University of British Columbia, Department of Computer Science

CPSC 304

Cover Page for Project Part 3

Date: 2022.04.01

Project Group Number on Canvas: 24

Group Members:

Name	Student Number	Alias (Userid)	Preferred E-mail Address
Yiran Song	92180629	m6j2b	amandasong519@gmail.com
Xinyue Cao	86285756	k2u6w	ashleyc7894@gmail.com
Nicole Wang	22322374	t9x7b	nicolewang702@gmail.com

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

1. **Short description**

Our project is a web page representing a zoo management system. The website is built through HTML. Once the user presses a button, a SQL query is sent to the Oracle server that allows employees to retrieve and modify data subject to constraints parsed from users' text input. These back end functions are fulfilled by PHP.

This management system includes three sections, Animal Carers, Medical Care and Supply Management, which are open to three classes of users respectively: the animal carers, vets, and supply managers.

- Animal carers are allowed to insert zone shortage through inputting zone names and shortage names. (Notice the shortage name can only be one of the following four kinds: food, cleaning, maintenance, and medicine). They can also update an animal's needVet status to 1, which indicates that that animal is sick. To retrieve a list of animals that they are responsible for, carers are prompted to enter their careID in the text box. Furthermore, carers can count the number of a species by entering the name of that species into the web page. Finally, by pressing the "Project Info" button, carers are able to view specific information about the gender of all species in the zoo.

- In the zone that a particular vet is in charge of, he/she is able to retrieve the list of animals who need medical service by inputting his/her vetID. After giving animals treatments, vets are able to update an animal's medical service status into 0 (needVet =0, indicates that the animal is no longer required to neet this vet) by inputting that animal's ID.

- Supply managers are able to delete a company, and that company's information will also be deleted if it is stored in other tables as well. This website also allows them to view, for each supply category in the database, which company is able to offer the highest number of quantities. Lastly, supply managers can also find the companies that are able to provide all supply categories that the zoo is currently short of, by pressing the "Find Company" button.

Files:

zoo.sql : an sql file that initializes/drops all relations in database

zooMng.php : an interactive html structure of the zoo management system website, with a reference of index.php

index.php : an php file that connects the current website to Oracle database, parse user input, retrieve from zooMng.php, and send SQL queries once user clicks buttons.

query.sql: a list of all query used in UI

2. how your final schema differed from the schema

- The column *supplyShortage* in Zone_Shoratage originally stores a string that is a list of different kinds of shortages. In order to improve the consistency and organization of the data, only one category of shortage is stored in each cell. To allow the repentance of zoneName in Zone_Shoratage, we change the primary key from only zoneName to both zoneName and supplyShortage. Users should categorize the shortage into four kinds: Medical, Cleaning , Food, and Maintenance. This applies to the column *category* in Provide_Supplies as well.

- In Contact :
  For the deletion of the company name, in order to ensure the functionality of our system (that is, being able to successfully delete unwanted companies while maintaining the reference relationship between Company and Contact), we decided to change "ON DELETE NO ACTION" into "DELETE CASCADE".

- Since Oracle does not support "On Update Cascade" and "On Delete Set Default", we did not include this On Update Cascade feature in our system. And all the "on delete" constraints are changed into "On Delete Cascade".

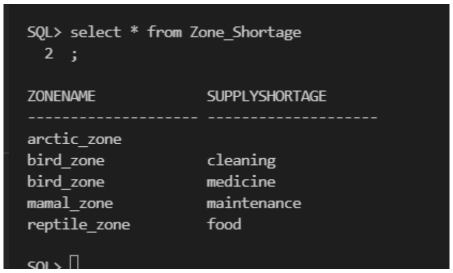
3. A list of all SQL queries used : PLEASE REFER TO query.sql IN THE ZIP FILE

4. Screenshots of the sample output :

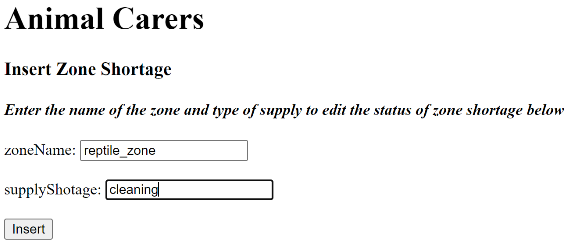
Animal Carer

- **INSERT** zone_Shortage:

insert into Zone_Shortage values("user_input_zoneName", "user_input_shortage");



```
SQL> select * from Zone_Shortage
  2  ;

ZONENAME             SUPPLYSHORTAGE
-------------------- --------------------
arctic_zone
bird_zone            cleaning
bird_zone            medicine
mamal_zone           maintenance
reptile_zone         food

SQL> 
```



