



## CS 340 README

### About the Project/Project Title

*The AnimalShelter application is being created to allow users access to create, read, update, and delete (CRUD) animals from the AAC database.*

### Motivation

*The project is user-friendly dashboard used to access and filter the ACC Database. Additionally, this project is a part of CS 340 to provide practice in working with databases with MongoDB and Python.*

### Getting Started

*To run a local copy, follow the steps below. \*Please note: Due to there being limited code at this time running the program will require steps that would not typically be expected of a program user.*

- 1. Access MongoDB and start without authentication enabled.*
- 2. Import the "aac\_shelter\_outcomes.csv" to the AAC database.*
- 3. Create simple and compound indexes to query the documents in the AAC database.*
- 4. User accounts were created for an admin and for the 'aacuser' – it is important to verify that correct access and read/write privileges are given.*
- 5. Using a provided example of CRUD operations in Python create a .py file to CREATE and READ data from the AAC Database. Load project ipynb and py files into Jupyter Notebook*

### Installation

- A Current version of Python through Jupyter Notebook to access/run .py and .ipynb files*
- MongoDB and all necessary libraries*



## Usage

Use this space to show useful examples of how your project works and how it can be used. Be sure to include examples of your code, tests, and screenshots.

### Code Examples

*Python CRUD operations*

**Create method that inserts a document into a specified MongoDB database and collection.**

```
# Complete this create method to implement the C in CRUD.
def create(self, data=None):
    if data is not None:
        insert = self.database.animals.insert_one(data) # data should be dictionary
        if insert!=0:
            return True
        else:
            return False
    else:
        raise Exception("Data parameter is empty. Nothing to save.")
```

**Read method that queries for document(s) from a specified MongoDB database and collection.**

```
# Create method to implement the R in CRUD.
def read(self, criteria=None):
    if criteria is not None: #If the criteria is not empty
        data = self.database.animals.find(criteria,{"_id": False})
        for document in data:
            print(document)
    else:
        data = self.database.animals.find({},{"_id": False})
    return data
```

**Update method that queries for and updates document(s) from a specified MongoDB database and collection.**

```
# Create method to implement the U in CRUD.
def update(self, query=None, data=None):
    if data is not None:
        data_update = self.database.animals.update_many(query, {"$set": data})
        return data_update
    else:
        raise Exception("Data parameter is empty or incorrectly formatted Unable to update.")
```

**Delete method that queries for and removes document(s) from a specified MongoDB database and collection.**

```
# Create method to implement the D in CRUD.
def delete(self,data=None):
    if data is not None:
        data_delete = self.database.animals.delete_one(data)
        return data_delete
    else:
        raise Exception("Data parameter is empty or incorrectly formatted. Unable to delete.")
```



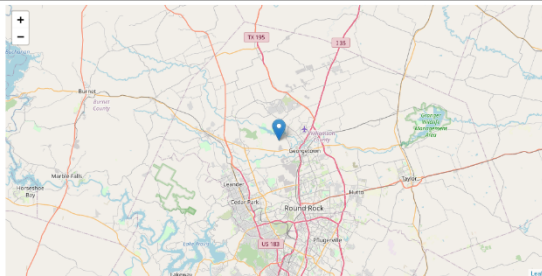
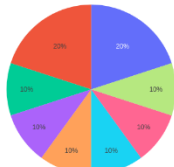
## Screenshots of Dashboard execution:

