# Problem #3 – DataWarehouse

PetUniversity is an institution for pets and their owner to enroll in training courses, we are building a pet data warehouse to move the operational reporting analysis from transactional system to the data warehouse for all their reporting needs.

* PetUniversity enrolls pets of different types - dogs, cats, birds, horses. Pets and their owners have to together enroll in the courses.
* Each course starts 1st day of the month, is a 4 weeks course, and has a PASS or FAIL grade
* The courses and prices are -
  + For all pets (each course is $100)
    - First Aid and Safety
    - CPR
    - Pet Grooming
  + Dogs (each course is $150)
    - Pet Sitting and Dog Walking
    - Dog Grooming
    - Dog Training 101,
    - Advanced Dog Training
* Depending on the type of the pet, there are different training locations
  + New Haven [dog],
  + Hamden [cat],
  + Woodbridge [dog, cat],
  + Orange [birds, horses]
* There are three holds that are held at the course level -
  + Financial Hold (full tuition is not paid)
  + Registration Hold (registration information is missing)
  + Vaccination Hold (if missing vaccination information)

Your assignment is to build a data warehouse, a star schema data model, add test data, and write SQL queries with results that will answer the below questions -

1. How many new pets are enrollment in each course per month?
   * Pet\_first\_name, Pet\_last\_name, Pet\_type, Owner\_fist\_name, Owner\_last\_name, Enrollment\_date, Month, location.
2. Missing grades report?
   * Pet\_first\_name, Pet\_last\_name, Owner\_fist\_name, Owner\_last\_name, course\_name, course\_instructor
3. Are there holds (financial hold, vaccinations) on the pets that would prevent them from continuing with their training?
   * Pet\_first\_name, Pet\_last\_name, Owner\_fist\_name, Owner\_last\_name, hold\_type, hold\_description, month, hold\_date, course\_price

I have created sample Data model using Star Schema.



/\* create table COURSE\_DETAILS\*/

CREATE TABLE COURSE\_DETAILS (

Course\_id int NOT NULL,

Course\_name varchar(100) NULL,

Course\_instructor varchar(100) NOT NULL,

Course\_price int NOT NULL,

Pet\_type varchar(100) NOT NULL,

CONSTRAINT COURSE\_DETAILS\_pk PRIMARY KEY (Course\_id)

);

/\* insert sample records into table \*/

insert into course\_details Values (1,'First Aid and Safety','Tom Sandy','$100','Dog' );

insert into course\_details Values (2,'CPR','Tom Sandy','$100','cats' );

insert into course\_details Values (3,'Pet Grooming','Scott Kirk','$100','birds' );

insert into course\_details Values (4,'Pet Grooming','Scott Kirk','$100','horses' );

insert into course\_details Values (5,'Pet Sitting and Dog Walking','Sam','$150','Dog' );

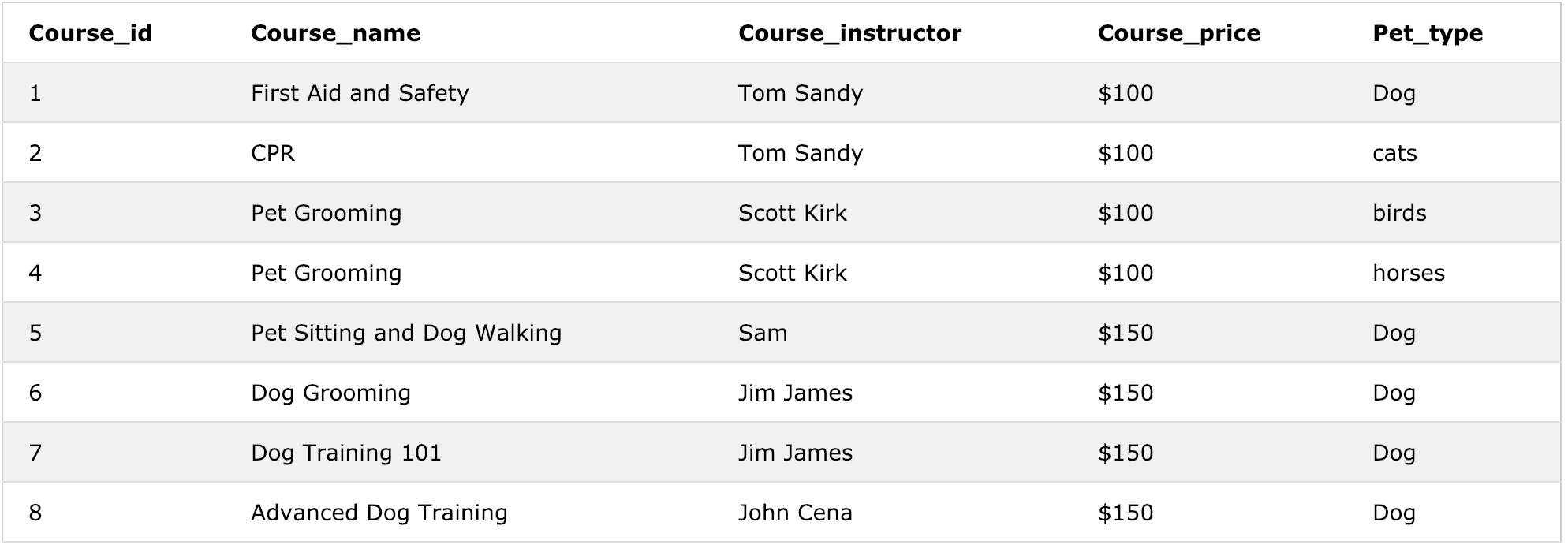
insert into course\_details Values (6,'Dog Grooming','Jim James','$150','Dog');

