PET SHELTER DATABASE

PORTFOLIO PROJECT FOR CS 340: INTRO TO DATABASES
OREGON STATE UNIVERSITY

PROJECT GROUP 10

MEMBERS
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DATE: 08/08/2022

REACT APP URL: http://flip3.engr.oregonstate.edu:9456/
SERVER URL: http://flip3.engr.oregonstate.edu:7456/

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Executive Summary

Data is at the center of the modern world. Thus, the modern computer scientist, software engineer, and application developer must be comfortable with data and databases. This project builds knowledge of data and databases through the development and implementation of a relational database that uses a web-based interface. In particular, the competencies developed through this project were data design based in semantic design patterns and data normalization, data modeling using Entity-Relationship Diagrams and Database Schemas, data manipulation through the writing and processing of SQL queries, and data visualization and utilization in the creation of a user interface for database administration.

Titled *Pet Adoption Database,* this project progressed through four defining stages. Stage 1: Proposal, Database Diagramming, and Database Outlining. Stage 2: Data Normalization with sample data and the development of the database schema. Stage 3: Design of the user interface and writing of the sql queries for SELECT, INSERT, UPDATE, and DELETE operations. Stage 4: Development of server side code with CRUD routes that can receive and process UI requests. At each of these stages, the project was reviewed by peers and teaching assistants. It was refined based on their feedback and our growing knowledge of database theory and design.

This paragraph is a summary of the refinements made to the project as it progressed. Overall, development was organic and smooth. Adjustments were made at each stage but the underlying concept of a pet shelter database remained stable along with the entities and relationships that comprised it. However, three major adjustments, which occurred at an early stage, were (1) the implementation of a Adopter_Pets intersection table to simplify the AdoptionRequests ‘mega-table’ table from three to two non-category based foreign keys, (2) the changing of all category table primary keys from string-based codes to auto-incrementing, integers, and (3) the replacement of drop-off individual and their contact information with a generalized intake details attribute to remove the transitive dependency created by these attributes. Other minor refinements included (1) updating sample data to reflect the changes made to the AdoptionRequests and Intakes tables, (2) updating the HTML code and JavaScript functions to better reflect the final design and functionality of the product, and (3) updating the SQL data manipulation queries to retrieve the actual information to be displayed and manipulated.

What follows is the Project Overview, Database Outline, Entity-Relationship Diagram, Database Schema, Sample Data, and Screen Captures of each of the UI pages of the database. Additionally included in the zip file are the Data Definition Queries, Data Manipulation Queries, and all source code for the UI. The react app is hosted at http://flip3.engr.oregonstate.edu:9456/ and the server file is hosted at http://flip3.engr.oregonstate.edu:7456/. Please remember to login to the Oregon State University VPN before deploying the links. In phpmyadmin, please make sure to select a database before importing the pet_shelter_DDL.sql file. In the command-line interface, please make sure to select a database first by using the USE statement before entering the *source* command with the pet_shelter_DDL.sql file.

Project Overview

Pet adoption facilities manage the intake, care, and adoption of homeless animals within their geographic location. Our adoption facility will be located in a mid-sized suburban area. It will focus on only two species of domestic animal: dogs and cats. Only dogs and cats will be accepted.

Approximately 3,000 pets are expected to pass through our adoption site annually. These pets can range in age from puppy/kitten to senior. They will be cared for by a team of about 20 paid employees and a variable number of regular and intermittent volunteers. Together, employees and volunteers make up the approved personnel of our facility.

Our adoption site serves pets, current pet owners, future pet owners, and the city's animal services. We take in pets that are in need of a new home and connect each pet with a potential adopter. A database driven website will help facilitate the complex operations and relationships involved in intake and adoption. Namely, it will record *Intakes* of *Pets* by *Personnel* and *AdoptionRequests* of *Pets* by *Adopters* overseen by *Personnel.*

Database Outline

- **Pets :** records the details of Pets taken into the shelter

Attributes

- pet_id: int, auto_increment, unique, not NULL, PK
- species: varchar, value set: {'dog' , 'cat'}, not NULL
- name: varchar, not NULL
- breed: varchar, not NULL
- age: decimal (19, 2), not NULL
- gender: varchar, value set: {'M' = male, 'F' = female}, not NULL
- weight: decimal(19, 2), not NULL, units: lbs
- coat_color: varchar, not NULL
- adoption_status: varchar, allow NULL, **FK from PetStatuses**
- adoption_fee_type: varchar, allow NULL, **FK from AdoptionFeeCodes**

Relationships

- 1:M relationship between Pets and Intakes is implemented with pet_id as a FK inside of Intakes
- 1:M relationship between Pets and AdoptionRequests is implemented with pet_id as a FK inside of AdoptionRequests
- M:M relationship between Pets and Adopters is implemented with pet_id and adopter_id as FKs inside AdoptionRequests as the intersection table
- M:M relationship between Pets and Personnel is implemented with pet_id and personnel_id as FKs inside *AdoptionRequests* as the intersection table

- M:M relationship between Pets and Personnel is implemented with pet_id and personnel_id as FKs inside *Intakes* as the intersection table
- 1:M relationship between PetStatuses and Pets is implemented with adoption_status as a FK inside of Pets
- 1:M relationship between AdoptionFeeCodes and Pets is implemented with adoption_fee as a FK inside of Pets

■ **Adopters:** records details of people who make requests to adopt pets from shelter

Attributes
- adopter_id: int, auto_increment, unique, not NULL, PK
- first_name: varchar, not NULL
- last_name: varchar, not NULL
- address: varchar, not NULL
- phone_number: varchar(15), not NULL
- email: varchar, not NULL
- birth_date: date, not NULL

Relationships
- 1:M relationship between Adopters and AdoptionRequests is implemented with adopter_id as a FK inside of AdoptionRequests
- M:M relationship between Pets and Adopters is implemented with pet_id and adopter_id as FKs inside AdoptionRequests as the intersection table
- M:M relationship between Personnel and Adopters is implemented with personnel_id and adopter_id as FKs inside AdoptionRequests as the intersection table

■ **Intakes:** records the details of an event where an animal is taken into the shelter

Attributes
- intake_id: int, auto_increment, unique, not NULL, PK
- pet_id: int, allow Null, **FK from Pets table**
- intake_date: date, not NULL
- processor: int, allow NULL, **FK personnel_id from Personnel table**
- drop_off_type: varchar, value set: {'owner surrender', 'stray' }, not Null
- intake_details: varchar, allow NULL

Relationships
- 1:M relationship between Pets and Intakes is implemented with pet_id as a FK inside of Intakes
- 1:M relationship between Personnel and Intakes is implemented with processor as a FK inside of Intakes

■ **Adopters_Pets:** serves purely as an intersection table between Pets and Adopters.

Attributes
- adopter_pet_id: int, auto_increment, unique, not NULL, PK
- adopter_id: int, not NULL, **FK from Adopters table**
- pet_id: int, not NULL, **FK from Pets table**

Relationships

- 1:M relationship between Pets and AdoptionRequests is implemented with pet_id as a FK inside of AdoptionRequests
- 1:M relationship between Adopters and AdoptionRequests is implemented with adopter_id as a FK inside of AdoptionRequests
- 1:M relationship between AdoptionRequestStatusCodes and AdoptionRequests is implemented with application_status as a FK inside of AdoptionRequests
- A 1:1 relationship between AdoptionRequests and Adopters_Pets implemented with adopter_pet_id as FK in AdoptionRequests. (Enforced by UNIQUE constraint on adopter_pet_id in AdoptionRequests)

■ **AdoptionRequests:** records the details of the adoption request. Each AdoptionRequest is processed by someone from Personnel.

Attributes

- **adoption_request_id**: int, auto_increment, unique, not NULL, PK
- **adopter_pet_id**: int, not NULL, UNIQUE, **FK from Adopters_Pets table**
- **processor**: int, allow NULL, **FK personnel_id from Personnel table**
- request_date: date, not NULL
- application_status: varchar, allow NULL, **FK from AdoptionRequestStatusCodes**
- amount_paid: decimal, allow NULL

Relationships

- A 1:M relationship between Personnel and AdoptionRequests implemented with processor (perosnnel_id) as FK in AdoptionRequests.
- A 1:1 relationship between AdoptionRequests and Adopters_Pets implemented with adopter_pet_id as FK in AdoptionRequests. (Enforced by UNIQUE constraint on adopter_pet_id)

■ **Personnel**: records the details of people who work for the adoption site

Attributes

- personnel_id: int, auto_increment, unique, not NULL, PK
- personnel_type: int, allow NULL, **FK from PersonnelTypeCodes**
- job_title: varchar, allow NULL
- first_name: varchar, not NULL
- last_name: varchar, not NULL
- address: varchar, not NULL
- phone_number: varchar(15), not NULL
- email: varchar, not NULL
- birth_date: date, not NULL

Relationships

- 1:M relationship between Personnel and Intakes is implemented with processor as a FK inside of Intakes
- M:M relationship between Pets and Personnel is implemented with pet_id and personnel_id as FKs inside *AdoptionRequests* as the intersection table

- M:M relationship between Pets and Personnel is implemented with pet_id and personnel_id as FKs inside *Intakes* as the intersection table
- M:M relationship between Personnel and Adopters is implemented with personnel_id and adopter_id as FKs inside AdoptionRequests as the intersection table
- 1:M relationship between PersonnelTypeCodes and Personnel is implemented with personnel_type as a FK inside of Personnel

■ **AdoptionFeeCodes:** category table for codes related to adoption fees

Attributes
- adoption_fee_id: int, auto_increment, unique, not NULL, PK
- code: varchar, value set: {“puppy, “kitten”, “adult”, “senior”}, not NULL, UNIQUE
- fee: decimal(19,2), not NULL

Relationships
- 1:M relationship between AdoptionFeeCodes and Pets is implemented with adoption_fee_id as a FK inside of Pets

■ **AdoptionRequestStatusCodes:** category table for codes related to the status of the adoption request

Attributes
- adoption_request_status_id: int, auto_increment, unique, not NULL, PK
- code: varchar, value set: {“A”, “U”, “D”}, not NULL, UNIQUE, PK
- status: varchar, value set: {“Approved”, “UnderReview”, “Denied”}, not NULL, UNIQUE

Relationships
- 1:M relationship between AdoptionRequestStatusCodes and AdoptionRequests is implemented with adoption_request_status_id as a FK inside of AdoptionRequests

■ **PersonnelTypeCodes:** category table for codes related to a person’s involvement with the shelter

Attributes
- personnel_type_id: int, auto_increment, unique, not NULL, PK
- code: varchar, value set: {“EFT”, “EPT”, “VCT”, “VDO”, “VCD”}, not NULL, UNIQUE
- personnel_type: varchar, value set: {“Employee Full-Time”, “Employee Part-Time”, “Volunteer-Cat”, “Volunteer-Dog”, “Volunteer-Both”}, not NULL, UNIQUE

Relationships
- 1:M relationship between PersonnelTypeCodes and Personnel is implemented with personnel_type_id as a FK inside of Pets

■ **PetStatuses:** category table for codes related to the status of a pet in the shelter

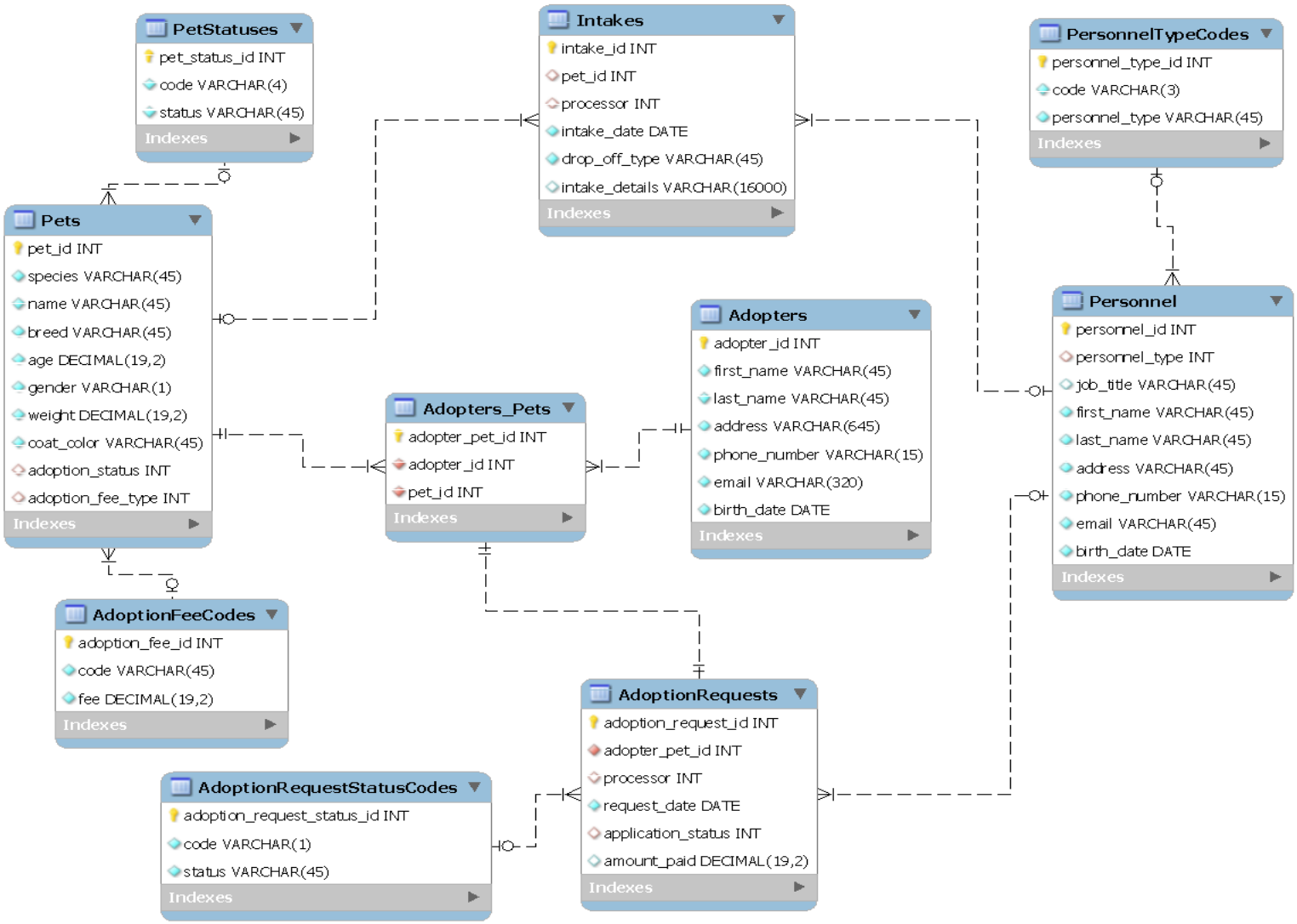
Attributes
- pet_status_id: int, auto_increment, unique, not NULL, PK

