# DBMS - Mini Project

# Pet Management System

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# Short  Description and Scope of the Project

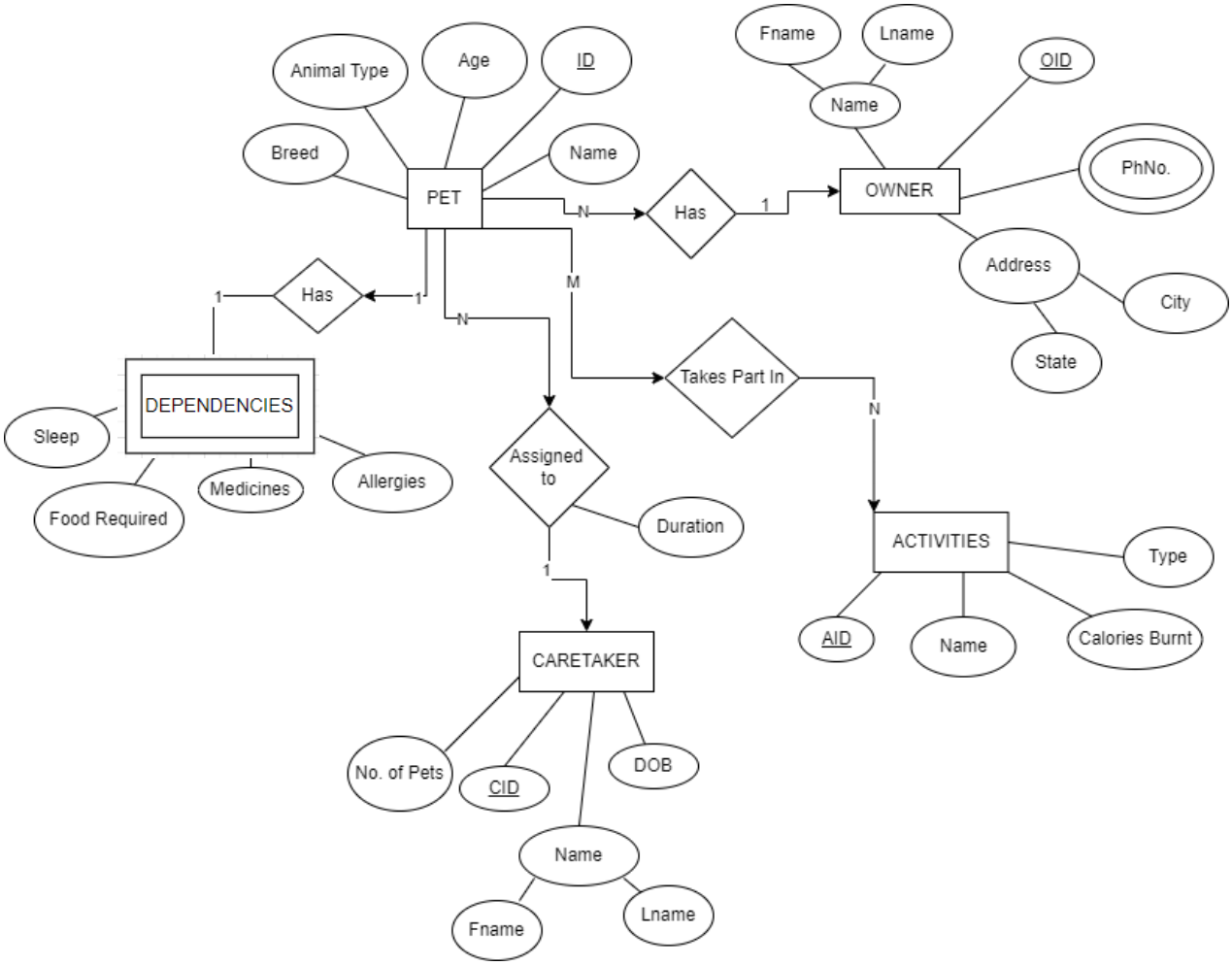
Pet lovers often face the dilemma of having to leave their furry friends home alone or under the care of neighbors/friends when going for a holiday. During this time, pets tend to feel lonely and abandoned if not given proper care. They need timely food, water, medicines in case of allergies and the right amount of exercise and sleep. Hence, the pet management system comes of immense use in these cases.

The database consists of the following tables:

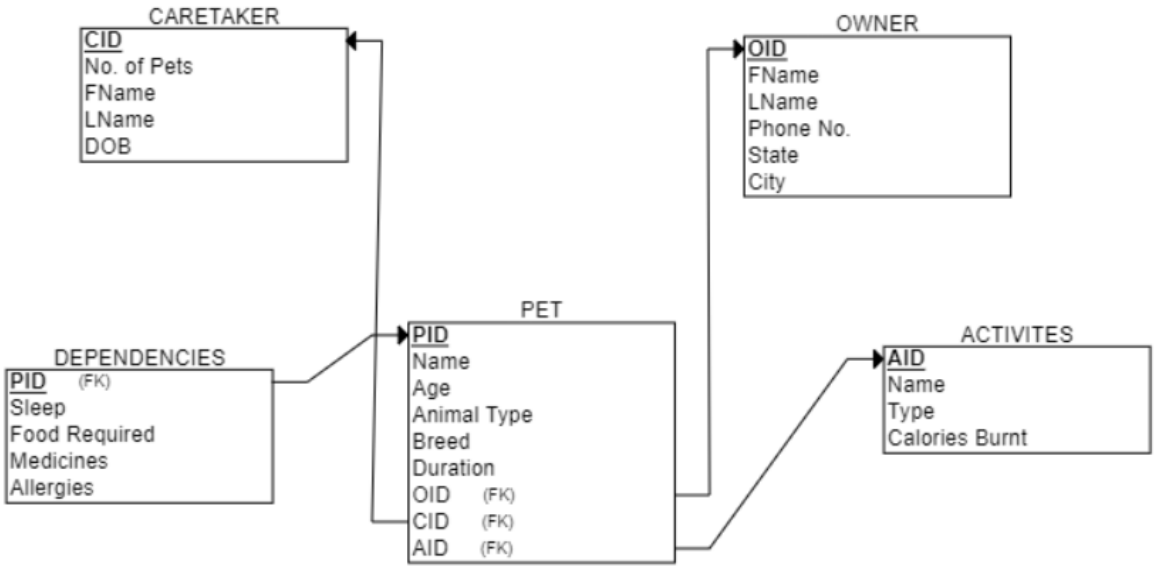
- Owner Table: Contains owner contact info. Each owner can have multiple pets.
- Caretaker Table: Contains information of the designated caretakers in the pet daycare center. Each caretaker can handle more than one pet.
- Pet Table: Contains the animal type, breed, age, caretaker and owner information, along with the duration of stay of the pet at the daycare center.
- Activities Table: Each pet can take part in numerous activities that the care center has to offer. Each activity has a certain number of calories associated with it. This guarantees that the pet gets adequate amounts of playtime and exercise.
- Dependencies: Lists out the pet's specific food, sleep and medicine requirements. Caretakers have to ensure that the needs of each pet are taken care of.

