# Coding Challenges - PetPals, The Pet Adoption Platform

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

```sql
CREATE DATABASE PetPals;
```

**2. Create tables for pets, shelters, donations, adoption events, and participants.**
**3. Define appropriate primary keys, foreign keys, and constraints.**
**4. Ensure the script handles potential errors, such as if the database or tables already exist.**

```sql
IF NOT EXISTS (SELECT * FROM sys.databases WHERE name = 'PetPals')
BEGIN
    CREATE DATABASE PetPals;
END
ELSE
BEGIN
    PRINT 'Database already exists.';
END




use PetPals
```

Messages
```
Database already exists.

Completion time: 2024-03-04T14:00:38.3992228+05:30
```

```sql
IF NOT EXISTS (SELECT * FROM INFORMATION_SCHEMA.TABLES WHERE TABLE_NAME = 'Shelters')
BEGIN
    CREATE TABLE Shelters (
        ShelterID INT PRIMARY KEY,
        Name VARCHAR(255),
        Location VARCHAR(255),
        City VARCHAR(255)
    );

    PRINT 'Table "Shelters" created successfully.';
END
ELSE
BEGIN
    PRINT 'Table "Shelters" already exists.';
END
```

```sql
IF NOT EXISTS (SELECT * FROM INFORMATION_SCHEMA.TABLES WHERE TABLE_NAME = 'Donations')
BEGIN

    CREATE TABLE Donations (
        DonationID INT PRIMARY KEY,
        DonorName VARCHAR(255),
        DonationType VARCHAR(255),
        DonationAmount DECIMAL,
        DonationItem VARCHAR(255),
        DonationDate DATETIME,
        ShelterID INT,
        FOREIGN KEY (ShelterID) REFERENCES Shelters(ShelterID)
    );

    PRINT 'Table "Donations" created successfully.';
END
ELSE
BEGIN
    PRINT 'Table "Donations" already exists.';
END
```

```sql
IF NOT EXISTS (SELECT * FROM INFORMATION_SCHEMA.TABLES WHERE TABLE_NAME = 'AdoptionEvents')
BEGIN

    CREATE TABLE AdoptionEvents (
        EventID INT PRIMARY KEY,
        EventName VARCHAR(255),
        EventDate DATETIME,
        Location VARCHAR(255),
        City VARCHAR(255),
        OrganizerID INT,
         FOREIGN KEY (OrganizerID) REFERENCES Shelters(ShelterID)
    );

    PRINT 'Table "AdoptionEvents" created successfully.';
END
ELSE
BEGIN
```

```sql
        PRINT 'Table "AdoptionEvents" already exists.';
END
```

```sql
IF NOT EXISTS (SELECT * FROM INFORMATION_SCHEMA.TABLES WHERE TABLE_NAME = 'Participants')
BEGIN

    CREATE TABLE Participants (
        ParticipantID INT PRIMARY KEY,
        ParticipantName VARCHAR(255),
        ParticipantType VARCHAR(255),
        EventID INT,
        FOREIGN KEY (EventID) REFERENCES AdoptionEvents(EventID),
        City VARCHAR(255)
    );

    PRINT 'Table "Participants" created successfully.';
END
ELSE
BEGIN
    PRINT 'Table "Participants" already exists.';
END
```

```sql
IF NOT EXISTS (SELECT * FROM INFORMATION_SCHEMA.TABLES WHERE TABLE_NAME = 'Pets')
BEGIN
    CREATE TABLE Pets (
        PetID INT PRIMARY KEY,
        Name VARCHAR(255),
        Age INT,
        Breed VARCHAR(255),
        Type VARCHAR(255),
        AvailableForAdoption BIT,
        ShelterName VARCHAR(255),
        OwnerID INT,
        ShelterID INT,
        FOREIGN KEY (OwnerID) REFERENCES Participants(ParticipantID),
        FOREIGN KEY (ShelterID) REFERENCES Shelters(ShelterID)
    );

    PRINT 'Table "Pets" created successfully.';
END
ELSE
BEGIN
    PRINT 'Table "Pets" already exists.';
END
```

