Austin Animal Shelter

SQL Report



Pic from <https://unsplash.com/s/photos/cat-and-dog>

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# **Executive Summary**

Exploratory Data Analysis conducted on our furry friends at Austin Animal Shelter. This project report covers years 2013 – 2021 and only includes cats and dogs. This analysis takes a look at cat/dog intakes and outcomes at the Austin Animal Shelter to see if there are any patterns or trends in order to help increase adoptions and decrease deaths.

# **Data Sources**

Dataset is from Kaggle titled [Animal Shelter Analytics](https://www.kaggle.com/datasets/jackdaoud/animal-shelter-analytics). There are two CSV files posted, intake and outcome information regarding the Austin Animal Center. Information is deemed to be from a reliable source as author of dataset indicated it is from a government website. Two datasets were used in this analysis.

1. Intakes
2. Outcomes

# **Data Collection**

I downloaded the two CSV files and created a database to import the tables into SQL so I could create a relational database.

# **Data Overview**

## Intakes Table

### Rows and Columns:

Original Dataset (Rows: 124,121 Columns: 12)

Final Dataset (Rows: 116,875 Columns: 13)

### Columns & Description:

Animal ID

Name

Date/Time

MonthYear

Found Location

Intake Type

Intake Condition

Animal Type:

Sex Upon Intake:

Age Upon Intake:

Breed:

Color:

## Outcomes Table

### Rows and Columns:

Original Dataset (Rows: 124,492 Columns: 12)

Final Dataset (Rows: 117,255 Columns: 14)

### Columns & Description:

Animal ID

Name:

Date/Time:

MonthYear

Date of Birth:

Outcome Type:

Outcome Subtype:

Animal Type:

Sex Upon Outcome:

Age Upon Outcome:

Breed:

Color:

# **Limitations**

* Data inaccuracy with intake/outcome numbers not matching.
* Some animals have negative ages
* Inconsistencies with names/breeds/etc.
* Upon reviewing the Breed and Color columns in both tables, there are several variables listed. This is something if I had access to the stakeholder we might be able to clean up, but for lack of knowledge, I will leave as is.

# **Data Profile**

## Step 1: Cleaning the Data

**1) Check Overview of the tables**.

-- OVERVIEW of Intakes

Select \* from Intakes;

-- OVERVIEW of Outcomes

Select \* from Outcomes;

**2) Change applicable column names to match on both spreadsheets for consistency purposes**.

* Example:
  + Intakes was named Animal\_ID
  + Outcomes was named Animal ID (missing the underscore).

**3) Check for and remove duplicates**

-- DUPLICATES

-- Checking for Intake duplicates -- there are 23 intake duplicates

Select Animal\_Id, Name, DateTime, COUNT(\*)

From Intakes

Group By Animal\_ID, Name, DateTime

Having Count (\*) > 1

Order By Animal\_ID;

-- Deleting Intake Duplicates - Deleted 23 values

WITH CTE AS

(

SELECT \*,

ROW\_NUMBER() OVER (PARTITION BY Animal\_ID,Name,DateTime ORDER BY Animal\_ID,Name,DateTime) AS RN

FROM Intakes

)

Delete FROM CTE WHERE RN<>1;

-- Checking for Outcomes duplicates -- there are 17 duplicates

Select Animal\_Id, Name, DateTime, COUNT(\*)

From Outcomes

Group By Animal\_ID, Name, DateTime

Having Count (\*) > 1

Order By Animal\_ID;

-- Deleting Outcome Duplicates – Deleted 17 values

WITH CTE AS

(

SELECT \*,ROW\_NUMBER() OVER (PARTITION BY Animal\_ID,Name,DateTime ORDER BY Animal\_ID,Name,DateTime) AS RN

FROM Outcomes

)

DELETE FROM CTE WHERE RN<>1

**4) Checking for irrelevant information**

As this analysis is only for cats and dogs, I reviewed the animal type and needed to remove the other animals.

-- Checking Animal Type to ensure it is limited to cats and dogs.

-- There are Birds, Livestock, and Other that need to be removed as they are not part of this analysis.

Select Distinct Animal\_Type

from Intakes

--Removing all animals from Intakes except cats or dog.

DELETE FROM Outcomes

WHERE Animal\_Type like 'Bird' or Animal\_Type like 'Livestock' or Animal\_Type like 'Other'

DELETE FROM Intakes

WHERE Animal\_Type like 'Bird' or Animal\_Type like 'Livestock' or Animal\_Type like 'Other'

**5) Data Consistency**

-- Need to change missing values in column Outcome\_Type to Unknown

SELECT Distinct Outcome\_Type from Outcomes

Select \*

From outcomes

Where outcome\_type = ''

Update outcomes

Set Outcome\_Type = 'Unknown'

Where outcome\_Type = ''

--Checking null values in Sex\_upon\_intake - There is 1 value NULL that needs to be changed to Unknown in Intakes table.

SELECT Distinct sex\_upon\_intake from intakes;

SELECT \*

FROM intakes

WHERE sex\_upon\_intake = 'Unknown';

Update dbo.Intakes

SET Sex\_upon\_Intake = REPLACE(Sex\_upon\_Intake, 'NULL', 'Unknown')

WHERE Sex\_upon\_Intake = 'NULL'

--Checking null values in Sex\_upon\_intake - There is 1 value NULL that needs to be changed to Unknown in Outcomes table.

SELECT Distinct sex\_upon\_outcome from Outcomes

SELECT sex\_upon\_outcome from Outcomes

Where sex\_upon\_outcome = 'NULL'

Update dbo.Outcomes

SET Sex\_Upon\_Outcome = 'Unknown'

Where Sex\_Upon\_Outcome = 'NULL'

-- Checking the age values. There are -1 year, -2, and -3 years for a total of 7 values that need to be removed as you cannot have a negative age.

