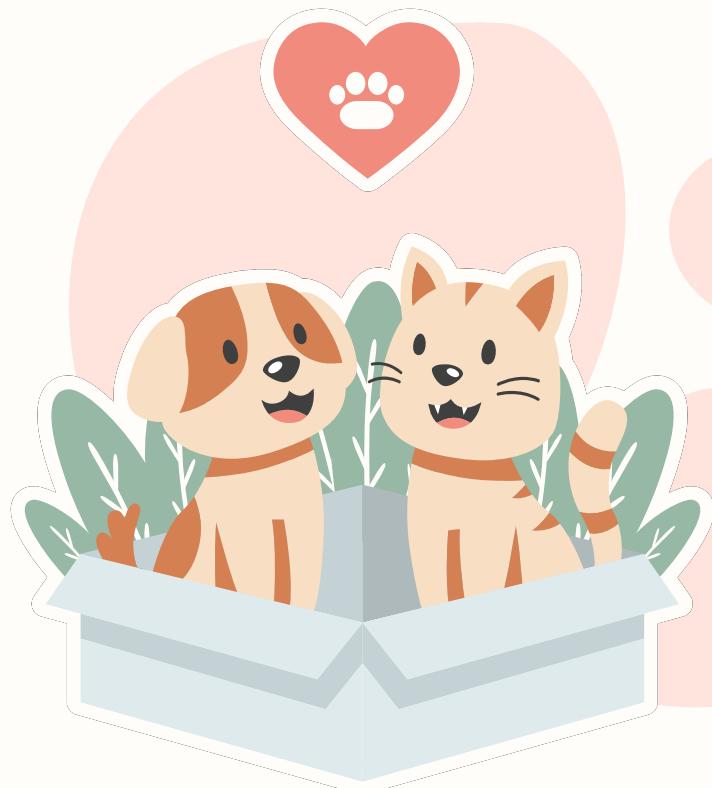


Pet Ownership Analysis

Python Dashboard Presentation



Introduction

Having a pet



Companionship



A pet provides constant, non-judgmental presence that alleviates feelings of loneliness and creates a profound emotional bond within home

Responsibility



Caring for a living creature establishes a consistent routine and fosters a sense of accountability through the daily demands of feeding, grooming, and safety

Health benefits



Interacting with animals is scientifically shown to lower stress levels, reduce blood pressure, and encourage physical activity through play or daily walks

Introduction

Popular pet names

Dogs

- Max
- Bella
- Luna
- Charlie
- Lucy
- Bailey
- Cooper
- Daisy
- Rocky

Cats

- Kitty
- Oliver
- Leo
- Luna
- Bella
- Simba
- Chloe
- Charlie
- Lucy

Birds

- Sunny
- Kiwi
- Blue
- Charlie
- Mango
- Rosie
- Tweety
- Coco
- Peep

Rabbits

- Thumper
- Daisy
- Cottontail
- Oliver
- Peanut
- Snowball
- Luna
- Clover
- Ruby

After you get a pet – the first thing you could do is to name him/her if he/she does not have a name or you want him/her to have a different name



Introduction

What to do with your pet

Things to do

- Play and cuddle daily
- Provide regular exercise
- Feed balanced meals
- Groom and clean
- Vet check-ups
- Positive training
- Ensure a safe environment
- Engage in fun activities
- Show love and care



Things not to do

- Neglect basic needs
- Leave unattended
- Use harsh methods
- Give harmful foods
- Overwhelm with stress
- Ignore health or behavior
- Administer human meds
- Skip training
- Abandon or neglect

Introduction

US even has a National Pet Day	
Date	April 11th
Purpose	To celebrate and promote responsible pet ownership and appreciate the companionship of pets
Importance	Raising awareness about pet adoption, responsible pet ownership, and animal welfare. Encouraging people to provide love and care to their pets
Origin	Founded in 2006 by Colleen Paige, an animal welfare advocate and a lover of animals
Activities	<ul style="list-style-type: none">● Adopt a pet from a shelter or rescue● Volunteer at animal shelters● Donate to animal-related charities● Educate about pet care and safety● Host pet-friendly events● Share photos of pets on social media



Our Python Presentation



Companionship

Identifies the regions with the largest pet communities, celebrating the millions of individual bonds that fulfill our universal need for companionship

Promotes
core benefits
of pet
ownership

Responsibility

By visualizing the high percentage of households that own pets across the country, we highlight the widespread commitment to the daily responsibility of nurturing and protecting animal life



Health Benefits

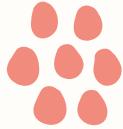
Comparing dog and cat ownership rates allows us to celebrate the diverse ways pets promote human health, whether through the active lifestyle encouraged by dogs or the stress-reducing presence of cats