## 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.

```sql
INSERT INTO Shelters (ShelterID, Name, Location, City)
VALUES(1, 'Chennai Pet Shelter', 'Anna Nagar', 'Chennai'),
(2, 'Coimbatore Animal Care', 'Gandhipuram', 'Coimbatore'),
(3, 'Madurai Paws Haven', 'Kochadai', 'Madurai'),
(4, 'Trichy Furry Friends', 'Thillai Nagar', 'Trichy'),
(5, 'Salem Animal Sanctuary', 'Shevapet', 'Salem'),
(6, 'Vellore Pet Haven', 'Gandhi Road', 'Vellore');


INSERT INTO Donations (DonationID, DonorName, DonationType, DonationAmount, DonationItem,
DonationDate, ShelterID)
VALUES(1, 'Rajesh Kumar', 'Cash', 500.00, NULL, '2024-03-04 10:30:00', 1),
(2, 'Deepa Sharma', 'Food', NULL, 'Dog Food', '2024-03-05 15:45:00', 2),
(3, 'Suresh Menon', 'Cash', 1000.00, NULL, '2024-03-06 12:15:00', 3),
(4, 'Asha Patel', 'Medicine', NULL, 'Flea Treatment', '2024-03-07 09:00:00', 4),
(5, 'Arjun Rajan', 'Cash', 750.00, NULL, '2024-03-08 14:20:00', 5),
(6, 'Ananya Gupta', 'Toys', NULL, 'Cat Toys', '2024-03-09 17:30:00', 6);

INSERT INTO AdoptionEvents (EventID, EventName, EventDate, Location, City, OrganizerID)
VALUES(1, 'Pet Adoption Day', '2024-03-15 14:00:00', 'VGP Golden Beach', 'Chennai', 1),
(2, 'Furry Friends Fiesta', '2024-03-20 11:30:00', 'Race Course', 'Coimbatore', 2),
(3, 'Paws Parade', '2024-03-25 13:45:00', 'Goripalayam Ground', 'Madurai', 3),
(4, 'Trichy Pet Carnival', '2024-04-02 10:00:00', 'Maris Theater Ground', 'Trichy', 4),
(5, 'Salem Pet Fest', '2024-04-10 15:15:00', 'Anna Park', 'Salem', 5),
(6, 'Vellore Adoption Drive', '2024-04-18 12:30:00', 'VIT University Ground', 'Vellore', 6);


INSERT INTO Participants (ParticipantID, ParticipantName, ParticipantType, EventID, City)
VALUES(1, 'Aruna Nair', 'Volunteer', 1, 'Chennai'),
(2, 'Karthik Raj', 'Adopter', 2, 'Coimbatore'),
(3, 'Meera Devi', 'Volunteer', 3, 'Madurai'),
(4, 'Vijay Kumar', 'Adopter', 4, 'Trichy'),
(5, 'Priya Reddy', 'Volunteer', 5, 'Salem'),
(6, 'Gopal Krishnan', 'Adopter', 6, 'Vellore');


INSERT INTO Pets (PetID, Name, Age, Breed, Type, AvailableForAdoption, ShelterName, OwnerID,
ShelterID)
VALUES(1, 'Charlie', 2, 'Labrador Retriever', 'Dog', 1, 'Chennai Pet Shelter', NULL, 1),
(2, 'Whiskers', 1, 'Siamese', 'Cat', 1, 'Coimbatore Animal Care', NULL, 2),
(3, 'Rocky', 3, 'German Shepherd', 'Dog', 1, 'Madurai Paws Haven', NULL, 3),
(4, 'Mittens', 2, 'Persian', 'Cat', 1, 'Trichy Furry Friends', NULL, 4),
(5, 'Buddy', 1, 'Golden Retriever', 'Dog', 1, 'Salem Animal Sanctuary', NULL, 5),
(6, 'Fluffy', 2, 'Ragdoll', 'Cat', 1, 'Vellore Pet Haven', NULL, 6);


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

| | Name | Age | Breed | Type |
|---|---|---|---|---|
| 1 | Charlie | 2 | Labrador Retriever | Dog |
| 2 | Whiskers | 1 | Siamese | Cat |
| 3 | Rocky | 3 | German Shepherd | Dog |
| 4 | Mittens | 2 | Persian | Cat |
| 5 | Buddy | 1 | Golden Retriever | Dog |
| 6 | Fluffy | 2 | Ragdoll | Cat |

**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.**

