University of British Columbia, Vancouver
Department of Computer Science

CPSC 304 Project Cover Page

Milestone #: 4

Date: Nov 30, 2023

Group Number: 42

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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

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Project Description

- Brief summary of the project

The project focuses on developing an application for disability support and animal therapy. It manages profiles of service dogs, mental-therapy animals, and those retired from active services, detailing their training, health status, and skills. The application also maintains records of staff qualifications and pairs individuals needing support with suitable animals through a matchmaking mechanism.

- A description of how your final schema differed from the schema you turned in. If the final schema differed, explain why.

We dropped the 'TherapyAnimal_R2' table, deleted the attribute 'TherapyType' because it is unnecessary and renamed 'TherapyAnimal_R1' table to 'TherapyAnimal'; We also modified the schema of the 'TherapyAnimal' table by altering the datatype of the 'TherapyCertification' field. Initially, this field was defined as char(20). However, we realized that a more efficient approach would be to change its type to INT. This adjustment was made to simplify the representation of certification status, using 0 to indicate the absence of certification and 1 to signify its presence. This binary approach not only streamlines data storage but also enhances the efficiency of join operations in our database queries.

BEFORE:
TherapyAnimal_R1 (
Microchip# INT,
TherapyCertification CHAR(20),
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES Animal)
TherapyAnimal_R2 (
TherapyCertification CHAR(20),
TherapyType CHAR(20),
PRIMARY KEY (TherapyCertification),
FOREIGN KEY (TherapyCertification) REFERENCES TherapyAnimal_R1)

AFTER:
TherapyAnimal (
MicrochipNumber INT,
TherapyCertification INT,
PRIMARY KEY (MicrochipNumber),
FOREIGN KEY (MicrochipNumber) REFERENCES Animal_From(MicrochipNumber))

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- A copy of the schema and screenshots that show what data is present in each relation after the SQL initialization script is run.

Origin (OriginID, ContactNumber, Name, Location)

	OriginID int	ContactNumber char(20)	Name char(50)	Location char(60)
1	101	654-321-9870	Lone Star Beagle Ranch	Dallas, TX
2	102	876-543-2109	Paws and Tails Shelter	Houston, TX
3	103	987-654-3210	Safe Haven Canine Care	New York, NY
4	104	098-765-4321	Loyal Companions Rescue	Atlanta, GA
5	105	109-876-5432	Woof Warriors Association	Chicago, IL
6	106	210-555-6789	Happy Tails Cat Sanctuary	Los Angeles, CA
7	107	321-555-9876	Bunny Buddies	San Francisco, CA
8	108	432-555-7654	Gentle Giants Horse Rescu	Lexington, KY
9	109	543-555-6543	Cuddly Capybaras	Miami, FL
10	110	654-555-5432	Feathered Friends Aviary	Seattle, WA
11	201	765-555-4321	Critter Companions	Portland, OR
12	202	876-555-3210	Meadow Haven Rabbitry	Denver, CO

Breeder(**OriginID**, LicenseNumber)

	OriginID int	* LicenseNumbe int
1	101	1001
2	102	1002
3	103	1003
4	104	1004
5	105	1005
6	106	1006
7	107	1007
8	108	1008
9	109	1009
10	110	1010

RescueOrganization(**OriginID**, OrganizationID)

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	OriginID int	* OrganizationID int
1	201	2101
2	202	2102
3	203	2103
4	204	2104
5	205	2105
6	206	2106
7	207	2107
8	208	2108
9	209	2109
10	210	2110

Animal_From(**MicrochipNumber**, BirthDate, HealthStatus, Species, Age, Temperament, Name, OriginID)

	MicrochipNumbe int	BirthDate date	HealthStatus char(20)	Species char(20)	Age int	Temperament char(20)	Name char(20)	* OriginID int
1	5001	2022-01-15	Healthy	Dog	1	Playful	Buddy	101
2	5002	2020-06-10	Healthy	Dog	3	Calm	Snow	102
3	5003	2019-12-25	Requires Medication	Dog	4	Energetic	Dottie	103
4	5004	2021-03-05	Healthy	Dog	2	Friendly	Charlie	104
5	5005	2022-05-20	Healthy	Dog	1	Shy	Lulu	105
6	5006	2021-08-11	Special Diet	Cat	2	Independent	Whiskers	106

ServiceDog(**MicrochipNumber**, ServiceCertification)

	MicrochipNumbe int	ServiceCertification char(20)
1	5001	Cert-A1
2	5002	Cert-B2
3	5003	Cert-C3
4	5004	Cert-D4
5	5005	Cert-E5
6	5009	Cert-A2

QualifiedDog(**MicrochipNumber**, QualificationDate, SkillSet)

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	MicrochipNumbe int	QualificationDate date	SkillSet char(50)
1	5001	2022-07-15	Guidance, Protection
2	5002	2021-08-10	Assistance, Therapy
3	5003	2021-11-05	Detection, Assistance
4	5004	2022-02-25	Protection, Guarding
5	5005	2023-01-12	Guidance, Detection
6	5028	2020-01-01	Guidance, Detection

DisabledPerson(Name, ContactNumber, Age, MedicalCondition, **MicrochipNumber**)

	Name char(20)	ContactNumb char(20)	Age int	MedicalCondition char(255)	MicrochipNumber int
1	Alice Brown	333-444-5555	40	Hearing Impairment	5003
2	Ella Green	555-666-7777	28	Anxiety Disorder	5005
3	Jane Doe	111-222-3333	35	Visual Impairment	5001
4	John Smith	222-333-4444	45	Physical Disability	5002
5	Tom White	444-555-6666	50	Mobility Issues	5004

Staff(StaffID, Name, Role)

	StaffID int	Name char(20)	Role char(20)
1	6001	Sarah Mitchell	Trainer
2	6002	Mike Anderson	Coordinator
3	6003	Lily Johnson	Supervisor
4	6004	Daniel Roberts	Assistant
5	6005	Emma Turner	Manager
6	6006	Olivia Brown	Trainer

UnqualifiedDog_Train_R1(**MicrochipNumber**, TrainingStatus)

	MicrochipNumbe int	TrainingStatus char(20)
1	5009	In Progress
2	5011	In Progress
3	5013	Completed
4	5015	Completed
5	5022	In Progress
6	5026	In Progress

UnqualifiedDog_Train_R2(**MicrochipNumber**, StartDate)

	MicrochipNumbe int	StartDate date
1	5009	2023-01-01
2	5011	2023-01-15
3	5013	2023-01-20
4	5015	2023-02-01
5	5022	2023-02-15
6	5026	2023-03-01

UnqualifiedDog_Train_R3(**MicrochipNumber**, **StaffID**)

	MicrochipNumbe int	StaffID int
1	5009	6001
2	5011	6002
3	5086	6002
4	5013	6003
5	5084	6003
6	5015	6004

UnqualifiedDog_Train_R4(StartDate, DaysRemaining)

	StartDate date	DaysRemaining int
1	2023-01-01	30
2	2023-01-15	45
3	2023-01-20	10
4	2023-02-01	20
5	2023-02-15	60
6	2023-03-01	30

Adopter(<u>ContactNumber</u>, <u>AdopterName</u>, Address, **MicrochipNumber**)

	Address char(60)	ContactNumb char(20)	AdopterName char(20)	MicrochipNumber int
1	202 Cedar Pl, Miami, FL	000-111-2222	Isabella Queen	5076
2	606 Pine Ave, Phoenix, AZ	000-111-3254	Gyneth Hagit	(NULL)
3	404 Maple Dr, Austin, TX	000-123-2222	Sara Priscille	(NULL)
4	505 Elm Ln, Boston, MA	000-254-2222	Pencho Garbi	(NULL)
5	303 Oak St, Denver, CO	123-111-2222	Günel Manoj	(NULL)
6	707 Cedar Pl, Miami, FL	345-000-1111	Roland Derbáil	(NULL)
7	123 Oak St, Denver, CO	666-777-8888	Rachel Adams	5038
8	456 Maple Dr, Austin, TX	777-888-9999	Ryan Carter	5045
9	789 Elm Ln, Boston, MA	888-999-0000	Sophia Nelson	5049
10	101 Pine Ave, Phoenix, AZ	999-000-1111	Oliver King	5074
11	808 Oak St, Denver, CO	999-768-1111	Sveinn Rosemary	(NULL)

TherapyAnimal(<u>**MicrochipNumber**</u>, TherapyCertification)

	MicrochipNumbe int	TherapyCertification int
1	5006	0
2	5007	0
3	5008	1
4	5010	1
5	5012	1
6	5014	0

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TherapySession_Assigned_R1(SessionType, SessionLength, MaxCapacity)

