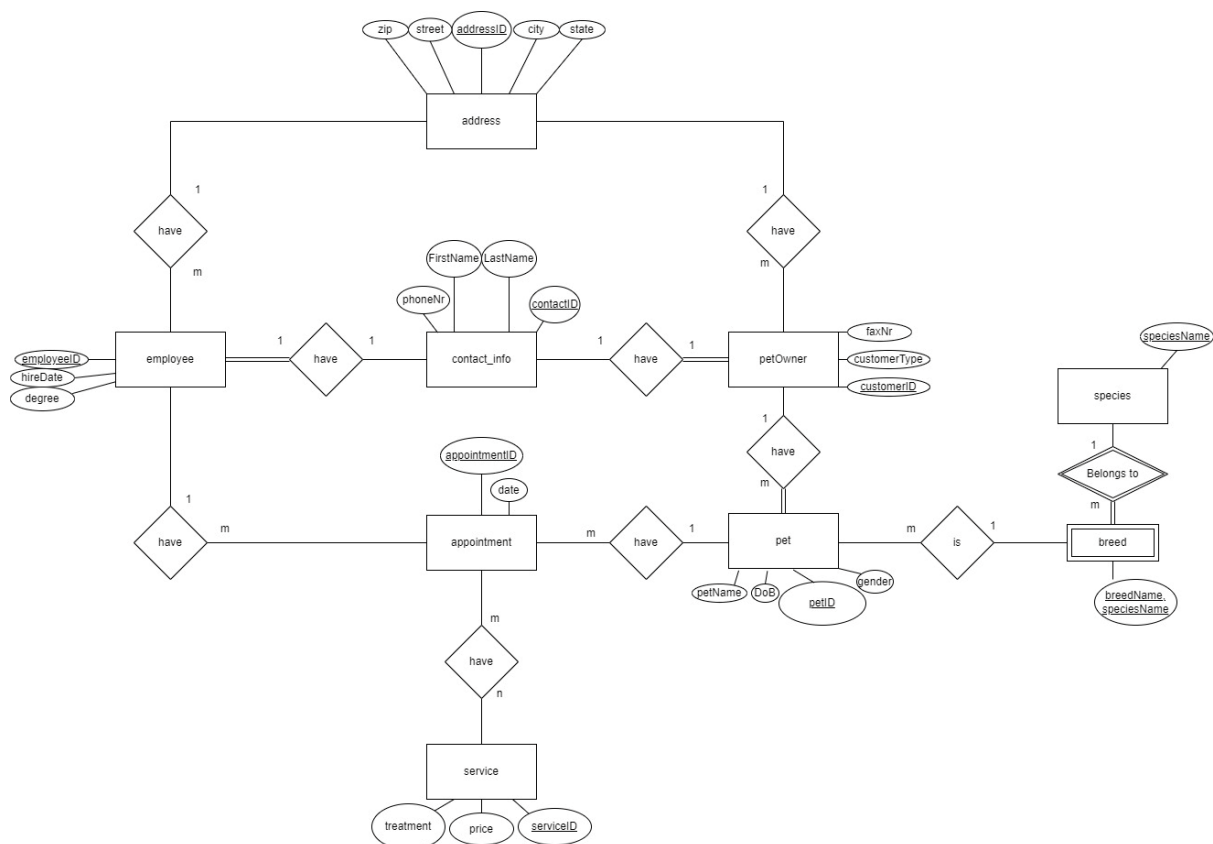


# DT139G Laboration 2

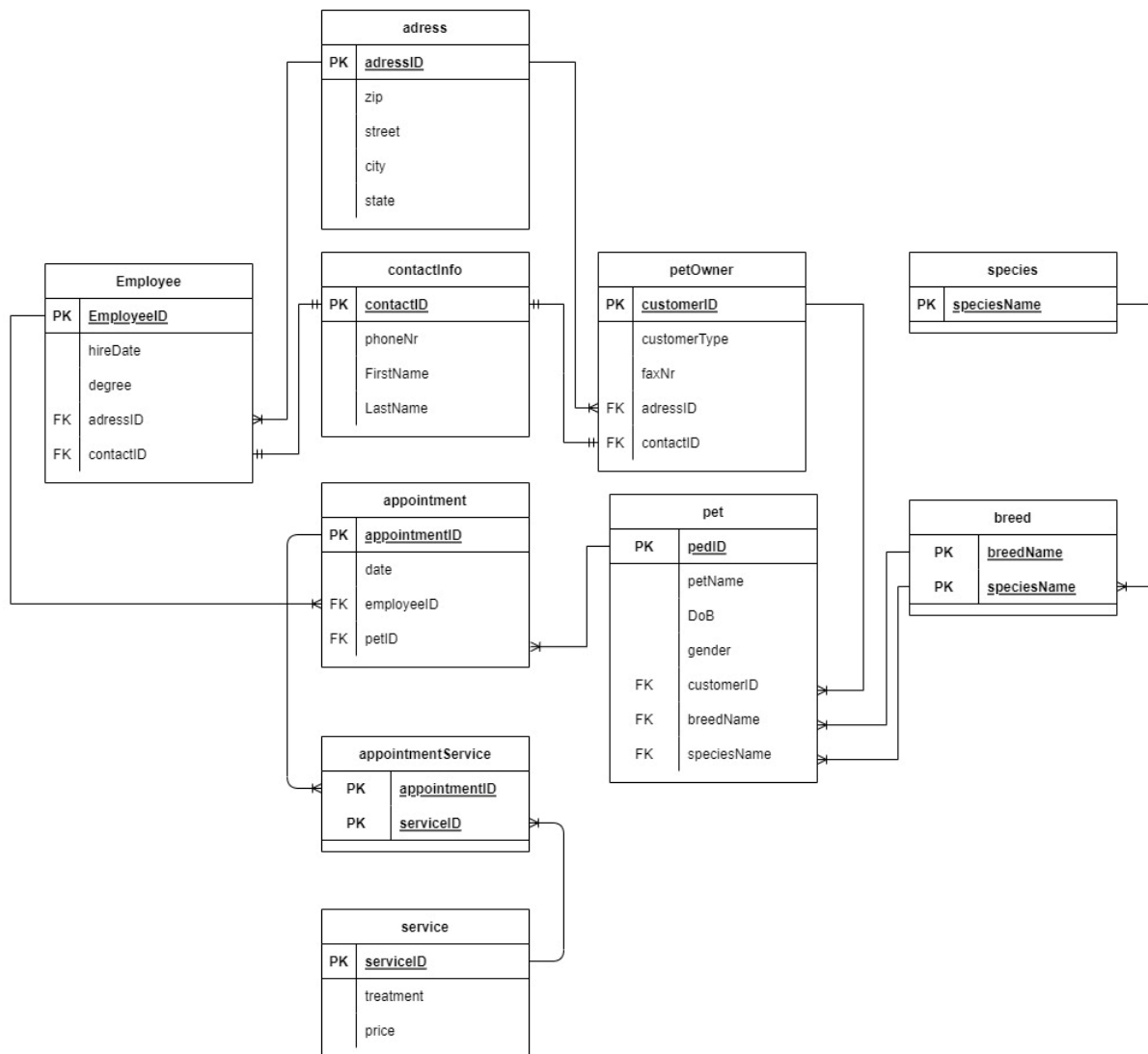
## Rapport av Kevin Olsson

1 + 2: Extract and Design a relational model using ER/EER & determine the primary keys



Ovan Syns ett ER-Diagrammet till databasen vilket beskriver designen på en mer konceptuell och hög nivå där endast primärnycklar och ickenyckelattribut finns med, medans mer detaljerad nivå såsom främmande nycklar och mellanrelationer inte finns med.

### 3: Set up relationships (determining foreign keys) by mapping your ER/EER to relations and showing what are FK and PK in your relations



Ovan syns alla motsvarande relationer för databasen som ska implementeras, som är designade baserat på hur det initiala ER-diagrammet såg ut. Här syns detaljer såsom primärnycklar, främmande nycklar, mellanrelationer, kardinalitet, hur relationerna relaterar till varandra och hur de kommer att implementeras i databasen.