```sql
SELECT Participants.ParticipantName, Participants.ParticipantType
FROM Participants
JOIN AdoptionEvents ON Participants.EventID = AdoptionEvents.EventID
WHERE AdoptionEvents.EventName = 'Pet Adoption Day';
```

| | ParticipantName | ParticipantType |
|---|---|---|
| 1 | Aruna Nair | Volunteer |

**7. Create a stored procedure in SQL that allows a shelter to update its information (name and location) in the "Shelters" table. Use parameters to pass the shelter ID and the new information. Ensure that the procedure performs the update and handles potential errors, such as an invalid shelter ID.**

```sql
CREATE PROCEDURE UpdateShelterInfo
    @ShelterID INT,
    @NewName VARCHAR(255),
    @NewLocation VARCHAR(255)
AS
BEGIN
    SET NOCOUNT ON;

    IF NOT EXISTS (SELECT 1 FROM Shelters WHERE ShelterID = @ShelterID)
    BEGIN
        PRINT 'Error: ShelterID does not exist.';
        RETURN;
    END

    UPDATE Shelters
    SET Name = @NewName,
        Location = @NewLocation
    WHERE ShelterID = @ShelterID;

    PRINT 'Shelter information updated successfully.';
END;


EXEC UpdateShelterInfo @ShelterID = 1, @NewName = 'Fullfy Friends', @NewLocation = 'Perungalathur';
```

**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.**

```sql
SELECT S.Name AS ShelterName, COALESCE(SUM(D.DonationAmount), 0) AS TotalDonationAmount FROM
Shelters S LEFT JOIN Donations D ON S.ShelterID = D.ShelterID GROUP BY S.Name;
```

| | ShelterName | TotalDonationAmount |
|---|---|---|
| 1 | Coimbatore Animal Care | 0 |
| 2 | Fullfy Friends Festival | 500 |
| 3 | Madurai Paws Haven | 1000 |
| 4 | Salem Animal Sanctuary | 750 |
| 5 | Trichy Furry Friends | 0 |
| 6 | Vellore Pet Haven | 0 |

**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.**

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

| | Name | Age | Breed | Type |
|---|---|---|---|---|
| 1 | Charlie | 2 | Labrador Retriever | Dog |
| 2 | Whiskers | 1 | Siamese | Cat |
| 3 | Rocky | 3 | German Shepherd | Dog |
| 4 | Mittens | 2 | Persian | Cat |
| 5 | Buddy | 1 | Golden Retriever | Dog |
| 6 | Fluffy | 2 | Ragdoll | Cat |

**10. Write an SQL query that retrieves the total donation amount for each month and year (e.g., January 2023) from the "Donations" table. The result should include the month-year and the corresponding total donation amount. Ensure that the query handles cases where no donations were made in a specific month-year.**

```sql
SELECT FORMAT(DonationDate, 'MMMM yyyy') AS MonthYear, COALESCE(SUM(DonationAmount), 0) AS
TotalDonationAmount FROM Donations GROUP BY FORMAT(DonationDate, 'MMMM yyyy');
```

| | MonthYear | TotalDonationAmount |
|---|---|---|
| 1 | March 2024 | 2250 |

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

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

| | Breed |
|---|---|
| 1 | German Shepherd |
| 2 | Golden Retriever |
| 3 | Labrador Retriever |
| 4 | Persian |
| 5 | Ragdoll |
| 6 | Siamese |

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