Presentation Dashboard Data



Population and ownership of dogs and cats by household broken down by state.
Provided by: American Veterinary Medical Association



location	total_households	pet_ownership_pct	total_pet_households	dog_ownership_pct	total_dog_households	dog_mean_number	dog_population	cat_ownership_pct	total_cat_households	cat_mean_number	cat_population	
Total / Avg	117,791.0	56.9	65,787.0	37.0	42,942.0	1.6	69,294.0	31.6	35,675.0	2.0	73,147.0	
Alabama	1,828.0	59.5	1,088.0	44.1	807.0	1.7	1,410.0	27.4	501.0	2.5	1,252.0	
Arizona	2,515.0	59.5	1,497.0	40.1	1,008.0	1.8	1,798.0	29.6	743.0	1.9	1,438.0	
Arkansas	1,148.0	62.4	716.0	47.9	550.0	2.0	1,097.0	30.6	351.0	2.3	810.0	
California	12,974.0	52.9	6,865.0	32.8	4,260.0	1.6	6,687.0	28.3	3,687.0	1.9	7,118.0	
Colorado	1,986.0	61.3	1,217.0	42.5	845.0	1.6	1,349.0	32.3	642.0	1.9	1,191.0	
Connecticut	1,337.0	54.4	728.0	28.3	379.0	1.3	507.0	31.9	427.0	1.9	796.0	
Delaware	334.0	56.6	189.0	33.7	113.0	Tabulator Widget	1.4	163.0	33.7	113.0	1.7	187.0
District of Columbia	287.0	21.9	63.0	13.1	38.0	1.1	42.0	11.6	33.0	1.9	63.0	
Florida	7,609.0	54.4	4,138.0	35.7	2,718.0	1.5	4,210.0	27.3	2,079.0	2.1	4,375.0	
Georgia	3,798.0	55.1	2,093.0	40.1	1,522.0	1.6	2,479.0	27.3	1,037.0	2.1	2,162.0	
Idaho	568.0	62.0	352.0	42.7	242.0	1.5	357.0	34.6	196.0	2.0	393.0	
Illinois	5,026.0	51.8	2,602.0	32.4	1,627.0	1.5	2,365.0	26.3	1,321.0	1.9	2,453.0	
Indiana	2,478.0	59.9	1,484.0	39.9	989.0	1.6	1,619.0	34.4	852.0	2.2	1,912.0	
Iowa	1,219.0	53.6	654.0	33.4	407.0	1.5	610.0	30.3	370.0	2.2	805.0	
Kansas	1,133.0	61.0	691.0	42.3	480.0	1.6	774.0	33.3	378.0	1.9	731.0	
Kentucky	1,777.0	61.6	1,094.0	45.9	816.0	1.9	1,531.0	36.8	654.0	2.1	1,349.0	
Louisiana	1,702.0	55.1	937.0	36.4	619.0	1.8	1,115.0	25.9	441.0	2.0	877.0	
Maine	548.0	62.9	345.0	34.6	190.0	1.6	300.0	46.4	254.0	1.9	498.0	
Maryland	2,169.0	52.3	1,134.0	30.8	667.0	1.4	915.0	29.8	645.0	2.6	1,677.0	
Massachusetts	2,618.0	50.4	1,318.0	23.6	618.0	1.4	850.0	34.1	892.0	1.8	1,593.0	
Michigan	3,804.0	55.4	2,108.0	34.6	1,318.0	1.5	2,036.0	31.3	1,192.0	2.0	2,420.0	

