



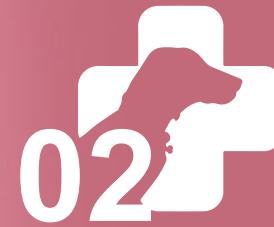
# Happy Pets Hospital

Ewa, Jasmine, Vlada, Urvaksh, Andres

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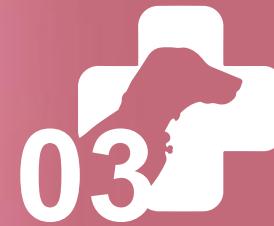


**BACKGROUND & SYSTEMS  
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**E-R MODEL CREATION**

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**RELATIONAL MODEL**

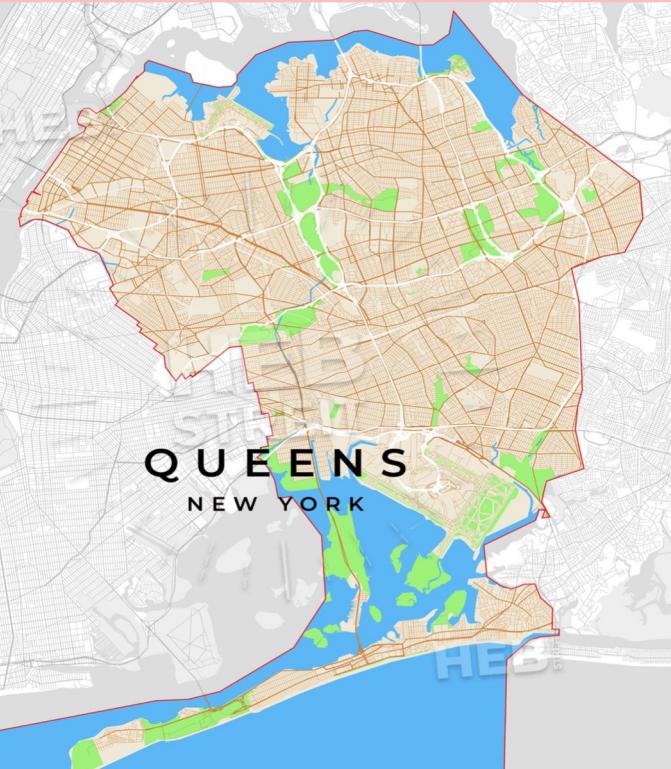
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**DATABASE IMPLEMENTATION**

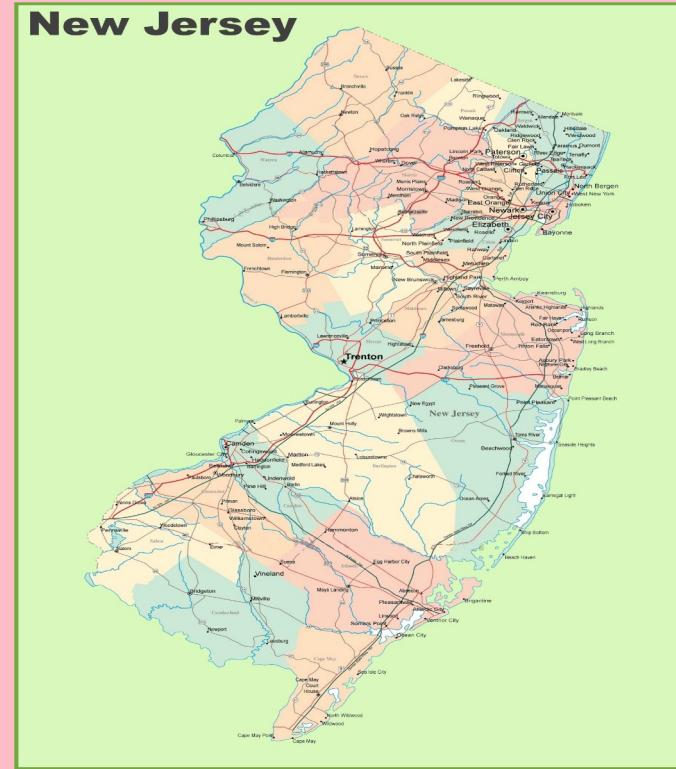
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# Happy Pets Locations



