

THE INDIAN LAKE ANIMAL SHELTER

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The Indian Lake Animal Shelter consists of a 3500 square foot facility containing 20 pens for small animals such as dogs and cats. Larger animals such as livestock are boarded under contract at a local veterinarian. There is an office for the director, a reception area where incoming animals are processed, and a vet's examination area. The animal shelter is currently experiencing problems with overcrowding and disease control. A veterinarian has recently diagnosed an outbreak of kennel cough, a common infectious upper respiratory disease in dogs. Kennel cough is not caused by poor care or filthy housing. Similar to disease in children at day care or at school, the large number of individuals coming together increases the chance for outbreaks. Shelter management hopes to alleviate the overcrowding by increasing the efficiency of their pet adoption procedures. The county council has recently designated funds to be used for upgrading the technology infrastructure of all county agencies. As a result, the Indian Lake shelter has engaged a consultant to design a database for automating their records and adoption procedures which are currently maintained in a spreadsheet or on paper files.

A PET POPULATION PROBLEM

The number of pets and small animals entering the Indian Lake animal shelter has increased every year for the past five years. This is partly due to an increase in the development of Indian Lake as a retirement and resort destination. Along with the expanded pet population, there has been an accompanying increase in the number of strays and unwanted litters. Recently several local merchants collectively took the town council to task by writing a letter to the editor of the local newspaper. They had complained repeatedly about stray dogs and cats rummaging through the dumpsters behind their stores, but the town had taken no action. The issue came to a head when a customer of one of the merchants was scratched by one of the stray animals and began legal action against the town. After meeting with the town's attorney, the town council visited the staff of the Indian Lake animal shelter to determine what action could be taken to alleviate the problem.

The shelter had already begun a spay/neuter awareness campaign and was working hard to place the animals they currently housed. However, an unorganized record keeping procedure was hindering their progress, resulting in a state of overcrowding in the available pens at the

shelter. To make matters worse, this overcrowding had begun to affect the health of some of the animals at the shelter. A number of the shelter's canine residents were suffering from an outbreak of kennel cough, which was a direct result of overcrowding. Relief was needed. Shelter personnel would much prefer the placement of a pet in a good home to euthanasia.

Funds to expand the current shelter facilities were not yet available, but a grant from the federal government to install or upgrade technology infrastructures had recently been obtained by the county. The shelter's board of directors decided that a database to improve record keeping at the shelter would help to expedite the adoption process. Therefore, they scheduled an appearance before the county council to request a share of funds from the grant in order to engage a consulting firm in the design of a database. The shelter also hoped to eventually provide on-line access to the database so residents of the community will be able to actively search for a pet to adopt or for a pet they are missing.

At the meeting, which the town council also attended, the county gladly approved the funding of the database project. Media attention on the stray animal situation was now state-wide and there was considerable concern about the effect on tourism. However, the county requested that the project proceed in two phases. The funds to construct the database would be approved at this time. The resources needed to complete the online access would be considered in a separate request.

An outside consulting firm was retained to design a database for the shelter.

Mecklenburg Associates is a consulting firm specializing in data analysis and database design for small to medium sized enterprises. An initial meeting was held between Mecklenburg Associates and the Indian Lake animal shelter management to allow the consultants to gain insight into the services provided by the shelter, the personnel providing those services, the activities of the personnel, and their data management needs. They discovered that in the past all the shelter's records were kept on paper forms in a file. About a year ago, an effort was made to improve record keeping by storing some of the shelter's data in a spreadsheet. Information would be entered into the spreadsheet by an administrative assistant or a shelter volunteer. However, use of the spreadsheet has proven unsatisfactory for a number of reasons such as data redundancies, difficulty in searching and updating data, inconsistencies in the stored data, and difficulty in maintaining the data. As an example, the spreadsheet used by the shelter to maintain a contact list of veterinarians at which large animals are housed may be seen in figure 1 of the appendix. Samples of the forms used for recording fees charged for boarding and reclaiming a pet, an incident report form, an animal intake-disposition form, and a fees-charged receipt were also collected and may be viewed in the appendix. After collecting documentation, the consultants inspected the shelter's facilities and the staff job descriptions provided by the county. They noted the following.