insert into course\_details Values (7,'Dog Training 101','Jim James','$150','Dog');

insert into course\_details Values (8,'Advanced Dog Training','John Cena','$150','Dog' );

/\* select data from table \*/

select \* from course\_details;



/\* create table to store locations \*/

CREATE TABLE TRAINING\_LOCATION (

Location\_id int NOT NULL,

Location varchar(100) NOT NULL,

Pet\_type varchar(100) NOT NULL,

CONSTRAINT TRAINING\_LOCATION\_pk PRIMARY KEY (Location\_id)

);

/\* insert sample records into trinaing\_location table \*/

insert into training\_location values (1,'New Haven','Dog');

insert into training\_location values (2,'Hamden','Cat');

insert into training\_location values (3,'Woodbridge','Dog');

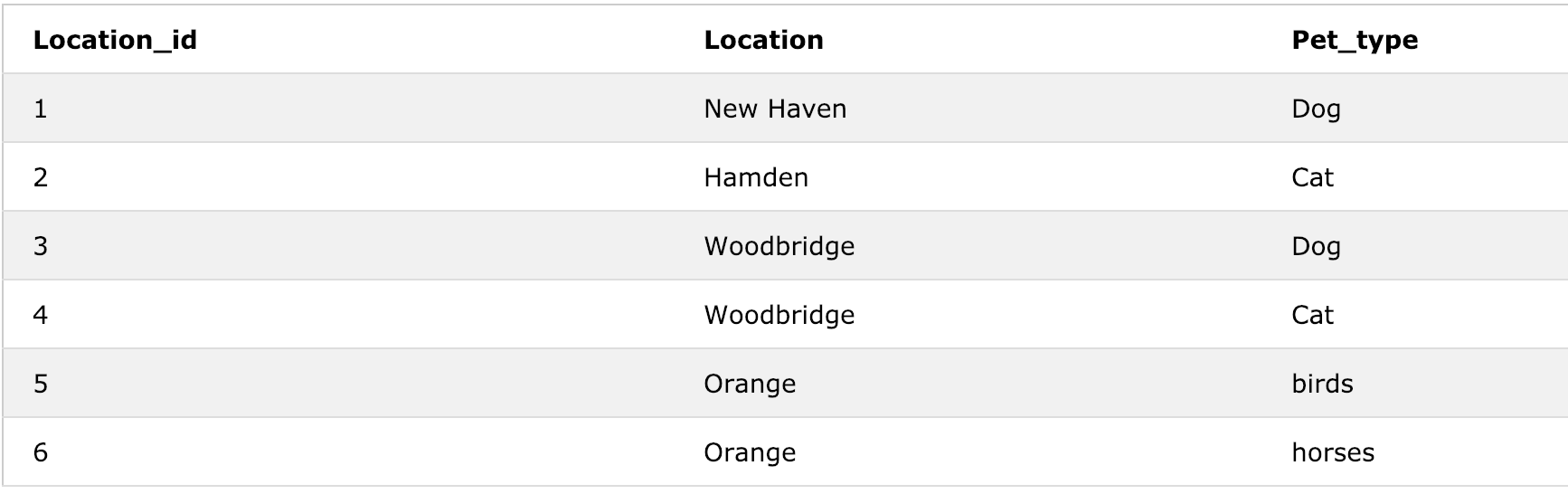
insert into training\_location values (4,'Woodbridge','Cat');

insert into training\_location values (5,'Orange','birds');

insert into training\_location values (6,'Orange','horses');