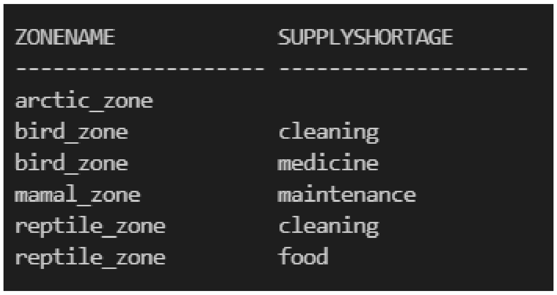
Animal Carers

Insert Zone Shortage

Enter the name of the zone and type of supply to edit the status of zone shortage below

zoneName: reptile_zone

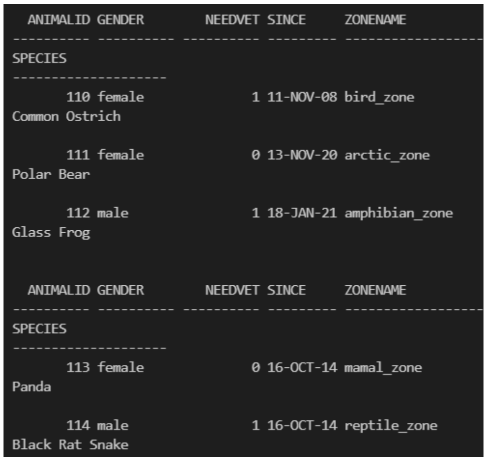
supplyShotage: cleaning



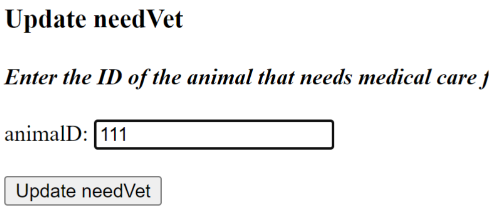
```
ZONENAME             SUPPLYSHORTAGE
-------------------- --------------------
arctic_zone
bird_zone            cleaning
bird_zone            medicine
mamal_zone           maintenance
reptile_zone         cleaning
reptile_zone         food
```

- (**UPDATE** needVet)

```
update Animal_BasicInfo
set needVet=1
where animalID = "user_input_aid";
```



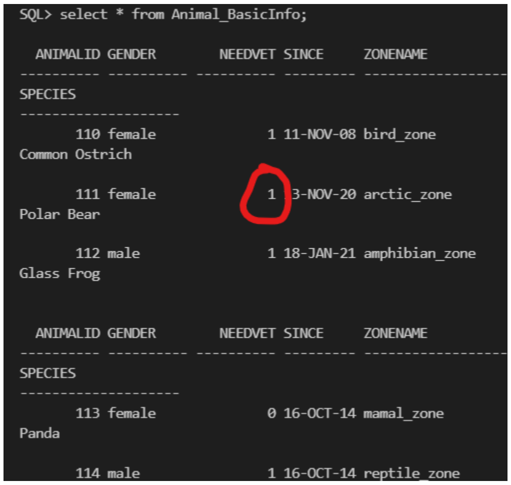
```
  ANIMALID GENDER     NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- -----------------
SPECIES
--------------------
       110 female              1 11-NOV-08 bird_zone
Common Ostrich

       111 female              0 13-NOV-20 arctic_zone
Polar Bear

       112 male                1 18-JAN-21 amphibian_zone
Glass Frog


  ANIMALID GENDER     NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- -----------------
SPECIES
--------------------
       113 female              0 16-OCT-14 mamal_zone
Panda

       114 male                1 16-OCT-14 reptile_zone
Black Rat Snake
```