	SessionType char(20)	SessionLength char(20)	MaxCapacity int
1	Bunny Therapy	2 hours	30
2	Capybara Therapy	2.5 hours	10
3	Cat Therapy	1 hour	20
4	Dog Therapy	1 hour	15
5	Horse Therapy	1.5 hours	10

TherapySession_Assigned_R2(SessionDate, **MicrochipNumber**, **SessionType**, MaxCapacity)

SessionDat date	SessionType char(20)	MaxCapacity int	MicrochipNumbe int
2023-08-10	Horse Therapy	10	5017
2023-09-15	Dog Therapy	15	5047
2023-10-05	Bunny Therapy	30	5010
2023-11-12	Cat Therapy	20	5025
2023-12-14	Capybara Therapy	10	5031
2023-12-22	Horse Therapy	10	5017
2023-12-22	Horse Therapy	10	5057

ConductBy(**StaffID**, **SessionDate**, **MicrochipNumber)**

	StaffID int	SessionDat date	MicrochipNumbe int
1	6001	2023-08-10	5017
2	6001	2023-09-15	5047
3	6001	2023-10-05	5010
4	6001	2023-11-12	5025
5	6001	2023-12-14	5031
6	6002	2023-12-22	5017

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TherapyPatient(Name, ContactNumber, Age, TherapyReason)

	Name char(20)	ContactNumb char(20)	Age int	TherapyReason char(60)
1	Alex Morgan	111-222-1234	28	Stress Relief
2	Alice Johnson	345-678-9012	33	Emotional Support
3	Bob Williams	456-789-0123	18	Emotional Support
4	Bruno Fernandes	111-222-6789	27	Anxiety Relief
5	Charlie Brown	567-890-1234	22	Stress Relief
6	Christen Press	111-222-2345	32	Mental Support

OfferTo(Name, ContactNumber, SessionDate, MicrochipNumber)

	Name char(20)	ContactNumb char(20)	SessionDat date	MicrochipNumbe int
1	Jane Smith	234-567-8901	2023-08-10	5017
2	John Doe	123-456-7890	2023-09-15	5047
3	Alice Johnson	345-678-9012	2023-10-05	5010
4	Bob Williams	456-789-0123	2023-11-12	5025
5	Charlie Brown	567-890-1234	2023-12-14	5031

RetiredAnimal_Adopt(**MicrochipNumber**, RetiredDate, ReasonForRetirement, **ContactNumber, AdopterName**)

	MicrochipNumbe int	RetiredDate date	ReasonForRetirement char(60)	ContactNumber char(20)	AdopterName char(20)
1	5019	2023-02-20	Aged	(NULL)	(NULL)
2	5021	2019-08-08	Aged	(NULL)	(NULL)
3	5023	2018-12-15	Aged	(NULL)	(NULL)
4	5038	2023-01-10	Aged	666-777-8888	Rachel Adams
5	5045	2022-12-15	Medical Condition	777-888-9999	Ryan Carter
6	5049	2023-02-05	Aged	888-999-0000	Sophia Nelson

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AdoptionRecord(RecordID, AdoptionDate, **MicrochipNumber**, **ContactNumber, AdopterName**)

	RecordI int	AdoptionDate date	* MicrochipNumber int	* ContactNumbe char(20)	* AdopterName char(20)
1	7001	2023-01-15	5038	666-777-8888	Rachel Adams
2	7002	2022-12-20	5045	777-888-9999	Ryan Carter
3	7003	2023-02-10	5049	888-999-0000	Sophia Nelson
4	7004	2023-02-25	5074	999-000-1111	Oliver King
5	7005	2022-11-15	5076	000-111-2222	Isabella Queen

Have(**RecordID**, **MicrochipNumber**)

	RecordI int	MicrochipNumbe int
1	7001	5038
2	7002	5045
3	7003	5049
4	7004	5074
5	7005	5076

- A list of all SQL queries used and where it can be found in the code (i.e., file name and line number(s)).

- **Query: Insert**

file name: add_therapy_animal.php

code line: 63

```
// SQL Query: INSERT
   $stmt = $conn->prepare("INSERT INTO
Animal_From(MicrochipNumber,BirthDate,HealthStatus,Species, Age, Temperament, Name,
OriginID) VALUES (?, ?, ?, ?, ?, ?, ?, ?)");
   $stmt->bind_param("isssissi", $microchipNumber,$birthDate,$healthStatus, $species,
$age, $temperament, $name, $originID);
```

- **Query: Delete**

file name: delete_animal.php

code line: 11

```
// SQL Query: DELETE
   $stmt = $conn->prepare("DELETE FROM Animal_From WHERE MicrochipNumber = ?");
```

```
    $stmt->bind_param("i", $microchipNumber);
```

- **Query: Update**

file name: update_animal.php

code line: 46

```
// SQL Query: UPDATE
$update_stmt = $conn->prepare("UPDATE Animal_From SET Name=?, BirthDate=?,
HealthStatus=?, Species=?, Age=?, Temperament=?, OriginID=? WHERE MicrochipNumber=?");
$update_stmt->bind_param("ssssisii", $name, $birthdate, $healthStatus, $species, $age,
$temperament, $originID, $microchipNumber);
```

- **Query: Selection**

file name: projection.php

query code line: around 228

```
    } else if ($keys_query == "" || $keys_query == "*"){
      // selection
      $result = $conn->query("SELECT * FROM " . $tables . $op);
```

- **Query: Projection**

file name: projection.php

query code line: around 226

```
  try {
    if ($op == "") {
      // projection
      $result = $conn->query("SELECT " . $keys_query . " FROM " . $tables);
```

- **Query: Join**

file name: staff_board.php

```
      //Demo-ing the Query: Join
      $query = "SELECT a.*, t.TherapyCertification FROM Animal_From a JOIN
TherapyAnimal t ON a.MicrochipNumber=t.MicrochipNumber WHERE
t.therapycertification='1';";
```

- **Query: Aggregation with GROUP BY**

file name: staff_board.php

code line: 127

```
    //Demo-ing the Query: Aggregation with GROUP BY
    $query = "SELECT COUNT(*) as AnimalCount, SessionType FROM
TherapySession_Assigned_R2 WHERE SessionDate = ? GROUP BY SessionType";
```

- **Query: Aggregation with HAVING**

file name: animal_board.php

code line: 245

```
// SQL Query: Aggregation with HAVING
   $query = "SELECT ReasonForRetirement, COUNT(*) AS NumberOfAnimals
             FROM RetiredAnimal_Adopt
             GROUP BY ReasonForRetirement
             HAVING COUNT(*) > ?";
```

- **Query: Nested Aggregation with GROUP BY**

file name: animal_baord.php

code line: 189

```
// SQL Query: Nested Aggregation with GROUP BY
$query = "SELECT Species, AVG(Age) AS AvgAge,
         (SELECT COUNT(*) FROM Animal_From WHERE Species = a.Species AND Age > ?) AS
CountOfAnimalsAboveThreshold
         FROM Animal_From a
         GROUP BY Species
         HAVING AVG(Age) > ?";
```

- **Query: Division**

file name: staff_board.php

code line: 254

```
$query = "SELECT s.StaffID, s.Name
         FROM Staff s
         WHERE NOT EXISTS (
           SELECT t1.SessionType
```

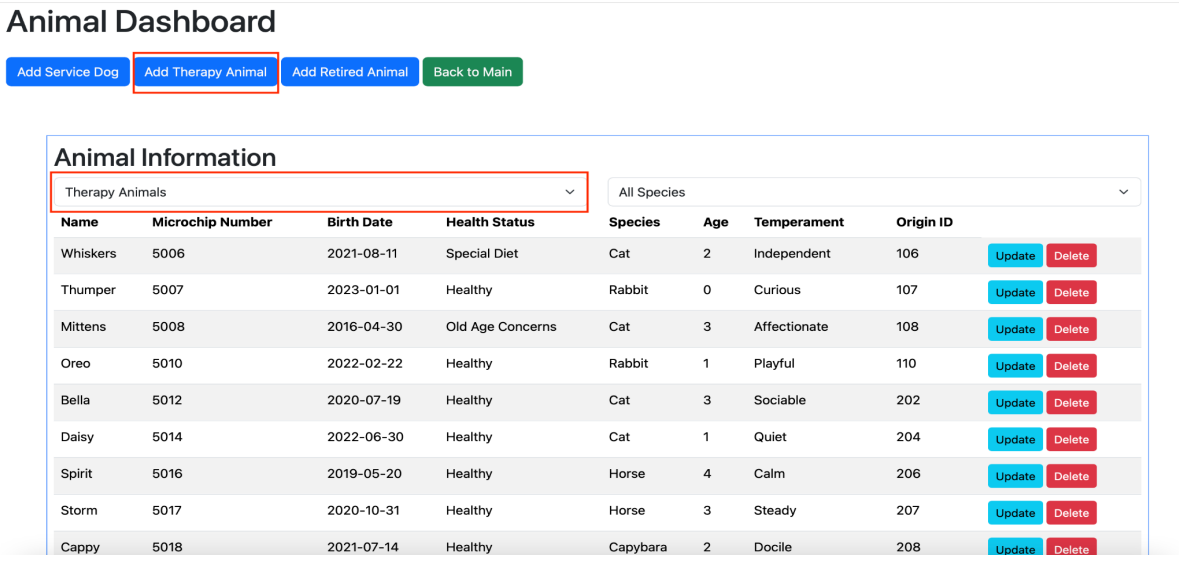
```
        FROM TherapySession_Assigned_R1 t1
        WHERE NOT EXISTS (
          SELECT c.SessionDate
          FROM ConductBy c
          WHERE c.StaffID = s.StaffID AND c.SessionDate IN (
            SELECT ts2.SessionDate
            FROM TherapySession_Assigned_R2 ts2
            WHERE ts2.SessionType = t1.SessionType
          )
        )
      );"
```