/\* select data from trinaing\_location table \*/

select \* from training\_location;



/\* create Pet enrollment table \*/

CREATE TABLE PET\_ENROLL (

Pet\_id int NOT NULL,

Pet\_type varchar(100) NOT NULL,

Pet\_first\_name varchar(100) NOT NULL,

Pet\_last\_name varchar(100),

Owner\_ID int NULL,

Owner\_firt\_name varchar(100) NOT NULL,

Owner\_last\_name varchar(100),

CONSTRAINT PET\_ENROLL\_pk PRIMARY KEY (Pet\_id)

);

/\* insert sample records into enrollment table \*/

insert into pet\_enroll values (1,'Dog','Dolly','D','101','Suresh','Reddy');

insert into pet\_enroll values (2,'Cat','Kiity',NULL,'102','Ken','Hendry');

insert into pet\_enroll values (3,'birds','sim',NULL,'103','Sam','Daly');

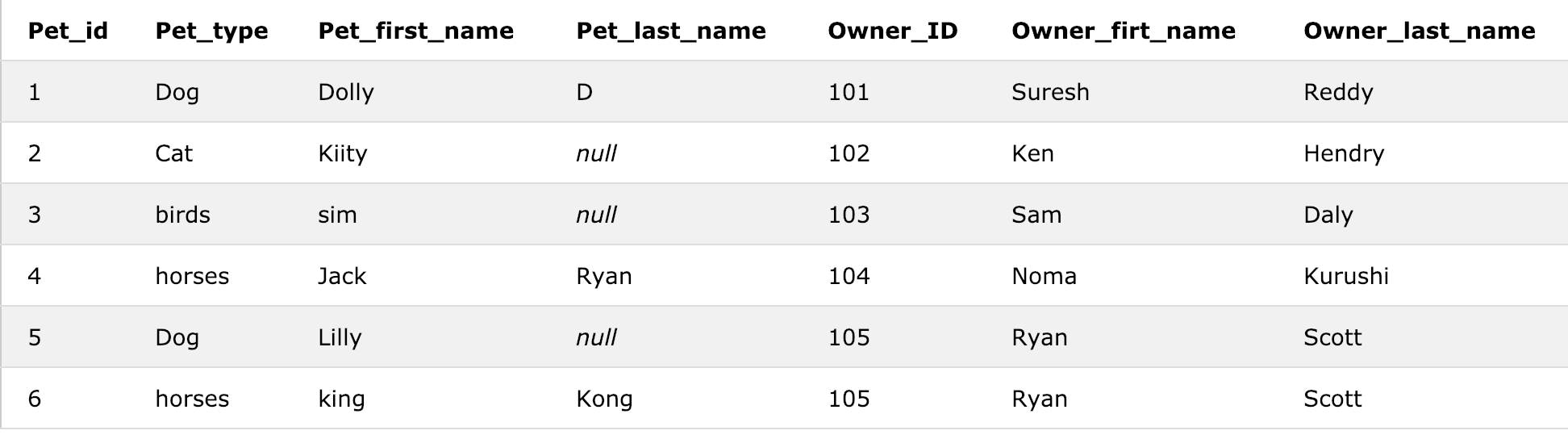
insert into pet\_enroll values (4,'horses','Jack','Ryan','104','Noma','Kurushi');

insert into pet\_enroll values (5,'Dog','Lilly',NULL,'105','Ryan','Scott');

insert into pet\_enroll values (6,'horses','king','Kong','105','Ryan','Scott');

/\* select the data from pet enrollment table \*/

select \* from pet\_enroll;



/\* create Course enrollment table \*/

CREATE TABLE COURSE\_ENROLL (

Enroll\_id int NOT NULL,

Enroll\_start\_date date NOT NULL,

Grade varchar(10) NOT NULL,

Course\_name varchar(100) NOT NULL,

Course\_instructor varchar(100) NOT NULL,

Pet\_first\_name varchar(100) NOT NULL,

Pet\_last\_name varchar(100),

Owner\_first\_name varchar(100) NOT NULL,

Location varchar(100) NOT NULL,

Pet\_type varchar(100) NOT NULL,

CONSTRAINT COURSE\_ENROLL\_pk PRIMARY KEY (Enroll\_id)

