**What Still Needs to Be Done:**

**1. Enhancing Schema and Data**

* Refine the Room table by adding constraints (e.g., NOT NULL, CHECK) and features like room\_view or amenities. Populate the table with a variety of room types, prices, and statuses.
* Improve the Guest table by ensuring diverse data, exploring optional attributes such as email, and verifying the integrity of entries.
* Enhance the Booking table by adding realistic test cases such as overlapping bookings or cancellations. Verify that all constraints and relationships are functioning correctly.
* Validate the entire schema and test data for consistency, accuracy, and alignment with project requirements.

**2. Advanced SQL Queries**

* Create queries to manage Room availability, such as filtering by date range, type, price, or condition.
* Develop queries for Guest insights, including identifying repeat customers or retrieving guest histories.
* Write queries for Booking analytics, such as calculating total revenue, occupancy rates, and identifying underutilized rooms.
* Integrate and test all queries to ensure accuracy and optimize for performance.

**3. GUI Development**

* Develop the interface for Room Management, allowing users to view, filter, and update room details and conditions.
* Create the interface for Guest Management, enabling users to add, edit, and view guest details.
* Build the Booking Management interface to handle booking creation, updates, and cancellations.
* Integrate all GUI components, ensuring a consistent design and usability. Test the entire interface for functionality and smooth operation.

**4. Project Report and Presentation Slideshow**

* Document the schema design and provide detailed descriptions of each table and their relationships.
* Include examples of advanced queries and their outputs, explaining their significance to the project.
* Highlight key insights from the project, such as findings from analytics queries or challenges faced during development.
* Prepare presentation slides and a demo showcasing the project’s functionality, including screenshots of the GUI and query results.

**What we have already that works**:

**Additional Info:**

**Schema SQL:**

-- Step 1: Create the tables

**CREATE** **TABLE** Hotel (

hotel\_id **INT** AUTO\_INCREMENT **PRIMARY** **KEY**,

hotel\_name **VARCHAR**(100) **NOT** **NULL**,

location **VARCHAR**(100)

);

**CREATE** **TABLE** Guest (

guest\_id **INT** AUTO\_INCREMENT **PRIMARY** **KEY**,

guest\_name **VARCHAR**(50) **NOT** **NULL**,

phone\_number **VARCHAR**(15)

);

**CREATE** **TABLE** Room (

room\_id **INT** AUTO\_INCREMENT **PRIMARY** **KEY**,

room\_type **VARCHAR**(50) **NOT** **NULL**,

price **DECIMAL**(8, 2),

room\_condition **VARCHAR**(10),

status **VARCHAR**(10)

);

**CREATE** **TABLE** Booking (

booking\_id **INT** AUTO\_INCREMENT **PRIMARY** **KEY**,

guest\_id **INT**,

room\_id **INT**,

check\_in\_date **DATE** **NOT** **NULL**,

check\_out\_date **DATE** **NOT** **NULL**,

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

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

);

-- Step 2: Insert initial data into Hotel table

**INSERT** **INTO** Hotel (hotel\_name, location) **VALUES**

('Sunset Resort', 'Miami'),

('Mountain View Lodge', 'Denver');

-- Step 3: Insert new guests into the Guest table

**INSERT** **INTO** Guest (guest\_name, phone\_number) **VALUES**

('John Doe', '123-456-7890'),

('Jane Smith', '987-654-3210'),

('Mallory Sorola', '210-555-1234'),

('Demetrio Deanda', '210-555-5678'),

('Jose Valdespino', '210-555-9012'),

('Adrian Lopez', '210-555-3456');

-- Step 4: Insert rooms into the Room table

**INSERT** **INTO** Room (room\_type, price, room\_condition, status) **VALUES**

('Single King', 120.00, 'Clean', 'Vacant'),

('Double Queen', 150.00, 'Clean', 'Occupied'),

('Single King', 110.00, 'Dirty', 'Vacant'),

('Suite', 200.00, 'Clean', 'Vacant');

-- Step 5: Insert bookings into the Booking table

**INSERT** **INTO** Booking (guest\_id, room\_id, check\_in\_date, check\_out\_date) **VALUES**

(1, 1, '2024-11-12', '2024-11-14'),

(2, 2, '2024-11-13', '2024-11-15'),

(3, 3, '2024-12-01', '2024-12-03'), -- Jose Valdespino

(4, 4, '2024-12-05', '2024-12-08'), -- Adrian Lopez

(5, 2, '2024-12-10', '2024-12-12'), -- Mallory Sorola

(6, 1, '2024-12-15', '2024-12-18'); -- Demetrio Deanda

-- Step 6: Display all tables

-- Hotel Table

**SELECT** \* **FROM** Hotel;

-- Guest Table

**SELECT** \* **FROM** Guest;

-- Room Table

**SELECT** \* **FROM** Room;

-- Booking Table

**SELECT** \* **FROM** Booking;

**Query SQL:**

-- Display the Hotel table

**SELECT** \* **FROM** Hotel;

-- Display the Guest table

**SELECT** \* **FROM** Guest;

-- Display the Room table

**SELECT** \* **FROM** Room;

-- Display the Booking table

**SELECT** \* **FROM** Booking;