```sql
SELECT P.Name AS PetName, P.Age, P.Breed, P.Type, S.Name AS ShelterName
FROM Pets P JOIN Shelters S ON P.ShelterName = S.Name WHERE P.AvailableForAdoption = 1;
```

| | PetName | Age | Breed | Type | ShelterName |
|---|---|---|---|---|---|
| 1 | Whiskers | 1 | Siamese | Cat | Coimbatore Animal Care |
| 2 | Rocky | 3 | German Shepherd | Dog | Madurai Paws Haven |
| 3 | Mittens | 2 | Persian | Cat | Trichy Furry Friends |
| 4 | Buddy | 1 | Golden Retriever | Dog | Salem Animal Sanctuary |
| 5 | Fluffy | 2 | Ragdoll | Cat | Vellore Pet Haven |

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

```sql
SELECT   S.Name AS ShelterName,COUNT(P.ParticipantID) AS TotalParticipants
FROM Participants P JOIN AdoptionEvents AE ON P.EventID = AE.EventID
JOIN Shelters S ON AE.OrganizerID = S.ShelterID WHERE S.City = 'Chennai' GROUP BY S.Name;
```

| | ShelterName | TotalParticipants |
|---|---|---|
| 1 | Fullfy Friends Festival | 1 |

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

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

| | Breed |
|---|---|
| 1 | German Shepherd |
| 2 | Golden Retriever |
| 3 | Labrador Retriever |
| 4 | Persian |
| 5 | Ragdoll |
| 6 | Siamese |

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

```sql
SELECT * FROM Pets WHERE OwnerID IS NULL;
```

| | PetID | Name | Age | Breed | Type | AvailableForAdoption | ShelterName | OwnerID | ShelterID |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | Charlie | 2 | Labrador Retriever | Dog | 1 | Chennai Pet Shelter | NULL | 1 |
| 2 | 2 | Whiskers | 1 | Siamese | Cat | 1 | Coimbatore Animal Care | NULL | 2 |
| 3 | 3 | Rocky | 3 | German Shepherd | Dog | 1 | Madurai Paws Haven | NULL | 3 |
| 4 | 4 | Mittens | 2 | Persian | Cat | 1 | Trichy Furry Friends | NULL | 4 |
| 5 | 5 | Buddy | 1 | Golden Retriever | Dog | 1 | Salem Animal Sanctuary | NULL | 5 |
| 6 | 6 | Fluffy | 2 | Ragdoll | Cat | 1 | Vellore Pet Haven | NULL | 6 |

## 16. Retrieve the names of all adopted pets along with the adopter's name from the 'Adoption' and 'User' tables.

```sql
CREATE TABLE Adoptions (
    AdoptionID INT PRIMARY KEY,
    AdopterName VARCHAR(255),
    PetID INT,
    AdoptionDate DATETIME,
    FOREIGN KEY (PetID) REFERENCES Pets(PetID)
);

CREATE TABLE Users (
    UserID INT PRIMARY KEY,
    UserName VARCHAR(255) NOT NULL,
    Email VARCHAR(255) UNIQUE NOT NULL,
    DateOfBirth DATE,
    RegistrationDate DATETIME DEFAULT CURRENT_TIMESTAMP
);

