**Case Study: Hotel Management System**

**Section 1: Python Standalone Console Application**

Design and implement a standalone console application for a Hotel Management System using Python. The application should utilize collections, object-oriented programming (OOP), and exception handling to manage room bookings and guest information.

**Requirements:**

1. **Room Management**:
   * Implement the functionality to add, update, and delete room records.
   * Each room should have attributes such as room\_id, room\_type, price\_per\_night, and is\_available.
2. **Guest Information Management**:
   * Implement the functionality to manage guest information.
   * Each guest should have attributes such as guest\_id, name, contact\_number, and address.
3. **Booking Management**:
   * Implement the functionality to handle room bookings.
   * Each booking should have attributes such as booking\_id, guest\_id, room\_id, check\_in\_date, and check\_out\_date.

**Business Functionalities:**

1. **Add/Update/Delete Rooms**:
   * Create a class Room with attributes room\_id, room\_type, price\_per\_night, and is\_available.
   * Implement methods to add a new room, update existing room details, and delete a room from the system.
2. **Manage Guests**:
   * Create a class Guest with attributes guest\_id, name, contact\_number, and address.
   * Implement methods to add a new guest, update guest details, and delete a guest.
3. **Manage Bookings**:
   * Create a class Booking with attributes booking\_id, guest\_id, room\_id, check\_in\_date, and check\_out\_date.
   * Implement methods to add a new booking, update booking details, and cancel a booking.

**Section 2: MySQL Database Management**

Design a MySQL database schema to support the Hotel Management System and provide problem statements for querying the database.

**Table Structures:**

1. **Rooms Table**:
   * room\_id: INT, Primary Key
   * room\_type: VARCHAR(50)
   * price\_per\_night: DECIMAL(10, 2)
   * is\_available: BOOLEAN
2. **Guests Table**:
   * guest\_id: INT, Primary Key
   * name: VARCHAR(100)
   * contact\_number: VARCHAR(15)
   * address: VARCHAR(255)
3. **Bookings Table**:
   * booking\_id: INT, Primary Key
   * guest\_id: INT, Foreign Key References Guests(guest\_id)
   * room\_id: INT, Foreign Key References Rooms(room\_id)
   * check\_in\_date: DATE
   * check\_out\_date: DATE

**Problem Statements:**

1. Write a query to find the total revenue generated from all room bookings.
2. Write a query to find the names and contact numbers of guests who have booked more than one room.
3. Write a query to find the room types that are currently available.
4. Write a query to find the guests who have stayed for more than 5 nights.
5. Write a query to find the details of bookings made in the last month.