## 4: Implement the database on DBMS of your choice

### 4.1 Beskrivning av hela databasen

```
MariaDB [lab2_2023]> show tables;
```

Tables_in_lab2_2023
address
appointment
appointmentservice
breed
contact_info
employee
pet
petowner
service
species

```
10 rows in set (0.001 sec)
```

### 4.2 Beskrivning av alla relationers struktur och deras metadata i databasen

```
MariaDB [lab2_2023]> describe address;
```

Field	Type	Null	Key	Default	Extra
addressID	int(3)	NO	PRI	NULL	auto_increment
street	varchar(20)	NO		NULL	
city	varchar(20)	NO		NULL	
state	varchar(20)	NO		NULL	
zip	varchar(20)	NO		NULL	

```
5 rows in set (0.011 sec)
```

```
MariaDB [labb2_2023]> describe appointment;
```

Field	Type	Null	Key	Default	Extra
appointmentID	int(3)	NO	PRI	NULL	auto_increment
date	varchar(20)	NO		NULL	
employeeID	int(3)	NO	MUL	NULL	
petID	varchar(8)	NO	MUL	NULL	

```
4 rows in set (0.010 sec)
```

```
MariaDB [labb2_2023]> describe appointmentService;
```

Field	Type	Null	Key	Default	Extra
appointmentID	int(3)	NO	PRI	NULL	auto_increment
serviceID	varchar(5)	NO	PRI	NULL	

```
2 rows in set (0.007 sec)
```

```
MariaDB [labb2_2023]> describe breed;
```

Field	Type	Null	Key	Default	Extra
breedName	varchar(25)	NO	PRI	NULL	
speciesName	varchar(10)	NO	PRI	NULL	

```
2 rows in set (0.011 sec)
```

```
MariaDB [labb2_2023]> describe contact_info;
```

Field	Type	Null	Key	Default	Extra
contactID	int(3)	NO	PRI	NULL	auto_increment
phoneNR	varchar(20)	NO		NULL	
FirstName	varchar(20)	NO		NULL	
LastName	varchar(10)	NO		NULL	

```
4 rows in set (0.008 sec)
```

```
MariaDB [labb2_2023]> describe employee;
```

Field	Type	Null	Key	Default	Extra
EmployeeID	int(3)	NO	PRI	NULL	auto_increment
hireDate	varchar(20)	NO		NULL	
degree	varchar(20)	NO		NULL	
addressID	int(3)	NO	MUL	NULL	
contactID	int(3)	NO	MUL	NULL	

```
5 rows in set (0.010 sec)
```

```
MariaDB [labb2_2023]> describe pet;
```

Field	Type	Null	Key	Default	Extra
petID	varchar(8)	NO	PRI	NULL	
petName	char(10)	NO		NULL	
DoB	varchar(20)	NO		NULL	
gender	char(2)	NO		NULL	
customerID	varchar(5)	NO	MUL	NULL	
speciesName	varchar(10)	NO	MUL	NULL	
breedName	varchar(25)	NO	MUL	NULL	

```
7 rows in set (0.008 sec)
```

```
MariaDB [labb2_2023]> describe petowner;
```

Field	Type	Null	Key	Default	Extra
customerID	varchar(5)	NO	PRI	NULL	
customerType	int(1)	NO		NULL	
faxNR	varchar(20)	NO		NULL	
addressID	int(3)	NO	MUL	NULL	
contactID	int(3)	NO	MUL	NULL	

```
5 rows in set (0.009 sec)
```

```
MariaDB [lab2_2023]> describe service;
```

Field	Type	Null	Key	Default	Extra
serviceID	varchar(5)	NO	PRI	NULL	
treatment	varchar(50)	NO		NULL	
price	varchar(5)	NO		NULL	

3 rows in set (0.012 sec)

```
MariaDB [lab2_2023]> describe species;
```

Field	Type	Null	Key	Default	Extra
speciesName	varchar(10)	NO	PRI	NULL	

1 row in set (0.010 sec)

#### 4.3 Beskrivning av de kompletta & skapade relationerna i databasen

```
MariaDB [lab2_2023]> select * from address;
```

addressID	street	city	state	zip
1	21 Grace st.	Tall Pines	WA	98746
2	66 10th St	Mountain View	WA	984101012
3	1122 10th St	Lakeville	OR	97401101
4	15 Marlin Lane	Borderville	ID	834835646
5	6th Ave St	New York	NY	10011
6	908 W. Capital Way	Tacoma	WA	98401
7	4726-11th Ave. N.E	Seattle	WA	98105
8	722 Moss Bay Blvd.	Kirkland	WA	98033
9	Coventry House Miner	Tacoma	WA	98402
10	7 Hounds tooth Rd.	Bellingham	WA	98047
11	14 Garrett Hill.	Bellingham	WA	98047
12	507-20th Ave. E. Apt	Seattle	WA	98122
13	Edgeham Hollow Winch	Seattle	WA	98125
14	41 10 Old Redmond Rd	Redmond	WA	98052