- code: varchar, value set: {“HOLD”, “APRV”, “ADPT”}, not NULL, UNIQUE
- status: varchar, value set: {“On Hold”, “Approved For Adoption”, “Adopted”}, not NULL, UNIQUE

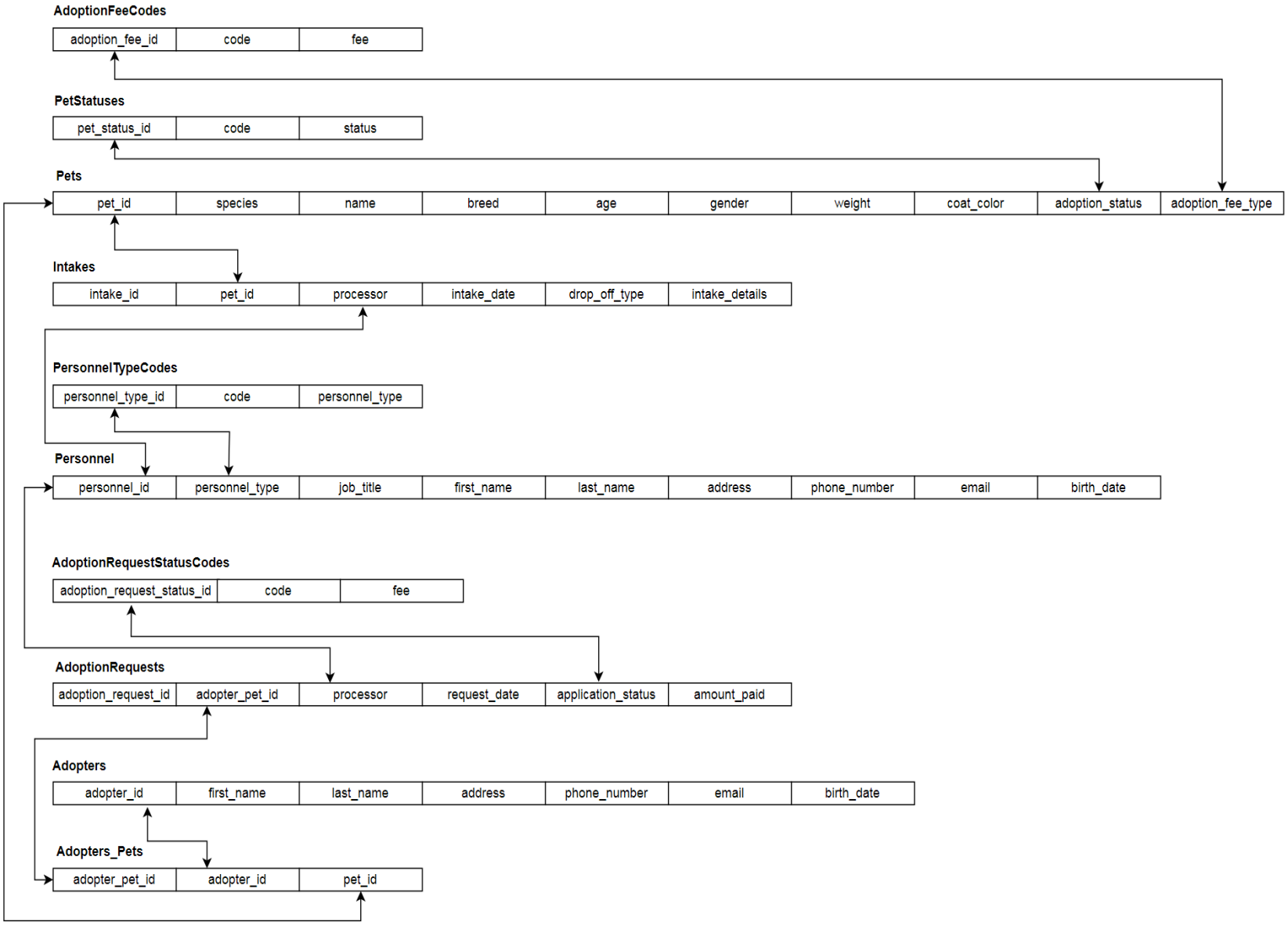
Relationships

- 1:M relationship between PetStatuses and Pets is implemented with adoption_status (pet_status_id) as a FK inside of Pets

Entity-Relationship Diagram



Database Schema



Sample Data - Pets & Intakes

Pets									
pet_id	**species**	**name**	**breed**	**age**	**gender**	**weight**	**coat_color**	**adoption_status**	**adoption_fee_type**
1	dog	Cooper	labrador mix	4.33	M	77.19	chocolate	1	3
2	dog	Elsa	husky mix	0.16	F	8.75	black and white	3	1
3	dog	Stitch	chihuahua mix	8	M	19.75	tan	2	4
4	cat	Poppy	domestic shorthair mix	2	F	11	orange	2	3
5	cat	Hugh	domestic shorthair mix	0.25	M	2.19	black	3	2

Intakes					
intake_id	**pet_id**	**intake_date**	**processor**	**drop_off_type**	**intake_details**
1	4	2022-05-11	1	stray	Poppy was found under a bridge
2	1	2016-12-28	1	stray	Picked up by animal services
3	3	2009-05-17	2	owner surrender	Pet surrendered by Alice
4	2	2021-04-05	2	stray	NULL
5	5	2006-09-28	1	stray	Pet found on corner of bush and black

Sample Data - Personnel & Adopters

Personnel								
personnel_id	**personnel_type**	**job_title**	**first_name**	**last_name**	**address**	**phone_number**	**email**	**birth_date**
1	1	Animal Intakes Manager	Muriel	Rashn	778 Albany Circle, Arlington, NC, 28056	252-204-2115	murielr@email.com	1996-06-09
2	2	Front Desk Assistant	Marie	Cohnan	850 Mountain View Ct., Arlington, NC 28059	252-208-6330	cohnanm@email.com	2000-02-19
3	3	Null	Vanna	Tran	514 Gainsway St., Arlington, NC 28111	252-129-1292	tranv@email.com	2004-04-18
4	4	Null	Arthur	Brooks	484 Woodland Rd., Arlington, NC 28959	252-556-0695	brooksa@email.com	1995-05-30
5	5	Null	Bobby	Lee	393 Armstrong Rd., Arlington, NC 28056	252-583-2816	leeb@email.com	2001-11-23

Adopters						
adopter_id	**first_name**	**last_name**	**address**	**phone_number**	**email**	**birth_date**
1	Angela	Montez	2250 Molly St., San Francisco, CA 94115	482-593-2845	monteza@email.com	1994-11-28
2	Benjamin	Ling	526 Harvard Rd., Centreville, VA 20120	125-547-3876	lingb@email.com	1992-10-22
3	Sasha	Howard	5062 Garfield Street, Ephrata, PA 17522	656-235-8965	howards@email.com	1977-06-29
4	Tim	Smith	9950 Strawberry Ave., Coraopolis, MN 55104	693-097-2202	smitht@email.com	2002-04-16

Sample Data - Adopters_Pets, Adoption Requests, Category Tables

Adopters_Pets		
pet_adopter_id	**adopter_id**	**pet_id**
1	3	4
2	2	5
3	4	3
4	1	2

Adoption Requests						
adoption_id	**adopter_id**	**pet_id**	**request_date**	**application_status**	**processor**	**amount_paid**
1	3	4	2022-05-18	U	1	Null
2	2	5	2006-10-02	A	1	200.00
3	4	3	2009-05-29	D	2	Null
4	1	2	2021-04-09	A	2	250.00

Sample Data - Category Tables

Adoption Fee Codes		
adoption_fee_id	**Code**	**Fee**
1	puppy	250.00
2	kitten	200.00
3	adult	150.00
4	senior	100.00

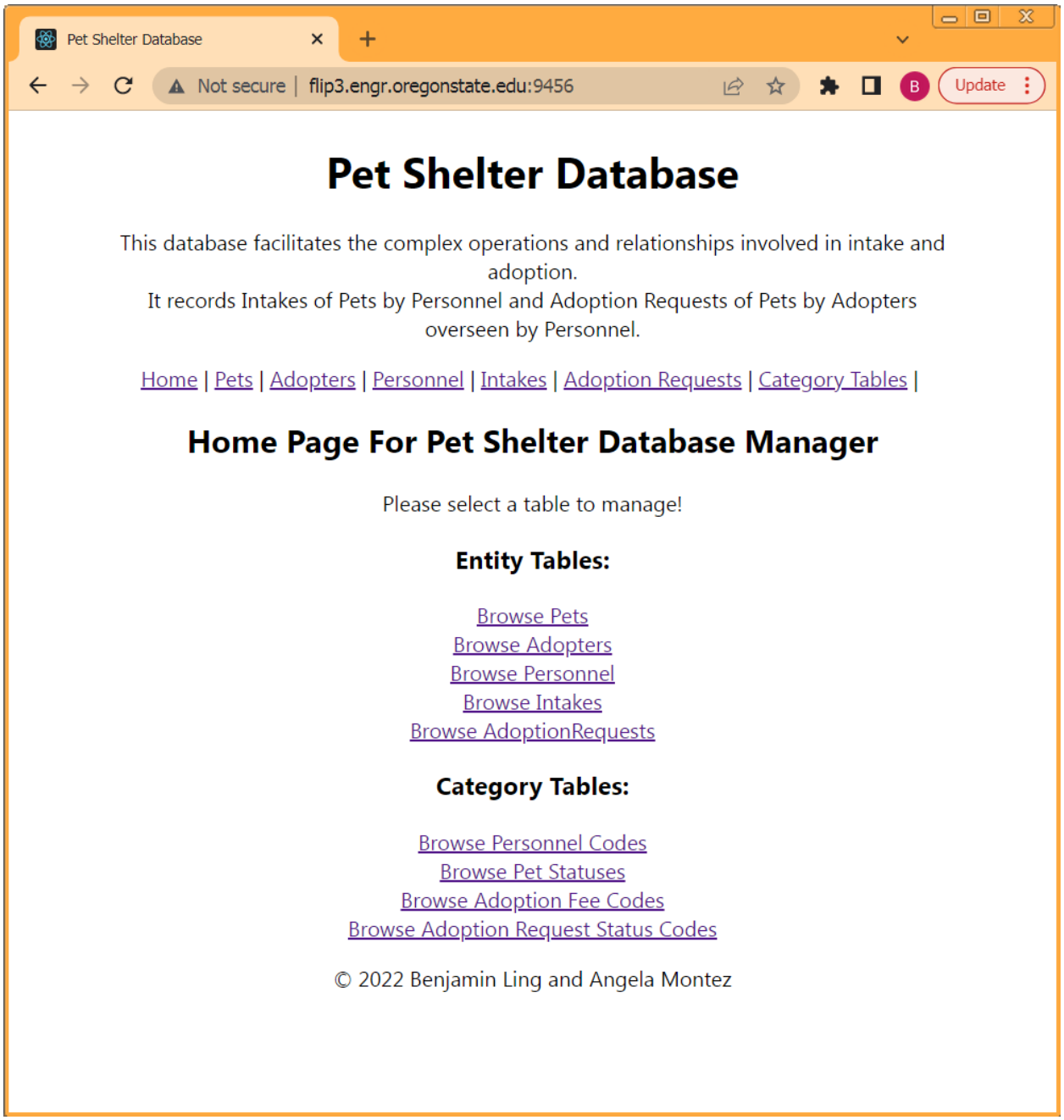
Adoption Request Status Codes		
adoption_request_status_id	**Code**	**Status**
1	A	Approved
2	U	Under Review
3	D	Denied

Personnel Type Codes		
personnel_type_id	**code**	**personnel_type**
2	EFT	Employee Full-Time
3	EPT	Employee Part-Time
4	VCT	Volunteer - Cats
5	VDO	Volunteer - Dogs
6	VCD	Volunteer - Both

