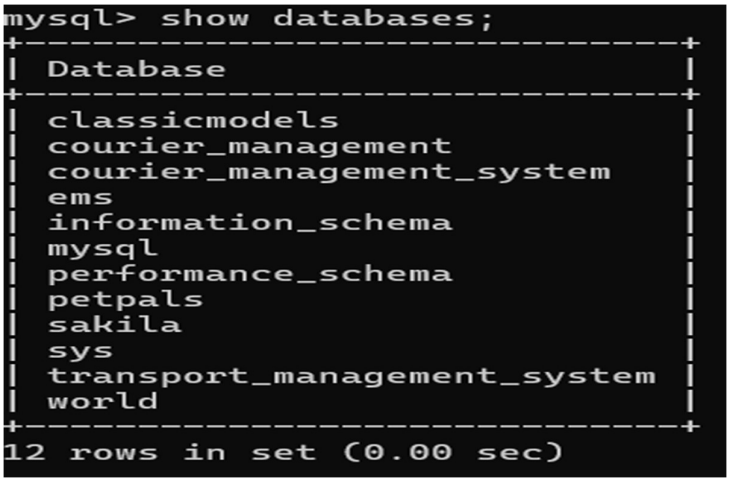
Coding Challenges - PetPals, The Pet Adoption Platform

Solutions:

1. Provide a SQL script that initializes the database for the Pet Adoption Platform" PetPals".

create database petpals;



2. Create tables for pets, shelters, donations, adoption events, and participants

3. Define appropriate primary keys, foreign keys, and constraints.

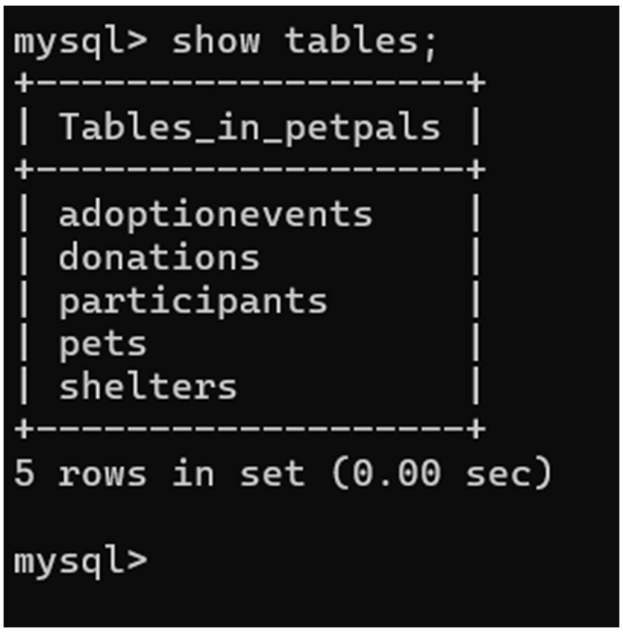
Pets table:
CREATE TABLE Pets (PetID INT PRIMARY KEY, Name VARCHAR(50), Age INT, Breed VARCHAR(50), Type VARCHAR(50), AvailableForAdoption BIT);

Shelters table:
CREATE TABLE Shelters (ShelterID INT PRIMARY KEY, Name VARCHAR(100), Location VARCHAR(255));

Donations table:
CREATE TABLE Donations (DonationID INT PRIMARY KEY, DonorName VARCHAR(100), DonationType VARCHAR(50), DonationAmount DECIMAL(10, 2), DonationItem VARCHAR(100), DonationDate DATETIME);

AdoptionEvents table:
CREATE TABLE AdoptionEvents (EventID INT PRIMARY KEY, EventName VARCHAR(100), EventDate DATETIME, Location VARCHAR(255));

Participants table:
CREATE TABLE Participants (ParticipantID INT PRIMARY KEY, ParticipantName VARCHAR(100), ParticipantType VARCHAR(50), EventID INT, FOREIGN KEY (EventID) REFERENCES AdoptionEvents(EventID));



4. Ensure the script handles potential errors, such as if the database or tables already exist

DROP DATABASE IF EXISTS PetPals;

DROP TABLE IF EXISTS Participants;

DROP TABLE IF EXISTS AdoptionEvents;

DROP TABLE IF EXISTS Donations;

DROP TABLE IF EXISTS Shelters;

DROP TABLE IF EXISTS Pets;

Inserting data in tables:

INSERT INTO Pets (PetID, Name, Age, Breed, Type, AvailableForAdoption) VALUES (1, 'Sheru', 3, 'Labrador', 'Dog', 1), (2, 'Moti', 2, 'Persian', 'Cat', 1), (3, 'Raju', 4, 'Pug', 'Dog', 0), (4, 'Jimmy', 1, 'Maine Coon', 'Cat', 1), (5, 'Tommy', 5, 'Beagle', 'Dog', 1);

INSERT INTO Shelters (ShelterID, Name, Location) VALUES (1, 'Paw Rescue India', 'Mumbai, Maharashtra'), (2, 'Feline Friends', 'Delhi'), (3, 'Animal Care Society', 'Bangalore, Karnataka'), (4, 'Wagging Tails', 'Chennai, Tamil Nadu'), (5, 'Pets Haven', 'Hyderabad, Telangana');

INSERT INTO Donations (DonationID, DonorName, DonationType, DonationAmount, DonationItem, DonationDate) VALUES (1, 'Anita', 'Cash', 15000.00, NULL, '2024-10-01 10:00:00'), (2, 'Rajesh', 'Item', NULL, 'Dog Food', '2024-10-02 11:00:00'), (3, 'Sita', 'Cash', 25000.00, NULL, '2024-10-03 12:00:00'), (4, 'Vikram', 'Item', NULL, 'Cat Toys', '2024-10-04 13:00:00'), (5, 'Neha', 'Cash', 5000.00, NULL, '2024-10-05 14:00:00');
INSERT INTO AdoptionEvents (EventID, EventName, EventDate, Location) VALUES (1, 'Adoption Mela', '2024-10-15 10:00:00', 'Juhu Beach, Mumbai'), (2, 'Pet Fest', '2024-10-20 09:00:00', 'Indira Gandhi Stadium, Delhi'), (3, 'Paw-ty for Pets', '2024-10-25 14:00:00', 'Cubbon Park, Bangalore'), (4, 'Winter Adoption Drive', '2024-11-01 11:00:00', 'Chennai Trade Centre'), (5, 'Festive Adoption Event', '2024-12-05 12:00:00', 'Hitech City, Hyderabad');

INSERT INTO Participants (ParticipantID, ParticipantName, ParticipantType, EventID) VALUES (1, 'Shelter A', 'Shelter', 1), (2, 'Shelter B', 'Shelter', 2), (3, 'Adopter 1', 'Adopter', 1), (4, 'Adopter 2', 'Adopter', 3), (5, 'Shelter C', 'Shelter', 4);

```
mysql> select * from Pets;
+-------+-------+------+--------------+-------+-----------------------------------------------+
| PetID | Name  | Age  | Breed        | Type  | AvailableForAdoption                          |
+-------+-------+------+--------------+-------+-----------------------------------------------+
|     1 | Sheru |    3 | Labrador     | Dog   | 0x01                                          |
|     2 | Moti  |    2 | Persian      | Cat   | 0x01                                          |
|     3 | Raju  |    4 | Pug          | Dog   | 0x00                                          |
|     4 | Jimmy |    1 | Maine Coon   | Cat   | 0x01                                          |
|     5 | Tommy |    5 | Beagle       | Dog   | 0x01                                          |
+-------+-------+------+--------------+-------+-----------------------------------------------+
5 rows in set (0.00 sec)

mysql> select * from Shelters;
+-----------+----------------------+-------------------------+
| ShelterID | Name                 | Location                |
+-----------+----------------------+-------------------------+
|         1 | Paw Rescue India     | Mumbai, Maharashtra     |
|         2 | Feline Friends       | Delhi                   |
|         3 | Animal Care Society  | Bangalore, Karnataka    |
|         4 | Wagging Tails        | Chennai, Tamil Nadu     |
|         5 | Pets Haven           | Hyderabad, Telangana    |
+-----------+----------------------+-------------------------+
5 rows in set (0.00 sec)

mysql> select * from Donations;
+------------+-----------+--------------+----------------+---------------+---------------------+
| DonationID | DonorName | DonationType | DonationAmount | DonationItem  | DonationDate        |
+------------+-----------+--------------+----------------+---------------+---------------------+
|          1 | Anita     | Cash         |       15000.00 | NULL          | 2024-10-01 10:00:00 |
|          2 | Rajesh    | Item         |           NULL | Dog Food      | 2024-10-02 11:00:00 |
|          3 | Sita      | Cash         |       25000.00 | NULL          | 2024-10-03 12:00:00 |
|          4 | Vikram    | Item         |           NULL | Cat Toys      | 2024-10-04 13:00:00 |
|          5 | Neha      | Cash         |        5000.00 | NULL          | 2024-10-05 14:00:00 |
+------------+-----------+--------------+----------------+---------------+---------------------+
5 rows in set (0.00 sec)

mysql>
```

```
mysql> select * from AdoptionEvents;
+---------+-------------------------+---------------------+-------------------------------+
| EventID | EventName               | EventDate           | Location                      |
+---------+-------------------------+---------------------+-------------------------------+
|       1 | Adoption Mela           | 2024-10-15 10:00:00 | Juhu Beach, Mumbai            |
|       2 | Pet Fest                | 2024-10-20 09:00:00 | Indira Gandhi Stadium, Delhi  |
|       3 | Paw-ty for Pets         | 2024-10-25 14:00:00 | Cubbon Park, Bangalore        |
|       4 | Winter Adoption Drive   | 2024-11-01 11:00:00 | Chennai Trade Centre          |
|       5 | Festive Adoption Event  | 2024-12-05 12:00:00 | Hitech City, Hyderabad        |
+---------+-------------------------+---------------------+-------------------------------+
5 rows in set (0.00 sec)

mysql> select * from Participants;
+---------------+-----------------+-----------------+---------+
| ParticipantID | ParticipantName | ParticipantType | EventID |
+---------------+-----------------+-----------------+---------+
|             1 | Shelter A       | Shelter         |       1 |
|             2 | Shelter B       | Shelter         |       2 |
|             3 | Adopter 1       | Adopter         |       1 |
|             4 | Adopter 2       | Adopter         |       3 |
|             5 | Shelter C       | Shelter         |       4 |
+---------------+-----------------+-----------------+---------+
5 rows in set (0.00 sec)
```

