

COMPUTER AND INFORMATION

|  |  |
| --- | --- |
| TECHNOLOGY | DEPARTMENT |

**THE DOG LOVERS’ SYSTEM**

BY

KIPLANGAT, COLLINS ARON

19S01ABT026

**Supervisor**

**Ms. Jane Nteere**

**September 2023**

|  |  |
| --- | --- |
| Submitted in partial fulfillment of the requirements of the Bachelor of Science in Computer | Science |

1

**Declaration**

The Research Proposal as presented in this report is my original work and has not been presented for any other University Award. Materials of work done by other researchers are mentioned by clear reference.

|  |  |  |
| --- | --- | --- |
| Signature: | Date: | Kiplangat, Collins Aron |
| 19s01abt026. |  |  |

The Research Proposal has been submitted in partial fulfillment of the Requirements for the award of a Bachelor of Computer Science at Africa Nazarene University with my approval as the University supervisor.

|  |  |
| --- | --- |
| Signature: | MDs.ate: |
| Lecturer. |  |

Computer and Information Technology Department

2

**Abstract**

In a world where every individual including pets, has their personal health record, our furry companions deserve the same level of care and organization. This project introduces the concept of a "health report book" for pets, highlighting its significance in maintaining vital information about our canine friends.

The traditional manual system requires pet owners to physically visit animal clinics for appointments, leading to longer waiting times for pets needing urgent treatment due to a first-come, first-served queuing system. The Dog Lovers' System has been developed to address this issue by efficiently managing pet information, including creating pet birth certificates and vaccine schedules. The primary objective of this system is to analyze the existing problem and propose a solution to streamline appointment scheduling at veterinary clinics. The system utilizes a Priority Scheduling Technique that prioritizes appointments based on the severity of the pet's injury or condition. This ensures that pets with critical health issues receive immediate attention. Moreover, the system aims to simplify the appointment booking process for pet owners and clinic staff by offering an online platform accessible from various devices. By doing so, the system saves time and enhances the quality of care provided to pets. Ultimately, The Dog Lovers' System benefits pets, their owners, and veterinary clinic staff by improving the efficiency of care delivery.

1

3

**Acknowledgments**

I thank God the Most High, Gracious and Merciful for seeing me through this thesis. This thesis could not have been finished without the support, encouragement and cooperation of my friends, supervisor, parents, and other peoples. Firstly, I would like to thank my dedicated supervisor, Ms.

JANE NTEERE who has always given ideas and help me a lot in developing this project. Finally, I want to thank all my colleagues that helped me through this project with their moral support and ideas. Their collaboration and support whenever I need them is priceless and without them, completing this work would not have been possible. May God bless all the efforts that have been given in completing this documentation.

Thank you

2

4

**Table of content**

Abstract......................................................................................................................................... 1

Acknowledgment………………………………………………………………………………………2

Table of Contents....................................................................................................................................3

List of Figures............................................................................................................................. 4

List of Tables........................................................................................................................ 5

List of Abbreviations........................................................................................................... 6

Chapter One: Introduction........................................................................................................ 7

|  |  |  |
| --- | --- | --- |
| Background of the study.......................................................................................... | | 8 |
| Problem Statement..................................................................................................... | | 9 |
| Justification of the problem.......................................................................... | | 10 |

1.4. Goal........................................................................................................................................11

1.5. Objectives.................................................................................................. 12

|  |  |  |
| --- | --- | --- |
| 1.6. | Research Questions.................................................................................................... | 13 |
| 1.7. Limitations of the research.....................................................................................................15 | | |
| Chapter Two: Literature Review........................................................................................ | | 16 |
| 2.1. Introduction..........................................................................................................................16 | | |

2.2. Local review..........................................................................................................................16

2.3. Regional review....................................................................................................................19

|  |  |
| --- | --- |
| 2.4. | International review…………………………………………………………………………..21 |
| 2.5. Conclusion..............................................................................................................................24 | |