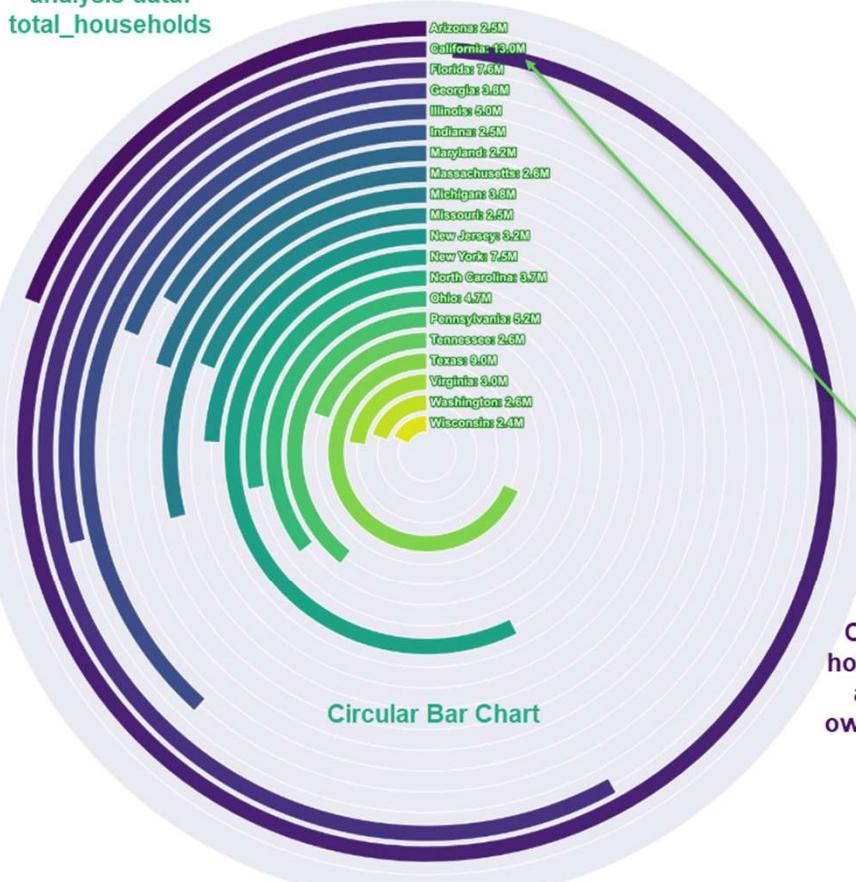


Top Pet Owning Households



Top 20 Household States

analysis data:
total_households

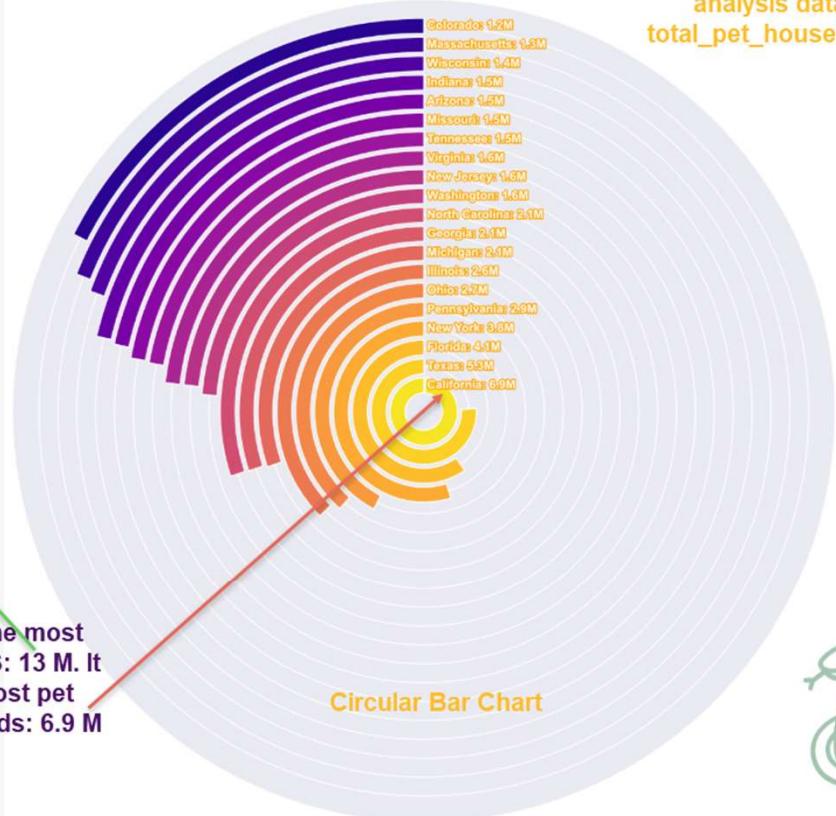


Circular Bar Chart

- Arizona
- California
- Florida
- Georgia
- Illinois
- Indiana
- Maryland
- Massachusetts
- Michigan
- Missouri
- New Jersey
- New York
- North Carolina
- Ohio
- Pennsylvania
- Tennessee
- Texas
- Virginia
- Washington
- Wisconsin

