HOTEL MANAGEMENT SYSTEM

This hotel management project comprises essential tables for rooms, guests, reservations, staff, services, room services, and payments. It facilitates basic functionalities such as room bookings, guest management, service requests, and payment tracking within a small-scale hotel environment, ensuring efficient coordination of hotel operations.

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BATCH ID= T315

HOTEL MANAGEMENT SYSTEM

PROJECT FOR SQL MODULE

1. Description

This hotel management project is designed to streamline operations within a small-scale hotel environment. It includes essential tables for managing rooms, guests, reservations, staff, services, room services, and payments. The system enables functionalities such as booking rooms, managing guest information, handling service requests, and tracking payments. Through effective coordination of these components, the project aims to enhance efficiency and customer satisfaction in hotel operations.

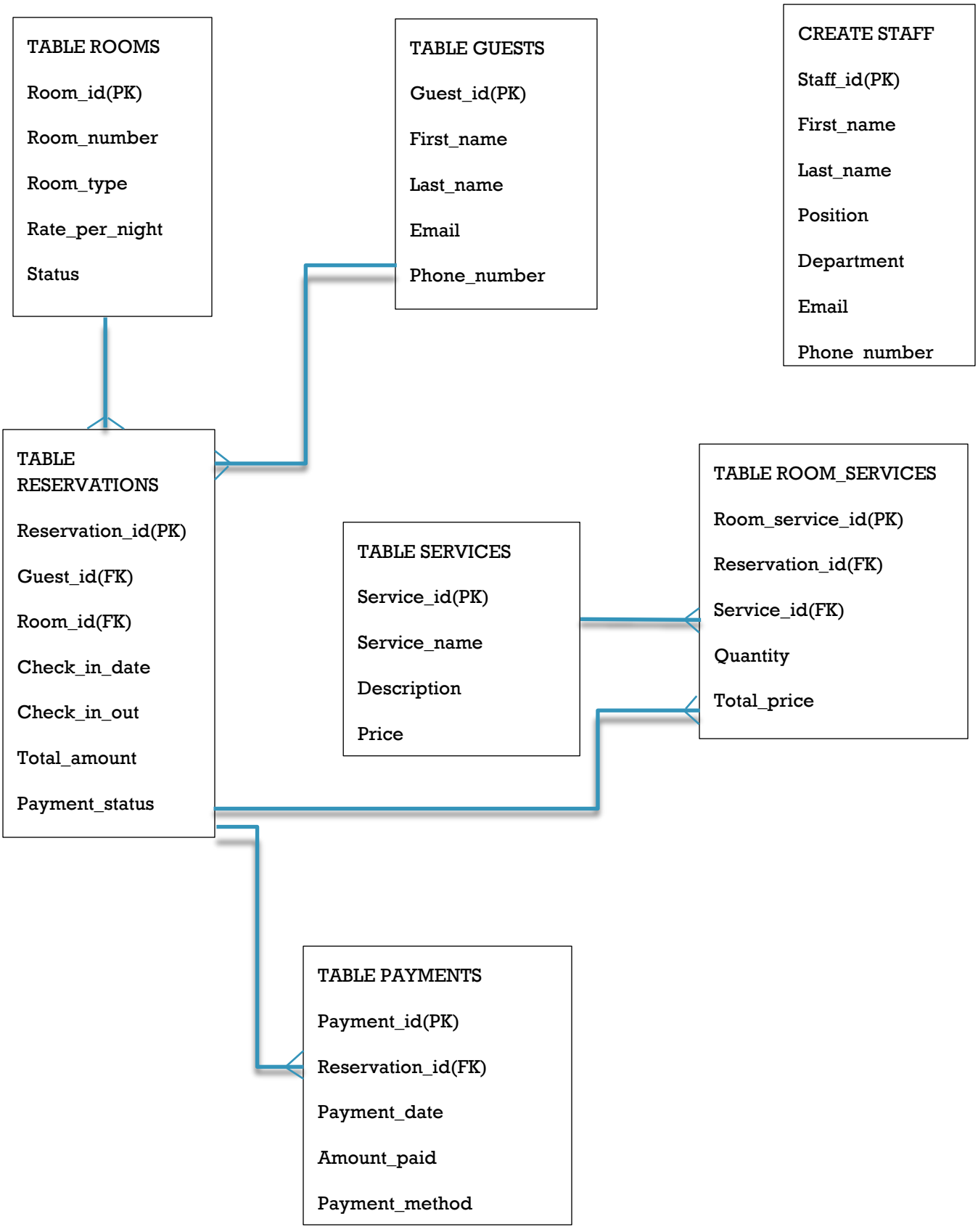
This database contain 7 tables:

1. ROOMS
2. GUESTS
3. RESERVATIONS
4. STAFF
5. SERVICES
6. ROOM_SERVICES
7. PAYMENTS

How these tables/ entities are related to each other is shown pictorially on next

