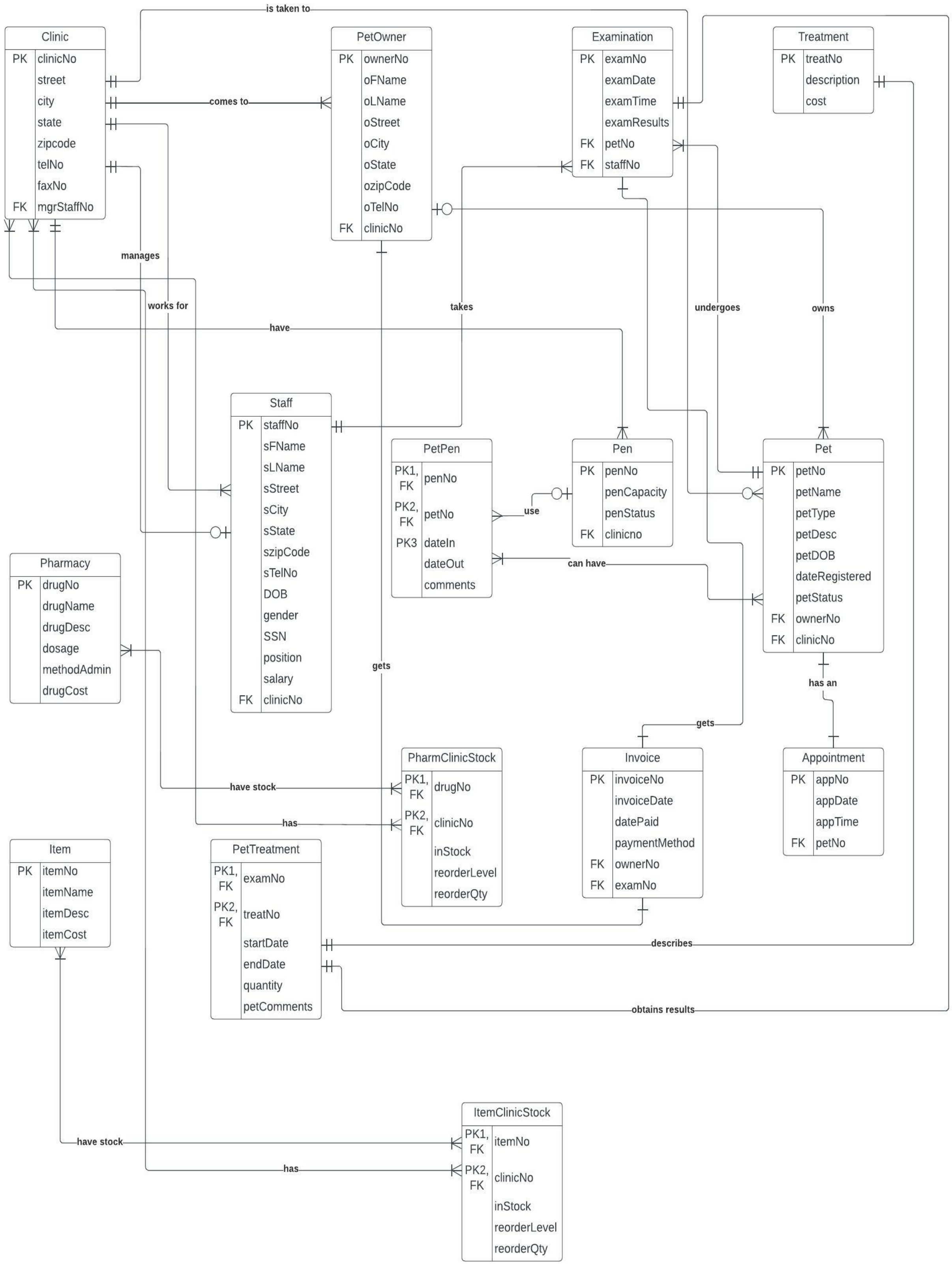
1) Entity Relationship Diagram



2) List the name and type of all pets.

```
SQL> SELECT petName, petType
  2       FROM Pet;

PETNAME                       PETTYPE
---------------------------- --------------------
Lucky                          Chihuahua
Bell                         Golden retriever
Sleepy                         Labrador
Gentle                         Boxer
Bark                          German Shepherd
Big                          Pit Bull
Accent                         Chihuahua

7 rows selected.
```

Explanation - As per the requirements to retrieve the data we have to select petName and petType from the Pet table to get the name and type of all pets.