14 rows in set (0.000 sec)

```
MariaDB [labb2_2023]> select * from appointment;
```

appointmentID	date	employeeID	petID
1	5/9/99	4	AB001-01
2	5/9/99	4	AB001-01
3	5/9/99	4	AB001-01
4	5/9/99	4	AB001-01
5	11/4/98	3	AC001-04
6	11/4/98	3	AC001-04
7	11/4/98	3	AC001-04
8	11/4/98	3	AC001-04
9	11/4/98	3	AC001-04

```
9 rows in set (0.000 sec)
```

```
MariaDB [labb2_2023]> select * from appointmentservice;
```

appointmentID	serviceID
1	T1003
2	T1001
3	T0300
4	M0202
5	T2003
6	M0500
7	M0702
8	T0404
9	T0408

```
9 rows in set (0.000 sec)
```

```
MariaDB [labb2_2023]> select * from breed;
```

breedName	speciesName
Beagle	dog
Chameleon	lizard
emperor	scorpion
German Shepherd	dog
Long Ear	rabbit
Mixed	dog
N/A	rat
N/A	Skunk
Palomino	horse
Potbelly	Pig

```
10 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> select * from contact_info;
```

contactID	phoneNR	FirstName	LastName
1	5556622	All Creatures	N/A
2	(206) 555-7623	Jonathan	Adams
3	(503) 555-6187	William	Adams
4	(208) 555-7108	Animal Kingdom	N/A
5	(208) 555-1234	Adam	Johnson
6	(206) 555-9482	Todd	Becker
7	(206) 555-1189	Rosie	Bowie
8	(206) 555-3412	Maram	Carrington
9	(71) 555-7773	Liu	Chiu
10	(71) 555-4444	Ame	Dennis
11	(71) 555-4848	Peter	Peters
12	(206) 555-9857	Mary	Plotter
13	(71) 555-5598	Robert	Wally
14	(206) 555-8122	Margaret	Walters

```
14 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> select * from employee;
```

EmployeeID	hireDate	degree	addressID	contactID
1	1-May-92	PhD.	12	12
2	4-Aug 92	MS.	6	6
3	11-Apr-92	MS.	8	8
4	3-May-93	MS.	14	14
5	17-Oct-93	B.S.	11	11
6	17-Oct-93	MS.	9	9
7	12-Jan-94	AA.	13	13
8	15-Mar-94	B.S.	7	7
9	15-Nov-94	MS.	10	10

```
9 rows in set (0.001 sec)
```



```
MariaDB [labb2_2023]> select * from pet;
```

petID	petName	DoB	gender	customerID	speciesName	breedName
AB001-01	Fi Fi	22/07/92	M	AB001	Scorpion	Emperor
AC001-01	Bobo	4/8/92	M	AC001	rabbit	Long Ear
AC001-02	Presto Cha	5/1/92	F	AC001	Lizard	Chameleon
AC001-03	Stinky	8/1/91	M	AC001	Skunk	N/A
AC001-04	Fido	6/1/90	M	AC001	Dog	German Shepherd
AD001-01	Patty	2/15/91	F	AD001	Pig	Potbelly
AD001-02	Rising Sun	4/10/90	M	AD001	Horse	Palomino
AD002-01	Dee Dee	2/15/91	F	AD002	Dog	Mixed
AK001-03	Jerry	21/1/88	M	AK001	rat	N/A
AK001-07	Luigi	8/1/92	M	AK001	Dog	Beagle

```
10 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> select * from petowner;
```

customerID	customerType	faxNR	addressID	contactID
AB001	1	N/A	5	5
AC001	2	(206) 555-7854	1	1
AD001	1	(206) 555-8855	2	2
AD002	1	(503) 555-7319	3	3
AK001	2	N/A	4	4

```
5 rows in set (0.000 sec)
```

```
MariaDB [labb2_2023]> select * from service;
```

serviceID	treatment	price
M0202	Zinc Oxide - 3 oz	\$7.80
M0500	Nyostatine - 1 oz	\$11.5
M0702	Xaritain Glyconol - 2 oz	\$34.5
T0300	General Exam	\$50.0
T0404	Repair complex fracture	\$230.
T0408	Cast affected area	\$120.
T1001	Lab Work - Cerology	\$75.0
T1003	Lab Work - Misc	\$35.0
T2003	Flea Spray	\$25.0

```
9 rows in set (0.000 sec)
```

```
MariaDB [labb2_2023]> select * from species;
```

```
+-----+  
| speciesName |  
+-----+  
| dog         |  
| horse       |  
| lizard      |  
| pig         |  
| rabbit      |  
| rat         |  
| scorpion    |  
| skunk       |  
+-----+
```

```
8 rows in set (0.000 sec)
```

