



Bharatiya Vidya Bhavan's

# **Sardar Patel Institute of Technology**

(Autonomous Institute Affiliated to University of Mumbai)

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India

## **Experiment no - 6**

Design Interactive Dashboards and Storytelling using using Power BI or Tableau on the dataset  
- Animal / Wildlife / Marine

- Basic - Bar chart, Pie chart, Histogram, Time line chart, Scatter plot, Bubble plot
- Advanced - Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter
- Use of DAX queries in Power BI  
(<https://learn.microsoft.com/en-us/power-bi/transform-model/desktop-quickstart-learn-dax-basics>)
- Write observations from each chart

### **Interactive Dashboards and Storytelling Using Power BI on Animal/Wildlife/Marine Dataset**

Aim:

To design interactive dashboards using Power BI for visualizing and analyzing an Animal/Wildlife/Marine dataset, employing both basic and advanced charts to uncover insights and trends.

Objectives:

1. To create visually appealing and interactive dashboards that provide insights into the dataset.
2. To explore the distribution, trends, and relationships within the dataset using various types of visualizations.
3. To enable data-driven storytelling by highlighting key patterns, anomalies, and correlations.

Possible Sources of Data:

- Publicly available datasets on animal, wildlife, or marine life from sources like Kaggle, UCI Machine Learning Repository, government wildlife agencies, or NGOs.
- Marine life survey data from environmental research organizations.
- Wildlife observation data from conservation projects.

## Questions to Solve:

1. What is the total number of intakes and outcomes at the animal center for 2014?
2. What is the distribution of intakes by animal type in 2014?
3. What are the most common outcome types for animals in 2014?
4. What is the distribution of outcomes based on sex upon outcome?
5. What are the most common animal breeds by outcome?

## Steps to Create Visualizations and Observations:

### Basic Charts

1. Bar Chart:
  - Visualize the count of different species or categories (e.g., endangered, vulnerable, etc.).
  - Observation: Identifies which species are most prevalent or at risk within the dataset.
2. Pie Chart:
  - Show the proportion of species within different categories (e.g., marine vs. terrestrial).
  - Observation: Highlights the distribution of species types in the dataset.
3. Histogram:
  - Display the frequency distribution of a numerical variable (e.g., species population size).
  - Observation: Helps understand the spread and concentration of population sizes.
4. Timeline Chart:
  - Track changes in species population over time.
  - Observation: Reveals trends and fluctuations in species population across years.
5. Scatter Plot:
  - Examine the relationship between two numerical variables (e.g., population vs. habitat size).
  - Observation: Identifies correlations or patterns between variables.
6. Bubble Plot:
  - Add a third dimension (e.g., species threat level) to the scatter plot.
  - Observation: Shows how an additional variable impacts the relationship between the first two variables.

### Advanced Charts

1. Word Chart:
  - Visualize the most frequently mentioned species names or habitats.
  - Observation: Highlights the most common species or regions within the dataset.
2. Box and Whisker Plot:
  - Compare the distribution of species population across different regions or categories.
  - Observation: Identifies the median, quartiles, and outliers within the data.
3. Violin Plot:

- Show the distribution of species population density for different regions. ○
- Observation: Provides a detailed view of the distribution's shape, revealing where Bharatiya Vidya Bhavan's



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data is more concentrated.