INSERT INTO Users (UserID, UserName, Email, DateOfBirth, RegistrationDate)
VALUES
(1, 'Arvind Kumar', 'arvind.kumar@example.com', '1985-05-10', '2024-03-04 08:30:00'),
(2, 'Priya Devi', 'priya.devi@example.com', '1990-08-15', '2024-03-04 09:45:00'),
(3, 'Karthik Rajan', 'karthik.rajan@example.com', '1988-11-22', '2024-03-04 11:15:00'),
(4, 'Sangeetha Ramesh', 'sangeetha.ramesh@example.com', '1995-03-18', '2024-03-04 13:30:00'),
(5, 'Anand Kumar', 'anand.kumar@example.com', '1980-07-01', '2024-03-04 15:00:00'),
(6, 'Deepika Mani', 'deepika.mani@example.com', '1993-12-05', '2024-03-04 16:45:00');


INSERT INTO Adoptions (AdoptionID, AdopterName, PetID, AdoptionDate)
```

```sql
VALUES
(1, 'Arvind Kumar', 1, '2024-03-05 10:00:00'),
(2, 'Priya Devi', 2, '2024-03-06 11:30:00'),
(3, 'Karthik Rajan', 3, '2024-03-07 12:45:00'),
(4, 'Sangeetha Ramesh', 4, '2024-03-08 14:15:00'),
(5, 'Anand Kumar', 5, '2024-03-09 16:00:00'),
(6, 'Deepika Mani', 6, '2024-03-10 17:30:00');


SELECT P.Name AS PetName, U.UserName AS AdopterName FROM Adoptions A
JOIN Pets P ON A.PetID = P.PetID JOIN Users U ON A.AdoptionID = U.UserID;
```

Results | Messages

| | PetName | AdopterName |
|---|---|---|
| 1 | Charlie | Arvind Kumar |
| 2 | Whiskers | Priya Devi |
| 3 | Rocky | Karthik Rajan |
| 4 | Mittens | Sangeetha Ramesh |
| 5 | Buddy | Anand Kumar |
| 6 | Fluffy | Deepika Mani |

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

```sql
SELECT S.Name AS ShelterName, COUNT(P.PetID) AS PetsAvailableForAdoption FROM Shelters S
LEFT JOIN Pets P ON S.ShelterID = P.ShelterID AND P.AvailableForAdoption = 1 GROUP BY S.ShelterID,
S.Name;
```

Results | Messages

| | ShelterName | PetsAvailableForAdoption |
|---|---|---|
| 1 | Fullfy Friends Festival | 1 |
| 2 | Coimbatore Animal Care | 1 |
| 3 | Madurai Paws Haven | 1 |
| 4 | Trichy Furry Friends | 1 |
| 5 | Salem Animal Sanctuary | 1 |
| 6 | Vellore Pet Haven | 1 |

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

```sql
INSERT INTO Pets (PetID, Name, Age, Breed, Type, AvailableForAdoption, ShelterName, OwnerID,
ShelterID)
VALUES(7, 'Goldy', 2, 'Labrador Retriever', 'Dog', 1, 'Chennai Pet Shelter', NULL, 1),
(8, 'Fluffs', 1, 'Siamese', 'Cat', 1, 'Coimbatore Animal Care', NULL, 2);


SELECT A.PetID AS Pet1ID, B.PetID AS Pet2ID, A.Breed AS SharedBreed, A.ShelterID AS ShelterID
FROM Pets A JOIN Pets B ON A.ShelterID = B.ShelterID AND A.PetID < B.PetID WHERE A.Breed = B.Breed;
```

| | Pet1ID | Pet2ID | SharedBreed | ShelterID |
|---|---|---|---|---|
| 1 | 1 | 7 | Labrador Retriever | 1 |
| 2 | 2 | 8 | Siamese | 2 |

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

