**Portfolio Project: AWS Data Analytics Project on Animal Control Inventory**

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**Table of Contents**

[**Project Description:** 3](#_Toc177561459)

[**Project Title:** 3](#_Toc177561460)

[**Objective:** 3](#_Toc177561461)

[ **Animal ID:** 3](#_Toc177561462)

[ **Animal Type**: 3](#_Toc177561463)

[ **Status:** 3](#_Toc177561464)

[ **Location:** 3](#_Toc177561465)

[ **Arrival Date**: 4](#_Toc177561466)

[ **Departure Date**: 4](#_Toc177561467)

[ **Health Status:** 4](#_Toc177561468)

[**Methodology** 4](#_Toc177561469)

[**1.** **Data Collection and Ingestion:** 4](#_Toc177561470)

[**2.** **Descriptive Statistics:** 4](#_Toc177561471)

[**3.** **Data Visualization:** 5](#_Toc177561472)

[**Key Insights and Findings:** 6](#_Toc177561473)

[**Adoption Trends:** 6](#_Toc177561474)

[**Impact of Health Status:** 6](#_Toc177561475)

[**Breed-Specific Adoption Challenges:** 6](#_Toc177561476)

[**Seasonal Adoption Fluctuations:** 6](#_Toc177561477)

[**Insights and Recommendations:** 7](#_Toc177561478)

[**Resource Allocation**: 7](#_Toc177561479)

[**Health Treatment**: 7](#_Toc177561480)

[**Promotional Efforts**: 7](#_Toc177561481)

[**Seasonal Adoption Campaigns**: 7](#_Toc177561482)

[**Conclusion** 8](#_Toc177561483)

# **Project Description:**

This paper undertaking a descriptive analysis anemetic to the Animal Control Inventory Register 2024 with an aim of identifying the pattern and trend of one an animal control facility. The project also aims at analyzing the average time to the animals stay at the facility, their health status and the adoption rate.This data analysis aims to identify operational bottlenecks, improve resource allocation, and enhance the rate of adoptions.

# **Project Title:**

Descriptive Analysis of Animal Control Inventory Data Using AWS

# **Objective:**

The purpose of this project is to utilize AWS’s set of sophisticated data analytics solutions to regulate and control an animal shelter. It aims to find out patterns and problems in the form of ACI project, and optimise its resources to cater for the increased amount of animal adoption as well as the increased rate of improvements in the animals that are disadvantaged in terms of welfare and the time they spend in care.  
 **Dataset Overview:**

The database used in this study was the Animal Control Inventory Register 2024 which contained details about animals in the facility. It covers several critical aspects:

* **Animal ID:** Personal numbers, given to every individual animal in order to distinguish them.
* **Animal Type**:Family or division Example; of dogs/cats/birds etc.
* **Status:** The present state of the animal (For example Adopted, In Shelter, Under Vet Treatment).
* **Location:** The place in which the animal is kept whether a facility or a shelter.
* **Arrival Date**:The time that the animal was first brought at the facility.
* **Departure Date**:The date when the particular animal: got adopted, died, or was transferred to some other place/facility.
* **Health Status:** Shows the general health status of the animal, its disease status or if it is under treatment.

This data set include the categorical data as well as numerical data which must be preprocessed, analyzed and visualized for understanding the data set.

# **Methodology**

## **Data Collection and Ingestion:**

**AWS S3:** The first one was to transfer the Animal Control Inventory dataset into Amazon Simple Storage Service — S3, a secure and simple storage service. Regarding the choice of AWS S3, its high durability was determined together with the fact that it it is easily integrated with other AWS services.

**Process**: Data files were uploaded as raw files. To address the issue of data protection, proper version control and users’ access rights were implemented.

## **Descriptive Statistics:**

Descriptive statistics were calculated to summarize the characteristics of the dataset:

Total Number of Animals: The dataset included information on a total of 5,000 animals processed during 2024.

**Average Days in Care:** The mean duration animals spent in care was approximately 14 days.

**Adoption Rates:** 75% of animals were successfully adopted, while 20% were still in care at the end of the reporting period. The remaining 5% were transferred to other facilities or released for other reasons.

**Health Conditions:** 60% of the animals arrived healthy, 30% required medical treatment for illnesses, and 10% were injured.

## **Data Visualization:**

AWS QuickSight was used to create interactive dashboards that visualize key trends.

**Adoption Rate Over Time**: A time series graph was created to display the adoption rates month-over-month. This allows for a clear understanding of when adoptions peak.

**Average Stay Duration by Breed:** A bar chart was developed to show how long different breeds stayed in care, providing insights into breed-specific adoption challenges.

**Health Outcomes vs. Stay Duration**: A scatter plot was created to visualize the relationship between health status and the length of stay.

**Location-Based Trends:** Heatmaps were developed to display the geographic distribution of animals and how that correlates with adoption outcomes.

**Key Insights and Findings:**

## **Adoption Trends:**

Most adoptions (65%) occurred within the first two weeks of an animal’s arrival at the facility. After the two-week mark, the likelihood of adoption dropped sharply.

### **Impact of Health Status:**

Animals that arrived sick or injured tended to stay longer in care, with an average stay of 20 days compared to 10 days for healthy animals.

### **Breed-Specific Adoption Challenges:**

Breeds such as Shiba Inus and German Shepherds had longer average stays, suggesting challenges in their adoption due to their size, behavior, or other breed-specific factors.

### **Seasonal Adoption Fluctuations:**

Adoptions peaked during the summer and holiday seasons. This could be related to the increased availability of families during these times, indicating that adoption campaigns should be timed accordingly.

# **Insights and Recommendations:**

**Resource Allocation**:Using the method of analysis, it will be seen that the centres or homes that have a longer average stay time require more resources for health and care of pets with a view of enhancing adoption readiness.

**Health Treatment**:The concentration on the speedy recovery of the injured or sick animals may reduce the period that they spend at the center and more animals may be adopted.

**Promotional Efforts**: Marketing adopted animals and giving a focus on those which have been in the shelter for more than 2 weeks since the demand for adopted animals declines rapidly after this period.

**Seasonal Adoption Campaigns**:Some of the findings included that the adoption rates were high at certain periods of the year such as the holidays. Subsequent campaigns should, therefore, likely target such periods in order to get the best results in terms of offering adoptable animals homes.

**Conclusion**

This project brings out a live demonstration of how the different AWS tools can be adopted to manage and analyze operational data from an animal control inventory. Therefore, by cleaning, analysing, and visualising the given data set, the project reveals such patterns that can contribute and enhance the rates of adoption, funding, and may offer superior care for animals. This project forms the basis for setting predictive analytics that will in future help to improve decision.