SELECT Distinct age\_upon\_intake from intakes

Order by age\_upon\_intake

SELECT Animal\_ID, Name, DateTime, age\_upon\_intake

from intakes

WHERE age\_upon\_intake like '-1 years' or age\_upon\_intake like '-2 years' or Age\_upon\_Intake like '-3 years'

Order by age\_upon\_intake

-- Deleting age upon Intake with negative years

DELETE from dbo.intakes

WHERE age\_upon\_intake like '-1 years' or age\_upon\_intake like '-2 years' or Age\_upon\_Intake like '-3 years'

-- Deleting age upon Outcome with negative years

DELETE from dbo.Outcomes

WHERE [Age upon Outcome] like '-1 years' or [Age upon Outcome] like '-2 years' or [Age upon Outcome] like '-3 years'

--Outcomes table has datetime listed as varchar, need to change to datetime

ALTER TABLE Outcomes

ALTER COLUMN DateTime datetime;

## Step 2: Manipulating the data

**1) Removing MonthYear Column from both Intakes and Outcomes as it contains the same information that is in Date/Time column.**

--Removing column MonthYear from Intake

Alter table dbo.intakes

Drop column MonthYear

--Removing column monthYear from Outcomes

Alter table dbo.outcomes

Drop column MonthYear

**2) Updating the structural errors in the Name column**

--Intake Name Column needs adjusting those with an asterick. 27,803 Rows Updated

SELECT [Name],

REPLACE([Name], '\*', '') AS [Clean Name]

FROM dbo.intakes

Where Name Like '%\*%'

Order By name desc

UPDATE dbo.intakes

SET Name = REPLACE(Name, '\*', '')

WHERE Name Like '%\*%'

--Outcome Name Column needs adjusting those with an asterick.

SELECT [Name], -- 28,080 rows to be updated

REPLACE([Name], '\*', '') AS [Clean Name]

FROM dbo.Outcomes

Where Name Like '%\*%'

Order By name desc

Update dbo.outcomes

SET Name = REPLACE([Name], '\*', '')

Where Name Like '%\*%'

-- Intake Viewing and Updating Null values to Unknown in Name 32,788 values

Select Name

From Intakes

Where Name is NULL

UPDATE intakes

Set Name = 'Unknown'

Where Name is NULL

-- Outcome Viewing and Updating Empty values to Unknown 32,788 values

Update dbo.outcomes

SET Name = 'Unknown'

WHERE Name = ''

-- Updating Names that are only numbers. - 179 rows

SELECT Name

FROM OUTCOMES

Where Name not like '%[A-Za-z]%'

Update Outcomes

Set Name ='Unknown'

Where Name not like '%[A-Za-z]%'

--Removing Grams from Name

SELECT [Name],

REPLACE([Name], 'Grams', '') AS [Clean Name]

FROM dbo.intakes

Where Name Like '%Grams%

Order By name desc

## Step 3: Column Derivations/Aggregations

**1) Adding Columns and Creating Variable Derivations**

--Updating Intake and Outcome table to add Date\_Converted and Time Converted columns

Alter Table intakes

Add Date\_Converted date,

Time\_Converted time;

Alter Table Outcomes

Add Date\_Converted date,

Time\_Converted time;

--Converting Intake Date/Time and extracting the Date only

Select datetime,

convert(varchar,[datetime], 101) Converted\_Date

from Intakes

Update intakes

Set Date\_Converted = FORMAT([datetime], 'MM-dd-yyyy')

Where Date\_Converted is NOT NULL

-- Extracting time only in am/pm - 116875 rows effected

Select \* from Intakes

SELECT DateTime,

FORMAT([datetime], 'hh:mm tt') AS Converted\_Date

from Intakes

Update intakes

Set Time\_Converted = FORMAT([datetime], 'hh:mm tt')

Where Time\_Converted is NULL

--Converting Date/Time and extracting the Date only for outcomes table-- 117255 rows effected

Select Datetime,

Convert (varchar,[datetime], 101) Test

From Outcomes

Update Outcomes

Set Date\_Converted = Convert (varchar,[datetime], 101)

--Converting Outcome Date/Time and extracting the Time only. tt refers to am/pm

Select \* from Outcomes

SELECT DateTime,

FORMAT([datetime], 'hh:mm tt') AS Converted\_Date

from Outcomes

Update Outcomes

Set Time\_Converted = FORMAT([datetime], 'hh:mm tt')

Where Time\_Converted is NULL

**2) Adding New column for Year only.**

--Adding a new column to table for Year

ALTER TABLE OUTCOMES

ADD YEAR SMALLINT;

--Adding Year values to Year column

UPDATE OUTCOMES

SET YEAR = DATEPART(YEAR, DATE\_CONVERTED)

WHERE YEAR is NULL

DATA PROFILE FINAL NOTES:

1. Those names including gram in them will not make a difference when filtering for top 100 Names, therefore, going to leave names as is.

2. Leaving Address alone since it's not delimited and messy. Due to time constraints leaving as is and will not use Address in the evaluation.

