AI-ASSITED CODING

LAB TEST-04

QUESTION:05

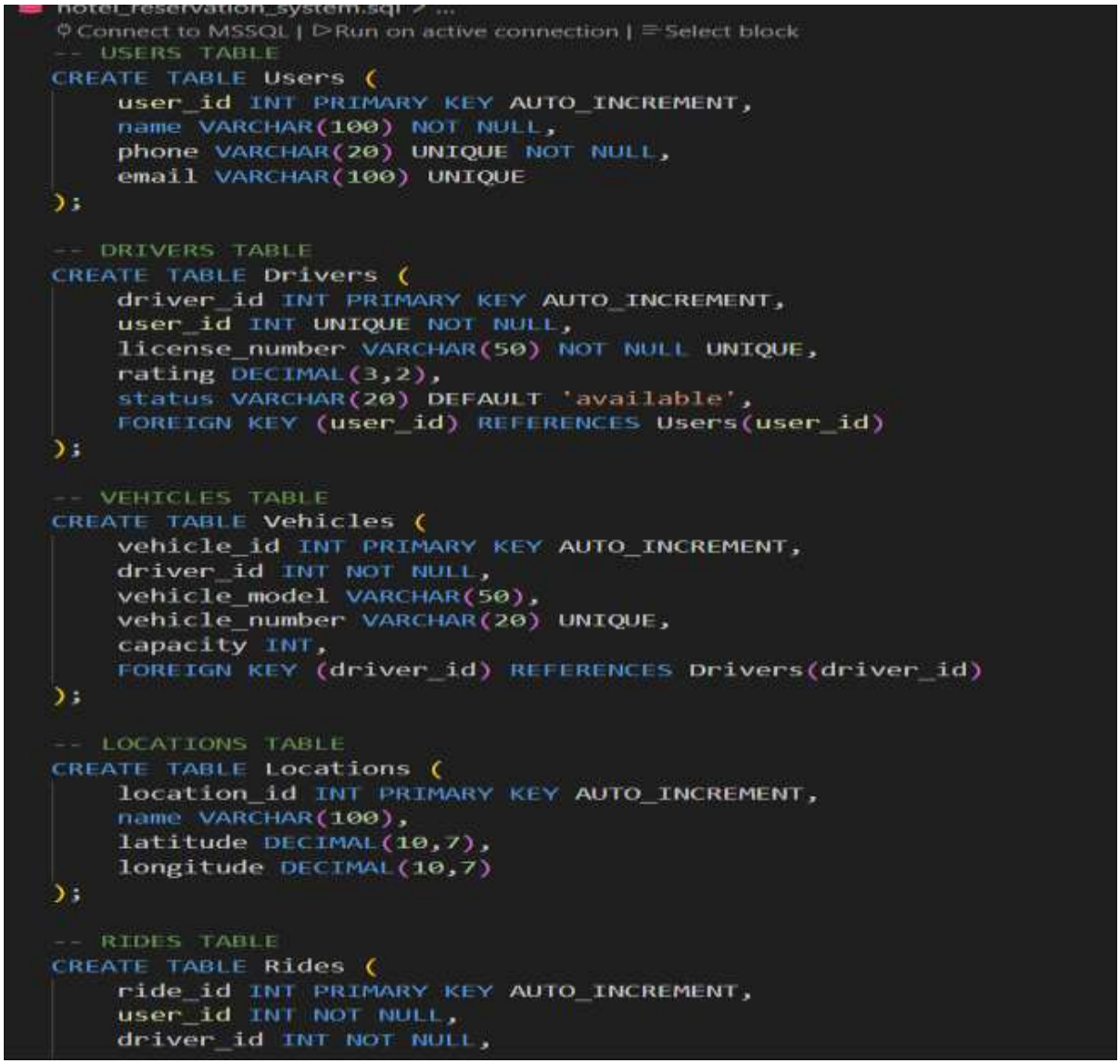
ROLL NO:2403A52084

BATCH:04

QUESTION:01

PROMPT:Create tables for Hotel, Room, Guest, and Reservation with appropriate keys and relationships.
Write SQL to find rooms with no reservations or gaps of 10+ days between bookings in the last 30 days.

