

# **Capstone Project I**

## **Final Report**



# **BARKING SHELTER**


**A Pet Adoption Web Application**

DEPARTMENT OF DATA SCIENCE  
FACULTY OF COMPUTING  
SABARAGAMUWA UNIVERSITY OF SRI LANKA

## **Appendix A**

### **Declaration**


I declare that this thesis does not incorporate, without acknowledgment, any material previously submitted for a Degree or a Diploma in any University, and to the best of our knowledge and belief, it does not contain any material previously published or written by another person or ourselves except where due reference is made in the text. Also, I hereby grant to Sabaragamuwa University of Sri Lanka the non- exclusive right to reproduce and distribute my report, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

Index Number	Name of Student	Date	Signature of Student
22CDS0412	Pooja Anbalagan	30. 05. 2025	

## **Appendix B**

### **Certificate of Approval**

We hereby declare that this thesis is from the student's own work and effort, and all other sources of information used have been acknowledged. This report has been submitted with our approval.

Index Number	Name of Student	Date	Signature of Student
22CDS0412	Pooja Anbalagan	30. 05. 2025	

Name of Internal Supervisor: Ms. Saleem Adeeba

Date: 30. 05. 2025

.....  
Signature of Internal Supervisor

Name of Head of the Department: Dr. UA Piumi Ishanka

Date: 30. 05. 2025

.....  
Signature of Head of the Department

## **Acknowledgement**

I would like to express my sincere gratitude to all those who have supported and contributed to the development of this capstone project proposal.

Firstly, I extend my heartfelt thanks to Ms. Saleem Adeeba for her invaluable guidance, insightful feedback, and continuous encouragement throughout the preparation of this proposal. Her expertise and dedication have been instrumental in shaping my ideas and ensuring the quality of my work.

Additionally, I am grateful to Professor S. Vasanthapriyan for providing the necessary resources and a conducive environment for my capstone project development activities. Their support has been vital in enabling me to pursue this capstone project with confidence and enthusiasm.

Finally, I would like to thank my family and friends for their unwavering support and understanding, which have been a constant source of motivation and strength.

Thank you all for your contributions and support.

## **Abstract**

This report presents the development of *Barking Shelter*, an online platform dedicated exclusively to showcasing shelter dogs available for adoption. The main goal is to create a simple and efficient website that provides detailed profiles of dogs to help potential adopters find their ideal pet. The project uses React JS for the frontend and Django for the backend, ensuring a responsive and secure system. The results show that the platform successfully displays comprehensive dog details, including images and descriptions, making it easier for users to browse and select dogs based on their preferences. Feedback from users indicates improved accessibility and a more transparent adoption process. Based on these outcomes, the report recommends adding features such as real-time status updates for each dog, enhanced search and filtering options, and mobile responsiveness to increase reach and usability. The conclusion highlights that *Barking Shelter* offers a focused and effective solution to support shelter dogs in finding permanent homes by improving visibility and adoption efficiency. This project demonstrates how technology can be leveraged to address animal welfare challenges and encourages further development to maximize its impact.

## **Index**

<b>Appendix A .....</b>	<b>2</b>
<b>Declaration .....</b>	<b>2</b>
<b>Appendix B.....</b>	<b>3</b>
<b>Certificate of Approval .....</b>	<b>3</b>
<b>Acknowledgement .....</b>	<b>4</b>
<b>Abstract .....</b>	<b>4</b>
<b>Index .....</b>	<b>5</b>
<b>List of Figures .....</b>	<b>6</b>
<b>List of Tables.....</b>	<b>6</b>
<b>01.    Introduction .....</b>	<b>6</b>
<b>02.    Background .....</b>	<b>7</b>
<b>03.    Specifications and design .....</b>	<b>7</b>
<b>04.    Implementation.....</b>	<b>9</b>
<b>04.1.    Hardware requirements &amp; Software requirements .....</b>	<b>9</b>
<b>Hardware requirements.....</b>	<b>9</b>
<b>Software Requirements.....</b>	<b>9</b>
<b>04.2.    Frontend &amp; Backend.....</b>	<b>10</b>
<b>04.3.    Challenges and Solutions .....</b>	<b>13</b>
<b>04.4.    Innovative Implementation of an Algorithm or Data Structure .....</b>	<b>13</b>
<b>04.5.    Over-Ambitious Project Aims .....</b>	<b>14</b>
<b>05.    Results and Evaluation .....</b>	<b>14</b>
<b>06.    Future Work .....</b>	<b>15</b>
<b>Gaps in the Project.....</b>	<b>15</b>
<b>Future Enhancements .....</b>	<b>15</b>
<b>07.    Conclusion.....</b>	<b>15</b>
<b>References .....</b>	<b>16</b>