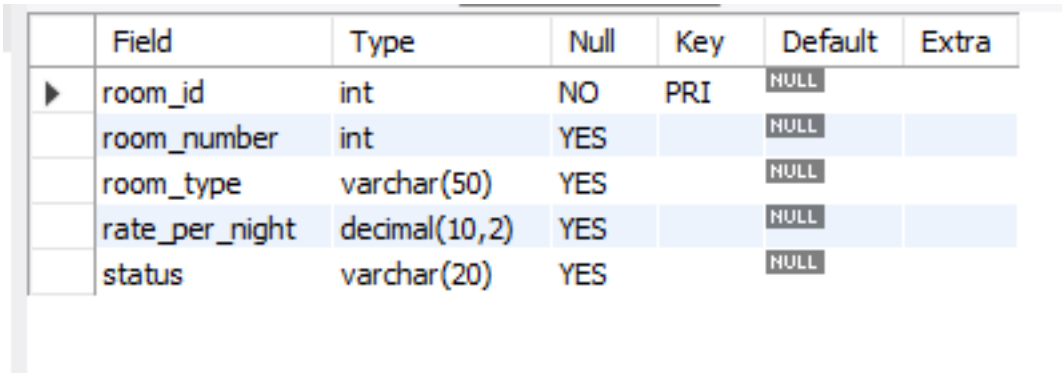
Page through ER diagram ,i.e.,ENTITY RELATIONSHIP DIAGRAM.

2.ER.Diagram (Entity Relation- Diagram) for HOTEL MANAGEMENT SYSTEM:



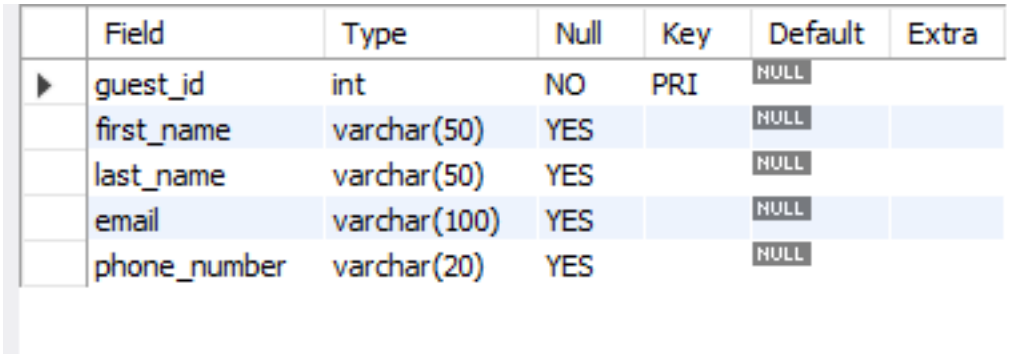
2. TABLE DESCRIPTIONS

1.ROOM.



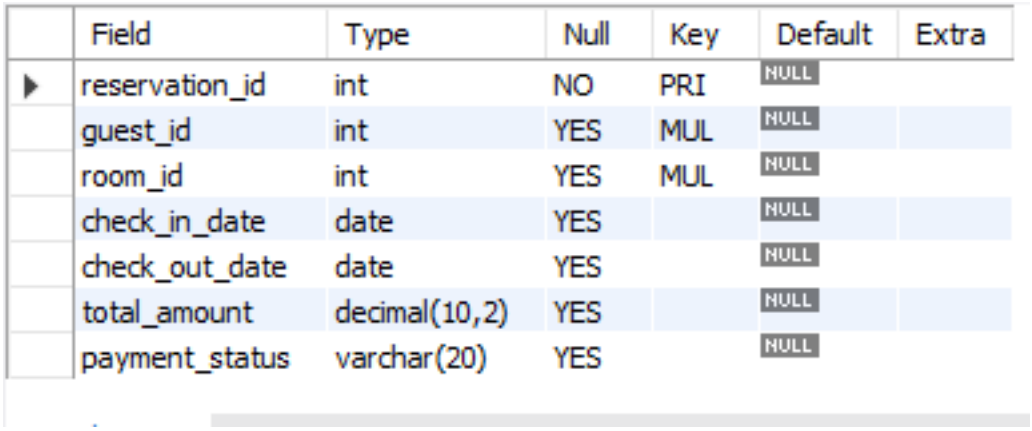
Field	Type	Null	Key	Default	Extra
room_id	int	NO	PRI	NULL	
room_number	int	YES		NULL	
room_type	varchar(50)	YES		NULL	
rate_per_night	decimal(10,2)	YES		NULL	
status	varchar(20)	YES		NULL	

2. GUESTS



Field	Type	Null	Key	Default	Extra
guest_id	int	NO	PRI	NULL	
first_name	varchar(50)	YES		NULL	
last_name	varchar(50)	YES		NULL	
email	varchar(100)	YES		NULL	
phone_number	varchar(20)	YES		NULL	

3. RESERVATIONS



Field	Type	Null	Key	Default	Extra
reservation_id	int	NO	PRI	NULL	
guest_id	int	YES	MUL	NULL	
room_id	int	YES	MUL	NULL	
check_in_date	date	YES		NULL	
check_out_date	date	YES		NULL	
total_amount	decimal(10,2)	YES		NULL	
payment_status	varchar(20)	YES		NULL	

4. STAFF:

	Field	Type	Null	Key	Default	Extra
▶	staff_id	int	NO	PRI	NULL	
	first_name	varchar(50)	YES		NULL	
	last_name	varchar(50)	YES		NULL	
	position	varchar(50)	YES		NULL	
	department	varchar(50)	YES		NULL	
	email	varchar(100)	YES		NULL	
	phone_number	varchar(20)	YES		NULL	