### Starting state

#### SNHU CS-340 Dashboard



Select...													
i1	age_upon_outcome	animal_id	animal_type	ibreed	icolor	idate_of_birth	idatetime	imonthyear	iname	ioutcome_subtype	ioutcome_type	isex_upon_outcome	ilocation_lat
2	1 year	A275717	Cat	Domestic Shorthair Mix	Silver Tabby	2015-05-02	2016-05-06 18:49:00	2016-05-06T18:49:00		SCRIP	Transfer	Spayed Female	30.4525084568228
1	3 years	A246874	Cat	Domestic Shorthair Mix	Black/White	2014-04-10	2017-04-11 09:00:00	2017-04-11T09:00:00		SCRIP	Transfer	Neutered Male	30.5066570730455
4	7 months	A733653	Cat	Siamese Mix	Seal Point	2016-01-25	2016-08-27 18:11:00	2016-08-27T18:11:00	Kitty		Adoption	Intact Female	30.3188063774257
3	2 years	A735230	Dog	Chihuahua Shorthair Mix	Brown/White	2013-11-10	2015-12-20 10:40:00	2015-12-20T10:40:00	Frank		Adoption	Neutered Male	30.7595740212640
6	5 years	A609664	Dog	Cardigan Welsh Corgi Mix	Sable/White	2016-01-27	2015-01-20 10:39:00	2015-01-20T10:39:00	Lucy	Rabies Risk	Euthanasia	Spayed Female	30.47373505454231
9	3 years	A728214	Dog	Labrador Retriever Mix	Red/White	2013-02-04	2016-02-11 12:41:00	2016-02-11T12:41:00	Eloising		Adoption	Spayed Female	30.3878648109411
5	2 years	A601584	Dog	Labrador Retriever Mix	Tan/White	2012-11-06	2015-05-30 13:40:00	2015-05-30T13:40:00	Luke		Return to Owner	Neutered Male	30.7104815610435
14	2 years	A742267	Dog	Boxer/Bulldog Mix	Brown Brindle/White	2015-01-10	2017-02-11 12:39:00	2017-02-11T12:39:00	Heads		Adoption	Neutered Male	30.4551240640996
15	3 years	A729630	Dog	Pit Bull Mix	Red/White	2012-09-26	2016-07-10 17:52:00	2016-07-10T17:52:00	Marcus	Partner	Transfer	Neutered Male	30.5790290207037
16	5 years	A723742	Dog	Miniature Schnauzer Mix	Black/White	2011-04-05	2016-04-10 17:27:00	2016-04-10T17:27:00	Gretchen		Adoption	Spayed Female	30.4792680468366



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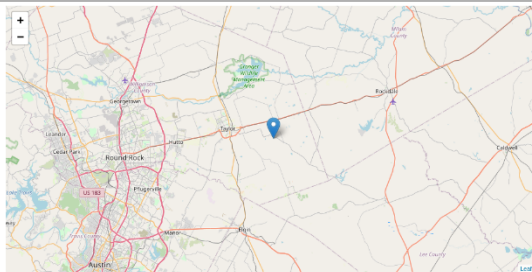
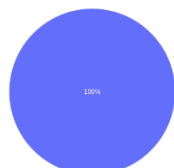
## Executions of dashboard following data filter application

### Water Rescue

#### SNHU CS-340 Dashboard



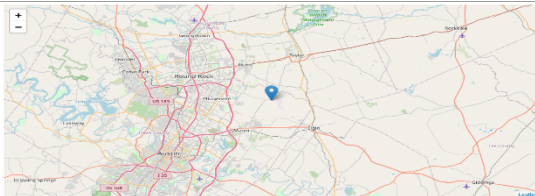
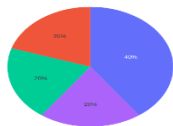
Water Rescue													
i1	age_upon_outcome	animal_id	animal_type	ibreed	icolor	idate_of_birth	idatetime	imonthyear	iname	ioutcome_subtype	ioutcome_type	isex_upon_outcome	ilocation_lat
36	6 months	A706953	Dog	Labrador Retriever Mix	Yellow	2014-12-06	2015-07-06 11:33:00	2015-07-06T11:33:00		Medical	Euthanasia	Intact Female	30.5400902086633
732	2 years	A707782	Dog	Labrador Retriever Mix	Tan/White	2015-05-10	2017-07-25 14:59:00	2017-07-25T14:59:00	Catalina		Return to Owner	Intact Female	30.4138138136757
1121	1 year	A757158	Dog	Labrador Retriever Mix	White/Black	2016-06-10	2017-06-11 14:12:00	2017-06-11T14:12:00	Pieria		Return to Owner	Intact Female	30.5157161661962
1620	9 months	A706071	Dog	Labrador Retriever Mix	Tan/White	2016-03-17	2016-12-23 17:13:00	2016-12-23T17:13:00	Mika		Adoption	Intact Female	30.756024303241
1757	7 months	A742767	Dog	Labrador Retriever Mix	Black	2016-06-27	2017-02-14 15:20:00	2017-02-14T15:20:00	Marley		Return to Owner	Intact Female	30.4809754937324
1960	1 year	A742781	Dog	Labrador Retriever Mix	Black/White	2016-11-27	2017-12-03 10:00:00	2017-12-03T10:00:00	Abigail	Partner	Transfer	Intact Female	30.2640113133063
2041	2 years	A762740	Dog	Labrador Retriever Mix	Black	2013-05-22	2015-05-22 11:45:00	2015-05-22T11:45:00			Return to Owner	Intact Female	30.7157641956361
2225	2 years	A757341	Dog	Labrador Retriever Mix	Black/White	2015-09-01	2017-10-03 12:27:00	2017-10-03T12:27:00	19	Partner	Transfer	Intact Female	30.3814162796407
3310	9 months	A687748	Dog	Labrador Retriever Mix	Yellow	2013-12-09	2014-09-09 17:01:00	2014-09-09T17:01:00		Suffering	Euthanasia	Intact Female	30.7290134444408
4232	1 year	A735551	Dog	Labrador Retriever Mix	Black	2015-09-25	2016-09-27 14:18:00	2016-09-27T14:18:00	Daisy		Return to Owner	Intact Female	30.5150707036025



