Coding Challenges 1 - PetPals, The Pet Adoption Platform

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

CREATE TABLE Pets (
    PetID int primary key,
    Name varchar(50),
    Age int,
    Breed varchar(50),
    Type varchar(50),
    AvailableForAdoption bit
);

CREATE TABLE Shelters (
    ShelterID int primary key,
    Name varchar(50),
    Location varchar(50)
);

CREATE TABLE Donations (
    DonationID int primary key,
    DonorName varchar(50),
    DonationType varchar(50),
    DonationAmount DECIMAL(10, 2),
    DonationItem varchar(50),
    DonationDate datetime
);

CREATE TABLE AdoptionEvents (
    EventID int primary key,
    EventName varchar(50),
    EventDate DATETIME,
    Location varchar(50)
);

CREATE TABLE Participants (
    ParticipantID int primary key,
    ParticipantName varchar(50),
    ParticipantType varchar(50),
    EventID int,
    FOREIGN KEY (EventID) REFERENCES AdoptionEvents(EventID)
);
```

INSERT INTO Pets (PetID, Name, Age, Breed, Type, AvailableForAdoption) VALUES
    (1, 'Buddy', 3, 'Labrador Retriever', 'Dog', 1),
    (2, 'Whiskers', 5, 'Siamese', 'Cat', 1),
    (3, 'Max', 2, 'Golden Retriever', 'Dog', 0),
    (4, 'Fluffy', 4, 'Persian', 'Cat', 1),
    (5, 'Rocky', 1, 'German Shepherd', 'Dog', 1);
INSERT INTO Shelters (ShelterID, Name, Location) VALUES
    (1, 'Happy Paws Shelter', 'India'),
    (2, 'Safe Haven Pet Rescue', 'US'),
    (3, 'Rescue Me Shelter', 'Germany'),
    (4, 'Forever Friends Animal Shelter', 'Japan'),
    (5, 'Paws and Claws Rescue Center', 'Russia');
INSERT INTO Donations (DonationID, DonorName, DonationType, DonationAmount, DonationItem, DonationDate) VALUES
    (1, 'John Smith', 'Cash', 100.00, NULL, '2024-04-15 10:00:00'),
    (2, 'Jane Doe', 'Item', NULL, 'Dog Food', '2024-04-20 15:30:00'),
    (3, 'Alice Johnson', 'Cash', 50.00, NULL, '2024-04-25 12:45:00'),
    (4, 'Bob Thompson', 'Item', NULL, 'Cat Toys', '2024-04-28 09:00:00'),
    (5, 'Emily Brown', 'Cash', 75.00, NULL, '2024-05-01 14:00:00');
INSERT INTO AdoptionEvents (EventID, EventName, EventDate, Location) VALUES
    (1, 'Spring Adoption Fair', '2024-04-30 11:00:00', 'City Park Pavilion'),
    (2, 'Summer Pet Adoption Event', '2024-06-15 12:00:00', 'Community Center'),
    (3, 'Fall Fur Fest', '2024-09-20 10:30:00', 'Downtown Square'),
    (4, 'Holiday Adoption Drive', '2024-12-10 09:00:00', 'Mall Parking Lot'),
    (5, 'Year-End Adoption Celebration', '2024-12-31 14:00:00', 'Animal Shelter');
INSERT INTO Participants (ParticipantID, ParticipantName, ParticipantType, EventID) VALUES
    (1, 'Happy Paws Shelter', 'Shelter', 4),
    (2, 'Safe Haven Pet Rescue', 'Shelter', 5),
    (3, 'Rescue Me Shelter', 'Shelter', 2),
    (4, 'Forever Friends Animal Shelter', 'Shelter', 1),
    (5, 'Paws and Claws Rescue Center', 'Shelter', 3);

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 *from Pets where AvailableForAdoption = 1;

PetID	Name	Age	Breed	Type	AvailableForAdoption
1	Buddy	3	Labrador Retriever	Dog	1
2	Whiskers	5	Siamese	Cat	1
4	Fluffy	4	Persian	Cat	1
5	Rocky	1	German Shepherd	Dog	1
NULL	NULL	NULL	NULL	NULL	NULL

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 ParticipantName, ParticipantType from Participants p, AdoptionEvents a where p.EventID = a.EventID;

	ParticipantName	ParticipantType
▶	Happy Paws Shelter	Shelter
	Safe Haven Pet Rescue	Shelter
	Rescue Me Shelter	Shelter
	Forever Friends Animal Shelter	Shelter
	Paws and Claws Rescue Center	Shelter

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.**

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 Name, sum(DonationAmount) from Shelters s, Donations d where s.ShelterID=d.DonationID group by Name;

	Name	sum(DonationAmount)
▶	Happy Paws Shelter	100.00
	Safe Haven Pet Rescue	NULL
	Rescue Me Shelter	50.00
	Forever Friends Animal Shelter	NULL
	Paws and Claws Rescue Center	75.00

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**.

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 DonationDate, sum(DonationAmount) as Total_Amount from Donations group by DonationDate order by DonationDate;

	DonationDate	Total_Amount
▶	2024-04-15 10:00:00	100.00
	2024-04-20 15:30:00	NULL
	2024-04-25 12:45:00	50.00
	2024-04-28 09:00:00	NULL
	2024-05-01 14:00:00	75.00

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

    select distinct Breed,Age from Pets where Age between 1 AND 3 or Age > 5;

	Breed	Age
▶	Labrador Retriever	3
	Golden Retriever	2
	German Shepherd	1

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

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

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

select distinct Breed, Age from Pets where Age between 1 and 5;

	Breed	age
▶	Labrador Retriever	3
	Siamese	5
	Golden Retriever	2
	Persian	4
	German Shepherd	1

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

select Name, DonorName from pets p join Donation d on p.PetID=D.DonationID where DonorName IS NULL;

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

SELECT Name, EventName from AdoptionEvent a JOIN Pets p ON a.EventID = p.PetID where p.AvailableForAdoption = 0;

17. Retrieve a list of all shelters along with the count of pets currently available for adoption in each shelter.
SELECT ShelterID, Name,Location, COUNT(PetID) FROM Shelters s JOIN Pets p ON s.ShelterID = p.PetID AND p.AvailableForAdoption = 1 GROUP BY s.ShelterID, s.Name, s.Location;

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

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

SELECT ShelterID, Name, EventID, EventName from Shelters s FULL JOIN on AdoptionEvents e where s.ShelterID=e.EventID;

20. Determine the shelter that has the highest number of adopted pets.
select ShelterID,Name,max(Number_Pets) from Shelters s LEFT JOIN AdoptionEvents a ON s.ShelterID =a.EventID AND a.AdoptionStatus = 'Adopted' GROUP BY s.ShelterID, s.Name ORDER BY AdoptedPetsCount DESC LIMIT 1;