# **SQL Queries and Answers**

## What months are intakes the highest/lowest for ALL intakes?

--Busiest intake month by count

With CTE AS

(

Select \*, DATEPART(month, Date\_Converted) AS Intake\_Month

From Intakes

)

Select Top 3

Intake\_Month, Count(\*) AS Top\_Month\_Count

from CTE

Group by Intake\_Month

Order by Top\_Month\_Count desc;

--Slowest month by count

With CTE AS

(

Select \*, DATEPART(month, Date\_Converted) AS Intake\_Month

From Intakes

)

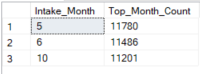
Select Top 3

Intake\_Month, Count(\*) AS Lowest\_Month\_Count

from CTE

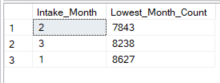
Group by Intake\_Month

Order by Lowest\_Month\_Count asc;



--Busiest intake month by count

\* May, June, October



--Least busy intake month by count

\* February, March, January

## What months are the busiest and slowest for adoptions?

--Busiest Adoption Month

With CTE AS

(

Select \*, DATEPART(month, Date\_Converted) AS Intake\_Month

From Outcomes

)

Select Top 3

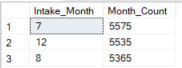
Intake\_Month, Count(\*) AS Month\_Count

from CTE

WHERE Outcome\_Type like 'Adoption'

Group By Intake\_Month

Order by Month\_Count desc



--Least Busy Adoption Months

With CTE AS

(

Select \*, DATEPART(month, Date\_Converted) AS Intake\_Month

From Outcomes

)

Select Top 3

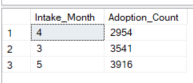
Intake\_Month, Count(\*) AS Month\_Count

from CTE

WHERE Outcome\_Type like 'Adoption'

Group By Intake\_Month

Order by Month\_Count asc



--Busiest Adoption Months by Count

\* July, December, August

--Slowest Adoption Months by Count

\* April, March, May

## What time of day are adoptions the highest and lowest?

-- What time of day are adoptions the highest?

WITH CTE AS

(

SELECT \*, DATEPART(Hour, Time\_Converted) AS Adoption\_Hour

From Outcomes

)

SELECT Top 3

Adoption\_Hour, COUNT(\*) AS Adoption\_Hour\_Count

From CTE

WHERE Outcome\_Type like 'Adoption'

GROUP BY Adoption\_Hour

ORDER BY Adoption\_Hour\_Count desc

--Time of day adoptions are the lowest?

WITH CTE AS

(

SELECT \*, DATEPART(Hour, Time\_Converted) AS Adoption\_Hour

From Outcomes

)

SELECT Top 3

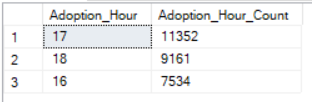
Adoption\_Hour, COUNT(\*) AS Adoption\_Hour\_Count

From CTE

WHERE Outcome\_Type like 'Adoption'

GROUP BY Adoption\_Hour

ORDER BY Adoption\_Hour\_Count asc

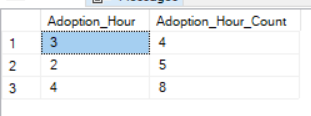


**Busiest Hour:**

-- **5pm** = 11352

-- **6pm** = 9161

--  **4pm** = 7534



**Slowest Lowest:**

-- **3am** = 4

-- **2am** = 5

-- **4am** = 8

## Are there more cats or dogs at the shelter?

-- Total Count

Select COUNT(Animal\_Type)

from Intakes

-- Cat and Dog Counts and Percentages

Select Animal\_Type,

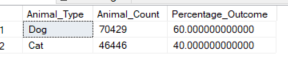
Count(Animal\_Type) as Animal\_Count,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),0) AS Percentage\_Outcome

from Intakes

Group by Animal\_Type

Order by Percentage\_Outcome desc



## What is the most common age upon intake and outcomes?

--Counts by Age Upon Intake

Select Distinct Top 3 Age\_Upon\_Intake,

Count(Age\_Upon\_Intake) over (partition by Age\_Upon\_Intake) as Age\_Count

from Intakes

Order by Age\_Count desc

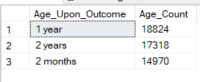
--Counts by Age Upon Outcomes

Select Distinct Age\_Upon\_Outcome,

Count(Age\_Upon\_Outcome) over (partition by Age\_Upon\_Outcome) as Age\_Count

from Outcomes

Order by Age\_Count desc



**Intake:**

-- 18,498 at 1 year old

-- 17,327 at 2 years old

-- 11,854 at 1 month old

**Outcomes:**

-- 18824 at 1 year old

-- 17318 at 2 years old

-- 14970 at 2 months old

## What is the most common intake reason?

-- Viewing total number of intake types - 116,875

Select COUNT(Intake\_Type)

from Intakes

-- Viewing Count of Intake\_Type

Select Distinct Intake\_Type,

Count(Intake\_Type) over (partition by Intake\_type) as Intake\_Count

from Intakes

Order by Intake\_Count desc

--Viewing Percentage of Intake\_Count

Select Intake\_Type,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Percentage\_Outcome

from Intakes

Group by Intake\_Type

Order by Percentage\_Outcome desc

--Viewing Subtype of Owner Surrender

With CTE AS

(

Select \*

from Intakes

Where Intake\_Type = 'Owner Surrender'

)

Select Intake\_Condition,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Condition\_Outcome

from Intakes

Group by Intake\_Condition

Order by Condition\_Outcome desc

Strays = 73% of Intake Type

Owner Surrenders = 21%

* + - * Normal conditions  = 88.3%
      * Injured = 4.8%
      * Sick = 3.1%
      * Nursing = 2.9%
      * Aged = .4%
      * Other = .2%
      * Pregnant = .1%
      * Medical  = .1%
      * Feral  = .1%
      * Behavior = .000%)

Public Assist = 6%

Abandoned = > 1%

Euthanasia Request = > 1%

## What is the most common type of outcome?

--Outcome type by count

Select Distinct Outcome\_Type,

Count(Outcome\_Type) over (partition by Outcome\_type) as Outcome\_Count

from Outcomes

Order by Outcome\_Count desc

--Outcome type by Percentage

Select Distinct Outcome\_Type,

Count(Outcome\_Type) over (partition by Outcome\_type) as Outcome\_Count

from Outcomes

Order by Outcome\_Count desc

--Subtypes of Euthanasia

With CTE AS

(

Select \*

from Outcomes

Where Outcome\_Type = 'Euthanasia'

)