```
SELECT S.ShelterID AS ShelterID, S.Name AS ShelterName, AE.EventID AS EventID,
AE.EventName AS EventName FROM Shelters S CROSS JOIN AdoptionEvents AE;
```

| | ShelterID | ShelterName | EventID | EventName |
|---|---|---|---|---|
| 1 | 1 | Fullfy Friends Festival | 1 | Pet Adoption Day |
| 2 | 2 | Coimbatore Animal Care | 1 | Pet Adoption Day |
| 3 | 3 | Madurai Paws Haven | 1 | Pet Adoption Day |
| 4 | 4 | Trichy Furry Friends | 1 | Pet Adoption Day |
| 5 | 5 | Salem Animal Sanctuary | 1 | Pet Adoption Day |
| 6 | 6 | Vellore Pet Haven | 1 | Pet Adoption Day |
| 7 | 1 | Fullfy Friends Festival | 2 | Furry Friends Fiesta |
| 8 | 2 | Coimbatore Animal Care | 2 | Furry Friends Fiesta |
| 9 | 3 | Madurai Paws Haven | 2 | Furry Friends Fiesta |
| 10 | 4 | Trichy Furry Friends | 2 | Furry Friends Fiesta |
| 11 | 5 | Salem Animal Sanctuary | 2 | Furry Friends Fiesta |
| 12 | 6 | Vellore Pet Haven | 2 | Furry Friends Fiesta |
| 13 | 1 | Fullfy Friends Festival | 3 | Paws Parade |
| 14 | 2 | Coimbatore Animal Care | 3 | Paws Parade |
| 15 | 3 | Madurai Paws Haven | 3 | Paws Parade |
| 16 | 4 | Trichy Furry Friends | 3 | Paws Parade |
| 17 | 5 | Salem Animal Sanctuary | 3 | Paws Parade |
| 18 | 6 | Vellore Pet Haven | 3 | Paws Parade |

| | ShelterID | ShelterName | EventID | EventName |
|---|---|---|---|---|
| 19 | 1 | Fullfy Friends Festival | 4 | Trichy Pet Carnival |
| 20 | 2 | Coimbatore Animal Care | 4 | Trichy Pet Carnival |
| 21 | 3 | Madurai Paws Haven | 4 | Trichy Pet Carnival |
| 22 | 4 | Trichy Furry Friends | 4 | Trichy Pet Carnival |
| 23 | 5 | Salem Animal Sanctuary | 4 | Trichy Pet Carnival |
| 24 | 6 | Vellore Pet Haven | 4 | Trichy Pet Carnival |
| 25 | 1 | Fullfy Friends Festival | 5 | Salem Pet Fest |
| 26 | 2 | Coimbatore Animal Care | 5 | Salem Pet Fest |
| 27 | 3 | Madurai Paws Haven | 5 | Salem Pet Fest |
| 28 | 4 | Trichy Furry Friends | 5 | Salem Pet Fest |
| 29 | 5 | Salem Animal Sanctuary | 5 | Salem Pet Fest |
| 30 | 6 | Vellore Pet Haven | 5 | Salem Pet Fest |
| 31 | 1 | Fullfy Friends Festival | 6 | Vellore Adoption ... |
| 32 | 2 | Coimbatore Animal Care | 6 | Vellore Adoption ... |
| 33 | 3 | Madurai Paws Haven | 6 | Vellore Adoption ... |
| 34 | 4 | Trichy Furry Friends | 6 | Vellore Adoption ... |
| 35 | 5 | Salem Animal Sanctuary | 6 | Vellore Adoption ... |
| 36 | 6 | Vellore Pet Haven | 6 | Vellore Adoption ... |

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

```
SELECT TOP 1 S.ShelterID, S.Name AS ShelterName, COUNT(A.PetID) AS AdoptedPetsCount
FROM Shelters S JOIN Pets A ON S.ShelterID = A.ShelterID  GROUP BY S.ShelterID, S.Name ORDER BY
AdoptedPetsCount DESC;
```

| | ShelterID | ShelterName | AdoptedPetsCount |
|---|---|---|---|
| 1 | 2 | Coimbatore Animal Care | 2 |

| | ShelterID | ShelterName | AdoptedPetsCount |
|---|---|---|---|
| 1 | 2 | Coimbatore Animal Care | 2 |