);

/\* insert sample records into course enrollment table \*/

insert into course\_enroll values (1,'2019-01-01','PASS','First Aid and Safety','Tom Sandy','Dolly','D','Suresh','New Haven','Dog');

insert into course\_enroll values (2,'2018-12-01','PASS','CPR','Tom Sandy','Kiity',NULL,'Ken','Hamden','Cat');

insert into course\_enroll values (3,'2019-01-01','PASS','Pet Grooming','Scott Kirk','sim',NULL,'Sam','Orange','birds');

insert into course\_enroll values (4,'2019-01-01','PASS','Pet Grooming','Scott Kirk','Jack','Ryan','Noma','Orange','horses');

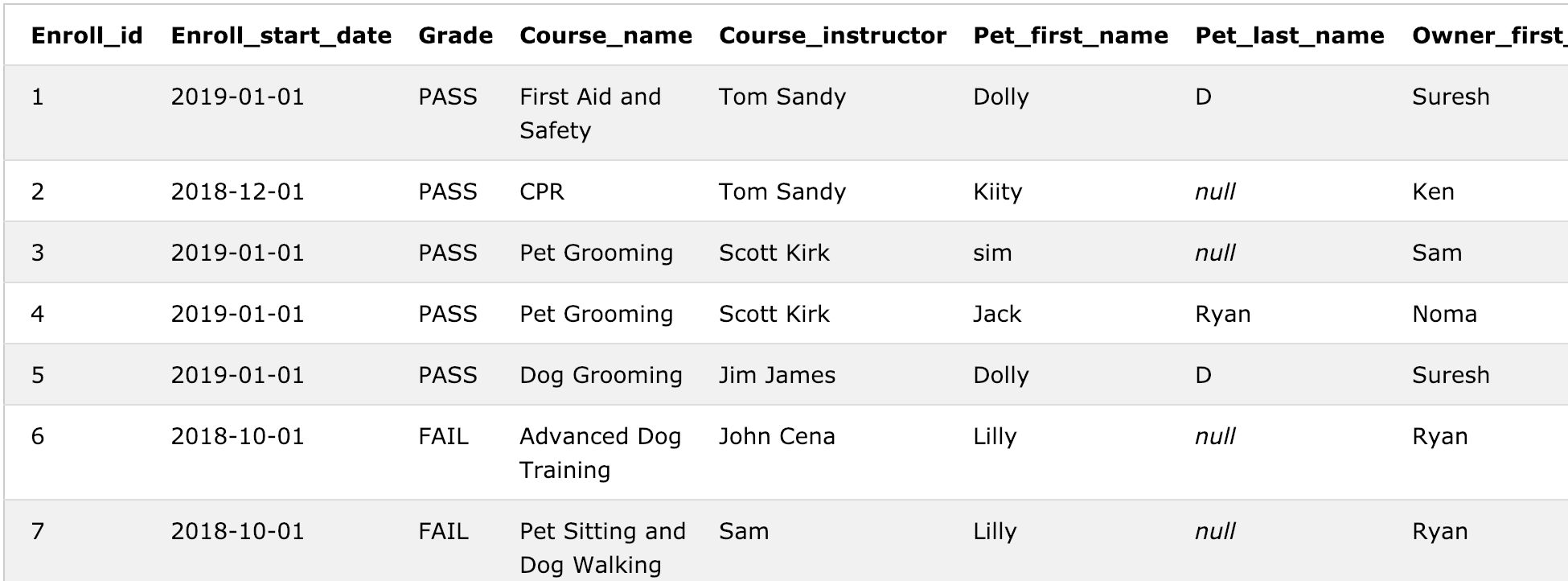
insert into course\_enroll values (5,'2019-01-01','PASS','Dog Grooming','Jim James','Dolly','D','Suresh','New Haven','Dog');

insert into course\_enroll values (6,'2018-10-01','FAIL','Advanced Dog Training','John Cena','Lilly',NULL,'Ryan','Woodbridge','Dog');

insert into course\_enroll values (7,'2018-10-01','FAIL','Pet Sitting and Dog Walking','Sam','Lilly',NULL,'Ryan','Woodbridge','Dog');

/\* select data from course enrollemnt \*/

select \* from course\_enroll ;