## Queens, NY

For over 20 years, Happy Pets Hospital have served in Forest Hills Queens



## South Bound Brook, NJ

The newest location will expand Happy Pets Hospital to NJ

# Systems Analysis



**Clinic Services:** Dogs, Cats, Birds, and Rabbits



**Two locations:** Queens and New Jersey



Operating for over 20 years



Switching from paper to digital record keeping



There is a need for a database to track records and data



A database will ensure the clinics keep providing the best service for pets

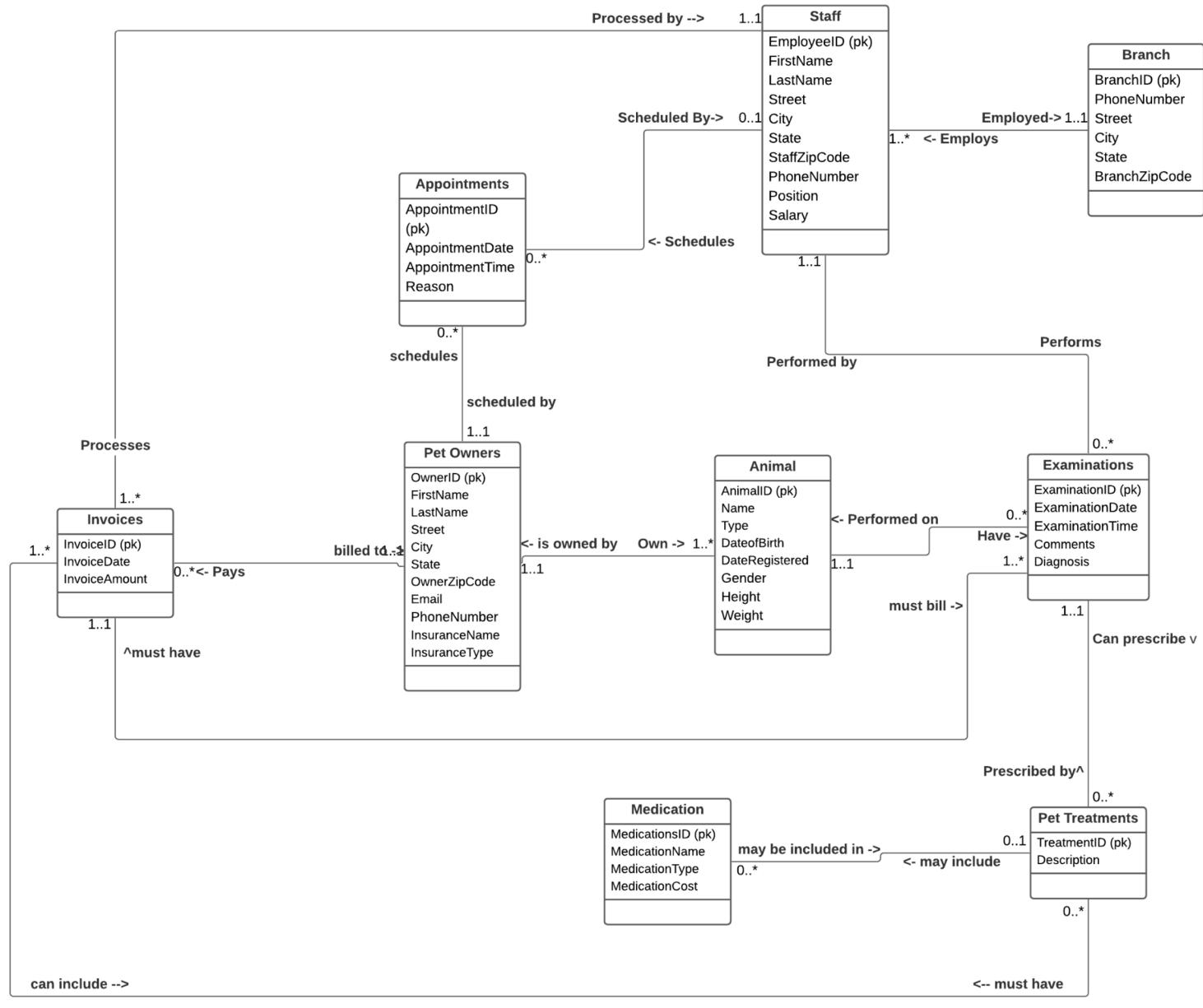
# Entities



## Veterinary Clinic

- Branch
- Staff
- Appointments
- Examinations
- Animal
- Pet Owners
- Invoices
- Medication
- Pet Treatments

**Happy Pets**  
Authors: Ewa, Vlada,  
Jasmine, Andres, Urvaksh



# E-R Diagram



# Multiplicities



One member of **Staff** can be employed at 1 and only 1 **Branch**  
One **Branch** may employ 1 or more members of **Staff**



One member of **Staff** can process 1 or many **Invoices**  
One **Invoice** is processed by 1 and only 1 member of **Staff**



One **Invoice** is billed to 1 and only 1 **Pet Owner**  
One **Pet Owner** can pay 0 or many **Invoices**



One **Pet Owner** can own 1 or many **Animals**  
One **Animal** is owned by 1 and only 1 **Pet Owner**



One **Animal** can have 1 or many **Examinations**  
One **Examination** is performed on 1 or many **Animals**