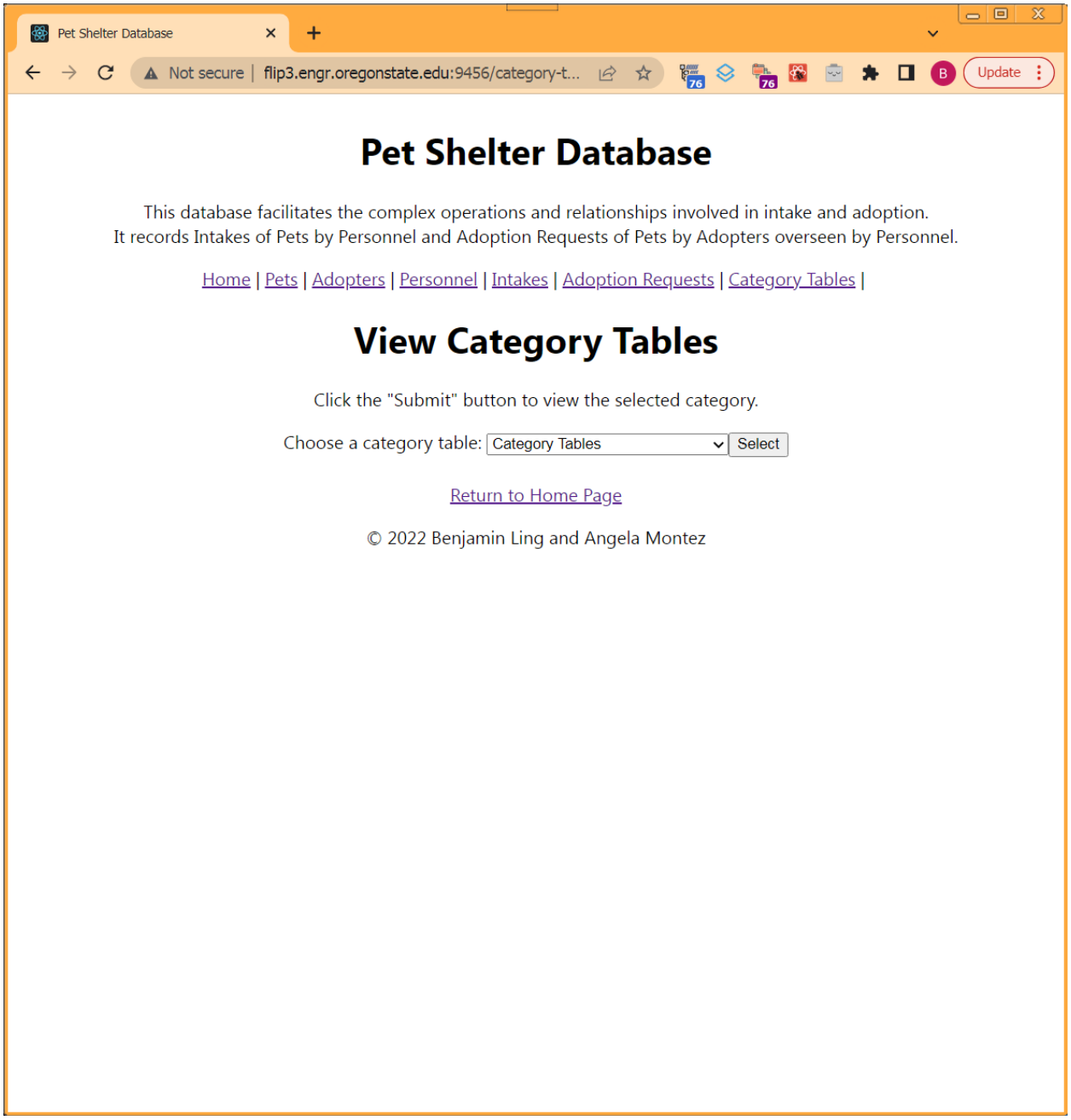
Pet Statuses		
pet_status_id	**Code**	**Status**
1	HOLD	On Hold
2	APRV	Approved for Adoption
3	ADPT	Adopted