Update needVet

Enter the ID of the animal that needs medical care f

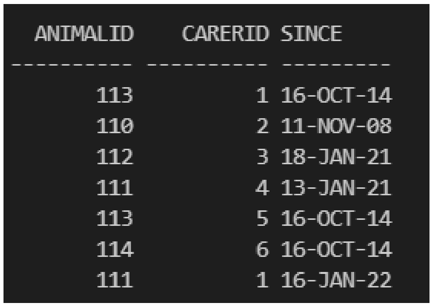
animalID: 111



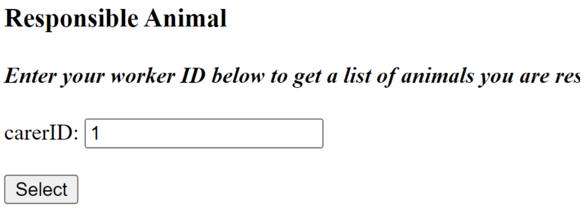
```
SQL> select * from Animal_BasicInfo;

  ANIMALID GENDER     NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- -----------------
SPECIES
--------------------
       110 female              1 11-NOV-08 bird_zone
Common Ostrich

       111 female              1 3-NOV-20 arctic_zone
Polar Bear

       112 male                1 18-JAN-21 amphibian_zone
Glass Frog


  ANIMALID GENDER     NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- -----------------
SPECIES
--------------------
       113 female              0 16-OCT-14 mamal_zone
Panda

       114 male                1 16-OCT-14 reptile_zone
```

- (**SELECTION** select animals that I'm responsible for)

```
select animalID
from Take_Care_Of
where carerID = "user_input_cid";
```



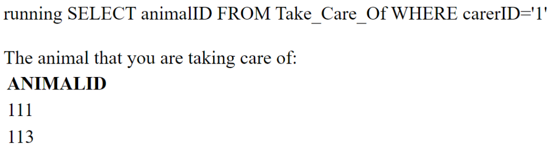
```
  ANIMALID    CARERID SINCE
---------- ---------- ---------
       113          1 16-OCT-14
       110          2 11-NOV-08
       112          3 18-JAN-21
       111          4 13-JAN-21
       113          5 16-OCT-14
       114          6 16-OCT-14
       111          1 16-JAN-22
```



Responsible Animal

Enter your worker ID below to get a list of animals you are res

carerID: 1



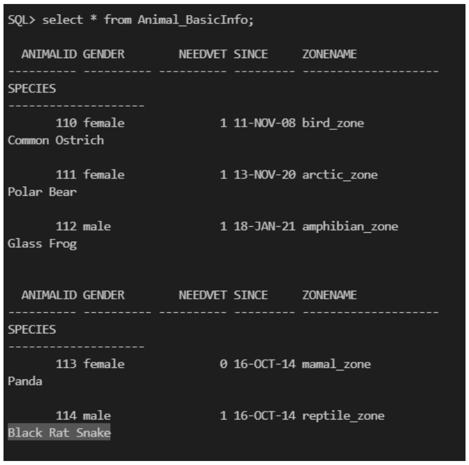
running SELECT animalID FROM Take_Care_Of WHERE carerID='1'

The animal that you are taking care of:

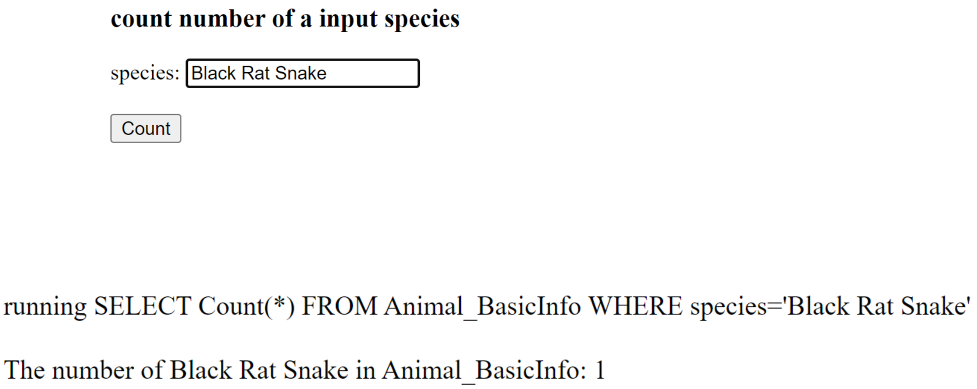
ANIMALID
111
113

- (**AGGREGATION** count number of a given species)

```
select count(*)
from Animal_BasicInfo
where species = "user_input_species";
```



```
SQL> select * from Animal_BasicInfo;

  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       110 female              1 11-NOV-08 bird_zone
Common Ostrich

       111 female              1 13-NOV-20 arctic_zone
Polar Bear

       112 male                1 18-JAN-21 amphibian_zone
Glass Frog


  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       113 female              0 16-OCT-14 mamal_zone
Panda

       114 male                1 16-OCT-14 reptile_zone
Black Rat Snake
```



count number of a input species

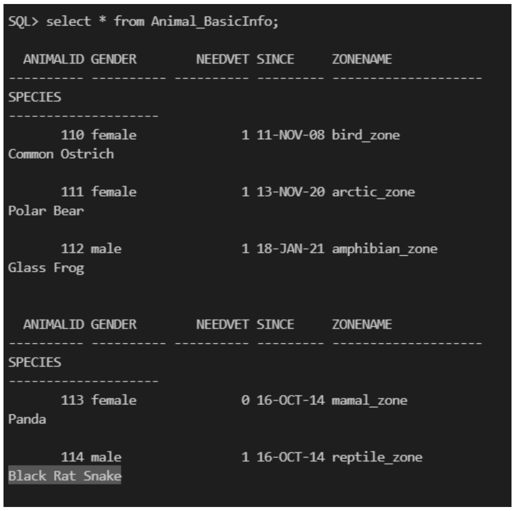
species: Black Rat Snake

running SELECT Count(*) FROM Animal_BasicInfo WHERE species='Black Rat Snake'