One **Examination** can prescribe 0 or many **Pet Treatments**  
One **Pet Treatment** is prescribed by 1 and only 1 **Examination**

One **Pet Treatment** may include 1 or many **Medications**  
One **Medication** may be included in 1 **Pet Treatment**



One **Examination** must have 1 and only 1 **Invoice**  
One **Invoice** can be billed to 1 or many **Examinations**



One **Pet Treatment** must have 1 or many **Invoices**  
One **Invoice** can include 0 or many **Pet Treatments**



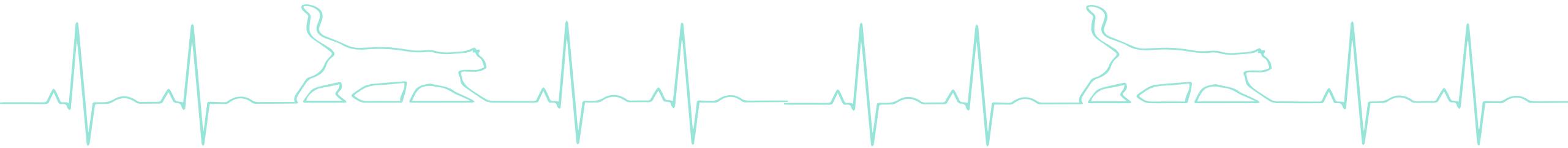
One **Pet Owner** can schedule 0 or many **Appointments**  
One **Appointment** can be scheduled by 0 or 1 **Pet Owner**



One member of **Staff** can schedule 0 or many **Appointments**  
One **Appointment** can be scheduled by 0 or 1 member of **Staff**



One member of **Staff** can perform 0 or many **Examinations**  
One **Examination** is performed by 1 and only one **Staff**



# Relational Model

**Staff** (EmployeeID, BranchID(fk), FirstName, LastName, Street, City, State, StaffZipCode, PhoneNumber, Position, Salary))

**Branch** (BranchID, PhoneNumber, Street, City, State, BranchZipCode)

**Animal** (AnimalID, OwnerID(fk), Name, Type, DateofBirth, DateRegistered, Gender, Height, Weight)

**Pet Owners** (OwnerID, FirstName, LastName, Street, City, State, OwnerZipCode, Email, PhoneNumber, InsuranceName, InsuranceType)