Screenshots of User Interface

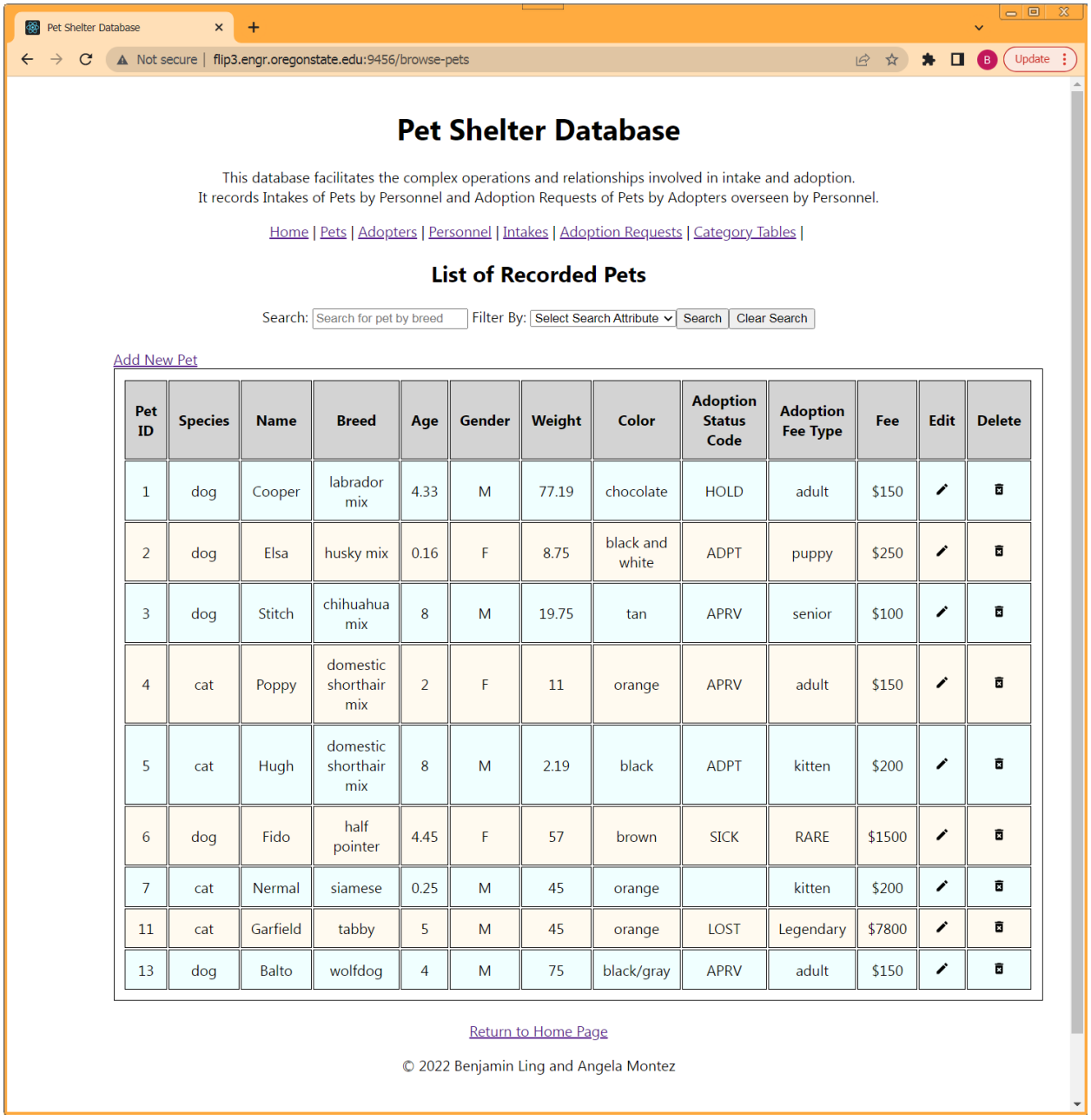
Home Page



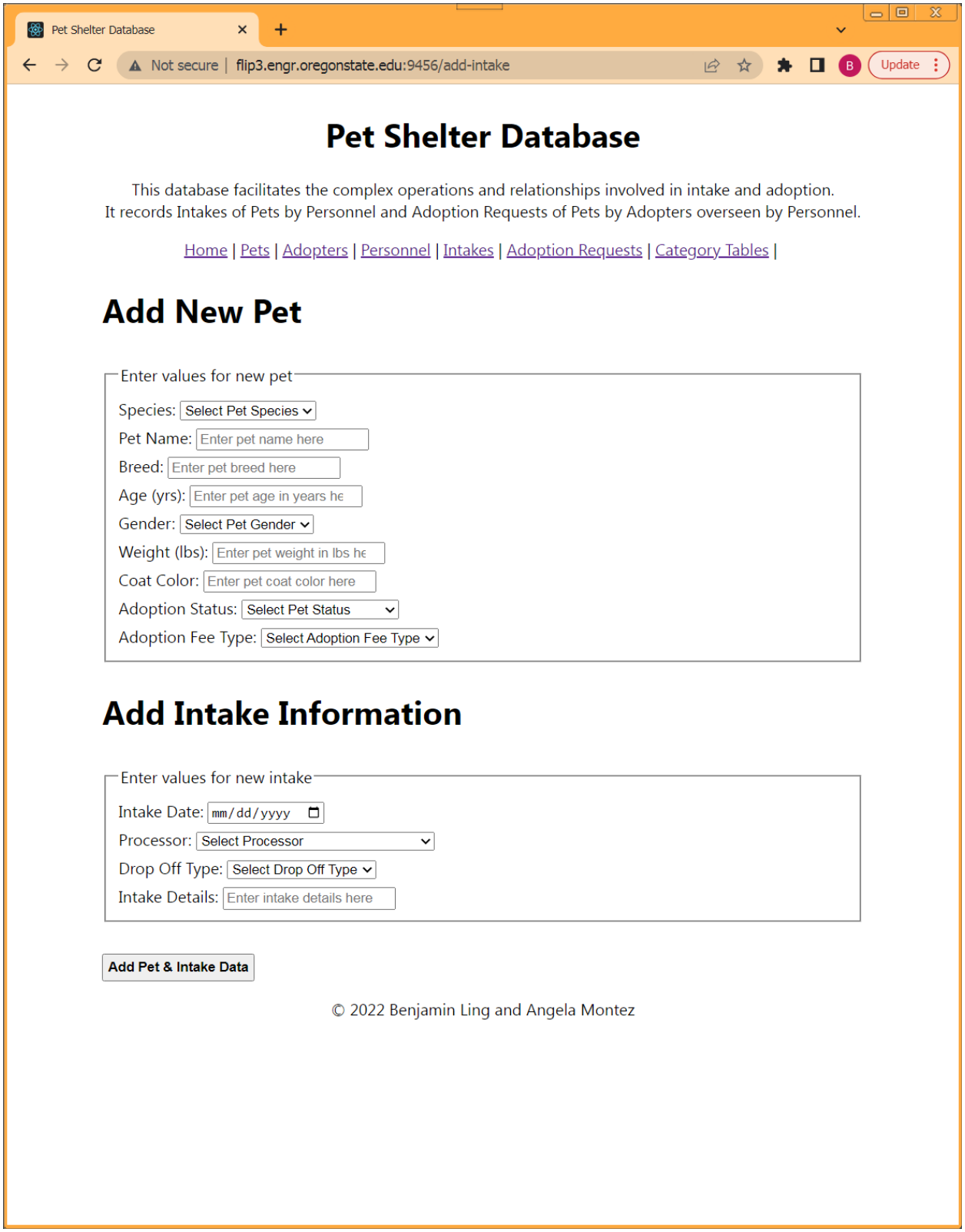
View Category Tables page



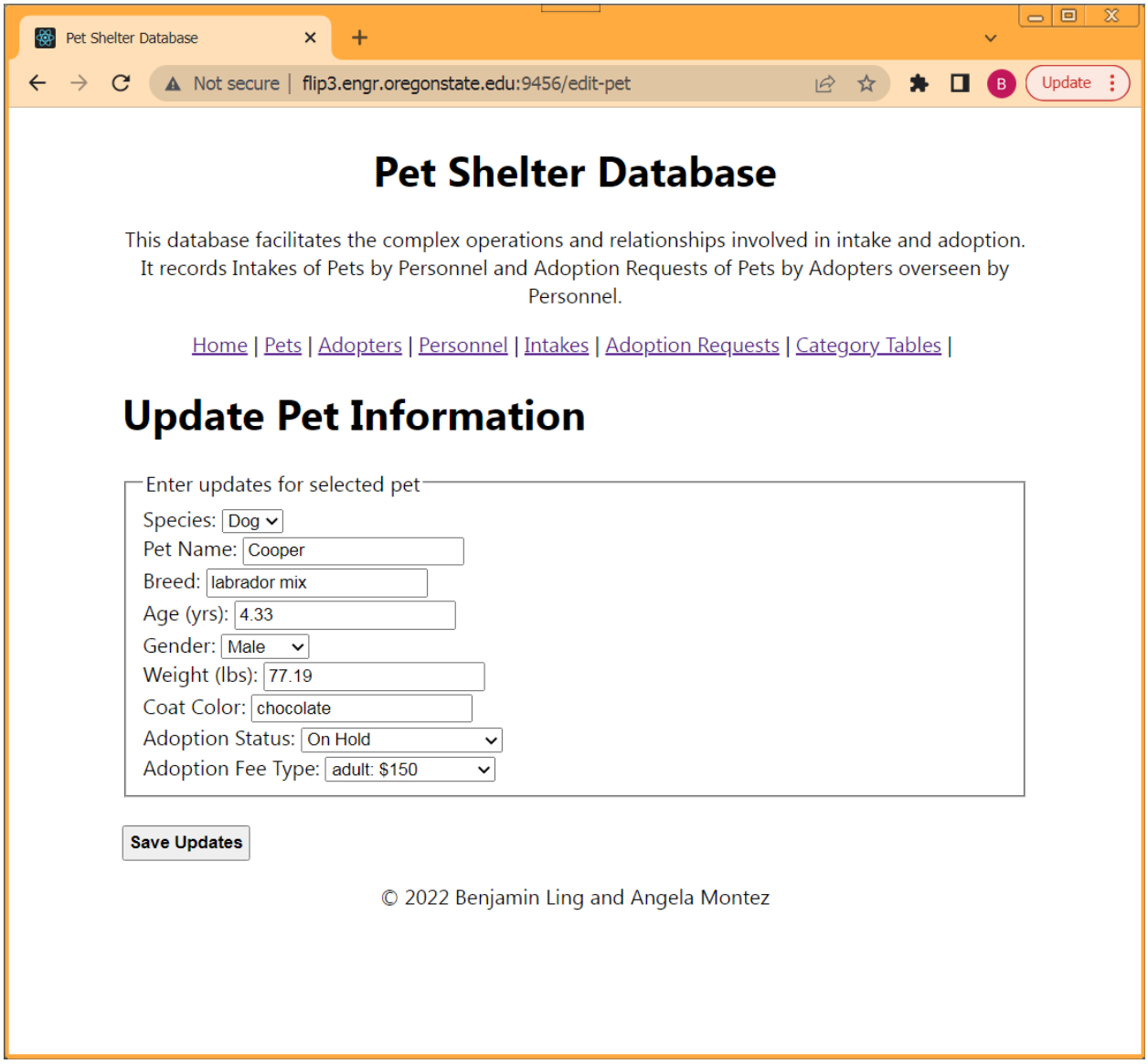
READ/BROWSE/DISPLAY Pets page
DELETE Pets page (deletes one M:N by also deleting corresponding row in Intakes table)
DYNAMIC DISPLAY/SEARCH Pets page



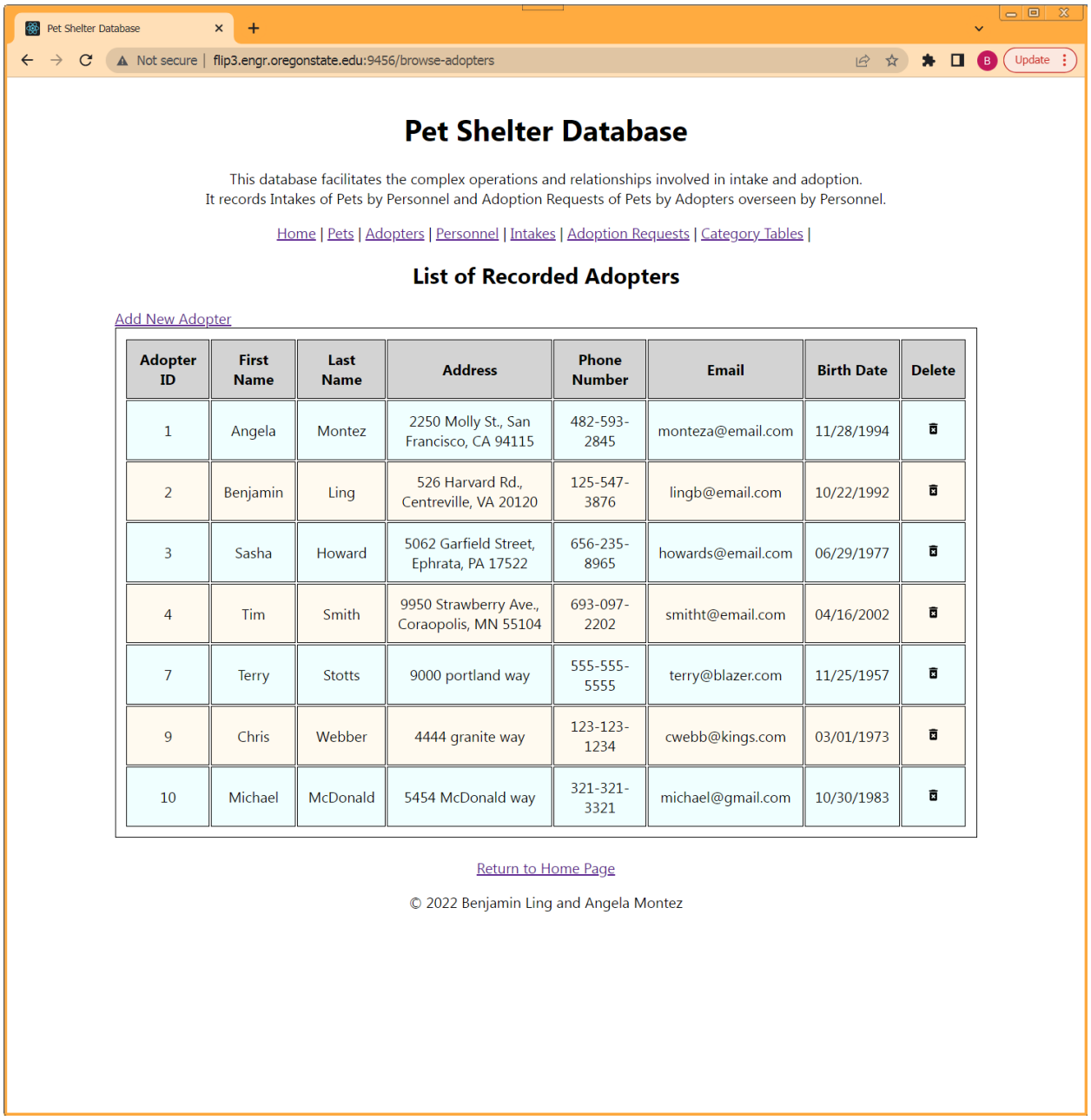
CREATE/INSERT/ADD NEW Pet page



EDIT/UPDATE Pet page



READ/BROWSE/DISPLAY Adopters page
DELETE Adopters page



Pet Shelter Database

This database facilitates the complex operations and relationships involved in intake and adoption.
It records Intakes of Pets by Personnel and Adoption Requests of Pets by Adopters overseen by Personnel.

Home | Pets | Adopters | Personnel | Intakes | Adoption Requests | Category Tables |

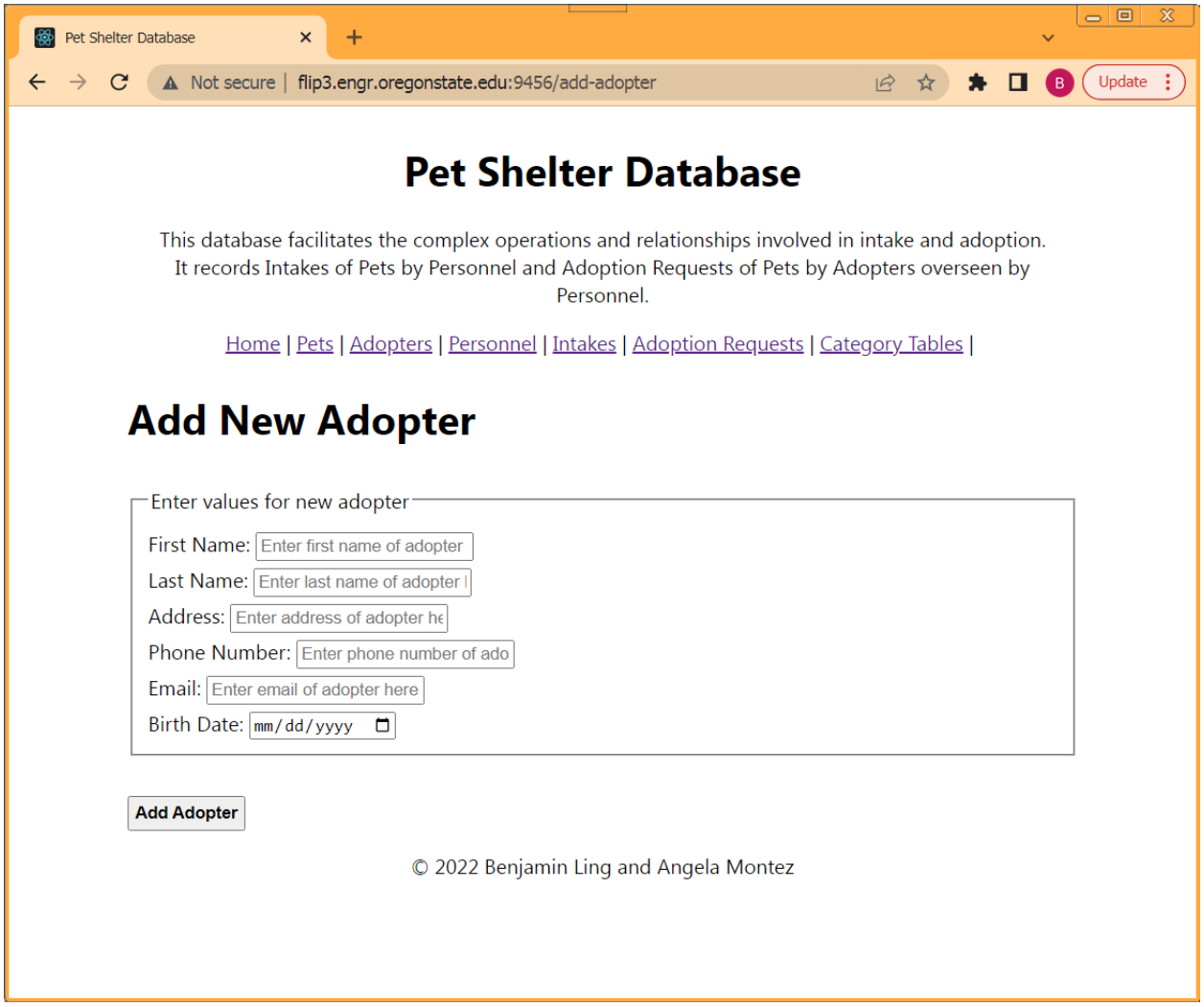
List of Recorded Adopters

Add New Adopter

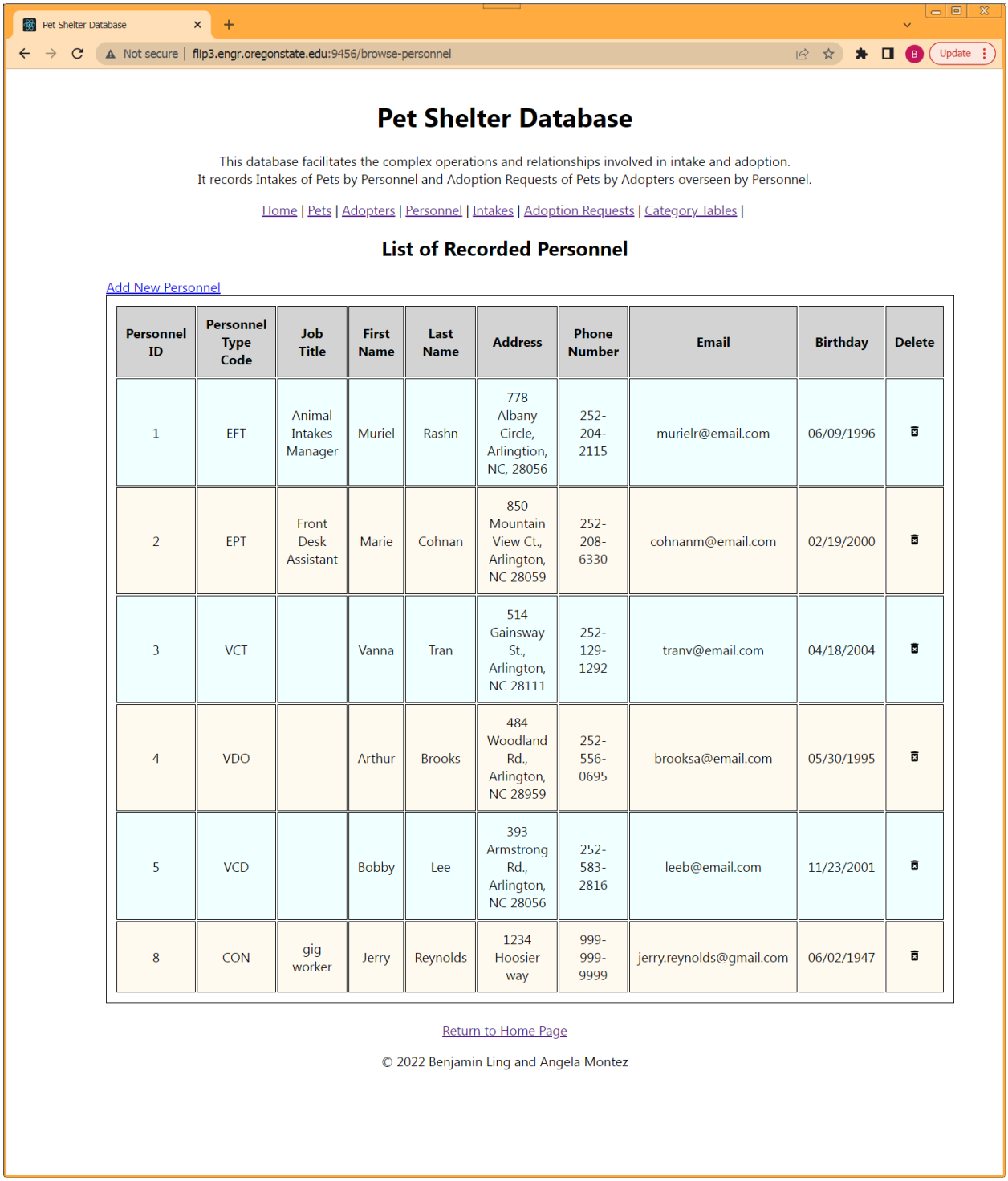
Adopter ID	First Name	Last Name	Address	Phone Number	Email	Birth Date	Delete
1	Angela	Montez	2250 Molly St., San Francisco, CA 94115	482-593-2845	monteza@email.com	11/28/1994	
2	Benjamin	Ling	526 Harvard Rd., Centreville, VA 20120	125-547-3876	lingb@email.com	10/22/1992	
3	Sasha	Howard	5062 Garfield Street, Ephrata, PA 17522	656-235-8965	howards@email.com	06/29/1977	
4	Tim	Smith	9950 Strawberry Ave., Coraopolis, MN 55104	693-097-2202	smitht@email.com	04/16/2002	
7	Terry	Stotts	9000 portland way	555-555-5555	terry@blazer.com	11/25/1957	
9	Chris	Webber	4444 granite way	123-123-1234	cwebb@kings.com	03/01/1973	
10	Michael	McDonald	5454 McDonald way	321-321-3321	michael@gmail.com	10/30/1983	

Return to Home Page

CREATE/INSERT/ADD NEW Adopter page



READ/BROWSE/DISPLAY Personnel page
DELETE Personnel page



Pet Shelter Database

This database facilitates the complex operations and relationships involved in intake and adoption.
It records Intakes of Pets by Personnel and Adoption Requests of Pets by Adopters overseen by Personnel.