Select Outcome\_Subtype,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Subtype\_Outcome

from CTE

Group by Outcome\_Subtype

Order by Subtype\_Outcome desc

--Adoption = 54609 / 46.6%

--Transfer = 35649 / 30.4%

--Return to Owner = 21428 / 18.3%

--Euthanasia = 3738 / 3.2%

(Reasons for Euthanasia)

* + - Suffering 67.1%
    - Aggressive 14.4%
    - Rabies Risk 4.8%
    - Beahvior 4.3%
    - At Vet 4.2%
    - Medical 3.8%
    - Court/Investigation .8%
    - Blank .7%

--Died = 944 / .8%

--Rto-Adopt = 694 / .6%

--Disposal = 112 / .1%

--Missing = 64 / .1%

--Unknown = 15 / 0%

--Relocate = 2 / 0%

## What are the top 3 dog and cat breeds?

--Top DOG breed in Intakes:

Select Top 3 Breed,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Breed\_Percentage

from intakes

Where Animal\_Type = 'Dog'

Group by Breed

Order by Breed\_Percentage desc

--Top Dog Adopted Breeds:

With CTE AS

(

Select \*

from Outcomes

Where Outcome\_Type = 'Adoption' and Animal\_Type = 'Dog'

)

Select Breed,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Breed\_Adopted

from CTE

group by Breed

Order by Breed\_Adopted desc

--Top Dog Euthanized Breeds:

With CTE AS

(

Select \*

from Outcomes

Where Outcome\_Type = 'Euthanasia' and Animal\_Type = 'Dog'

)

Select Breed,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Breed\_Euthanized

from CTE

Group by Breed

Order by Breed\_Euthanized desc

--Top CAT breed in Intakes:

Select Top 10 Breed,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Breed\_Percentage

from intakes

Where Animal\_Type = 'Cat'

Group by Breed

Order by Breed\_Percentage desc

--Top Cat Adopted Breeds:

With CTE AS

(

Select \*

from Outcomes

Where Outcome\_Type = 'Adoption' and Animal\_Type = 'Cat'

)

Select Breed,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Breed\_Adopted

from CTE

Group by Breed

Order by Breed\_Adopted desc

--Top Cat Euthanized Breeds:

With CTE AS

(

Select \*

from Outcomes

Where Outcome\_Type = 'Euthanasia' and Animal\_Type = 'CAT'

)

Select Breed,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),1) AS Breed\_Euthanized

from CTE

Group by Breed

Order by Breed\_Euthanized desc

**Dogs:**

Top Intake Dog is: Pitbull Mix, Labrador Retriever Mix, Chihuahua Shorthair mix

Top Adopted Dog is: Labrador Retriever Mix, Pitbull Mix, Chihuahua Mix

Top Euthanized Dog: Pitbull, Chihuahua Mix, Labrador Retriever Mix

**Cats:**

Top Intake Cat is: Domestic Shorthair Mix, Domestic Shorthair, Domestic Medium Hair Mix

Top Adopted Cat is: Domestic Shorthair Mix, Domestic Shorthair, Domestic Medium Hair Mix

Top Euthanized Cat: Domestic Shorthair Mix, Domestic Shorthair, Domestic Medium Hair Mix

## Is there a color that is more common?

--Top 3 color intakes in Dog

Select Top 3 Color

From Intakes

Where Animal\_Type = 'Dog'

--Top 3 color of adopted dogs

Select Top 3 Color, Count(\*) AS color\_count

From Outcomes

Where Animal\_Type = 'Dog' and Outcome\_type = 'Adoption'

Group By color

Order by color\_count desc

--Top 3 color of dogs that are Euthanized

Select Color, Count(\*) AS color\_count

From Outcomes

Where Animal\_Type = 'Dog' and Outcome\_type = 'Euthanasia'

Group By color

Order by color\_count desc

--Top 3 color intakes in Cats

Select Top 3 Color

From Intakes

Where Animal\_Type = 'Cat'

--Top 3 color of adopted Cats

Select Top 3 Color, Count(\*) AS color\_count

From Outcomes

Where Animal\_Type = 'Cat' and Outcome\_type = 'Adoption'

Group By color

Order by color\_count desc

--Top 3 color of Cats that are Euthanized

Select Color, Count(\*) AS color\_count

From Outcomes

Where Animal\_Type = 'Cat' and Outcome\_type = 'Euthanasia'

Group By color

Order by color\_count desc

**Dogs:**

\* Intakes

Tricolor

White/Liver

Sable/White

\* Adopted

Black/White = 4236

Brown/White = 1880

Tan/White = 1869

\* Euthanized

Black/White - 166

Brown/White - 113

Tan/White 107

**Cats:**

\* Intakes

Calico

Cream Tabby

Black/White

\* Adopted

Brown Tabby

Black

Black/White

\* Euthanized

Brown Tabby

Black

Black/White

## What are the top 10 names?

--Top 10 Cat names

Select Top 10 Name, Count(\*) as Cat\_Count

From Outcomes

Where Animal\_Type = 'Cat' and Name <> 'Unknown'

Group By Name

Order by Cat\_Count desc

--Top 10 Dog names

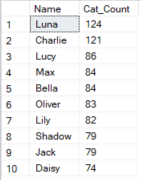
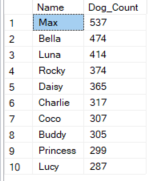
Select Top 10 Name, Count(\*) as Dog\_Count

From Outcomes

Where Animal\_Type = 'Dog' and Name <> 'Unknown'

Group By Name

Order by Dog\_Count desc

**--Top 10 Cat Names**

Luna = 124

Charlie = 121

Lucy = 86

Max = 84

Bella = 84

Oliver = 83

Lily = 82

Shadow = 79

Jack = 79

Daisy = 74

**--Top 10 Dog Names**

Max = 537

Bella = 474

Luna = 414

Rocky = 374

Daisy = 365

Charlie = 317

Coco = 307

Buddy = 305

Princess = 299

Lucy = 287

## How many are euthanized each year?

--Total

Select datepart(year, Date\_Converted) as Year, count(\*) as Year\_Count

from Outcomes

Where Outcome\_Type = 'Euthanasia'