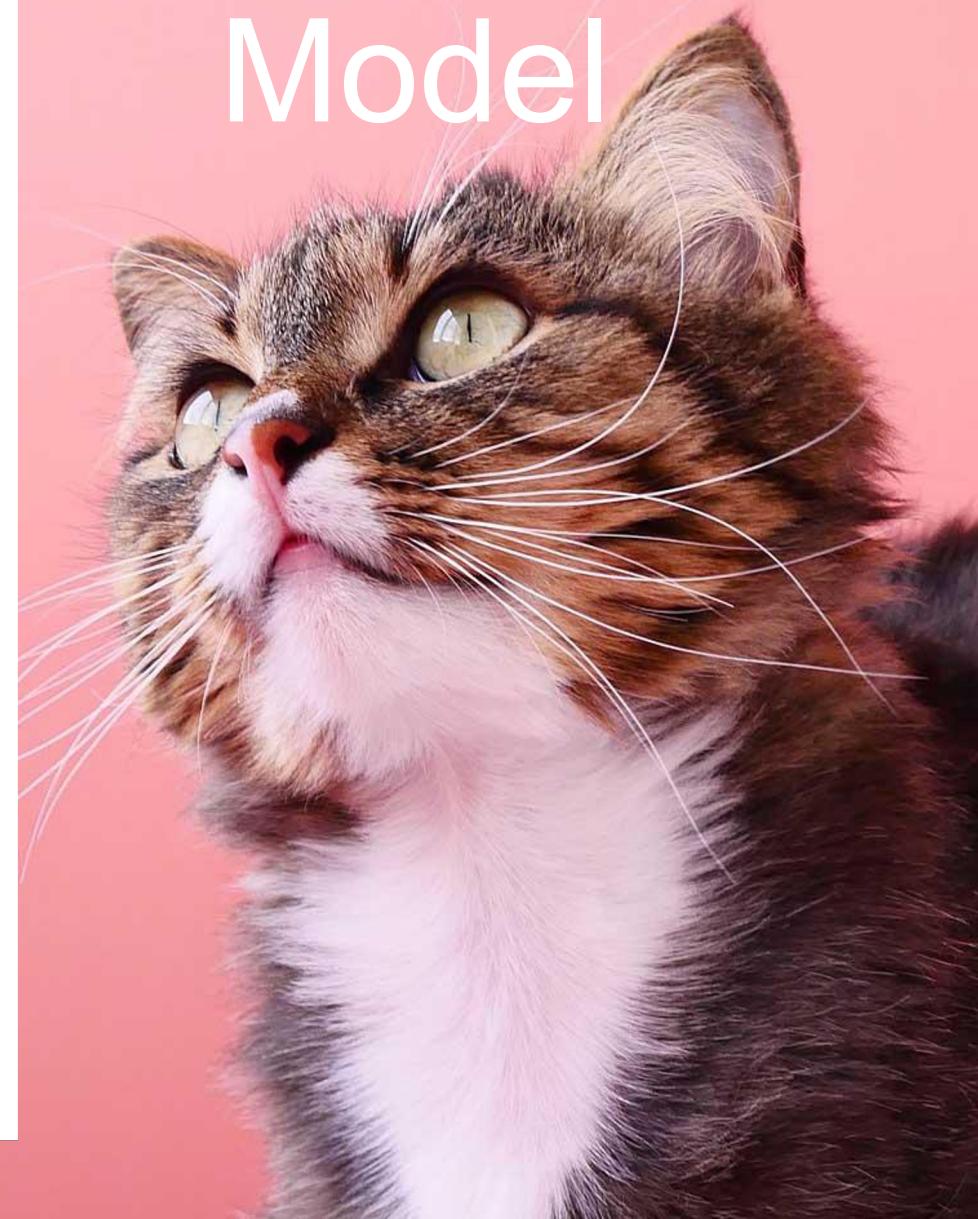
**Appointments** (AppointmentID, OwnerID(fk), AnimalID(fk), EmployeeID(fk), AppointmentDate, AppointmentTime, Reason)