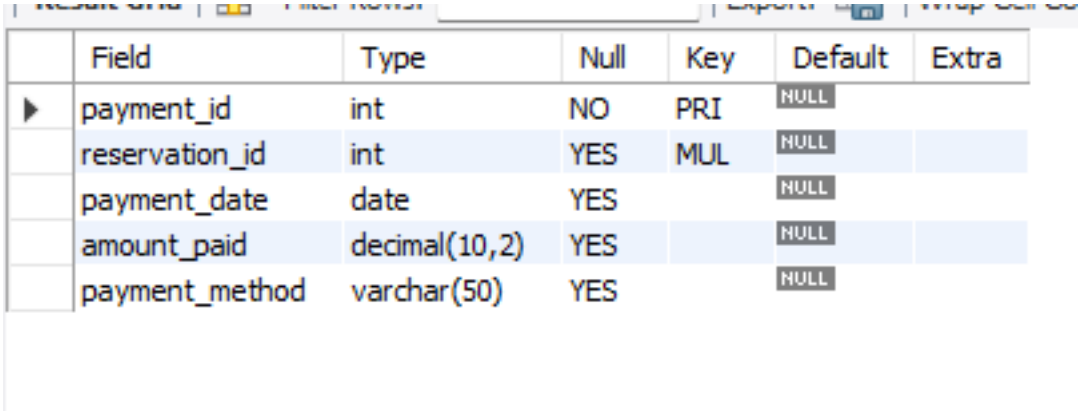
5. SERVICES:

	Field	Type	Null	Key	Default	Extra
▶	service_id	int	NO	PRI	NULL	
	service_name	varchar(100)	YES		NULL	
	description	text	YES		NULL	
	price	decimal(10,2)	YES		NULL	

6. ROOM_SERVICES:

	Field	Type	Null	Key	Default	Extra
▶	room_service_id	int	NO	PRI	NULL	
	reservation_id	int	YES	MUL	NULL	
	service_id	int	YES	MUL	NULL	
	quantity	int	YES		NULL	
	total_price	decimal(10,2)	YES		NULL	

7. PAYMENTS:



Field	Type	Null	Key	Default	Extra
payment_id	int	NO	PRI	NULL	
reservation_id	int	YES	MUL	NULL	
payment_date	date	YES		NULL	
amount_paid	decimal(10,2)	YES		NULL	
payment_method	varchar(50)	YES		NULL	

3. COMMANDS:

CREATE DATABASE : HOTEL MANAGEMENT SYSTEM
SELECT DATABASE HOTEL_MANAGEMENT_SYSTEM;

```
-- Rooms Table
CREATE TABLE Rooms (
    room_id INT PRIMARY KEY,
    room_number INT,
    room_type VARCHAR(50),
    rate_per_night DECIMAL(10, 2),
    status VARCHAR(20)
);

-- Guests Table
CREATE TABLE Guests (
    guest_id INT PRIMARY KEY,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    email VARCHAR(100),
    phone_number VARCHAR(20)
);

-- Reservations Table
CREATE TABLE Reservations (
    reservation_id INT PRIMARY KEY,
    guest_id INT,
    room_id INT,
    check_in_date DATE,
    check_out_date DATE,
    total_amount DECIMAL(10, 2),
    payment_status VARCHAR(20),
    FOREIGN KEY (guest_id) REFERENCES Guests(guest_id),
    FOREIGN KEY (room_id) REFERENCES Rooms(room_id)
);
```

```
-- Staff Table
CREATE TABLE Staff (
    staff_id INT PRIMARY KEY,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    position VARCHAR(50),
    department VARCHAR(50),
    email VARCHAR(100),
    phone_number VARCHAR(20)
);

-- Services Table
CREATE TABLE Services (
    service_id INT PRIMARY KEY,
    service_name VARCHAR(100),
    description TEXT,
    price DECIMAL(10, 2)
);

-- Room_Services Table
CREATE TABLE Room_Services (
    room_service_id INT PRIMARY KEY,
    reservation_id INT,
    service_id INT,
    quantity INT,
    total_price DECIMAL(10, 2),
    FOREIGN KEY (reservation_id) REFERENCES Reservations(reservation_id),
    FOREIGN KEY (service_id) REFERENCES Services(service_id)
);

-- Payments Table
CREATE TABLE Payments (
    payment_id INT PRIMARY KEY,
    reservation_id INT,
    payment_date DATE,
    amount_paid DECIMAL(10, 2),
    payment_method VARCHAR(50),
    FOREIGN KEY (reservation_id) REFERENCES Reservations(reservation_id)
);
```

TABLE ROOMS:

INSERT INTO Rooms (room_id, room_number, room_type, rate_per_night, status) VALUES

(1, 101, 'Single', 50.00, 'Available'),

(2, 102, 'Single', 50.00, 'Available'),

(3, 103, 'Single', 50.00, 'Occupied'),

(4, 104, 'Single', 50.00, 'Available'),

(5, 105, 'Single', 50.00, 'Available'),

(6, 201, 'Double', 75.00, 'Available'),

(7, 202, 'Double', 75.00, 'Available'),

(8, 203, 'Double', 75.00, 'Available'),

(9, 204, 'Double', 75.00, 'Available'),

(10, 205, 'Double', 75.00, 'Available'),

(11, 301, 'Suite', 150.00, 'Available'),

(12, 302, 'Suite', 150.00, 'Available'),

(13, 303, 'Suite', 150.00, 'Available'),

(14, 304, 'Suite', 150.00, 'Available'),

(15, 305, 'Suite', 150.00, 'Available'),

(16, 401, 'Penthouse', 300.00, 'Available'),

(17, 402, 'Penthouse', 300.00, 'Available'),

(18, 403, 'Penthouse', 300.00, 'Available'),

(19, 404, 'Penthouse', 300.00, 'Available'),

(20, 405, 'Penthouse', 300.00, 'Available'),

(21, 501, 'Family', 100.00, 'Available'),

(22, 502, 'Family', 100.00, 'Available'),

(23, 503, 'Family', 100.00, 'Available'),

(24, 504, 'Family', 100.00, 'Available'),

(25, 505, 'Family', 100.00, 'Available');

