

# AUSTIN ANIMAL RESCUE



Adopt



Foster



Volunteer



Donate

This project studies data from the [Austin Animal Center](<http://www.austintexas.gov/content/austin-animal-center>) in Austin, TX.

*We chose this topic because we would like to help the Austin Animal Center better understand information on their animals so that as many animals as possible have a positive outcome.*



# Data Source Description

*There are two datasets posted by the Animal Center as csv files:*

Intakes (information on animals brought to the shelter) and outcomes (information on animals when they leave the shelter).

The information dates from 2013 to present and is updated daily on the Austin Animal Center data website. Variables in the dataset include an Animal ID, Animal Name, Animal Type, Breed, Color, Dates of intake and outcome, Sex, etc.

*Links to the raw original datasets:*

- [Austin Animal Center Intakes](<https://data.austintexas.gov/Health-and-Community-Services/Austin-Animal-Center-Intakes/wter-evkm>)

- [Austin Animal Center Outcomes](<https://data.austintexas.gov/Health-and-Community-Services/Austin-Animal-Center-Outcomes/9t4d-g238>)

*We have two main questions that we are interested in answering, along with related subquestions.*

Question 1 is a categorical prediction  
Question 2 is a regression prediction.

*- Question 1: Can we predict the outcome for an animal based on other characteristics?*

- What are the possible outcomes that we should consider?
- What factors most influence the determination of the outcome?

*- Question 2: Can we predict the length of stay at the shelter for animals?*

- What factors most influence the length of stay?
- Are the factors that influence the length of stay different for different animals?



# Preliminary Machine Learning Model

For predicting the animal outcome, our current sketch of our pipeline is to move from the SQL data into Python for cleaning, splitting into the training and testing sets, and then utilize a Random Forest Classifier.

Load in data  
output from  
SQL server

Clean,  
convert, and  
scale data

Split data  
into training  
and testing  
sets

Train model  
with Random  
Forest  
Classifier

Test model  
and evaluate  
performance

# Description of the data exploration phase of the project

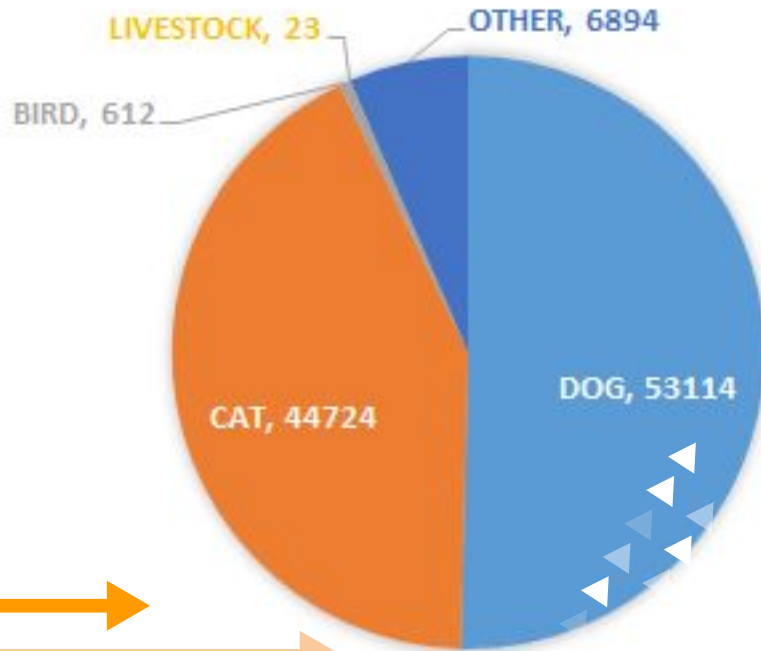
The data exploration for the Austin Animal Rescue on this phase of the project started by focusing on the database.