Home | Pets | Adopters | Personnel | Intakes | Adoption Requests | Category Tables |

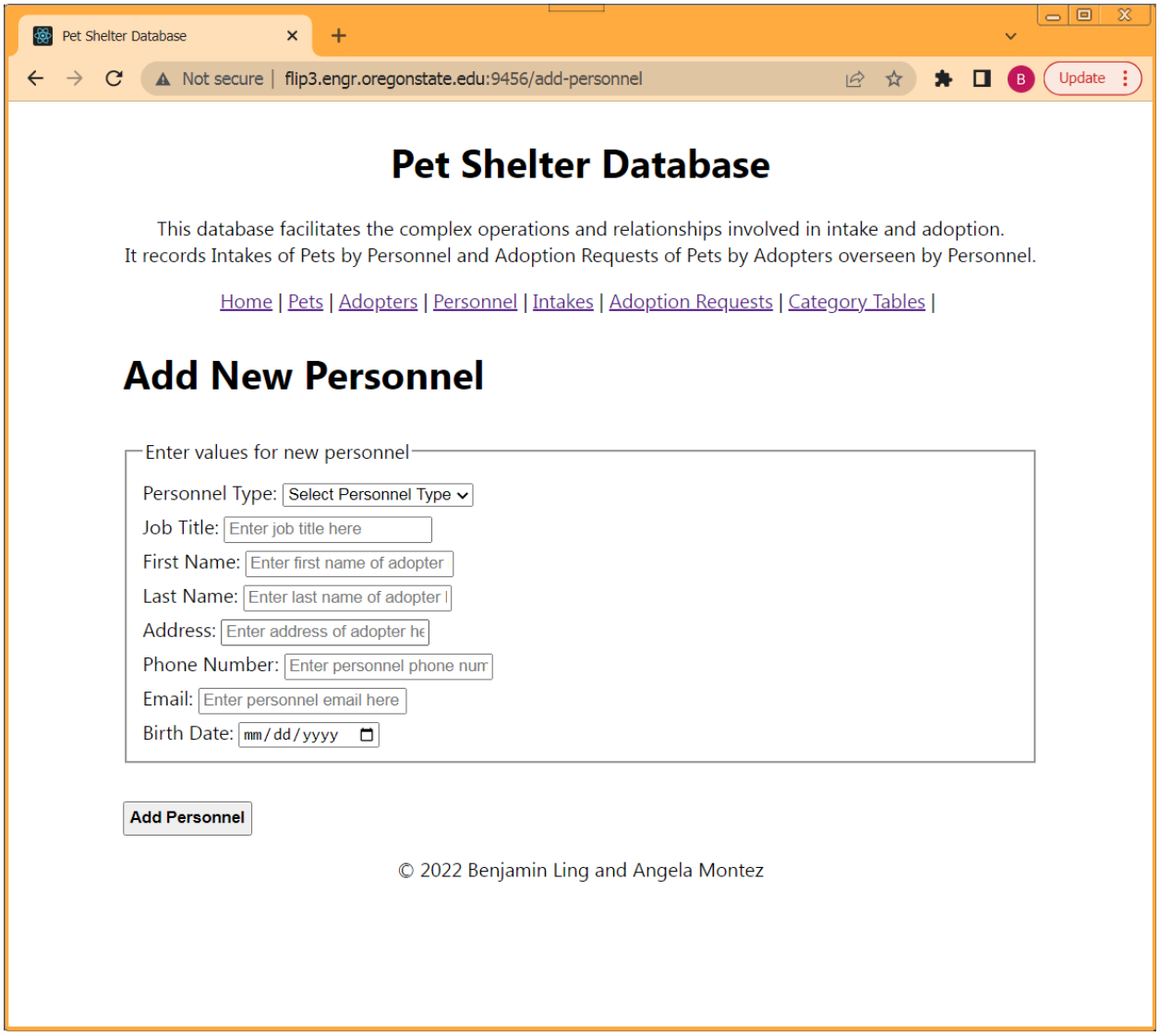
List of Recorded Personnel

Add New Personnel

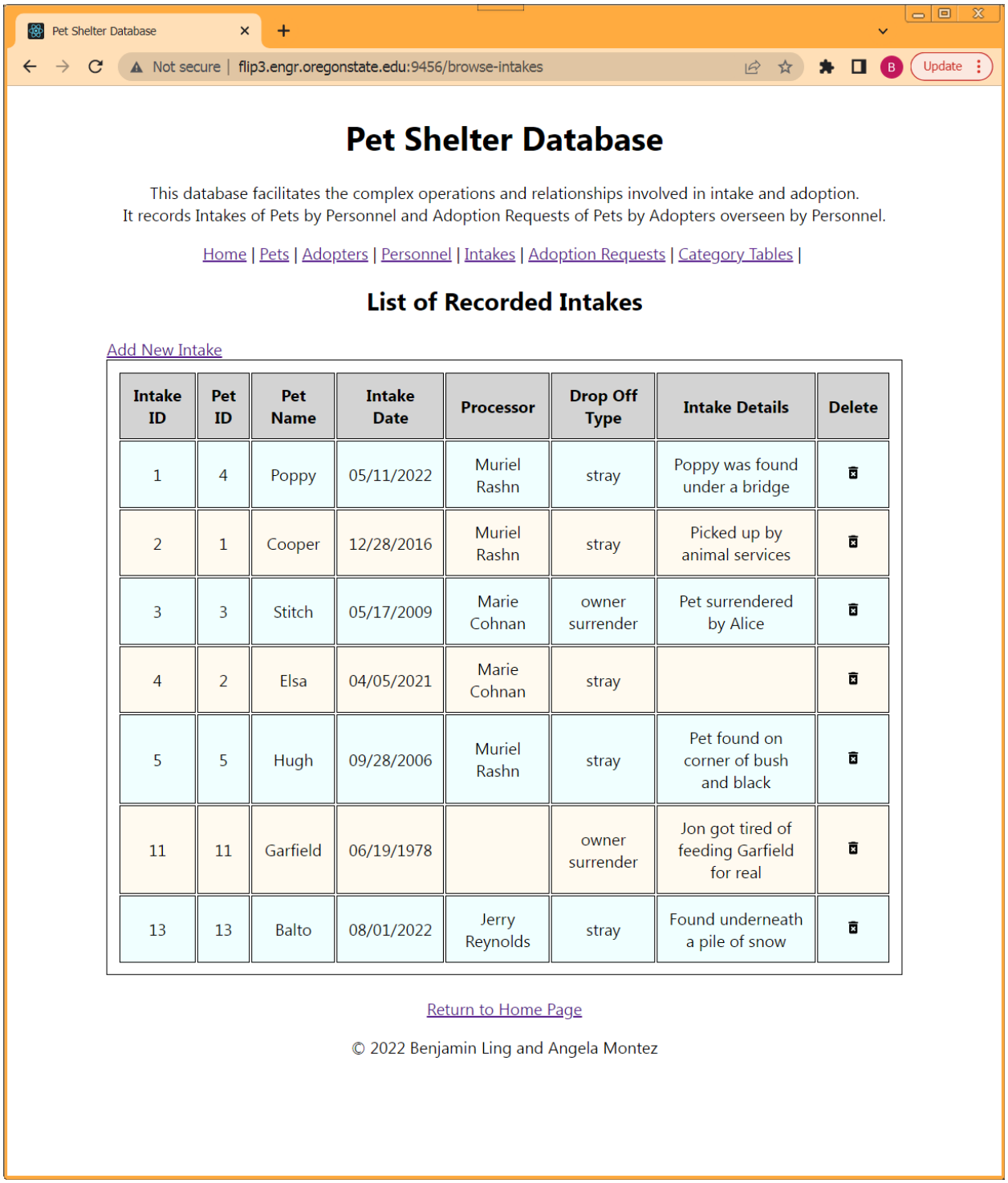
Personnel ID	Personnel Type Code	Job Title	First Name	Last Name	Address	Phone Number	Email	Birthday	Delete
1	EFT	Animal Intakes Manager	Muriel	Rashn	778 Albany Circle, Arlington, NC, 28056	252-204-2115	murielr@email.com	06/09/1996	
2	EPT	Front Desk Assistant	Marie	Cohnan	850 Mountain View Ct., Arlington, NC 28059	252-208-6330	cohnanm@email.com	02/19/2000	
3	VCT		Vanna	Tran	514 Gainsway St., Arlington, NC 28111	252-129-1292	tranv@email.com	04/18/2004	
4	VDO		Arthur	Brooks	484 Woodland Rd., Arlington, NC 28959	252-556-0695	brooksa@email.com	05/30/1995	
5	VCD		Bobby	Lee	393 Armstrong Rd., Arlington, NC 28056	252-583-2816	leeb@email.com	11/23/2001	
8	CON	gig worker	Jerry	Reynolds	1234 Hoosier way	999-999-9999	jerry.reynolds@gmail.com	06/02/1947	

Return to Home Page

CREATE/INSERT/ADD NEW Personnel page



READ/BROWSE/DISPLAY Intakes page
DELETE Intakes page



Pet Shelter Database

This database facilitates the complex operations and relationships involved in intake and adoption.
It records Intakes of Pets by Personnel and Adoption Requests of Pets by Adopters overseen by Personnel.

Home | Pets | Adopters | Personnel | Intakes | Adoption Requests | Category Tables |