TABLE GUESTS:

INSERT INTO Guests (guest_id, first_name, last_name, email, phone_number) VALUES

(1, 'John', 'Doe', 'john.doe@example.com', '+1234567890'),

(2, 'Jane', 'Smith', 'jane.smith@example.com', '+1987654321'),

(3, 'Michael', 'Johnson', 'michael.johnson@example.com', '+1122334455'),

(4, 'Emily', 'Brown', 'emily.brown@example.com', '+1567890123'),

(5, 'David', 'Wilson', 'david.wilson@example.com', '+1324354657'),

(6, 'Sarah', 'Anderson', 'sarah.anderson@example.com', '+1789054321'),

(7, 'Christopher', 'Martinez', 'christopher.martinez@example.com', '+1432987654'),

(8, 'Amanda', 'Taylor', 'amanda.taylor@example.com', '+1876543210'),

(9, 'James', 'Thomas', 'james.thomas@example.com', '+1247389056'),

(10, 'Jennifer', 'Hernandez', 'jennifer.hernandez@example.com', '+1987654321'),

(11, 'Matthew', 'Young', 'matthew.young@example.com', '+1123456789'),

(12, 'Jessica', 'King', 'jessica.king@example.com', '+1654327890'),

(13, 'Daniel', 'Lee', 'daniel.lee@example.com', '+1789054321'),

(14, 'Ashley', 'Clark', 'ashley.clark@example.com', '+1432987654'),

(15, 'Andrew', 'Lewis', 'andrew.lewis@example.com', '+1890765432'),

(16, 'Elizabeth', 'Walker', 'elizabeth.walker@example.com', '+1247389056'),

(17, 'Ryan', 'Hall', 'ryan.hall@example.com', '+1324354657'),

(18, 'Olivia', 'Allen', 'olivia.allen@example.com', '+1567890123'),

(19, 'Nicholas', 'Green', 'nicholas.green@example.com', '+1234567890'),

(20, 'Samantha', 'Baker', 'samantha.baker@example.com', '+1987654321'),

(21, 'Tyler', 'Gonzalez', 'tyler.gonzalez@example.com', '+1122334455'),

(22, 'Madison', 'Nelson', 'madison.nelson@example.com', '+1789054321'),

(23, 'Justin', 'Carter', 'justin.carter@example.com', '+1432987654'),

(24, 'Emma', 'Hill', 'emma.hill@example.com', '+1876543210'),

(25, 'Brandon', 'Wright', 'brandon.wright@example.com', '+1247389056');

TABLE RESERVATIONS:

INSERT INTO Reservations (reservation_id, guest_id, room_id, check_in_date, check_out_date, total_amount, payment_status) VALUES

(1, 1, 1, '2024-05-01', '2024-05-05', 200.00, 'Paid'),

(2, 2, 6, '2024-05-03', '2024-05-07', 300.00, 'Paid'),

(3, 3, 11, '2024-05-02', '2024-05-06', 600.00, 'Paid'),

(4, 4, 16, '2024-05-04', '2024-05-08', 1200.00, 'Paid'),

(5, 5, 21, '2024-05-01', '2024-05-03', 200.00, 'Paid'),

(6, 6, 2, '2024-05-06', '2024-05-08', 100.00, 'Paid'),

(7, 7, 7, '2024-05-02', '2024-05-04', 150.00, 'Paid'),

(8, 8, 12, '2024-05-03', '2024-05-07', 600.00, 'Paid'),

(9, 9, 17, '2024-05-05', '2024-05-09', 1200.00, 'Paid'),

(10, 10, 22, '2024-05-01', '2024-05-05', 400.00, 'Paid'),

(11, 11, 3, '2024-05-07', '2024-05-10', 150.00, 'Paid'),

(12, 12, 8, '2024-05-04', '2024-05-06', 300.00, 'Paid'),

(13, 13, 13, '2024-05-06', '2024-05-09', 450.00, 'Paid'),

(14, 14, 18, '2024-05-08', '2024-05-12', 900.00, 'Paid'),

(15, 15, 23, '2024-05-02', '2024-05-04', 200.00, 'Paid'),

(16, 16, 4, '2024-05-09', '2024-05-13', 200.00, 'Paid'),

(17, 17, 9, '2024-05-05', '2024-05-07', 150.00, 'Paid'),

(18, 18, 14, '2024-05-07', '2024-05-10', 450.00, 'Paid'),

(19, 19, 19, '2024-05-03', '2024-05-07', 400.00, 'Paid'),

(20, 20, 24, '2024-05-01', '2024-05-03', 200.00, 'Paid'),

(21, 21, 5, '2024-05-08', '2024-05-11', 300.00, 'Paid'),

(22, 22, 10, '2024-05-04', '2024-05-06', 150.00, 'Paid'),

(23, 23, 15, '2024-05-06', '2024-05-08', 300.00, 'Paid'),

(24, 24, 20, '2024-05-02', '2024-05-06', 400.00, 'Paid'),

(25, 25, 25, '2024-05-09', '2024-05-13', 400.00, 'Paid');