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## Mountain or Wilderness Rescue

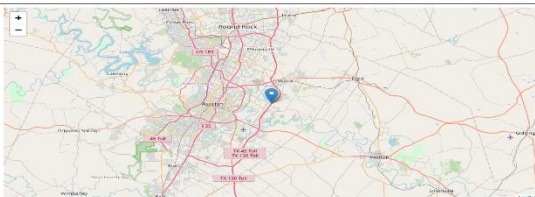
## SNHU CS-340 Dashboard

[illegible]

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## Disaster or Individual Tracking

## SNHU CS-340 Dashboard

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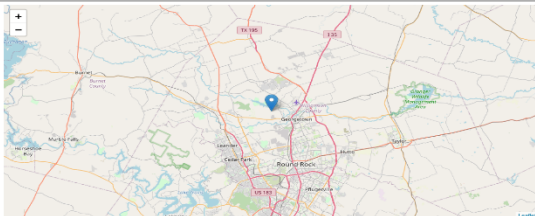
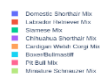
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## Reset (returns all widgets to their original, unfiltered state)

## SNHU CS-340 Dashboard



SALVAGE															
All															
id	img_name_textcode	animal_id	cat	animal_type	breed	color	date_of_birth	intake_date	intake_year	name	owner_type	img_name_textcode	cleanest_tag	intake_img	img_name_textcode
1	A17629	Q17629	Q	Domestic Shorthair	Mix	White	2017-02-10 12:27:27	2017-02-10 12:27:27	2017	Ally	Owner	A17629	Q17629	Q17629	A17629
1	3 years	A17629	Q	Domestic Shorthair	Mix	White	2014-04-30	2014-04-19 09:00:00	2017	Ally	Owner	A17629	Q17629	Q17629	A17629
1	2 years	A17629	Q	Domestic Shorthair	Mix	White	2014-04-30	2014-04-19 09:00:00	2017	Ally	Owner	A17629	Q17629	Q17629	A17629
1	2 years	A17629	Q	Domestic Shorthair	Mix	White	2014-04-30	2014-04-19 09:00:00	2017	Ally	Owner	A17629	Q17629	Q17629	A17629
2	A17630	Q17630	Q	Domestic Shorthair	Mix	White	2017-02-10 12:27:27	2017-02-10 12:27:27	2017	Kelly	Adoption	A17630	Q17630	Q17630	A17630
2	2 years	A17630	Q	Domestic Shorthair	Mix	White	2015-11-30	2015-12-20 18:00:00	2016	Frank	Adoption	A17630	Q17630	Q17630	A17630
2	2 years	A17630	Q	Domestic Shorthair	Mix	White	2015-11-30	2015-12-20 18:00:00	2016	Frank	Adoption	A17630	Q17630	Q17630	A17630
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2	2 years	A17630	Q	Domestic Shorthair	Mix	White	2015-11-30	2015-12-20 18:00:00	2016	Frank	Adoption	A17630	Q17630	Q17630	A17630
2	2 years	A17630	Q	Domestic Shorthair	Mix	White	2015-11-30	2015-12-20 18:00:00	2016	Frank	Adoption	A17630	Q17630	Q17630	A17630
2	2 years	A17630	Q	Domestic Shorthair	Mix	White	2015-11-30	2015-12-20 18:00:00	2016	Frank	Adoption	A17630	Q17630	Q17630	A17630
2	2 years	A17630	Q	Domestic Shorthair	Mix	White	2015-11-30	2015-12-20 18:00:00	2016	Frank	Adoption	A17630	Q17630	Q17630	A17630
2	2 years	A17630	Q	Domestic Sh											