|   | animal_id | animal_name | animal_type | breed                                 | color    | intake_type | date_of_birth | intake_date | found_location                          | intake_condition | sex_upon_inta |
|---|-----------|-------------|-------------|---------------------------------------|----------|-------------|---------------|-------------|---|------------------|---------------|
| 0 | A786884   | *Brock      | Dog         | Beagle Mix                            | Tricolor | Stray       | 2017-01-03    | 2019-01-03  | 2501 Magin Meadow Dr in Austin (TX)     | Normal           | Neutered Male |
| 1 | A682524   | Rio         | Dog         | Doberman Pinsch/Australian Cattle Dog | Tan/Gray | Stray       | 2010-06-29    | 2014-06-29  | 800 Grove Blvd in Austin (TX)           | Normal           | Neutered Male |
| 2 | A696408   | *Pearl      | Dog         | Chihuahua Shorthair                   | Tricolor | Stray       | 2013-02-04    | 2015-02-04  | 9705 Thaxton in Austin (TX)             | Normal           | Intact Female |
| 3 | A736287   | *Twilight   | Cat         | Domestic Shorthair Mix                | Torbie   | Stray       | 2016-08-08    | 2016-10-08  | South First And Stassney in Austin (TX) | Normal           | Intact Female |
| 4 | A810994   | NaN         | Other       | Bat                                   | Brown    | Wildlife    | 2017-12-24    | 2019-12-25  | 7900 Rm 1826 Rd in Travis (TX)          | Normal           | Unknown       |

This information helps to see what data was available to explore deeper.



# Description of the data exploration phase of the project



After getting the database, we filtered the information by animal type. The goal was to understand the data, such as the kind of animals, intake type and outcome type. As well as intake condition and sex and the kinds of breeds (dogs, cats, and other animals)

# Description of the analysis phase of the project

|              |                 | outcome_subtype |
|--------------|-----------------|-----------------|
| outcome_type | outcome_subtype |                 |
| Adoption     | Foster          | 9975            |
|              | Offsite         | 309             |
|              | Barn            | 3               |
| Died         | In Kennel       | 605             |
|              | In Foster       | 281             |
|              | At Vet          | 87              |
|              | Enroute         | 86              |
|              | In Surgery      | 24              |

|                 |                     |       |
|-----------------|---------------------|-------|
| Euthanasia      | Rabies Risk         | 3845  |
|                 | Suffering           | 3265  |
|                 | Aggressive          | 403   |
|                 | Medical             | 305   |
|                 | At Vet              | 177   |
|                 | Behavior            | 124   |
|                 | Underage            | 36    |
|                 | Court/Investigation | 13    |
| Missing         | In Foster           | 21    |
|                 | In Kennel           | 14    |
|                 | Possible Theft      | 7     |
| Return to Owner | Field               | 45    |
|                 | Prc                 | 9     |
|                 | Customer S          | 7     |
| Transfer        | Partner             | 29595 |
|                 | SCRIP               | 2942  |
|                 | Snr                 | 2612  |
|                 | Out State           | 14    |
|                 | Barn                | 7     |
|                 | Emer                | 5     |

The data show the outcome type of the animals : Adoption, die, euthanasia, missing, return to the owner and transfer .

There are 9975 animals that ended being adopted .



# Description of the analysis phase of the project

The data show the income type of the animals Abandoned, Euthanasia requested, owner surrender, public assist, stray and wildlife, however 34046 animals were take back from being adopted

| intake_type        | outcome_type    | outcome_type |
|--------------------|-----------------|--------------|
| Abandoned          | Adoption        | 216          |
|                    | Transfer        | 172          |
|                    | Return to Owner | 41           |
|                    | Euthanasia      | 5            |
|                    | Died            | 4            |
|                    | Rto-Adopt       | 3            |
|                    | Disposal        | 2            |
|                    |                 |              |
| Euthanasia Request | Euthanasia      | 190          |
|                    | Transfer        | 28           |
|                    | Adoption        | 8            |
|                    | Return to Owner | 4            |
|                    | Died            | 3            |
|                    | Disposal        | 2            |
| Owner Surrender    | Adoption        | 9804         |
|                    | Transfer        | 5744         |
|                    | Return to Owner | 734          |
|                    | Euthanasia      | 610          |
|                    | Died            | 154          |
|                    | Rto-Adopt       | 142          |
|                    | Disposal        | 14           |
|                    | Missing         | 7            |
|                    |                 |              |
|                    |                 |              |
| Public Assist      | Return to Owner | 3509         |
|                    | Transfer        | 886          |
|                    | Adoption        | 838          |
|                    | Euthanasia      | 323          |
|                    | Disposal        | 57           |
|                    | Died            | 45           |

|          |                 |       |
|----------|-----------------|-------|
| Stray    | Adoption        | 34046 |
|          | Transfer        | 28285 |
|          | Return to Owner | 10238 |
|          | Euthanasia      | 2772  |
|          | Died            | 849   |
|          | Rto-Adopt       | 288   |
|          | Disposal        | 121   |
|          | Missing         | 45    |
|          | Relocate        | 10    |
|          |                 |       |
| Wildlife | Euthanasia      | 4501  |
|          | Disposal        | 397   |
|          | Died            | 140   |
|          | Transfer        | 60    |
|          | Relocate        | 14    |
|          | Adoption        | 7     |
|          | Missing         | 2     |
|          | Return to Owner | 1     |