Thus, this comprehensive database makes sure that pet owners can go on holidays stress-free with their pets in safe hands. After all, a man's best friend deserves only the best!

# ER Diagram


Animal Type
Age
ID
Breed
Name
PET
Has
1
N
OWNER
Fname
Lname
Name
OID
PhNo.
Address
City
State
Has
1
1
N
M
DEPENDENCIES
Sleep
Food Required
Medicines
Allergies
Assigned to
Duration
1
Takes Part In
N
ACTIVITIES
Type
AID
Name
Calories Burnt
CARETAKER
No. of Pets
CID
DOB
Name
Fname
Lname

# Relational Schema



## DDL statements - Building the database

```
--OWNER
CREATE TABLE owner
(
  oid VARCHAR(10) NOT NULL,
  fname VARCHAR(20),
  lname VARCHAR(20),
  ph_no INT,
  state VARCHAR(20),
  city VARCHAR(20),
  PRIMARY KEY (oid)
);

--ACTIVITIES
CREATE TABLE activities
(
  aid VARCHAR(10) NOT NULL,
  name VARCHAR(20),
  type VARCHAR(20),
  calories_burnt FLOAT,
  PRIMARY KEY (aid)
);

--CARETAKER
CREATE TABLE caretaker
(
  cid VARCHAR(10) NOT NULL,
  fname VARCHAR(20),
  lname VARCHAR(20),
  ph_no INT,
  age INT,
  PRIMARY KEY (cid)
);

--PET
CREATE TABLE pet
(
  pid VARCHAR(10) NOT NULL,
  name VARCHAR(20),
  animal_type VARCHAR(10),
  age INT,
  breed VARCHAR(10),
  duration INT,
  oid VARCHAR(10) NOT NULL,
  cid VARCHAR(10) NOT NULL,
  aid VARCHAR(10) NOT NULL,
```

```
  PRIMARY KEY (pid),
  FOREIGN KEY (oid) REFERENCES owner(oid),
  FOREIGN KEY (cid) REFERENCES caretaker(cid),
  FOREIGN KEY (aid) REFERENCES activities(aid)
);

--DEPENDENCIES
CREATE TABLE dependencies
(
  pid VARCHAR(10) NOT NULL,
  sleep FLOAT,
  food_required VARCHAR(20),
  medicines VARCHAR(20),
  allergies VARCHAR(20),
  PRIMARY KEY (pid),
  FOREIGN KEY (pid) REFERENCES pet(pid)
);
```

```
MariaDB [pet_management]> show tables;
+--------------------------+
| Tables_in_pet_management |
+--------------------------+
| activities               |
| caretaker                |
| dependencies             |
| owner                    |
| pet                      |
```

