SQL PROJECT

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Scenario: Hospital Management System Database

You are responsible for designing a database management system for a medium-sized hospital. The hospital requires a system to manage patient records, appointments, medical staff information, billing, and medical history.

→ How to create database

Syntax: Create database data base name;

　　　Create database medium_ hospital_ managemet;

Questions:

1. Patient Information : How would you organize the patient information in the database? What data would you store for each patient?

- **Inserting the values into above patient table:**

```
mysql> INSERT INTO Patient (patient_id, patient_name, date_of_birth, gender, address, phone_number, email)
    -> VALUES
    ->    (3, 'Sarah Johnson', '1978-12-10', 'Female', '789 Elm Rd, Village', '+1 555-222-3333', 'sarah.johnson@email.com'),
    ->    (4, 'Michael Brown', '1982-06-25', 'Male', '567 Pine Ave, Town', '+1 555-444-5555', 'michael.brown@email.com');
Query OK, 2 rows affected (0.03 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from patient;
+------------+---------------+---------------+--------+----------------------+------------------+--------------------------+
| patient_id | patient_name  | date_of_birth | gender | address              | phone_number     | email                    |
+------------+---------------+---------------+--------+----------------------+------------------+--------------------------+
|          1 | John Doe      | 1990-05-15    | Male   | 123 Main St, City    | +1 555-123-4567  | john.doe@email.com       |
|          2 | Jane Smith    | 1985-09-22    | Female | 456 Oak Ave, Town    | +1 555-987-6543  | jane.smith@email.com     |
|          3 | Sarah Johnson | 1978-12-10    | Female | 789 Elm Rd, Village  | +1 555-222-3333  | sarah.johnson@email.com  |
|          4 | Michael Brown | 1982-06-25    | Male   | 567 Pine Ave, Town   | +1 555-444-5555  | michael.brown@email.com  |
+------------+---------------+---------------+--------+----------------------+------------------+--------------------------+
4 rows in set (0.00 sec)
```

2. Doctor Details :

Create a table to store information about doctors. What attribute would you include table ?

Syntax : Create table table name;

Insert inti table name values;

Attributes : doctor_id, firstname, last_name, contact_number, emial

```
mysql> CREATE TABLE Doctor (
    ->     doctor_id INT PRIMARY KEY,
    ->     first_name VARCHAR(50),
    ->     last_name VARCHAR(50),
    ->     specialization VARCHAR(100),
    ->     contact_number VARCHAR(15),
    ->     email VARCHAR(100)
    -> );
Query OK, 0 rows affected (0.03 sec)
```

- **Inserting into values in above table**

```
mysql> INSERT INTO Doctor (doctor_id, first_name, last_name, specialization, contact_number, email)
    -> VALUES
    ->    (1, 'Dr. Robert', 'Johnson', 'Cardiologist', '+111222333', 'robert.johnson@example.com'),
    ->    (2, 'Dr. Emily', 'Anderson', 'Pediatrician', '+444555666', 'emily.anderson@example.com'),
    ->    (3, 'Dr. David', 'Smith', 'Orthopedic Surgeon', '+777888999', 'david.smith@example.com'),
    ->    (4, 'Dr. Lisa', 'Miller', 'Gynecologist', '+555666777', 'lisa.miller@example.com');
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
+-----------+------------+-----------+-------------------+-----------------+-------------------------------+
| doctor_id | first_name | last_name | specialization    | contact_number  | email                         |
+-----------+------------+-----------+-------------------+-----------------+-------------------------------+
|         1 | Dr. Robert | Johnson   | Cardiologist      | +111222333      | robert.johnson@example.com    |
|         2 | Dr. Emily  | Anderson  | Pediatrician      | +444555666      | emily.anderson@example.com    |
|         3 | Dr. David  | Smith     | Orthopedic Surgeon| +777888999      | david.smith@example.com       |
|         4 | Dr. Lisa   | Miller    | Gynecologist      | +555666777      | lisa.miller@example.com       |
+-----------+------------+-----------+-------------------+-----------------+-------------------------------+
4 rows in set (0.00 sec)
```

3. Appointment Management :

Describe how you would track patient appointments with doctors in the database?

```
mysql> CREATE TABLE Appointment (
    ->      appointment_id INT PRIMARY KEY,
    ->      patient_id INT,
    ->      doctor_id INT,
    ->      appointment_datetime DATETIME,
    ->      reason VARCHAR(200),
    ->      status VARCHAR(50),
    ->      FOREIGN KEY (patient_id) REFERENCES Patient(patient_id),
    ->      FOREIGN KEY (doctor_id) REFERENCES Doctor(doctor_id)
    -> );
Query OK, 0 rows affected (0.03 sec)
```