**Marisa Kuyava**



## Screenshots of the MongoDB import execution:

```
marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets
File Edit View Search Terminal Help

/usr/local/bin/mongod_ctl start-noauth
MongoDB is already running for marisakuyava_snhu. Please stop the database first before running with start-noauth
(base) marisakuyava_snhu@msnv-snhu3-1001:~$ cd /usr/local/datasets
(base) marisakuyava_snhu@msnv-snhu3-1001:/usr/local/datasets$ mongoimport --port 55803 --db AAC --collection animals --type=csv --headerline ./aac shelter_outcomes.csv
2023-03-16T17:15:24.221+0000    connected to: mongodb://localhost:55803/
2023-03-16T17:15:24.447+0000    10000 document(s) imported successfully. 0 document(s) failed to import.
```

## Screenshots of the user authentication execution:

### Create an administrator account:

```
marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets
File Edit View Search Terminal Help

use admin
switched to db admin
> db.createUser({user:"myUserAdmin", pwd:passwordPrompt(), roles:[{role:"userAdminAnyDatabase", db:"admin" }, "readWriteAnyDatabase"]})
Enter password:
Successfully added user: {
  "user" : "myUserAdmin",
  "roles" : [
    {
      "role" : "userAdminAnyDatabase",
      "db" : "admin"
    },
    {
      "role" : "readWriteAnyDatabase",
      "db" : "admin"
    }
  ]
}
```

### Enable user authentication for the database:

```
marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets
File Edit View Search Terminal Help

/usr/local/bin/mongod_ctl stop
+++ Stopping MongoDB for marisakuyava_snhu
(base) marisakuyava_snhu@msnv-snhu3-1001:/usr/local/datasets$ /usr/local/bin/mongod_ctl start
+++ Starting MongoDB: Port=55803 Unix Socket=/tmp/mongodb-55803.sock Dir=/home/marisakuyava_snhu/mongodb
(base) marisakuyava_snhu@msnv-snhu3-1001:/usr/local/datasets$ mongo --authenticationDatabase "admin" -u "myUserAdmin" -p
MongoDB shell version v4.2.6
Enter password:
connecting to: mongodb://127.0.0.1:55803/?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("fcf8c968-21ab-4a12-9db2-d92ac64b1444") }
MongoDB server version: 4.2.6
>
```



## Create a new use account called “aacuser”:

```
marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets
File Edit View Search Terminal Help
shshow dbs
AAC 0.001GB
admin 0.000GB
city 0.011GB
config 0.000GB
enron 0.011GB
local 0.000GB
test 0.000GB
> use AAC
Switched to db AAC
> db.createUser({user:"aacuser",pwd:passwordPrompt(),roles:[{role:"readWrite", db:"AAC"}]})
Enter password:
Successfully added user: {
  "user": "aacuser",
  "roles": [
    {
      "role": "readWrite",
      "db": "AAC"
    }
  ]
}
```