**Invoices** (InvoiceID, OwnerID(fk), EmployeeID(fk), InvoiceDate, InvoiceAmount)

**Examinations** (ExaminationID, EmployeeID(fk), AnimalID(fk), InvoiceID(fk), ExaminationDate, ExaminationTime, Comments, Diagnosis)

**Pet Treatments** (TreatmentID, ExaminationID(fk), MedicationID(fk), AnimalID(fk), Description)

**Medication** (MedicationID, MedicationName, MedicationType, MedicationCost)



# Normalization Process

**Staff** (EmployeeID, BranchID (fk), FirstName, LastName, Street, City, State, StaffZipCode, PhoneNumber, Position, Salary)

**Key:** EmployeeID

**Functional Dependency 1:**  
 $\text{EmployeeID} \rightarrow \text{FirstName}, \text{LastName}, \text{Street}, \text{City}, \text{State}, \text{StaffZipCode}, \text{Country}, \text{PhoneNumber}, \text{Position}, \text{Salary}$ , BranchID

**Functional Dependency 2:**  
StaffZipCode → City, State

**Functional Dependency 3:**  
Position → Salary

Normalized Relations:

**Staff\_Info** (EmployeeID, BranchID(fk), Position(fk), StaffZipCode(fk), FirstName, LastName, Street, PhoneNumber)

**StaffZip** (StaffZipCode, City, State)

**Job Description** (Position, Salary)

**Branch** (BranchID,  
PhoneNumber, Street, City, State, BranchZipCode)

**Key:** BranchID

**Functional Dependency 1:**  
 $\text{BranchID} \rightarrow \text{PhoneNumber}, \text{Street}, \text{City}, \text{State}, \text{BranchZipCode}$

**Functional Dependency 2:**  
 $\text{BranchZipCode} \rightarrow \text{City}, \text{State}$

Normalized Relations:

**Branch\_Info** (BranchID, Zipcode(fk), PhoneNumber, Street)  
**BranchZip** (BranchZipCode, City, State)

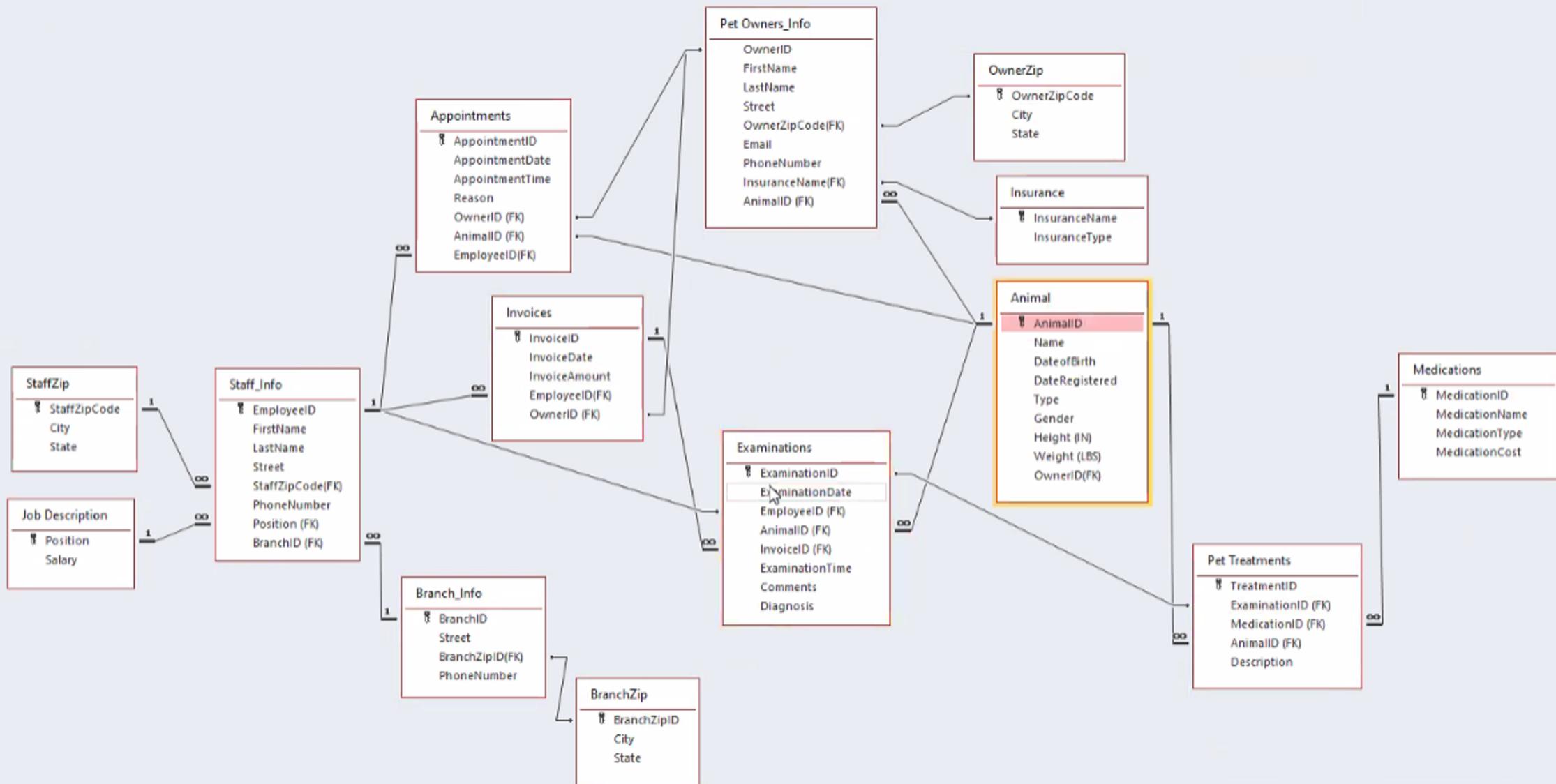
**Pet Owners** (OwnerID, FirstName, LastName, Street, City, State, OwnerZipCode, Email, PhoneNumber, InsuranceName, InsuranceType)

