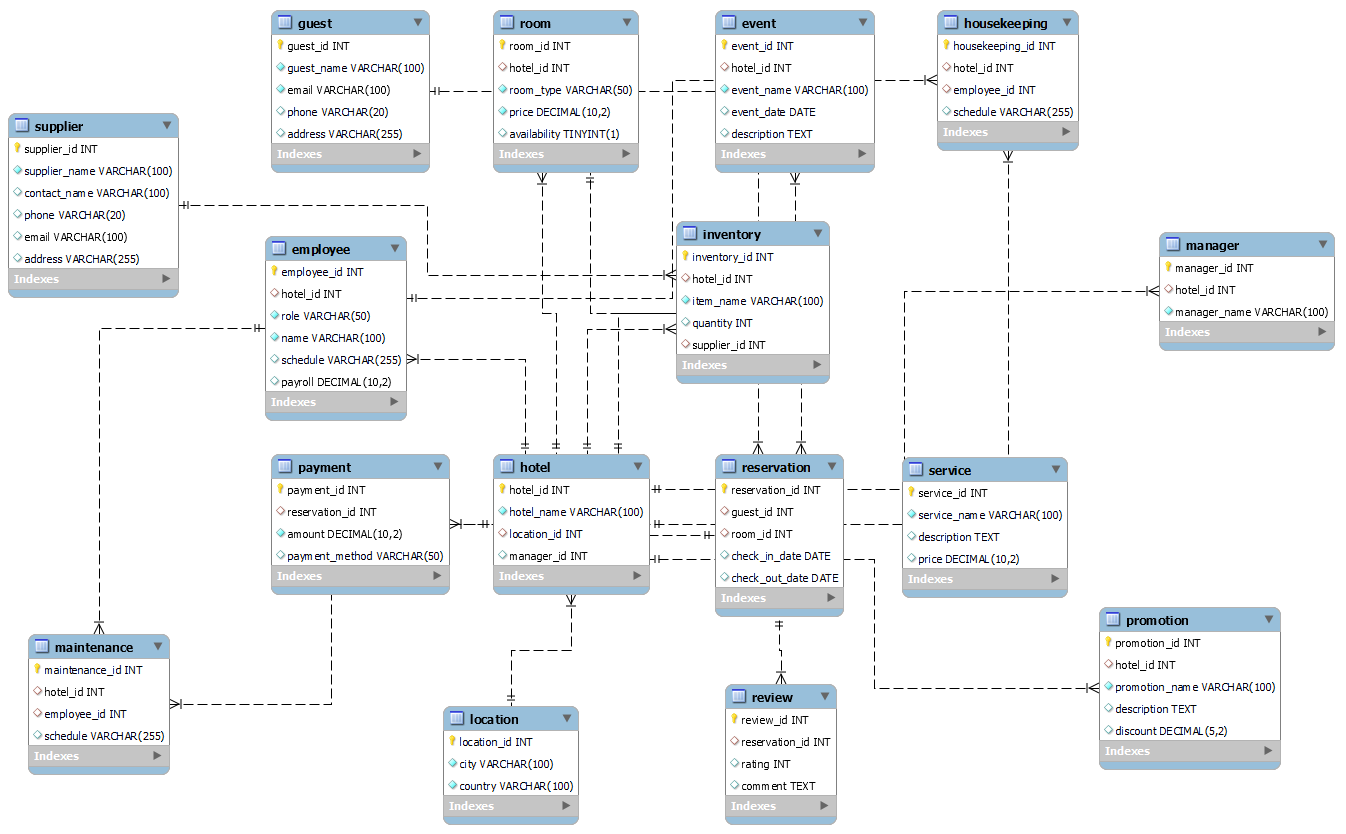
**Introducing Hotel Hub**

Project Deliverable 01

Hotel Hub is a dynamic hotel management company operating across several major cities globally, including New York, London, Paris, Tokyo, and Sydney. Established in 2010, Hotel Hub manages a network of premium hotels, each aimed at providing exceptional hospitality services to a diverse client. With its headquarters located in London, Hotel Hub ensures efficient operation through a centralized database management system that integrates all aspects of hotel management. HotelHub’s database includes Hotel, Room, Guest, Reservation, Employee, Service, Payment, Review, Location, Manager, Housekeeping, Maintenance, Event, Promotion, Supplier, and Inventory. Each Hotel is managed by a manager and is segmented into various Rooms, each with unique characteristics like room type, price, and availability. Guests can make Reservations directly through HotelHub’s user-friendly website or mobile application, choosing their preferred Room and dates. For each Reservation, different Services such as spa treatments, dining reservations, and transportation bookings can be added, enhancing the guest experience. Employees are crucial to HotelHub's operations, with roles ranging from front desk agents to housekeeping and maintenance staff. The database handles Employee schedules, payroll, and performance reviews to streamline human resources processes. Payments for services and accommodations are processed through the system, offering multiple options such as credit card, debit card, and direct bank transfers. HotelHub’s database also manages Guest Reviews, which are vital for maintaining service quality and reputation management. Each hotel location can host Events, from conferences to weddings, requiring management of schedules, guest lists, and service provisions. Promotions and discounts are offered to guests through the database, tailored to guest preferences and booking history. The Inventory and Supplier ensure that each hotel is well-stocked with necessary items, from linens to toiletries, and integrated with external suppliers for seamless supply chain management. HotelHub's commitment to excellence is reflected in its meticulous data management, which ensures efficient operations and superior guest satisfaction across its global network.

**Entity Relationship Diagram(ERD)**

Project Deliverable 02



**SQL Tables and Complex Queries**

Project Deliverable 03

CREATE TABLE Location (

location\_id INT PRIMARY KEY,

city VARCHAR(100) NOT NULL,

country VARCHAR(100) NOT NULL

);

CREATE TABLE Hotel (

hotel\_id INT PRIMARY KEY,

hotel\_name VARCHAR(100) NOT NULL,

location\_id INT,

manager\_id INT,