## Tests

### Verify login process to MongoDB works for admin account using the mongo shell:

```
marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets
File Edit View Search Terminal Help
/usr/local/bin/mongod ctl start
+++ Starting MongoDB: Port=55803 Unix Socket=/tmp/mongodb-55803.sock Dir=/home/marisakuyava_snhu/mongodb
(base) marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets$ mongo --authenticationDatabase "admin" -u "myUserAdmin" -p
MongoDB shell version v4.2.6
Enter password:
connecting to: mongodb://127.0.0.1:55803/?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("c878c5b0-dcf3-46c1-9235-762a31bf38b5") }
MongoDB server version: 4.2.6
> show dbs
AAC 0.001GB
admin 0.000GB
city 0.011GB
config 0.000GB
enron 0.011GB
local 0.000GB
test 0.000GB
>
```

### Verify login process to MongoDB works for accuser account using the mongo shell:

```
marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets
File Edit View Search Terminal Help
/usr/local/bin/mongod ctl stop
+++ Stopping MongoDB for marisakuyava_snhu
(base) marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets$ /usr/local/bin/mongod ctl start
+++ Starting MongoDB: Port=55803 Unix Socket=/tmp/mongodb-55803.sock Dir=/home/marisakuyava_snhu/mongodb
(base) marisakuyava_snhu@msnv-snhu3-1001: /usr/local/datasets$ mongo --authenticationDatabase "AAC" -u "aacuser" -p
MongoDB shell version v4.2.6
Enter password:
connecting to: mongodb://127.0.0.1:55803/?authSource=AAC&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("6b70bde1-98cf-43a1-9b28-2fe19fcd5f6") }
MongoDB server version: 4.2.6
> show dbs
AAC 0.001GB
>
```

## Testing CRUD in Python

### Imports CRUD Python module

```
In [1]: #Import CRUD file
        from animal_shelter import AnimalShelter
```

```
In [2]: shelter = AnimalShelter('aacuser','password')
```

### Call and test the CREATE instances of CRUD

```
In [3]: insertData = {
        "animal_id": "54321",
        "animal_type": "Community cat",
        "breed": "Tabby",
        "color": "gray",
        "date_of_birth": "2020-03-26",
        "name": "Skitter Kitty",
        "outcome_type": "Transfer"}

```

```
In [4]: shelter.create(insertData)
```

```
Out[4]: True
```

### Call and test the READ instances of CRUD

```
In [5]: searchData={"name": "Pixie"}
```

```
In [6]: shelter.read(searchData)
```

```
{'1': 1349, 'age_upon_outcome': '7 years', 'animal_id': 'A681769', 'animal_type': 'Dog', 'breed': 'American Pit Bull Terrier Mix', 'color': 'White', 'date_of_birth': '2008-06-20', 'datetime': '2015-12-06 16:26:00', 'monthyear': '2015-12-06T16:26:00', 'name': 'Pixie', 'outcome_subtype': '', 'outcome_type': 'Adoption', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.3437008969069, 'location_long': -97.5532947616955, 'age_upon_outcome_in_weeks': 389.383531746032}
{'1': 2431, 'age_upon_outcome': '5 months', 'animal_id': 'A654375', 'animal_type': 'Dog', 'breed': 'Pit Bull Mix', 'color': 'Chocolate/White', 'date_of_birth': '2013-05-04', 'datetime': '2013-10-21 15:24:00', 'monthyear': '2013-10-21T15:24:00', 'name': 'Pixie', 'outcome_subtype': '', 'outcome_type': 'Return to Owner', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.5339706618397, 'location_long': -97.3247610599797, 'age_upon_outcome_in_weeks': 24.377380952381}
{'1': 9291, 'age_upon_outcome': '6 years', 'animal_id': 'A681769', 'animal_type': 'Dog', 'breed': 'American Pit Bull Terrier Mix', 'color': 'White', 'date_of_birth': '2008-06-20', 'datetime': '2014-11-13 15:55:00', 'monthyear': '2014-11-13T15:55:00', 'name': 'Pixie', 'outcome_subtype': '', 'outcome_type': 'Adoption', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.7614129738142, 'location_long': -97.6082296325865, 'age_upon_outcome_in_weeks': 333.951884920635}
{'age_upon_outcome': '12 years', 'animal_id': 'test', 'animal_type': 'Pixie', 'breed': 'Yorkie Mix', 'color': 'Tan & Red', 'date_of_birth': '2011-03-14', 'datetime': '2023-03-23 4:14:00', 'monthyear': '2023-03-23T4:14:00', 'name': 'Pixie', 'outcome_subtype': '', 'outcome_type': 'Adoption', 'sex_upon_outcome': 'Female', 'location_lat': 30.6525984560228, 'location_long': -97.7419963476444, 'age_upon_outcome_in_weeks': 604.921527777778}
{'1': 1349, 'age_upon_outcome': '7 years', 'animal_id': 'A681769', 'animal_type': 'Dog', 'breed': 'American Pit Bull Terrier Mix', 'color': 'White', 'date_of_birth': '2008-06-20', 'datetime': '2015-12-06 16:26:00', 'monthyear': '2015-12-06T16:26:00', 'name': 'Pixie', 'outcome_subtype': '', 'outcome_type': 'Adoption', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.3437008969069, 'location_long': -97.5532947616955, 'age_upon_outcome_in_weeks': 389.383531746032}
{'1': 2431, 'age_upon_outcome': '5 months', 'animal_id': 'A654375', 'animal_type': 'Dog', 'breed': 'Pit Bull Mix', 'color': 'Chocolate/White', 'date_of_birth': '2013-05-04', 'datetime': '2013-10-21 15:24:00', 'monthyear': '2013-10-21T15:24:00', 'name': 'Pixie', 'outcome_subtype': '', 'outcome_type': 'Return to Owner', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.5339706618397, 'location_long': -97.3247610599797, 'age_upon_outcome_in_weeks': 24.377380952381}
{'1': 9291, 'age_upon_outcome': '6 years', 'animal_id': 'A681769', 'animal_type': 'Dog', 'breed': 'American Pit Bull Terrier Mix', 'color': 'White', 'date_of_birth': '2008-06-20', 'datetime': '2014-11-13 15:55:00', 'monthyear': '2014-11-13T15:55:00', 'name': 'Pixie', 'outcome_subtype': '', 'outcome_type': 'Adoption', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.7614129738142, 'location_long': -97.6082296325865, 'age_upon_outcome_in_weeks': 333.951884920635}
```

```
Out[6]: <pymongo.cursor.Cursor at 0x7f5334c18d30>
```