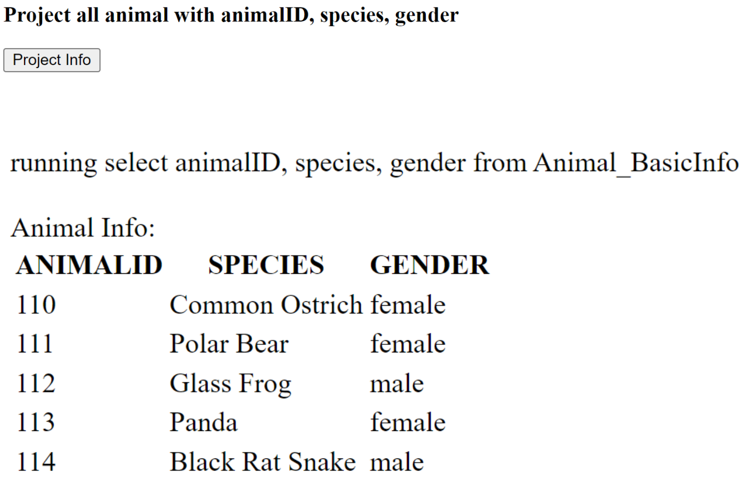
The number of Black Rat Snake in Animal_BasicInfo: 1

- (**PROJECTION** project animalID, species, gender of all animals)

```
select animalID, species, gender
from Animal_BasicInfo;
```



```
SQL> select * from Animal_BasicInfo;

  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       110 female              1 11-NOV-08 bird_zone
Common Ostrich

       111 female              1 13-NOV-20 arctic_zone
Polar Bear

       112 male                1 18-JAN-21 amphibian_zone
Glass Frog


  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       113 female              0 16-OCT-14 mamal_zone
Panda

       114 male                1 16-OCT-14 reptile_zone
Black Rat Snake
```



Project all animal with animalID, species, gender

running select animalID, species, gender from Animal_BasicInfo

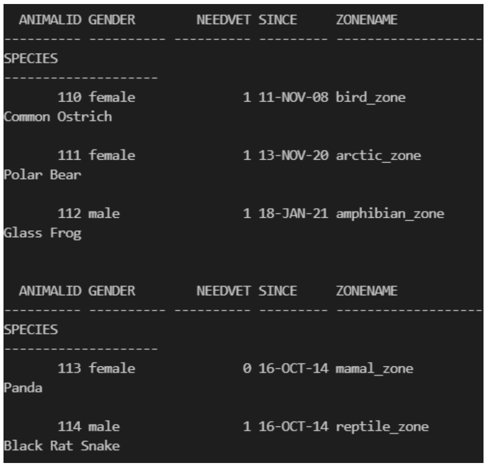
Animal Info:

ANIMALID	SPECIES	GENDER
110	Common Ostrich	female
111	Polar Bear	female
112	Glass Frog	male
113	Panda	female
114	Black Rat Snake	male

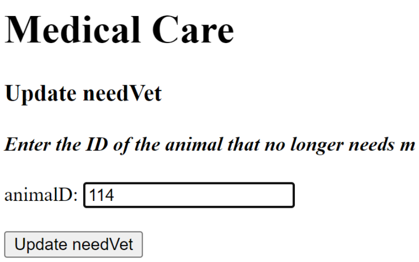
Medical Care/Vets

- (**UPDATE** needVet)

```
update Animal_BasicInfo
set needVet=0
where animalID = "user_input_aid";
```



```
  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       110 female              1 11-NOV-08 bird_zone
Common Ostrich

       111 female              1 13-NOV-20 arctic_zone
Polar Bear

       112 male                1 18-JAN-21 amphibian_zone
Glass Frog


  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       113 female              0 16-OCT-14 mamal_zone
Panda

       114 male                1 16-OCT-14 reptile_zone
Black Rat Snake
```

