CODING CHALLENGES 1

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

```sql
CREATE DATABASE IF NOT EXISTS PetPals;
USE PetPals;
```

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

```sql
CREATE TABLE Pets (
    PetID INT PRIMARY KEY AUTO_INCREMENT,
    Name VARCHAR(50) NOT NULL,
    Age INT NOT NULL,
    Breed VARCHAR(50),
    Type VARCHAR(50) NOT NULL,
    AvailableForAdoption TINYINT(1) NOT NULL DEFAULT 0
);
-- Shelters table
CREATE TABLE Shelters (
    ShelterID INT PRIMARY KEY AUTO_INCREMENT,
    Name VARCHAR(100) NOT NULL,
    Location VARCHAR(255) NOT NULL
);
-- Donations table
CREATE TABLE Donations (
    DonationID INT PRIMARY KEY AUTO_INCREMENT,
    DonorName VARCHAR(100) NOT NULL,
    DonationType VARCHAR(50) NOT NULL,
    DonationAmount DECIMAL(10,2) DEFAULT NULL,
    DonationItem VARCHAR(255) DEFAULT NULL,
    DonationDate DATETIME NOT NULL
);
```

```sql
CREATE TABLE AdoptionEvents (
    EventID INT PRIMARY KEY AUTO_INCREMENT,
    EventName VARCHAR(100) NOT NULL,
    EventDate DATETIME NOT NULL,
    Location VARCHAR(255) NOT NULL
);

-- Participants table
CREATE TABLE Participants (
    ParticipantID INT PRIMARY KEY AUTO_INCREMENT,
    ParticipantName VARCHAR(100) NOT NULL,
    ParticipantType VARCHAR(50) NOT NULL,
    EventID INT,
    FOREIGN KEY (EventID) REFERENCES AdoptionEvents(EventID)
);
```

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

```sql
ALTER TABLE Pets
ADD CONSTRAINT Available_Check CHECK (AvailableForAdoption IN (0,1));

ALTER TABLE Donations
ADD CONSTRAINT DonationType_Check CHECK (
    DonationType IN ('Cash', 'Item')
);
```

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

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	Age	Breed	Type
Max	2	Golden Retriever	Dog
Charlie	3	Labrador Retriever	Dog
Luna	4	Maine Coon	Cat
Oliver	5	Siamese	Cat
Daisy	3	Poodle	Dog
Bella	5	British Shorthair	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 ParticipantName, ParticipantType
FROM Participants
JOIN AdoptionEvents ON Participants.EventID = AdoptionEvents.EventID
WHERE AdoptionEvents.EventID = 2;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ParticipantName	ParticipantType
Furever Home	Shelter
David Lee	Adopter

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 UpdateShelter(
    IN shelterID INT,
    IN newName VARCHAR(100),
    IN newLocation VARCHAR(255)
)
BEGIN
    UPDATE Shelters
    SET Name = newName, Location = newLocation
    WHERE ShelterID = shelterID;

    IF @@ROW_COUNT = 0 THEN
        SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Invalid Shelter ID';
    END IF;
END;
```

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
330 •   SELECT Shelters.Name, SUM(Donations.DonationAmount) AS TotalDonationAmount
331     FROM Donations
332     RIGHT JOIN Shelters ON Donations.DonationID = Shelters.ShelterID
333     GROUP BY Shelters.Name
334     WITH ROLLUP;
335
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	TotalDonationAmount
Animal Alliance	NULL
Critter Haven	75.00
Fido's Friends	30.00
Furever Home Animal Sanctuary	NULL
Happy Paws	50.00
Purrfect Companions	NULL
Second Chance Animal Rescue	25.00
Tail Waggers Unleashed	NULL
The Barking Lot	NULL
Whisker City	100.00
NULL	280.00

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
336 •   SELECT Name, Age, Breed, Type
337     FROM Pets
338     WHERE OwnerID IS NULL;
```

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 spe

```
342 •  SELECT DATE_FORMAT(DonationDate, '%Y-%m') AS MonthYear, SUM(DonationAmount) AS TotalDonationAmount
343    FROM Donations
344    GROUP BY MonthYear
345    WITH ROLLUP;
346
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

MonthYear	TotalDonationAmount
2023-10	175.00
2023-11	105.00
NULL	280.00

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