## 4.4 Output from all Queries

```
MariaDB [labb2_2023]> select sum(addressID), min(addressID), max(addressID) from address;
```

```
+-----+-----+-----+  
| sum(addressID) | min(addressID) | max(addressID) |  
+-----+-----+-----+  
|          105 |             1 |             14 |  
+-----+-----+-----+
```

```
1 row in set (0.001 sec)
```

```
MariaDB [labb2_2023]> select breedname from pet where char_length(pet.breedname)>
```

```
-> (  
->  
-> select avg(char_length(pet.speciesname)) from pet  
->  
-> );
```

```
+-----+  
| breedname |  
+-----+  
| Beagle    |  
| Chameleon |  
| Emperor   |  
| German Shepherd |  
| Long Ear  |  
| Mixed     |  
| Palomino  |  
| Potbelly  |  
+-----+
```

```
8 rows in set (0.000 sec)
```

```
MariaDB [lab2_2023]> SELECT customerID, COUNT(*) AS pets from pet
-> WHERE customerID = "AC001";
```

```
+-----+-----+
| customerID | pets |
+-----+-----+
| AC001      | 4    |
+-----+-----+
1 row in set (0.001 sec)
```

```
MariaDB [lab2_2023]> select str_to_date(date, '%m/%d/%y') AS Dates, petID from appointment order by Dates ASC;
```

```
+-----+-----+
| Dates      | petID |
+-----+-----+
| 1998-11-04 | AC001-04 |
| 1998-11-04 | AC001-04 |
| 1998-11-04 | AC001-04 |
| 1998-11-04 | AC001-04 |
| 1998-11-04 | AC001-04 |
| 1999-05-09 | AB001-01 |
| 1999-05-09 | AB001-01 |
| 1999-05-09 | AB001-01 |
| 1999-05-09 | AB001-01 |
+-----+-----+
9 rows in set (0.001 sec)
```

```
MariaDB [lab2_2023]> select * from pet;
```

```
+-----+-----+-----+-----+-----+-----+-----+
| petID | petName | DoB      | gender | customerID | speciesName | breedName |
+-----+-----+-----+-----+-----+-----+-----+
| AB001-01 | Fi Fi   | 22/07/92 | M      | AB001      | Scorpion    | Emperor   |
| AC001-01 | Bobo    | 4/8/92   | M      | AC001      | rabbit      | Long Ear  |
| AC001-02 | Presto Cha | 5/1/92   | F      | AC001      | Lizard      | Chameleon |
| AC001-03 | Stinky  | 8/1/91   | M      | AC001      | Skunk       | N/A       |
| AC001-04 | Fido    | 6/1/90   | M      | AC001      | Dog         | German Shepherd |
| AD001-01 | Patty   | 2/15/91  | F      | AD001      | Pig         | Potbelly  |
| AD001-02 | Rising Sun | 4/10/90  | M      | AD001      | Horse       | Palomino  |
| AD002-01 | Dee Dee | 2/15/91  | F      | AD002      | Dog         | Mixed     |
| AK001-03 | Jerry   | 21/1/88  | M      | AK001      | rat         | N/A       |
| AK001-07 | Luigi   | 8/1/92   | M      | AK001      | Dog         | Beagle    |
+-----+-----+-----+-----+-----+-----+-----+
10 rows in set (0.000 sec)
```

```
MariaDB [lab2_2023]> DELETE from pet where pet.breed = "Beagle";
```

```
ERROR 1054 (42S22): Unknown column 'pet.breed' in 'where clause'
```

```
MariaDB [lab2_2023]> DELETE from pet where pet.breedName = "Beagle";
```

```
Query OK, 1 row affected (0.003 sec)
```

```
MariaDB [lab2_2023]> Select * from pet;
```

```
+-----+-----+-----+-----+-----+-----+-----+
| petID | petName | DoB      | gender | customerID | speciesName | breedName |
+-----+-----+-----+-----+-----+-----+-----+
| AB001-01 | Fi Fi   | 22/07/92 | M      | AB001      | Scorpion    | Emperor   |
| AC001-01 | Bobo    | 4/8/92   | M      | AC001      | rabbit      | Long Ear  |
| AC001-02 | Presto Cha | 5/1/92   | F      | AC001      | Lizard      | Chameleon |
| AC001-03 | Stinky  | 8/1/91   | M      | AC001      | Skunk       | N/A       |
| AC001-04 | Fido    | 6/1/90   | M      | AC001      | Dog         | German Shepherd |
| AD001-01 | Patty   | 2/15/91  | F      | AD001      | Pig         | Potbelly  |
| AD001-02 | Rising Sun | 4/10/90  | M      | AD001      | Horse       | Palomino  |
| AD002-01 | Dee Dee | 2/15/91  | F      | AD002      | Dog         | Mixed     |
| AK001-03 | Jerry   | 21/1/88  | M      | AK001      | rat         | N/A       |
+-----+-----+-----+-----+-----+-----+-----+
9 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> select customerID, count(*) As Pets from pet GROUP BY customerID;
```