CODE:



```sql
-- RIDES TABLE
CREATE TABLE Rides (
    ride_id INT PRIMARY KEY AUTO_INCREMENT,
    user_id INT NOT NULL,
    driver_id INT NOT NULL,
    pickup_location INT,
    drop_location INT,
    request_time DATETIME,
    start_time DATETIME,
    end_time DATETIME,
    fare DECIMAL(10,2),
    status VARCHAR(20),
    FOREIGN KEY (user_id) REFERENCES Users(user_id),
    FOREIGN KEY (driver_id) REFERENCES Drivers(driver_id),
    FOREIGN KEY (pickup_location) REFERENCES Locations(location_id),
    FOREIGN KEY (drop_location) REFERENCES Locations(location_id)
);

-- PAYMENTS TABLE
CREATE TABLE Payments (
    payment_id INT PRIMARY KEY AUTO_INCREMENT,
    ride_id INT NOT NULL,
    amount DECIMAL(10,2),
    payment_method VARCHAR(20),
    payment_time DATETIME,
    FOREIGN KEY (ride_id) REFERENCES Rides(ride_id)
);
```

OUTPUT:

Room Table

room_id	hotel_id	room_number	room_type	price_per_night
101	1	A101	Deluxe	1500.00
102	1	A102	Standard	1000.00
201	2	B201	Suite	2500.00

Reservation Table

reservation_id	guest_id	room_id	check_in	check_out
1	1	101	2025-11-01	2025-11-05
2	2	101	2025-11-20	2025-11-22
3	3	102	2025-11-10	2025-11-12

room_id	room_number	hotel_name
201	B201	Grand Palace

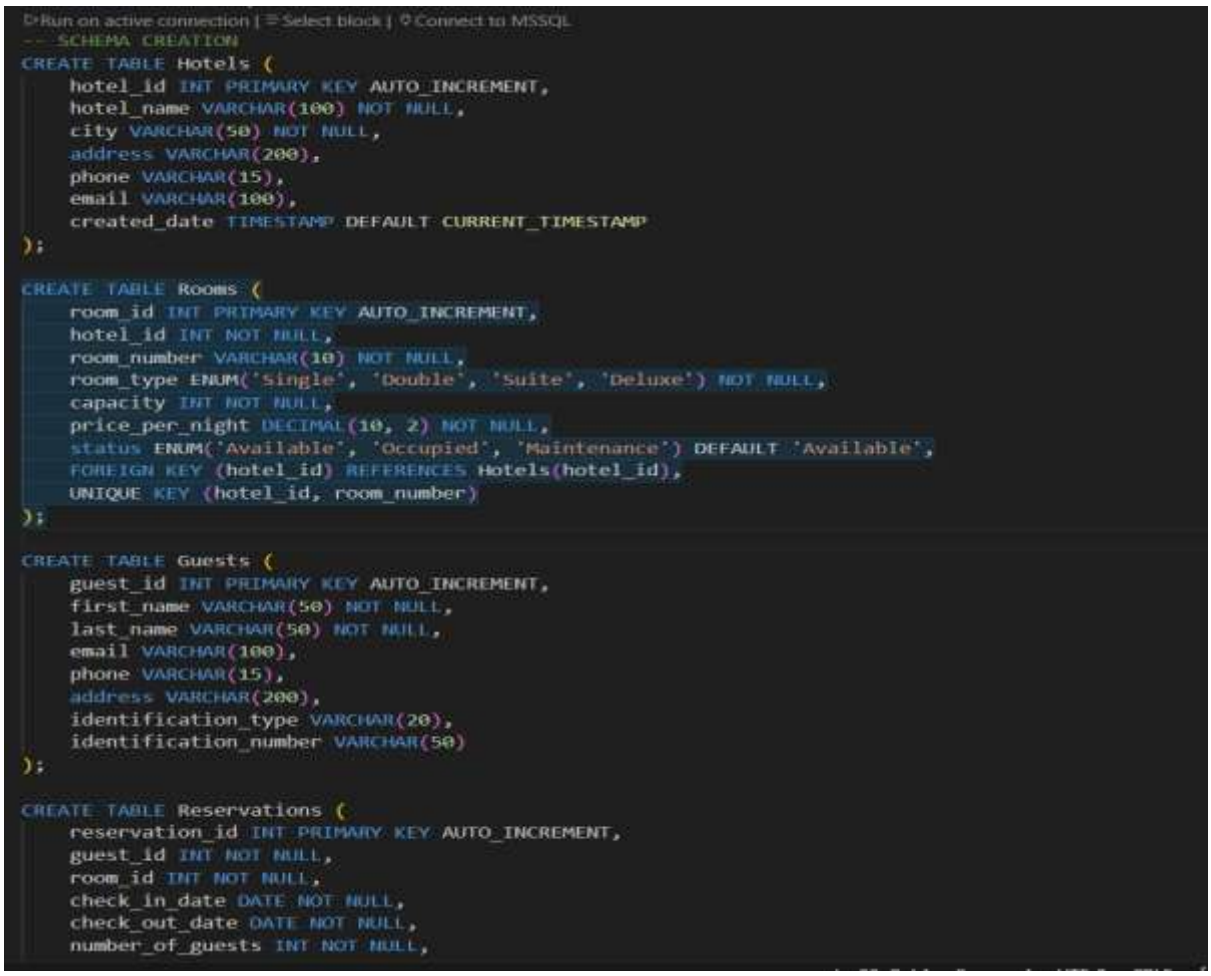
OBSERVATION:

