

**Project Title:** Hotel management system

**Deliverable Name:** Sprint 1 and 2 Implementation

**Team Name:** StayEase

**Members:**

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2. Bilal Javed
3. Sohaib Sattar

**Submission Date:** Mar 23, 2025

## **PART A:**

### **Functional Requirements**

User Authentication → Users (admins, staff, customers) must be able to log in securely.

Room Booking → Customers can view and book available rooms.

Payment Processing → The system should support online payments.

Check-in and Check-out → The hotel staff should manage check-ins and check-outs.

Billing and Invoicing → Generate and print invoices.

Room Management → Admins can add, update, and remove rooms.

Staff Management → Manage hotel employees and their roles.

Reports and Analytics → Generate daily reports on bookings and revenue.

### **Non - Functional Requirements**

### **a. Product Requirements**

The system should work on Windows, Linux, and macOS.

The system must process at least 1000 transactions per hour.

The UI should be responsive and user-friendly.

### **b. Organizational Requirements**

The system should follow Java coding best practices.

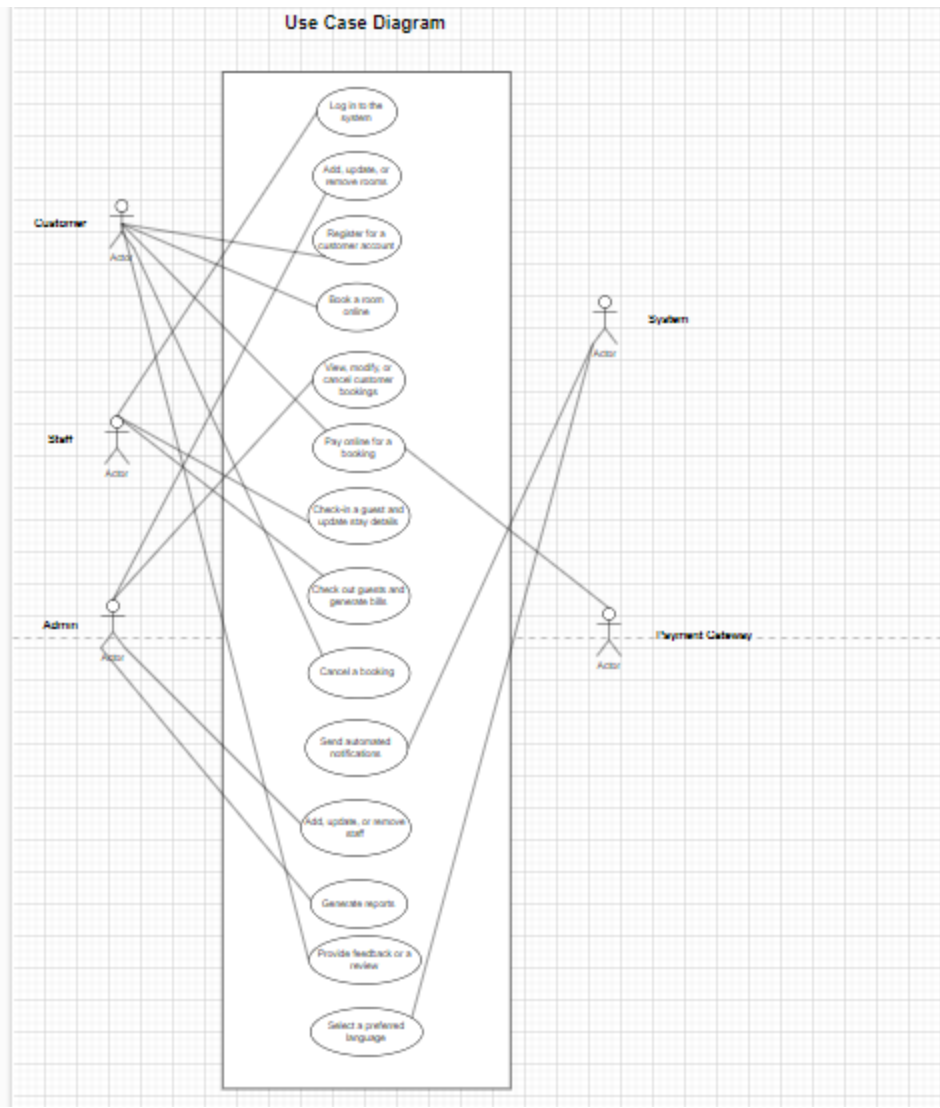
The project should be managed using GitHub for version control.