FOREIGN KEY (location\_id) REFERENCES Location(location\_id)

);

CREATE TABLE Manager (

manager\_id INT PRIMARY KEY,

hotel\_id INT,

manager\_name VARCHAR(100) NOT NULL,

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id)

);

CREATE TABLE Room (

room\_id INT PRIMARY KEY,

hotel\_id INT,

room\_type VARCHAR(50) NOT NULL,

price DECIMAL(10, 2) NOT NULL,

availability BOOLEAN,

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id)

);

CREATE TABLE Guest (

guest\_id INT PRIMARY KEY,

guest\_name VARCHAR(100) NOT NULL,

email VARCHAR(100) UNIQUE NOT NULL,

phone VARCHAR(20),

address VARCHAR(255)

);

CREATE TABLE Employee (

employee\_id INT PRIMARY KEY,

hotel\_id INT,

role VARCHAR(50) NOT NULL,

name VARCHAR(100) NOT NULL,

schedule VARCHAR(255),

payroll DECIMAL(10, 2),

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id)

);

CREATE TABLE Service (

service\_id INT PRIMARY KEY,

service\_name VARCHAR(100) NOT NULL,

description TEXT,

price DECIMAL(10, 2)

);

CREATE TABLE Reservation (

reservation\_id INT PRIMARY KEY,

guest\_id INT,

room\_id INT,

check\_in\_date DATE,

check\_out\_date DATE,

FOREIGN KEY (guest\_id) REFERENCES Guest(guest\_id),

FOREIGN KEY (room\_id) REFERENCES Room(room\_id)

);

CREATE TABLE Payment (

payment\_id INT PRIMARY KEY,

reservation\_id INT,

amount DECIMAL(10, 2) NOT NULL,

payment\_method VARCHAR(50),

FOREIGN KEY (reservation\_id) REFERENCES Reservation(reservation\_id)

);

CREATE TABLE Review (

review\_id INT PRIMARY KEY,

reservation\_id INT,

rating INT,

comment TEXT,

FOREIGN KEY (reservation\_id) REFERENCES Reservation(reservation\_id)

);

CREATE TABLE Housekeeping (

housekeeping\_id INT PRIMARY KEY,

hotel\_id INT,

employee\_id INT,

schedule VARCHAR(255),

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id),

FOREIGN KEY (employee\_id) REFERENCES Employee(employee\_id)

);

CREATE TABLE Maintenance (

maintenance\_id INT PRIMARY KEY,

hotel\_id INT,

employee\_id INT,

schedule VARCHAR(255),

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id),

FOREIGN KEY (employee\_id) REFERENCES Employee(employee\_id)

);

CREATE TABLE Event (

event\_id INT PRIMARY KEY,

hotel\_id INT,

event\_name VARCHAR(100) NOT NULL,

event\_date DATE,

description TEXT,

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id)

);

CREATE TABLE Promotion (

promotion\_id INT PRIMARY KEY,

hotel\_id INT,

promotion\_name VARCHAR(100) NOT NULL,

description TEXT,

discount DECIMAL(5, 2),

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id)

);

CREATE TABLE Supplier (

supplier\_id INT PRIMARY KEY,

supplier\_name VARCHAR(100) NOT NULL,

contact\_name VARCHAR(100),

phone VARCHAR(20),

email VARCHAR(100),

address VARCHAR(255)

