

Hotel

ROOM207



Presented by Rowan Hussein, Salsabel Osama, Shahd Mohamed, Shahd Ahmed



INTRODUCTION

ROOM207 Database simulates hotel operations inspired by the movie ROOM207.

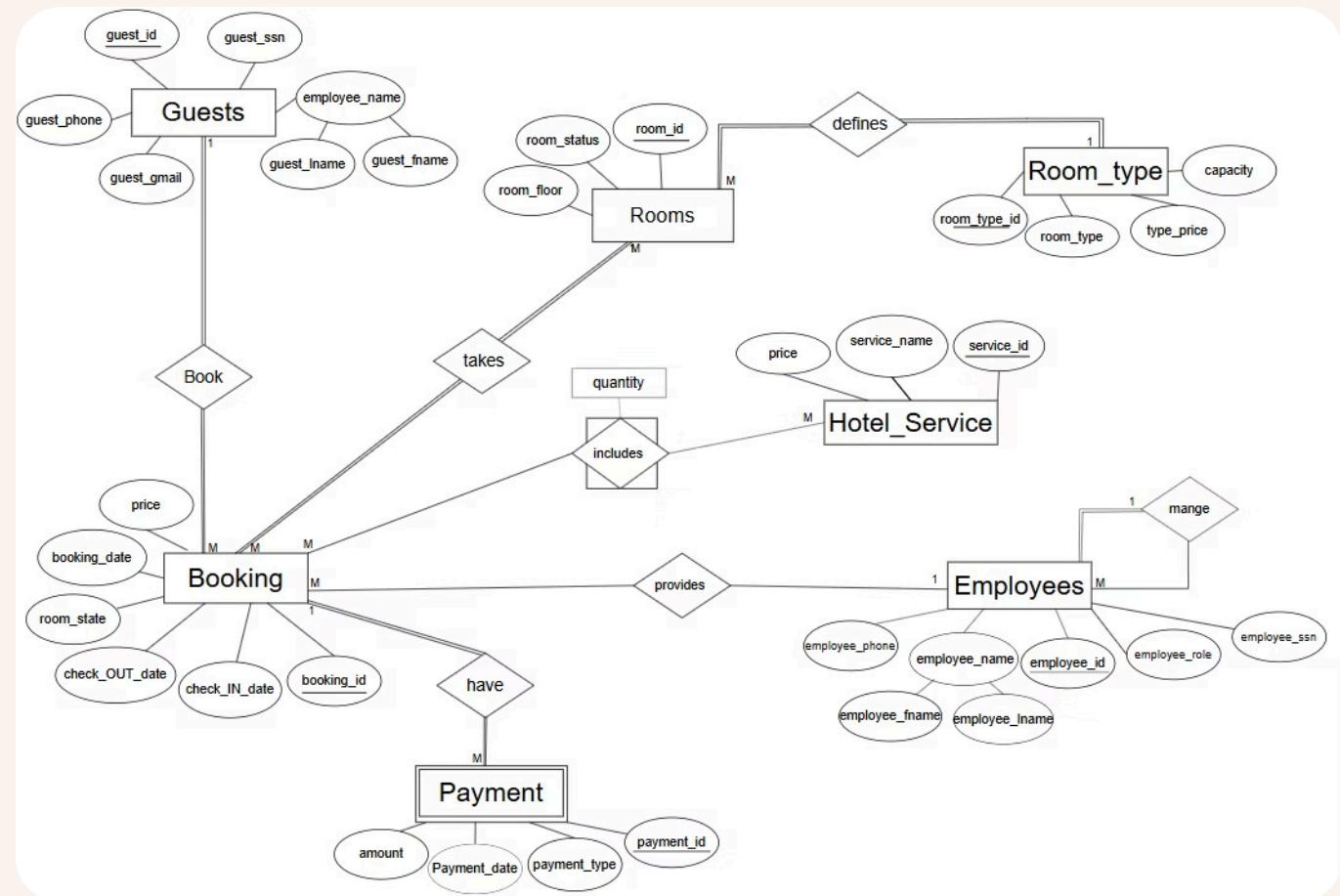
It manages key aspects of hotel management, including guests, rooms, employees, bookings, payments, room types, and services.