### **c. External Requirements**

The system must comply with GDPR (General Data Protection Regulation) for handling user data.

It should integrate with third-party payment APIs like PayPal or Stripe.

## **Use Case Diagram**



## Sprint 1: Core Features (Authentication, Room Management, Booking)

### 1. User Authentication

- **User Role:** Hotel Staff/Admin
- **Goal:** Allow authorized users to log in securely.
- **Reason:** Ensures that only authorized personnel can access system functionalities.
- **Pre-conditions:**
  - The user must be registered in the system.
- **Post-conditions:**

- The user is redirected to the dashboard upon successful authentication.
- Unauthorized login attempts are blocked.

## 2. Customer Registration

- **User Role:** Customer
- **Goal:** Enable customers to create an account for booking hotel rooms.
- **Reason:** Allows customers to access booking and hotel services.
- **Pre-conditions:**
  - The customer provides valid details (name, email, contact information).
- **Post-conditions:**
  - The customer account is successfully created.
  - The customer can now log in to the system.

## 3. Room Management

- **User Role:** Admin
- **Goal:** Allow admins to add, update, and remove rooms in the system.
- **Reason:** Ensures accurate and up-to-date room availability.
- **Pre-conditions:**
  - The user must be logged in as an admin.
- **Post-conditions:**
  - The system updates the room listings based on admin actions.
  - The changes reflect in the customer's booking view.

## 4. Room Booking

- **User Role:** Customer
- **Goal:** Allow customers to book hotel rooms online.
- **Reason:** Enables users to secure accommodations easily.
- **Pre-conditions:**
  - The customer must be logged in.
  - The selected room must be available.
- **Post-conditions:**
  - The booking is confirmed, and the customer receives a confirmation email.

- The room's availability status is updated.

## 5. Booking Management (Admin/Staff)

- **User Role:** Admin/Staff
  - **Goal:** Allow staff to view, modify, or cancel customer bookings.
  - **Reason:** Ensures efficient reservation management.
  - **Pre-conditions:**
    - The user must be logged in as an admin or staff member.
  - **Post-conditions:**
    - The booking data is updated accordingly.
    - Customers are notified of any changes.
- 

## Sprint 2: Payment, Check-in/Check-out, Notifications

### 6. Online Payment Processing

- **User Role:** Customer
- **Goal:** Enable secure online payment for room bookings.
- **Reason:** Confirms reservations by processing payments.
- **Pre-conditions:**
  - A valid booking must exist.
- **Post-conditions:**
  - The payment is successfully processed, and a digital receipt is generated.
  - The booking status is updated to "Confirmed."

### 7. Check-in Process

- **User Role:** Staff
- **Goal:** Allow staff to check guests into the system.
- **Reason:** Facilitates a seamless arrival experience.
- **Pre-conditions:**
  - The guest has a valid, confirmed booking.
- **Post-conditions:**
  - The system updates the guest's check-in status.
  - The room is marked as "Occupied."

## 8. Check-out Process & Billing

- **User Role:** Staff
- **Goal:** Enable staff to check out guests and generate a final bill.
- **Reason:** Ensures accurate billing and room availability updates.
- **Pre-conditions:**
  - The guest has completed their stay.
- **Post-conditions:**
  - The check-out status is updated.
  - A detailed bill is generated and provided to the guest.
  - The room is marked as “Available” for future bookings.

## 9. Booking Cancellation

- **User Role:** Customer
- **Goal:** Allow customers to cancel their bookings and receive a refund if applicable.
- **Reason:** Provides flexibility for changing travel plans.
- **Pre-conditions:**
  - The booking exists and falls within the cancellation policy window.
- **Post-conditions:**
  - The booking is canceled in the system.
  - If eligible, a refund is processed.
  - The room is marked as available again.