Top 20 Pet Household States

analysis data:
total_pet_households



Circular Bar Chart

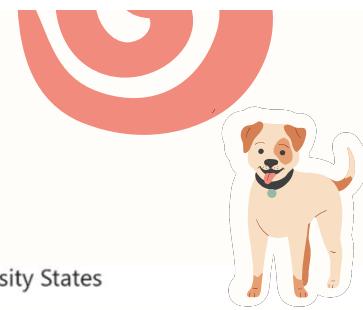
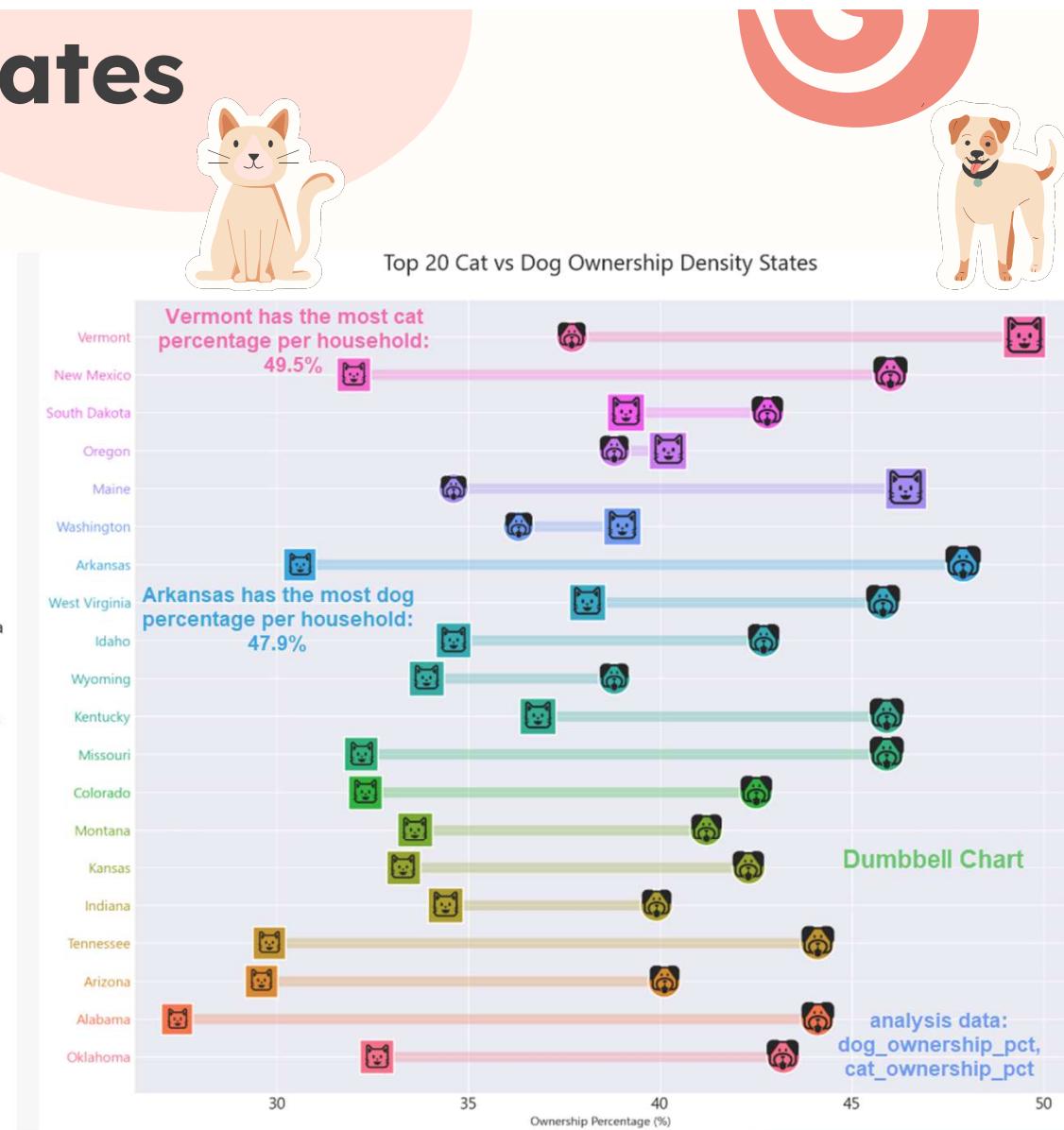
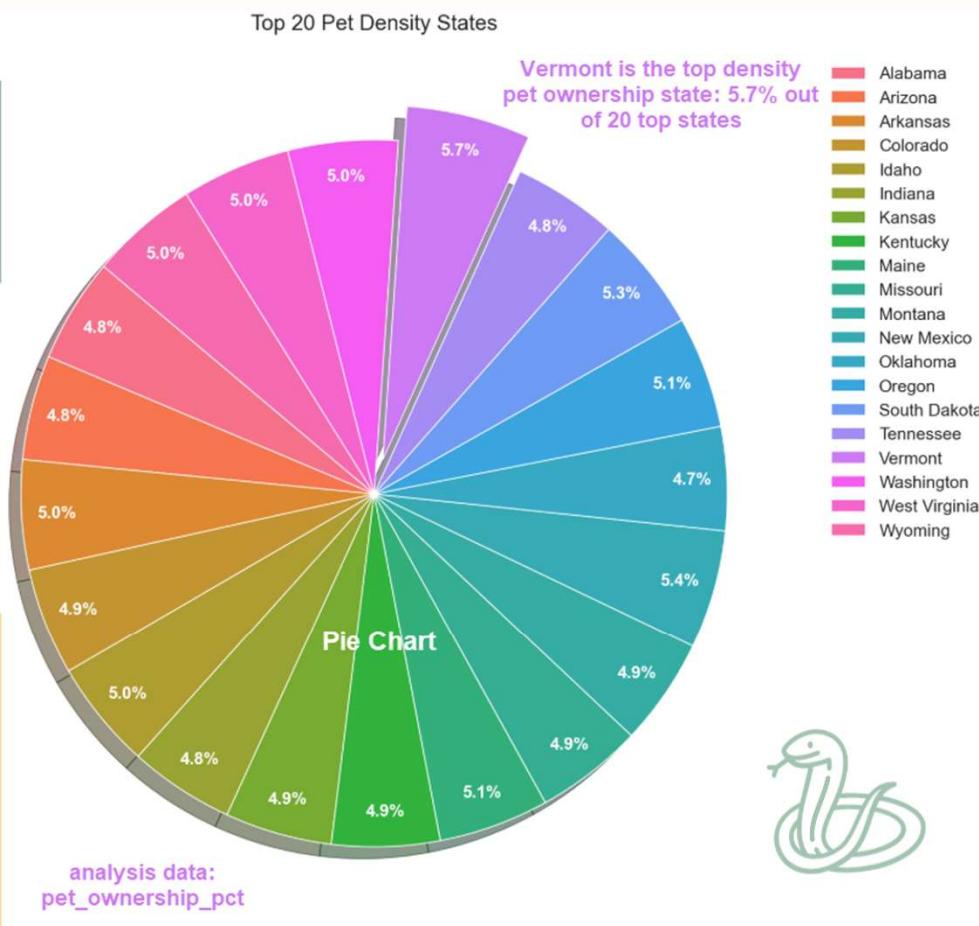
California has the most households in US: 13 M. It also has the most pet owning households: 6.9 M

- Colorado
- Massachusetts
- Wisconsin
- Indiana
- Arizona
- Missouri
- Tennessee
- Virginia
- Washington
- North Carolina
- Georgia
- Michigan
- Illinois
- Ohio
- Pennsylvania
- New York
- Florida
- Texas
- California