TABLE STAFF:

INSERT INTO Staff (staff_id, first_name, last_name, position, department, email, phone_number) VALUES

(1, 'Michael', 'Smith', 'Manager', 'Management', 'michael.smith@example.com', '+1234567890'),

(2, 'Jennifer', 'Johnson', 'Front Desk Clerk', 'Front Desk', 'jennifer.johnson@example.com', '+1987654321'),

(3, 'Christopher', 'Williams', 'Housekeeping Supervisor', 'Housekeeping', 'christopher.williams@example.com', '+1122334455'),

(4, 'Jessica', 'Jones', 'Maintenance Technician', 'Maintenance', 'jessica.jones@example.com', '+1567890123'),

(5, 'Matthew', 'Brown', 'Restaurant Manager', 'Food & Beverage', 'matthew.brown@example.com', '+1324354657'),

(6, 'Amanda', 'Garcia', 'Concierge', 'Guest Services', 'amanda.garcia@example.com', '+1789054321'),

(7, 'David', 'Rodriguez', 'Bellhop', 'Guest Services', 'david.rodriguez@example.com', '+1432987654'),

(8, 'Ashley', 'Martinez', 'Chef', 'Food & Beverage', 'ashley.martinez@example.com', '+1876543210'),

(9, 'John', 'Hernandez', 'Bartender', 'Food & Beverage', 'john.hernandez@example.com', '+1247389056'),

(10, 'Emily', 'Lopez', 'Spa Therapist', 'Spa', 'emily.lopez@example.com', '+1987654321'),

(11, 'Daniel', 'Gonzalez', 'Fitness Instructor', 'Fitness Center', 'daniel.gonzalez@example.com', '+1123456789'),

(12, 'Samantha', 'Perez', 'Event Coordinator', 'Events', 'samantha.perez@example.com', '+1654327890'),

(13, 'Ryan', 'Wilson', 'Security Officer', 'Security', 'ryan.wilson@example.com', '+1789054321'),

(14, 'Olivia', 'Flores', 'Valet Attendant', 'Guest Services', 'olivia.flores@example.com', '+1432987654'),

(15, 'Nicholas', 'Torres', 'IT Specialist', 'IT', 'nicholas.torres@example.com', '+1890765432'),

(16, 'Emma', 'Rivera', 'Housekeeping', 'Housekeeping', 'emma.rivera@example.com', '+1247389056'),

(17, 'Brandon', 'Long', 'Front Desk Clerk', 'Front Desk', 'brandon.long@example.com', '+1324354657'),

(18, 'Madison', 'Scott', 'Housekeeping', 'Housekeeping', 'madison.scott@example.com', '+1567890123'),

(19, 'Tyler', 'Nguyen', 'Chef', 'Food & Beverage', 'tyler.nguyen@example.com', '+1234567890'),

(20, 'Elizabeth', 'Kim', 'Concierge', 'Guest Services', 'elizabeth.kim@example.com', '+1987654321'),

(21, 'Justin', 'Harris', 'Front Desk Clerk', 'Front Desk', 'justin.harris@example.com', '+1122334455'),

(22, 'Hannah', 'Lee', 'Housekeeping', 'Housekeeping', 'hannah.lee@example.com', '+1789054321'),

(23, 'William', 'King', 'Bellhop', 'Guest Services', 'william.king@example.com', '+1432987654'),

(24, 'Taylor', 'Wright', 'Maintenance Technician', 'Maintenance', 'taylor.wright@example.com', '+1876543210'),

(25, 'Lauren', 'Green', 'Event Coordinator', 'Events', 'lauren.green@example.com', '+1247389056');

TABLE SERVICES:

INSERT INTO Services (service_id, service_name, description, price) VALUES

(1, 'Room Cleaning', 'Daily cleaning of the guest room', 20.00),

(2, 'Laundry Service', 'Washing and ironing of clothes', 15.00),

(3, 'Room Service', 'Delivery of food and beverages to the guest room', 10.00),

(4, 'Spa Massage', 'Relaxing massage at the hotel spa', 50.00),

(5, 'Fitness Training', 'Personal training session at the fitness center', 30.00),

(6, 'Airport Shuttle', 'Transportation service to and from the airport', 25.00),

(7, 'Valet Parking', 'Convenient parking service with valet assistance', 10.00),

(8, 'Concierge Assistance', 'Assistance with reservations, recommendations, and arrangements', 0.00),

(9, 'In-Room Dining', 'Selection of meals and beverages delivered to the guest room', 20.00),

(10, 'WiFi Access', 'High-speed internet access throughout the hotel', 0.00),

(11, 'Business Center', 'Access to computers, printers, and other office equipment', 0.00),

(12, 'Swimming Pool Access', 'Access to the hotel swimming pool', 0.00),

(13, 'Sauna Session', 'Relaxing sauna session at the hotel spa', 20.00),

(14, 'Conference Room Rental', 'Rental of conference room for meetings or events', 100.00),

(15, 'Babysitting Service', 'Professional childcare service for guests with children', 20.00),

(16, 'Car Rental', 'Rental of vehicles for transportation during the stay', 50.00),