## 10. Automated Notifications

- **User Role:** Customer
  - **Goal:** Send automated notifications for booking confirmations, reminders, and check-out alerts.
  - **Reason:** Keeps customers informed about their reservations.
  - **Pre-conditions:**
    - The customer has a valid booking.
  - **Post-conditions:**
    - The system sends an email or SMS notification.
    - Customers receive timely reminders about their stay.
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## Sprint 3: Additional Features & Enhancements

### 11. Customer Feedback & Ratings

- **User Role:** Customer
- **Goal:** Allow customers to rate their stay and provide feedback.
- **Reason:** Helps improve service quality and customer satisfaction.
- **Pre-conditions:**
  - The customer has completed their stay.
- **Post-conditions:**
  - The feedback is recorded and displayed in the system.

### 12. Discount & Promotions System

- **User Role:** Admin
- **Goal:** Enable admins to create and apply promotional discounts.
- **Reason:** Attracts more customers and increases bookings.
- **Pre-conditions:**
  - The admin is logged in and authorized to create promotions.
- **Post-conditions:**
  - Discounts are applied to eligible bookings.
  - Customers are notified of promotions.

### 13. Multi-Language Support

- **User Role:** Customer
- **Goal:** Provide multi-language options in the system.
- **Reason:** Enhances accessibility for international users.
- **Pre-conditions:**
  - The customer selects their preferred language.
- **Post-conditions:**
  - The system displays content in the selected language.

### 14. Loyalty Program Implementation

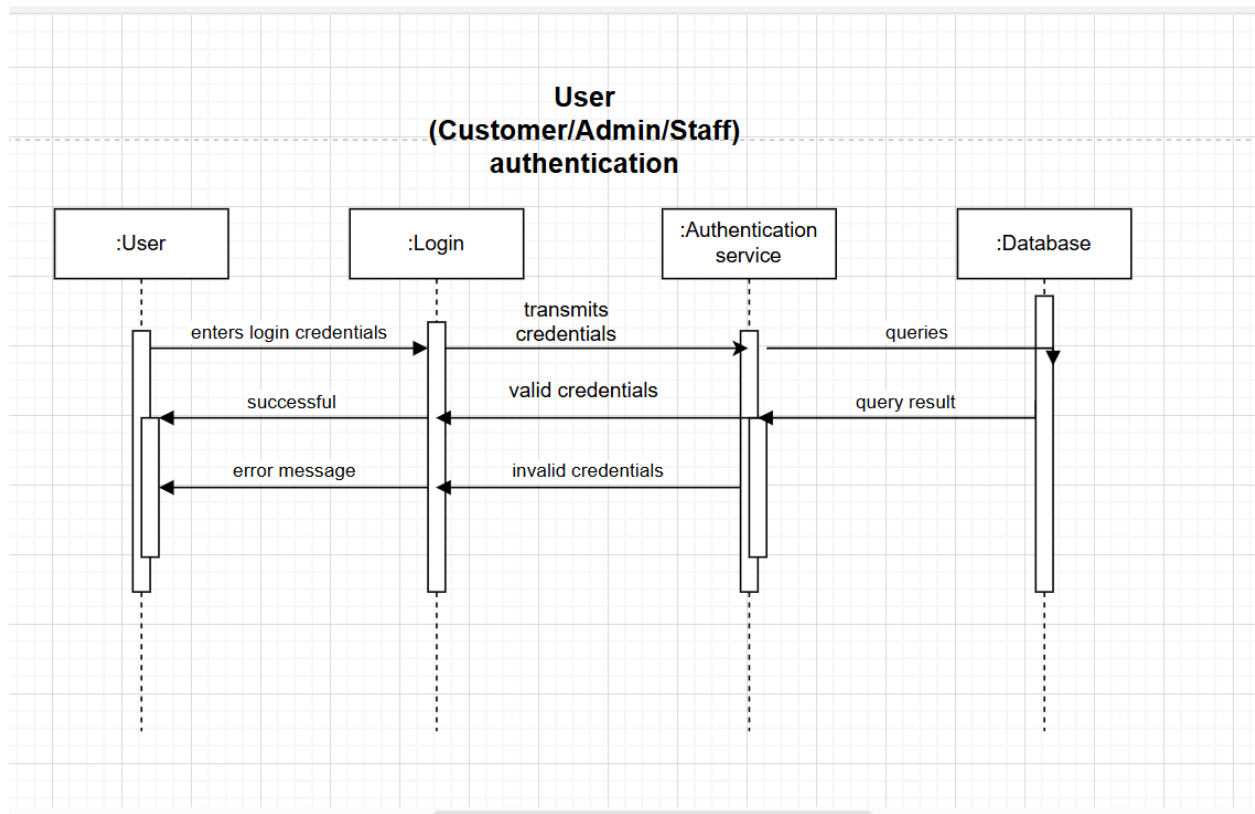
- **User Role:** Customer
- **Goal:** Reward frequent guests with loyalty points.
- **Reason:** Encourages repeat bookings and customer retention.
- **Pre-conditions:**
  - The customer must have a registered account.

