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1. Diagram

Owner
- OwnerID INT
- OwnerName VARCHAR(45)
- OwnerPhone VARCHAR(45)
- Indexes

Can Have

Only Has

Pet
- PetID INT
- PetName VARCHAR(45)
- PetBreed VARCHAR(45)
- ColorMarkings VARCHAR(45)
- DateOfBirth DATE
- Gender CHAR(1)
- NeuteredSprayed VARCHAR(20)
- AnimalRecordcol VARCHAR(45)
- Owner_OwnerID INT
- Indexes

Refers To

Can Have

PetVisit
- PetID INT
- VisitID INT
- VisitDate DATE
- VisitWeight DECIMAL(5,2)
- VisitTemp DECIMAL(4,1)
- VisitBP VARCHAR(20)
- VisitPulse INT
- VisitRespiration INT
- VisitPain VARCHAR(45)
- VetInitials CHAR(3)
- FecalExamResult VARCHAR(45)
- FecalExamNotes VARCHAR(200)
- HeartwormTestResult VARCHAR(45)
- HeartwormTestNotes VARCHAR(200)
- AllergyName1 VARCHAR(45)
- AllergyNote1 VARCHAR(200)
- AllergyName2 VARCHAR(45)
- AllergyNotes2 VARCHAR(200)
- HeartwormPreventionFlag VARCHAR(45)
- HearwormPreventionNotes VARCHAR(200)
- PercentOutdoors INT
- DietDescription VARCHAR(200)
- OwnerSigned VARCHAR(45)
- Pet_PetID INT
- Indexes

Refers To

Can Have

PetImmunization
- PetID INT
- ImmunID INT
- VaccineDate DATE
- VaccineType VARCHAR(45)
- VaccineNextDue DATE
- Pet_PetID INT
- Vaccine_VaccineType VARCHAR(45)
- Indexes

Only Has

Appears On

Can Have Many

Refers To

PetSurgery
- PetID INT
- SurgeryID INT
- SurgeryDate DATE
- SurgeryDetails VARCHAR(200)
- SurgeryNotes VARCHAR(200)
- Pet_PetID INT
- Indexes