/\* create the table for course hold details \*/

CREATE TABLE COURSE\_HOLD (

Hold\_id int NOT NULL,

Hold\_type varchar(100) NOT NULL,

Hold\_description varchar(200) NOT NULL,

Date date NOT NULL,

Course\_name varchar(100) NOT NULL,

Course\_Instructor varchar(100) NOT NULL,

Pet\_type varchar(100) NOT NULL,

Pet\_first\_name varchar(100) NOT NULL,

Pet\_last\_name varchar(100),

Owner\_first\_name varchar(100) NOT NULL,

CONSTRAINT COURSE\_HOLD\_pk PRIMARY KEY (Hold\_id)

);

/\* insert the sample data into course hold table \*/

insert into course\_hold values (1,'Financial Hold','full tuition is not paid','2018-12-10','CPR','Tom Sandy','Cat','Kiity',NULL,'Ken');

insert into course\_hold values (2,'Registration Hold','registration information is missing','2018-10-10','Advanced Dog Training',

'John Cena','Dog','Lilly',NULL,'Ryan');

insert into course\_hold values (3,'Vaccination Hold ','if missing vaccination information','2018-10-10','Pet Sitting and Dog Walking',

'Sam','Dog','Lilly',NULL,'Ryan');

/\* select the data for course hold details \*/

select \* from course\_hold;



/\* create the fact table to hold the Pet University details \*/

CREATE TABLE PET\_FACT\_TABLE (

Pet\_id int NOT NULL,

Owner\_id int NOT NULL,

Course\_id int NOT NULL,

Enroll\_id int NOT NULL,

Hold\_id int,

Location\_id int NOT NULL,

Total\_amount int DEFAULT '0',

Fact\_key int NOT NULL,

CONSTRAINT PET\_FACT\_TABLE\_pk PRIMARY KEY (Fact\_key)

);

/\* insert the sample data based on dimension tables \*/

insert into PET\_FACT\_TABLE values (1,101,1,1,NULL,1,'$100','1001');

insert into PET\_FACT\_TABLE values (2,102,2,2,1,2,'$0','1002');

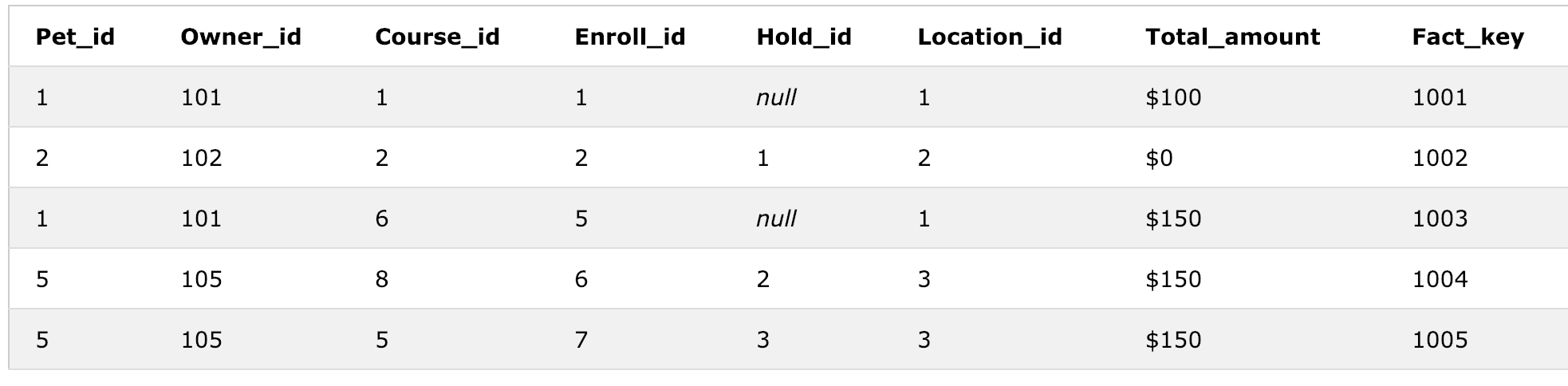
insert into PET\_FACT\_TABLE values (1,101,6,5,NULL,1,'$150','1003');

insert into PET\_FACT\_TABLE values (5,105,8,6,2,3,'$150','1004');

insert into PET\_FACT\_TABLE values (5,105,5,7,3,3,'$150','1005');

/\* select the sample fact data \*/

select \* from pet\_fact\_table;



/\*

1. How many new pets are enrollment in each course per month?

o Pet\_first\_name, Pet\_last\_name, Pet\_type, Owner\_fist\_name, Owner\_last\_name, Enrollment\_date, Month, location.

