

CS 340 README Animal Shelter

Project Overview

A web application called the Grazioso Salvare Animal Rescue Dashboard was created for the rescue-animal training business Grazioso Salvare. Specifically, the dashboard is made to interact with and display data from the Austin Animal Center with an emphasis on canines that would be suitable for search-and-rescue training. Users can filter dogs on the dashboard according to several rescue activities, including Disaster or Individual Tracking, Mountain or Wilderness Rescue, and Water Rescue. The data table and graphics are continually updated in accordance with the chosen filters.

Required Functionality

- **Interactive Filters:** With options for Water Rescue, Mountain or Wilderness Rescue, Disaster or Individual Tracking, and a Reset option that removes all filters, users can filter the data according to the type of rescue.
- **Dynamic Data Table:** Depending on the chosen filter, the data table dynamically updates and shows pertinent animal records.
- **Geolocation Chart:** Using the chosen filters, a scatter map chart shows the locations of animals on a map.
- **Custom Chart:** Based on the chosen filters, a pie chart displays the distribution of outcome kinds (such as adoption and transfer).
- **Branding:** An identifier giving credit to the creator and the Grazioso Salvare emblem are present on the dashboard.

Tools and Technologies

- **MongoDB**
 - The database solution for this project was MongoDB because of its scalability, versatility, and user-friendliness when working with documents that resemble JSON. Because MongoDB lacks a schema, it is especially well-suited for storing and querying a variety of datasets, including the animal records that are the subject of this research.
- **Dash by Plotly**
 - Dash was selected as the framework for constructing the dashboard because of its ease of use and ability to be used with Python to create interactive web apps. Dash makes it simple to combine user interaction, data processing, and visualization inside a single framework.
- **Pandas**
 - Pandas is used for analysis and data processing. It streamlines the handling and processing of data that is retrieved from MongoDB and presented on the dashboard.
- **Plotly**
 - The dashboard's charts and visualizations are produced by Plotly, which offers a large selection of adaptable graphing tools perfect for making dynamic and interactive charts.

Steps to Complete the Project

- Setup MongoDB and Python Environment
- Create the CRUD operations

- Build the Dashboard
- Run and test the dashboard

Challenges and Solutions

I ran into tons off issue with authentication, best thing to do is to follow the instructions from the class to ensure you have your authentication setup correctly.

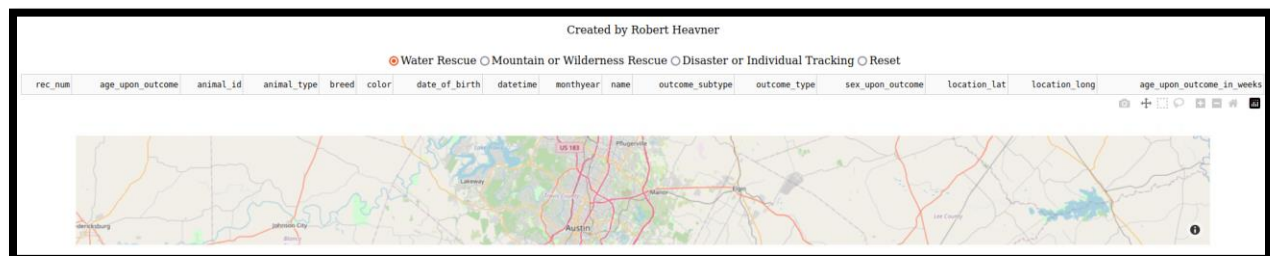
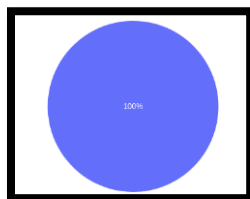
Instructions for Reproducing the Project

- See attached code for the .py program and the .ipynb program, I have also included a plain_text, text document for viewing of the .ipynb program.
 - Setup environment
 - Run the dashboard
 - Use the dashboard