Group by datepart(Year, Date\_Converted)

Order by Year\_Count desc

--Dogs

Select datepart(year, Date\_Converted) as Year, count(\*) as Year\_Count

from Outcomes

Where Outcome\_Type = 'Euthanasia' and Animal\_Type = 'Dog'

Group by datepart(Year, Date\_Converted)

Order by Year\_Count desc

--Cats

Select datepart(year, Date\_Converted) as Year, count(\*) as Year\_Count

from Outcomes

Where Outcome\_Type = 'Euthanasia' and Animal\_Type = 'Cat'

Group by datepart(Year, Date\_Converted)

Order by Year

--Pivot Table of Euthanizing Counts by Year

SELECT \* FROM

(

Select

Year,

Animal\_Type,

COUNT(\*) As Adoption\_Count

FROM Outcomes

WHERE Outcome\_Type ='Euthanasia'

Group by Animal\_Type, Year

) t

PIVOT(

SUM (Adoption\_Count)

FOR [Year]

IN (

[2013],

[2014],

[2015],

[2016],

[2017],

[2018],

[2019],

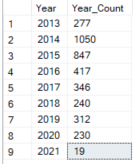
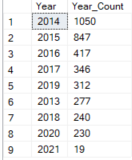
[2020],

[2021])

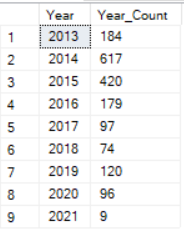
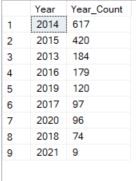
) AS pivot\_table;



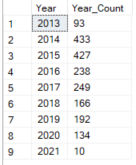
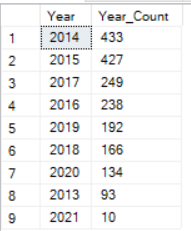
**Total Chronological    Total By Count**

** **

**Dogs Chronological   Dogs By Count**

 ****

**Cats Chronological    Cats By Count**

**** 

## What are the subtypes and percentages of those that are euthanized?

With CTE AS

(

Select \*

from Outcomes

Where Outcome\_Type = 'Euthanasia'

)

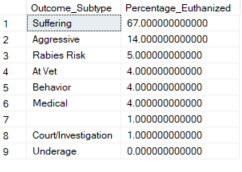
Select Outcome\_Subtype,

ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),0) AS [Percentage\_Euthanized]

from CTE

Group by Outcome\_Subtype

Order by Percentage\_Euthanized desc



## What are the subtypes and counts for animals that died?

\*\*\*Overview and thoughts on analysis:

1. Roughly half the number of pets die in foster care opposed to in the Kennel
2. There is a blank category where every year deaths that are not Euthanasia related are not categorized.
3. 51% of the cats have died in the Kennel compared to 61% of dogs.
4. 11.3% of the dogs die at the Vet compared to 7.6%

--Count of the reason where outcome type is Died

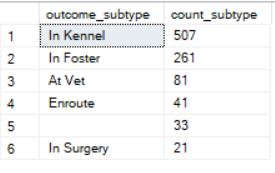
Select distinct outcome\_subtype, COUNT(\*) as count\_subtype

from outcomes

Where outcome\_type = 'died'

Group by Outcome\_Subtype

Order by count\_subtype desc



--Count of those who died in Care by Year and the Reason why

Select datepart(year, date\_converted) as year,

COUNT(outcome\_subtype) AS sub\_count, Outcome\_Subtype

from outcomes

Where Outcome\_Type = 'Died'

Group by outcome\_subtype, datepart(year, date\_converted)

Order by datepart(year, date\_converted), outcome\_subtype

Year Count Reasons for “Died”

2013 1

2013 8 In Foster

2013 13 In Kennel

2013 1 In Surgery

2014 16

2014 4 At Vet

2014 6 Enroute

2014 36 In Foster

2014 38 In Kennel

2014 2 In Surgery

2015 6

2015 5 At Vet

2015 5 Enroute

2015 31 In Foster

2015 97 In Kennel

2015 2 In Surgery

2016 1

2016 10 At Vet

2016 2 Enroute

2016 40 In Foster

2016 86 In Kennel

2016 5 In Surgery

2017 1

2017 12 At Vet

2017 5 Enroute

2017 41 In Foster

2017 58 In Kennel

2017 5 In Surgery

2018 18 At Vet

2018 9 Enroute

2018 30 In Foster

2018 74 In Kennel

2018 2 In Surgery

2019 7

2019 26 At Vet

2019 7 Enroute

2019 46 In Foster

2019 97 In Kennel

2019 4 In Surgery

2020 1

2020 6 At Vet

2020 7 Enroute

2020 28 In Foster

2020 42 In Kennel

2021 1 In Foster

2021 2 In Kennel

--Count of the reason where outcome type is Died for dogs

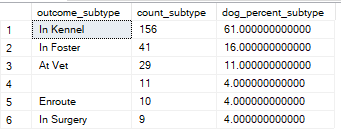
Select distinct outcome\_subtype, COUNT(\*) as count\_subtype, ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),0) AS dog\_percent\_subtype

from outcomes

Where outcome\_type = 'died' and animal\_type = 'Dog'

Group by Outcome\_Subtype

Order by count\_subtype desc



--Count of the reason where outcome type is Died for cats

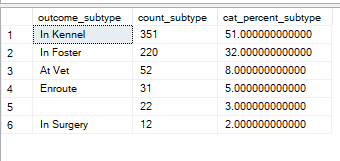
Select distinct outcome\_subtype, COUNT(\*) as count\_subtype, ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),0) AS cat\_percent\_subtype

from outcomes

Where outcome\_type = 'died' and animal\_type = 'Cat'

Group by Outcome\_Subtype

Order by count\_subtype desc



## How many are adopted each year?



This can be broken down many different ways. Here is each way and the respective results.