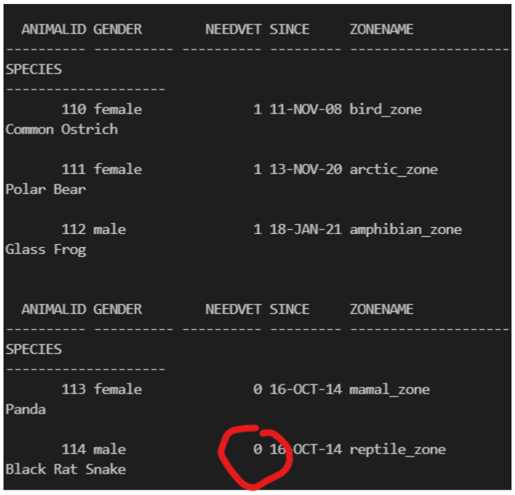


Medical Care

Update needVet

Enter the ID of the animal that no longer needs m

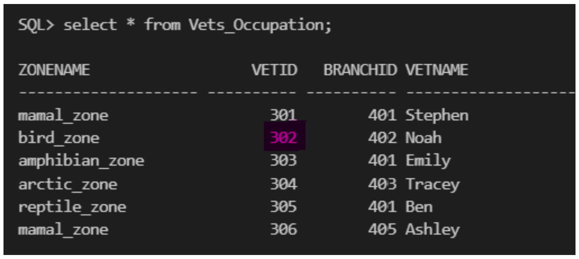
animalID: 114



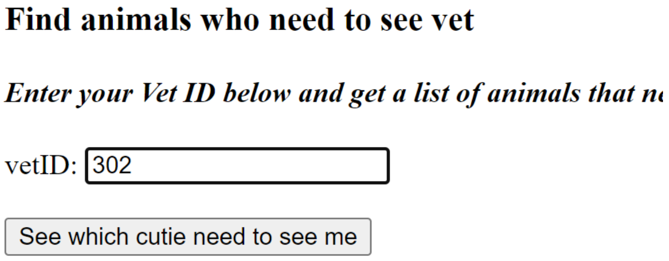
```
  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       110 female              1 11-NOV-08 bird_zone
Common Ostrich

       111 female              1 13-NOV-20 arctic_zone
Polar Bear

       112 male                1 18-JAN-21 amphibian_zone
Glass Frog


  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       113 female              0 16-OCT-14 mamal_zone
Panda

       114 male                0 16-OCT-14 reptile_zone
Black Rat Snake
```

- (**JOIN** return all animals, in the zone that I'm in charge of, who need to see vet)

```
select animalID
from Animal_BasicInfo A, Vets_Occupation V
where A.zoneName = V.zoneName and needVet = 1 and vetID = "user_input_vid";
```



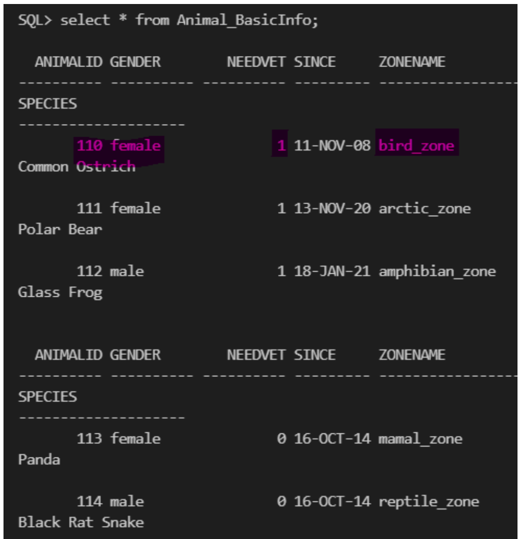
```
SQL> select * from Vets_Occupation;

ZONENAME                  VETID   BRANCHID VETNAME
-------------------- ---------- ---------- --------------------
mamal_zone                  301        401 Stephen
bird_zone                   302        402 Noah
amphibian_zone              303        401 Emily
arctic_zone                 304        403 Tracey
reptile_zone                305        401 Ben
mamal_zone                  306        405 Ashley
```