Screenshots:



rec_num	age_upon_outcome	animal_id	animal_type	breed	color	date_of_birth	datetime	month/year	name	outcome_subtype	outcome_type	sex_upon_outcome	location_lat	location_long	age_upon_outcome_in
2	1 year	A725717	Cat	Domestic Shorthair Mix	Silver Tabby	2015-05-02	2016-05-06 10:49:00	2016-05-06/10:49:00		SCRIP	Transfer	Spayed Female	30.4525984560228	-97.7419963476444	52.92152777
4	7 months	A733653	Cat	Siamese Mix	Seal Point	2016-01-25	2016-08-27 18:11:00	2016-08-27/18:11:00	Kitty		Adoption	Intact Female	30.3188063374257	-97.7240376703891	30.82251884
5	2 years	A691584	Dog	Labrador Retriever Mix	Tan/White	2012-11-06	2015-05-30 13:48:00	2015-05-30/13:48:00	Luke		Return to Owner	Neutered Male	30.7104815618433	-97.562297435206	133.6535714
6	5 years	A696004	Dog	Cardigan Welsh Corgi Mix	Sable/White	2010-01-27	2015-01-28 10:39:00	2015-01-28/10:39:00	Lucy	Rabies Risk	Euthanasia	Spayed Female	30.6737365854231	-97.707971529467	261.0632926
1	3 years	A746874	Cat	Domestic Shorthair Mix	Black/White	2014-04-10	2017-04-11 09:00:00	2017-04-11/09:00:00		SCRIP	Transfer	Neutered Male	30.5066578739455	-97.3408780722188	156.7678572
3	2 years	A716330	Dog	Chihuahua Shorthair Mix	Brown/White	2013-11-10	2015-12-28 18:43:00	2015-12-28/18:43:00	Frank		Adoption	Neutered Male	30.7595748121648	-97.5523753807133	110.1114087
9	3 years	A720214	Dog	Labrador Retriever Mix	Red/White	2013-02-04	2016-02-11 12:41:00	2016-02-11/12:41:00	Blessing		Adoption	Spayed Female	30.3870648199411	-97.3684339731375	157.5040674
7	2 years	A673830	Dog	Pit Bull Mix	Black/White	2012-03-03	2014-03-19 15:15:00	2014-03-19/15:15:00	*Seth	Aggressive	Euthanasia	Neutered Male	30.2954256583441	-97.3136642110436	106.6622822
13	1 year	A700400	Cat	Domestic Shorthair Mix	Brown Tabby/White	2014-04-13	2015-04-15 13:34:00	2015-04-15/13:34:00	Wyla		Return to Owner	Spayed Female	30.4181154522976	-97.562415670838	52.50932538
14	2 years	A742207	Dog	Boxer/Bulldog/Bulldog Brindle/White		2015-01-10	2017-02-11 12:30:00	2017-02-11/12:30:00	*Kawhi		Adoption	Neutered Male	30.4551140649096	-97.3087780473978	107.9315476





Robert Heavner

Grazioso Salvere Animal Rescue Dashboard

Created by Robert Heavner

☒ Water Rescue ☐ Mountain or Wilderness Rescue ☐ Disaster or Individual Tracking ☐ Reset

rec_num	age	upon_outcome	animal_id	animal_type	breed	color	date_of_birth	datetime	monthyear	name	outcome_subtype	outcome_type	sex	upon_outcome	location_lat	location_long	age	upon_outcome	in_w
66	6 months	A713150		Cat	Domestic Medium Hair Mix	Blue/White	2015-04-03	2015-10-04 09:06:00	2015-10-04T09:09:00		SCRIP	Transfer	Unknown	Male	30.649056542256	-97.3086422681096	26	239820714	
68	4 years	A750436		Dog	Yorkshire Terrier Mix	Tricolor	2013-06-22	2017-06-23 16:00:00	2017-06-23T16:48:00	Rylie		Return to Owner	Neutered Male	30.5884324963125	-97.5480802136154	208	95714205		
58	1 year	A729275		Dog	Chinese Sharpei Mix	Brown	2015-07-01	2016-07-09 17:53:00	2016-07-09T17:53:00	Chai		Adoption	Spayed Female	30.581351182997	-97.6208629631505	53	535916941		
67	12 years	A705946		Dog	Chihuahua Shorthair	White/Tan	2005-03-29	2017-08-07 12:47:00	2017-08-07T12:47:00	*Toodles		Foster	Adoption	Neutered Male	30.7803258911457	-97.5727488621515	644	93224120	
69	3 years	A725459		Cat	Domestic Shorthair Mix	Brown Tabby/White	2013-04-30	2016-08-12 18:12:00	2016-08-12T18:13:00	Diz		Adoption	Spayed Female	30.349666382369	-97.3331182841803	162	82271823		
70	3 months	A663276		Other	Raccoon Mix	Black/Gray	2014-04-06	2014-07-09 08:12:00	2014-07-09T08:12:00			Rabies Risk	Euthanasia	Unknown	30.5196746125761	-97.2826788031676	13	195624928	
61	1 year	A751629		Dog	Staffordshire Mix	Blue/White	2016-06-03	2017-06-09 18:22:00	2017-06-09T18:23:00			Adoption	Spayed Female	30.3196475861473	-97.5725862134572	53	189424693		
54	1 year	A713512		Cat	Domestic Shorthair Mix	Orange Tabby	2014-11-05	2016-01-04 08:06:00	2016-01-04T08:09:00	*Lola		Partner	Spayed Female	30.588261054965	-97.288122147497	66	714285714		
71	2 years	A762414		Other	Raccoon	Gray/Black	2015-11-20	2017-11-21 08:28:00	2017-11-21T08:29:00			Suffering	Euthanasia	Unknown	30.3718926131062	-97.4774272178111	104	62183176	
55	6 years	A699222		Dog	Beagle Mix	Tricolor	2009-08-14	2015-05-19 18:43:00	2015-05-19T18:43:00	Scruffy		Partner	Transfer	Neutered Male	30.7539956876934	-97.6460695439332	313	82569466	