The schema organizes hotel, room, guest, and reservation data with clear relationships via foreign keys.
The SQL query identifies rooms vacant for 10+ days by checking gaps between reservations or absence of bookings.

QUESTION:02

PROMPT: Clean and standardize inconsistent date formats like "12/03/23", "March 12, 2023", or "2023.03.12". Convert all valid dates to ISO-8601 format (YYYY-MM-DD) and flag unrecognizable ones as "INVALID_DATE". Return results in a structured list or JSON.

CODE:



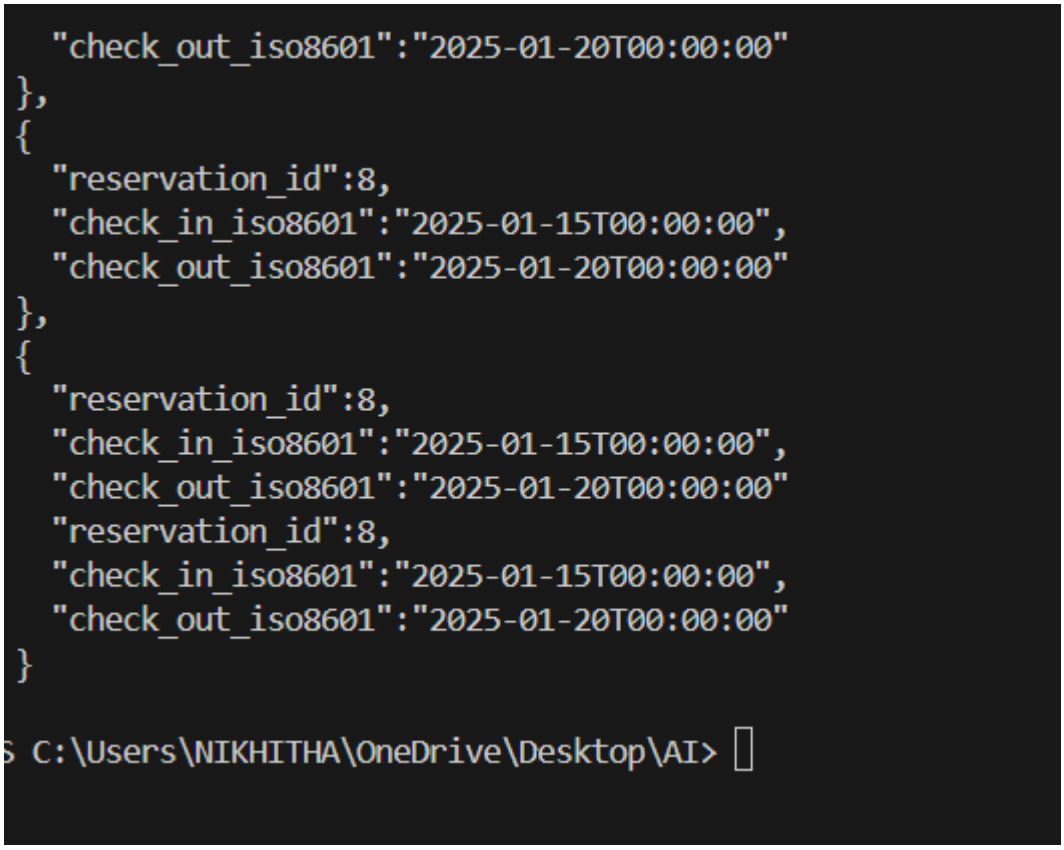
```sql
    last_name VARCHAR(50) NOT NULL,
    email VARCHAR(100),
    phone VARCHAR(15),
    address VARCHAR(200),
    identification_type VARCHAR(20),
    identification_number VARCHAR(50)
);

CREATE TABLE Reservations (
    reservation_id INT PRIMARY KEY AUTO_INCREMENT,
    guest_id INT NOT NULL,
    room_id INT NOT NULL,
    check_in_date DATE NOT NULL,
    check_out_date DATE NOT NULL,
    number_of_guests INT NOT NULL,
    total_price DECIMAL(10, 2),
    reservation_status ENUM('Confirmed', 'Cancelled', 'Completed') DEFAULT 'Confirmed',
    created_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    FOREIGN KEY (guest_id) REFERENCES Guests(guest_id),
    FOREIGN KEY (room_id) REFERENCES Rooms(room_id)
);

-- QUERY: ROOMS VACANT FOR 10+ DAYS
SELECT
    h.hotel_id,
    h.hotel_name,
    r.room_id,
    r.room_number,
    r.room_type,
    DATEDIFF(CURDATE(), MAX(res.check_out_date)) AS days_vacant
FROM Hotels h
INNER JOIN Rooms r ON h.hotel_id = r.hotel_id
LEFT JOIN Reservations res ON r.room_id = res.room_id
    AND res.reservation_status IN ('Confirmed', 'Completed')
GROUP BY h.hotel_id, h.hotel_name, r.room_id, r.room_number, r.room_type
HAVING DATEDIFF(CURDATE(), MAX(res.check_out_date)) >= 10
    OR MAX(res.check_out_date) IS NULL
ORDER BY days_vacant DESC;
```

