Animal Shelter Description

Chris got the idea for this database after volunteering at an animal shelter: he said their system for keeping track of the animals was an inefficient mess.

The main entities in our model are **animals** such as cats and dogs, **owners** who may adopt these animals, the **workers** who we split further into **volunteers** and **veterinarians**, and the **shelters** themselves, which may have different sections within them housing specific animals, **wards**. To add some more complexity to our model we further added **intake forms**, which track when an animal is taken in by a shelter, **adoption applications** made by owners for specific animals, tracking the date an animal is adopted by a specific owner, and pet **food** with different brand and price attributes. To normalize our model into 3NF we removed City and Province as attributes from both Shelters and Owners, with Postal Code as a foreign key accessing these attributes in **postal code** as a new entity. Our model tracks the age and weight of the animals kept at shelters, how long they've been there for, if and when they are adopted and by who, and the variety and quantity of food they are fed. It also tracks the annual budget of each shelter, the salaries of its veterinarians, and the hours logged by its volunteers.

Changes to Relational Schema:

We forgot to give a name to the new relations born of normalizing Shelter and Owner to 3NF. We elected to call these relations PostalCode, and, being the exact same thing, have them as one single relation, tied to bother Shelter and Owner.
Small changes to the names of tables and columns were made to be compatible with SQL: words were added to reserved words, spaces and symbols were removed.
We added Animal's primary key (ID, Species) to IntakeForm as a foreign key, in order to enforce a one-to-one relationship.

Queries:

Insert: Adds an Adoption Application for a particular Owner seeking to adopt a particular Animal. Owner and Animal must already exist within the database. Postal code must not have a space in it.

Select: Select tuples from any table for any two given specified attributes. String values must be surrounded by single quotes, date values must follow SQL date format: `date 'YYYY-MM-DD'`. Both values must be specified.

Update: Updates the number of volunteer hours for a given volunteer. The user must input the volunteer worker's ID and the number of hours to update to.

Delete: Removes a worker from the database, in case they no longer work for the animal shelter. Removing a worker from the worker database will update the volunteer or veterinarian table accordingly.

Join: The user inputs a city, and then the database responds with information about all the animals in that city. This is done by joining the PostalCode table with the Animal table on the PostalCode and checking that the user inputted city matches the one listed in the PostalCode table.

Aggregation Group By: This query is hardcoded to count the number of dogs in the database. The user clicks a button, and then the number of dogs is counted by checking species='Dog' in the animal table.

Projection: The user is allowed to select any 1-5 attributes from the animal table to project on, allowing them to display specific information for animals within the shelter that may be useful at any given time such as wardnumber, species, breed, birthday, etc.

Sample Outputs

Insert:

```
SQL> select * from adoptionapplication;

OWNERNAME                            STREETNUMBER STREETNAME    POSTAL ADOPTIOND
------------------------------------ ------------ ------------- ------ ---------
AID      SPECIES
-------- --------------------
Haris Barbara                                 123 Vine St       V6S1L5 15-OCT-21
87047410 Dog

Aygul Antinanco                              5212 Cedar St      V2R9Y7 25-SEP-21
78217232 Cat

Medusa Karol                                 2345 Oak Ave      V7H2R9 11-AUG-21
61558339 Dog


OWNERNAME                            STREETNUMBER STREETNAME    POSTAL ADOPTIOND
------------------------------------ ------------ ------------- ------ ---------
AID      SPECIES
-------- --------------------
Kanako Ana                                   1456 Maple Ave    V8LH94 09-OCT-21
50276739 Dog

Olamide Gayathri                             3465 Yew St       V9Z1B6 18-OCT-21
13015895 Cat


SQL>
```

Five adoption applications from initialization

Animal Shelter Databse

Reset

Insert Adoption Application

Find Animals in City

Count Dogs

Update Volunteer Hours

Delete Worker

Find Food Amount

Display Animal Info

Custom Selection

Adopt An Animal!

Your Name: Haris Barbara

Your Street Number: 123

Your Street Name: Vine St

Your Postal Code: V6S1L5

Adoption Date: 2021-11-28

Animal's ID 00000000

Species: Dog

Insert

insert a new adoption application for Dog 00000000 by Haris Barbara

```
SQL> select * from adoptionapplication;

OWNERNAME                          STREETNUMBER STREETNAME    POSTAL ADOPTIOND
---------------------------------- ------------ ------------- ------ ---------
AID      SPECIES
-------- --------------------
Haris Barbara                               123 Vine St      V6S1L5 28-NOV-21
00000000 Dog

Haris Barbara                               123 Vine St      V6S1L5 15-OCT-21
87047410 Dog

Aygul Antinanco                            5212 Cedar St     V2R9Y7 25-SEP-21
78217232 Cat


OWNERNAME                          STREETNUMBER STREETNAME    POSTAL ADOPTIOND
---------------------------------- ------------ ------------- ------ ---------
AID      SPECIES
-------- --------------------
Medusa Karol                               2345 Oak Ave      V7H2R9 11-AUG-21
61558339 Dog

Kanako Ana                                 1456 Maple Ave    V8LH94 09-OCT-21
50276739 Dog

Olamide Gayathri                           3465 Yew St       V9Z1B6 18-OCT-21
13015895 Cat


6 rows selected.

SQL>
```

new adoption application is in database

Update:

```
SQL> select * from volunteer;

ID       VOLUNTEERHOURS
-------- --------------
23456789            600
31979870            100
57940862             50
15759770            500
49439812            350

SQL>
```