\*/

select pet\_dim.Pet\_first\_name,

pet\_dim.Pet\_last\_name,

pet\_dim.Pet\_type,

pet\_dim.Owner\_firt\_name,

pet\_dim.Owner\_last\_name,

enrol\_dim.Enroll\_start\_date,

extract(month from enroll\_start\_date) as Month,

enrol\_dim.location

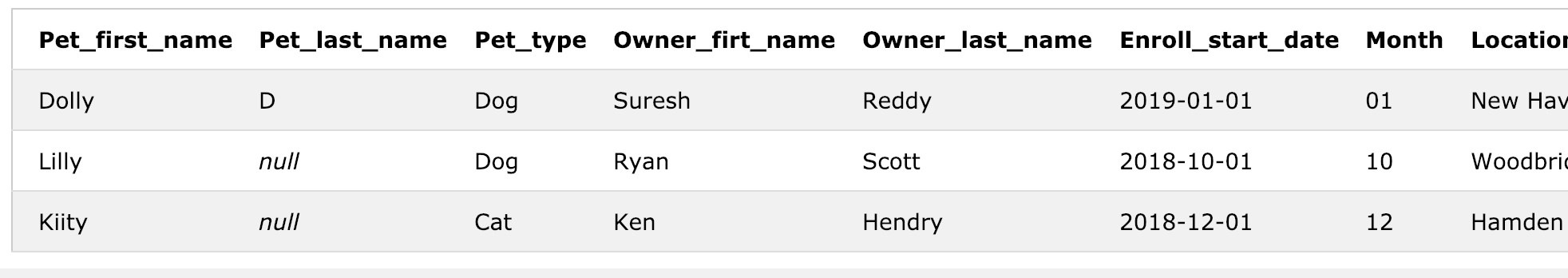
from PET\_FACT\_TABLE pet\_fact

JOIN PET\_ENROLL pet\_dim

ON pet\_fact.Pet\_id=pet\_dim.Pet\_id

JOIN COURSE\_ENROLL enrol\_dim

ON pet\_fact.Enroll\_id=enrol\_dim.Enroll\_id;



/\*

2. Missing grades report?

o Pet\_first\_name, Pet\_last\_name, Owner\_fist\_name, Owner\_last\_name, course\_name, course\_instructor

\*/

select pet\_dim.Pet\_first\_name,

pet\_dim.Pet\_last\_name,

pet\_dim.Owner\_firt\_name,

pet\_dim.Owner\_last\_name,

enrol\_dim.Course\_name,

enrol\_dim.Course\_instructor

from PET\_FACT\_TABLE pet\_fact

JOIN PET\_ENROLL pet\_dim

ON pet\_fact.Pet\_id=pet\_dim.Pet\_id

JOIN COURSE\_ENROLL enrol\_dim

ON pet\_fact.Enroll\_id=enrol\_dim.Enroll\_id

WHERE enrol\_dim.grade IS NULL /\* enrol\_dim.grade IS NULL ='FAIL'\*/

;

/\*No data as I have setup the grade data for all pets\*/



/\*

3. Are there holds (financial hold, vaccinations) on the pets that would prevent them from continuing with their training?

o Pet\_first\_name, Pet\_last\_name, Owner\_fist\_name, Owner\_last\_name, hold\_type, hold\_description, month, hold\_date, course\_price

\*/

select pet\_dim.Pet\_first\_name,

pet\_dim.Pet\_last\_name,

pet\_dim.Owner\_firt\_name,

pet\_dim.Owner\_last\_name,

hold\_dim.Hold\_type,

hold\_dim.Hold\_description,

extract(month from hold\_dim.Date) as month,

hold\_dim.Date as hold\_date,

course\_dim.Course\_price

from PET\_FACT\_TABLE pet\_fact

JOIN PET\_ENROLL pet\_dim

ON pet\_fact.Pet\_id=pet\_dim.Pet\_id

JOIN COURSE\_HOLD hold\_dim

ON pet\_fact.Hold\_id=hold\_dim.Hold\_id

JOIN COURSE\_DETAILS course\_dim

ON pet\_fact.Course\_id=course\_dim.Course\_id;