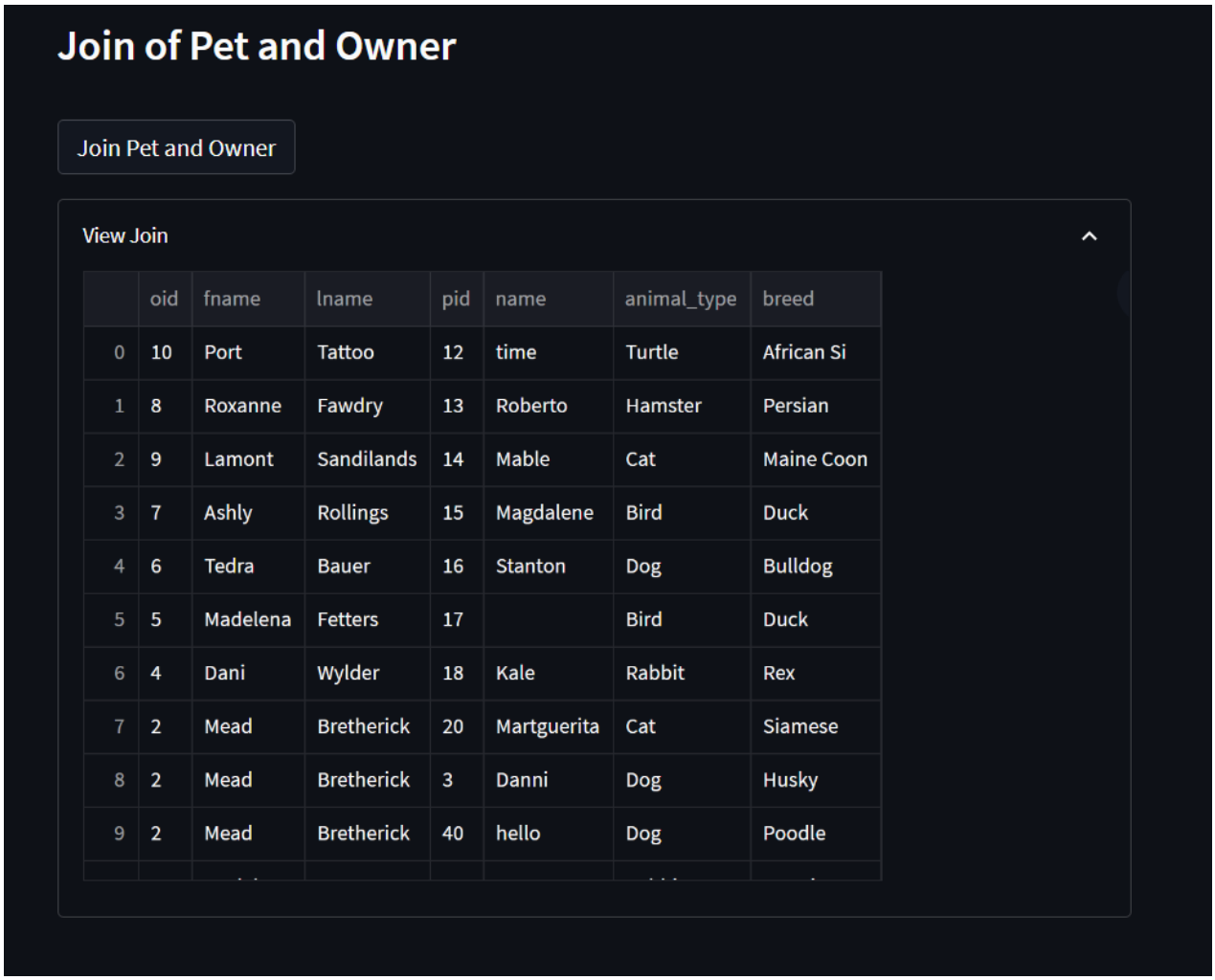
## Populating the Database

```
--OWNER
LOAD DATA LOCAL INFILE 'D:/Data/Mini Projects/SEM 5/DBMS/owner.csv'
INTO TABLE pet_management.owner
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;

--ACTIVITES
LOAD DATA LOCAL INFILE 'D:/Data/Mini Projects/SEM 5/DBMS/activities.csv'
INTO TABLE pet_management.activities
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;

--CARETAKER
LOAD DATA LOCAL INFILE 'D:/Data/Mini Projects/SEM 5/DBMS/caretaker.csv'
INTO TABLE pet_management.caretaker
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;

--PET
LOAD DATA LOCAL INFILE 'D:/Data/Mini Projects/SEM 5/DBMS/pet.csv'
INTO TABLE pet_management.pet
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;

--DEPENDENCIES
LOAD DATA LOCAL INFILE 'D:/Data/Mini Projects/SEM 5/DBMS/dependencies.csv'
INTO TABLE pet_management.dependencies
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;
```

# Join Queries

Join of Pet table and Owner table based on OID (Owner ID).

```
select
owner.oid,owner.fname,owner.lname,pet.pid,pet.name,pet.animal_type,pet.breed from
pet inner join owner on pet.oid=owner.oid;
```




| | oid | fname | lname | pid | name | animal_type | breed |
|---|---|---|---|---|---|---|---|
| 0 | 10 | Port | Tattoo | 12 | time | Turtle | African Si |
| 1 | 8 | Roxanne | Fawdry | 13 | Roberto | Hamster | Persian |
| 2 | 9 | Lamont | Sandilands | 14 | Mable | Cat | Maine Coon |
| 3 | 7 | Ashly | Rollings | 15 | Magdalene | Bird | Duck |
| 4 | 6 | Tedra | Bauer | 16 | Stanton | Dog | Bulldog |
| 5 | 5 | Madelena | Fetters | 17 | | Bird | Duck |
| 6 | 4 | Dani | Wylder | 18 | Kale | Rabbit | Rex |
| 7 | 2 | Mead | Bretherick | 20 | Martguerita | Cat | Siamese |
| 8 | 2 | Mead | Bretherick | 3 | Danni | Dog | Husky |
| 9 | 2 | Mead | Bretherick | 40 | hello | Dog | Poodle |

## Aggregate Functions

Number of pets that are under each caretaker:

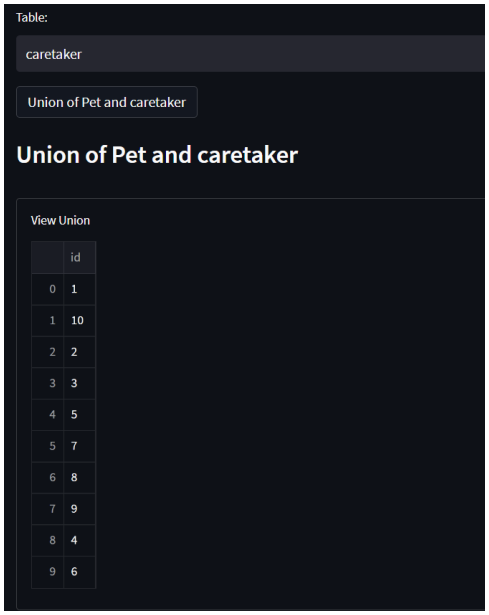
```
SELECT caretaker.cid,caretaker.fname,caretaker.lname, COUNT(caretaker.cid) AS
NumberOfAnimals FROM pet
LEFT JOIN caretaker ON pet.cid = caretaker.cid
GROUP BY cid;
```


| | cid | fname | lname | NumberOfAnimals |
|---|---|---|---|---|
| 0 | 1 | Reinhard | Measor | 3 |
| 1 | 10 | Tracey | Chidler | 1 |
| 2 | 2 | Arlena | Fearey | 3 |
| 3 | 3 | Crissy | Hayne | 2 |
| 4 | 5 | Jethro | Dubery | 1 |
| 5 | 7 | Dwayne | Lingley | 1 |
| 6 | 8 | Juliet | Risborough | 2 |
| 7 | 9 | Frankie | Allnutt | 1 |