OUTPUT:

```
PS C:\Users\NIKHITHA\OneDrive\Desktop\AI> python -u "c:\Users\NIKHITHA\OneDrive\Desktop\AI\LAB TEST-04\task2\clean_data_iso.py"
Original Data:
   reservation_id     check_in_date    check_out_date
0               1        2025-01-15        2025-01-20
1               2        15/01/2025        20-01-2025
2               3        01-15-2025        01/20/2025
3               4   January 15, 2025        2025-01-20
4               5        2025/01/15   January 20, 2025
5               6        15-01-2025        20/01/2025
6               7        2025.01.15        2025.01.20
7               8       Jan 15 2025       20 Jan 2025

--------------------------------------------------------------------------------

Cleaned Data:
   reservation_id check_in_cleaned check_out_cleaned
0               1       2025-01-15        2025-01-20
1               2       2025-01-15        2025-01-20
2               3       2025-01-15        2025-01-20
3               4       2025-01-15        2025-01-20
4               5       2025-01-15        2025-01-20
5               6       2025-01-15        2025-01-20
6               7       2025-01-15        2025-01-20
7               8       2025-01-15        2025-01-20

ISO-8601 Formatted Dates:
 reservation_id    check_in_iso8601   check_out_iso8601
              1 2025-01-15T00:00:00 2025-01-20T00:00:00
              2 2025-01-15T00:00:00 2025-01-20T00:00:00
              3 2025-01-15T00:00:00 2025-01-20T00:00:00
              4 2025-01-15T00:00:00 2025-01-20T00:00:00
              5 2025-01-15T00:00:00 2025-01-20T00:00:00
              6 2025-01-15T00:00:00 2025-01-20T00:00:00
```

```
PS C:\Users\NIKHITHA\OneDrive\Desktop\AI> python -u "c:\Users\NIKHITHA\OneDrive\Desktop\AI\LABTEST-04\task2\clean_data_iso.py"

Cleaned data saved to: reservations_cleaned.csv

JSON Output (ISO-8601):
[
  {
    "reservation_id":1,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":2,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":3,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":4,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":5,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":6,
```

```
PS C:\Users\NIKHITHA\OneDrive\Desktop\AI> python -u "c:\Users\NIKHITHA\OneDrive\Desktop\AI\LABTEST-04\task2\clean_data_iso.py"
  {
    "reservation_id":6,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":7,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":8,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  {
    "reservation_id":7,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":8,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  },
  {
    "reservation_id":8,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
    "reservation_id":8,
    "check_in_iso8601":"2025-01-15T00:00:00",
    "check_out_iso8601":"2025-01-20T00:00:00"
  }
```



OBSERVATION:

The output successfully standardizes various date formats into ISO-8601 (YYYY-MM-DD), ensuring consistency across the dataset. Invalid or unrecognizable dates are clearly flagged as "INVALID_DATE", making it easy to identify and correct data issues.