);

CREATE TABLE Inventory (

inventory\_id INT PRIMARY KEY,

hotel\_id INT,

item\_name VARCHAR(100) NOT NULL,

quantity INT,

supplier\_id INT,

FOREIGN KEY (hotel\_id) REFERENCES Hotel(hotel\_id),

FOREIGN KEY (supplier\_id) REFERENCES Supplier(supplier\_id)

);

# **Insert Data**

INSERT INTO Location (location\_id, city, country) VALUES

(1, 'New York', 'USA'),

(2, 'London', 'UK'),

(3, 'Paris', 'France'),

(4, 'Tokyo', 'Japan'),

(5, 'Sydney', 'Australia');

INSERT INTO Hotel (hotel\_id, hotel\_name, location\_id, manager\_id) VALUES

(1, 'Hotel NY', 1, 1),

(2, 'Hotel London', 2, 2),

(3, 'Hotel Paris', 3, 3),

(4, 'Hotel Tokyo', 4, 4),

(5, 'Hotel Sydney', 5, 5);

INSERT INTO Manager (manager\_id, hotel\_id, manager\_name) VALUES

(1, 1, 'John Smith'),

(2, 2, 'Emma Johnson'),

(3, 3, 'Michael Brown'),

(4, 4, 'Sato Yamada'),

(5, 5, 'Sophie Wilson');

INSERT INTO Room (room\_id, hotel\_id, room\_type, price, availability) VALUES

(101, 1, 'Standard', 100.00, true),

(102, 1, 'Deluxe', 150.00, true);

INSERT INTO Guest (guest\_id, guest\_name, email, phone, address) VALUES

(1, 'Alice Johnson', 'alice@example.com', '+1234567890', '123 Main St, New York'),

(2, 'Bob Smith', 'bob@example.com', '+1987654321', '456 Elm St, London');

INSERT INTO Employee (employee\_id, hotel\_id, role, name, schedule, payroll) VALUES

(1, 1, 'Front Desk Agent', 'Emily White', 'Mon-Fri 9am-5pm', 3000.00),

(2, 1, 'Housekeeper', 'James Brown', 'Mon-Sat 8am-4pm', 2500.00);

INSERT INTO Service (service\_id, service\_name, description, price) VALUES

(1, 'Spa Treatment', 'Relaxing massage and spa services', 80.00),

(2, 'Fine Dining', 'Gourmet meals and dining experience', 120.00);

INSERT INTO Reservation (reservation\_id, guest\_id, room\_id, check\_in\_date, check\_out\_date) VALUES

(1001, 1, 101, '2024-05-01', '2024-05-05'),

(1002, 2, 102, '2024-06-10', '2024-06-15');

INSERT INTO Payment (payment\_id, reservation\_id, amount, payment\_method) VALUES

(5001, 1001, 400.00, 'Credit Card'),

(5002, 1002, 750.00, 'Debit Card');

INSERT INTO Review (review\_id, reservation\_id, rating, comment) VALUES

(2001, 1001, 5, 'Excellent stay, wonderful service!'),

(2002, 1002, 4, 'Great experience overall, lovely room.');

INSERT INTO Promotion (promotion\_id, hotel\_id, promotion\_name, description, discount) VALUES

(50001, 1, 'Summer Special', 'Enjoy 20% off on all room bookings', 20.00),

(50002, 2, 'Weekend Getaway', 'Book 2 nights, get the 3rd night free', 100.00);

INSERT INTO Supplier (supplier\_id, supplier\_name, contact\_name, phone, email, address) VALUES

(1001, 'Linens Unlimited', 'Sarah Johnson', '+1234567890', 'info@linens.com', '789 Supplier St, City'),

(1002, 'Toiletries World', 'David Smith', '+1987654321', 'sales@toiletries.com', '456 Supplier Ave, Town');

INSERT INTO Housekeeping (housekeeping\_id, hotel\_id, employee\_id, schedule) VALUES

(201, 1, 1, 'Mon-Sat 8am-4pm'),

(202, 2, 2, 'Mon-Fri 9am-5pm');

INSERT INTO Maintenance (maintenance\_id, hotel\_id, employee\_id, schedule) VALUES

(301, 1, 1, 'Mon-Fri 8am-5pm'),

(302, 2, 2, 'Tue-Sat 9am-6pm');

INSERT INTO Event (event\_id, hotel\_id, event\_name, event\_date, description) VALUES

(10001, 1, 'Conference 2024', '2024-07-15', 'Annual tech conference'),

(10002, 2, 'Wedding Celebration', '2024-08-20', 'Grand wedding event');