# Set Operations

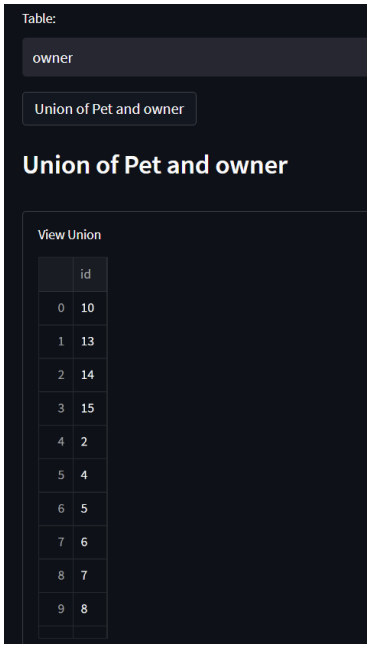
Union of Pet and Caretaker

```
select cid from pet
UNION
select cid from caretaker;
```



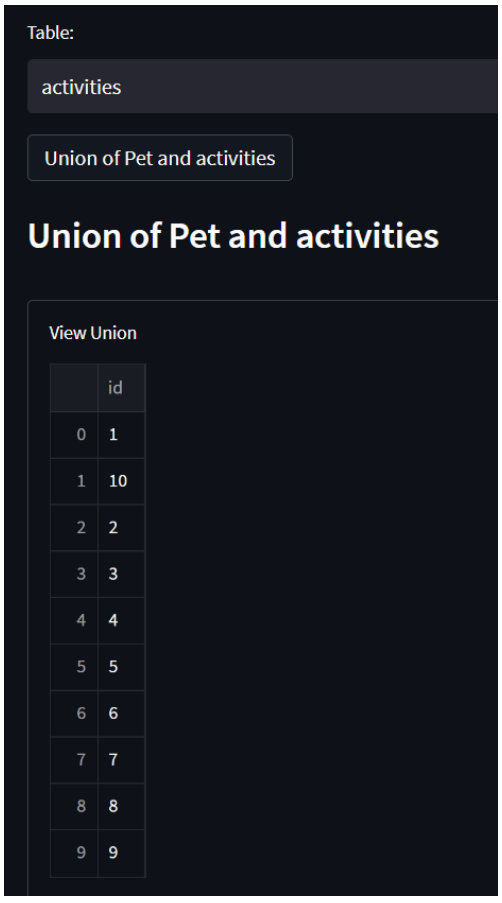

Union of Pet and Owner

```
select oid from pet
union
select oid from owner;
```




Union of Pet and Activities

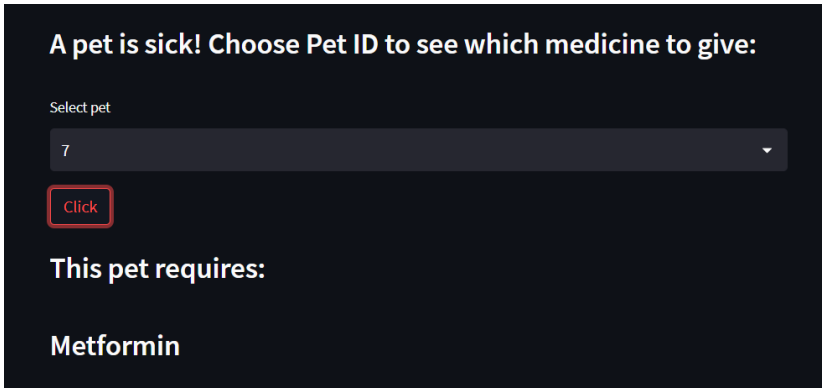
```sql
select aid from pet
UNION
select aid from activities;
```



# Functions and Procedures

Function: Display medicines required for sick pets.

```
DELIMITER $$
CREATE FUNCTION sick_pet (pid INT)
RETURNS VARCHAR(20)
BEGIN
DECLARE med VARCHAR(20);
SELECT medicines INTO med from dependencies where dependencies.pid = pid;
RETURN med;
END; $$
DELIMITER ;
```



