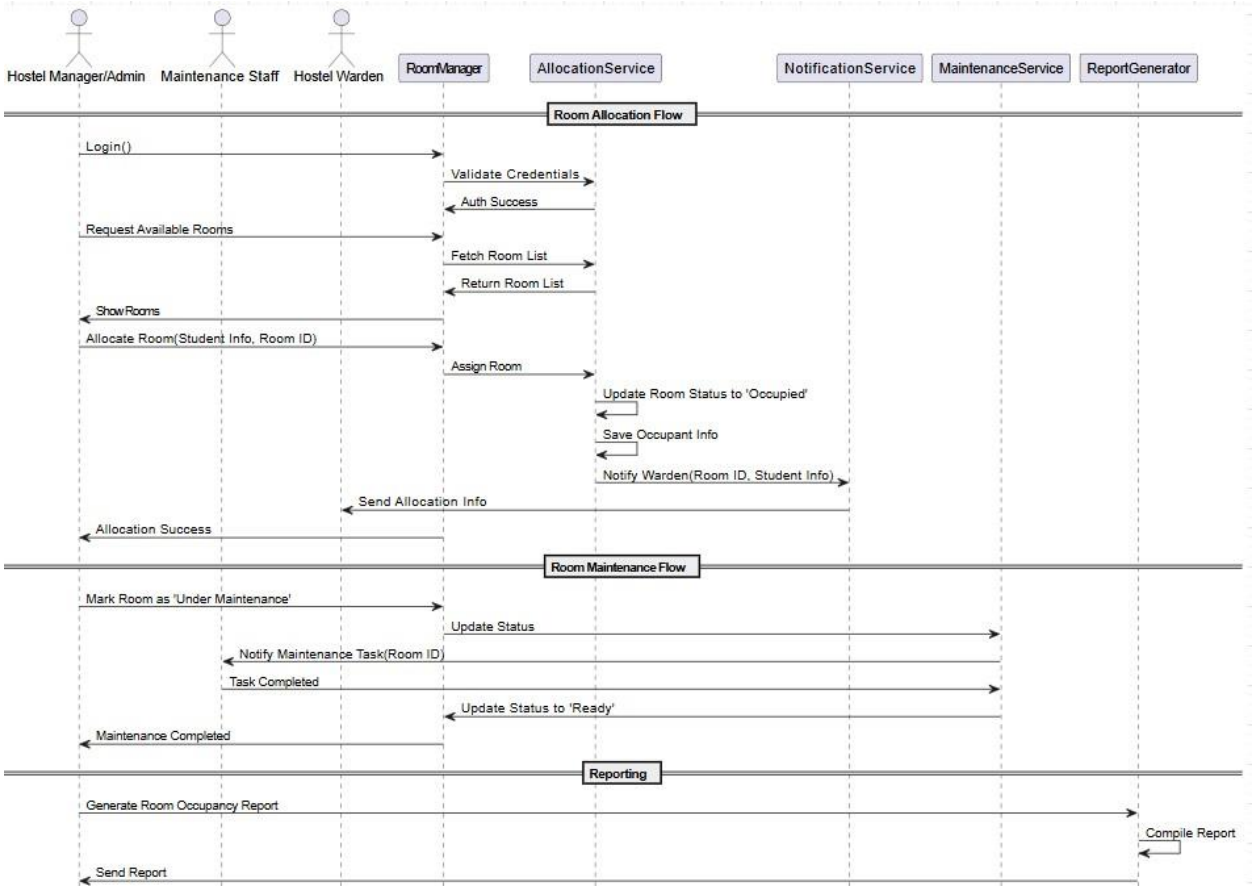
Special Requirements:

- **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.

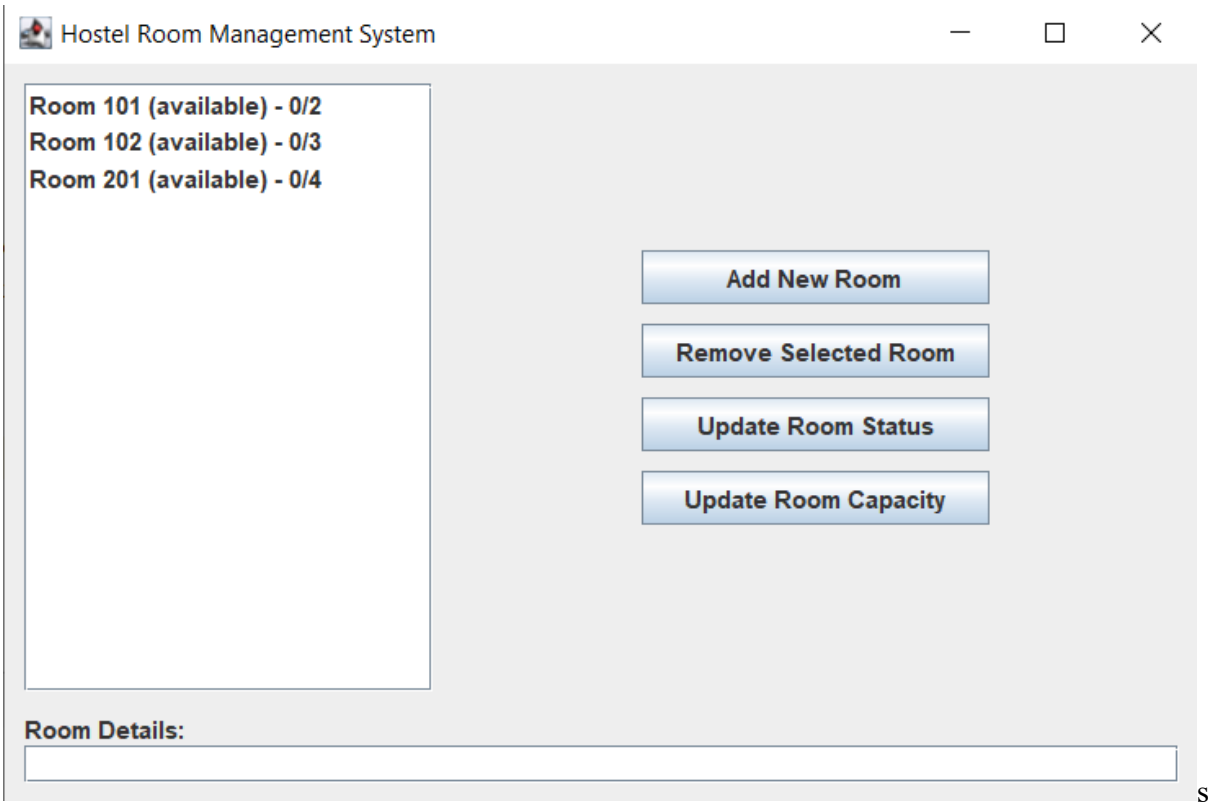
System Sequence Diagram:



Sequence Diagram:



UI Prototype:



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