## Call and test the UPDATE instances of CRUD

```
In [7]: shelter.update({"animal_id": "54321"}, {"color": "red"})
```

```
Out[7]: <pymongo.results.UpdateResult at 0x7f53343c5c48>
```

```
In [8]: updatedSearchData={"animal_id": "54321"}
```

```
In [9]: shelter.read(updatedSearchData)
```

```
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'red', 'date_of_birth': '2020-03-26', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'brown', 'date_of_birth': '2020-03-26', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'brown', 'date_of_birth': '2020-03-26', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'brown', 'date_of_birth': '2020-03-26', 'name': 'Skitter Kitty', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'gray', 'date_of_birth': '2020-03-26', 'name': 'Skitter Kitty', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'gray', 'date_of_birth': '2020-03-26', 'name': 'Skitter Kitty', 'outcome_type': 'Transfer'}
```

```
Out[9]: <pymongo.cursor.Cursor at 0x7f5334c18c18>
```

## Call and test the DELETE instances of CRUD

```
In [10]: shelter.delete({"animal_id": "54321"})
```

```
Out[10]: <pymongo.results.DeleteResult at 0x7f5334c05948>
```

```
In [11]: deletedSearchData={"animal_id": "54321"}
```

```
In [12]: shelter.read(deletedSearchData)
```

```
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'brown', 'date_of_birth': '2020-03-26', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'brown', 'date_of_birth': '2020-03-26', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'brown', 'date_of_birth': '2020-03-26', 'name': 'Skitter Kitty', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'gray', 'date_of_birth': '2020-03-26', 'name': 'Skitter Kitty', 'outcome_type': 'Transfer'}
{'animal_id': '54321', 'animal_type': 'Community cat', 'breed': 'Tabby', 'color': 'gray', 'date_of_birth': '2020-03-26', 'name': 'Skitter Kitty', 'outcome_type': 'Transfer'}
```

```
Out[12]: <pymongo.cursor.Cursor at 0x7f53343d9630>
```

## Contact

Your name: Marisa Kuyava