### 4. Regression Plot (Linear and Nonlinear):

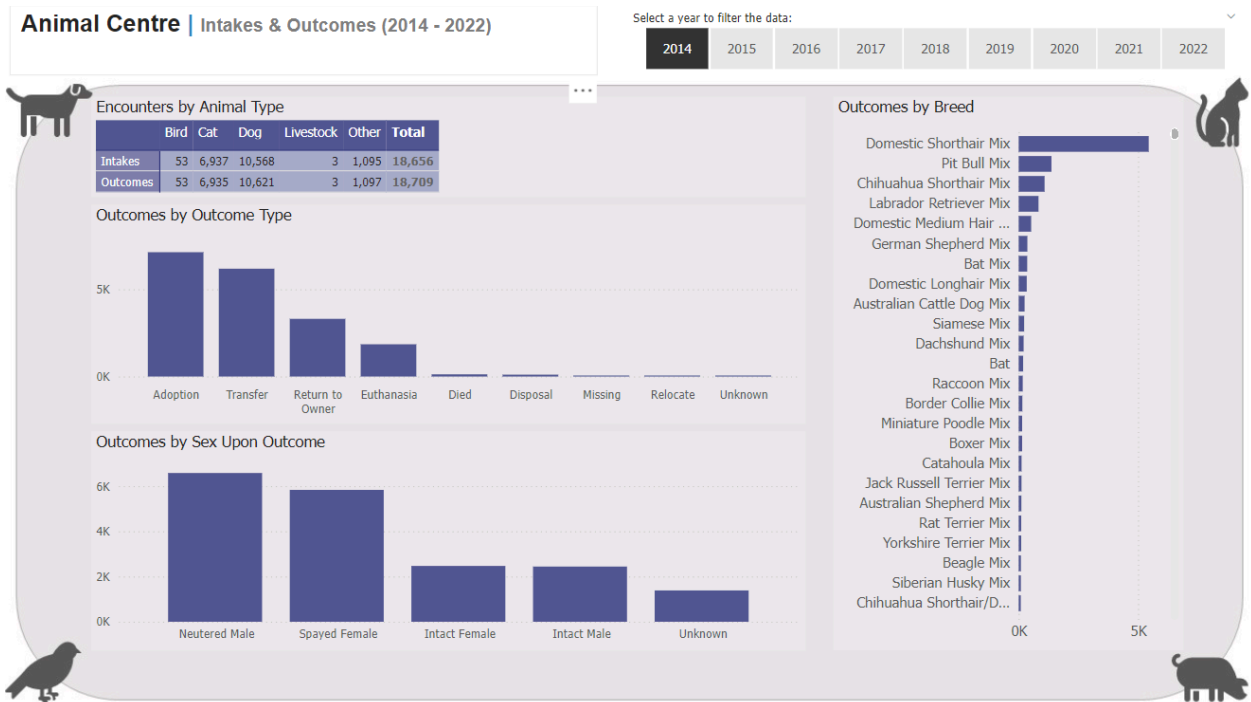
- Model the relationship between species population and environmental factors.
- Observation: Shows both linear and nonlinear trends, helping to predict future population changes based on environmental factors.

### 5. 3D Chart:

- Visualize the relationship between three variables (e.g., species population, habitat size, and geographic region).
- Observation: Offers a comprehensive view of how three factors interact with each other.

### 6. Jitter Plot:

- Visualize data points that may overlap in a scatter plot, adding a slight random variation.
- Observation: Helps in identifying the true spread of data points, especially in dense areas.



## Story telling:

The data visualization provides a comprehensive overview of animal encounters and their outcomes at an animal center from 2014 to 2022. It presents a variety of insights that reveal how different species, such as birds, cats, dogs, and livestock, were handled at the center, with a total of 18,656 animal intakes and 18,709 outcomes recorded during the time period.

The **Encounters by Animal Type** section shows the breakdown of intakes and outcomes. Dogs have the highest number of encounters, followed by cats. Birds and livestock make up a smaller percentage of the animals.

In the **Outcomes by Outcome Type** chart, we see that the majority of animals were either adopted or transferred. A smaller but significant portion of animals was returned to their owners, while euthanasia and deaths account for a fraction of the outcomes. This indicates a successful focus on adoption and rehoming.

The **Outcomes by Sex Upon Outcome** chart indicates that neutered males and spayed females were the most common types of animals handled, suggesting that a significant effort has been made in controlling the population of animals that enter the center.

The right section of the visualization shows the **Outcomes by Breed**, where Domestic Shorthair Mix and Pit Bull Mix are the most commonly encountered breeds. This may imply that certain breeds are either more frequently brought to the center or are more challenging to place into homes.

Overall, this visualization tells the story of an animal center's ongoing efforts in managing a diverse array of animals, focusing on adoption and rehoming, with a particular emphasis on the spaying and neutering of animals to control populations. It reflects the importance of breed-specific efforts in adoption and rehoming programs, as well as the center's dedication to providing care and finding homes for animals in need.

## Conclusion:

The integration of advanced charts and DAX queries within Power BI dashboards provided a comprehensive and interactive platform for analyzing the Animal/Wildlife/Marine dataset. The basic visualizations offered a foundational understanding, while the advanced charts and DAX queries allowed for deeper insights and custom analyses. This combination supports effective storytelling and data-driven decision-making in conservation efforts.