4. Screenshots of query result

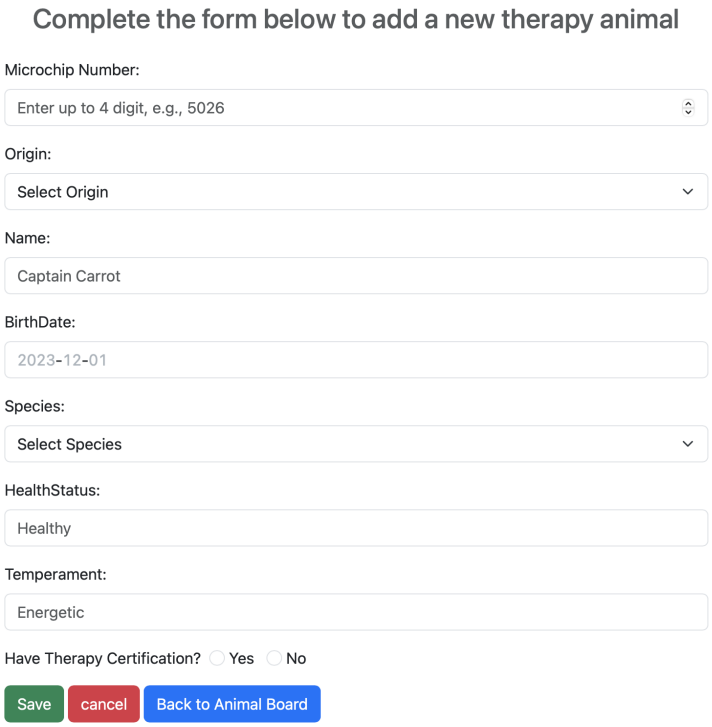
Screenshots demonstrating the functionality of each query using the GUI. We want to see a before/during/after progression of events.

Queries: INSERT Operation

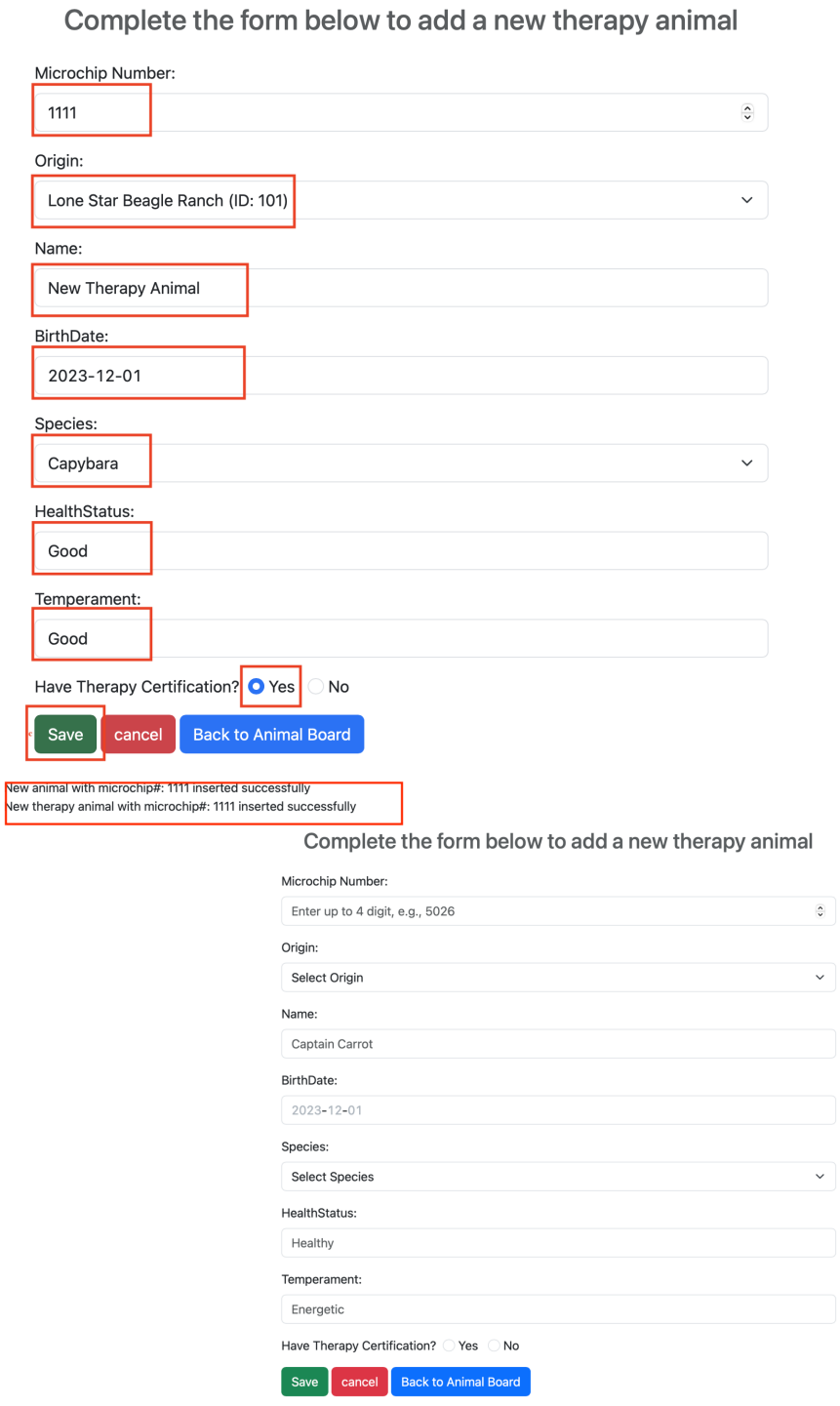
Example to add a new therapy animal
Before, the Animal Information table now show all the information for therapy animals



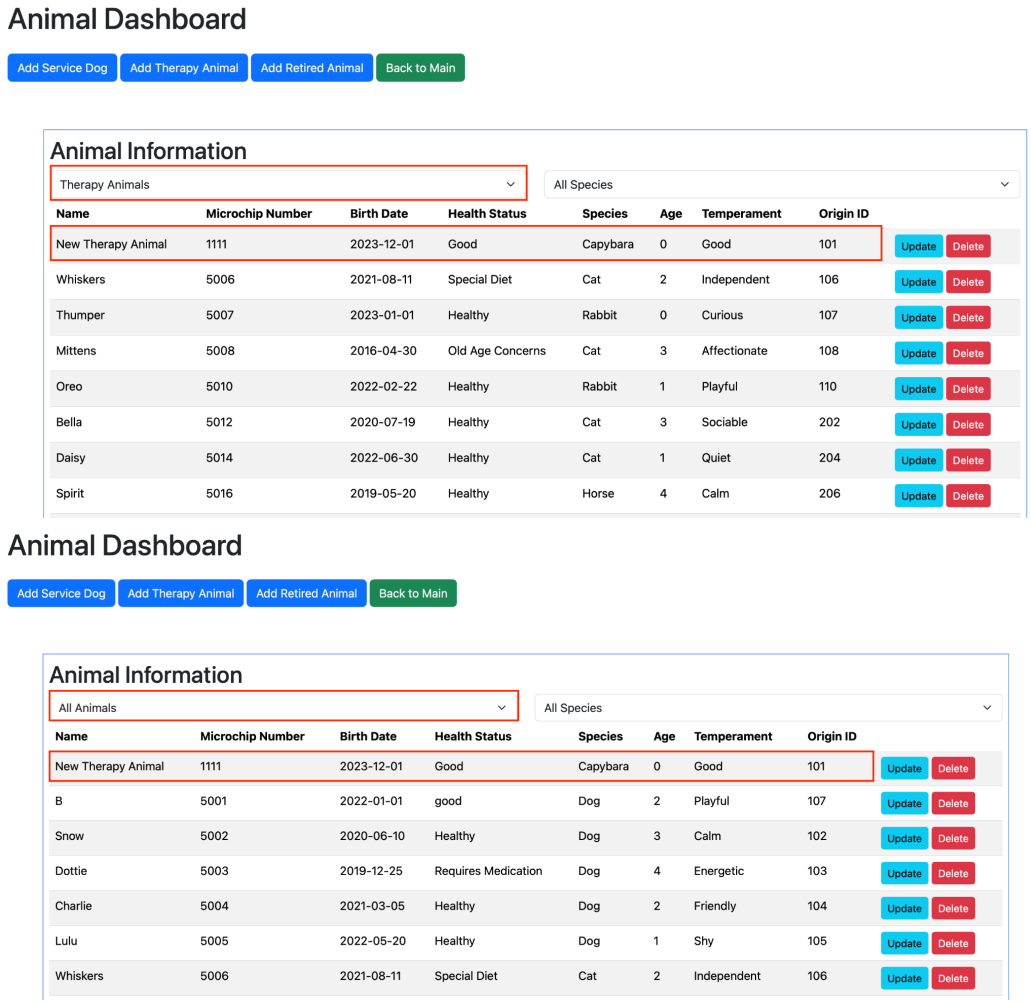
Then click the “Add Therapy Animal” button at the top, in the page below, we can complete the form to add a new therapy animal.