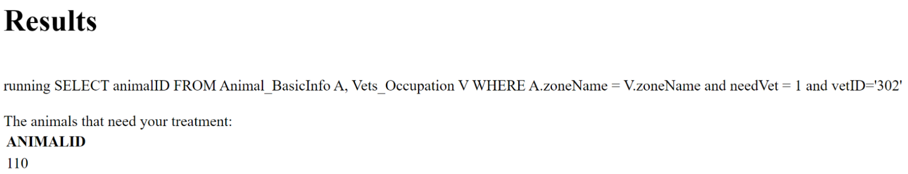
Find animals who need to see vet

Enter your Vet ID below and get a list of animals that n

vetID: 302



```
SQL> select * from Animal_BasicInfo;

  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       110 female              1 11-NOV-08 bird_zone
Common Ostrich

       111 female              1 13-NOV-20 arctic_zone
Polar Bear

       112 male                1 18-JAN-21 amphibian_zone
Glass Frog


  ANIMALID GENDER       NEEDVET SINCE     ZONENAME
---------- ---------- ---------- --------- --------------------
SPECIES
--------------------
       113 female              0 16-OCT-14 mamal_zone
Panda

       114 male                0 16-OCT-14 reptile_zone
Black Rat Snake
```



Results

running SELECT animalID FROM Animal_BasicInfo A, Vets_Occupation V WHERE A.zoneName = V.zoneName and needVet = 1 and vetID='302'

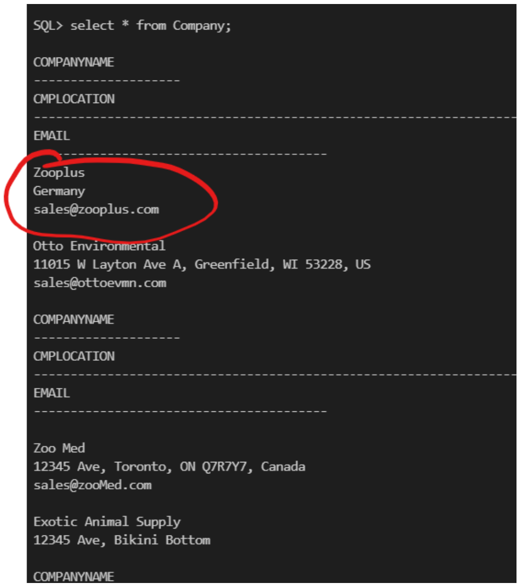
The animals that need your treatment:

ANIMALID
110

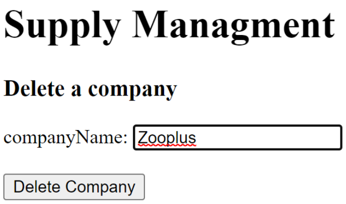
Supply Management/Supply Managers

- (**DELETION on CASCADE** delete a company in Company, then the information in **Provide_Supplies** and **Contact** is also deleted)

  delete from Company
  where companyName = "user_input_cname";



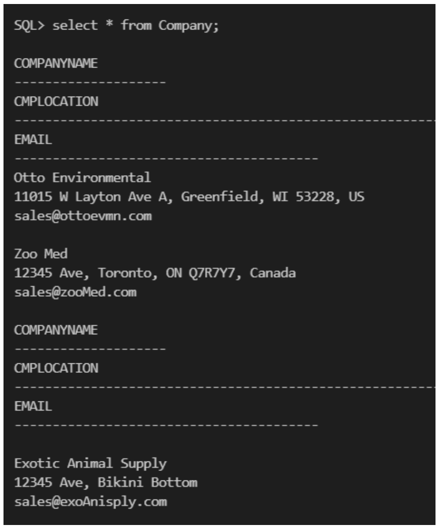
```
SQL> select * from Company;

COMPANYNAME
--------------------
CMPLOCATION
------------------------------------------------------------------------
EMAIL
----------------------------------------
Zooplus
Germany
sales@zooplus.com

Otto Environmental
11015 W Layton Ave A, Greenfield, WI 53228, US
sales@ottoevmn.com

COMPANYNAME
--------------------
CMPLOCATION
------------------------------------------------------------------------
EMAIL
----------------------------------------

Zoo Med
12345 Ave, Toronto, ON Q7R7Y7, Canada
sales@zooMed.com

Exotic Animal Supply
12345 Ave, Bikini Bottom

COMPANYNAME
```



