# Adoptable Pets Project Summary

Jismi Mathew - CMP-262-86511

This project analyzes a public dataset of adoptable pets to identify patterns that can help animal shelters better understand their shelter population and support adoption-related decision making. The dataset was obtained from Data.gov and contains records of animals currently available for adoption. Each record represents an individual animal with attributes such as animal type, size, age, and intake information.

The analysis was conducted using Python in a Jupyter Notebook environment, with Pandas for data cleaning and aggregation and Matplotlib and Seaborn for visualization. Prior to analysis, the dataset was cleaned by standardizing column names, removing unused location information, converting age values from text to numeric format, and converting intake dates to a datetime format. These steps ensured the data was consistent and suitable for exploratory analysis.

Four questions guided the analysis. First, the project examined which types of animals are most common in the shelter. Cats made up the largest share of animals, followed closely by dogs, while birds and other animals appeared only rarely.

Second, the analysis explored how pet size varies by animal type. Dogs showed the widest range of sizes, while cats were mostly small to medium, and birds and other animals were almost entirely small or medium.

The third question focused on the age distribution of animals in the shelter. Most animals were between one and four years old, with relatively few senior animals, indicating a generally young and adoptable population.

The fourth question examined how age varies by animal type. Cats displayed a wider age range, including some older animals, while dogs were more consistently young to middle-aged.

Overall, the analysis shows that cats and dogs dominate the shelter population, dogs require the greatest variation in space due to size differences, and cats show the most age diversity. These insights suggest that shelters should focus adoption efforts and resource planning primarily on cats and dogs, with additional attention given to larger dogs and older cats. A potential client for this analysis would be an animal shelter or national pet adoption organization seeking to improve adoption outcomes and reduce overcrowding. Future work could include analyzing adoption outcomes and length of stay, exploring breed-level trends, or expanding the analysis to include data from multiple shelters.