During:
Then in the form we add a new therapy animal with the attributes shown in the picture below and click the “save” button, then the message will show to remind user that the animal is added successfully.

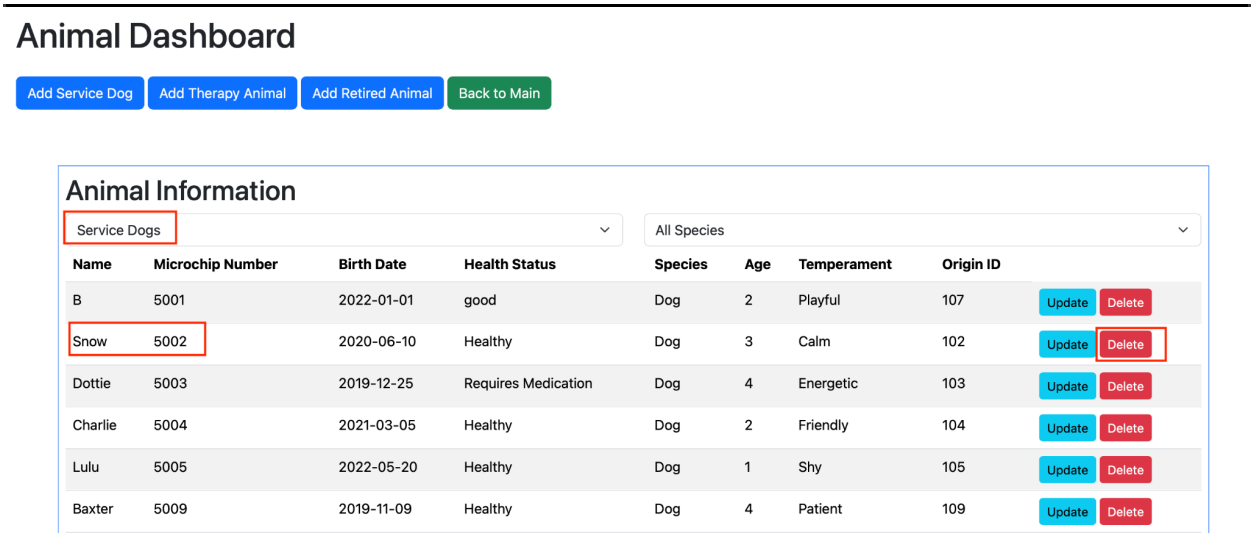


After:
Back to the Animal Dashboard, we can see the new added therapy animal shown in the Therapy Animal table. Also the data is added in the All Animal Table.

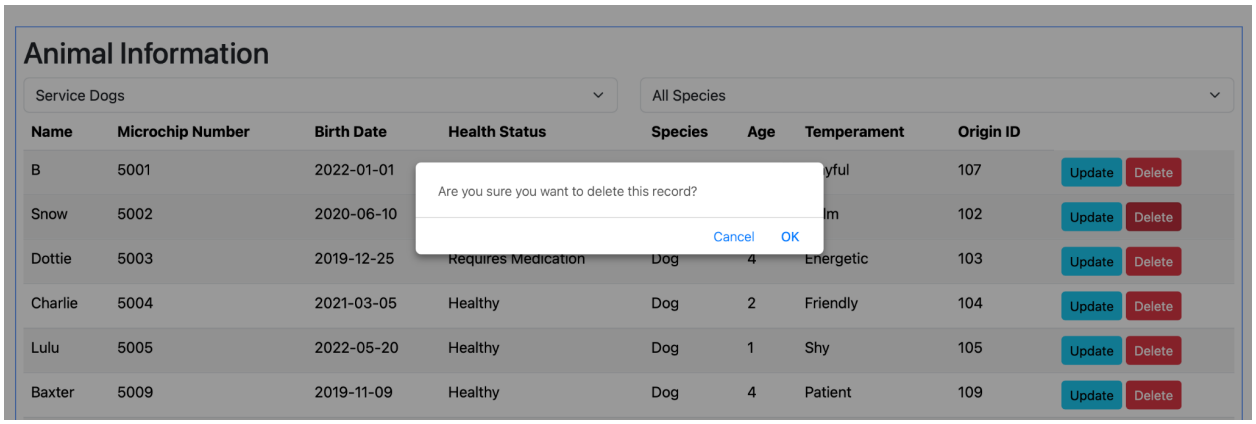


Queries: DELETE Operation

Before:
From the Animal Dashboad page, want to delete the animal with MicrochipNumber 5002 from the Service Dog.