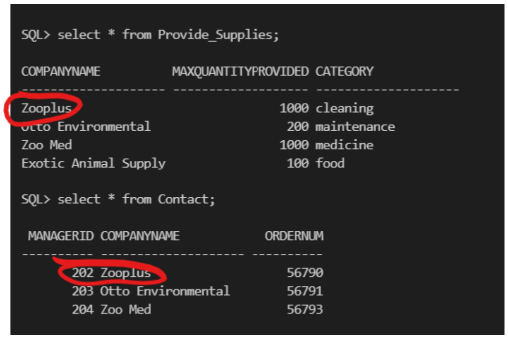
Supply Managment

Delete a company

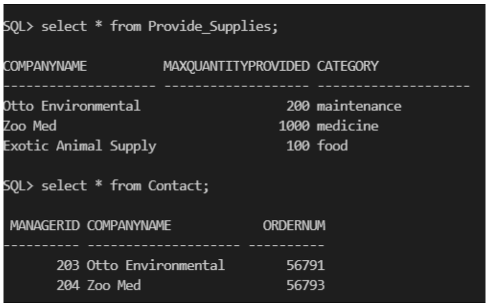
companyName: Zooplus



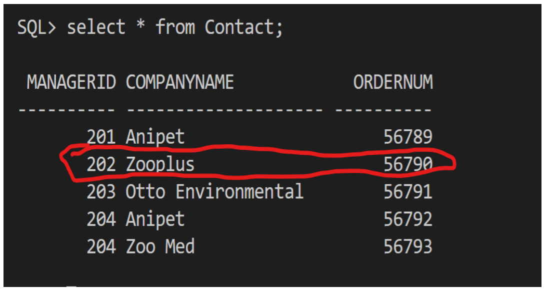
```
SQL> select * from Company;

COMPANYNAME
--------------------
CMPLOCATION
------------------------------------------------------------------------
EMAIL
----------------------------------------
Otto Environmental
11015 W Layton Ave A, Greenfield, WI 53228, US
sales@ottoevmn.com

Zoo Med
12345 Ave, Toronto, ON Q7R7Y7, Canada
sales@zooMed.com

COMPANYNAME
--------------------
CMPLOCATION
------------------------------------------------------------------------
EMAIL
----------------------------------------

Exotic Animal Supply
12345 Ave, Bikini Bottom
sales@exoAnisply.com
```



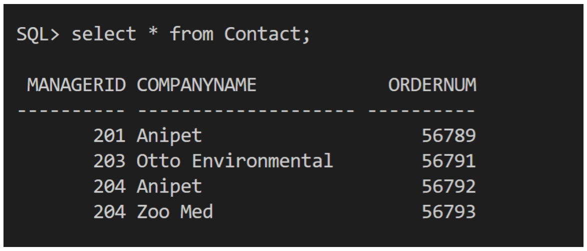
```
SQL> select * from Provide_Supplies;

COMPANYNAME          MAXQUANTITYPROVIDED CATEGORY
-------------------- ------------------- --------------------
Zooplus                             1000 cleaning
Otto Environmental                   200 maintenance
Zoo Med                             1000 medicine
Exotic Animal Supply                 100 food

SQL> select * from Contact;

 MANAGERID COMPANYNAME             ORDERNUM
---------- -------------------- ----------
       202 Zooplus                   56790
       203 Otto Environmental        56791
       204 Zoo Med                   56793
```



```
SQL> select * from Provide_Supplies;

COMPANYNAME          MAXQUANTITYPROVIDED CATEGORY
-------------------- ------------------- --------------------
Otto Environmental                   200 maintenance
Zoo Med                             1000 medicine
Exotic Animal Supply                 100 food

SQL> select * from Contact;

 MANAGERID COMPANYNAME             ORDERNUM
---------- -------------------- ----------
       203 Otto Environmental        56791
       204 Zoo Med                   56793
```



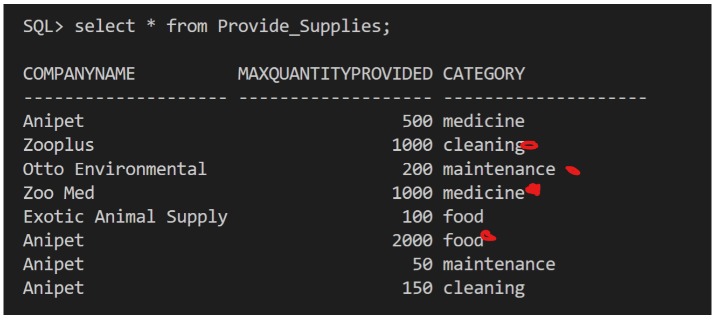
```
SQL> select * from Contact;

 MANAGERID COMPANYNAME             ORDERNUM
---------- -------------------- ----------
       201 Anipet                    56789
       202 Zooplus                   56790
       203 Otto Environmental        56791
       204 Anipet                    56792
       204 Zoo Med                   56793
```