3

5

**List of Figures**

4

6

**List of Tables**

5

7

**List of Abbreviations**

DLS - Dog Lovers' System

AM - Administrative Management

VTM - Veterinarian Treatment Management

CAR - Client Appointment Requests

CDOT - Connecting Dog Owners, Vets, and Trainers AR - Activity Reporting

DFD – Data Flow Diagr

6

8

**Chapter One: Introduction**

1.1. Background of the study

Brief History of the Topic:

Dogs have an illustrious history intertwined with human civilization, dating back to their status as one of the first domesticated animals. Initially, dogs played pivotal roles as hunting companions and protectors against predators for early hunter-gatherer communities. However, their significance expanded dramatically around 7,000 to 9,000 years ago with the advent of livestock domestication. In this era, dogs assumed critical roles as herders and guardians, ensuring the safety and management of sheep, goats, and cattle. Their historical importance in these utilitarian functions underscores their deep- rooted connection with humans.

Recent Developments in the Area:

While dogs continue to serve as herders and guardians in some contexts, their primary role in contemporary society has evolved towards companionship and social integration. Recent developments highlight the transformation of dogs from working animals to cherished family members. One noteworthy advancement is the introduction of vaccines, which has played a pivotal role in mitigating the perception of dogs as carriers of deadly diseases like Rabies. This breakthrough has not only protected public health but also strengthened the bond between humans and dogs, facilitating their acceptance into households as beloved pets and symbols of responsible ownership.

Importance Concepts (Current Contextual Factors):

Several vital concepts and contextual factors define the current landscape of human-dog relationships.

Ethical considerations, such as the humane treatment of animals, have gained prominence, emphasizing the responsibility of dog owners and society as a whole in ensuring the well-being of these animals.

Additionally, the role of dogs has expanded into therapeutic settings, where they are employed in nursing homes and hospitals to aid in patients' emotional and physical recovery. Moreover, advancements in veterinary care and animal husbandry have enabled the intentional breeding of dogs to enhance specific attributes, resulting in a diverse range of breeds tailored to various functions and preferences.

7

9

References:

1) Clutton-Brock, J. (2022). Origins of the dog: Domestication and early history. In J. Serpell (Ed.), The domestic dog: Its evolution, behavior and interactions with people (pp. 7-20). Cambridge University

Press

2) Serpell, J. (2017). The Domestic Dog: Its Evolution, Behavior and Interactions with People.

Cambridge University Press

3) Rollin, B. E. (2016) Euthanasia and the Termination of Life. In The Ethics of Animal Use (pp. 191-

215) Blackwell Publishing

8

10

1.2. Problem Statement

The existing challenges within the veterinary and dog training industry, characterized by reliance on paper records, inefficient appointment scheduling, and a lack of prioritization for pets in need, underscore the pressing need for a modernized solution. The proposed web-based system presents a transformative approach to address these issues comprehensively. By establishing a digital platform that connects dog owners with veterinary specialists and trainers based on specific service requirements, this system enhances the accessibility and convenience of pet care services. The ability for dog owners to schedule appointments online not only streamlines the process but also eliminates the need for physical walk-ins and mitigates lengthy queues, significantly improving efficiency. Furthermore, integrating pets' medical histories into the web system ensures that essential information is readily available to both veterinary staff and pet owners, enhancing the quality of care and overall experience. This innovative solution can potentially revolutionize the delivery of veterinary services and dog training, benefiting pets, owners, and service providers alike by fostering a more efficient and effective ecosystem.

References:

1) Serpell, J. (2017). The Domestic Dog: Its Evolution, Behavior and Interactions with People.

Cambridge University Press.

2) Fine, A. H. (Ed.). (2015). Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice Academic Press.

9

11

1.3. Justification of the problem

The Dog Lovers’ System represents a much-needed advancement in the realm of pet care and veterinary services. This system streamlines the registration process by offering a web-based platform for dog owners, allowing owners to input vital details about their pets, such as ownership information, breed, date of birth and colour. One of its standout features is the online appointment scheduling capability. It empowers dog owners to select suitable dates and times at their convenience, eliminating the need for in-person registration during office hours at the veterinary clinic. Additionally, the system reduces the administrative burden by replacing the traditional pet health record book with a secure digital database accessible via an ID card. This database houses comprehensive pet medical histories, ensuring that essential information is readily available to both veterinary staff and pet owners.