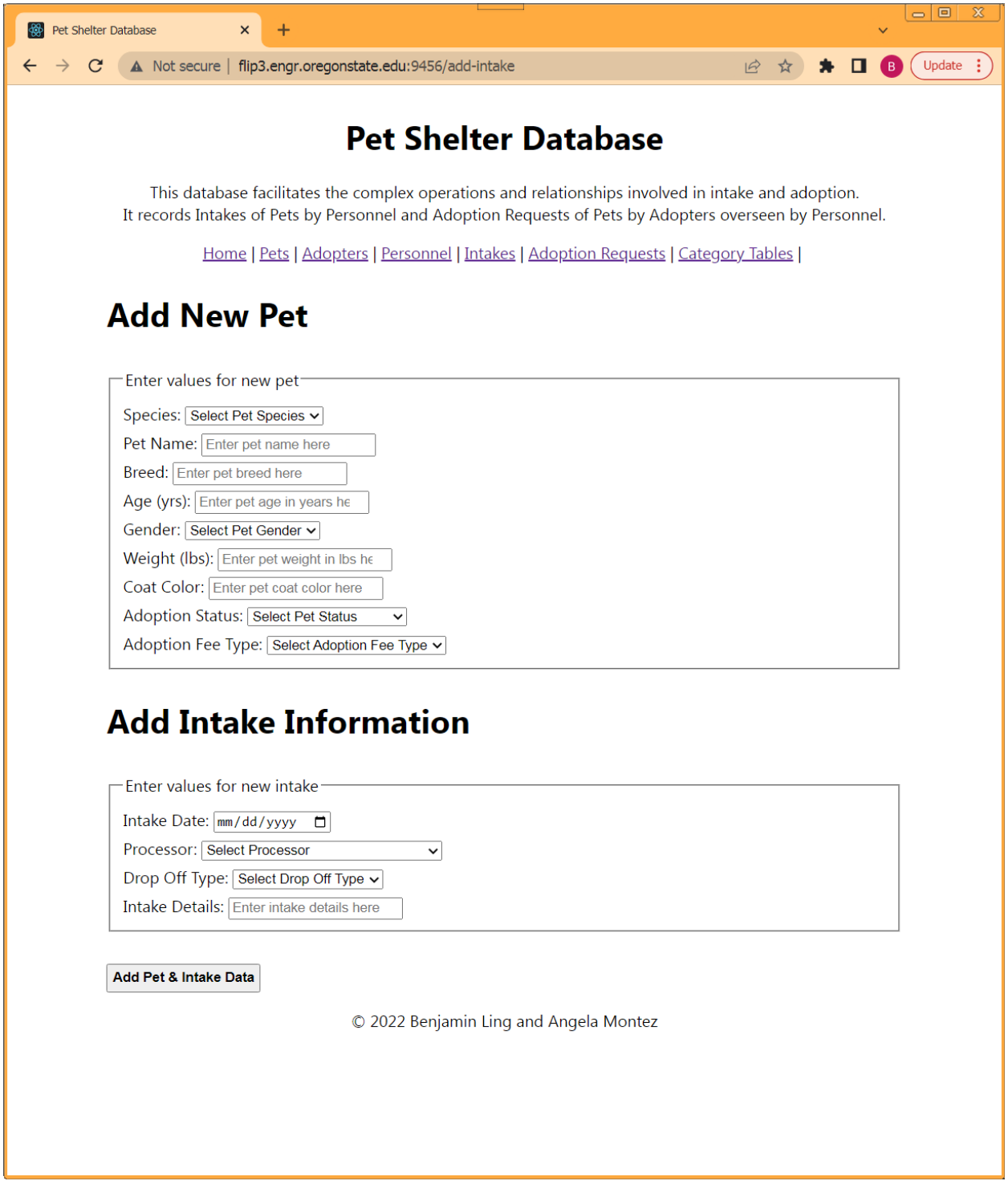
List of Recorded Intakes

Add New Intake

Intake ID	Pet ID	Pet Name	Intake Date	Processor	Drop Off Type	Intake Details	Delete
1	4	Poppy	05/11/2022	Muriel Rashn	stray	Poppy was found under a bridge	
2	1	Cooper	12/28/2016	Muriel Rashn	stray	Picked up by animal services	
3	3	Stitch	05/17/2009	Marie Cohnan	owner surrender	Pet surrendered by Alice	
4	2	Elsa	04/05/2021	Marie Cohnan	stray		
5	5	Hugh	09/28/2006	Muriel Rashn	stray	Pet found on corner of bush and black	
11	11	Garfield	06/19/1978		owner surrender	Jon got tired of feeding Garfield for real	
13	13	Balto	08/01/2022	Jerry Reynolds	stray	Found underneath a pile of snow	

Return to Home Page

CREATE/INSERT/ADD NEW Intake page



READ/BROWSE/DISPLAY Adopters_Pets and Adoption Requests page
DELETE Adopters_Pets and Adoption Requests page (deletes one M:N by also deleting corresponding row in Adopters_Pets table)

Pet Shelter Database

This database facilitates the complex operations and relationships involved in intake and adoption.
It records Intakes of Pets by Personnel and Adoption Requests of Pets by Adopters overseen by Personnel.

Home | Pets | Adopters | Personnel | Intakes | Adoption Requests | Category Tables |

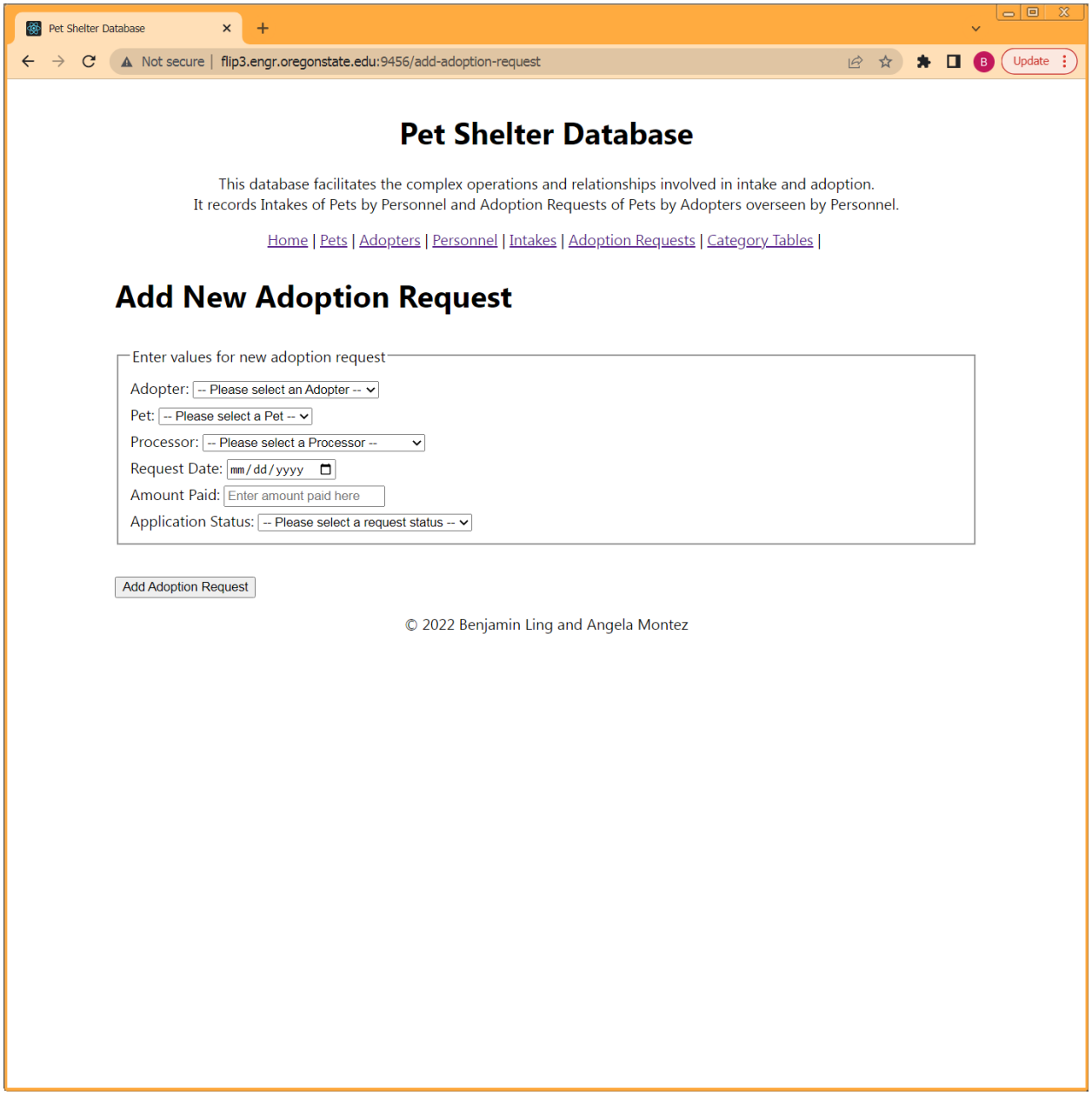
List of Recorded Adoption Requests

Add New Adoption Request

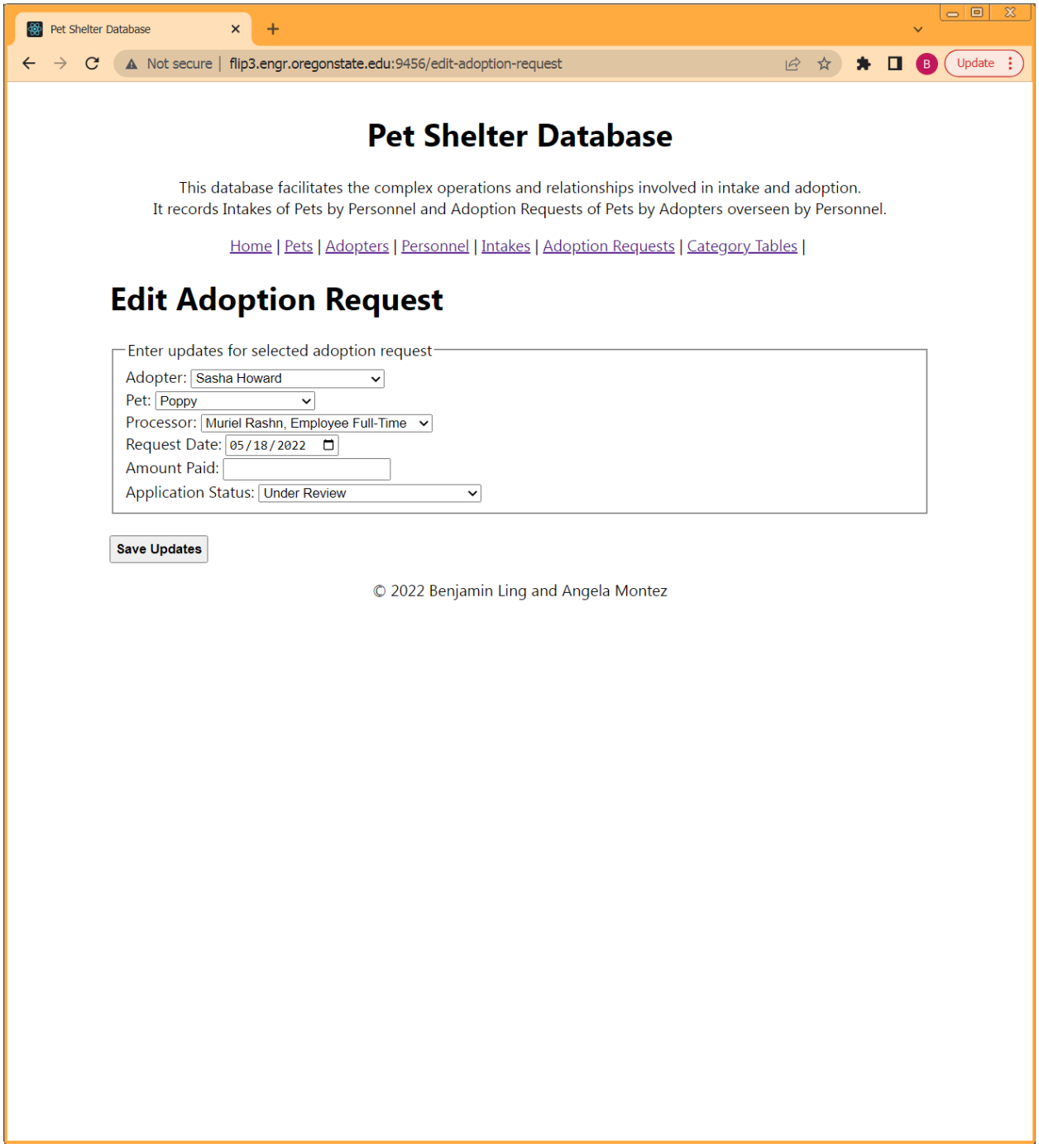
Adopter Pet ID	Adoption Request ID	Adopter Name	Pet Name	Processor	Request Date	Amount Paid	Request Status	Edit	Delete
1	1	Sasha Howard	Poppy	Muriel Rashn	05/18/2022		Under Review		
2	2	Benjamin Ling	Hugh	Muriel Rashn	10/02/2006	200	Approved		
3	3	Tim Smith	Stitch	Marie Cohnan	05/29/2009		Denied		
4	4	Angela Montez	Elsa	Marie Cohnan	04/09/2021	250	Approved		
9	9	Terry Stotts	Fido		08/01/2022	6	Approved		
10	10	Michael McDonald	Nermal		08/01/2022	12	Approved		
11	11	Chris Webber	Garfield	Jerry Reynolds	06/16/2022	34	Unknown		
12	12	Terry Stotts	Nermal	Arthur Brooks	08/02/2022	99	Under Review		

Return to Home Page

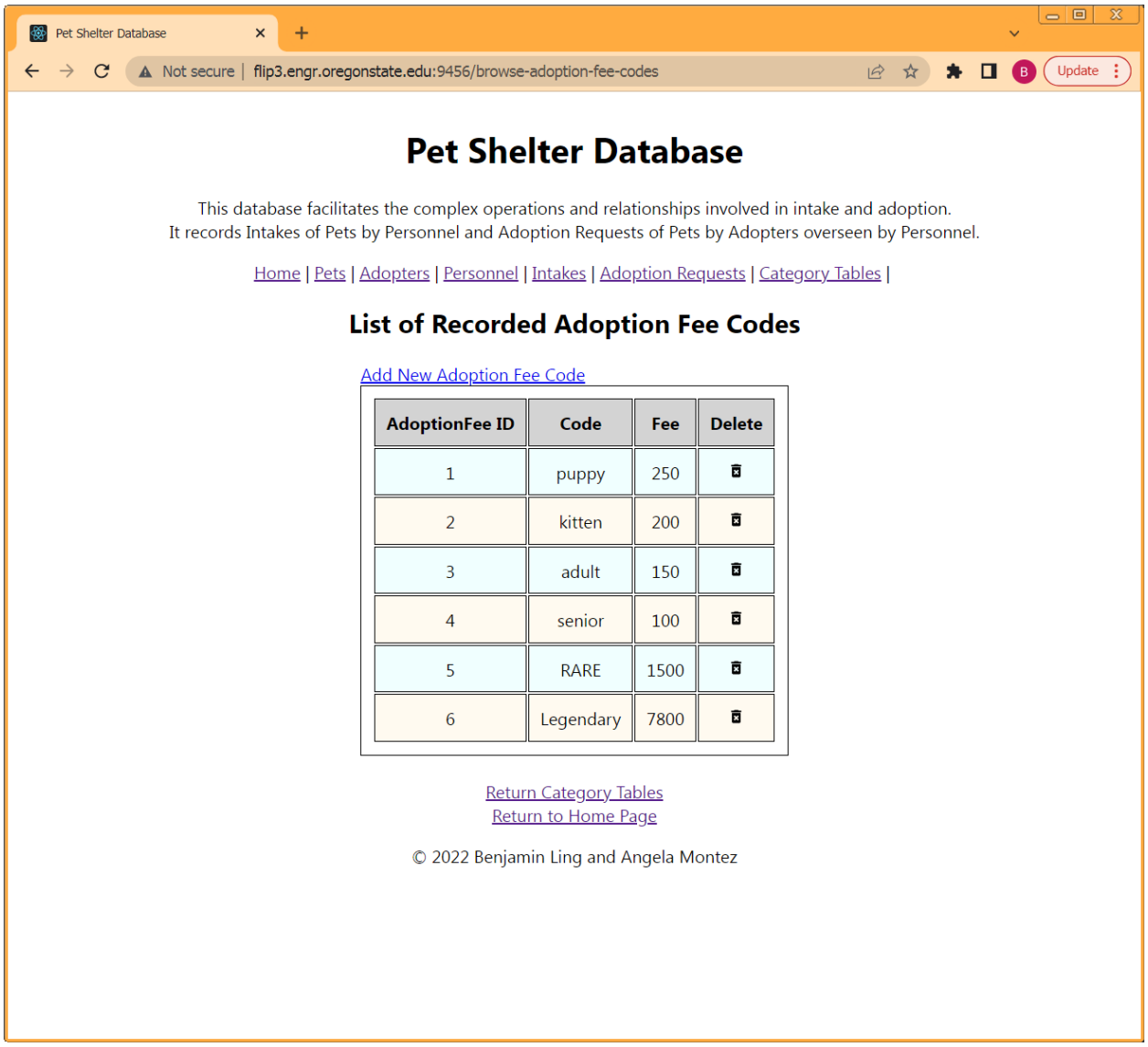
CREATE/INSERT/ADD NEW Adopters_Pets and Adoption Requests page