- **Post-conditions:**
  - Loyalty points are added based on booking history.
  - Customers can redeem points for discounts.

## 15. Staff Role Management

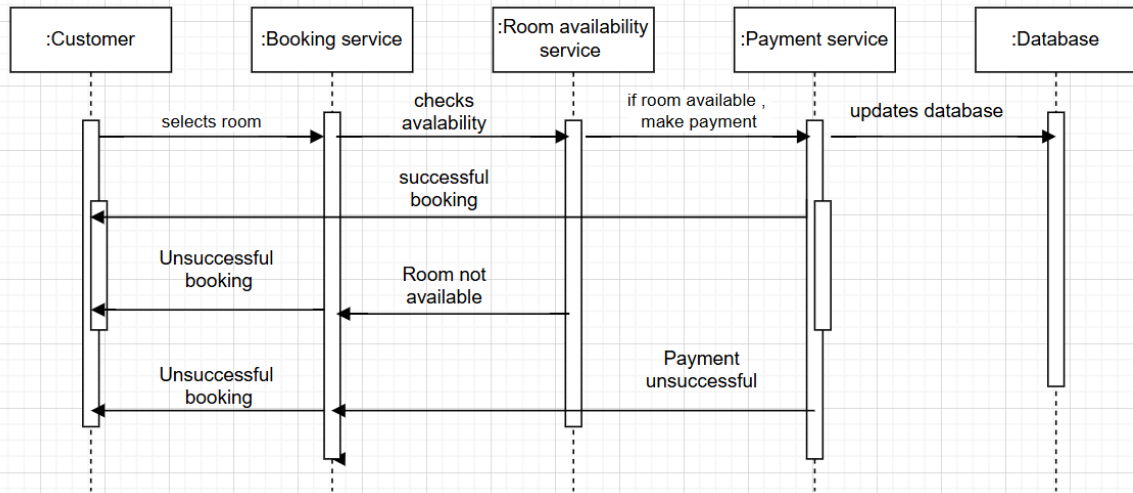
- **User Role:** Admin
- **Goal:** Allow admins to assign different roles and permissions to staff members.
- **Reason:** Ensures proper access control within the system.
- **Pre-conditions:**
  - The user must be logged in as an admin.
- **Post-conditions:**
  - Staff roles and permissions are updated.
  - Users can only access features assigned to their role.