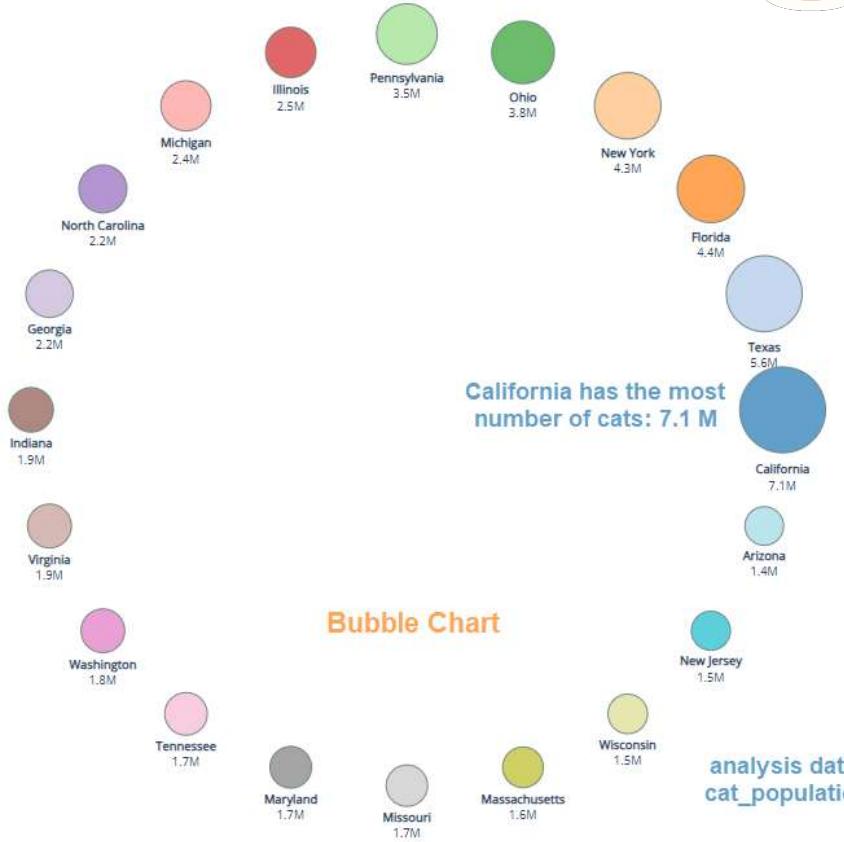
Top Pet Density States



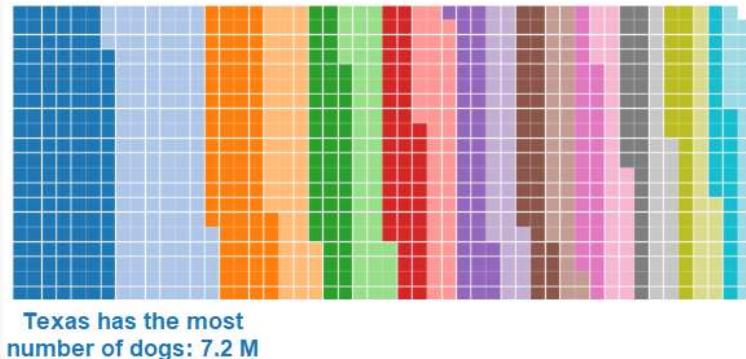


Top Pet Population States

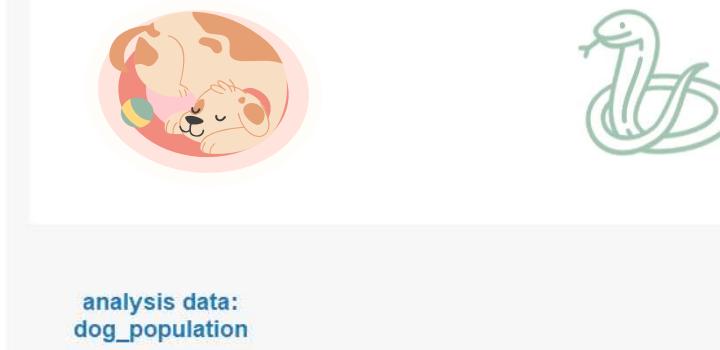
Top 20 Cat Population States



Top 20 Dog Population States



Waffle Chart



Texas	7.2M
California	6.7M
Florida	4.2M
New York	3.1M
Ohio	2.7M
North Carolina	2.5M
Pennsylvania	2.5M
Georgia	2.5M
Illinois	2.4M
Tennessee	2.2M
Michigan	2.0M
Missouri	2.0M
Arizona	1.8M
Virginia	1.7M
Indiana	1.6M
Washington	1.6M
Kentucky	1.5M
Alabama	1.4M
Colorado	1.3M
New Jersey	1.3M