(17, 'Tour Booking', 'Arrangement of guided tours and excursions', 0.00),

(18, 'Gift Shop Purchases', 'Purchase of souvenirs and gifts from the hotel gift shop', 0.00),

(19, 'Pet Sitting Service', 'Professional pet care service for guests traveling with pets', 25.00),

(20, 'Dry Cleaning', 'Dry cleaning and pressing of clothing items', 10.00),

(21, 'Shoe Shine Service', 'Shoe shining service to keep footwear in top condition', 5.00),

(22, 'In-Room Safe Rental', 'Rental of in-room safe for storing valuable items', 5.00),

(23, 'Limousine Service', 'Luxury transportation service with a chauffeur-driven limousine', 100.00),

(24, 'Golf Course Access', 'Access to the hotel golf course for guests who enjoy golfing', 50.00),

(25, 'Photocopying Service', 'Photocopying service for documents and other materials', 0.10);

TABLE ROOM_SERVICES:

INSERT INTO Room_Services (room_service_id, reservation_id, service_id, quantity, total_price) VALUES

(1, 1, 3, 2, 20.00),

(2, 2, 9, 1, 20.00),

(3, 3, 4, 1, 50.00),

(4, 4, 1, 1, 20.00),

(5, 5, 7, 1, 10.00),

(6, 6, 2, 3, 45.00),

(7, 7, 5, 1, 30.00),

(8, 8, 8, 1, 0.00),

(9, 9, 10, 1, 0.00),

(10, 10, 14, 1, 100.00),

(11, 11, 17, 2, 0.00),

(12, 12, 21, 1, 5.00),

(13, 13, 12, 1, 0.00),

(14, 14, 19, 1, 25.00),

(15, 15, 20, 2, 20.00),

(16, 16, 6, 1, 25.00),

(17, 17, 11, 1, 0.00),

(18, 18, 3, 2, 20.00),

(19, 19, 16, 1, 50.00),

(20, 20, 22, 1, 5.00),

(21, 21, 13, 1, 20.00),

(22, 22, 18, 1, 0.00),

(23, 23, 23, 1, 100.00),

(24, 24, 24, 1, 50.00),

(25, 25, 25, 10, 1.00);

TABLE PAYMENTS:

INSERT INTO Payments (payment_id, reservation_id, payment_date, amount_paid, payment_method) VALUES

(1, 1, '2024-05-05', 200.00, 'Credit Card'),

(2, 2, '2024-05-07', 300.00, 'Cash'),

(3, 3, '2024-05-06', 600.00, 'Credit Card'),

(4, 4, '2024-05-08', 1200.00, 'Credit Card'),

(5, 5, '2024-05-03', 200.00, 'Cash'),

(6, 6, '2024-05-08', 100.00, 'Credit Card'),

(7, 7, '2024-05-04', 150.00, 'Cash'),

(8, 8, '2024-05-07', 600.00, 'Credit Card'),

(9, 9, '2024-05-09', 1200.00, 'Credit Card'),

(10, 10, '2024-05-05', 400.00, 'Cash'),

(11, 11, '2024-05-10', 150.00, 'Credit Card'),

(12, 12, '2024-05-06', 300.00, 'Cash'),

(13, 13, '2024-05-09', 450.00, 'Credit Card'),

(14, 14, '2024-05-12', 900.00, 'Credit Card'),

(15, 15, '2024-05-04', 200.00, 'Cash'),

(16, 16, '2024-05-13', 200.00, 'Credit Card'),

(17, 17, '2024-05-07', 150.00, 'Cash'),

(18, 18, '2024-05-10', 450.00, 'Credit Card'),

(19, 19, '2024-05-07', 400.00, 'Cash'),

(20, 20, '2024-05-03', 200.00, 'Credit Card'),

(21, 21, '2024-05-11', 300.00, 'Cash'),

(22, 22, '2024-05-06', 150.00, 'Credit Card'),

(23, 23, '2024-05-08', 300.00, 'Cash'),

(24, 24, '2024-05-06', 400.00, 'Credit Card'),

(25, 25, '2024-05-13', 400.00, 'Cash');

4. SUB-QUERIES:

1. *Query 1*: Retrieve the total amount paid for all reservations.

```
SELECT SUM(amount_paid) AS total_amount_paid
FROM Payments;
```

	total_amount_paid
▶	9900.00

2. *Query 2*: Get the average rate per night for all room types.

```
SELECT room_type, AVG(rate_per_night) AS average_rate_per_night
FROM Rooms
GROUP BY room_type;
```

	room_type	average_rate_per_night
▶	Single	50.000000
	Double	75.000000
	Suite	150.000000
	Penthouse	300.000000
	Family	100.000000

3. *Query 3*: Count the number of reservations made by guests whose last name starts with 'S'.

```
SELECT COUNT(*) AS reservation_count
FROM Reservations
WHERE guest_id IN (
    SELECT guest_id
    FROM Guests
    WHERE last_name LIKE 'S%'
);
```

	reservation_count
▶	1

4. *Query 4*: Retrieve the service names and their prices for services with a price greater than $20.00.

```
SELECT service_name, price
FROM Services
WHERE price > 20.00;
```

service_name	price
Spa Massage	50.00
Fitness Training	30.00
Airport Shuttle	25.00
Conference Room Rental	100.00
Car Rental	50.00
Pet Sitting Service	25.00
Limousine Service	100.00
Golf Course Access	50.00

5. *Query 5*: List the staff members who work in the Front Desk department.