-- Count and total Percentage of Cat Adoptions by Subtype

Select outcome\_subtype,

COUNT(\*) as cat\_adoptions,

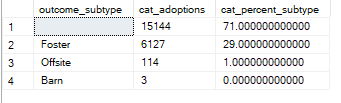
ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),0) AS cat\_percent\_subtype

from outcomes

Where outcome\_type = 'Adoption' and animal\_type = 'Cat'

Group by Outcome\_Subtype

Order by cat\_adoptions desc



-- Count and total Percentage of Dog Adoptions by Subtype

Select distinct outcome\_subtype,

COUNT(\*) as dog\_adoptions,

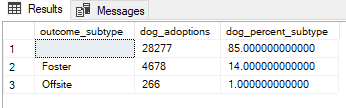
ROUND(count(\*) \* 100.0 / sum(count(\*)) over(),0) AS dog\_percent\_subtype

from outcomes

Where outcome\_type = 'Adoption' and animal\_type = 'Dog'

Group by outcome\_subtype

Order by dog\_adoptions desc



-- Cat adoptions by year without Subtype

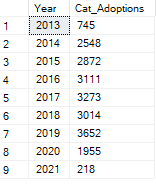
Select Year, COUNT (\*) AS Cat\_Adoptions

from outcomes

Where Outcome\_Type = 'Adoption' and animal\_type = 'Cat'

Group by Outcome\_type, Year

Order by Year, outcome\_type



--Dog adoptions by year without Subtype

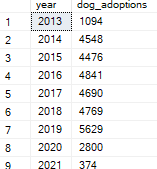
Select datepart(year, date\_converted) as year,COUNT (\*) AS dog\_adoptions

from outcomes

Where Outcome\_Type = 'Adoption' and animal\_type = 'Dog'

Group by Outcome\_type, datepart(year, date\_converted)

Order by datepart(year, date\_converted)



-- Dog and Cat Adoption adopted by year

Select Animal\_Type,

COUNT(\*) as Animal\_Count,

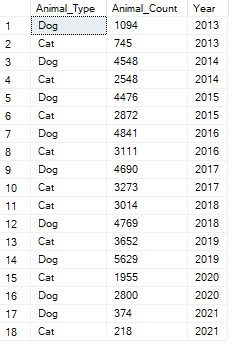
datepart(year, date\_converted) as Year

from Outcomes

Where Outcome\_Type = 'Adoption'

Group by Animal\_Type, datepart(year, date\_converted)

Order by datepart(year, date\_converted) asc



---Pivot Table to show cat and dog adoptions by year

SELECT \* FROM

(

Select

Year,

Animal\_Type,

COUNT(\*) As Adoption\_Count

FROM Outcomes

WHERE Outcome\_Type ='Adoption'

Group by Animal\_Type, Year

) t

PIVOT(

SUM (Adoption\_Count)

FOR [Year]

IN (

[2013],

[2014],

[2015],

[2016],

[2017],

[2018],

[2019],

[2020],

[2021])

) AS pivot\_table;



## What is the average length of time in the shelter from intake to adoption/euthanasia?

\*\* We were given an animal\_ID for the dataset, but there was not a way to differentiate the animals if they came to the shelter multiple times. The challenge was trying to align the correct intake time with outcome time when calculating the DATEDIFF. There bad data because the number of intakes did not always match the number of outcomes for a pet. Or there were times where an outcome would happen prior to an intake.

For these reasons, I will not provide an answer, but show you how I would query the information if the data was complete and there was an exact match for each intake/outcome.

--Joining tables to see the difference between intake and outcome time.

Select a.animal\_id,

a.datetime [intake\_time],

b.animal\_id,

b.datetime [outcome\_time],

DATEDIFF(month,a.DateTime, b.DateTime) AS Month\_Diff

from intakes a

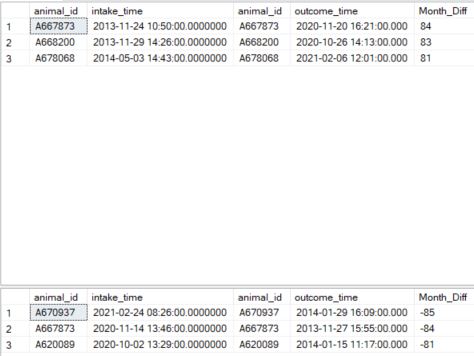
inner join outcomes b

ON a.animal\_id = b.animal\_id

Order by Month\_Diff desc

An example of how the information does not line up:

* An animal cannot be in the shelter for a negative amount of time
* I am not certain that an Animal Shelter would hold on to an animal for 6 years if it has not been adopted when they have Euthanasia as an option.



**Here is how I would query the Average time from intake to adoption:**

The average length of time between intake and adoption is 26 days.

33 days for cats

22 days for dogs

--Average days to adoption for both cats and dogs.

Select AVG(DATEDIFF(day,a.DateTime, b.DateTime)) AS Average\_Adoption\_Days

from intakes a

inner join outcomes b

on a.animal\_id = b.animal\_id

Where outcome\_type = 'Adoption'



--Average days to adoption for cats.

Select AVG(DATEDIFF(day,a.DateTime, b.DateTime)) AS Average\_Cat\_Days

from intakes a

inner join outcomes b

on a.animal\_id = b.animal\_id

Where outcome\_type = 'Adoption' and b.Animal\_Type = 'Cat'



--Average days to adoption for Dogs.

Select AVG(DATEDIFF(day,a.DateTime, b.DateTime)) AS Average\_Dog\_Days

from intakes a

inner join outcomes b

on a.animal\_id = b.animal\_id

Where outcome\_type = 'Adoption' and b.Animal\_Type = 'Dog'



**Here is how I would query the Average time from intake to Euthanasia:**

The average length of time between intake and adoption is 26 days.