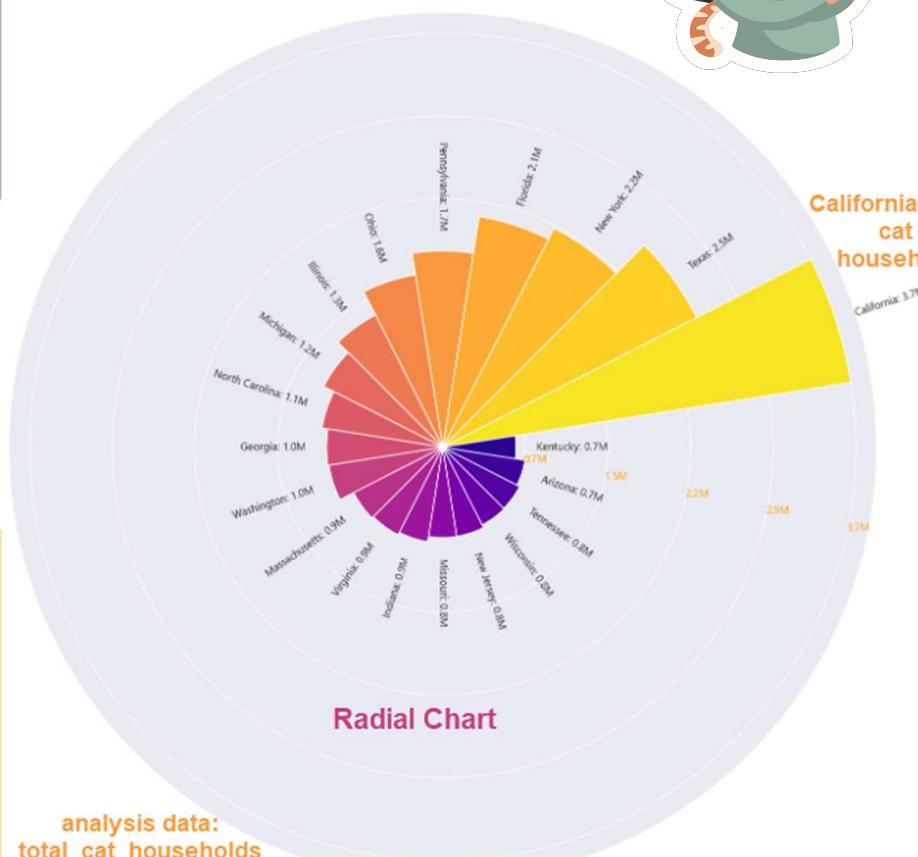
Top Pet Household States



Top 20 Cat Owning States



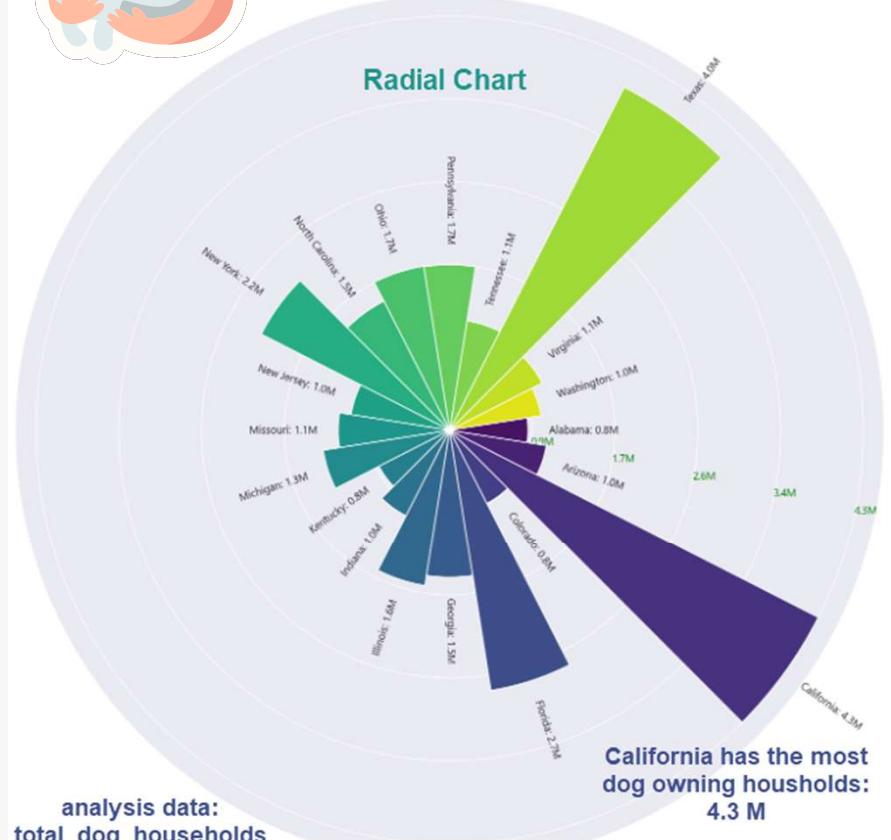
California has the most
cat owning
households: 3.7 M