3) Find the name and type for every pet that has been registered during the year 2001.

```
SQL> SELECT petName, petType
  2       FROM Pet
  3       WHERE dateRegistered LIKE '%01';

PETNAME                       PETTYPE
----------------------------- --------------------
Bell                         Golden retriever
Accent                         Chihuahua
```

Explanation – As per the requirements we have to select petName, and petType from the Pet table to get the name and type of pet who was registered with date ending from 01.

4) Give the name of the staff member who is not a manager and receives the highest salary.

```
SQL> SELECT CONCAT(sFName, CONCAT(' ' ,sLName)) AS Staff_Name
  2       FROM Staff
  3       WHERE position ! = 'manager' AND salary = (SELECT MAX(salary)
  4                                                   FROM Staff
  5                                                   WHERE position != 'manager');

STAFF_NAME
------------------------------------------------------------
Gomez Rachel
```

Explanation – As per the requirements we have to get the name of staff whose is earning the highest salary and not a manager. For the result we will use aggregate function concatenate to concatenate firstname and lastname of staff. In condition we will put position not equal to manager and use a subquery to get maximum salary whose position is not manager.

5) List the name of every staff member who receives the salary higher than the average salary of the company.

```
SQL> SELECT CONCAT(sFName, CONCAT(' ' ,sLName)) AS Staff_Name
  2      FROM Staff
  3      WHERE salary > (SELECT AVG(salary)
  4                      FROM Staff);

STAFF_NAME
----------------------------------------------------------
Hess Edward
Hoo Don
Gomez Rachel
```

Explanation – As per the requirements we have to select all the staffs who are earning more than the average salary of all staff. For the result we will use aggregate function concatenate to concatenate firstname and lastname of staff. We will put a condition that salary more than average of salary from staff.

6) Give the average number of days for pet treatment.

```
SQL> SELECT AVG((endDate - startDate)) AS Average_No_Of_Days
  2      FROM PetTreatment;

AVERAGE_NO_OF_DAYS
------------------
              .75
```

Explanation – As per the requirements we to retrieve the average number of days spent by a pet for treatment. For this we use aggregate function average. To get number of days we have to subtract startDate from endDate and average it out.

7) For every clinic, list clinic number, city, and state along with the pen number and pen status for each clinic.

```
SQL> SELECT C.clinicNo, C.city, C.state, PE.penNo, PE.penstatus
  2      FROM Clinic C, Pen PE
  3      WHERE C.clinicNo = PE.clinicNo
  4      ORDER BY C.clinicNo;

CLINI CITY           ST PENN P
```

```
----- --------------- -- ---- -
c1111 Garden Grove    CA p001 A
c1111 Garden Grove    CA p002 A
c1111 Garden Grove    CA p008 A
c1111 Garden Grove    CA p005 A
c1112 Yorba Linda     CA p003 A
c1112 Yorba Linda     CA p006 N
c1113 Brea            CA p007 A
c1113 Brea            CA p004 N

8 rows selected.
```

Explanation – As per the requirements we have to select clinicNo, city and state from the Clinic table and penNo, and penStatus from the Pen table. As we have to deal with two tables we will join the two tables using equi join.