* + 33 days for cats
  + 22 days for dogs

Select AVG(DATEDIFF(day,a.DateTime, b.DateTime)) AS Avg\_Total\_Days

from intakes a

inner join outcomes b

on a.animal\_id = b.animal\_id

Where outcome\_type = 'Euthanasia'



Select AVG(DATEDIFF(day,a.DateTime, b.DateTime)) AS Cat\_Days

from intakes a

inner join outcomes b

on a.animal\_id = b.animal\_id

Where outcome\_type = 'Euthanasia' and b.Animal\_Type = 'Cat'



Select AVG(DATEDIFF(day,a.DateTime, b.DateTime)) AS Dog\_Days

from intakes a

inner join outcomes b

on a.animal\_id = b.animal\_id

Where outcome\_type = 'Euthanasia' and b.Animal\_Type = 'Dog'



# **Digging Deeper**

I want to see the amount of time between intake and Outcome for animals who are Euthanized that were brought in under Normal Conditions. I found some results that require further digging.

Select i.Animal\_ID,

o.Animal\_ID,

i.DateTime,

o.DateTime,

case when i.DateTime > o.DateTime THEN

DATEDIFF(hour,o.DateTime,i.datetime)

ELSE

DATEDIFF(hour,i.DateTime,o.datetime)

END AS [Datediff\_hours],

i.Intake\_Type,

i.intake\_condition,

o.Outcome\_Type,

o.Outcome\_Subtype

from Intakes i

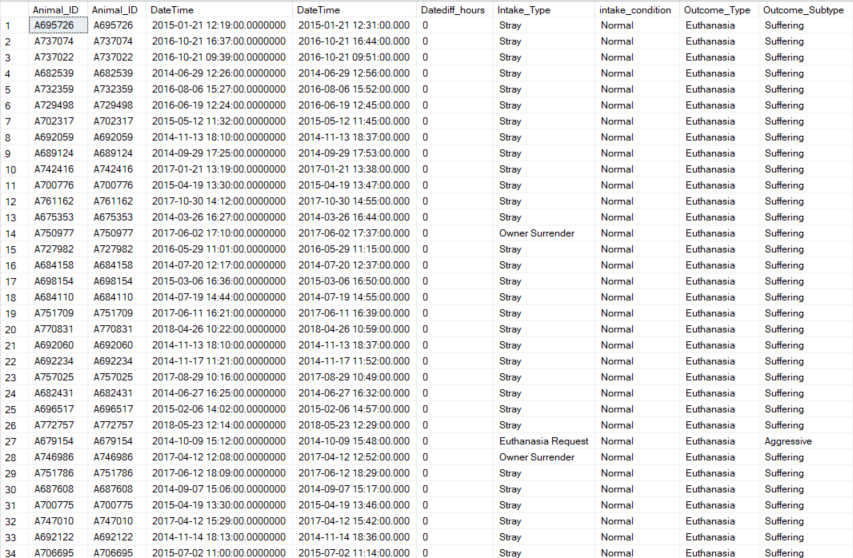
left join Outcomes o on o.Animal\_ID = i.Animal\_ID

Where o.Animal\_ID IS NOT NULL

and o.Outcome\_type = 'Euthanasia'

and i.intake\_condition = 'Normal'

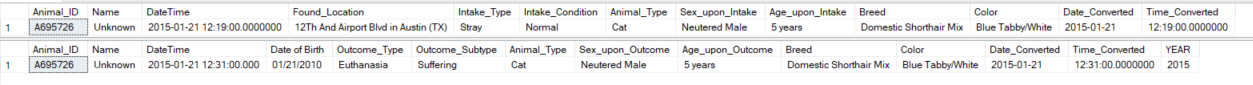
Order by Datediff\_hours



To check the results of my query, I looked at the first animal on the list. It lists a 5 year old cat brought into the shelter as a Stray under Normal conditions, but Euthanized indicating they were suffering. Why is that the case?

select \* from intakes where animal\_id = 'A695726'

select \* from outcomes where animal\_id = 'A695726'

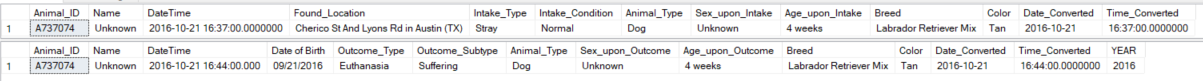


Looking at the second animal\_id from the query above, it is a 4 week old stray puppy in normal condition but was Euthanized 7 minutes later as the outcome subtype indicated Suffering.

How can an animal brought in under normal conditions suffer so much that within 7 minutes needs be Euthanized????

select \* from intakes where animal\_id = 'A737074'

select \* from outcomes where animal\_id = 'A737074'



**Dig Deeper Thoughts:** There are several animals brought into the shelter as a Stray Under Normal Conditions and were Euthanized less than 1 hour later indicating they were Suffering.

Here are some follow up questions that I have:

* What is the definition of “Suffering” to Austin Animal Shelter?
* What is the definition of an Intake Type Normal Condition?
* Are all employees trained and using the definitions of the intake conditions and outcome subtypes correctly?
  + If these fields are not being consistently and accurately entered then the data can be significantly skewed in an improper direction resulting in inaccurate reasons why an animal was Euthanized.
* Was the shelter at max capacity if the animal was under normal conditions and there was no where else transfer or house the animal?
* How can an animal be deemed as Suffering, if it is within less than an hour?

# **Summary of Findings**

## Animals

* There are more dogs than cats at the shelter.

## Shelter Volume

**Busiest Intake times:**

* Months – May, June, October
* Time of Day: Late afternoon / Evenings 4-6 with 5 being peak

**Slowest Intake Times**

* Months – February, March, January
* Time of Day: During working hours the early mornings are slowest.