Top 20 Dog Owning States



Radial Chart

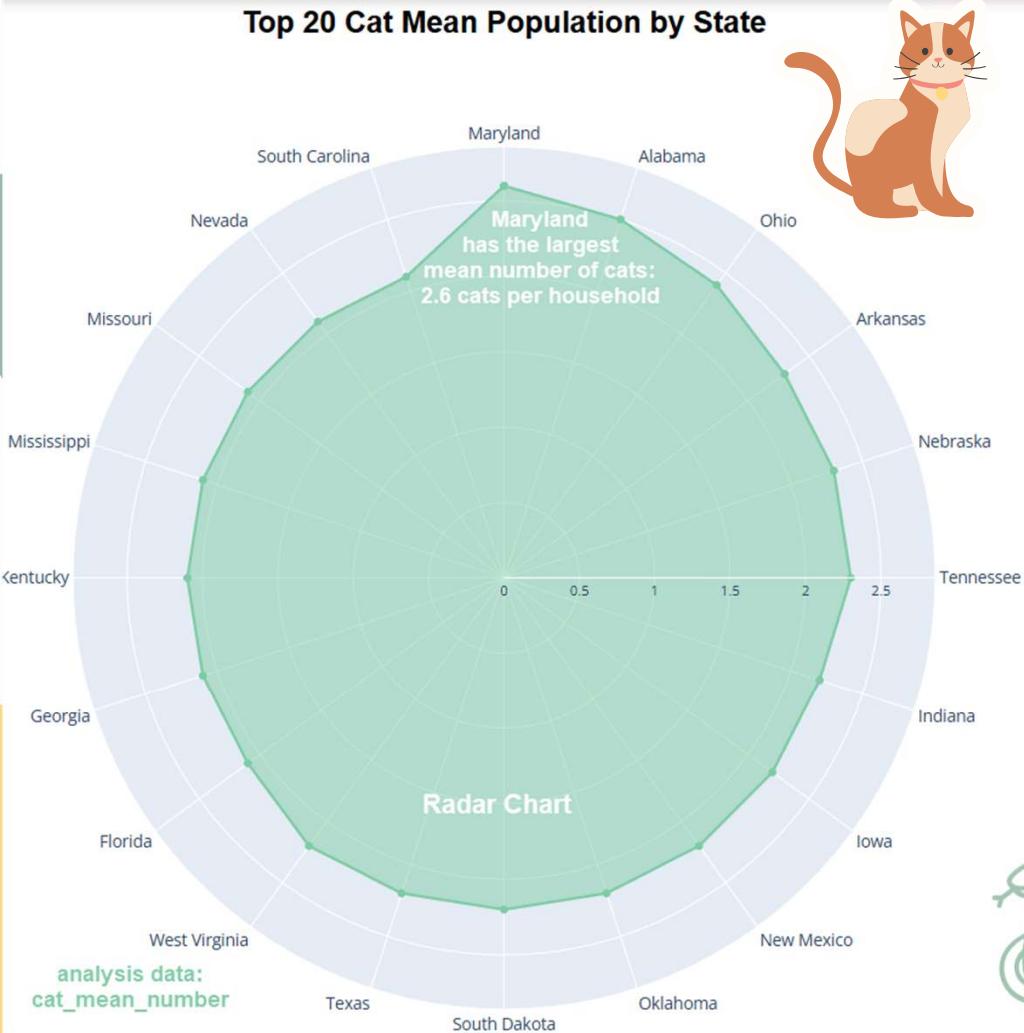




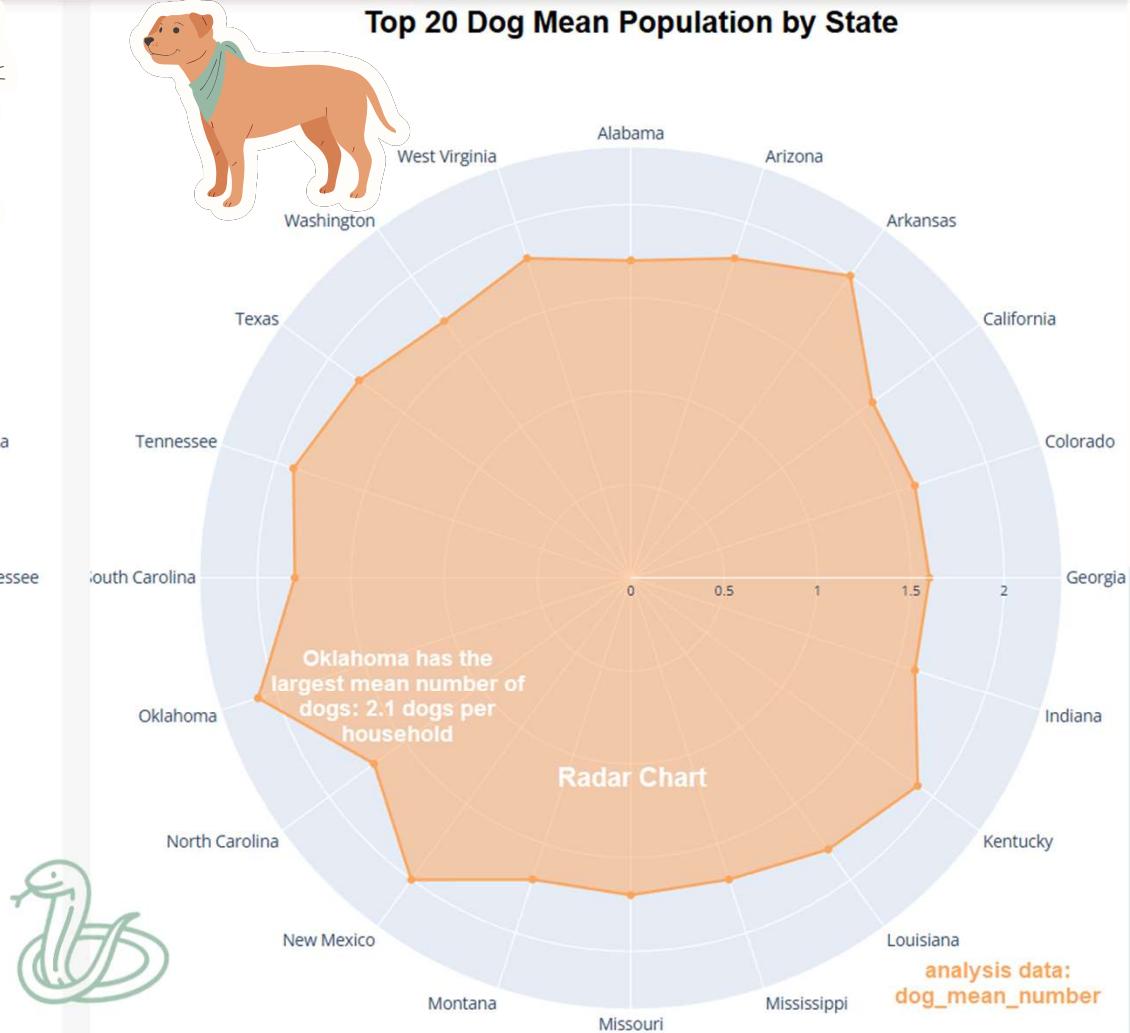
Top Pet Mean Number States



Top 20 Cat Mean Population by State



Top 20 Dog Mean Population by State





Pet Ownership Dashboard



Pet Ownership Analysis

Header

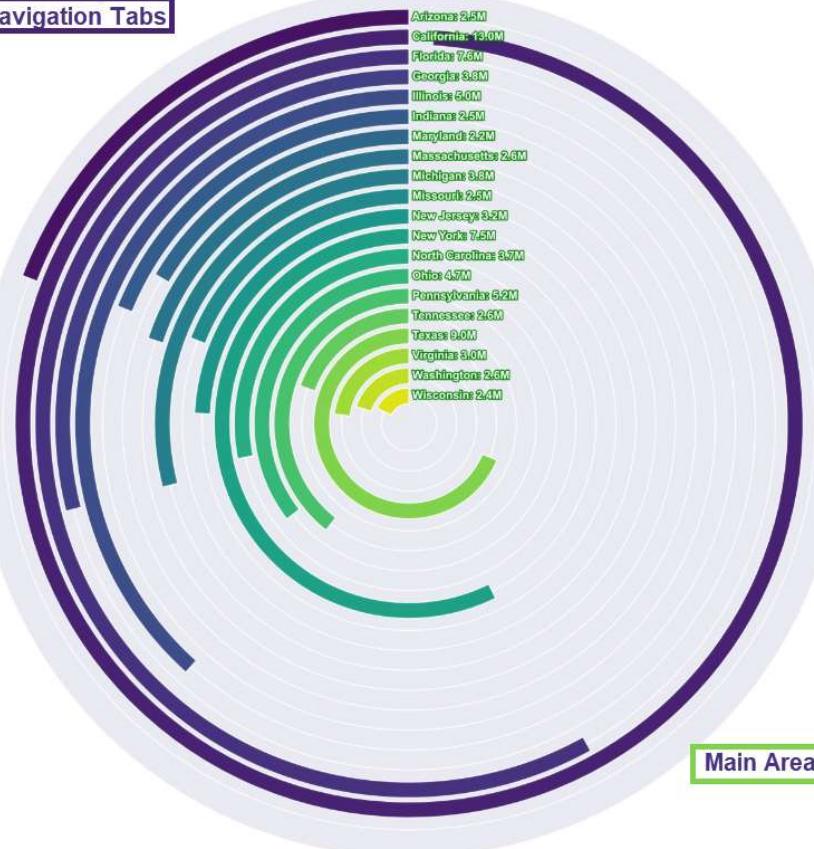
DASHBOARD

Loading Indicator

Pet Data (1000s) Pet Households Pet Ownership Density Pet Population Pet Ownership Pet Mean Population

Top 20 Household States

Navigation Tabs



Main Area Row

Arizona
California
Florida
Georgia
Illinois
Indiana
Maryland
Massachusetts
Michigan
Missouri
New Jersey
New York
North Carolina
Ohio
Pennsylvania
Tennessee
Texas
Virginia
Washington
Wisconsin

Top 20 Pet Household States



Technology and Tools



Jupyter

Python language libraries in Jupyter Notebook environment



Numpy

Used for chart rotation angles, bar length and width, grid ticks calculations



Pandas

Reads pet data from excel file, creates Tabulator widget total row, converts data to numeric format



Matplotlib

Implements radial, dumbbell, pie, and circular bar charts



Pywaffle

Used to create a waffle chart



Plotly

Gives a hand in designing radar and bubble charts



Seaborn

Used for color palette, setting a chart grid style, removing plot lines



Panel

Helps develop a Tabulator and a Dashboard Template

Jupiter Code Class Diagram



Dashboard Manager