5. Write an SQL query that retrieves a list of available pets (those marked as available for adoption) from the "Pets" table. Include the pet's name, age, breed, and type in the result set. Ensure that the query filters out pets that are not available for adoption.

SELECT Name, Age, Breed, Type FROM Pets WHERE AvailableForAdoption = 1;

```
mysql> SELECT Name, Age, Breed, Type FROM Pets WHERE AvailableForAdoption = 1;
+-------+------+-------------+------+
| Name  | Age  | Breed       | Type |
+-------+------+-------------+------+
| Sheru |    3 | Labrador    | Dog  |
| Moti  |    2 | Persian     | Cat  |
| Jimmy |    1 | Maine Coon  | Cat  |
| Tommy |    5 | Beagle      | Dog  |
+-------+------+-------------+------+
4 rows in set (0.00 sec)
```

6. Write an SQL query that retrieves the names of participants (shelters and adopters) registered for a specific adoption event. Use a parameter to specify the event ID. Ensure that the query joins the necessary tables to retrieve the participant names and types.

SELECT P.ParticipantName, P.ParticipantType FROM Participants P JOIN AdoptionEvents A ON P.EventID = A.EventID WHERE A.EventID = 2;

```
mysql> SELECT P.ParticipantName, P.ParticipantType FROM Participants P JOIN AdoptionEvents A ON P.EventID = A.EventID WHERE A.EventID = 2;
+-----------------+-----------------+
| ParticipantName | ParticipantType |
+-----------------+-----------------+
| Shelter B       | Shelter         |
+-----------------+-----------------+
1 row in set (0.00 sec)
```

8. Write an SQL query that calculates and retrieves the total donation amount for each shelter (by shelter name) from the "Donations" table. The result should include the shelter name and the total donation amount. Ensure that the query handles cases where a shelter has received no donations.

SELECT S.Name AS ShelterName, SUM(D.DonationAmount) AS TotalDonationAmount

FROM Shelters S LEFT JOIN Donations D ON S.ShelterID = D.DonationID GROUP BY S.ShelterID;

```
mysql> SELECT S.Name AS ShelterName, SUM(D.DonationAmount) AS TotalDonationAmount
    -> FROM Shelters S LEFT JOIN Donations D ON S.ShelterID = D.DonationID GROUP BY S.ShelterID;
+--------------------+---------------------+
| ShelterName        | TotalDonationAmount |
+--------------------+---------------------+
| Paw Rescue India   |            15000.00 |
| Feline Friends     |                NULL |
| Animal Care Society |            25000.00 |
| Wagging Tails      |                NULL |
| Pets Haven         |             5000.00 |
+--------------------+---------------------+
5 rows in set (0.00 sec)

mysql>
```

9. Write an SQL query that retrieves the names of pets from the "Pets" table that do not have an owner (i.e., where "OwnerID" is null). Include the pet's name, age, breed, and type in the result set.

