

Maximizing Animal Shelter Funds

1. Problem Statement

According to the ASPCA, approximately 6.5 million companion animals enter animal shelters in the US each year. Of these, only approximately half are adopted. This low adoption rate compounds into further issues: of the animals that are not adopted, approximately 1.5 million are euthanized¹. Euthanization is an extremely controversial topic among the animal advocacy community. When faced with overcrowding and limited funding, shelters are left with the choice of whether to allow overcrowding by keeping animals in warehouse shelters with limited care, euthanization, or turning animals away². As a consequence, one of the top reasons animals are turned away from shelters is due to overcrowding.

While there are likely many contributing factors to shelter overcrowding, including mass farming of animals such as in puppy mills and failure to spay and neuter pets, attempting to **maximize existing shelter funds** to improve adoption rates and therefore reduce shelter time is low-hanging fruit that can be completed by shelters without massive effort including buy-in from the public. This maximization may be completed by identifying high-risk adoptive pets that are less likely to be adopted in a timely fashion or by identifying high-adoption times of the year, week, and/or day. These data may ultimately be used for targeted marketing strategies or for reducing unnecessary effort in placing animals with foster families if they are likely to be adopted quickly. Additionally, identifying patterns in animals that are returned to their owners may provide insights into how to replicate success and provide educational opportunities for animals less likely to be returned to their owners.

2. Data

This project seeks to identify patterns in animal adoption using data from the [Austin Animal Shelter](#), the largest no-kill shelter in the United States. Data are available through Kaggle, [linked here](#).

3. Target Clients

The primary clients for this analysis are animal shelter operations and marketing teams. The goal of this project is to identify pet adoption trends that may be used to counteract areas of need, including specific breeds or pet ages that may benefit from increased marketing attention. Marketing may also use data to schedule promotional events on certain dates to optimize times when pets are more likely to be adopted. Furthermore, this project will seek to support

¹ [Data from the ASPCA](#)

² [PETA](#)

operations teams in reducing waste, including overinvesting time in animals likely to be adopted very quickly, such as finding foster families.

4. Approach

This project will be divided into three analyses that may be used to improve adoption rates by maximizing shelter funds.

4.1 Targeted marketing and efforts for animals less likely to be adopted quickly

1. **Categorize animals by adoption times**

This analysis will look for variables correlated with likelihood of timely adoption. Animal adoption times will be analyzed and classified into categories as follows: very fast, fast, average, slow, very slow. These categories will be defined based on 3+ standard deviations from the mean, 2+ standard deviations from the mean, +1 to -1 standard deviations from the mean, -2 standard deviations from the mean, and -3 standard deviations from the mean.

2. **Identify associations between breed, pet color, pet age, time in shelter, pet spayed/neutered, and intake location with adoption time.**

Cat and dog breed, pet color, pet age (binned by 2-month increments), time in shelter, whether the pet was spayed/neutered at outcome, and intake location will be evaluated for statistically significant associations with animal adoption times. Additionally, pet age will be evaluated twice based on age at intake and age at outcome.

4.2 Targeted marketing events on high-adoption dates

1. **Identify high-adoption dates or times of the day to be used for promotional events**

Time of day, day of week, and week of year will be compared with adoption rates to identify times when pets are more likely to be adopted.

4.3 Educational materials and planning for animals less likely to be successfully reunited with their owners

1. **Identify whether animal type, breed, age, or intake location is associated with successful return to owner**

This analysis will determine whether animal type (cat or dog), breed, age, or intake location are associated with successful return to owner. Being able to identify patterns in these successes may contribute to educational materials and planning for animals less likely to be reunited with their owners.

5. Deliverables

The results of this project will be available via Jupyter Notebooks and in a GitHub repository.