SERVICES PROVIDED BY THE SHELTER

- Impounding loose dogs and cats
- Controlling loose livestock on roadways. Livestock and other large animals are not housed at the shelter but are maintained by veterinarians who specialize in the care of these types of animals.
- Enforcing leash-law and other ordinances
- Rescuing sick and injured animals
- Investigating dog/cat bites
- Investigating barking dog complaints
- Investigating dangerous animal complaints
- Impounding stray dogs and cats
- Removing deceased animals from public areas
- Investigating animal cruelty complaints
- Assisting other agencies with animal related problems
- Educating residents about animal laws and humane treatment of animals
- Care of all animals until they return home or are adopted to a new home

SHELTER PERSONNEL

- One full-time director who works 8AM – 5PM, Monday – Friday.
- One full-time Administrative Assistant (AA) who works 8AM – 5PM, Monday – Friday.
- Four full-time Animal Control Officers (ACO)
- Two ACOs are on duty during the early shift (6AM – 2PM) and two on duty during the late shift (12 noon – 8PM). During each shift one ACO remains at the shelter while the ACOs go out on calls. Each pair of ACOs alternate early/late shifts every other week.
- Two part-time employees. Each part-timer works 10AM – 3PM Monday through Saturday. The two part-time employees alternate duty on Sundays when one comes in for one hour to feed and water the animals.

DUTIES OF SHELTER DIRECTOR

1. Assigns, schedules and evaluates the work of subordinate shelter personnel.
2. Reviews incident reports submitted by an Animal Control Officer.
3. Coordinates in-service training of shelter personnel.
4. Ensures that the shelter's animal population is housed in a humane and sanitary manner.
5. Ensures that the shelter structure and equipment are properly used and maintained.
6. Directs the maintenance of detailed records of animals which are impounded.
7. Oversees the shelter's adoption program.
8. Supervises the selection of and euthanasia of animals that must be humanely destroyed.
9. Directs the quarantine of animals that have bitten humans and are impounded at the shelter.
10. Ensures that drugs and FDA controlled substances are properly used and that inventory control is maintained.
11. Establish, in cooperation with the County Health Officials and other interested government agencies, adequate measures for rabies immunization and control.

DUTIES OF ADMINISTRATIVE ASSISTANT

1. Perform payroll functions at the animal shelter.
2. Processes billings for the animal shelter.
3. Assist in animal adoptions and intake.
4. General record keeping. Entering client information into a spreadsheet.
5. Answer phones, greet and assist patrons at the animal shelter.
6. Dispatch animal control officers.
7. Keeping adequate records of all animals impounded and all monies collected.

GENERAL DUTIES OF PART-TIME EMPLOYEES

1. Perform general clerical and secretarial functions as needed.
2. Feed, water, and walk the animals.
3. Clean the pens and cages.
4. Assist with writing fundraising materials and the shelter newsletter.
5. Run animal-related errands including picking up food, scheduling veterinary services or photographing animals for posting on a shelter website.
6. Perform additional duties as directed.

DUTIES OF ANIMAL CONTROL OFFICER

1. Capture and impound dangerous or stray animals.
2. Investigate cases of animal cruelty.
3. Enforce licensing laws
4. Provide expert testimony in court cases.
5. Rescue trapped animals.
6. Write incident reports.
7. See that all animals and animal holding facilities in his jurisdiction are licensed, controlled and permitted in accordance with any applicable ordinance and/or regulations.
8. Provide suitable premises and facilities to be used as an animal shelter where impounded small animals can be adequately kept. The animal control officer shall purchase and supply food when required and supply humane care for impounded animals.
9. Provide for the painless and humane destruction of dogs and other animals required to be destroyed by this title or by the laws of the state.
10. Furnish, when necessary, medical treatment for such animals as may be impounded pursuant to this title.

Following their initial inspection of the shelter facilities, Mecklenburg Associates scheduled individual interviews with the shelter director, the administrative assistant, and the ACOs to learn more about their specific day-to-day responsibilities at the shelter. They also planned observations of the staff as they carried out their daily activities. Considering that the primary target of the project is to improve the efficiency of the adoption process, the analysts were especially interested in the adoption procedures and what data might be involved in the intake, housing, and disposition of animals at the shelter. The following summaries of routine activities of shelter personnel were observed and recorded.