Grazioso Salvere Animal Rescue Dashboard

Created by Robert Heavner

☐ Water Rescue ☒ Mountain or Wilderness Rescue ☐ Disaster or Individual Tracking ☐ Reset

rec_num	age	upon_outcome	animal_id	animal_type	breed	color	date_of_birth	datetime	monthyear	name	outcome_subtype	outcome_type	sex	upon_outcome	location_lat	location_long	age	upon_outcome	in_w
102	4 months	A664597		Dog	Pit Bull Mix	Blue/White	2013-06-05	2013-10-11 14:00:00	2013-10-11T14:00:00	Phoebe		Partner	Transfer	Intact Female	30.3562764370897	-97.3933441772883	18	3698476190	
108	2 years	A732772		Cat	Domestic Shorthair Mix	Black/White	2014-08-13	2016-08-13 18:44:00	2016-08-13T18:44:00			Partner	Transfer	Intact Female	30.5872526113846	-97.5841826967814	104	528174683	
103	5 years	A763871		Dog	Great Pyrenees Mix	Cream	2012-06-18	2017-12-18 16:00:00	2017-12-18T16:00:00	Guardian			Return to Owner	Intact Male	30.3528613866488	-97.7126371366866	287	0952388952	
109	3 weeks	A736742		Cat	Domestic Shorthair Mix	Black Tabby	2016-09-24	2016-10-16 17:45:00	2016-10-16T17:45:00			Partner	Transfer	Unknown	30.4404384808924	-97.7126369798403	3	24851198476	
100	2 months	A665579		Cat	Domestic Shorthair Mix	Black	2013-08-19	2013-11-04 15:09:00	2013-11-04T15:09:00	*Candy		Partner	Transfer	Neutered Male	30.6233838291794	-97.67188882483238	11	09017857142	
110	7 months	A735432		Cat	Domestic Shorthair	White/Brown Tabby	2016-03-23	2016-11-11 12:39:00	2016-11-11T12:39:00	*Ninfa			Adoption	Spayed Female	30.4687783558778	-97.6855369452078	33	36101198476	
112	1 year	A748631		Dog	Chihuahua Shorthair Mix	Black	2016-05-04	2017-05-08 17:01:00	2017-05-08T17:01:00				Adoption	Spayed Female	30.6878957319141	-97.2479101621223	52	8155759682	
111	6 years	A729315		Dog	Chihuahua Shorthair Mix	Tricolor	2010-01-16	2016-06-20 08:00:00	2016-06-20T08:00:00				Transfer	Spayed Female	30.5164211158827	-97.7212496391481	335	2857142853	
113	3 years	A669295		Dog	Labrador Retriever Mix	Brown	2010-12-18	2014-04-04 18:37:00	2014-04-04T18:37:00	Niko			Adoption	Neutered Male	30.7478766266889	-97.2653329471923	171	9679563492	
98	10 months	A761936		Dog	Scottish Terrier Mix	Brown Brindle	2017-01-12	2017-11-16 12:54:00	2017-11-16T12:54:00			Partner	Transfer	Intact Male	30.6111953376899	-97.4286896785434	44	07678571428	

