# Task 1

You are tasked with designing an online booking system for a hotel. This system should handle reservations, process payments, and manage room availability.

*The system handles reservations, payments, and room availability through a cohesive set of business processes. The reservation management process centralizes all tasks related to room bookings, including checking availability, creating new reservations, and updating existing bookings. Payment processing is integrated into the system to handle all financial transactions. This includes managing transactions, payment gateways, and confirming payments, with a focus on accurate and secure processing. Meanwhile, room availability management keeps track of room statuses, updates availability information, ensuring that room status is consistently monitored and updated.*

Discuss how to design the above system using a microservices architecture.

# Task 2

Following the above system, you should design each microservice to isolate its data and minimize data sharing while ensuring effective interaction among services. Here is one example from the **Reservation part**:

1. **Data Managed:** Reservation records, booking details, and user IDs associated with bookings.
2. **Data Sharing:**
   * **Read-Only:** Reads room availability data from the Room Availability Service to verify room availability before creating or updating reservations.
   * **Update**: Updates only its own reservation records. Notifies the Room Availability Service of any changes that impact room availability (e.g., reservation creation or cancellation).