## Sequence Diagram :

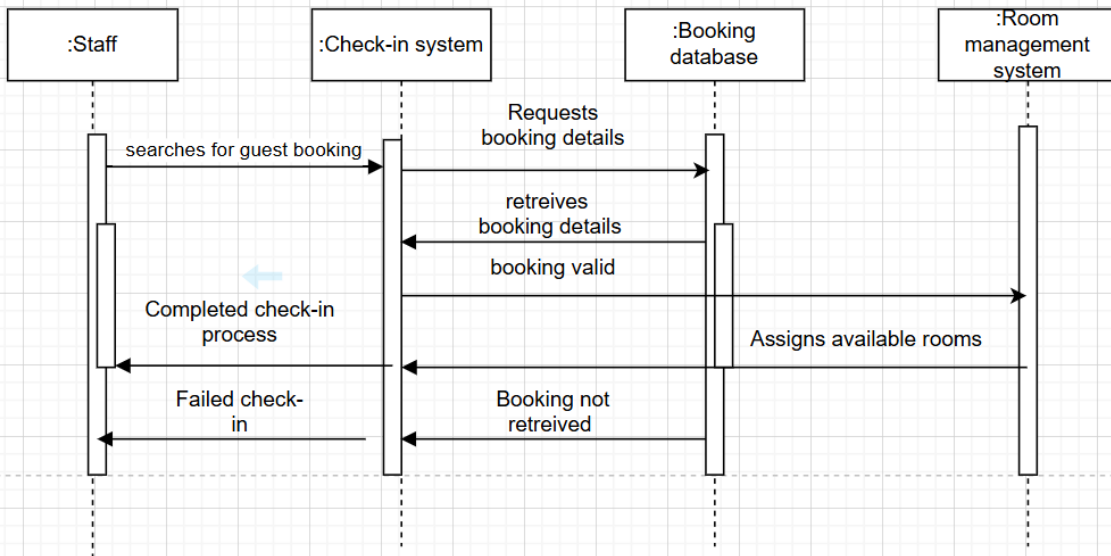




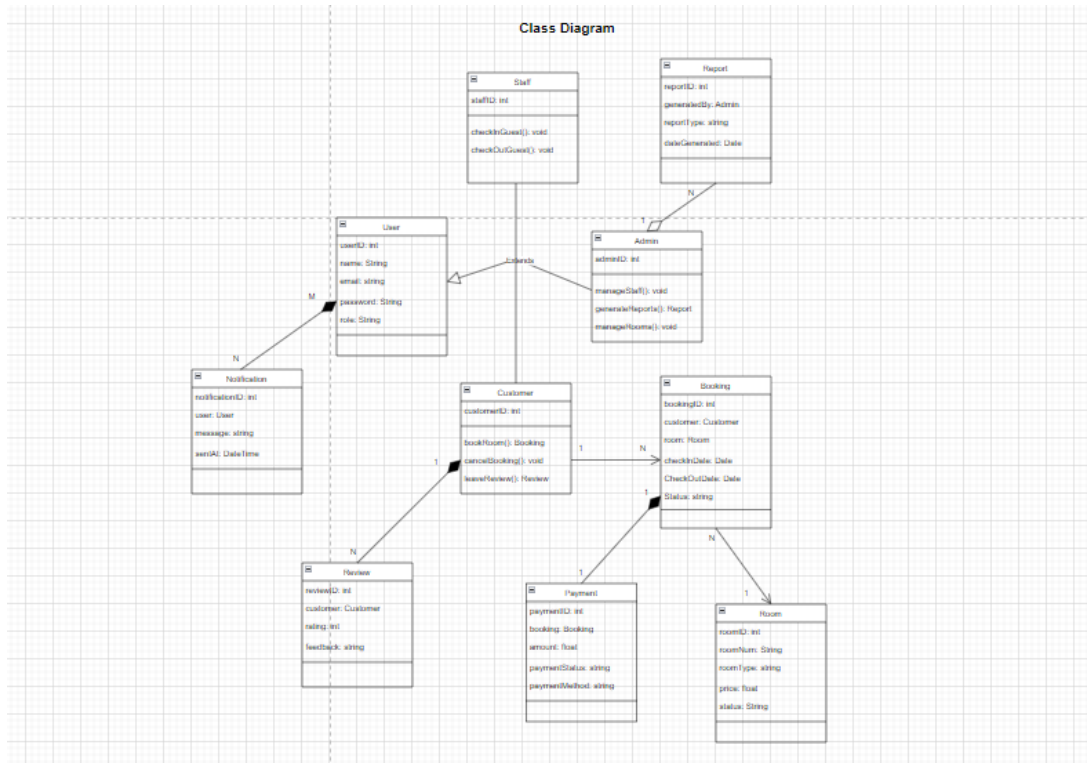
### Room Booking:



### Check-in Process:



# Class Diagram



## PART B: Product backlog:

### Sprint 1: Core Functionality and Initial Setup

#### User Story 1: User Authentication [High]

*Description:* As a user (admin, staff, or customer), I want to log in securely to access the system so that only authorized personnel can use it.

*Acceptance Criteria:*

- Valid credentials are required for access.
- Successful authentication redirects the user to the appropriate dashboard.

*Pre-conditions:* The user must be registered in the system.

#### User Story 2: Customer Registration [High]

*Description:* As a prospective customer, I want to create an account to book hotel rooms online so that I can access additional services.

*Acceptance Criteria:*

- The registration form collects necessary details such as name, email, and contact information.

- An account is created after data validation.

*Pre-conditions:* The user provides valid registration details.

#### User Story 3: Room Management [High]

*Description:* As an admin, I want to add, update, and remove rooms so that the room listings are current and accurate.

