Finding Shelter Dogs a Home

According to The American Society for the Prevention of Cruelty to Animals, US animal shelters takes in approximately 6.5 million companion animals nationwide every year and 1.5 million shelter animals are euthanized every year. This means 1 in 5 animals entering shelters never leave! The public has always had compassion for companion animals. Animals have integrated into many as a part of their daily lives. They act as companions during emotionally difficult times and provide a sense of joy in day to day life. Furthermore, dogs have been assimilated into many industries trained as support dogs to provide services from medical alerts for diabetic patients to drug detection on suspicious cargo crossing the border. With the long history between human and animals, the public has felt the need provide moral and sensible support for helpless animals. This project would provide awareness to animal loving individuals and inspire some to support animal shelters and other animal rights organization.

Therefore, I propose to investigate the use machine learning to decrease the rate of euthanization by creating a smart transferring system between pet adoption agencies to improve outcomes for shelter animals. To achieve this the following questions would be explored. What constitutes the decision to such high euthanize animals? Are there certain key features that predispose the shelter animals to euthanization? What are the keys characteristics of entering animals that lead to easy adoption? Are these characteristics different by region of the United States? This project would attempt to shed light to these questions and gaining understanding of the facing moral problem. The project would also limit it’s scope to dogs as to provide a more in depth analysis of one type of animal and screen for patterns that would hopefully provide a general insight into other animals.

The discovery can help animal shelters identify high risk sheltered animals and provide extra aids to improve outcomes. This could remedy long sheltered times, freeing up sheltered spaces for in-needed animals and reallocating resources to other areas of the shelter. Financially speaking this would provide monetary remediation for animal shelters by reducing operating expenses in this area and provide funding to improve conditions in the shelter or other parts of the organization. Ultimately this would help to provide a closer step to their mission of providing care and rehabilitation to animals.

**Data:**

According to the American Humane, animal shelters and other care agencies are not required to keep data on animals, hence the data available on the web are difficult to acquire and must be scoured to find. Currently six datasets from different regions of the US were found dating as far back as 2013 with feature vectors such as ‘type of animal’, ‘breed’, ‘color’, ‘outcome’, ‘entering date’, etc. However, the datasets were mostly incomplete with many important features missing. Only Dallas, Austin, Sonoma, and Louisville datasets have enough important features that can make a wholesome project.

<https://data.austintexas.gov/Health-and-Community-Services/Austin-Animal-Center-Outcomes/9t4d-g238>

<https://www.dallasopendata.com/City-Services/Dallas-Animal-Shelter-Data/7h2m-3um5>

<https://data.louisvilleky.gov/dataset/animal-service-intake-and-outcome>

<https://data.sonomacounty.ca.gov/Government/Animal-Shelter-Intake-and-Outcome/924a-vesw>

However, the data have some important vectors that still missing from one or the other. For example, Austin do not have intake date and Austin do not have animal gender. These are fundamental identifying characteristics of a shelter animal that would reduce effectivity of the machine learning results.