Vaccine
- VaccineType VARCHAR(45)
- VaccineDescription VARCHAR(200)
- Indexes
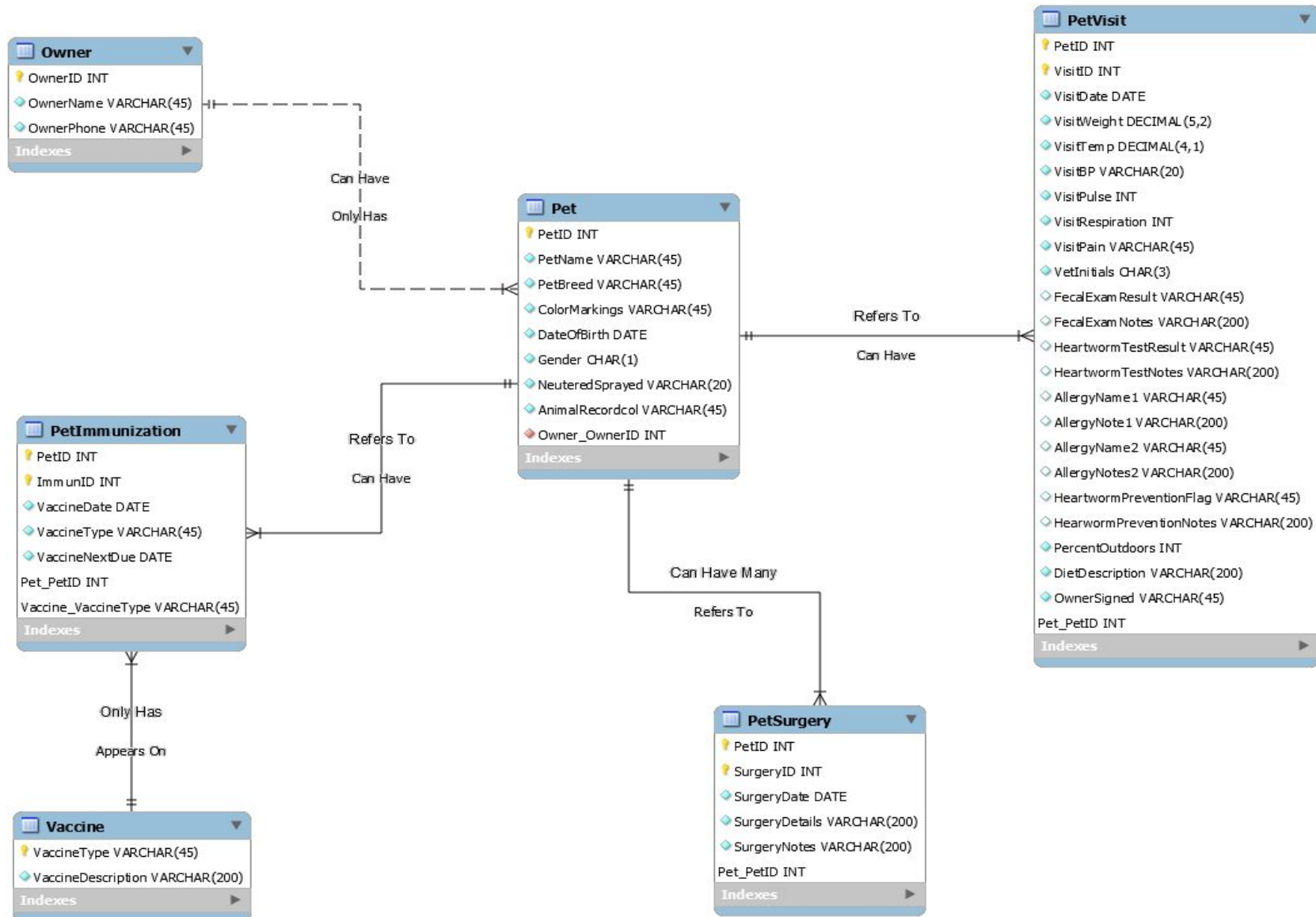
2. DDL

```
-- MySQL Script generated by MySQL Workbench
-- Sun Feb 16 14:57:44 2020
-- Model: New Model    Version: 1.0
-- MySQL Workbench Forward Engineering

SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0;
SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0;
SET @OLD_SQL_MODE=@@SQL_MODE,
SQL_MODE='ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISI
ON_BY_ZERO,NO_ENGINE_SUBSTITUTION';


-- -----------------------------------------------------
-- Schema mydb
-- -----------------------------------------------------


-- -----------------------------------------------------
-- Schema mydb
-- -----------------------------------------------------
CREATE SCHEMA IF NOT EXISTS `mydb` DEFAULT CHARACTER SET utf8 ;
USE `mydb` ;


-- -----------------------------------------------------
-- Table `mydb`.`Owner`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`Owner` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Owner` (
  `OwnerID` INT NOT NULL,
  `OwnerName` VARCHAR(45) NOT NULL,
```

```sql
  `OwnerPhone` VARCHAR(45) NOT NULL,
  PRIMARY KEY (`OwnerID`))
ENGINE = InnoDB;



-- -----------------------------------------------------
-- Table `mydb`.`Pet`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`Pet` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Pet` (
  `PetID` INT NOT NULL,
  `PetName` VARCHAR(45) NOT NULL,
  `PetBreed` VARCHAR(45) NOT NULL,
  `ColorMarkings` VARCHAR(45) NOT NULL,
  `DateOfBirth` DATE NOT NULL,
  `Gender` CHAR(1) NOT NULL,
  `NeuteredSprayed` VARCHAR(20) NOT NULL,
  `AnimalRecordcol` VARCHAR(45) NOT NULL,
  `Owner_OwnerID` INT NOT NULL,
  PRIMARY KEY (`PetID`),
  CONSTRAINT `fk_AnimalRecord_Owner`
    FOREIGN KEY (`Owner_OwnerID`)
    REFERENCES `mydb`.`Owner` (`OwnerID`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;

CREATE INDEX `fk_AnimalRecord_Owner_idx` ON `mydb`.`Pet` (`Owner_OwnerID` ASC) VISIBLE;
```

```sql
-- -----------------------------------------------------
-- Table `mydb`.`PetVisit`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`PetVisit` ;

CREATE TABLE IF NOT EXISTS `mydb`.`PetVisit` (
  `PetID` INT NOT NULL,
  `VisitID` INT NOT NULL,
  `VisitDate` DATE NOT NULL,
  `VisitWeight` DECIMAL(5,2) NOT NULL,
  `VisitTemp` DECIMAL(4,1) NOT NULL,
  `VisitBP` VARCHAR(20) NOT NULL,
  `VisitPulse` INT NOT NULL,
  `VisitRespiration` INT NOT NULL,
  `VisitPain` VARCHAR(45) NOT NULL,
  `VetInitials` CHAR(3) NOT NULL,
  `FecalExamResult` VARCHAR(45) NULL,
  `FecalExamNotes` VARCHAR(200) NULL,
  `HeartwormTestResult` VARCHAR(45) NULL,
  `HeartwormTestNotes` VARCHAR(200) NULL,
  `AllergyName1` VARCHAR(45) NULL,
  `AllergyNote1` VARCHAR(200) NULL,
  `AllergyName2` VARCHAR(45) NULL,
  `AllergyNotes2` VARCHAR(200) NULL,
  `HeartwormPreventionFlag` VARCHAR(45) NULL,
  `HearwormPreventionNotes` VARCHAR(200) NULL,
  `PercentOutdoors` INT NOT NULL,
  `DietDescription` VARCHAR(200) NOT NULL,
  `OwnerSigned` VARCHAR(45) NOT NULL,
  `Pet_PetID` INT NOT NULL,
  PRIMARY KEY (`PetID`, `VisitID`, `Pet_PetID`),
```

```sql
  CONSTRAINT `fk_PetVisit_Pet1`
    FOREIGN KEY (`Pet_PetID`)
    REFERENCES `mydb`.`Pet` (`PetID`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;

CREATE INDEX `fk_PetVisit_Pet1_idx` ON `mydb`.`PetVisit` (`Pet_PetID` ASC) VISIBLE;



-- -----------------------------------------------------
-- Table `mydb`.`Vaccine`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`Vaccine` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Vaccine` (
  `VaccineType` VARCHAR(45) NOT NULL,
  `VaccineDescription` VARCHAR(200) NOT NULL,
  PRIMARY KEY (`VaccineType`))
ENGINE = InnoDB;



-- -----------------------------------------------------
-- Table `mydb`.`PetImmunization`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`PetImmunization` ;

CREATE TABLE IF NOT EXISTS `mydb`.`PetImmunization` (
  `PetID` INT NOT NULL,
  `ImmunID` INT NOT NULL,
  `VaccineDate` DATE NOT NULL,
```

```sql
  `VaccineType` VARCHAR(45) NOT NULL,
  `VaccineNextDue` DATE NOT NULL,
  `Pet_PetID` INT NOT NULL,
  `Vaccine_VaccineType` VARCHAR(45) NOT NULL,
  PRIMARY KEY (`PetID`, `ImmunID`, `Pet_PetID`, `Vaccine_VaccineType`),
  CONSTRAINT `fk_Petimmunization_Pet1`
    FOREIGN KEY (`Pet_PetID`)
    REFERENCES `mydb`.`Pet` (`PetID`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
  CONSTRAINT `fk_Petimmunization_Vaccine1`
    FOREIGN KEY (`Vaccine_VaccineType`)
    REFERENCES `mydb`.`Vaccine` (`VaccineType`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;

CREATE INDEX `fk_Petimmunization_Pet1_idx` ON `mydb`.`PetImmunization` (`Pet_PetID` ASC) VISIBLE;

CREATE INDEX `fk_Petimmunization_Vaccine1_idx` ON `mydb`.`PetImmunization` (`Vaccine_VaccineType` ASC) VISIBLE;


-- -----------------------------------------------------
-- Table `mydb`.`PetSurgery`
-- -----------------------------------------------------
DROP TABLE IF EXISTS `mydb`.`PetSurgery` ;

CREATE TABLE IF NOT EXISTS `mydb`.`PetSurgery` (
  `PetID` INT NOT NULL,
  `SurgeryID` INT NOT NULL,
  `SurgeryDate` DATE NOT NULL,
```

```
  `SurgeryDetails` VARCHAR(200) NOT NULL,
  `SurgeryNotes` VARCHAR(200) NOT NULL,
  `Pet_PetID` INT NOT NULL,
  PRIMARY KEY (`PetID`, `SurgeryID`, `Pet_PetID`),
  CONSTRAINT `fk_PetSurgery_Pet1`
    FOREIGN KEY (`Pet_PetID`)
    REFERENCES `mydb`.`Pet` (`PetID`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;

CREATE INDEX `fk_PetSurgery_Pet1_idx` ON `mydb`.`PetSurgery` (`Pet_PetID` ASC) VISIBLE;


SET SQL_MODE=@OLD_SQL_MODE;
SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS;
SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS;
```