**Busiest Adoption times:**

* Months – July, December, August
* Time of Day: Late afternoon / Evenings 4-6 with 5 being peak

**Slowest Adoption Times**

* Months – April, March, May
* Time of Day: During working hours the early mornings are slowest.

## Intake Demographics

* Age Upon Intake: Most common years at Intake: 1 year, 2 year, 1 month
* Top 2 Intake Reason:
  + Strays = 73%
  + Owner Surrender = 21%
    - Out of the Owner Surrender 88.3% have an intake listing Normal Condition

## Outcome Demographics

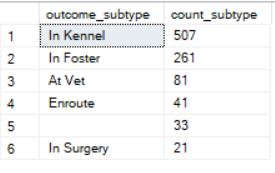
* Age Upon Outcome: Most common years at Outcomes: 1 year, 2 years, 2 months.
* Top 2 Outcomes
  + Adoption 46.6%
  + Transfers 30.4%
* Euthanasia Count by Year



* Adoption Count by Year:



* Animals that Died without Euthanasia



* Animals that Died without Euthanasia by Year

Year Count Reasons for “Died”

2013 1

2013 8 In Foster

2013 13 In Kennel

2013 1 In Surgery

2014 16 Blank

2014 4 At Vet

2014 6 Enroute

2014 36 In Foster

2014 38 In Kennel

2014 2 In Surgery

2015 6 Blank

2015 5 At Vet

2015 5 Enroute

2015 31 In Foster

2015 97 In Kennel

2015 2 In Surgery

2016 1 Blank

2016 10 At Vet

2016 2 Enroute

2016 40 In Foster

2016 86 In Kennel

2016 5 In Surgery

2017 1 Blank

2017 12 At Vet

2017 5 Enroute

2017 41 In Foster

2017 58 In Kennel

2017 5 In Surgery

2018 18 At Vet

2018 9 Enroute

2018 30 In Foster

2018 74 In Kennel

2018 2 In Surgery

2019 7 Blank

2019 26 At Vet

2019 7 Enroute

2019 46 In Foster

2019 97 In Kennel

2019 4 In Surgery

2020 1 Blank

2020 6 At Vet

2020 7 Enroute

2020 28 In Foster

2020 42 In Kennel

2021 1 In Foster

2021 2 In Kennel

## Animal Demographics

### Dogs

* **Top Dogs Breeds:**

Top Intake Dog Breed: Pitbull Mix, Labrador Retriever Mix, Chihuahua Shorthair mix

Top Adopted Breed: Labrador Retriever Mix, Pitbull Mix, Chihuahua Mix

Top Euthanized Breed: Pitbull, Chihuahua Mix, Labrador Retriever Mix

* **Top Dog Color:**

\* Intakes

Tricolor

White/Liver

Sable/White

\* Adopted

Black/White = 4236

Brown/White = 1880

Tan/White = 1869

\* Euthanized

Black/White - 166

Brown/White - 113

Tan/White 107

* **Top Dog Names:**

Max = 537

Bella = 474

Luna = 414

Rocky = 374

Daisy = 365

Charlie = 317

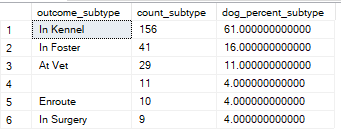
Coco = 307

Buddy = 305

Princess = 299

Lucy = 287

* **SubType for Dogs Dying without Euthanasia:**



### Cats

* **Top Cat Breed: (There are not many cat breeds)**

Top Intake Cat Breed: Domestic Shorthair Mix, Domestic Shorthair, Domestic Med Hair Mix

Top Adopted Cat Breed: Domestic Shorthair Mix, Domestic Shorthair, Domestic Med Hair Mix

Top Euthanized Breed: Domestic Shorthair Mix, Domestic Shorthair, Domestic Med Hair Mix

* **Top Cat Color**

\* Intakes

Calico

Cream Tabby

Black/White

\* Adopted

Brown Tabby

Black

Black/White

\* Euthanized

Brown Tabby

Black

Black/White

* **Top 10 Cat Names**

Luna = 124

Charlie = 121

Lucy = 86

Max = 84

Bella = 84

Oliver = 83

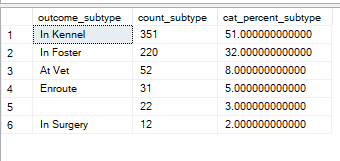
Lily = 82

Shadow = 79

Jack = 79

Daisy = 74

* **SubType for Cats Dying without Euthanasia:**



# **Recommendations**

**STAFFING**

Due to when Adoptions and Intakes are high/low this is when staffing would be most optimal.

* Most Staffing Needed: June - December
* Slowest Staffing Time: Jan - April

**PROMOTIONS/SALES**

* Generate promotions during the quieter months (Jan – April) for greater sales
* Provide discount if an adopter purchases an animal from one the top 3 euthanized breeds. This may help lower euthanasia rates.

**RESEARCH**

* Further research is needed on why:
  + More cats die in Fosters than dogs
  + More dogs die in Kennels than cats
  + Why are animals being Euthanized within hours/days if they are brought in Under Normal Conditions?
* Check to ensure that there is QA on consistency on animal subtypes that are entered.
  + This will help ensure that all records are entered accurately in order to verify why Euthanasia is occurring.

**COMMUNITY BUILDING**

**Reducing Intakes:**

* **Strays make up 73% of Intakes**
  + Partner and offer discounts to those individuals who Trap, Neuter, Release to help prevent the spread of reproduction.
* **Owner Surrender makes up 21% of Intakes** 
  + For those that are surrendering their pet due to Normal Conditions, provide them with a pamphlet on animal shelter statistics.
  + Are there resources that can be provided, for example if a family is going through financial difficulty can you house for a temporary period until they get on their feet again?
    - Networking/Partnering with fosters to assist in this situation.