Moreover, the Dog Lovers’ System employs an innovative scheduling technique to prioritize appointments based on the severity of a pet's condition. This ensures that pets needing treatment receive prompt attention, addressing a common issue in veterinary clinics. Overall, this system promises to enhance operational efficiency, reduce time consumption, and elevate the quality of care for pets by benefiting dog owners, veterinary clinic staff, and veterinarians.

10

12

1.4. Goal

The overarching goal of this research initiative is to successfully implement and assess the impact of the Dog Lovers’ System, a web-based platform, in revolutionizing pet care services and veterinary practices. Our primary objective is to streamline the registration process for dog owners by providing a user-friendly interface for inputting critical pet details. This system aims to empower pet owners by enabling convenient online appointment scheduling, and eliminating the constraints of in-person registrations during standard office hours. Additionally, we aspire to reduce administrative complexities by replacing traditional paper-based pet health records with a secure digital database accessible via an

ID card; ensuring comprehensive pet medical histories are readily available. Importantly, our goal extends to employing an innovative appointment scheduling technique that prioritizes treatments based on the urgency of a pet's condition. In essence, the research aims to enhance operational efficiency, save time, and elevate the quality of care for pets by benefiting dog owners, veterinary clinic staff, and veterinarians.

11

13

1.5. Objectives

1) Administrative Management: Develop a comprehensive administrative interface that enables administrators to manage user accounts efficiently, set appointment dates, and update or edit both medical and training details for dogs in the system.

2) Veterinarian Treatment Management: Create a specialized interface for veterinarians, allowing them to manage pet treatments effectively. Veterinarians should be able to treat sick dogs, and update their health records, including disease diagnoses and medications prescribed.

3) Client Appointment Requests: Implement a user-friendly client interface that enables dog owners to request appointments conveniently through the system.

4) Connecting Dog Owners, Vets, and Trainers: Facilitate seamless connections between dog owners, veterinarians, and trainers by providing interactive features within the system that allow for easy communication and service access.

5) Activity Reporting: Develop a reporting system capable of generating comprehensive reports detailing users' past activities on the platform. This reporting feature will provide valuable insights for both administrators and users to monitor and improve their interactions with the system.

12

14

1.6. Research Questions

1) Administrative Management:

i) How can we develop an administrative interface that efficiently manages user accounts?

ii) What features and functionalities are needed to enable administrators to set client appointment

dates?

iii) How can we ensure that administrators can easily update and edit medical and training details for

dogs in the system?

2) Veterinarian Treatment Management:

i) What specialized interface should be designed to facilitate effective pet treatment management by

veterinarians?

ii) How can we empower veterinarians to treat sick dogs within the system?

iii) What features are required to allow veterinarians to update health records, including disease

diagnoses and prescribed medications?

3) Client Appointment Request:

i) How can we create a user-friendly client interface that simplifies the process of requesting

appointments?

ii) What functionalities should be included to empower dog owners to schedule appointments through

the system conveniently?

4) Connecting Dog Owners, Vets, and Trainers:

i) What interactive features should be implemented to ensure seamless connections between dog

owners, veterinarians, and trainers?

ii) How can we facilitate easy communication and convenient access to services for all stakeholders

within the system?

13

15

5) Activity Reporting:

i) What components are necessary to develop a reporting system capable of generating comprehensive reports on users' past activities?

ii) How can these reports provide valuable insights for administrators and users to monitor and improve their interactions with the system?

14

16

1.7. Limitations of the research

1) Scope: This research focuses on developing and implementing the Dog Lovers’ System for veterinary services and dog training. The scope is limited to a digital platform; therefore, it does not encompass the broader field of pet care, such as grooming or pet boarding services.