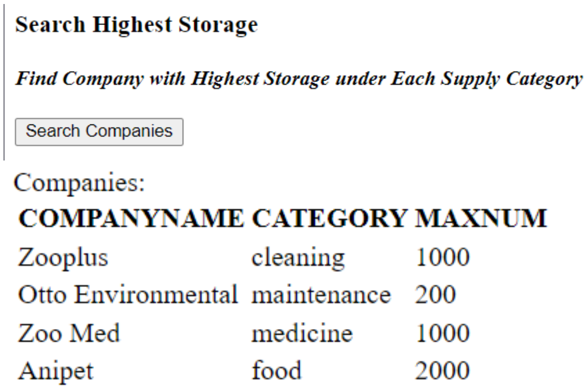
```
SQL> select * from Contact;

 MANAGERID COMPANYNAME             ORDERNUM
---------- -------------------- ----------
       201 Anipet                    56789
       203 Otto Environmental        56791
       204 Anipet                    56792
       204 Zoo Med                   56793
```

- (**NESTED AGGREGATION** for each category, find company with highest MaxQuantityProvided)

```
with Temp(category, maxNum) as
   (select category, max(maxQuantityProvided)
   from Provide_Supplies
   group by category)
select P.companyName, Temp.category, Temp.maxNum
from Provide_Supplies P, Temp
where P.category = Temp.category and P.maxQuantityProvided =
Temp.maxNum;
```



```
SQL> select * from Provide_Supplies;

COMPANYNAME          MAXQUANTITYPROVIDED CATEGORY
-------------------- ------------------- --------------------
Anipet                               500 medicine
Zooplus                             1000 cleaning
Otto Environmental                   200 maintenance
Zoo Med                             1000 medicine
Exotic Animal Supply                 100 food
Anipet                              2000 food
Anipet                                50 maintenance
Anipet                               150 cleaning
```



Search Highest Storage

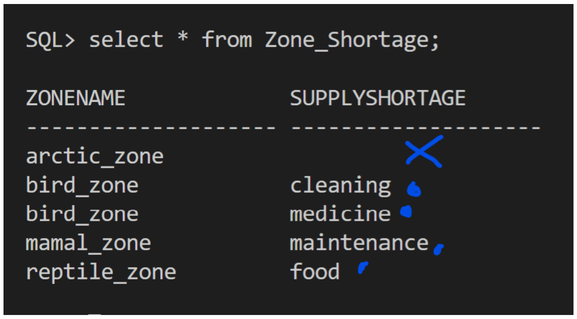
Find Company with Highest Storage under Each Supply Category

Companies:

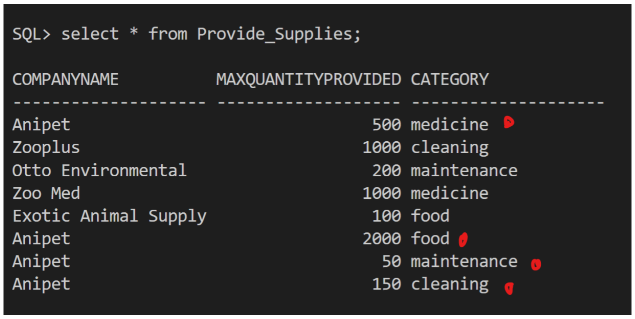
COMPANYNAME	CATEGORY	MAXNUM
Zooplus	cleaning	1000
Otto Environmental	maintenance	200
Zoo Med	medicine	1000
Anipet	food	2000

- (**DIVISION** for all current supply shortages in the zoo, find companies who can provide all required supply categories)

```
select C.companyName from Company C
where not exists
   (select supplyShortage from Zone_Shortage where supplyShortage <> ''
   minus
   select category from Provide_Supplies P where P.companyName =
C.companyName);
```



```
SQL> select * from Zone_Shortage;

ZONENAME             SUPPLYSHORTAGE
-------------------- --------------------
arctic_zone
bird_zone            cleaning
bird_zone            medicine
mamal_zone           maintenance
reptile_zone         food
```



```
SQL> select * from Provide_Supplies;

COMPANYNAME          MAXQUANTITYPROVIDED CATEGORY
-------------------- ------------------- --------------------
Anipet                               500 medicine
Zooplus                             1000 cleaning
Otto Environmental                   200 maintenance
Zoo Med                             1000 medicine
Exotic Animal Supply                 100 food
Anipet                              2000 food
Anipet                                50 maintenance
Anipet                               150 cleaning
```

Find Company

With existing zone shortages, find a list of company that can provide all the needed supplies

[Find Company]

running SELECT C.companyName FROM Company C WHERE NOT EXISTS (SELECT supplyShortage FROM Zone_Shortage WHERE supplyShortage <> ' ' MINUS (SELECT category FROM Provide_Supplies P WHERE P.companyName = C.companyName))

The company with all the given supplies is:

COMPANYNAME
Anipet