Guests store personal and contact information, while rooms track details like floor and availability.

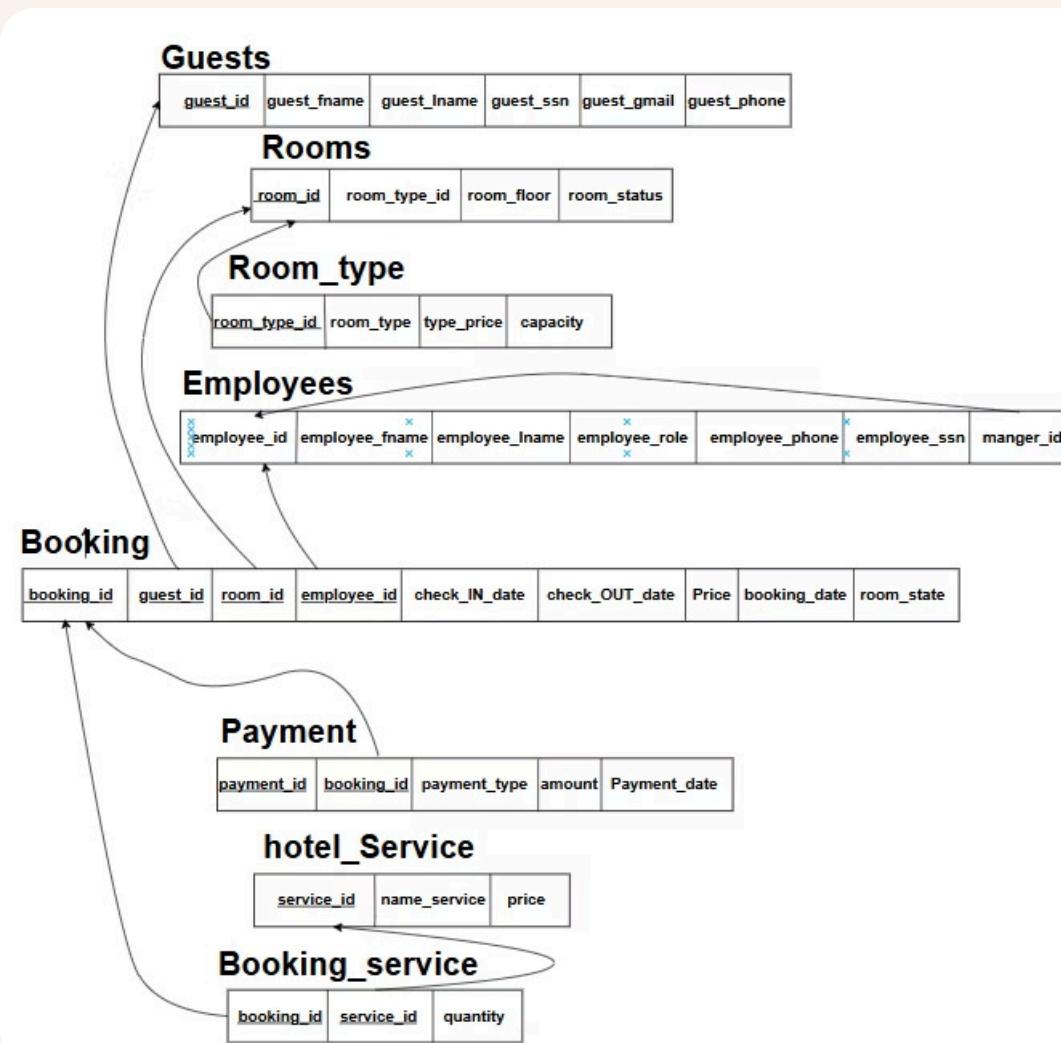
Bookings, payments, and services ensure smooth handling of reservations and financial transactions.

The database ensures data integrity and clear relationships, enabling efficient management and reporting.

ER Diagram



Mapping



Data Dictionary

Entities

Entity Name	Description
Guests	Stores information about hotel guests, including personal details and contact info.
Room_type	Defines different types of rooms with price and capacity.
Rooms	Contains hotel room details including type, floor, and availability.
Employees	Stores employee data including manager, role, and contact info.
Booking	Records each booking including guest, room, employee, dates, price, and room state.
hotel_Service	Lists hotel services and their prices.
Booking_service	Tracks services used for each booking and their quantities.
Payment	Stores payment information for each booking including type, amount, and date.