EDIT/UPDATE Adopters_Pets and Adoption Requests page



READ/BROWSE/DISPLAY Adoption Fee Codes page
DELETE Adoption Fee Codes page



Pet Shelter Database

This database facilitates the complex operations and relationships involved in intake and adoption.
It records Intakes of Pets by Personnel and Adoption Requests of Pets by Adopters overseen by Personnel.

Home | Pets | Adopters | Personnel | Intakes | Adoption Requests | Category Tables |

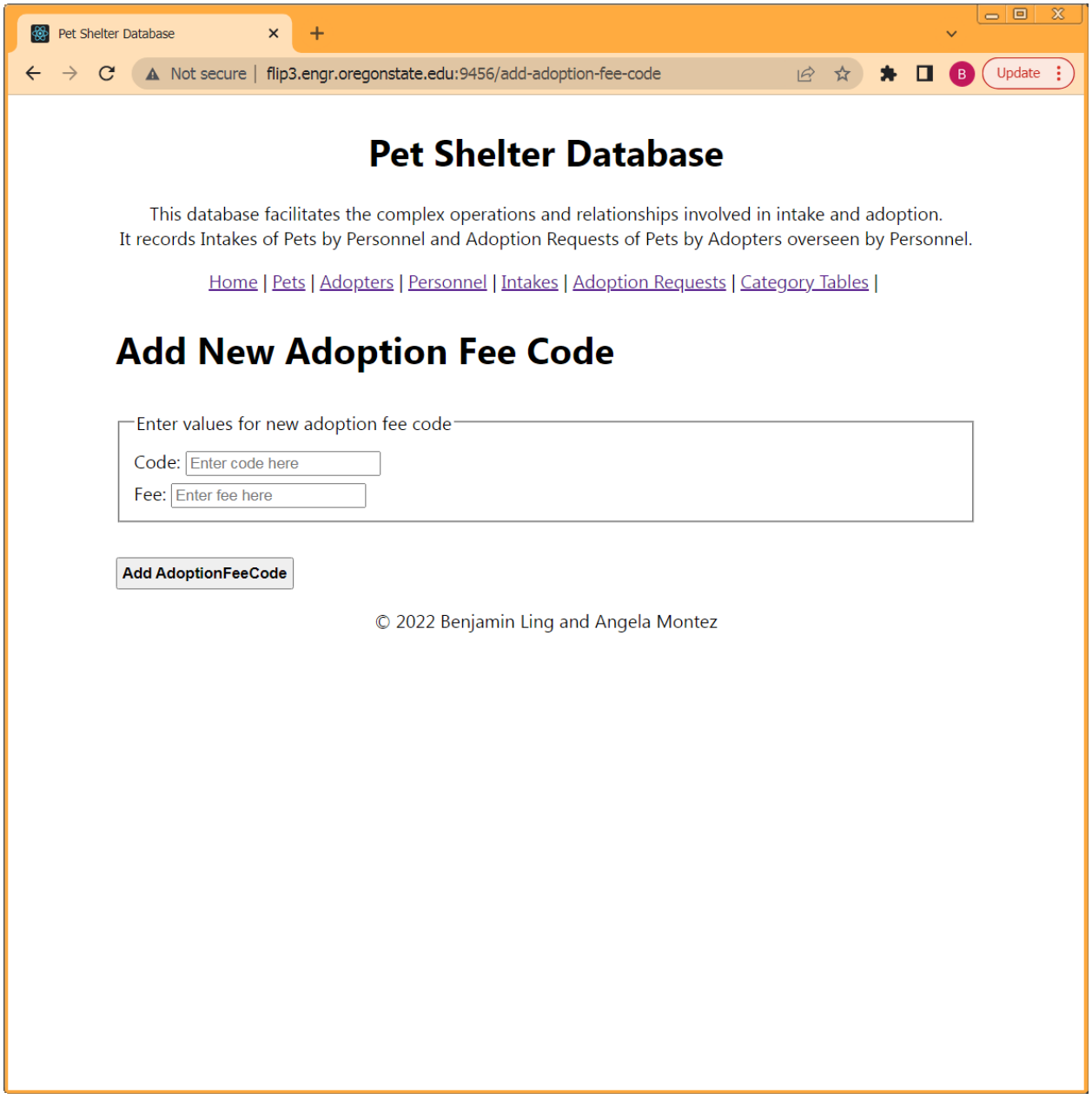
List of Recorded Adoption Fee Codes

Add New Adoption Fee Code

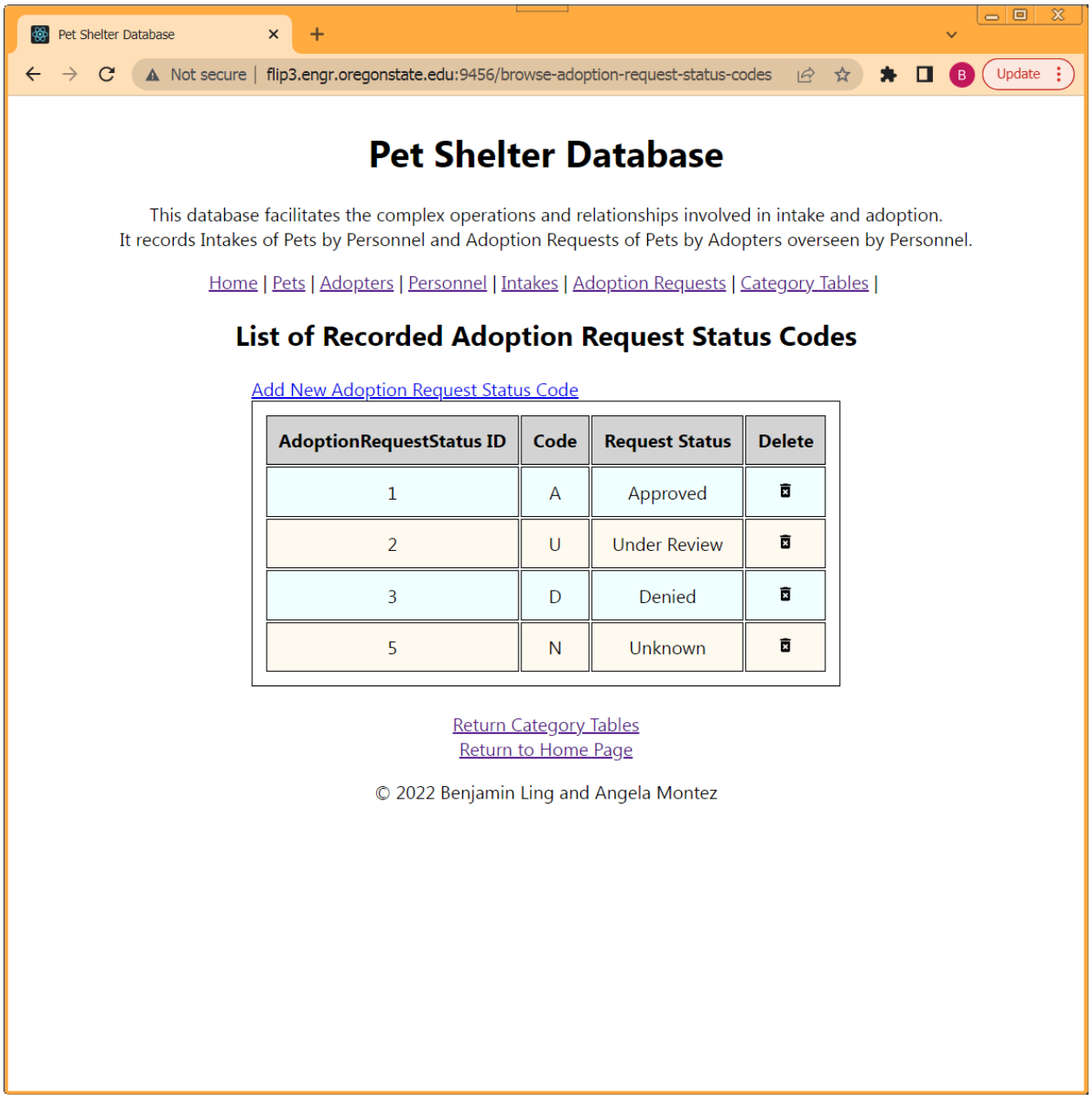
AdoptionFee ID	Code	Fee	Delete
1	puppy	250	
2	kitten	200	
3	adult	150	
4	senior	100	
5	RARE	1500	
6	Legendary	7800	

Return Category Tables
Return to Home Page

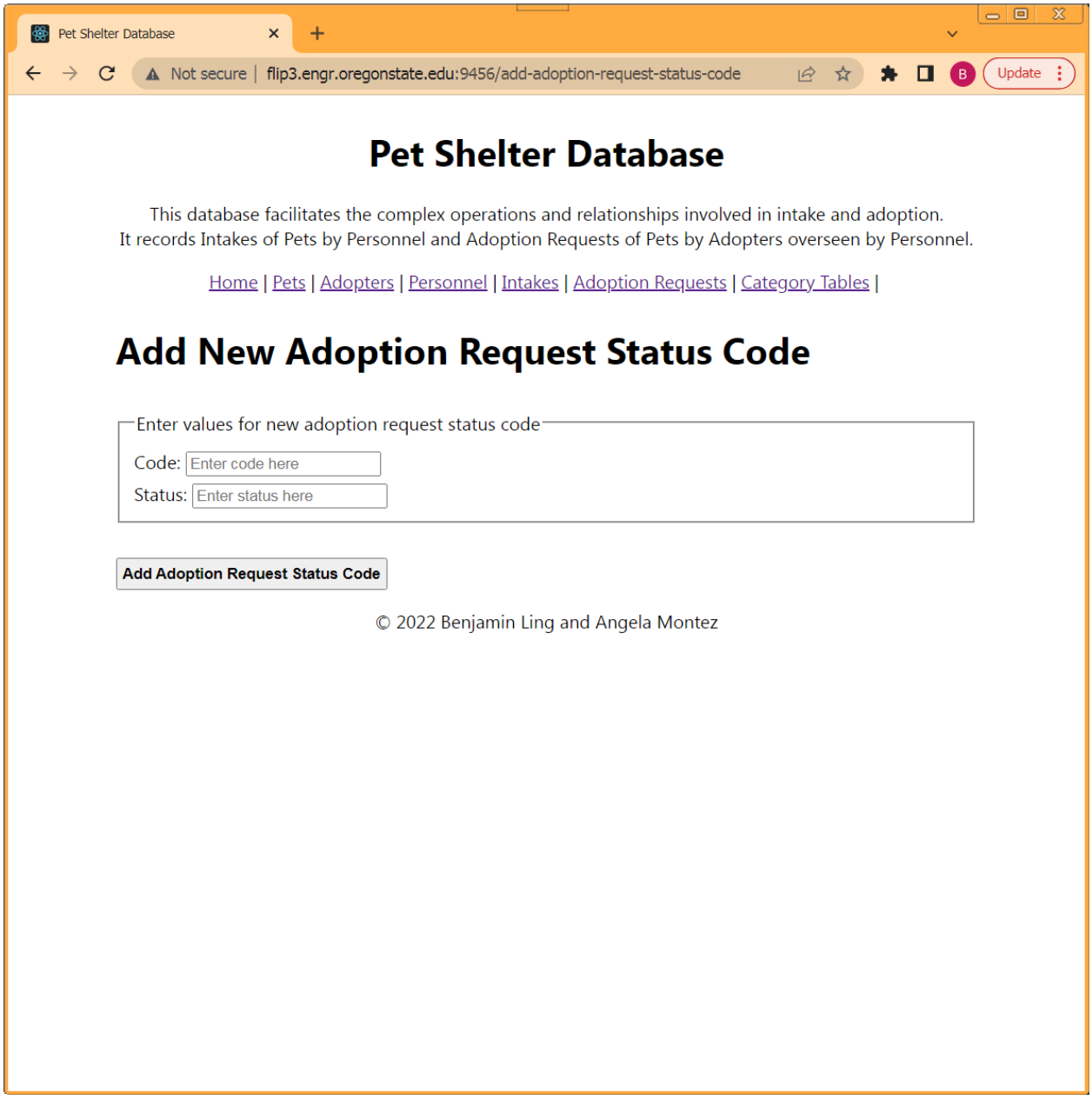
CREATE/INSERT/ADD NEW Adoption Fee Code page