ANIMAL INTAKE PROCEDURES

Each arrival or departure of an animal is recorded on an animal intake-disposition form. Every animal that comes into the shelter is assigned a unique six-digit intake number. If an animal leaves the shelter on one date and is brought back in on another date, it is treated as a new animal and is assigned a new intake number. Following examination, the animal is assigned to a cage and the cage number is noted on the form. In the case of livestock which are housed off-site at a local vet, a veterinarian code number is recorded. Each vet under contract with the shelter has been assigned a unique identifier with the format Vxxx where xxx is a three-digit integer. Livestock are not made available for adoption but are taken to a county livestock auction if not reclaimed after a period of not less than 30 days. Auctions

are scheduled whenever a minimum of 5 livestock are available, and are held at rotating locations throughout the county. Each auction is directed by an auctioneer appointed by the county. All auction proceeds are used by the county to help fund the shelter.

For each entry processed, the ACO bringing the animal into the shelter files an incident report which describes the circumstances and the conditions under which the animal was collected. If an animal is brought in by a citizen, a member of the shelter staff will complete an incident report and enter that citizen's telephone number in place of the ACO badge number. The incident report is coded with the intake number on the intake-disposition form. When a small animal is deemed available for adoption as a pet, a cage-card is completed and attached to the animal's cage. The following information is recorded on a cage-card which may be viewed by visitors to the shelter:

- Name
- Cage number
- Animal intake number
- Gender
- Spay/neuter status (Y/N)
- Vaccinations current (Y/N)
- Age (best estimate)
- Date of arrival
- Date first made available for adoption
- The breed or breed combination (if known)
- Known characteristics or special qualities (if known) of the breed
- Special needs (if known)

ANIMAL DISPOSITION PROCEDURES

Adoption Procedures

1. Livestock are not available for adoption.
2. A small animal available for adoption may currently be viewed only at the Indian Lake animal shelter. Future plans call for on-line viewing.
3. Following approval of the adoption by the animal shelter staff, the customer's contact information is added to the intake-disposition form.
4. The shelter collects an adoption fee of \$85.00 which covers the following collection of health-related procedures
 - a. spaying/neutering
 - b. vaccinations
 - c. anti-parasitic treatment
 - d. disease testing
 - e. health exam
 - f. microchip implant
 - g. registration and tag
5. An adopted dog or cat must be registered by the county.

County Registration Information

1. A dog or cat must be at least 3 months old and have a current rabies vaccination.
2. An animal must be registered by a veterinarian licensed by the county.
3. License tags are \$5.00 for spayed/neutered animals and \$10.00 for intact animals.
4. License tags are valid for one year.
5. Registration is required annually.
6. Dogs trained and certified to assist the disabled can be registered at no charge (proof required).

PET RECLAMATION PROCEDURES

Small Animals

1. An animal housed at the shelter may be viewed only at the Indian Lake animal shelter. Future plans call for on-line viewing.
2. Following approval by the animal shelter staff, the owners contact information is added to the intake-disposition form.
3. The shelter collects the appropriate surrender fees prior to the owner taking possession of their animal.
4. A fees-charged form is completed and a copy is given to the customer as a receipt.

Livestock

1. Livestock may be reclaimed by an owner following payment of a fee of \$15 per day per animal housed by the veterinarian plus any transport costs incurred by the county.
2. Livestock not reclaimed within a period of not less than 30 days are subject to auction by the county

ANIMAL EUTHANASIA PROCEDURES

1. Livestock are not to be euthanized except by order of the county office of the Department of Agriculture.
2. A small animal housed at the shelter for a period not less than 30 days may be approved for euthanasia by the shelter director.
3. Following approval by the animal shelter director, the animal is euthanized at the shelter under the supervision of one of the veterinarians under contract to the shelter. The veterinarian's name and ID number is given in the contact information on the intake-disposition form.