## Remaining Relations

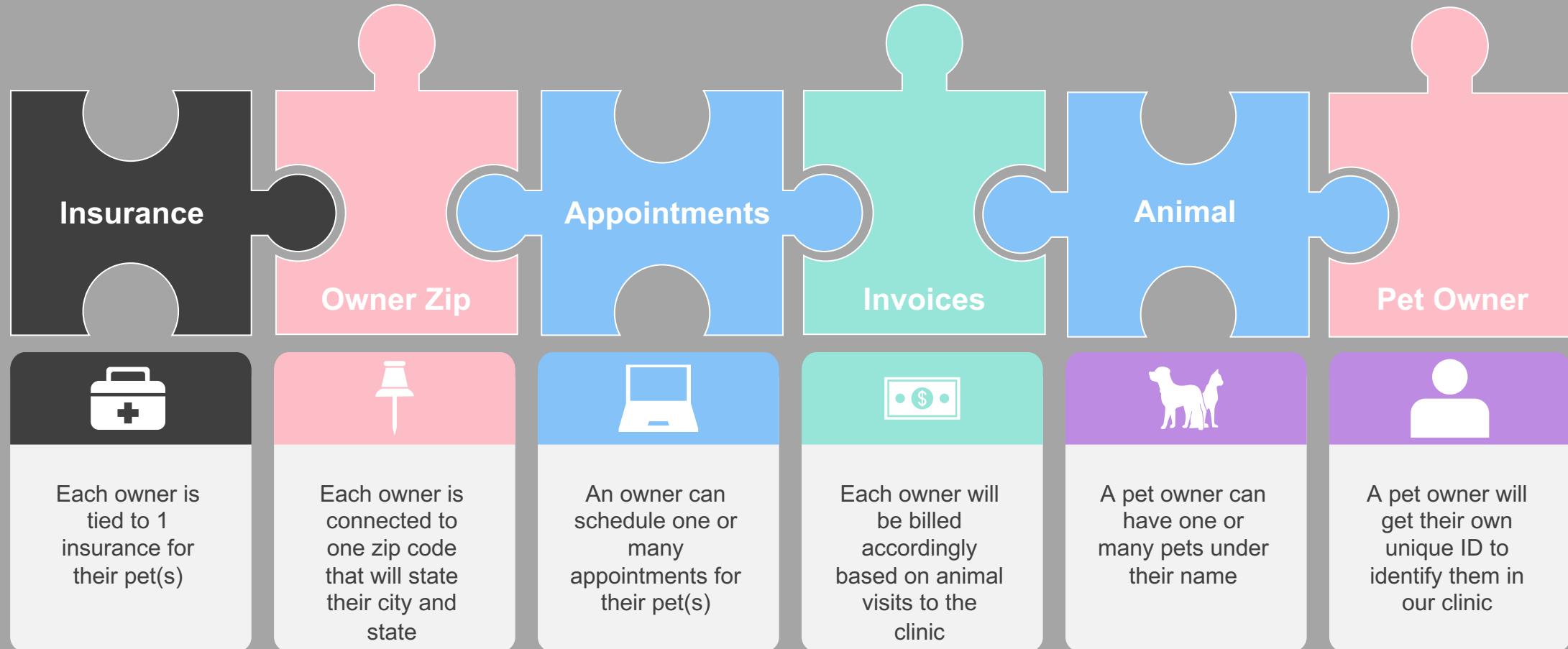
- Animal
- Appointments
- Invoices
- Examinations
- Pet Treatments
- Medication...

are already normalized!





# Pet Owner Relationships in Access





# DDL SQL Queries



## Staff\_Info Table

```
CREATE TABLE Staff_Info
(
    EmployeeID
    VARCHAR(12) NOT NULL,
    FirstName
    VARCHAR(36),
    LastName
    VARCHAR(4),
    CONSTRAINT
    pk_EmployeeID
        PRIMARY KEY
    (EmployeeID)
```

Query 1



## Foreign Keys

```
ALTER TABLE Staff_Info
    ADD CONSTRAINT
    fk_Position
        FOREIGN KEY
    (Position)
        REFERENCES
    Position (Job Description)
```

Query 2



## Inserting Data

```
INSERT INTO Position VALUES
('Receptionist', 35000);
INSERT INTO Position VALUES
('Large Animal Surgeon',
130000);
INSERT INTO Position VALUES
('Patient Care
Assistant', 55000);
INSERT INTO Position VALUES
('Technician', 60000);
INSERT INTO Position VALUES
('Surgery Coordinator',
85000);
```

Query 3

# DML SQL Queries

```
SELECT  
Pet_Owners_Info.OwnerID,  
Pet_Owners_Info.FirstName,  
Pet_Owners_Info.LastName,  
Pet_Owners_Info.Street,  
OwnerZip.City,  
OwnerZip.State,  
OwnerZip.OwnerZipCode  
  
FROM Pet_Owners_Info  
  
INNER JOIN OwnerZip  
  
ON  
Pet_Owners_Info.OwnerZipCo  
de_FK =  
OwnerZip.OwnerZipCode  
  
WHERE State = 'NY'
```

Query 1

```
SELECT  
Staff_Info.EmployeeID,  
Staff_Info.FirstName,  
Staff_Info.LastName,  
Job_Description.Position,  
Job_Description.Salary  
  
FROM Staff_Info  
  
LEFT JOIN Job_Description  
  
ON Staff_Info.Position_FK  
=  
Job_Description.Position  
  
WHERE Salary BETWEEN  
70000 AND 100000  
  
ORDER BY Salary DESC
```