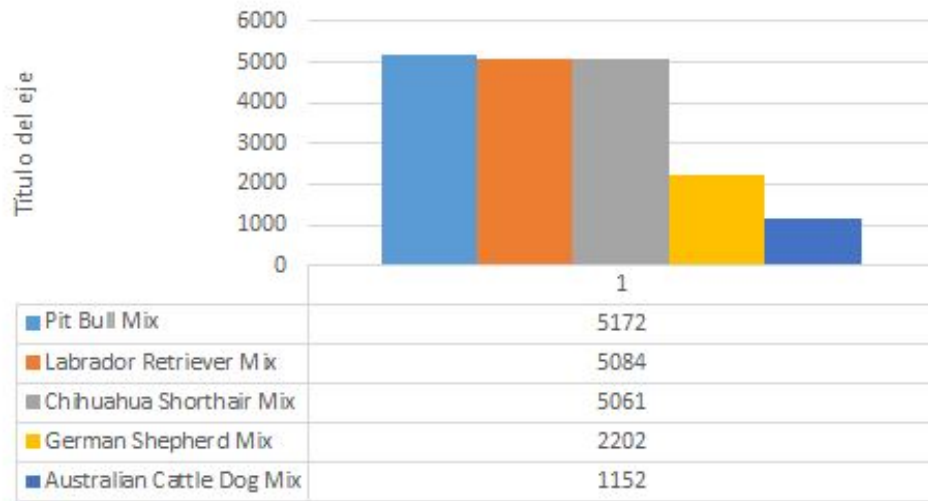
# Graph Analysis per Animal breed

## Livestock Breed

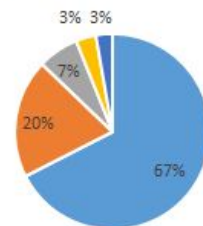
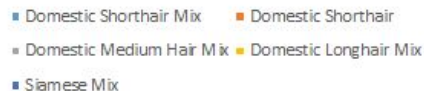


|                  |   |
|------------------|---|
| Pig              | 8 |
| Pig Mix          | 8 |
| Goat Mix         | 2 |
| Potbelly Pig Mix | 2 |
| Goat             | 1 |
| Sheep Mix        | 1 |

## Dogs breeds

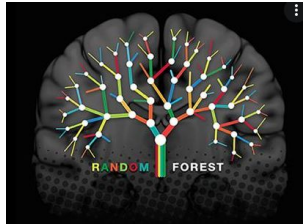


## Cat Breed



# Technologies, languages, tools, and algorithms used throughout the project

## Technologies



## Languages



## Tools & algorithms



# *Result of analysis*

Result 02

Result 01

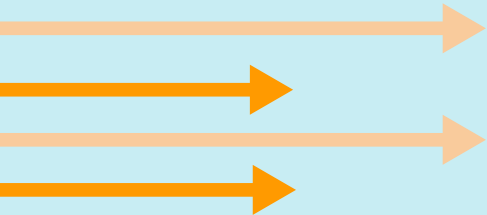
# *Recommendation for future analysis*

Recommendation 01

Recommendation 02

Recommendation 03

Anything the team  
would have done  
differently ?





*The roles will change during the final project so that each member has the opportunity to learn about each piece of the project and practice the related skills.*

- **Role 1:** Repository management. This team member leads efforts to maintain the GitHub repository, including resolving merge conflicts, and help keep the main branch as the source of our most recent working code. This person also updates the Readme.md file on the main branch as changes are made to the GitHub repo.

# Communication Protocol

- **Role 2 :** Project management. This team member leads the efforts for knowing what deliverables are required for the UT Bootcamp at each stage and assuring that the work the team is doing leads to successful fulfillment of the deliverables. This includes comparing the work to the rubric requirements as posted for class and helping to decide which technologies are used at each step of the project.

# Communication Protocol

- **Role 3:** ML modeling. This team member works on the coding aspect of the ML model as well as data cleaning and exploratory data analysis.
- **Role 4:** Database & Dashboard management. This team member maintains and updates the database (PgAdmin 4) as needed and leads the efforts for creating and maintaining our final dashboard.
- **Role 5:** Presentation management. This team member writes the presentation files and helps other team members as needed.