*Acceptance Criteria:*

- Admins can add new rooms with all required details including room type, price, and availability.
- Existing room details can be updated or removed.

*Pre-conditions:* The user must be logged in as an admin.

#### User Story 4: Room Booking [High]

*Description:* As a customer, I want to view available rooms and book one that suits my needs so that I can secure a reservation.

*Acceptance Criteria:*

- Available rooms are displayed with complete details and images.
- A booking confirmation is generated upon a successful transaction.

*Pre-conditions:* The customer must be logged in and the room must be available.

#### User Story 5: Booking Management (Admin/Staff) [Medium]

*Description:* As an admin or staff member, I want to view, modify, or cancel customer bookings to manage reservations efficiently.

*Acceptance Criteria:*

- The system provides access to all booking records with their current status.
- Modifications or cancellations update the booking data accordingly.

*Pre-conditions:* The user must be authenticated as admin or staff.

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## Sprint 2: Payment Processing and On-site Operations

#### User Story 6: Online Payment Processing [High]

*Description:* As a customer, I want to pay for my booking online so that my reservation is confirmed securely.

*Acceptance Criteria:*

- The system integrates with a payment gateway (e.g., PayPal or Stripe) to support multiple payment methods.

- A payment receipt is generated upon successful processing.

*Pre-conditions:* A valid booking must exist.

#### User Story 7: Check-in Process [High]

*Description:* As a staff member, I want to check in guests and update their stay details in the system to ensure a smooth arrival process.

*Acceptance Criteria:*

- The system verifies the guest's booking information during check-in.
- The guest's check-in status is updated and reflected on the dashboard.

*Pre-conditions:* The guest must have a valid booking.

#### User Story 8: Check-out Process & Billing [High]

*Description:* As a staff member, I want to check out guests and generate a final bill for their stay so that the guest's account is settled accurately.

*Acceptance Criteria:*

- The check-out process updates the guest's status in the system.
- A detailed invoice or bill is generated and made available for printing.

*Pre-conditions:* The guest must have completed their stay.

#### User Story 9: Booking Cancellation [Medium]

*Description:* As a customer, I want to cancel my booking and receive a refund if eligible so that I have flexibility in my travel plans.

*Acceptance Criteria:*

- The system verifies that the cancellation request is within the allowed window.
- The booking status is updated to canceled and, if applicable, a refund is processed.

*Pre-conditions:* A valid booking exists within the defined cancellation period.

#### User Story 10: Automated Notifications [Medium]

*Description:* As a system, I want to send automated notifications for booking confirmations, reminders, and check-out alerts so that customers stay informed about their reservations.

*Acceptance Criteria:*

- Notifications are sent via email or SMS based on user preferences.
- A log of notification history is maintained.

*Pre-conditions:* A valid booking or triggering event initiates the notification process.

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## Sprint 3: Advanced Features and System Enhancements

### User Story 11: Reports & Analytics [Medium]

*Description:* As an admin, I want to generate daily reports on bookings and revenue to make informed business decisions.

*Acceptance Criteria:*

- The system can generate comprehensive reports on a daily basis.
- Reports are exportable in formats such as PDF or Excel.

*Pre-conditions:* None.

### User Story 12: Staff Management [Low]

*Description:* As an admin, I want to manage hotel employees and assign roles to streamline operations.

*Acceptance Criteria:*

- The system allows for the creation, updating, and removal of staff records.
- Role-based access control is implemented to secure sensitive functions.

*Pre-conditions:* The user must be logged in as an admin.

### User Story 13: GDPR Compliance & Data Security [High]

*Description:* As a system, I must handle user data in compliance with GDPR to ensure data privacy and protection.

*Acceptance Criteria:*

- Data storage and processing methods adhere to GDPR standards.
- Users are informed about data usage and provided with options for data control.

*Pre-conditions:* None.

### User Story 14: Multi-Platform Compatibility [Medium]

*Description:* As a system, I need to operate seamlessly on Windows, Linux, and macOS to serve a broad user base.

*Acceptance Criteria:*

- The application delivers a consistent user experience across all platforms.
- Functionality is tested on each operating system.

*Pre-conditions:* None.

### User Story 15: Performance & Scalability [High]

*Description:* As a system, I must process at least 1000 transactions per hour to support peak usage periods.