Once the analysts from Mecklenburg Associates feel they have sufficient information to begin the initial design, an additional meeting is set up with both shelter personnel and management to make sure everyone is on the same page regarding the needs and expectations for the database project. It is important to establish the scope and boundaries of the project before

proceeding. As such, it is agreed that the focus of the database is on the animals housed at the shelter or with a local veterinarian and with the intake and disposition of those animals. The data base should accomplish this by organizing the shelters' record keeping to allow shelter personnel to efficiently catalog the animals housed at the shelter or with a local veterinarian, and to allow potential adopters to easily search for animals of a desired breed, size, color, gender, etc. Future plans include on-line access but are not within the scope of the current project. No payroll or personnel data is to be included. Shelter personnel will only be included as they are involved in the intake, care, and disposition of animals housed at the shelter. Contact information for pet owners, citizens bringing a small animal to the shelter, or potential adopters will be included. At the conclusion of the meeting a date is set for the analysts to present their initial conceptual design. The consultants agree to present an initial Entity-Relation model and an ER model at that time.

**APPENDIX
SAMPLE FORMS AND DATA**

FIGURE 1

Veterinarian Housings Spreadsheet						
Vet#	VetName	Contact Information	Intake#	Date Received	Date Released	Animal type
V123	Smith	245 Oak Ln. Florence, SC 555-3637	285767	3/12/2011	3/19/2011	horse
			274855	2/25/2011	2/28/2011	horse
			275852	5/3/2012	5/5/2012	bull
V475	Williams	7445 Jones Rd. Florence, SC 555-0045	385564	3/11/2012	3/25/2012	horse
			300754	10/2/2011	10/4/2011	mule
			385863	8/17/2010	8/24/2010	horse
			311644	7/1/2010	7/15/2010	horse
V320	Rogers	9445 Main St. Lydia, SC 555-2882	497237	1/15/2012	1/18/2012	cow
			495850	3/14/2012	3/18/2012	horse

FIGURE 2

Animal Intake/Disposition Form

Intake #: _____ Date: _____

Small Pet: Dog Cat Other _____

Livestock: Horse Cow Other _____

Name: _____ Sex: M / F

Breed: _____ Color: _____

Weight: _____ Altered: Y / N Microchip: Y / N

Brought in by ACO (badge #) or citizen: _____

Location: _____
(Shelter cage # or veterinarian # if housed off-site)

Owner (if known): _____

Phone: _____

Address: _____

City: _____ State: _____ Zip: _____

Rabies Vaccination: Y / N Year: _____

Distemper Vaccination: Y / N Year: _____

Spayed or Neutered: Y / N

Tag #: _____

Clinic: _____

Date of Birth (if known): _____

Exit reason:

- Adopted by (give contact below)
- Reclaimed by Owner (within 30 days, give contact below)
- Auction (give auction location below)
- Euthanized (give vet below)

Recipient of animal, if different from above. Otherwise enter SAME:

Name: _____ Date: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Email: _____

FIGURE 3

Indian Lake Animal Shelter - Fees Receipt	
Owner Recovery Fees:	
Dog or Cat: \$25.....	_____
No Rabies Proof: add \$10.....	_____
Unaltered: add \$25.....	_____
TOTAL: _____	
Adoption Fee:	
Dog or Cat: \$85 per ___ animal(s) received.	
TOTAL: _____	
Livestock Recovery Fees:	
\$15 times ___ days multiplied by ___ animals = \$ _____	
Transport fees (if any)	_____
TOTAL: _____	
Total fees of \$ _____ received for	
<input type="checkbox"/> Recovery	
<input type="checkbox"/> Adoption	
Name: _____	Date: _____
Address: _____	
City: _____	State: _____ Zip: _____
Phone: _____	Email: _____

FIGURE 4

Indian Lake Animal Shelter ACO Incident Report	
ACO badge #:	_____
Intake #:	_____ Date: _____ Time: _____
Weather conditions:	_____
<input type="checkbox"/> Dog <input type="checkbox"/> Cat <input type="checkbox"/> Livestock <input type="checkbox"/> Other	_____
Gender: M / F	Color: _____
Animal Owner (if known):	_____
Phone:	_____
Address:	_____
City:	_____ State: _____ Zip: _____
Submit brief description of situation under which animal was collected:	

REFERENCES

- Ramez Elmasri & Shamkant Navathe (2011). *Fundamentals of Database Systems*. 6th Ed. Boston: Addison-Wesley.
- Thomas Connolly & Carolyn Begg (2004). *Database Systems – A Practicle Approach to Design, Implementation, and Management*. 5th Ed. Boston: Addison-Wesley.
- Craig Mullins (2013). *Database Administration – The Complete Guide to DBA aPractices and Procedures*. 2nd Ed. Boston: Addison-Wesley.