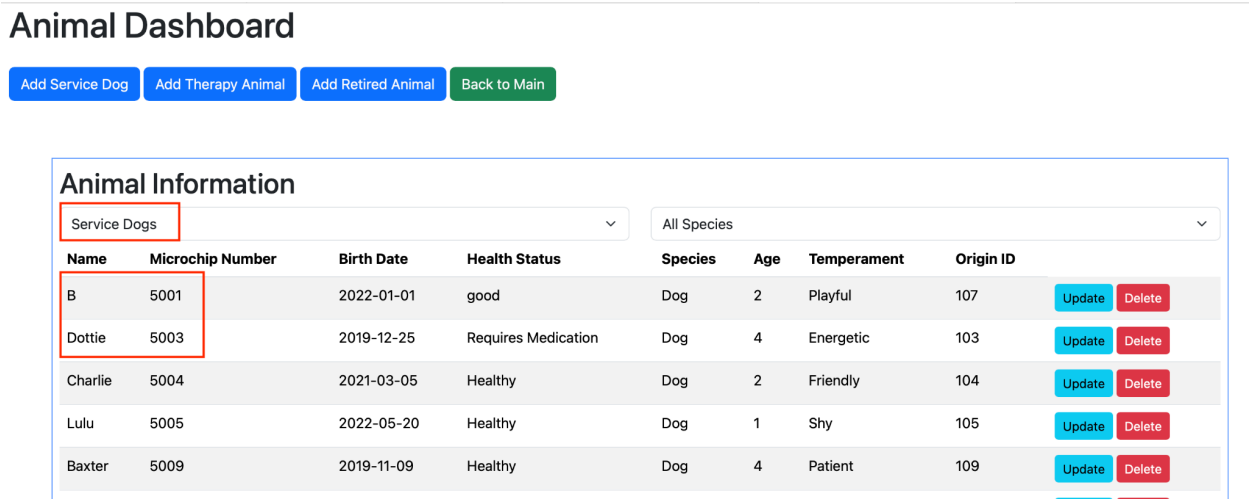


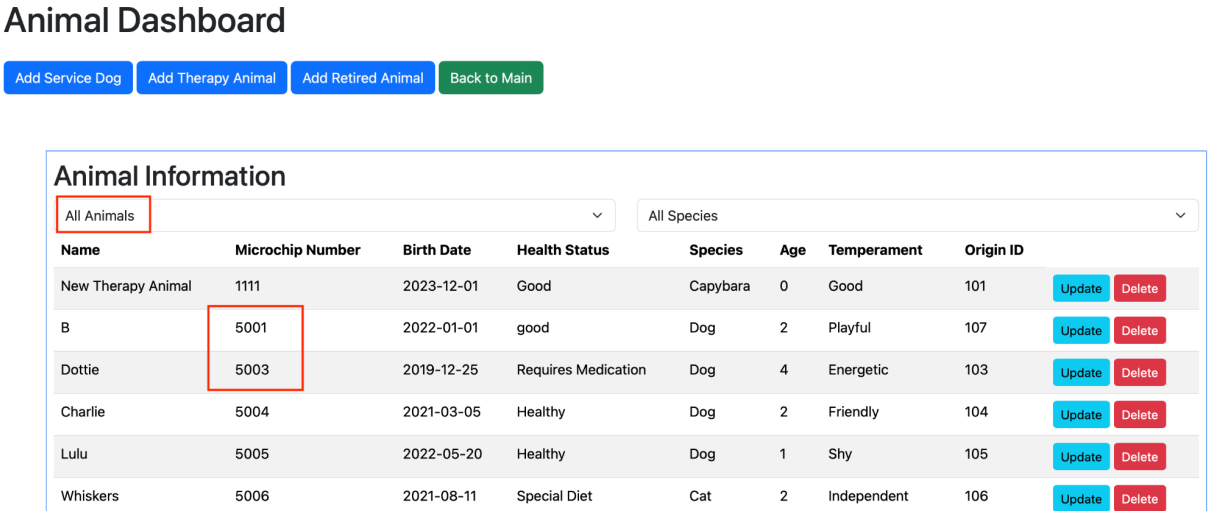
During:
Click “Delete” button and confirm the deletion with “OK”. After the deleted message is shown, click “Close”.



After:
Back to the Animal Dashboard page, the animal with MicrochipNumber 5002 is deleted from Service Dog table.

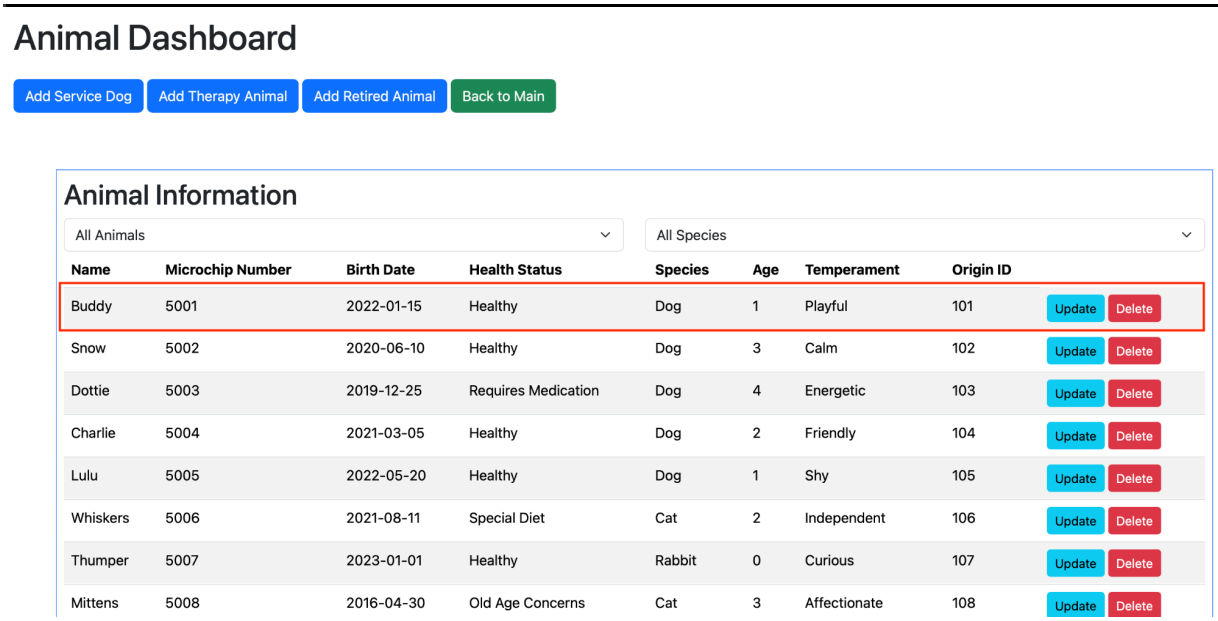
The animal with MicrochipNumber 5002 is also deleted from All Animals table, since there is “ON DELETE CASCADE” in the Service Dog table for the foreign key (MicrochipNumber) reference to the Animal table.



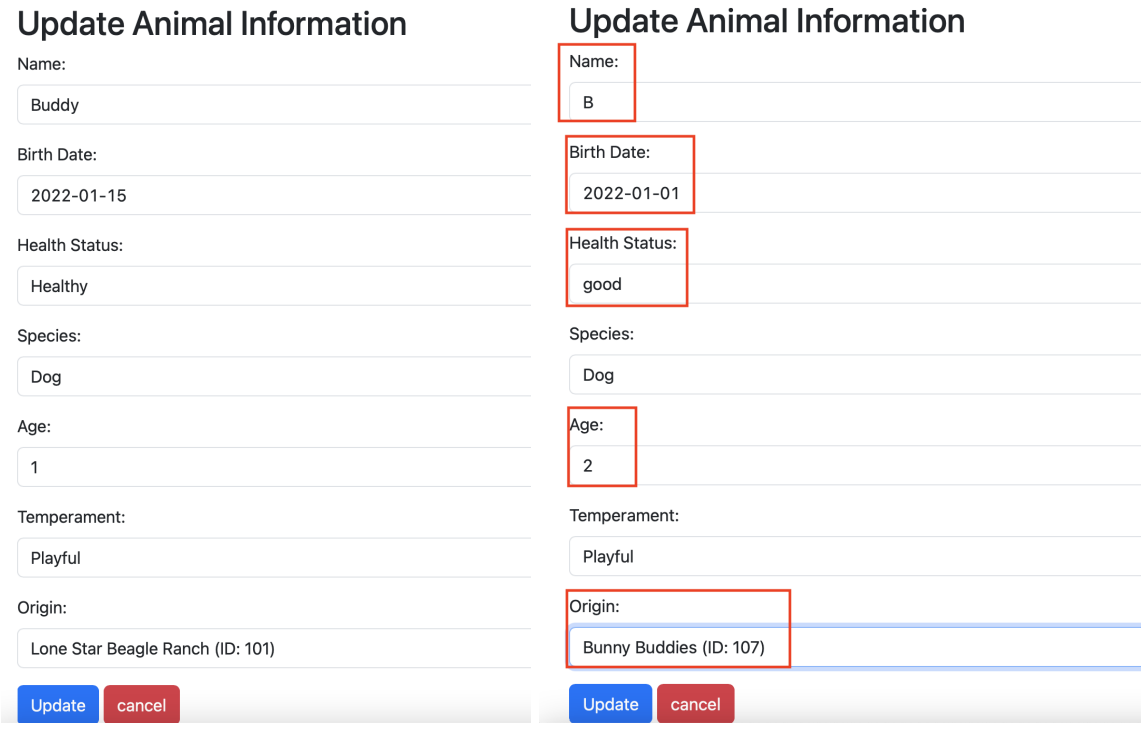


Queries: UPDATE Operation

Before: from the Animal Information Table, want to update information for the animal with MicrochipNumber 5001, click the “Update” button.



During: after clicking the “Update” button, in the Update Animal Information page, update the animal’s name, birth date, health status, age (non-primary key attributes) and the originID (foreign key attribute reference to the Origin table). Then click the “Update” button at the bottom.



After: after clicking the “Update” button, back to the Animal Dashboard page, and the information has been updated for the animal with MicrochipNumber 5001.

Animal Dashboard

Add Service Dog | Add Therapy Animal | Add Retired Animal | Back to Main

Animal Information

All Animals | All Species

Name	Microchip Number	Birth Date	Health Status	Species	Age	Temperament	Origin ID	
B	5001	2022-01-01	good	Dog	2	Playful	107	Update Delete
Snow	5002	2020-06-10	Healthy	Dog	3	Calm	102	Update Delete
Dottie	5003	2019-12-25	Requires Medication	Dog	4	Energetic	103	Update Delete
Charlie	5004	2021-03-05	Healthy	Dog	2	Friendly	104	Update Delete
Lulu	5005	2022-05-20	Healthy	Dog	1	Shy	105	Update Delete
Whiskers	5006	2021-08-11	Special Diet	Cat	2	Independent	106	Update Delete
Thumper	5007	2023-01-01	Healthy	Rabbit	0	Curious	107	Update Delete
Mittens	5008	2016-04-30	Old Age Concerns	Cat	3	Affectionate	108	Update Delete
Baxter	5009	2019-11-09	Healthy	Dog	4	Patient	109	Update Delete

Queries: SELECTION Operation

Before: By selecting table Animal_From from the dropdown list, and checking all boxes besides each attribute, we have the full table of Animal_From.