2) Research Methodology: The research relies on a combination of software development methodologies and user feedback for system evaluation. While every effort will be made to ensure the system's effectiveness, the inherent software development challenges, such as unforeseen technical issues, may impact the research outcomes.

3) Resources: The project's progress may be influenced by limitations in terms of time, budget, and available resources. Delays in development or testing phases could affect the research timeline and the depth of the system's functionalities.

4) Generalizations: The research findings and the system's effectiveness may be specific to the context and environment in which it is implemented. Generalizing the results to only some veterinary clinics or dog training services may be appropriate due to practice variations and user preferences.

5) User Adoption: The success of the Dog Lovers’ System relies on user adoption and acceptance. User preferences and resistance to change could challenge achieving the desired system utilization level.

6) Data Privacy and Security: While efforts will be made to ensure data privacy and security, there is a risk associated with handling sensitive pet and user information. Adequate measures will be taken, but unforeseen security breaches could pose limitations.

7)External Forces: The system's enduring significance and efficiency could be subject to external elements, encompassing technological advancements and alterations in pet care regulations. Beyond the purview of this research, these external dynamics possess the potential to affect the system's ongoing relevance and performance.

15

17

**Chapter 2: Literature Review**

2.1. Introduction

This chapter serves as a comprehensive review of the existing literature relevant to the development of the Dog Lovers System. It elucidates the project's connection to prior research, methodologies, and pertinent technologies. By analyzing and evaluating existing systems, this chapter offers valuable insights that will inform and guide the development of the system, with the aim of enhancing its functionalities compared to the current state of the art.

2.2. Local review

CANINE COUNTRY CLUB:

Canine Country Club (<http://www.mycaninecountryclub.com/>) offers various services for dogs, including boarding, training (private or in-home), group classes, behaviour modification, grooming (washing, bathing, salon services), and daycare.

Although not a veterinary hospital, they provide emergency care for pets staying with them.

The system aims to provide comprehensive care for dogs during their stay.

Limitations:

|  |  |
| --- | --- |
|  | One area for improvement is the absence of a direct link between clients and the care center, which can potentially make it less convenient for clients to access services. |

PET PARADISE KENYA:

Pet Paradise Kenya (<https://www.petsparadise.co.ke/>) specializes in pet grooming, pet daycare, pet boarding, and pet relocation services.

Customers can book services by filling in registration details and login information.

A notable benefit is the ability for customers to sign relocation agreements, particularly for breeding or overcrowding purposes.

16

18

Limitations:

The system lacks features that facilitate interaction between dog owners and trainers.

There needs to be more in providing online appointment scheduling for dog training or care center meetings.

Comparison of Existing Systems:

Common Characteristics across All Systems:

User-Friendly Interface: All systems offer user-friendly interfaces for clients to interact with.

Service Delivery: They provide delivery services for their respective offerings.

Adoption Services: All systems offer adoption services for dogs.

Contact Information: Each system has a contacts page with contact information (emails, postal addresses, town phone numbers) for the centers.

Client Interaction: They facilitate communication with clients, either through contact details or remote connections.

Payment Options: All the systems provide various modes of payment, including mobile payments (e.g., Mpesa), debit cards, cash on delivery, or upfront payment for services.

Limitations Common to All Systems:

Lack of Booking Appointments: None of the systems offers booking appointments for dog training or care centers to organize meetings.

Absence of Online Interaction Site: They need comprehensive online interaction platforms for dog owners and trainers to connect and communicate.

Missing Scheduling Technique: The systems need to have scheduling techniques in place.

Registration and Login Site: They need dedicated registration and login features.

No History of Activities: The sites do not maintain a history of all activities conducted within the system

17

19

Gap-Based Recommendations:

Implement a priority scheduling technique based on the urgency of needs.

Enable the booking of appointments for dog training or care centers.

Create an online interaction platform for dog owners.

Incorporate registration and login features.

Maintain a comprehensive history of all user activities.

These recommendations aim to address the identified limitations and enhance the functionality and user experience of the systems.