☐ Water Rescue ☐ Mountain or Wilderness Rescue ☒ Disaster or Individual Tracking ☐ Reset

rec_num	age	upon_outcome	animal_id	animal_type	breed	color	date_of_birth	datetime	monthyear	name	outcome_subtype	outcome_type	sex	upon_outcome	location_lat	location_long	age	upon_outcome	in_w
205	2 months	A787763		Cat	Domestic Shorthair Mix	Cream Tabby	2015-04-26	2015-07-19 13:48:00	2015-07-19T13:48:00	Tinkerbell		Foster	Adoption	Spayed Female	30.319205150557	-97.6117780064536	12	082142	
208	1 year	A762373		Dog	Pit Bull Mix	Brown Brindle/Black	2016-11-19	2017-11-19 14:29:00	2017-11-19T14:29:00	Tiny			Return to Owner	Intact Male	30.3623540384887	-97.2596542623425	52	2296674	
209	5 years	A718671		Cat	Domestic Shorthair Mix	Blue Tabby	2011-01-04	2016-01-11 18:49:00	2016-01-11T18:49:00	Boris			Adoption	Neutered Male	30.4085978968162	-97.2638299156814	261	969146	
207	4 weeks	A679691		Other	Bat	Brown/Black	2014-04-24	2014-05-25 09:38:00	2014-05-25T09:38:00			In Kennel	Died	Unknown	30.3688179392363	-97.6597678158339	4	48591262	
194	1 year	A686233		Cat	Domestic Shorthair Mix	Blue Tabby/White	2013-02-18	2014-10-14 14:52:00	2014-10-14T14:52:00	Marvin		Partner	Transfer	Neutered Male	30.6153418572226	-97.6726939542922	86	2313492	
192	3 years	A684915		Dog	Maltese Mix	White	2011-07-30	2014-08-06 18:50:00	2014-08-06T18:50:00	*Yogi			Adoption	Neutered Male	30.4314685896323	-97.4199058876347	157	683531	
210	3 years	A707346		Dog	Chihuahua Shorthair Mix	Chocolate/White	2012-07-11	2015-07-15 12:12:00	2015-07-15T12:12:00	*Elsie			Adoption	Spayed Female	30.3049972612122	-97.3418139971884	157	072619	
190	7 years	A726837		Dog	Chinese Sharpei	Brown Brindle	2009-05-05	2016-05-05 13:37:00	2016-05-05T13:37:00	Rocca			Return to Owner	Spayed Female	30.780412543274	-97.2558615615983	365	366765	
197	2 years	A758439		Dog	Staffordshire Mix	Fawn	2015-09-16	2017-11-16 11:10:00	2017-11-16T11:10:00	Bae			Adoption	Spayed Female	30.5873786693574	-97.4444393338415	113	209325	
191	8 months	A736857		Cat	Domestic Shorthair Mix	Blue Tabby	2016-03-03	2016-11-26 14:27:00	2016-11-26T14:27:00	Devin		Partner	Transfer	Neutered Male	30.322273347126	-97.5793282129649	38	3717261	

☐ Water Rescue ☐ Mountain or Wilderness Rescue ☐ Disaster or Individual Tracking ☒ Reset