SELECT Name, Age, Breed, Type FROM Pets WHERE OwnerID IS NULL;

```
mysql> SELECT Name, Age, Breed, Type FROM Pets WHERE OwnerID IS NULL;
+-------+------+----------+------+
| Name  | Age  | Breed    | Type |
+-------+------+----------+------+
| Sheru |    3 | Labrador | Dog  |
| Raju  |    4 | Pug      | Dog  |
| Tommy |    5 | Beagle   | Dog  |
+-------+------+----------+------+
3 rows in set (0.00 sec)
```

11. Retrieve a list of distinct breeds for all pets that are either aged between 1 and 3 years or older than 5 years.

SELECT DISTINCT Breed FROM Pets WHERE (Age BETWEEN 1 AND 3) OR (Age > 5);

```
mysql> SELECT DISTINCT Breed FROM Pets WHERE (Age BETWEEN 1 AND 3) OR (Age > 5);
+------------+
| Breed      |
+------------+
| Labrador   |
| Persian    |
| Maine Coon |
+------------+
3 rows in set (0.00 sec)
```

12. Retrieve a list of pets and their respective shelters where the pets are currently available for adoption.

SELECT P.Name AS PetName, S.Name AS ShelterName FROM Pets P JOIN Shelters S ON P.OwnerID IS NULL WHERE P.AvailableForAdoption = 1;

```
mysql> SELECT P.Name AS PetName, S.Name AS ShelterName
    -> FROM Pets P
    -> JOIN Shelters S ON P.OwnerID IS NULL
    -> WHERE P.AvailableForAdoption = 1;
+---------+--------------------+
| PetName | ShelterName        |
+---------+--------------------+
| Tommy   | Paw Rescue India   |
| Sheru   | Paw Rescue India   |
| Tommy   | Feline Friends     |
| Sheru   | Feline Friends     |
| Tommy   | Animal Care Society |
| Sheru   | Animal Care Society |
| Tommy   | Wagging Tails      |
| Sheru   | Wagging Tails      |
| Tommy   | Pets Haven         |
| Sheru   | Pets Haven         |
+---------+--------------------+
10 rows in set (0.00 sec)
```

13. Find the total number of participants in events organized by shelters located in specific city. Example: City=Chennai

SELECT COUNT(P.ParticipantID) AS TotalParticipants FROM Participants P JOIN AdoptionEvents A ON P.EventID = A.EventID JOIN Shelters S ON A.Location = S.Location WHERE S.Location LIKE 'Chennai%';

```
+-------------------+
| TotalParticipants |
+-------------------+
|                 0 |
+-------------------+
1 row in set (0.00 sec)
```

14. Retrieve a list of unique breeds for pets with ages between 1 and 5 years

SELECT DISTINCT Breed FROM Pets WHERE Age BETWEEN 1 AND 5;

```
mysql> SELECT DISTINCT Breed FROM Pets WHERE Age BETWEEN 1 AND 5;
+-------------+
| Breed       |
+-------------+
| Labrador    |
| Persian     |
| Pug         |
| Maine Coon  |
| Beagle      |
+-------------+
5 rows in set (0.00 sec)

mysql>
```

15. Find the pets that have not been adopted by selecting their information from the 'Pet' table.

SELECT * FROM Pets WHERE AvailableForAdoption = 1 AND OwnerID IS NULL;

```
mysql> SELECT * FROM Pets WHERE AvailableForAdoption = 1 AND OwnerID IS NULL;
+-------+-------+------+-----------+------+-----------------------------------------+----------+
| PetID | Name  | Age  | Breed     | Type | AvailableForAdoption                    | OwnerID |
+-------+-------+------+-----------+------+-----------------------------------------+----------+
|     1 | Sheru |    3 | Labrador  | Dog  | 0x01                                    |    NULL |
|     5 | Tommy |    5 | Beagle    | Dog  | 0x01                                    |    NULL |
+-------+-------+------+-----------+------+-----------------------------------------+----------+
2 rows in set (0.00 sec)

mysql>
```