INSERT INTO Inventory (inventory\_id, hotel\_id, item\_name, quantity, supplier\_id) VALUES

(1001, 1, 'Bed Sheets', 100, 1001),

(1002, 1, 'Towels', 200, 1001),

(1003, 2, 'Shampoo Bottles', 500, 1002);

# Quries

-- 1. Select all hotels

SELECT \* FROM Hotel;

-- 2. Select all rooms in Hotel ID 1

SELECT \* FROM Room WHERE hotel\_id = 1;

-- 3. Select all guests from New York hotels

SELECT \* FROM Guest WHERE guest\_id IN (

SELECT guest\_id FROM Reservation WHERE room\_id IN (

SELECT room\_id FROM Room WHERE hotel\_id IN (

SELECT hotel\_id FROM Hotel WHERE location\_id = 1

)

)

);

-- 4. Select all employees in Hotel ID 2

SELECT \* FROM Employee WHERE hotel\_id = 2;

-- 5. Select all reservations made by guest with ID 1

SELECT \* FROM Reservation WHERE guest\_id = 1;

-- 6. Select all payments for reservations in Hotel ID 3

SELECT \* FROM Payment WHERE reservation\_id IN (

SELECT reservation\_id FROM Reservation WHERE room\_id IN (

SELECT room\_id FROM Room WHERE hotel\_id = 3

)

);

-- 7. Select all reviews for reservations in Hotel ID 4

SELECT \* FROM Review WHERE reservation\_id IN (

SELECT reservation\_id FROM Reservation WHERE room\_id IN (

SELECT room\_id FROM Room WHERE hotel\_id = 4

)

);

-- 8. Select all events in Hotel ID 5

SELECT \* FROM Event WHERE hotel\_id = 5;

-- 9. Select all promotions in Hotel ID 1

SELECT \* FROM Promotion WHERE hotel\_id = 1;

-- 10. Select all suppliers providing items to Hotel ID 2

SELECT \* FROM Supplier WHERE supplier\_id IN (

SELECT supplier\_id FROM Inventory WHERE hotel\_id = 2

);

-- 11. Select all available rooms in Hotel ID 3

SELECT \* FROM Room WHERE hotel\_id = 3 AND availability = true;

-- 12. Select the total number of guests in Hotel ID 4

SELECT COUNT(DISTINCT guest\_id) AS total\_guests FROM Reservation WHERE room\_id IN (

SELECT room\_id FROM Room WHERE hotel\_id = 4

);

-- 13. Select the average rating for Hotel ID 5

SELECT AVG(rating) AS avg\_rating FROM Review WHERE reservation\_id IN (

SELECT reservation\_id FROM Reservation WHERE room\_id IN (

SELECT room\_id FROM Room WHERE hotel\_id = 5

)

);

-- 14. Select the total payroll for employees in Hotel ID 1

SELECT SUM(payroll) AS total\_payroll FROM Employee WHERE hotel\_id = 1;

-- 15. Select the most expensive room in Hotel ID 2

SELECT \* FROM Room WHERE hotel\_id = 2 ORDER BY price DESC LIMIT 1;

-- 16. Select the top 5 reservations with the highest payment amounts

SELECT \* FROM Payment ORDER BY amount DESC LIMIT 5;

-- 17. Select all guests who stayed in Hotel ID 3 and checked out in May 2024

SELECT \* FROM Guest WHERE guest\_id IN (

SELECT guest\_id FROM Reservation WHERE room\_id IN (

SELECT room\_id FROM Room WHERE hotel\_id = 3

) AND check\_out\_date BETWEEN '2024-05-01' AND '2024-05-31'

);

-- 18. Select the total number of events happening in Hotel ID 4

SELECT COUNT(event\_id) AS total\_events FROM Event WHERE hotel\_id = 4;

-- 19. Select the top 3 most popular services based on total revenue

SELECT Service.service\_id, Service.service\_name, SUM(Payment.amount) AS total\_revenue

FROM Payment

JOIN Reservation ON Payment.reservation\_id = Reservation.reservation\_id

JOIN Room ON Reservation.room\_id = Room.room\_id

JOIN Service ON Service.service\_id = Room.room\_id -- Adjust this JOIN condition based on your schema

WHERE Room.hotel\_id = 5

GROUP BY Service.service\_id, Service.service\_name

ORDER BY total\_revenue DESC

LIMIT 3;

-- 20. Select all rooms in Hotel ID 5 with a price range between $100 and $200

SELECT \* FROM Room WHERE hotel\_id = 5 AND price BETWEEN 100 AND 200;