*Acceptance Criteria:*

- Performance benchmarks are defined and met through rigorous testing.
- The system is scalable to handle increased transaction volumes.

*Pre-conditions:* None.

## **PART C:**

### **Sprint 1 Backlog – Core Functionality and Initial Setup:**

The first sprint is dedicated to establishing the fundamental components of the system, including authentication, user registration, room management, and booking functionalities.

#### **User Authentication [High Priority]**

Description: As a user (admin, staff, or customer), I want to securely log into the system to ensure that only authorized personnel can access its functionalities.

Acceptance Criteria:

- Users must provide valid credentials for authentication.
- Successful authentication grants access to the appropriate user dashboard.

*Pre-conditions:* Users must be registered in the system.

#### **Customer Registration [High Priority]**

Description: As a prospective customer, I want to create an account to book hotel rooms online and access additional services.

Acceptance Criteria:

- The registration form captures essential details such as name, email, and contact information.
- An account is successfully created upon validation of the provided information.

*Pre-conditions:* The user must enter valid registration details.

#### **Room Management [High Priority]**

Description: As an administrator, I want to add, update, and remove rooms to ensure that the system maintains accurate and up-to-date room listings.

Acceptance Criteria:

- Administrators can add new rooms, specifying type, pricing, and availability.
- Existing room details can be modified or removed as required.

*Pre-conditions:* The user must be logged in as an administrator.

### Room Booking [High Priority]

Description: As a customer, I want to browse available rooms and make reservations so that I can secure accommodations in advance.

Acceptance Criteria:

- The system displays a list of available rooms, complete with details and images.
- A booking confirmation is generated upon successful payment.

Pre-conditions: The customer must be logged in and the selected room must be available.

### Booking Management (Admin/Staff) [Medium Priority]

Description: As an administrator or staff member, I want to view, modify, or cancel customer bookings to ensure efficient reservation management.

Acceptance Criteria:

- The system provides an overview of all active and past bookings.
- Modifications or cancellations update booking data accordingly.

Pre-conditions: The user must be authenticated as an administrator or staff member.

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## **Sprint 2 Backlog – Selected Subset:**

Sprint 2 focuses on enhancing system capabilities by introducing payment processing, check-in/check-out procedures, and booking cancellations. The selected user stories represent approximately one-quarter of the total backlog effort.

### Online Payment Processing [High Priority]

Description: As a customer, I want to securely complete my booking payment online to confirm my reservation.

Acceptance Criteria:

- The system integrates with a payment gateway (e.g., PayPal, Stripe) to process transactions.
- A payment confirmation receipt is generated upon successful completion.

Pre-conditions: A valid booking must exist.

### Check-in Process [High Priority]

Description: As a staff member, I want to check guests into the system and update their stay details to facilitate a smooth arrival process.

Acceptance Criteria:

- The system verifies booking details before completing check-in.
- The guest's check-in status is updated on the dashboard.

Pre-conditions: The guest must have a valid reservation.

#### Check-out Process & Billing [High Priority]

Description: As a staff member, I want to check guests out and generate a final bill to ensure accurate payment settlement.

Acceptance Criteria:

- The system updates the guest's status upon check-out.
- A detailed invoice is generated for the guest's stay.

Pre-conditions: The guest must have completed their stay.

#### Booking Cancellation [Medium Priority]

Description: As a customer, I want to cancel my reservation and receive a refund if eligible so that I have flexibility in my travel plans.

Acceptance Criteria:

- The system verifies that cancellation requests meet the refund eligibility criteria.
- The booking status is updated, and a refund is processed if applicable.

Pre-conditions: A valid booking exists within the permitted cancellation period.