18

20

2.3. Regional review

RSPCA NEW SOUTH WALES:

(<https://www.rspcansw.org.au/what-we-do/adoptions/dogs-and-puppies/>)

RSPCA New South Wales provides adoption services for a variety of animals, including dogs, puppies, cats, kittens, and birds. They also offer information about adoption fees and training. In addition, the organization operates six shelters and three veterinary hospitals dedicated to the treatment, rehabilitation, and rehoming of animals. RSPCA NSW extends its services to a diverse range of animals, including horses, rabbits, guinea pigs, birds, goats, and sheep. Beyond animal care, the system offers assistance and guidance to animal owners, addressing issues such as domestic violence, aged care, homelessness, and mental health.

Benefits:

The primary goal of this system is to prevent cruelty to animals by actively promoting their care and protection. Individuals have the opportunity to make a positive impact on animal welfare through various means, including becoming foster caregivers, donating, fundraising, participating in events, volunteering, and more.

Limitations:

One limitation of the system is its lack of delivery services, necessitating in-person visits to the care center for all customers.

Franklin County Sheriff's Office, Regional Dog Shelter:

(<https://www.fcrdogkennel.org/> )

The Regional Dog Shelter aims to provide a secure and welcoming facility for stray, lost, or unwanted dogs while also matching these dogs with suitable homes. The system accommodates dog adoptions, allowing clients to register and select their desired type of dog.

19

21

Benefits:

The primary advantage of this system is creating a safe environment for dogs in need and finding them appropriate homes.

Limitations: Clients do not have the option to log in, and the system lacks detailed background information about the dogs available for adoption.

KING COUNTY:

(<https://kingcounty.gov/en/legacy/depts/regional-animal-services.aspx>)

The King County system offers a wide range of services, including permit applications, job listings, business transactions, filing services, transportation information, payment options, and animal-related service requests.

Benefits:

The system streamlines processes for locating dogs, making payments for dog-related services, requesting dog information and descriptions, and connecting dogs with potential owners

Limitations:

One limitation is the system's requirement for a substantial amount of client details.

Relationships among Enlisted Systems:

These systems share common characteristics, such as providing adoption services for dogs and other animals and promoting animal welfare. They all aim to match animals with suitable homes. However, each system has its own set of limitations, such as the need for more detailed background information, the absence of delivery services, or the requirement for extensive client details. These shared characteristics and limitations underscore the importance of developing a comprehensive and user- friendly system to address these gaps, offering a holistic solution for pet owners and animal welfare organizations.

20

22

2.4. International review

In this international review, we will explore existing systems globally that share similarities with the proposed Dog Lovers' System. These systems are designed to address various aspects of pet care, from veterinary services to training and adoption, and provide valuable insights into their characteristics, technologies, and limitations.

1. Petfinder (<https://www.petfinder.com/>):

Petfinder is a widely recognized global platform that connects individuals with adoptable pets, including dogs, cats, and other animals. It serves as an online database of animals available for adoption from various shelters and rescue organizations worldwide.

Characteristics*:*

Extensive database of adoptable pets with detailed profiles.

User-friendly search filters for finding specific breeds, ages, and locations.

Integration with multiple shelters and rescue organizations.

Adoption application submission and processing.

Availability of pet-related educational resources.

Technology:

Petfinder employs a user-friendly website and mobile app, utilizing databases to store and retrieve pet information. It relies on cloud-based hosting for scalability.

Shortcomings:

Limited integration with veterinary services or appointment scheduling.

Lack of direct communication channels between pet owners and trainers.

Dependency on individual shelters' websites for detailed pet information.

21

23

2. Wag! (<https://wagwalking.com/>):

Wag! is a global platform that connects dog owners with on-demand dog walking and pet-sitting services. It offers pet care solutions beyond traditional veterinary care.

Characteristics:

User-friendly mobile app for booking dog walkers and pet sitters.

Real-time GPS tracking of dog walks.

In-app communication with walkers.

Easy payment processing.

Availability of background-checked walkers.