customerID	Pets
AB001	1
AC001	4
AD001	2
AD002	1
AK001	2

```
5 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> select customerID, count(*) As Pets from pet GROUP BY customerID HAVING count(*) > 1;
```

customerID	Pets
AC001	4
AD001	2
AK001	2

```
3 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> SELECT petName from pet where pet.gender != "M";
```

petName
Presto Cha
Patty
Dee Dee

```
3 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> select breedname from pet where customerID LIKE "%1";
```

breedname
Emperor
Long Ear
Chameleon
N/A
German Shepherd
Potbelly
Palomino
N/A
Beagle

```
9 rows in set (0.000 sec)
```

```
MariaDB [labb2_2023]> select employeeID, degree from employee order by employeeID DESC;
```

employeeID	degree
9	MS.
8	B.S.
7	AA.
6	MS.
5	B.S.
4	MS.
3	MS.
2	MS.
1	PhD.

```
9 rows in set (0.001 sec)
```

```
MariaDB [labb2_2023]> SELECT petName FROM pet
-> WHERE pet.customerID in
-> (
-> select customerID from petOwner
-> WHERE petOwner.customerType = 1
-> );
```

petName
Fi Fi
Patty
Rising Sun
Dee Dee

```
4 rows in set (0.000 sec)
```

MariaDB [lab2\_2023]> select \* from pet;

petID	petName	DoB	gender	customerID	speciesName	breedName
AB001-01	Fi Fi	22/07/92	M	AB001	Scorpion	Emperor
AC001-01	Bobo	4/8/92	M	AC001	rabbit	Long Ear
AC001-02	Presto Cha	5/1/92	F	AC001	Lizard	Chameleon
AC001-03	Stinky	8/1/91	M	AC001	Skunk	N/A
AC001-04	Fido	6/1/90	M	AC001	Dog	German Shepherd
AD001-01	Patty	2/15/91	F	AD001	Pig	Potbelly
AD001-02	Rising Sun	4/10/90	M	AD001	Horse	Palomino
AD002-01	Dee Dee	2/15/91	F	AD002	Dog	Mixed
AK001-03	Jerry	21/1/88	M	AK001	rat	N/A

9 rows in set (0.000 sec)

MariaDB [lab2\_2023]> UPDATE pet SET pet.petName = "FA FA" where pet.speciesName = "Scorpion";

Query OK, 1 row affected (0.004 sec)

Rows matched: 1 Changed: 1 Warnings: 0

MariaDB [lab2\_2023]> Select \* from pet;

petID	petName	DoB	gender	customerID	speciesName	breedName
AB001-01	FA FA	22/07/92	M	AB001	Scorpion	Emperor
AC001-01	Bobo	4/8/92	M	AC001	rabbit	Long Ear
AC001-02	Presto Cha	5/1/92	F	AC001	Lizard	Chameleon
AC001-03	Stinky	8/1/91	M	AC001	Skunk	N/A
AC001-04	Fido	6/1/90	M	AC001	Dog	German Shepherd
AD001-01	Patty	2/15/91	F	AD001	Pig	Potbelly
AD001-02	Rising Sun	4/10/90	M	AD001	Horse	Palomino
AD002-01	Dee Dee	2/15/91	F	AD002	Dog	Mixed
AK001-03	Jerry	21/1/88	M	AK001	rat	N/A

9 rows in set (0.001 sec)