To perform projection, please choose a table from below, and select the columns you wish to project.

Choose a Table: Choose from below:

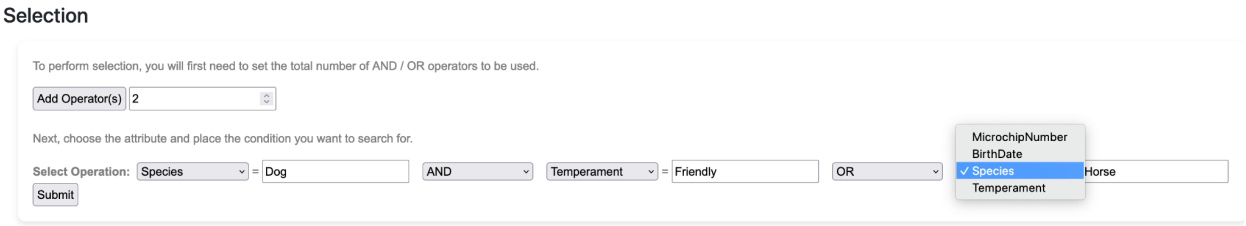
- Adopter
- AdoptionRecord
- Animal_From
- Breeder
- ConductBy
- DisabledPerson
- Have
- OfferTo
- Origin
- QualifiedDog

Select Microchip
Select BirthDate
Select HealthSt
Select Species
Select Age
Select Tempera
Select Name
Select OriginID

Animal_From

MicrochipNumber	BirthDate	HealthStatus	Species	Age	Temperament	Name	OriginID
5002	2020-06-10	Healthy	Dog	3	Calm	Snow	102
5003	2019-12-25	Requires Medication	Dog	4	Energetic	Dottie	103
5004	2021-03-05	Healthy	Dog	2	Friendly	Charlie	104
5005	2022-05-20	Healthy	Dog	1	Shy	Lulu	105
5006	2021-08-11	Special Diet	Cat	2	Independent	Whiskers	106
5007	2023-01-01	Healthy	Rabbit	0	Curious	Thumper	107
5008	2016-04-30	Old Age Concerns	Cat	3	Affectionate	Mittens	108
5009	2019-11-09	Healthy	Dog	4	Patient	Baxter	109
5010	2022-02-22	Healthy	Rabbit	1	Playful	Oreo	110

During: Suppose we want to select dogs whose temperament is friendly, as well as all horses. In this case we need two AND / OR operators, so we set it in the first section and click “Add Operator (s)”. Then we move to the second section, select the attributes, operators, and fill in the fields for our selection condition.



After: We now have a table of horses and friendly dogs.

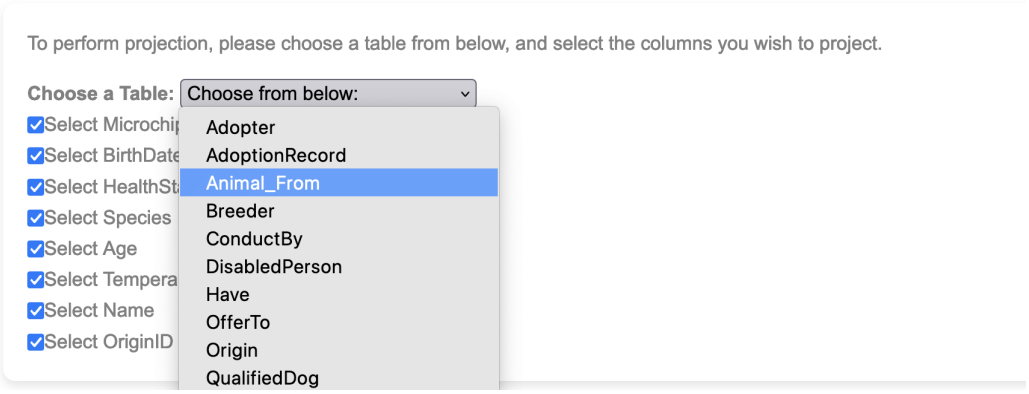
Animal_From

Selection condition: Species='Dog' AND Temperament='Friendly' OR Species='Horse'

MicrochipNumber	BirthDate	HealthStatus	Species	Age	Temperament	Name	OriginID
5004	2021-03-05	Healthy	Dog	2	Friendly	Charlie	104
5016	2019-05-20	Healthy	Horse	4	Calm	Spirit	206
5017	2020-10-31	Healthy	Horse	3	Steady	Storm	207
5024	2020-09-11	Healthy	Horse	3	Strong	Blaze	101
5032	2019-04-17	Healthy	Horse	4	Trained	Ace	210
5035	2021-02-14	Healthy	Dog	1	Friendly	Bingo	101
5041	2022-07-04	Healthy	Horse	1	Gentle	Spirit	104
5046	2021-06-21	Healthy	Horse	2	Majestic	Dawn	107
5051	2020-02-20	Healthy	Horse	3	Tranquil	Misty	109
5057	2021-07-22	Healthy	Horse	2	Composed	Belle	202
5065	2018-11-11	Healthy	Horse	5	Majestic	Buddy	205
5070	2020-12-12	Healthy	Horse	4	Stoic	Noble	207
5076	2020-06-06	Healthy	Horse	3	Bold	Gallop	209
5084	2017-03-10	Healthy	Dog	6	Friendly	Bella	103

Queries: PROJECTION Operation

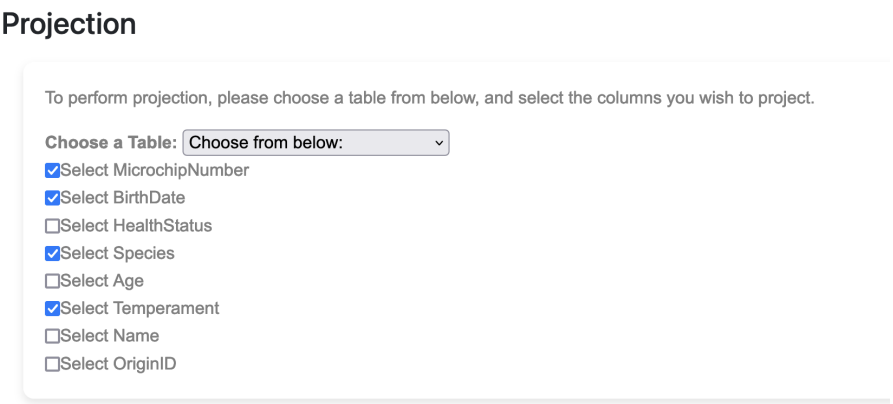
Before: By selecting table Animal_From from the dropdown list, A list of checkboxes is provided for the user to check the attribute to project. Checking all attributes gives the full table of Animal_From.



Animal_From

MicrochipNumber	BirthDate	HealthStatus	Species	Age	Temperament	Name	OriginID
5002	2020-06-10	Healthy	Dog	3	Calm	Snow	102
5003	2019-12-25	Requires Medication	Dog	4	Energetic	Dottie	103
5004	2021-03-05	Healthy	Dog	2	Friendly	Charlie	104
5005	2022-05-20	Healthy	Dog	1	Shy	Lulu	105
5006	2021-08-11	Special Diet	Cat	2	Independent	Whiskers	106
5007	2023-01-01	Healthy	Rabbit	0	Curious	Thumper	107
5008	2016-04-30	Old Age Concerns	Cat	3	Affectionate	Mittens	108
5009	2019-11-09	Healthy	Dog	4	Patient	Baxter	109
5010	2022-02-22	Healthy	Rabbit	1	Playful	Oreo	110

During: By checking / unchecking the boxes besides each attribute, users can choose which attribute to project.



After: Result after projection will show up at the bottom of the page.