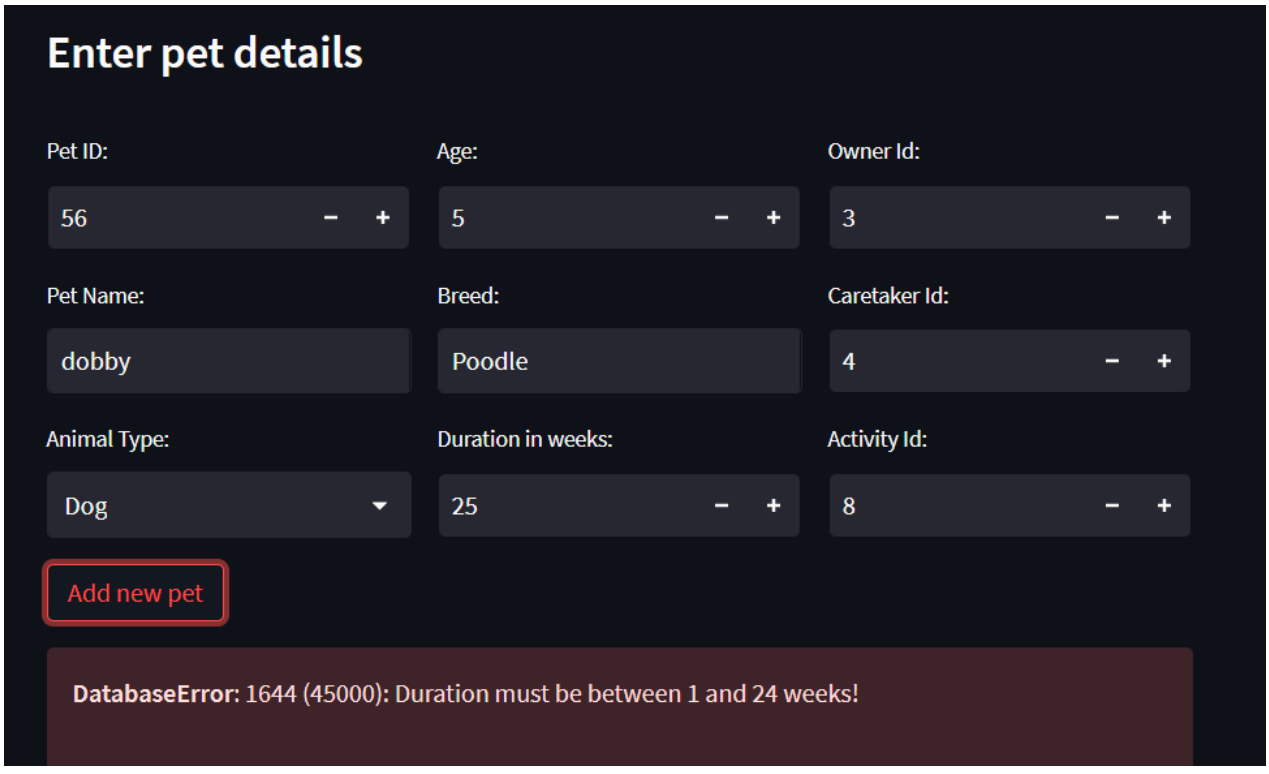

Procedure: If any pet has 2 or less than 2 weeks left, alert the owner that pet has to leave soon.

```
DELIMITER $$
--DROP PROCEDURE IF EXISTS alert_owner$$
CREATE procedure alert_owner(OUT msg VARCHAR(30))
BEGIN
select pid,name,duration,oid from pet where duration<=2;
END;$$
DELIMITER ;
```

# Triggers and Cursors

Trigger:  While adding new pet entry check if duration is within range of 1 to 24 weeks.

```
DELIMITER $$
CREATE TRIGGER add_pet
BEFORE INSERT
ON pet FOR EACH ROW
BEGIN
IF NEW.duration>24  OR NEW.duration<1 THEN
SIGNAL SQLSTATE '45000'
SET MESSAGE_TEXT="Duration must be between 1 and 24 weeks!";
END IF;
END;$$
DELIMITER ;
```