3. **Assumptions**

- Owner table
  - OwnerID increments automatically and is a surrogate key to identify each unique owner
- Pet table
  - PetID increments automatically and is a surrogate key to identify each unique pet
  - Gender is Char(1) because the pet can be M or F
- PetVisit table
  - PetID increments automatically and is a surrogate key to uniquely identify the visit with given pet
  - VisitID increments automatically and is a surrogate key to uniquely identify the visit with given pet
  - VisitWeight type is DECIMAL(5,2) because the weight of the pet will not be over 5 digits and have at most two decimal places. Example: 039.23, 134.22, etc
  - VisitTemp is of type DECIMAL(4,1) because the temp of a pet will not be over 4 digits and have at most one decimal place. Example: 39.2, 29.1, etc
  - VetInitials is of type CHAR(3) because first letter from first name, second letter from middle name, and third letter from last name
  - VisitBP type is VARCHAR because they usually write blood pressure. Example: 130/29, 160/100, etc
  - FecalExamResults, FecalExamNotes, HeartwormTestResults, HeartwormTestNotes, AllergyName1, AllergyNotes1, AllergyName2, AllergyNotes2, HeartwormPreventionFlag, HeartwormPreventionNotes is not considered as NN (Not Null) because the pet might can be null and not specified a not null because the pet may or may not have these symptoms
  - PetID is a foreign key
- PetSurgery table
  - PetID increments automatically and is a surrogate key to uniquely identify the surgery with given pet
  - SurgeryID increments automatically and is a surrogate key to uniquely identify the surgery with given pet
  - PetID is a foreign key
- PetImmunization table
  - PetID increments automatically and is a surrogate key to uniquely identify the immunization with given pet
  - ImmuneID increments automatically and is a surrogate key to uniquely identify the immunization with given pet
  - VaccineType is a foreign key
  - PetID is a foreign key

- Vaccine table
  - VaccineType increments automatically and is a surrogate key to identify different types of vaccines