Relationships

Relationship	Entities	Type	Keys	Description
Guest_Booking	Guests - Booking	One-to-Many	Guests.guest_id -> Booking.guest_id	Each guest can have multiple bookings.
Room_Booking	Rooms - Booking	One-to-Many	<u>Rooms.room_id</u> -> <u>Booking.room_id</u>	Each room can be booked multiple times.
Employee_Booking	Employees - Booking	One-to-Many	Guests.guest_id -> Booking.guest_id	Each employee can handle multiple bookings.
Booking_Service	Booking - hotel_Service	Many-to-Many	<u>Rooms.room_id</u> -> <u>Booking.room_id</u>	Each booking can include multiple services.
Booking_Payment	Booking - Payment	One-to-One	Guests.guest_id -> Booking.guest_id	Each booking has one payment record.
Employee_Manager	Employees - Employees	One-to-Many	Guests.guest_id -> Booking.guest_id	An employee can manage multiple employees.

Database Implementation (DDL & DML)

- **Guests:** Guest info (name, SSN, email, phone) - PK: guest_id
- **Room_type:** Room categories, price, capacity - PK: room_type_id
- **Rooms:** Hotel rooms with floor, status, type - PK: room_id
- **Employees:** Staff info, role, manager hierarchy - PK: employee_id
- **Booking:** Reservations linking guests, rooms, employees - PK: booking_id
- **hotel_Service:** Available services and prices - PK: service_id
- **Booking_service:** Link bookings services + quantity - PK: (booking_id, service_id)
- **Payment:** Tracks payments (amount, type, date) - PK: (payment_id, booking_id)

System Queries and Transactions

- 1. Total Value of Extra Services Used by Each Guest**
- 2. Employee and Their Manager Details**
- 3. Guests Who Paid Above Average Amount**
- 4. Monthly Revenue Report**
- 5. Count of Rooms per Room Type**
- 6. Booking Details: Guest, Employee, and Room Type**
- 7. Most Popular Extra Services**

Technologies & GUI Design

The GUI of the Room207 Hotel Management System provides a practical and visually engaging interface that simplifies daily hotel operations. It combines modern design with clear navigation to ensure easy access to all system features.

The screenshot shows the 'Guest Management' section of the system. At the top, there are search fields for First Name, Last Name, SSN (14 digits), Email, and Phone (11 digits), each with placeholder text. Below these are two buttons: 'Add Guest' (red) and 'Refresh List' (black). The main area is a table with columns: Actions, Phone, Email, SSN, Last Name, First Name, and ID. Each row represents a guest entry with edit and delete buttons in the Actions column. The data in the table is as follows:

Actions	Phone	Email	SSN	Last Name	First Name	ID
Edit Delete	0100000001	ali@example.com	12345678901234	Hassan	Ali	1
Edit Delete	0100000002	sara@example.com	23456789012349	Mohamed	Sara	2
Edit Delete	0100000003	omar@example.com	34567890123456	Ahmed	Omar	3
Edit Delete	0100000004	laila@example.com	45678901234567	Sami	Laila	4
Edit Delete	0100000005	hany@example.com	56789012345678	Khaled	Hany	5
Edit Delete	0100000006	mona@example.com	67890123456789	Adel	Mona	6
Edit Delete	0100000007	tamer@example.com	78901234567890	Youssef	Tamer	7
Edit Delete	0100000008	nour@example.com	89012345678901	Salah	Nour	8
Edit Delete	0100000009	khaled@example.com	90123456789012	Fathy	Khaled	9
Edit Delete	0100000010	dina@example.com	01234567890123	Mohamed	Dina	10

Technologies Used

Database: SQL Server + PyODBC

Frontend: HTML, CSS, JavaScript

Backend: Flask (Python)

Communication: Fetch API

Summary

- Fully functional, production-ready relational database
- 8 tables with 200+ realistic records and full data integrity
- Enforces rules: Egyptian ID format, room type, payments, no overlapping bookings
- Includes complex SQL queries & complete documentation

Thank You!

We hope you enjoyed the presentation on the ROOM207 Hotel Management System.