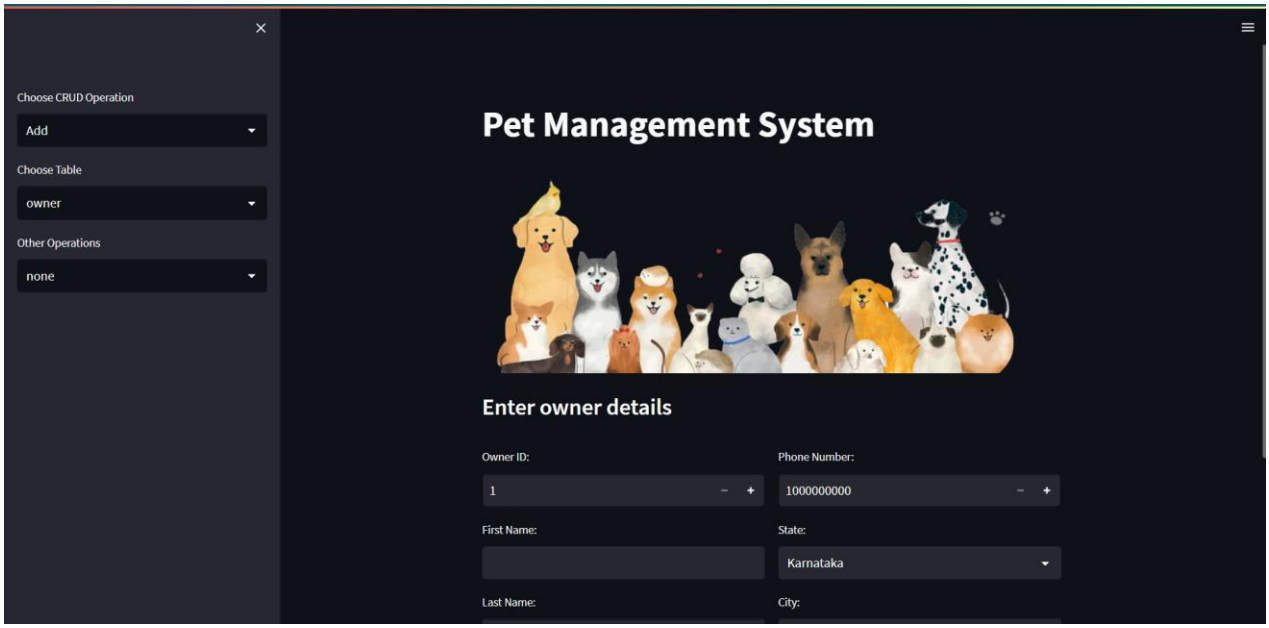


# Developing a Frontend

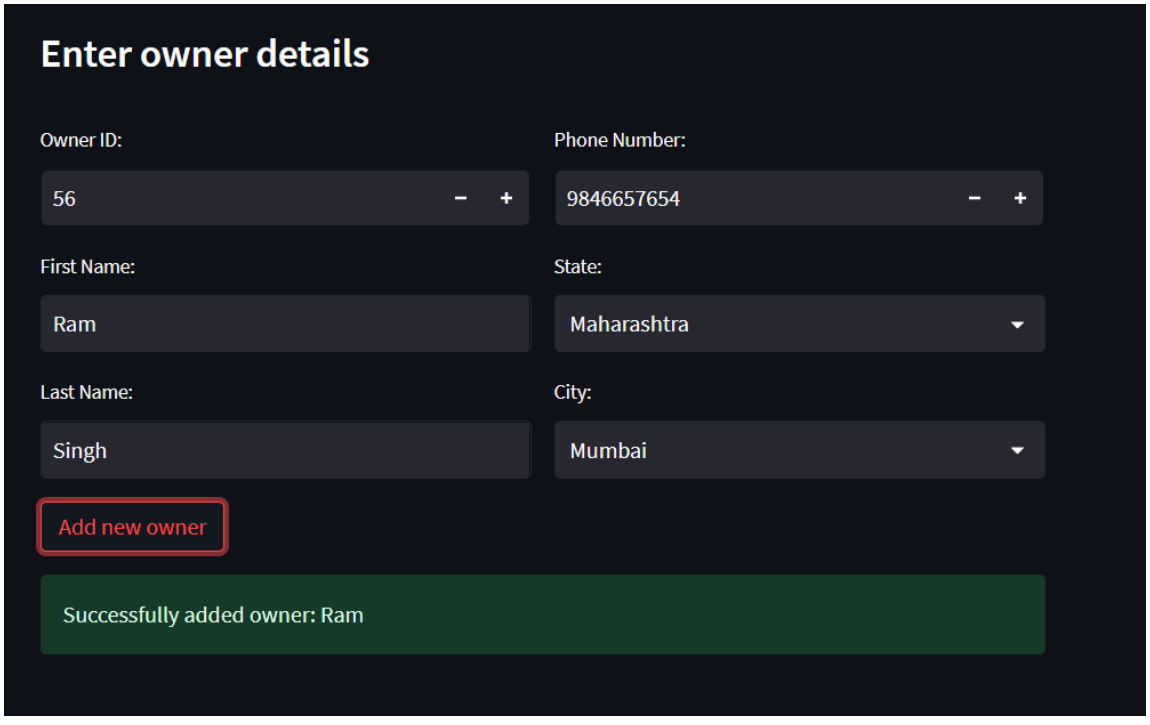
The frontend should support

1. Addition, Modification and Deletion of records from any chosen table
2. There should be a window to accept and run any SQL statement and display the result

FRONTEND:




Insert new owner:

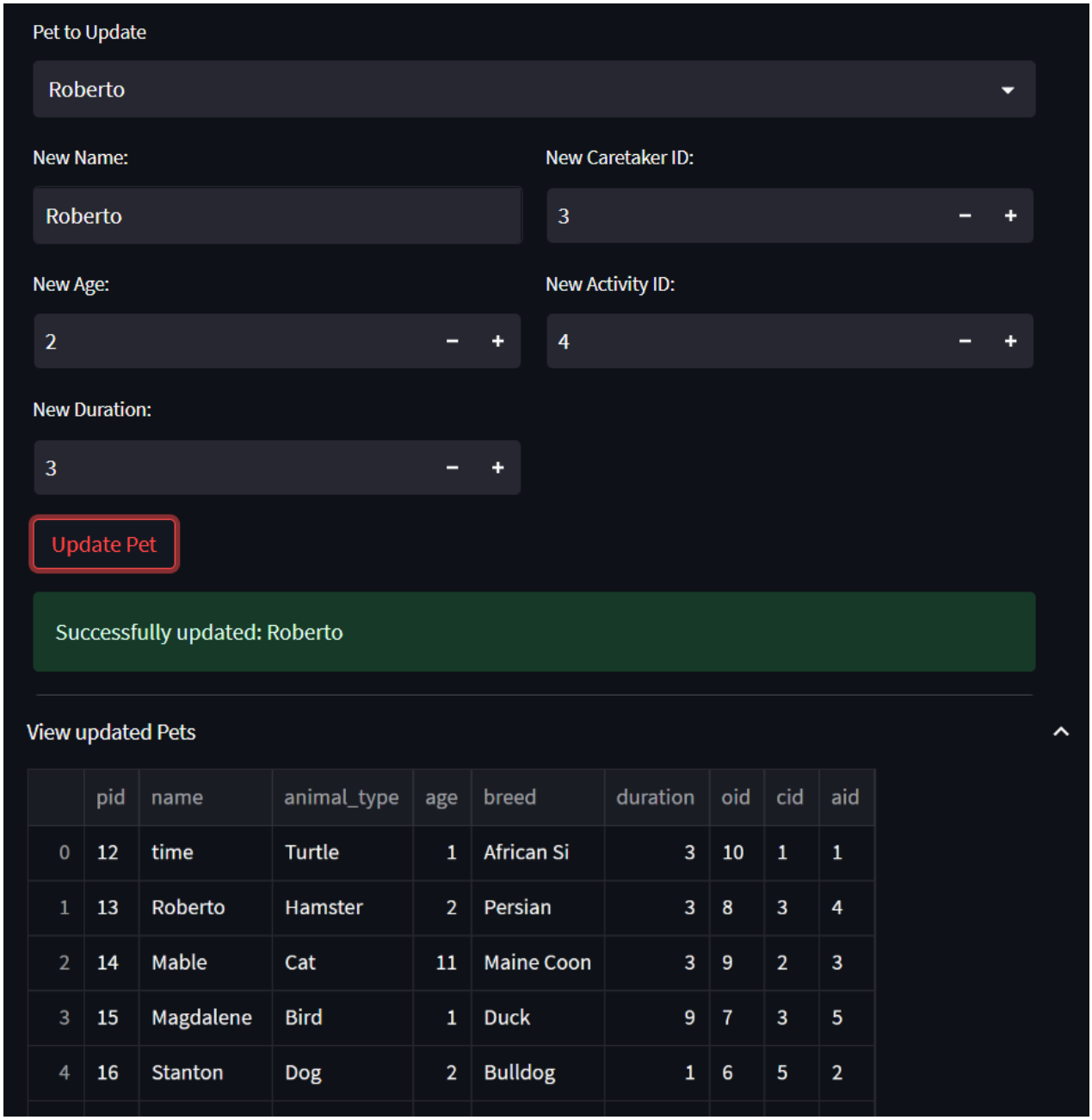


View Pet details:


| | pid | name | animal_type | age | breed | duration | oid | cid | aid |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 12 | time | Turtle | 1 | African Si | 3 | 10 | 1 | 1 |
| 1 | 13 | Roberto | Hamster | 13 | Persian | 4 | 8 | 1 | 1 |
| 2 | 14 | Mable | Cat | 11 | Maine Coon | 3 | 9 | 2 | 3 |
| 3 | 15 | Magdalene | Bird | 1 | Duck | 9 | 7 | 3 | 5 |
| 4 | 16 | Stanton | Dog | 2 | Bulldog | 1 | 6 | 5 | 2 |
| 5 | 17 | | Bird | 1 | Duck | 3 | 5 | 1 | 1 |
| 6 | 18 | Kale | Rabbit | 9 | Rex | 3 | 4 | 2 | 7 |
| 7 | 20 | Martguerita | Cat | 7 | Siamese | 10 | 2 | 8 | 8 |
| 8 | 3 | Danni | Dog | 7 | Husky | 6 | 2 | 3 | 4 |
| 9 | 40 | hello | Dog | 2 | Poodle | 67 | 2 | 2 | 2 |

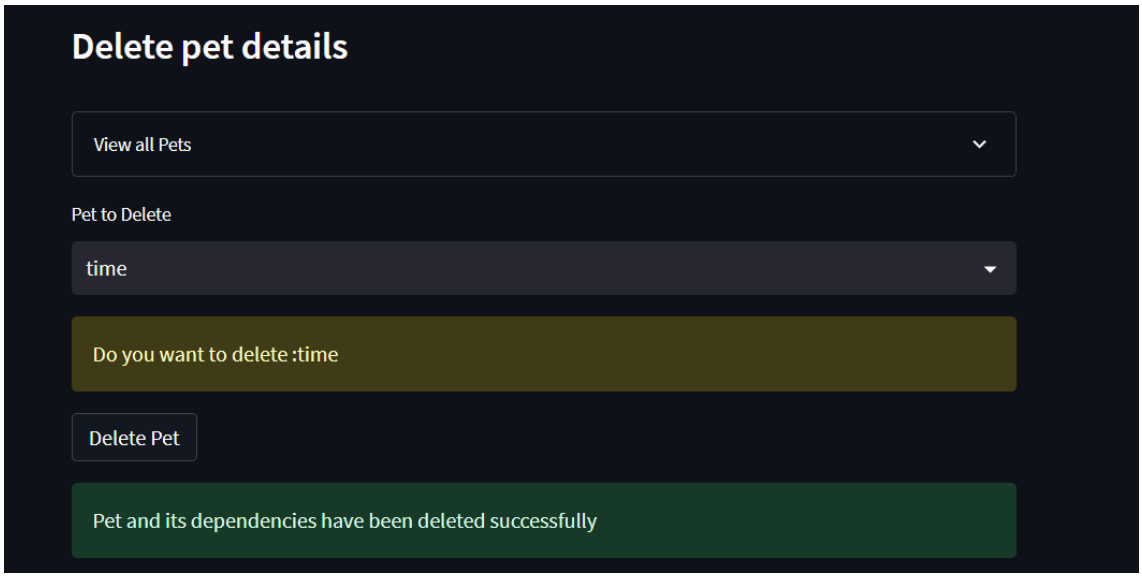

| | index | animal_type |
|---|---|---|
| 0 | Dog | 4 |
| 1 | Cat | 3 |
| 2 | Bird | 3 |
| 3 | Rabbit | 2 |
| 4 | Turtle | 1 |
| 5 | Hamster | 1 |

Update pet:

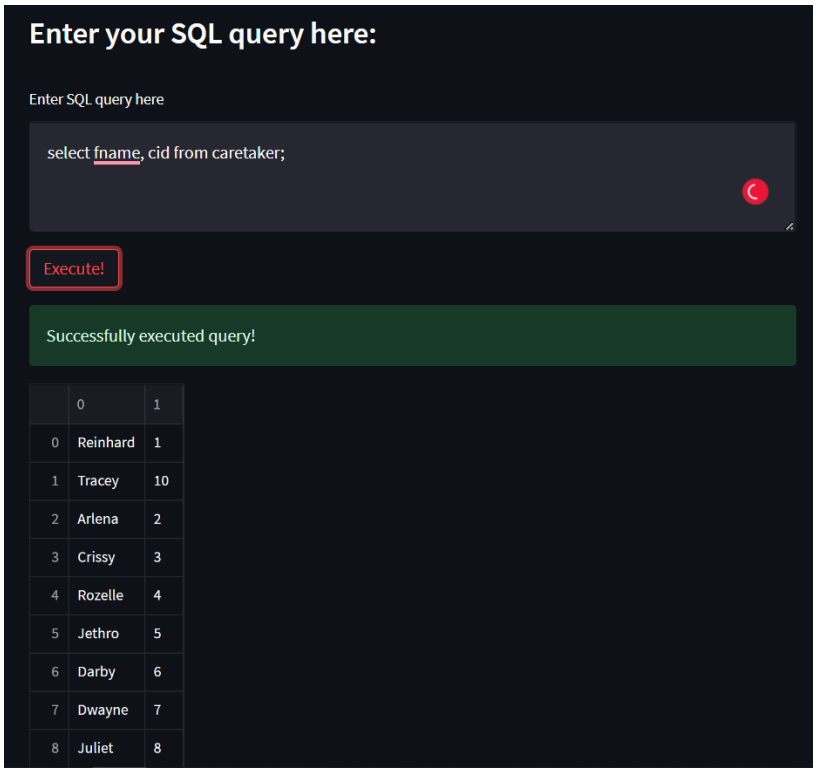



| | pid | name | animal_type | age | breed | duration | oid | cid | aid |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 12 | time | Turtle | 1 | African Si | 3 | 10 | 1 | 1 |
| 1 | 13 | Roberto | Hamster | 2 | Persian | 3 | 8 | 3 | 4 |
| 2 | 14 | Mable | Cat | 11 | Maine Coon | 3 | 9 | 2 | 3 |
| 3 | 15 | Magdalene | Bird | 1 | Duck | 9 | 7 | 3 | 5 |
| 4 | 16 | Stanton | Dog | 2 | Bulldog | 1 | 6 | 5 | 2 |

Delete Pet:




User defined SQL Statement:



# Making Modifications

Modification to be made:
Add a new column ‘Sickness’ in the dependencies table and display Pet Name, Caretaker Name and Medicine if that pet is sick.

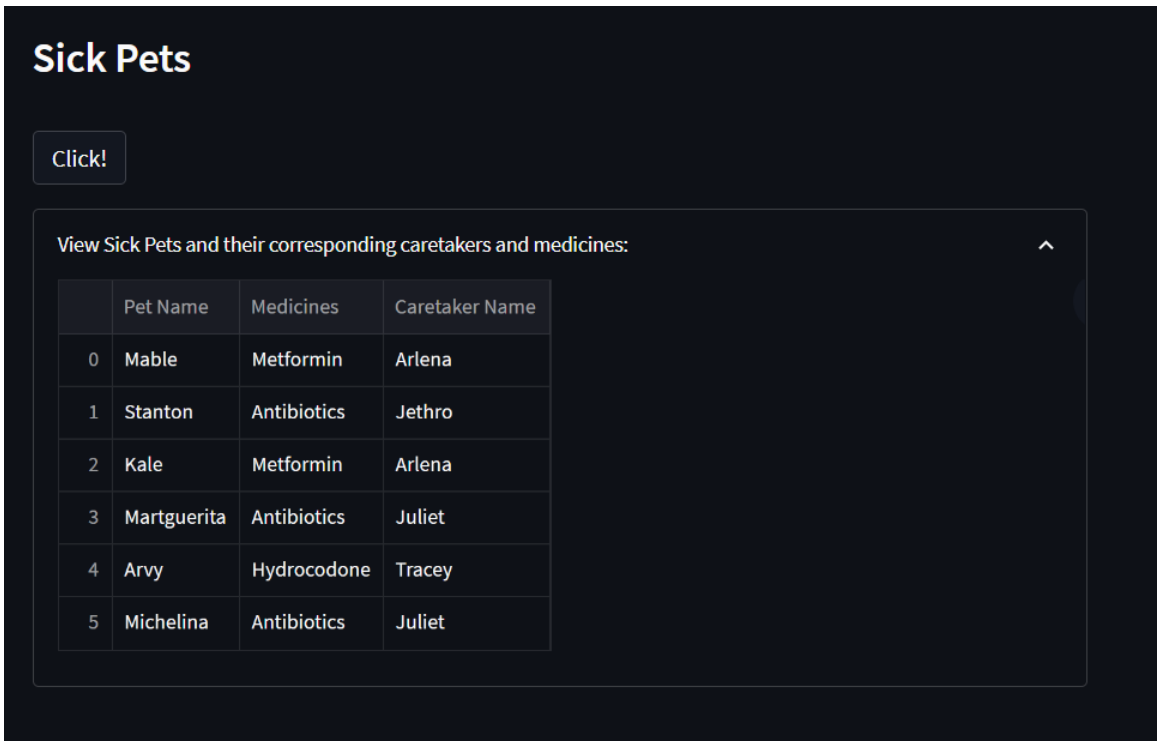
Adding new column ‘sickness’ in Dependenices table:

```
MariaDB [pet_management]> desc dependencies;
+---------------+-------------+------+-----+---------+
| Field         | Type        | Null | Key | Default |
+---------------+-------------+------+-----+---------+
| pid           | varchar(10) | NO   | PRI | NULL    |
| sleep         | float       | YES  |     | NULL    |
| food_required | varchar(20) | YES  |     | NULL    |
| medicines     | varchar(20) | YES  |     | NULL    |
| allergies     | varchar(20) | YES  |     | NULL    |
| sickness      | int(11)     | YES  |     | NULL    |
+---------------+-------------+------+-----+---------+
```

PROCEDURE:

```
delimiter //
DROP PROCEDURE IF EXISTS sick_animal//
create procedure sick_animal()
    begin
    truncate table sick_table;
    insert into sick_table (name,medicines,fname)
    select pet.name, dependencies.medicines, caretaker.fname
    from pet, dependencies,caretaker
    where pet.pid=dependencies.pid and pet.cid=caretaker.cid and
dependencies.sickness=1;
    end //
delimiter ;
```

FRONTEND:


Sick Pets
Click!
View Sick Pets and their corresponding caretakers and medicines:
Pet Name
Medicines
Caretaker Name
0 Mable Metformin Arlena
1 Stanton Antibiotics Jethro
2 Kale Metformin Arlena
3 Martguerita Antibiotics Juliet
4 Arvy Hydrocodone Tracey
5 Michelina Antibiotics Juliet