sql
SELECT *
FROM Staff
WHERE department = 'Front Desk';

staff_id	first_name	last_name	position	department	email	phone_number
2	Jennifer	Johnson	Front Desk Clerk	Front Desk	jennifer.johnson@example.com	+1987654321
17	Brandon	Long	Front Desk Clerk	Front Desk	brandon.long@example.com	+1324354657
21	Justin	Harris	Front Desk Clerk	Front Desk	justin.harris@example.com	+1122334455
NULL	NULL	NULL	NULL	NULL	NULL	NULL

1. *Subquery Question 1*: Retrieve the first and last names of guests who made reservations with a total amount greater than the average total amount of all reservations.

sql

```
SELECT first_name, last_name
FROM Guests
WHERE guest_id IN (
    SELECT guest_id
    FROM Reservations
    WHERE total_amount > (
        SELECT AVG(total_amount)
        FROM Reservations
    )
);
```

	first_name	last_name
▶	Michael	Johnson
	Emily	Brown
	Amanda	Taylor
	James	Thomas
	Jennifer	Hernandez
	Daniel	Lee
	Ashley	Clark
	Olivia	Allen
	Nicholas	Green
	Emma	Hill
	Brandon	Wright

2. *Subquery Question 2*: Get the room numbers and types for rooms that have been booked for reservations with a payment status of 'Paid'.

sql

```
SELECT room_number, room_type
FROM Rooms
WHERE room_id IN (
    SELECT room_id
    FROM Reservations
    WHERE payment_status = 'Paid'
);
```

	room_number	room_type
▶	101	Single
	201	Double
	301	Suite
	401	Penthouse
	501	Family
	102	Single
	202	Double
	302	Suite
	402	Penthouse
	502	Family
	103	Single
	203	Double
	303	Suite
	403	Penthouse
	503	Family
	104	Single
	204	Double
	304	Suite
	404	Penthouse

	504	Family
	105	Single
	205	Double
	305	Suite
	405	Penthouse
	505	Family

3. *Subquery Question 3*: List the first and last names of guests who have booked the most expensive room type.

sql

SELECT first_name, last_name

FROM Guests

```
WHERE guest_id IN (
    SELECT guest_id
    FROM Reservations
    WHERE room_id IN (
        SELECT room_id
        FROM Rooms
        WHERE room_type = (
            SELECT room_type
            FROM Rooms
            ORDER BY rate_per_night DESC
            LIMIT 1
        )
    )
);
```

first_name	last_name
Emily	Brown
James	Thomas
Ashley	Clark
Nicholas	Green
Emma	Hill

4. *Subquery Question 4*: Display the service names for services that have been booked by guests whose last name is 'Martinez'.

sql

```
SELECT service_name
```

```
FROM Services
WHERE service_id IN (
    SELECT service_id
    FROM Room_Services
    WHERE reservation_id IN (
        SELECT reservation_id
        FROM Reservations
        WHERE guest_id IN (
            SELECT guest_id
            FROM Guests
            WHERE last_name = 'Martinez'
        )
    )
);
```

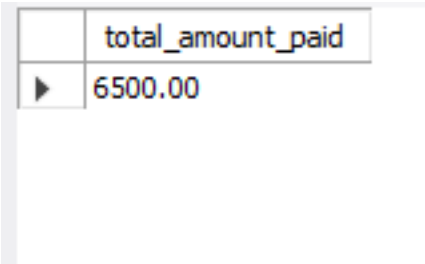
service_name
Fitness Training

5. *Subquery Question 5*: Show the total amount paid by guests who booked rooms with a room rate per night greater than the average room rate per night.

sql

```
SELECT SUM(amount_paid) AS total_amount_paid
FROM Payments
```

```
WHERE reservation_id IN (
    SELECT reservation_id
    FROM Reservations
    WHERE room_id IN (
        SELECT room_id
        FROM Rooms WHERE rate_per_night > ( SELECT AVG(rate_per_night)
            FROM Rooms ) ));
```



	total_amount_paid
▶	6500.00

1. *Query 1*: Retrieve the details of all reservations along with the corresponding guest's first and last name.

```
SELECT Reservations.reservation_id, Guests.first_name, Guests.last_name
FROM Reservations
JOIN Guests ON Reservations.guest_id = Guests.guest_id;
```

	reservation_id	first_name	last_name
	7	Christopher	Martinez
	8	Amanda	Taylor
	9	James	Thomas
	10	Jennifer	Hernandez
	11	Matthew	Young
	12	Jessica	King
	13	Daniel	Lee
	14	Ashley	Clark
	15	Andrew	Lewis
	16	Elizabeth	Walker
	17	Ryan	Hall
	18	Olivia	Allen
	19	Nicholas	Green
	20	Samantha	Baker
	21	Tyler	Gonzalez
	22	Madison	Nelson
	23	Justin	Carter
	24	Emma	Hill
	25	Brandon	Wright

2. *Query 2*: Get the room number and type for each reservation.

```
SELECT Reservations.reservation_id, Rooms.room_number, Rooms.room_type
FROM Reservations
```

JOIN Rooms ON Reservations.room_id = Rooms.room_id;

reservation_id	room_number	room_type
1	101	Single
6	102	Single
11	103	Single
16	104	Single
21	105	Single
2	201	Double
7	202	Double
12	203	Double
17	204	Double
22	205	Double
3	301	Suite
8	302	Suite
13	303	Suite
18	304	Suite
23	305	Suite
4	401	Penthouse
9	402	Penthouse
14	403	Penthouse
19	404	Penthouse
24	405	Penthouse
5	501	Family

10	502	Family
15	503	Family
20	504	Family
25	505	Family

3. *Query 3*: List the total amount paid for each reservation along with the payment status.