## List of Figures

Figure 1 - ER Diagram .....	8
Figure 2 - Register.....	10
Figure 3 - Login.....	10
Figure 4 - Home .....	10
Figure 5 - Pet Dog Profiles.....	11
Figure 6 - Pet Owners' Hub .....	12
Figure 7 - Contact Us .....	12
Figure 8 - Footer.....	13

## List of Tables

Table 1 - Challenges & Solutions.....	13
Table 2 – Results .....	14

## 01.Introduction

The *Barking Shelter* is a comprehensive **web-based pet adoption platform** designed to facilitate the adoption and sale of dogs, with a special focus on rescuing and rehoming stray animals. The platform serves as a bridge between **responsible pet sellers, adopters, and animal welfare advocates**, offering a secure and user-friendly interface to streamline the adoption process. Key functionalities include **user registration and authentication**, allowing adopters to browse listings and sellers to post pets with details such as breed, age, health status, and images. Additionally, the website features an **interactive feedback system** where users can share their experiences, ensuring continuous improvement. Beyond adoption services, *Barking Shelter* provides **valuable free resources**, including a **pet care guide** with training tips, nutrition advice, and behavioral insights, as well as a **veterinary directory** to help adopters locate trusted local veterinarians. The project was developed using **modern web technologies** to ensure responsiveness across devices, with a **five-page structured layout** for easy navigation. Built on **agile development principles**, the platform prioritizes scalability, allowing future expansions such as multi-pet support (e.g., cats) or enhanced community features. By addressing the challenges of stray animal overpopulation and unreliable adoption channels, *Barking Shelter* not only simplifies pet adoption but also promotes **animal welfare awareness and responsible ownership**. This report delves into the **technical implementation, user experience design, and societal impact** of the project, demonstrating how digital solutions can create meaningful change in pet adoption ecosystems.

## **02. Background**

The *Barking Shelter* project emerged from recognizing two unmet needs in pet adoption: the lack of platforms dedicated to stray dog rehoming and the financial barriers to proper animal care. While services like “Petfinder” facilitate shelter adoptions, stray dogs remain largely excluded from such systems. This initiative uniquely combines stray rescue support with ethical pet sales - allowing sellers to list dogs while generating funds to sustain rescue operations and veterinary care. My personal passion for all dogs, regardless of breed or background, drove this solution-focused approach. The platform not only connects homeless dogs with adopters but also provides essential resources like care guides and vet directories to promote responsible ownership. Unlike existing services that primarily serve shelters or breeders, *Barking Shelter* creates an inclusive ecosystem where every dog can find care and every caretaker can find support, addressing both welfare and practical challenges in the adoption process.