rec_num	age	upon_outcome	animal_id	animal_type	breed	color	date_of_birth	datetime	monthyear	name	outcome_subtype	outcome_type	sex	upon_outcome	location_lat	location_long	age	upon_outcome	in_w
2	1 year	A725717		Cat	Domestic Shorthair Mix	Silver Tabby	2015-05-02	2016-05-06 18:49:00	2016-05-06T18:49:00			SCRIP	Transfer	Spayed Female	30.652984568228	-97.7419963476444	52	9215277	
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	30.3188063374257	-97.7240376703891	38	82251984	
5	2 years	A691584		Dog	Labrador Retriever Mix	Tan/White	2012-11-06	2015-05-30 13:48:00	2015-05-30T13:48:00	Luke			Return to Owner	Neutered Male	30.7184815618433	-97.562297435288	133	6535714	
6	5 years	A696884		Dog	Cardigan Welsh Corgi Mix	Sable/White	2010-01-27	2015-01-28 18:39:00	2015-01-28T18:39:00	Lucy		Rabies Risk	Euthanasia	Spayed Female	30.6737365854231	-97.707971529467	261	0633928	
1	3 years	A746874		Cat	Domestic Shorthair Mix	Black/White	2014-04-10	2017-04-11 09:00:00	2017-04-11T09:00:00			SCRIP	Transfer	Neutered Male	30.5866578739455	-97.3488788722188	156	7678571	
3	2 years	A716338		Dog	Chihuahua Shorthair Mix	Brown/White	2013-11-18	2015-12-28 18:43:00	2015-12-28T18:43:00	Frank			Adoption	Neutered Male	30.7595748121648	-97.5523753807133	118	1114887	
9	3 years	A728214		Dog	Labrador Retriever Mix	Red/White	2013-02-04	2016-02-11 12:41:00	2016-02-11T12:41:00	Blessing			Adoption	Spayed Female	30.3878648199411	-97.3684339731375	157	5040674	
7	2 years	A673838		Dog	Pit Bull Mix	Black/White	2012-03-03	2014-03-19 15:15:00	2014-03-19T15:15:00	*Seth		Aggressive	Euthanasia	Neutered Male	30.2954256583441	-97.3136642118436	106	6622823	
13	1 year	A708408		Cat	Domestic Shorthair Mix	Brown Tabby/White	2014-04-13	2015-04-15 13:34:00	2015-04-15T13:34:00	Nyla			Return to Owner	Spayed Female	30.4101514527976	-97.562415678838	52	58932539	
14	2 years	A742287		Dog	Boxer/Bullmastiff	Brown Brindle/White	2015-01-18	2017-02-11 12:30:00	2017-02-11T12:30:00	*Kawi			Adoption	Neutered Male	30.4551148648996	-97.3887788473978	187	9315476	

```
# Run the app
if __name__ == '__main__':
    app.run_server(port=8049)

air MIX', 'color': 'Silver Tabby', 'date_of_birth': '2015-05-02', 'datetime': '2016-05-06 10:49:00', 'monthyear': '2016-05-06T10:49:00', 'name': '', 'outcome_subtype': 'SCRIP', 'outcome_type': 'Transfer', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.6525984560228, 'location_long': -97.7419963476444, 'age_upon_outcome_in_weeks': 52.9215277777778}
{'rec_num': 4, 'age_upon_outcome': '7 months', 'animal_id': 'A733653', 'animal_type': 'Cat', 'breed': 'Siamese Mix', 'color': 'Seal Point', 'date_of_birth': '2016-01-25', 'datetime': '2016-08-27 18:11:00', 'monthyear': '2016-08-27T18:11:00', 'name': 'Kitty', 'outcome_subtype': '', 'outcome_type': 'Adoption', 'sex_upon_outcome': 'Intact Female', 'location_lat': 30.3188063374257, 'location_long': -97.7240376703891, 'age_upon_outcome_in_weeks': 30.8225198412698}
{'rec_num': 5, 'age_upon_outcome': '2 years', 'animal_id': 'A691584', 'animal_type': 'Dog', 'breed': 'Labrador Retriever Mix', 'color': 'Tan/White', 'date_of_birth': '2012-11-06', 'datetime': '2015-05-30 13:48:00', 'monthyear': '2015-05-30T13:48:00', 'name': 'Luke', 'outcome_subtype': '', 'outcome_type': 'Return to Owner', 'sex_upon_outcome': 'Neutered Male', 'location_lat': 30.7104815618433, 'location_long': -97.562297435286, 'age_upon_outcome_in_weeks': 133.653571428571}
{'rec_num': 6, 'age_upon_outcome': '5 years', 'animal_id': 'A696004', 'animal_type': 'Dog', 'breed': 'Cardigan Welsh Corgi Mix', 'color': 'Sable/White', 'date_of_birth': '2010-01-27', 'datetime': '2015-01-28 10:39:00', 'monthyear': '2015-01-28T10:39:00', 'name': 'Lucy', 'outcome_subtype': 'Rabies Risk', 'outcome_type': 'Euthanasia', 'sex_upon_outcome': 'Spayed Female', 'location_lat': 30.6737365854231, 'location_long': -97.707971529467, 'age_upon_outcome_in_weeks': 261.063392857143}
{'rec_num': 1, 'age_upon_outcome': '3 years', 'animal_id': 'A746874', 'animal_type': 'Cat', 'breed': 'Domestic Short Hair Mix', 'color': 'Black/White', 'date_of_birth': '2014-04-10', 'datetime': '2017-04-11 09:00:00', 'monthyear': '2017-04-11T09:00:00'}
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