Animal_From

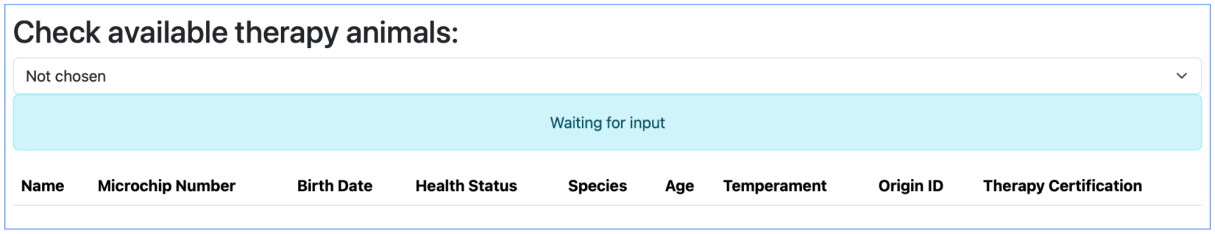
Projected attributes: MicrochipNumber, BirthDate, Species, Temperament

MicrochipNumber	BirthDate	Species	Temperament
5003	2019-12-25	Dog	Energetic
5004	2021-03-05	Dog	Friendly
5005	2022-05-20	Dog	Shy
5006	2021-08-11	Cat	Independent
5007	2023-01-01	Rabbit	Curious
5008	2016-04-30	Cat	Affectionate
5009	2019-11-09	Dog	Patient
5010	2022-02-22	Rabbit	Playful
5011	2021-09-14	Dog	Gentle
5012	2020-07-19	Cat	Sociable
5013	2018-12-05	Dog	Patient
5014	2022-06-30	Cat	Quiet
5015	2021-11-11	Dog	Loyal
5016	2019-05-20	Horse	Calm
5017	2020-10-31	Horse	Steady
5018	2021-07-14	Capybara	Docile
5019	2018-03-22	Rabbit	Friendly

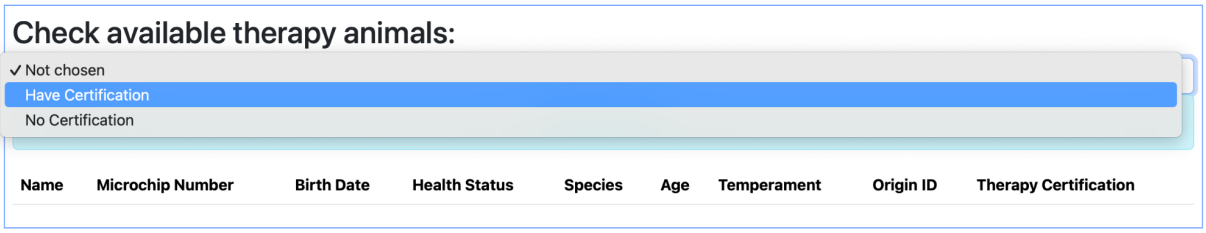
University of British Columbia, Vancouver
Department of Computer Science

Queries: JOIN Operation

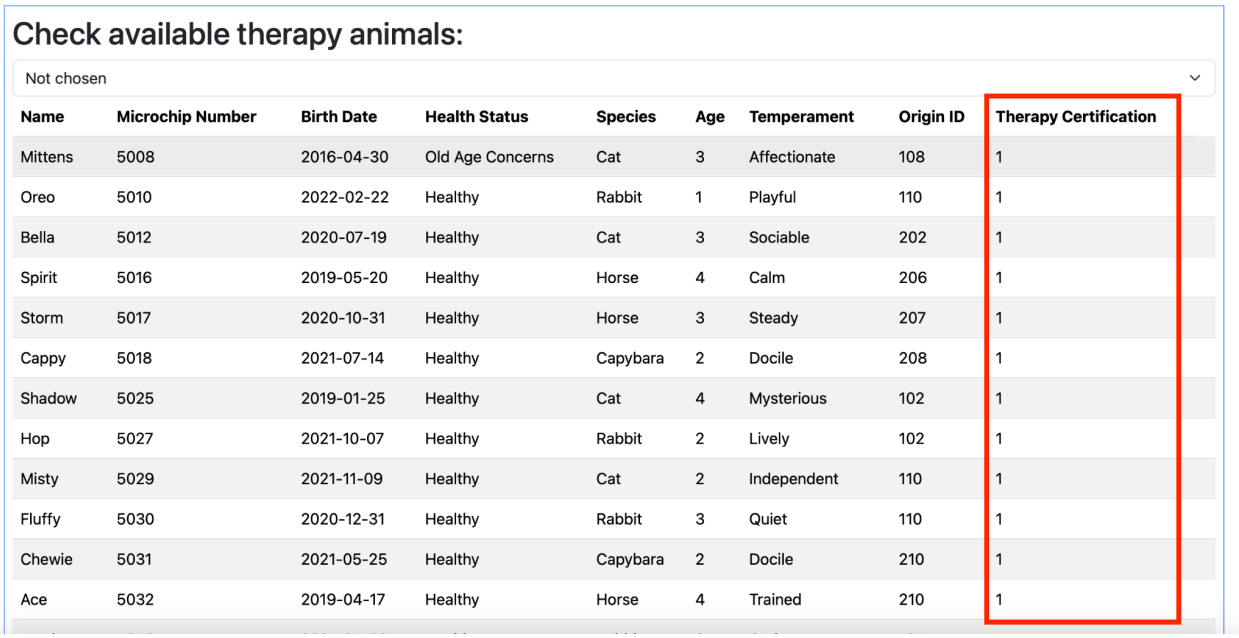
Before:
In the staff_board.php, there is a “check available therapy animals functionality”



During: By selecting “have certification” from the dropdown list, the user can check all attributes of therapy animals from Animal_from table that have certification.

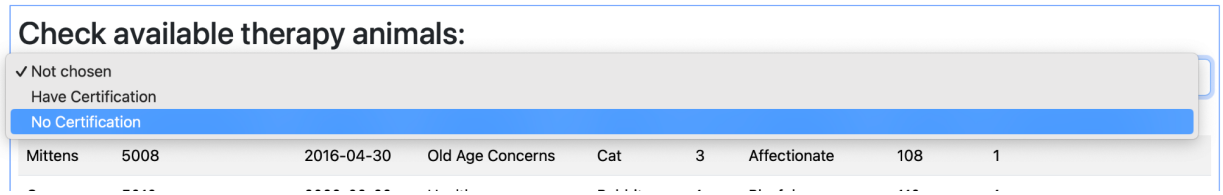


After:

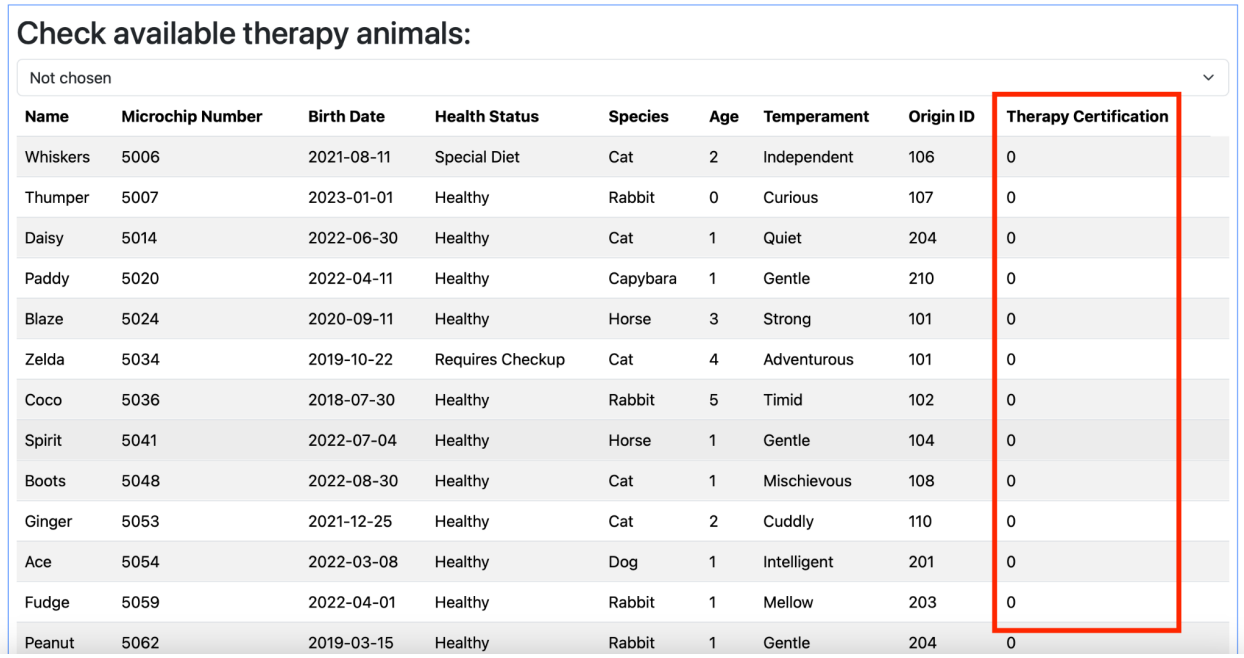


Name	Microchip Number	Birth Date	Health Status	Species	Age	Temperament	Origin ID	Therapy Certification
Mittens	5008	2016-04-30	Old Age Concerns	Cat	3	Affectionate	108	1
Oreo	5010	2022-02-22	Healthy	Rabbit	1	Playful	110	1
Bella	5012	2020-07-19	Healthy	Cat	3	Sociable	202	1
Spirit	5016	2019-05-20	Healthy	Horse	4	Calm	206	1
Storm	5017	2020-10-31	Healthy	Horse	3	Steady	207	1
Cappy	5018	2021-07-14	Healthy	Capybara	2	Docile	208	1
Shadow	5025	2019-01-25	Healthy	Cat	4	Mysterious	102	1
Hop	5027	2021-10-07	Healthy	Rabbit	2	Lively	102	1
Misty	5029	2021-11-09	Healthy	Cat	2	Independent	110	1
Fluffy	5030	2020-12-31	Healthy	Rabbit	3	Quiet	110	1
Chewie	5031	2021-05-25	Healthy	Capybara	2	Docile	210	1
Ace	5032	2019-04-17	Healthy	Horse	4	Trained	210	1

During: By selecting “no certification” from the dropdown list, the user can check all attributes of therapy animals from Animal_from table that don’t have certification.