## **PART D:**

**<https://github.com/khang805/Software-Engineering>**



← → ↻ github.com/khang805/Software-Engineering

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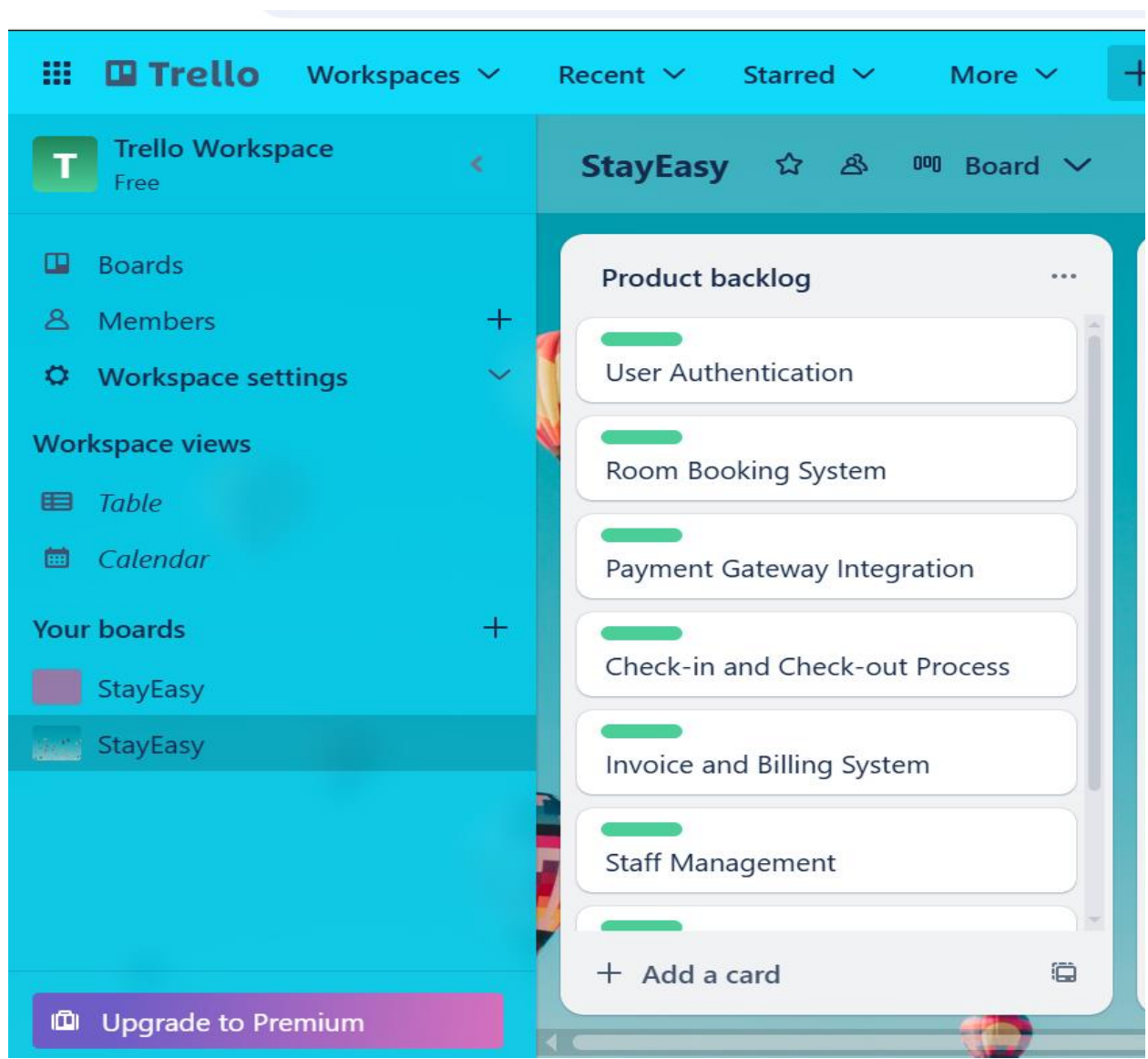
Deliverable-1_SE.pdf	Add files via upload	10 minutes ago
Deliverable-2_SE.docx	Add files via upload	10 minutes ago
README.md	Initial commit	39 minutes ago

README

# Software-Engineering

## PART E:

### Trello Board:



Trello Workspace Free

StayEasy

Product backlog

- User Authentication
- Room Booking System
- Payment Gateway Integration
- Check-in and Check-out Process
- Invoice and Billing System
- Staff Management

Sprint 1 Backlog

- Implement User Authentication
- Develop Room Management System
- Implement Customer Registration
- Implement Room Booking

Sprint 2 Backlog

- Implement Online Payment Processing
- Implement Check-in Process
- Implement Check-out & Billing
- Develop Booking Cancellation & Refunds

In progress

+ Add a card