17. Retrieve a list of all shelters along with the count of pets currently available for adoption in each shelter.

SELECT S.Name AS ShelterName, COUNT(P.PetID) AS AvailablePetsCount FROM Shelters S LEFT JOIN Pets P ON S.ShelterID = P.OwnerID WHERE P.AvailableForAdoption = 1 OR P.OwnerID IS NULL GROUP BY S.ShelterID;

```
mysql> SELECT S.Name AS ShelterName, COUNT(P.PetID) AS AvailablePetsCount FROM Shelters S LEFT JOIN Pets P ON S.ShelterID = P.OwnerID WHERE P.AvailableForAd
option = 1 OR P.OwnerID IS NULL GROUP BY S.ShelterID;
+--------------------+--------------------+
| ShelterName        | AvailablePetsCount |
+--------------------+--------------------+
| Paw Rescue India   |                  0 |
| Feline Friends     |                  1 |
| Animal Care Society |                 1 |
| Wagging Tails      |                  0 |
| Pets Haven         |                  0 |
+--------------------+--------------------+
5 rows in set (0.00 sec)
```

18. Find pairs of pets from the same shelter that have the same breed.

SELECT P1.Name AS Pet1Name, P2.Name AS Pet2Name, P1.Breed, S.Name AS ShelterName FROM Pets P1 JOIN Pets P2 ON P1.Breed = P2.Breed AND P1.PetID <> P2.PetID JOIN Shelters S ON P1.OwnerID = S.ShelterID WHERE P1.OwnerID IS NOT NULL AND P2.OwnerID IS NOT NULL;

```
Empty set (0.00 sec)
```

19. List all possible combinations of shelters and adoption events.

SELECT S.Name AS ShelterName, A.EventName FROM Shelters S, AdoptionEvents A;

```
mysql> SELECT S.Name AS ShelterName, A.EventName
    -> FROM Shelters S, AdoptionEvents A;
+--------------------+-----------------------+
| ShelterName        | EventName             |
+--------------------+-----------------------+
| Pets Haven         | Adoption Mela         |
| Wagging Tails      | Adoption Mela         |
| Animal Care Society | Adoption Mela        |
| Feline Friends     | Adoption Mela         |
| Paw Rescue India   | Adoption Mela         |
| Pets Haven         | Pet Fest              |
| Wagging Tails      | Pet Fest              |
| Animal Care Society | Pet Fest             |
| Feline Friends     | Pet Fest              |
| Paw Rescue India   | Pet Fest              |
| Pets Haven         | Paw-ty for Pets       |
| Wagging Tails      | Paw-ty for Pets       |
| Animal Care Society | Paw-ty for Pets      |
| Feline Friends     | Paw-ty for Pets       |
| Paw Rescue India   | Paw-ty for Pets       |
| Pets Haven         | Winter Adoption Drive |
| Wagging Tails      | Winter Adoption Drive |
| Animal Care Society | Winter Adoption Drive |
| Feline Friends     | Winter Adoption Drive |
| Paw Rescue India   | Winter Adoption Drive |
| Pets Haven         | Festive Adoption Event |
| Wagging Tails      | Festive Adoption Event |
| Animal Care Society | Festive Adoption Event |
| Feline Friends     | Festive Adoption Event |
| Paw Rescue India   | Festive Adoption Event |
+--------------------+-----------------------+
25 rows in set (0.00 sec)
```

20. Determine the shelter that has the highest number of adopted pets

SELECT S.Name AS ShelterName, COUNT(P.PetID) AS AdoptedPetsCount FROM Shelters S JOIN Pets P ON S.ShelterID = P.OwnerID WHERE P.OwnerID IS NOT NULL GROUP BY S.ShelterID ORDER BY AdoptedPetsCount DESC LIMIT 1;

```
mysql> SELECT S.Name AS ShelterName, COUNT(P.PetID) AS AdoptedPetsCount FROM Shelters S JOIN Pets P ON S.ShelterID = P.OwnerID WHERE P.OwnerID IS NOT NULL G
ROUP BY S.ShelterID ORDER BY AdoptedPetsCount DESC LIMIT 1;
+---------------+-----------------+
| ShelterName   | AdoptedPetsCount |
+---------------+-----------------+
| Feline Friends |               1 |
+---------------+-----------------+
1 row in set (0.00 sec)
```