Technology:

Wag! relies on a mobile app for seamless user interactions. Modern mobile technologies power GPS tracking and in-app communication.

Shortcomings:

Limited emphasis on veterinary services or health records.

Lack of comprehensive pet training features.

Focus on dog walking and sitting may only cover some aspects of pet care.

3. Vetco Clinics (<https://www.vetcoclinics.com/>):

Vetco Clinics is a global network of pet vaccination clinics that provides preventive veterinary care, including vaccinations and micro chipping.

Characteristics:

Pop-up clinic locations at various retail stores.

Walk-in model for pet owners seeking vaccinations.

Affordable preventive care services.

Availability of prescription products.

22

24

Technology:

Vetco Clinics employs point-of-sale systems to manage customer transactions and maintain patient records.

Shortcomings*:*

Limited scope, primarily focusing on vaccinations and preventive care.

Lack of comprehensive appointment scheduling or medical history management.

Limited integration with broader pet care services.

Relationships Among Enlisted Systems:

While these systems serve different aspects of the pet care industry, they share a common goal of enhancing pet well-being and connecting pet owners with valuable services. Petfinder primarily focuses on pet adoption, Wag! Addresses pet walking and sitting needs, and Vetco Clinics provides preventive veterinary care. However, these systems need to comprehensively integrate all aspects of pet care, including veterinary services, training, and medical history management.

The Dog Lovers' System, as proposed, aims to bridge these gaps by providing a centralized platform that connects pet owners with veterinary specialists, trainers, and other pet-related services while offering features like appointment scheduling and medical history access. This comprehensive approach sets it apart from existing systems and enhances the overall pet care experience.

23

25

2.5. Conclusion

In the evaluation of the above-enlisted global systems, we have identified several critical similarities and differences in their functionality and technology usage. These systems all contribute to the pet care industry in various ways, catering to specific niches within this domain.

Key Similarities:

Online Platforms: All of the systems leverage online platforms, such as websites and mobile applications, to deliver their services. This online presence ensures a global reach and accessibility to a broad audience of pet owners.

Service Offerings: Each system is designed to improve and enhance pet care in distinct ways.

Whether it's facilitating pet adoptions, providing veterinary care, offering pet sitting services, or delivering vaccinations, these platforms share the common goal of enhancing pet well-being.

User Engagement: All systems prioritize user engagement by incorporating features that enable users to interact with the platform. These features may include appointment scheduling, adoption applications, or communication channels with service providers.

Information Accessibility: Information regarding pet care, adoption, and related services is readily accessible on these platforms. This availability empowers users to make informed decisions about their pets' well-being.

Key Differences:

|  |  |
| --- | --- |
| 1. | Specialization: The systems exhibit specialization in different facets of pet care. Some are dedicated to pet adoption services, while others concentrate on veterinary care, pet sitting, or walking services. |

Technological Approach: The technology utilized varies according to the system's specific functionality. For example, platforms like Petfinder rely heavily on extensive databases to facilitate pet adoption, while service-oriented platforms like Wag! deploy mobile apps equipped with GPS tracking.

24

26

|  |  |
| --- | --- |
| 3. | Scope of Services: The scope of services offered significantly varies among these systems. |
|  | While some, like Vetco Clinics, provide limited preventive care services, others, such as Wag!, encompass a broader spectrum of pet care solutions. |

Key Research Gap:

A prominent research gap in the existing landscape of pet care systems is the need for a comprehensive, all-encompassing platform that seamlessly integrates various aspects of pet care. Current systems often specialize in a single area and offer a variety of solutions encompassing veterinary care, training, appointment scheduling, and medical history management.

The envisioned Dog Lovers' System aims to bridge this research gap by providing an integrated platform connecting pet owners with a diverse array of pet care services. Its goal is to streamline the pet care process, enhance user experience, and ensure that pet owners have easy access to all the resources required for optimal pet care. This holistic approach sets it apart from existing systems and holds the potential to transform the pet care industry by establishing a more efficient and user-friendly ecosystem.

25

27