Query 2

```
SELECT an.AnimalID,  
an.Name, an.Type,  
an.Gender,  
a.AppointmentDate,  
a.AppointmentTime,  
a.Reason  
  
FROM Animal an  
  
RIGHT JOIN Appointments  
a  
  
ON an.AnimalID =  
a.AnimalID_FK  
  
WHERE Reason =  
'checkup'
```

Query 3

```
SELECT p.FirstName,  
p.LastName, p.Email,  
i.InvoiceDate,  
i.InvoiceAmount  
  
FROM Pet_Owners_Info p  
  
LEFT JOIN Invoices i  
  
ON p.OwnerID =  
i.OwnerID_FK
```

Query 4

```

SELECT Pet_Owners_Info.FirstName, Pet_Owners_Info.LastName, Animal.Name AS Pet_Name, Animal.Type,
Examinations.Diagnosis, Medication.MedicationType, Pet_Treatments.Description
FROM Medication INNER JOIN
(((Animal INNER JOIN Pet_Owners_Info
ON Animal.AnimalID = Pet_Owners_Info.AnimalID_FK)
INNER JOIN Examinations
ON Animal.AnimalID = Examinations.AnimalID_FK)
INNER JOIN Pet_Treatments
ON Examinations.ExaminationID = Pet_Treatments.ExaminationID_FK AND Animal.AnimalID = Pet_Treatments.AnimalID_FK)
ON Medication.MedicationID = Pet_Treatments.MedicationID_FK;

```

## Query 5

FirstName	LastName	Pet_Name	Type	Diagnosis	MedicationType	Description
Mickey	Larios	Bella	Rabbit	Fever	Antibiotic	Take by mouth once daily for 2 weeks
Chris	Spivey	Max	Dog	Broken bone	Antibiotic	Take by mouth once daily for 2 months
Rosanne	Lowrie	Teddy	Dog	UTI	Antibiotic	Take by mouth twice weekly for 4 months
Evan	Torres	Charlie	Rabbit	Dry Nose	NSAID	Take by mouth twice daily for 3 weeks
Ray	Honet	Oliver	Bird	Open Wound	Antibacterial	Take by mouth once daily for 2 months
Damon	Macht	Luna	Cat	Tooth decay	Antibiotic	Take by mouth once daily for 2 months
Amanda	Roy	Cooper	Cat	Fever	Antibiotic	Take by mouth once daily for 2 weeks
Wesley	Wilkinson	Simba	Cat	Fleas	Antiparasitic	Apply topically. Do not bathe within 24 hours of application
Tim	Chaney	Daisy	Dog	Open Wound	Antibacterial	Take by mouth twice daily for 2 weeks
Brent	Woodley	Sadie	Dog	Fleas	Insecticide	Take by mouth once weekly for 3 months
Kathy	Bloom	Buddy	Dog	Dry Nose	NSAID	Take by mouth once daily for 3 weeks
Kim	Perkins	Bailey	Dog	Fleas	Antiparasitic	Apply topically. Do not bathe within 24 hours of application

# Forms

Pet Owner



Animal Registration



Staff



Pet Owner Form

Pet Owner Contact Information	
OwnerID	C0275
First Name	Joey
Last Name	Cadrin
Street	6632 L Ave
Email	joey.Cadrin@gmail.com
Phone Number	718-241-4709
Insurance Name	ASPCA

New    Save    Close

Animal Registration Form

AnimalID	1025
Name	Spike
Date of Birth	06/20/2019
Date Registered	10/27/2021
Type	Dog
Gender	F
Height (Inches)	23
Weight (Lbs)	60
OwnerID	C0304

Save    Close

Staff Form

Staff	
EmployeeID	S001
FirstName	Darla
LastName	Matthews
Street	7763 North West Court
StaffZipCode_FK	11372
PhoneNumber	646-848-9232
Position_FK	Receptionist
BranchID_FK	B001

New    Save    Close



THANK YOU