Creates a dashboard with all visuals organized in tabs

```
© pet_ownership_analysis.DashboardManager
df
_chart_manager
__init__(self, df)
cache_data(self, df)
create_dashboard_tabs(self)
show_dashboard(self, inline=True)
```



```
#Run dashboard
data_manager = DataManager()
dashboard_manager = DashboardManager(data_manager.data_frame)
dashboard_manager.show_dashboard(inline=False)
```

```
© pet_ownership_analysis.ChartManager
_df
fp
__init__(self, df)
setup_fonts(self)
get_color(self, name, number)
create_cat_mean_radar_chart(self, show=False)
create_dog_mean_radar_chart(self, show=False)
create_cat_population_bubble_chart(self, show=False)
create_dog_population_waffle_chart(self, show=False)
create_cat_owning_radial_chart(self, show=False)
create_dog_owning_radial_chart(self, show=False)
create_pet_ownership_dumbbell_chart(self, show=False)
create_pet_ownership_density_pie_chart(self, show=False)
create_pet_households_circular_bar_chart(self, show=False)
create_households_circular_bar_chart(self, show=False)
create_data_tabulator_table(self)
```

```
© pet_ownership_analysis.DataManager
data_frame
__init__(self)
load_data(self)
organize_data(self)
```



Chart Manager

Creates plotly and matplotlib charts, and a panel tabulator widget



Data Manager

Loads data from pets excel file and renames columns



Thank You!

Vlad Koval



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