- **Inserting into values in above table**

```
mysql>     INSERT INTO Appointment (appointment_id, patient_id, appointment_datetime, reason, status)
    -> VALUES
    ->     (1, 1, '2023-08-10 10:00:00', 'Heart Checkup', 'Scheduled'),
    ->     (2, 2, '2023-08-12 15:30:00', 'Child Vaccination', 'Scheduled'),
    ->     (3, 3, '2023-08-11 09:00:00', 'Fractured Arm', 'Scheduled'),
    ->     (4, 4, '2023-08-13 14:00:00', 'Routine Checkup', 'Scheduled');
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
mysql> select* from appointment;
+----------------+------------+-----------+---------------------+-------------------+-----------+
| appointment_id | patient_id | doctor_id | appointment_datetime| reason            | status    |
+----------------+------------+-----------+---------------------+-------------------+-----------+
|              1 |          1 |      NULL | 2023-08-10 10:00:00 | Heart Checkup     | Scheduled |
|              2 |          2 |      NULL | 2023-08-12 15:30:00 | Child Vaccination | Scheduled |
|              3 |          3 |      NULL | 2023-08-11 09:00:00 | Fractured Arm     | Scheduled |
|              4 |          4 |      NULL | 2023-08-13 14:00:00 | Routine Checkup   | Scheduled |
+----------------+------------+-----------+---------------------+-------------------+-----------+
4 rows in set (0.00 sec)
```

```
mysql> desc appointment;
+----------------------+--------------+------+-----+---------+-------+
| Field                | Type         | Null | Key | Default | Extra |
+----------------------+--------------+------+-----+---------+-------+
| appointment_id       | int          | NO   | PRI | NULL    |       |
| patient_id           | int          | YES  | MUL | NULL    |       |
| doctor_id            | int          | YES  | MUL | NULL    |       |
| appointment_datetime | datetime     | YES  |     | NULL    |       |
| reason               | varchar(200) | YES  |     | NULL    |       |
| status               | varchar(50)  | YES  |     | NULL    |       |
+----------------------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

Syntax : select * from patient as p join appointment as a on p.patient_id= a.patient_id join medicalstaff as m on m.staff_id=a.staff_id;

4.Medical Tests :

How would you manage the information about various medical tests offered by the hospital?

```
mysql> CREATE TABLE MedicalTests (
    ->     test_id INT PRIMARY KEY,
    ->     test_name VARCHAR(100) NOT NULL,
    ->     description VARCHAR(500),
    ->     cost DECIMAL(10, 2) NOT NULL
    -> );
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> INSERT INTO MedicalTests (test_id, test_name, description, cost)
    -> VALUES
    ->     (1, 'Blood Test', 'A general blood test to check overall health.', 100.00),
    ->     (2, 'X-ray', 'Imaging test to visualize bones and organs.', 200.00),
    ->     (3, 'ECG', 'Electrocardiogram to measure heart activity.', 75.00),
    ->     (4, 'MRI', 'Magnetic Resonance Imaging for detailed internal images.', 500.00);
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> select * from medicaltests;
+---------+------------+----------------------------------------------------------+--------+
| test_id | test_name  | description                                              | cost   |
+---------+------------+----------------------------------------------------------+--------+
|       1 | Blood Test | A general blood test to check overall health.            | 100.00 |
|       2 | X-ray      | Imaging test to visualize bones and organs.              | 200.00 |
|       3 | ECG        | Electrocardiogram to measure heart activity.             |  75.00 |
|       4 | MRI        | Magnetic Resonance Imaging for detailed internal images. | 500.00 |
+---------+------------+----------------------------------------------------------+--------+
4 rows in set (0.00 sec)
```

5. Doctors Weekly Schedule :

How would you store and display the weekly schedule for a specific doctor , showing the appointments with patients for each day ?

Syntax : select * from doctor_w_s where d_id=1;

```
mysql> create table doctor_w_s(date date, time time,mon varchar(20),tues varchar(20),wed varchar(20),thu varchar(20),fri varchar(20),sat varchar(20),d_id int);
Query OK, 0 rows affected (0.04 sec)

mysql> insert into doctor_w_s values('2023-9-1','9:00:00','avaliable','unavaliable','unavaliable','unavalible','unavaliable','unavaliable',1),('2023-9-2','10:00:00','unavaliable','avaliable','unavaliable','unavalible','unavaliable','unavaliable',2),('2023-9-3','1:00:00','unavaliable','unavaliable','avaliable','unavalible','unavaliable','unavaliable',3),('2023-9-4','6:00:00','avaliable','unavaliable','unavaliable','unavalible','unavaliable','unavaliable',4),('2023-9-5','8:00:00','unavaliable','avaliable','unavaliable','ununavalible','unavaliable','unavaliable',5);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
mysql> select * from doctor_w_s;
+------------+----------+-------------+-------------+-------------+--------------+-------------+-------------+------+----------------+
| date       | time     | mon         | tues        | wed         | thu          | fri         | sat         | d_id | appointment_id |
+------------+----------+-------------+-------------+-------------+--------------+-------------+-------------+------+----------------+
| 2023-09-01 | 09:00:00 | avaliable   | unavaliable | unavaliable | unavalible   | unavaliable | unavaliable |    1 |           1001 |
| 2023-09-02 | 10:00:00 | unavaliable | avaliable   | unavaliable | unavalible   | unavaliable | unavaliable |    2 |           1002 |
| 2023-09-03 | 01:00:00 | unavaliable | unavaliable | avaliable   | unavalible   | unavaliable | unavaliable |    3 |           1003 |
| 2023-09-04 | 06:00:00 | avaliable   | unavaliable | unavaliable | unavalible   | unavaliable | unavaliable |    4 |           1004 |
| 2023-09-05 | 08:00:00 | unavaliable | avaliable   | unavaliable | ununavalible | unavaliable | unavaliable |    5 |           NULL |
+------------+----------+-------------+-------------+-------------+--------------+-------------+-------------+------+----------------+
5 rows in set (0.00 sec)

mysql> select * from doctor_w_s where d_id=1;
+------------+----------+-----------+-------------+-------------+------------+-------------+-------------+------+----------------+
| date       | time     | mon       | tues        | wed         | thu        | fri         | sat         | d_id | appointment_id |
+------------+----------+-----------+-------------+-------------+------------+-------------+-------------+------+----------------+
| 2023-09-01 | 09:00:00 | avaliable | unavaliable | unavaliable | unavalible | unavaliable | unavaliable |    1 |           1001 |
+------------+----------+-----------+-------------+-------------+------------+-------------+-------------+------+----------------+
1 row in set (0.00 sec)
```

THANK YOU