Animal Shelter Intake & Outcome Analysis

(Louisville, KY and Bloomington, IN)

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**GitHub Repository:**https://github.com/Kat910/Capstone-Animal-Shelter-Analysis

**Project Overview**

This project explores Intake and Outcome data for the Louisville Metro Animal Shelter and Bloomington Animal Care & Control. The goal is to determine what, if any, factors influence the intake or outcome of an animal at a shelter in a midwestern small city. The findings could provide insights on how to reduce intakes as well as targeting better outcomes.

**Data Sources**

**1 Louisville Metro Animal Services**

Source: Louisville Metro KY – Animal Service Intake and Outcome

Fields:

|  |  |  |
| --- | --- | --- |
| kennel | Housing location | object |
| animalid | Unique identifier | object |
| jurisdiction | Legal area or city | object |
| intype | Intake category | object |
| insubtype | Intake subcategory | object |
| indate | Intake date | object |
| surreason | Surrender reason | object |
| outtype | Outcome (Adoption, Euthanasia, etc.) | object |
| outsubtype | Detailed outcome | object |
| outdate | Date of outcome | object |
| animaltype | Dog/Cat/etc. | object |
| sex | Gender | object |
| bites | If involved in a bite incident | object |
| petsize | Size category | object |
| color | Coat color | object |
| breed | Breed description | object |
| sourcezipcode | Origin ZIP code | object |
| ObjectId | Internal unique identifier | int |

Link: [https://data.louisvilleky.gov/datasets/Animal\_Service\_Intake\_and Outcome](https://data.louisvilleky.gov/datasets/733145c30ad94d43bdc6aba7fd0fdb09_0/explore)

**2 City of Bloomington Open Data**

Source: Animal Shelter Animals

Fields:

|  |  |  |
| --- | --- | --- |
| id | Unique animal ID | int |
| intakedate | Date/time animal entered shelter | object (datetime) |
| intakereason | Reason for intake | object |
| istransfer | Whether intake was a transfer | bool |
| sheltercode | Internal shelter tracking code | object |
| identichipnumber | Microchip ID | object |
| animalname | Given animal name | object |
| breedname | Breed(s) | object |
| basecolour | Coat color | object |
| speciesname | Animal type | object |
| animalage | Age at intake | object |
| sexname | Sex | object |
| location | Where in shelter the animal is housed | object |
| movementdate | Date of adoption/transfer/etc. | object |
| movementtype | Outcome (Adoption, Transfer, etc.) | object |
| istrial | If on trial/foster basis | bool |
| returndate | If returned, date returned | object |
| returnedreason | Reason for return | object |
| deceaseddate | Date of death (if any) | object |
| deceasedreason | Cause of death | object |
| diedoffshelter | Died outside shelter | bool |
| puttosleep | Was euthanized | bool |
| isdoa | Dead on arrival | bool |

Link: [https://data.bloomington.in.gov/Public-Works/Animal-Shelter-Animals](https://data.bloomington.in.gov/Public-Works/Animal-Shelter-Animals/e245-r9ub/about_data)

**Research Objectives**

The primary questions I would like to explore with this analysis are:

* How many and what type of animals go through intake each year?
* How many days do animals spend in the shelter ?
* What is the ratio of positive to negative outcomes for the animals?

Secondary Questions I would like to explore with this anaylsis are:

* What are the average adoption rates per year ?
* How many adoptions are done each day of the week?

If time allows, I would like to explore the following ?

* What factors are common among the intakes? Age, Breed, Size?
* Do those factors effect outcomes?

**Data Preparation Approach**

* Rename the original CSV files to something
* Rename columns to align with each between datasets.
* Check for missing data and replace if needed.
* Check for duplicate rows in the file and between files.
* Drop duplicates or make them unique.
* Convert date columns to datetime to allow date calculations.
* Store cleaned data in a relational SQLite database with tables:
* Animal
* Intake
* Outcome
* Species
* Location

A diagram of a computer

AI-generated content may be incorrect.

**Current Status**

* The data for Louisville Metro has been acquired, loaded, cleaned and standardized.
* Visualizations have been created to explore the data further for Louisville Metro.
* The data for the City of Bloomington had been acquired.
* ERD has been created to merge the data.
* README has been drafted.

**Deliverables**

**Required Tasks (must be completed):**

* The data for City of Bloomington needs loaded, cleaned and standardized
* Need to implement 3 Python functions
* Cleaned data needs stored in a relational SQLite database in tables.
* Current visualizations need to incorporate the City of Bloomington data

**Stretch Goals (optional, if time allows):**

* Build interactive dashboard

**Project Timeline**

**Week 1 (Database Completion and Function Development):**

* Finalize SQLite schema and load all tables with cleaned data.
* Create and Implement new functions.
* Validate database joins.

**Week 2 (Feature Engineering and Preliminary Visualizations):**

* Create Virtual Environment.
* Modify current SQL to use new tables with merged data.
* Modify current visualizations to utilize new tables.

**Week 3 (Analysis and Refinement):**

* Finalize all three required visualizations (map, scatterplot, bar chart).
* Document preliminary findings.

**Week 4 (Finalization):**

* Polish repository structure (README, requirements.txt, ERD diagram, schema file).
* Finalize notebooks with analysis narrative and visuals.
* Submit complete GitHub repository.

**Additional Considerations**

* Additional city animal shelter datasets may be added if time allows.
  + San Jose, CA
  + Austin, TX
* Additional region analysis may be added if time allows.