8) List staff's first and last name for all staffs who manages clinic(s) that are located in the city "Brea".

```
SQL> SELECT S.SFName, S.sLName
  2        FROM Staff S, Clinic C
  3        WHERE S.position = 'manager' AND C.city = 'Brea' AND
  4        S.clinicNo = C.clinicNo;

SFNAME                         SLNAME
------------------------------ ------------------------------
Hill                           Rowland
```

Explanation – As per the requirements we have to select first name and last name of staff who manages the clinic situated in city Brea. To get that we will put the condition position as manager and clinic city Brea. As we have to deal with two tables we will join the two tables using equi join.

9) List the name (first and last) of every owner who owns "Chihuahua".

```
SQL> SELECT PO.oFName, PO.oLName
  2        FROM PetOwner PO, Pet P
  3        WHERE P.petType = 'Chihuahua' AND P.ownerNo = PO.ownerNo;

OFNAME                         OLNAME
------------------------------ ------------------------------
Kevin                          Lawrence
```

Explanation – As per the requirements to retrieve the data we have to select firstname and lastname of pet owner who owns pet whose type is Chihuahua. For that we put condition of pettype equal to Chihuahua and join the two tables PetOwner and Pet.

10) List the name of every owner who owns a pet that has visited a clinic located in the city "Fullerton".

```
SQL> SELECT CONCAT(PO.oFName, CONCAT(' ' ,Po.oLName)) AS Owner_Name
  2      FROM PetOwner PO, Clinic C
  3      WHERE C.city = 'Fullerton' AND C.clinicNo = PO.clinicNo;

no rows selected
```

Explanation – As per the requirements we have to select the name of every pet owner who visited the clinic located in city Fullerton. To do so, we will put the condition of clinic city of Fullerton and join the two tables using equi join as we have to deal with two tables PetOwner and Clinic table.

11) List the name and type of pet for every pet that has been treated more than 2 days and spent more than $100 for treatment.

```
SQL> SELECT P.petName, P.petType
  2      FROM Pet P, Examination E, PetTreatment PT, Treatment T
  3      WHERE E.petNo = P.petNo AND E.examNo = PT.examNo AND T.treatNo =
PT.treatNo AND
  4              (PT.endDate - PT.startDate) > 2 AND T.cost > 100;

no rows selected
```

Explanation – As per the requirements to get the result we have to select pet name and pet type that spent more than 2 days and the cost of treatment is also more than $100 in one visit. To get the data we have to state the condition number of days is more than 2 and treatment cost is more than 100. To get number of days we will subtract startDate from endDate. We have to join four tables using equi join condition Pet, Examination, PetTreatment, Treatment.

12) List the staff's first name and last name for all staffs who are managers but do not manage any clinic (e.g., the position is manager).

```
SQL> SELECT sFName, sLName
  2      FROM Staff
  3      WHERE position = 'manager' AND clinicNo = 'Null';

no rows selected
```

Explanation – As per the requirements we have to get the firstname and lastname of staff whose position is manager and the staff is not assigned to any clinic. To get that we put the condition staff position as manager and clinicNo as NULL. We have to join four tables using equi join condition Pet, Examination, PetTreatment, Treatment.

13) Find the name and type of pet that has received the most expensive treatment.

```
SQL> SELECT P.petName, P.petType
  2       FROM Pet P, Examination E, PetTreatment PT, Treatment T
  3       WHERE E.petNo = P.petNo AND E.examNo = PT.examNo AND T.treatNo =
PT.treatNo AND
  4                    T.cost = (SELECT MAX(cost)
  5                                  FROM Treatment);

PETNAME                    PETTYPE
------------------------------ --------------------
Bark                       German Shepherd
```

Explanation – As per the requirements we have to select name and type of pet who received the most expensive treatment. For that we have to first retrieve maximum cost from the Treatment table and put condition of treatment cost equals to maximum cost. We have to join four tables using equi join condition Pet, Examination, PetTreatment, Treatment.

