Coding Challenges - PetPals, The Pet Adoption Platform

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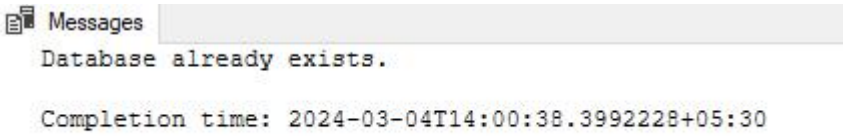
1. Provide a SQL script that initializes the database for the Pet Adoption Platform ”PetPals”.

```
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.

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

```
use PetPals
```




```
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
```

Messages

```
Table "Shelters" created successfully.

Completion time: 2024-03-04T14:03:10.0070557+05:30
```

Messages

```
Table "Shelters" already exists.

Completion time: 2024-03-04T14:03:33.9721521+05:30
```

```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
```

Messages

```
Table "Donations" created successfully.

Completion time: 2024-03-04T14:16:17.8334847+05:30
```

Messages

```
Table "Donations" already exists.

Completion time: 2024-03-04T14:16:42.2113451+05:30
```

```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
```

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

```
Messages
Table "AdoptionEvents" created successfully.

Completion time: 2024-03-04T14:04:49.3976770+05:30
```

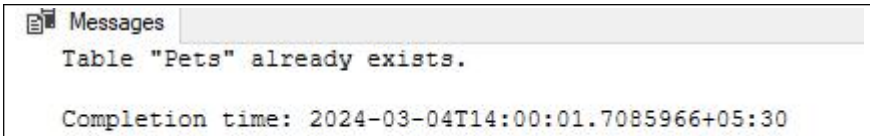
```
Messages
Table "AdoptionEvents" already exists.

Completion time: 2024-03-04T14:05:10.2468676+05:30
```

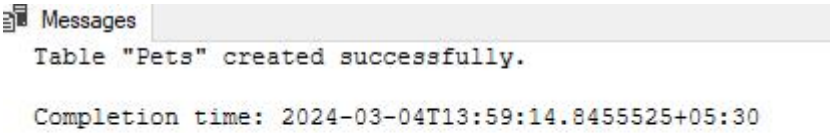
```
IF NOT EXISTS (SELECT * FROM INFORMATION_SCHEMA.TABLES WHERE TABLE_NAME = 'Participants')
BEGIN

    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
```

```
Messages
Table "Participants" created successfully.

Completion time: 2024-03-04T14:06:56.5215715+05:30
```

```
Messages
Table "Participants" already exists.

Completion time: 2024-03-04T14:15:08.2391910+05:30
```

```
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.

```
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);
```

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

Results | Messages

	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';
```

Results | Messages

	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';
```

Messages

```
Shelter information updated successfully.

Completion time: 2024-03-04T14:40:21.3523909+05:30
```

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

Results Messages

	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.

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

Results Messages

	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.

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

Results Messages

	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.

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

Results Messages

	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.

```
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;
```

Results Messages

	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

```
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;
```

Results Messages

	ShelterName	TotalParticipants
1	Fullfy Friends Festival	1

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;
```

Results Messages

	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.

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

Results Messages

	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.

```
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)
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.

```
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.

```
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;
```

Results | Messages

	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;
```

Results | Messages

	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

Results | Messages

	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;
```

Results | Messages

	ShelterID	ShelterName	AdoptedPetsCount
1	2	Coimbatore Animal Care	2