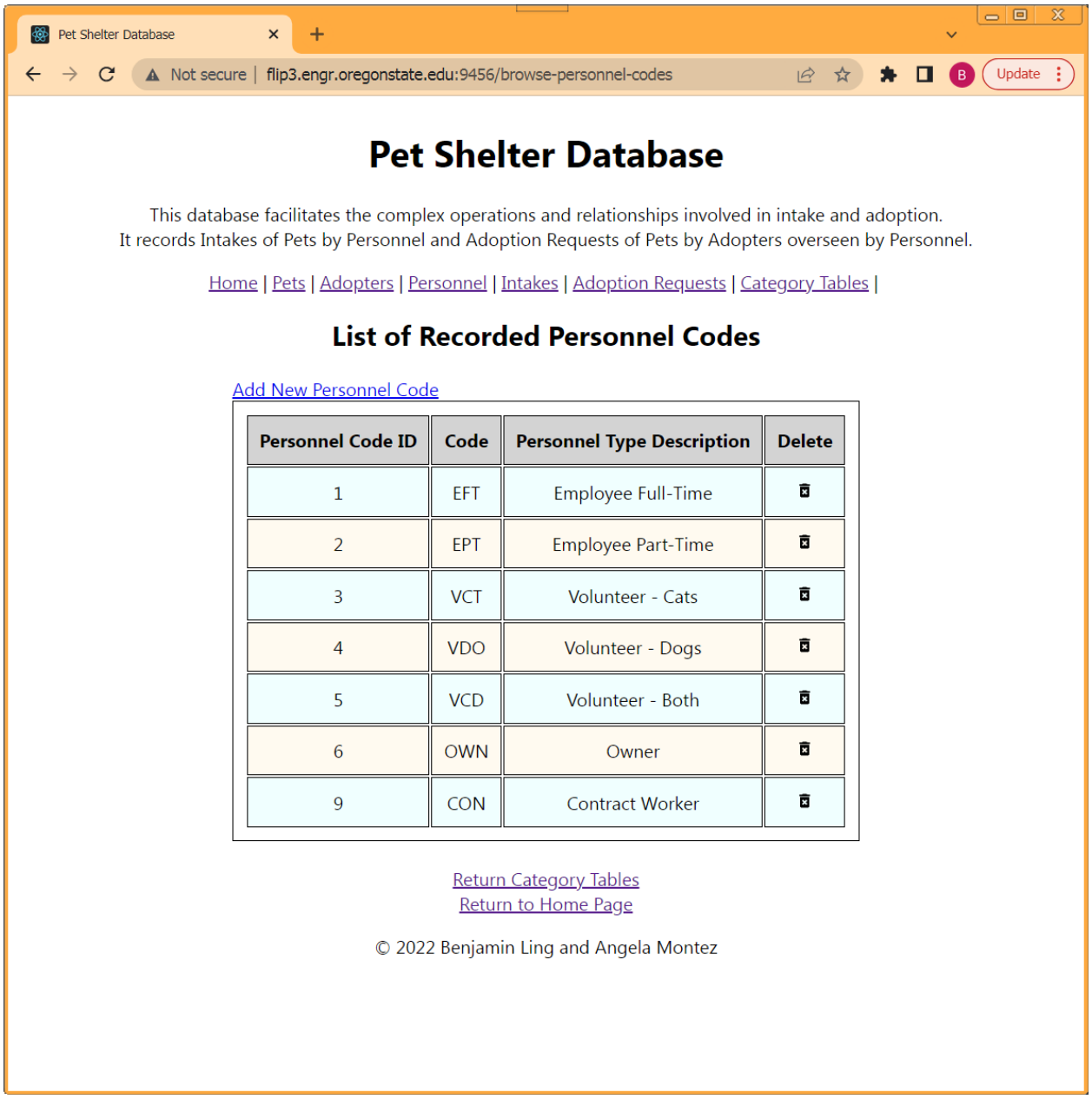
READ/BROWSE/DISPLAY Adoption Request Status Codes page
DELETE Adoption Request Status Codes page



CREATE/INSERT/ADD NEW Adoption Request Status Code page



READ/BROWSE/DISPLAY Personnel Type Codes page
DELETE Personnel Type Codes page



Pet Shelter Database

This database facilitates the complex operations and relationships involved in intake and adoption.
It records Intakes of Pets by Personnel and Adoption Requests of Pets by Adopters overseen by Personnel.

Home | Pets | Adopters | Personnel | Intakes | Adoption Requests | Category Tables |

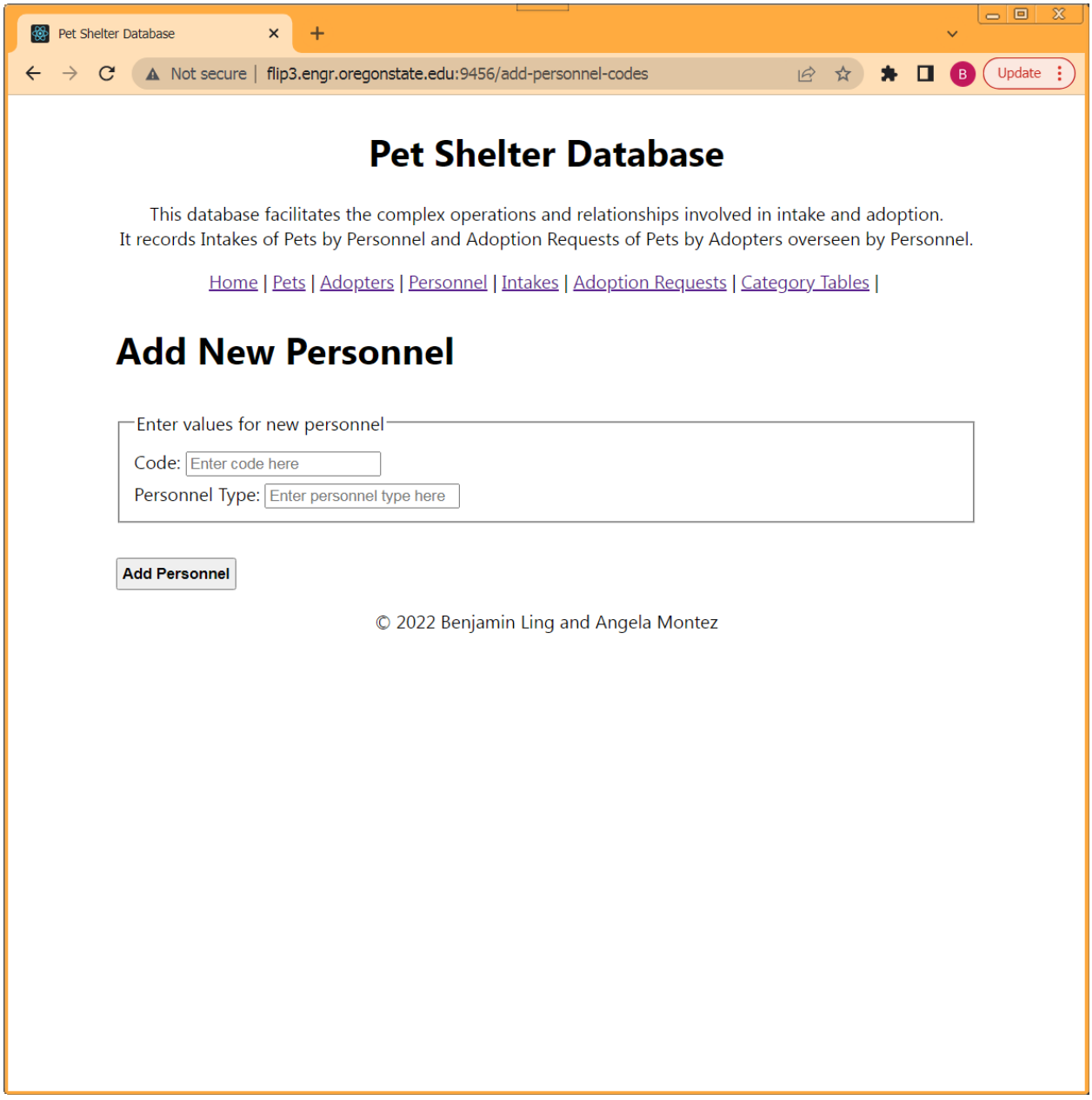
List of Recorded Personnel Codes

Add New Personnel Code

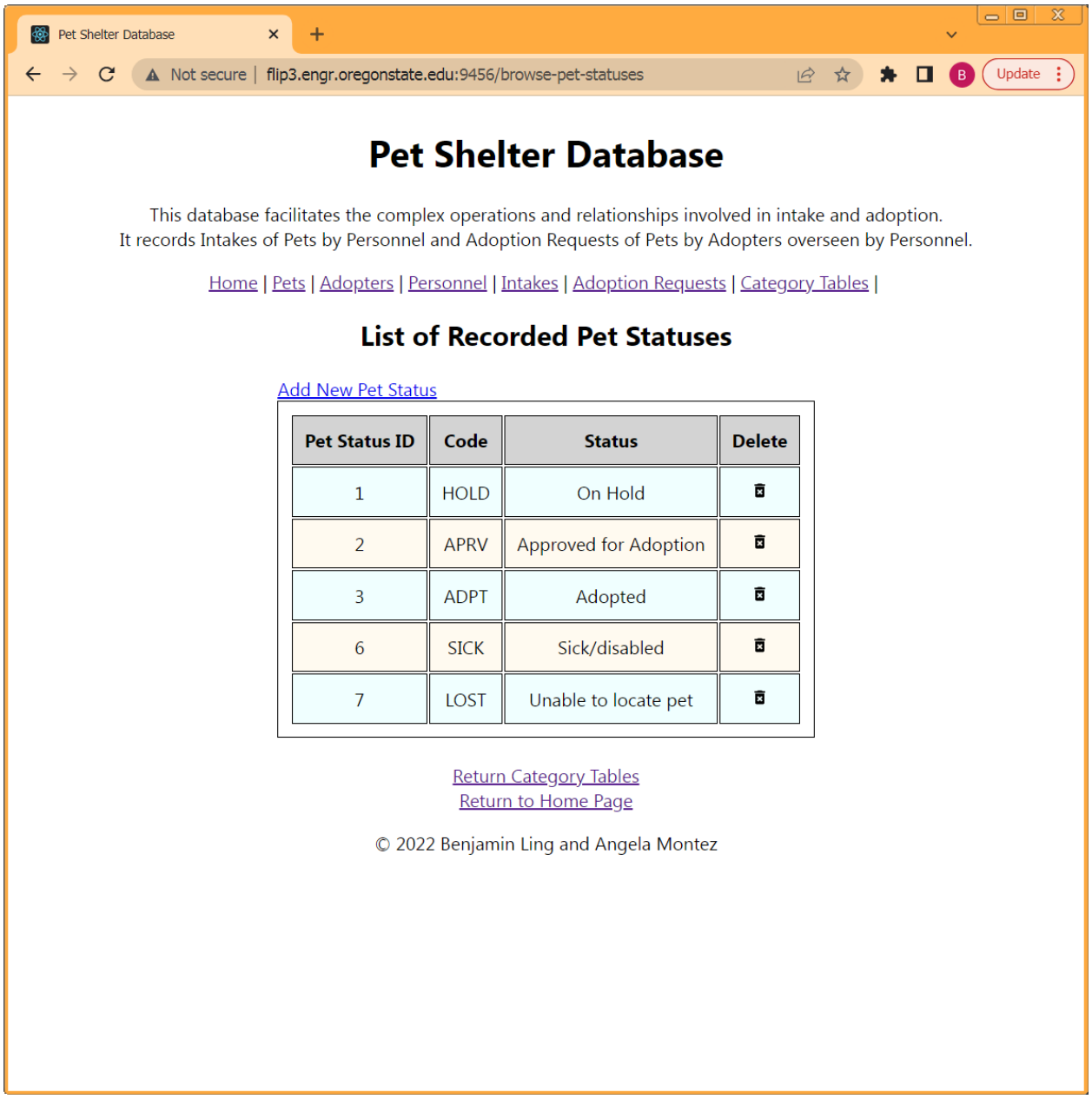
Personnel Code ID	Code	Personnel Type Description	Delete
1	EFT	Employee Full-Time	
2	EPT	Employee Part-Time	
3	VCT	Volunteer - Cats	
4	VDO	Volunteer - Dogs	
5	VCD	Volunteer - Both	
6	OWN	Owner	
9	CON	Contract Worker	

Return Category Tables
Return to Home Page

CREATE/INSERT/ADD NEW Personnel Type Code page



READ/BROWSE/DISPLAY Pet Statuses page
DELETE Pet Statuses page



CREATE/INSERT/ADD NEW Pet Statuses page