After:



Queries: Aggregation with Group By Operation

Before: In the staff_board.php, there is a “Check How Many Therapy Animals Are In The Same Session By A Chosen Date”

Therapy Session

Each Session Type will be provided at most once at a single day.

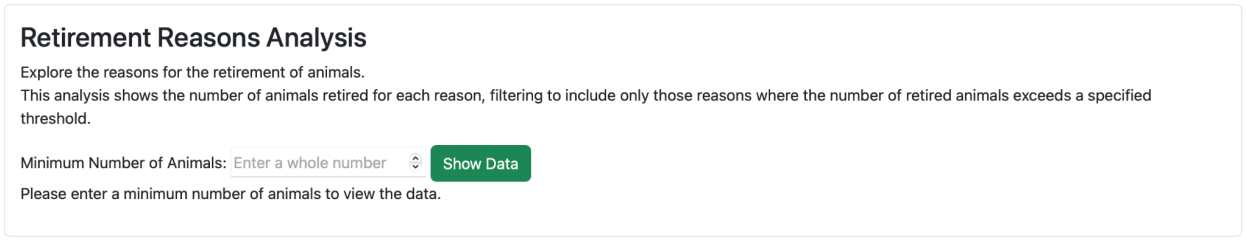
Session Date	Staff Name	Animal	Session Type	Max Capacity
2023-08-10	6001	5017	Horse Therapy	10
2023-09-15	6001	5047	Dog Therapy	15
2023-10-05	6001	5010	Bunny Therapy	30
2023-11-12	6001	5025	Cat Therapy	20
2023-12-14	6001	5031	Capybara Therapy	10
2023-12-22	6002	5017	Horse Therapy	10
2023-12-22	6002	5057	Horse Therapy	10

During: For example, we can see from the Therapy Session, there are two horses joined in the Horse Therapy Session at 2023-12-22. So we can choose 2023-12-22 to see how many horses will participate in this session.

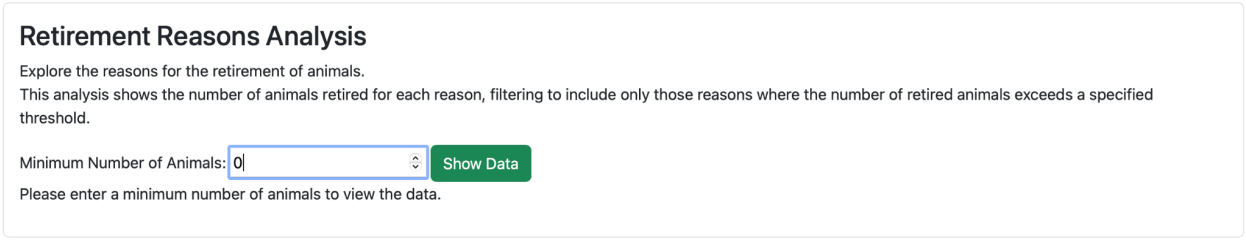
After: We can see the result matches the data in the Therapy Session table that there are two horses in the Horse Therapy Session held at 2023-12-22.

Queries: Aggregation with Having Operation

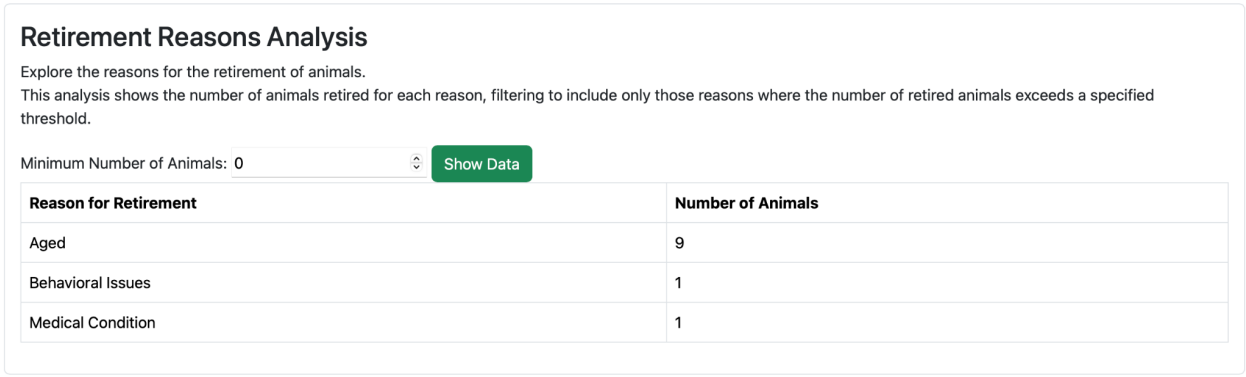
Before:



During: type a number, 0 here for example to set as the minimum number, and click “Show Data”



After:

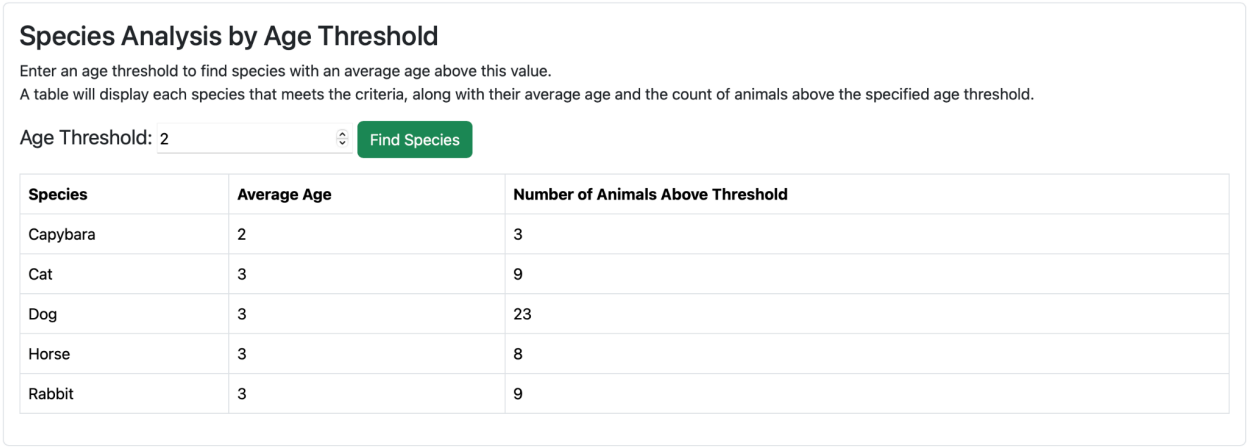


Queries: Nested Aggregation with Group By Operation

Before:

During: type the age threshold, 2 here for example and click “Find Species”

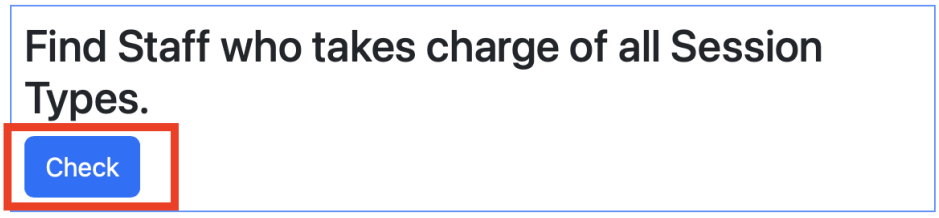
After:



Queries: DIVISION Operation

Before: In the staff_board.php, there is a “Find staff who takes charge of all session types functionality”.

During: By clicking the “Check” Button, you can get a list of Staff’s information who takes charge of all different kinds of therapy sessions.



After:

Find Staff who takes charge of all Session Types.

Check

Staff ID	Name
6001	Sarah Mitchell