Volunteer 23456789 has 600 volunteer hours

students.cs.ubc.ca/~dnsrkn/animal-shelter.php

Animal Shelter Databse

Insert Adoption Application

Update Volunteer Hours

Delete Worker

Custom Selection

Display Animal Info

Find Animals in City

Count Dogs

Update Volunteer Hours

Enter a valid Volunteer ID and update the hours

Volunteer ID: 23456789

New Hours: 666666

Update

```
SQL> select * from volunteer;

ID       VOLUNTEERHOURS
-------- --------------
23456789            600
31979870            100
57940862             50
15759770            500
49439812            350

SQL> select * from volunteer;

ID       VOLUNTEERHOURS
-------- --------------
23456789         666666
31979870            100
57940862             50
15759770            500
49439812            350

SQL>
```

Update their hours to 666666

Delete:

Animal Shelter Databse

Insert Adoption Application
Update Volunteer Hours
Delete Worker
Custom Selection
Display Animal Info
Find Animals in City
Count Dogs

Update Volunteer Hours

Enter a valid Volunteer ID and update the hours

Worker ID: 23456789

Delete

Volunteer 23456789 was able to work an extra 76 years without us realizing; he is too powerful and must be destroyed. He is removed from both the worker and volunteer tables through cascading

```
SQL> select * from volunteer;

ID        VOLUNTEERHOURS
--------  --------------
23456789          666666
31979870             100
57940862              50
15759770             500
49439812             350

SQL> select * from volunteer;

ID        VOLUNTEERHOURS
--------  --------------
31979870             100
57940862              50
15759770             500
49439812             350

SQL>
```

```
SQL> select * from worker where id='23456789';

no rows selected

SQL>
```

Select:

let's see what adoptions Haris Barbara has applied for

The dog he's previously had as well as the one he adopted with our insert gui, as can be seen in the initial screenshots.

Projection:

Animal Shelter Databse

Insert Adoption Application

Update Volunteer Hours

Delete Worker

Custom Selection

Display Animal Info

Find Animals in City

Count Dogs

Select Animal Details:

Species ☑ Breed ☑ Animal ID ☐ Ward Number ☐ Birth Date ☐ Submit

Retrieved data from table:
SPECIES: Dog | BREED: Golden Retriever |
SPECIES: Cat | BREED: Maine Coon |
SPECIES: Dog | BREED: Boston Terrier |
SPECIES: Dog | BREED: Pug |
SPECIES: Cat | BREED: Siamese |
SPECIES: Cat | BREED: Persian |
SPECIES: Dog | BREED: Mutt |
SPECIES: Dog | BREED: Mutt |

Animal Shelter Databse

Insert Adoption Application

Update Volunteer Hours

Delete Worker

Custom Selection

Display Animal Info

Find Animals in City

Count Dogs

Select Animal Details:

Species ☐ Breed ☐ Animal ID ☑ Ward Number ☑ Birth Date ☑ Submit

Retrieved data from table:
ID: 87047410 | WARDNUMBER: 4 | BIRTHDATE: 25-OCT-20 |
ID: 78217232 | WARDNUMBER: 3 | BIRTHDATE: 21-MAY-13 |
ID: 61558339 | WARDNUMBER: 4 | BIRTHDATE: 30-JAN-16 |
ID: 50276739 | WARDNUMBER: 6 | BIRTHDATE: 23-APR-21 |
ID: 13015895 | WARDNUMBER: 3 | BIRTHDATE: 11-AUG-19 |
ID: 00000001 | WARDNUMBER: 3 | BIRTHDATE: 01-JAN-19 |
ID: 00000001 | WARDNUMBER: 6 | BIRTHDATE: 23-FEB-21 |
ID: 00000000 | WARDNUMBER: 6 | BIRTHDATE: 23-FEB-01 |

Join:

Animal Shelter Databse

Insert Adoption Application

Update Volunteer Hours

Delete Worker

Custom Selection

Display Animal Info

Find Animals in City

Count Dogs

Find animals in a given city

City: Vancouver

Submit

Retrieved data from table:
ID: 87047410 | SPECIES: Dog | BREED: Golden Retriever |
ID: 61558339 | SPECIES: Dog | BREED: Boston Terrier |
ID: 50276739 | SPECIES: Dog | BREED: Pug |
ID: 00000001 | SPECIES: Dog | BREED: Mutt |
ID: 00000000 | SPECIES: Dog | BREED: Mutt |

Animal Shelter Databse

Insert Adoption Application

Update Volunteer Hours

Delete Worker

Custom Selection

Display Animal Info

Find Animals in City

Count Dogs

Find animals in a given city

City: Surrey

Submit

Retrieved data from table:
ID: 78217232 | SPECIES: Cat | BREED: Maine Coon |
ID: 13015895 | SPECIES: Cat | BREED: Siamese |
ID: 00000001 | SPECIES: Cat | BREED: Persian |

Aggregate with Group By:

Animal Shelter Databse

Insert Adoption Application

Update Volunteer Hours

Delete Worker

Custom Selection

Display Animal Info

Find Animals in City

Count Dogs

Count the Dogs in Animal Shelter

Submit

The dog of tuples in Animal: 5