14) Find the busiest registration month for pet in the past. We assume that the more pets are registered, the busier the month is.

```
SQL> CREATE OR REPLACE VIEW MONTH AS
  2       SELECT TO_CHAR(dateRegistered, 'MONTH') AS Registered_Month, COUNT(*) AS
No_of_Month_Count
  3       FROM Pet
  4       GROUP BY (TO_CHAR(dateRegistered, 'MONTH'))
  5       ORDER BY(COUNT(*)) DESC;

View created.

SQL> SELECT TO_CHAR(dateRegistered, 'MONTH') AS Busiest_Month
  2       FROM Pet
  3       GROUP BY (TO_CHAR(dateRegistered, 'MONTH'))
  4       HAVING COUNT(*) = (SELECT MAX(No_of_Month_Count)
  5                                FROM MONTH);

BUSIEST_MONTH
------------------------------------
NOVEMBER
```

Explanation – As per the requirements to get the data we have to first create the view. In the view we will have month of every pet registered date and count of number of days. After that we have to select the month who is having maximum count of number of days. We will use aggregate function count and group by.

15) Find the average cost of treatment for each type of pet?

```
SQL> SELECT P.petType, AVG(T.cost) AS Average_cost
  2       FROM Treatment T, Examination E, PetTreatment PT, Pet P
  3       WHERE E.petNo = P.petNo AND E.examNo = PT.examNo AND Pt.treatNo = T.treatNo
  4       GROUP BY(P.petType);

PETTYPE              AVERAGE_COST
-------------------- ------------
Chihuahua                    27.5
Boxer                          45
German Shepherd        86.6666667
Golden retriever               25
```

Explanation – As per the requirements we have to select the average cost of treatment of every pet. We have to use aggregate function Average and group by with pet type. We have to join four tables using equi join condition Pet, Examination, PetTreatment, Treatment.

16) List the name (first and last) of every pet owner who owns more than one pet.

```
SQL> SELECT oFName, oLName
  2       FROM PetOwner PO, Pet P
  3       WHERE PO.ownerNo = p.ownerNo
  4       GROUP BY(oFName, oLName)
  5       HAVING COUNT(P.petNo) > 1;

OFNAME                        OLNAME
----------------------------- -----------------------------
Bruce                         Bender
```

Explanation – As per the requirements we have to get the firstname and lastname of every pet owner who owns more than one pet. We have to use aggregate function count that we put in having clause to get number of pets more than one and group by firstname and lastname of pet owner.

17) List the name of every drug and its current stock that need to be re-ordered. A drug needs to be re-ordered when the quantity in stock is less than the quantity of re-order level. Sort the result by the quantity in stock.

```
SQL> SELECT Phar.drugName, PharCliSto.inStock
  2       FROM Pharmacy Phar, PharmClinicStock PharCliSto
  3       WHERE Phar.drugNo = PharCliSto.drugNo AND PharCliSto.inStock <
PharCliSto.reorderLevel
  4       ORDER BY(inStock);

DRUGNAME             INSTOCK
```

```
-------------------- ----------
petbelly                    2
```

Explanation – As per the requirements we have to get the data of drugname and instock of every drug that needs to be reordered. The drug that needs to reordered when instock is less than reorder level. We have to put the condition that instock is less than reorderlevel. We have to join two tables Pharmacy and PharmClinicStock using equi join.

18) List the city (e.g., for pet owners) and the total amount of cost spent for pet treatment in each city.

```
SQL> SELECT PO.oCity AS PetOwner_City, SUM(T.cost) AS Total_Cost
  2       FROM PetOwner PO, Pet P, PetTreatment PT, Treatment T, Examination E, Clinic C
  3       WHERE PO.ownerNo = P.ownerNo AND P.petNo = E.petNo AND E.examNo =
PT.examNo AND Pt.treatNo = T.treatNo AND P.clinicNo = C.clinicNo
  4       GROUP BY(PO.oCity);

PETOWNER_CITY   TOTAL_COST
--------------- ----------
Anaheim                 55
Yorbalinda             260
Fullerton               90
```

Explanation – As per the requirements we have to select pet owner city and total of treatment cost. To get the total of treatment cost we have to use the aggregate function SUM to get total and group by owner city.

```
SQL> spool off;
```