```
347 •  SELECT DISTINCT Breed
348    FROM Pets
349    WHERE (Age BETWEEN 1 AND 3) OR Age > 5;
350
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Breed
Golden Retriever
Persian
Labrador Retriever
German Shepherd
French Bulldog
Poodle

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

```sql
SELECT Pets.*, Shelters.Name AS ShelterName
FROM Pets
JOIN Shelters ON Pets.PetID = Shelters.ShelterID
WHERE AvailableForAdoption = 1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

PetID	Name	Age	Breed	Type	AvailableForAdoption	ShelterName
1	Max	2	Golden Retriever	Dog	1	Happy Paws
3	Charlie	3	Labrador Retriever	Dog	1	Second Chance Animal Rescue
4	Luna	4	Maine Coon	Cat	1	Tail Waggers Unleashed
6	Oliver	5	Siamese	Cat	1	The Barking Lot
8	Daisy	3	Poodle	Dog	1	Animal Alliance
10	Bella	5	British Shorthair	Cat	1	Purrfect Companions

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

```sql
SELECT COUNT(*) AS TotalParticipants
FROM Participants
JOIN AdoptionEvents ON Participants.EventID = AdoptionEvents.EventID
WHERE AdoptionEvents.Location = 'Careville';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

TotalParticipants
0

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;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Breed
Golden Retriever
Persian
Labrador Retriever
Maine Coon
German Shepherd
Siamese
French Bulldog
Poodle
Ragdoll
British Shorthair

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

```sql
SELECT PetID, Name, Age, Breed, Type
FROM Pets
WHERE NOT EXISTS (
    SELECT * FROM AdoptionEvents
    WHERE AdoptionEvents.PetID = Pets.PetID
);
```

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

```sql
SELECT Pets.Name AS PetName, Users.Name AS AdopterName
FROM Pets
JOIN Adoption ON Pets.PetID = Adoption.PetID
JOIN Users ON Adoption.UserID = Users.UserID;
```

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

```sql
SELECT Shelters.Name AS ShelterName, COUNT(*) AS AvailablePets
FROM Shelters
JOIN Pets ON Shelters.ShelterID = Pets.ShelterID
WHERE AvailableForAdoption = 1
GROUP BY Shelters.ShelterID;
```

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

```sql
SELECT Pet1.Name AS Pet1Name, Pet2.Name AS Pet2Name
FROM Pets AS Pet1
JOIN Pets AS Pet2 ON Pet1.ShelterID = Pet2.ShelterID
WHERE Pet1.Breed = Pet2.Breed AND Pet1.PetID <> Pet2.PetID;
```

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

```
392 •  SELECT Shelters.Name AS ShelterName, AdoptionEvents.EventName
393    FROM Shelters
394    CROSS JOIN AdoptionEvents;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ShelterName	EventName
Purrfect Companions	Fall Adoption Festival
Fido's Friends	Fall Adoption Festival
Animal Alliance	Fall Adoption Festival
Critter Haven	Fall Adoption Festival
The Barking Lot	Fall Adoption Festival
Whisker City	Fall Adoption Festival
Tail Waggers Unleashed	Fall Adoption Festival
Second Chance Animal Rescue	Fall Adoption Festival
Furever Home Animal Sanctuary	Fall Adoption Festival
Happy Paws	Fall Adoption Festival
Purrfect Companions	Halloween Spooktac...
Fido's Friends	Halloween Spooktac...
Animal Alliance	Halloween Spooktac...
Critter Haven	Halloween Spooktac...
The Barking Lot	Halloween Spooktac...
Whisker City	Halloween Spooktac...
Tail Waggers Unleashed	Halloween Spooktac...
Second Chance Animal Rescue	Halloween Spooktac...
Furever Home Animal Sanctuary	Halloween Spooktac...
Happy Paws	Halloween Spooktac...
Purrfect Companions	Yappy Hour Adoptio...
Fido's Friends	Yappy Hour Adoptio...
Animal Alliance	Yappy Hour Adoptio...
Critter Haven	Yappy Hour Adoptio...

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

```
396 •  SELECT Shelters.Name AS ShelterName, COUNT(*) AS TotalAdoptedPets
397    FROM Shelters
398    JOIN Pets ON Shelters.ShelterID = Pets.ShelterID
399    JOIN Adoption ON Pets.PetID = Adoption.PetID
400    GROUP BY Shelters.ShelterID
401    ORDER BY TotalAdoptedPets DESC
402    LIMIT 1;
```