SELECT Reservations.reservation_id, Payments.amount_paid,
Reservations.payment_status

FROM Reservations

JOIN Payments ON Reservations.reservation_id = Payments.reservation_id;

reservation_id	amount_paid	payment_status
1	200.00	Paid
2	300.00	Paid
3	600.00	Paid
4	1200.00	Paid
5	200.00	Paid
6	100.00	Paid
7	150.00	Paid
8	600.00	Paid
9	1200.00	Paid
10	400.00	Paid
11	150.00	Paid
12	300.00	Paid
13	450.00	Paid
14	900.00	Paid
15	200.00	Paid
16	200.00	Paid
17	150.00	Paid
18	450.00	Paid
19	400.00	Paid
20	200.00	Paid
21	300.00	Paid
22	150.00	Paid
23	300.00	Paid
24	400.00	Paid
25	400.00	Paid

4. *Query 4*: Display the first and last names of guests along with their email addresses.

SELECT Guests.first_name, Guests.last_name, Guests.email

FROM Guests;

first_name	last_name	email
John	Doe	john.doe@example.com
Jane	Smith	jane.smith@example.com
Michael	Johnson	michael.johnson@example.com
Emily	Brown	emily.brown@example.com
David	Wilson	david.wilson@example.com
Sarah	Anderson	sarah.anderson@example.com
Christopher	Martinez	christopher.martinez@example.com
Amanda	Taylor	amanda.taylor@example.com
James	Thomas	james.thomas@example.com
Jennifer	Hernandez	jennifer.hernandez@example.com
Matthew	Young	matthew.young@example.com
Jessica	King	jessica.king@example.com
Daniel	Lee	daniel.lee@example.com
Ashley	Clark	ashley.clark@example.com
Andrew	Lewis	andrew.lewis@example.com
Elizabeth	Walker	elizabeth.walker@example.com
Ryan	Hall	ryan.hall@example.com
Olivia	Allen	olivia.allen@example.com
Nicholas	Green	nicholas.green@example.com
Samantha	Baker	samantha.baker@example.com
Tyler	Gonzalez	tyler.gonzalez@example.com
Madison	Nelson	madison.nelson@example.com
Justin	Carter	justin.carter@example.com
Emma	Hill	emma.hill@example.com
Brandon	Wright	brandon.wright@example.com

5. *Query 5*: Show the position and department of each staff member.

SELECT Staff.first_name, Staff.last_name, Staff.position, Staff.department

FROM Staff;

first_name	last_name	position	department
Michael	Smith	Manager	Management
Jennifer	Johnson	Front Desk Clerk	Front Desk
Christopher	Williams	Housekeeping Supervisor	Housekeeping
Jessica	Jones	Maintenance Technician	Maintenance
Matthew	Brown	Restaurant Manager	Food & Beverage
Amanda	Garcia	Concierge	Guest Services
David	Rodriguez	Bellhop	Guest Services
Ashley	Martinez	Chef	Food & Beverage
John	Hernandez	Bartender	Food & Beverage
Emily	Lopez	Spa Therapist	Spa
Daniel	Gonzalez	Fitness Instructor	Fitness Center
Samantha	Perez	Event Coordinator	Events
Ryan	Wilson	Security Officer	Security
Olivia	Flores	Valet Attendant	Guest Services
Nicholas	Torres	IT Specialist	IT
Emma	Rivera	Housekeeping	Housekeeping
Brandon	Long	Front Desk Clerk	Front Desk
Madison	Scott	Housekeeping	Housekeeping
Tyler	Nguyen	Chef	Food & Beverage
Elizabeth	Kim	Concierge	Guest Services
Justin	Harris	Front Desk Clerk	Front Desk
Hannah	Lee	Housekeeping	Housekeeping
William	King	Bellhop	Guest Services
Taylor	Wright	Maintenance Technician	Maintenance

OBSERVATION

The hotel management project demonstrates a well-structured database schema for organizing essential hotel operations. It efficiently manages room bookings, guest information, service requests, and payment tracking. The project's simplicity makes it suitable for small-scale hotel environments, ensuring effective coordination of operations while prioritizing customer satisfaction. However, it may benefit from additional features such as reporting capabilities or integration with external systems for enhanced functionality and scalability.

CONCLUTION

The hotel management system project involves designing a comprehensive database schema to manage various aspects of hotel operations, including rooms, guests, reservations, staff, services, and payments.

Key components of the project include:
- Defining tables for different entities such as rooms, guests, reservations, staff, services, and payments.
- Establishing relationships between these entities to accurately represent their interactions and dependencies.
- Populating the tables with sample data to simulate real-world scenarios.
- Demonstrating SQL queries to retrieve, manipulate, and analyze data stored in the database.
- Visualizing the database structure using an Entity-Relationship (ER) diagram to illustrate the connections between tables and their attributes.

Overall, the project aims to provide a robust framework for managing hotel operations efficiently, from handling guest reservations to tracking payments and ensuring smooth staff coordination. It showcases the application of database concepts and SQL queries in a practical scenario, offering insights into the complexities of managing a hotel's data infrastructure.

THANK YOU