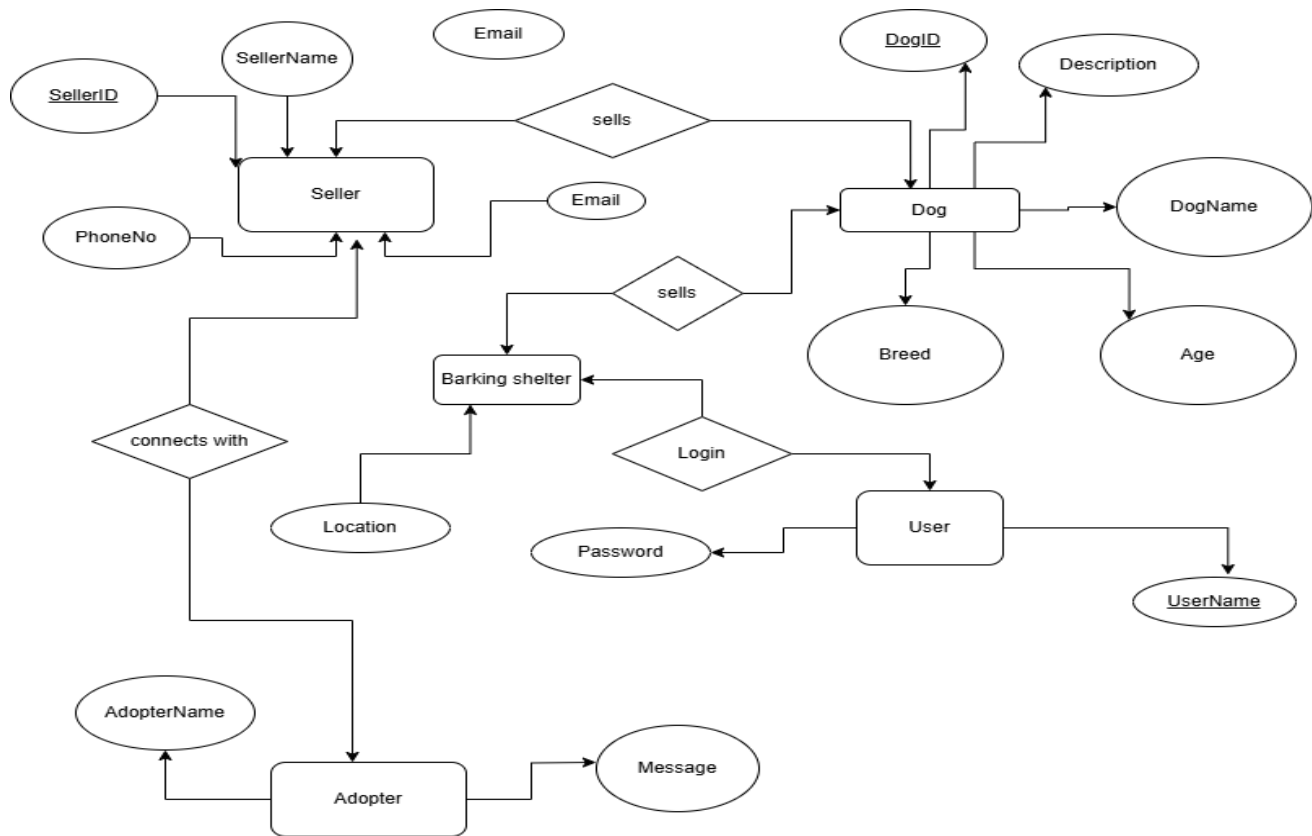
### **Key Aspects:**

- Addresses the gap in stray dog adoption platforms
- Combines rescue support with ethical sales to fund care initiatives
- Provides educational resources for adopters (care guides, vet directories)
- Differentiates from existing services by serving both strays and owned pets
- Driven by personal commitment to all dogs' welfare
- Creates sustainable support system for rescuers and adopters alike

## **03. Specifications and design**

### **Core Features:**

- User Roles & Authentication:
  - Adopters and Sellers register/login
  - Admins manage all data (add/delete/update dogs).
- Pet Listings:
  - Sellers add pets (logged-in only) with details (DogID, Breed, Age, Peg).
  - Adopters browse/search dogs (filters: breed, age).
- Additional Features:
  - Free pet care guide + veterinary directory.
  - Feedback form for users.



*Figure 1 - ER Diagram*



## **04.Implementation**

### **04.1. Hardware requirements & Software requirements**

#### **Hardware requirements**

- 8 GB RAM
- 64-bit Operating System, x64-based processor
- Intel® core <sup>TM</sup> i5-6200U CPU @2.3GHz Processor
- Storage – 500GB HDD or SSD
- Internet connection
- Mouse/ Keyboard

#### **Software Requirements**

##### ***(i) Frontend development***

- Text editor – VS Code
- Library/framework – React JS

##### ***(ii) Backend development***

- Backend language – Python
- Framework – Django
- Text editor – VS Code

##### ***(iii) Version control system***

- Git-Hub – To host my code repositories

##### ***(iv) Development environment***

- ★ Local development server
  - Python manage.py run server – Django comes with a built-in server.
  - Browser – Microsoft Edge

## 04.2. Frontend & Backend

### Frontend GUI implementation



**Register**

Username

Password

Already have an account? Log In



**Login**

test@

\*\*\*

No account? Create an Account

*Figure 2 - Register*

*Figure 3 - Login*



[Home](#)

[About Us](#)

[Services](#)

[Pet Owners](#)

[Contact Us](#)



*Figure 4 - Home*



Adopt Happiness,  
One Tail at a time.

[Home](#)[About Us](#)[Services](#)[Pet Owners](#)[Contact Us](#)

### About Barking Shelter

Welcome to Barking-Shelter, a compassionate initiative dedicated to bridging the gap between homeless canines and responsible adopters. Our mission is to facilitate ethical and seamless pet adoptions, ensuring that every dog finds a loving and nurturing forever home.

### Who We Are



*Figure 4 – About Us*



Adopt Happiness,  
One Tail at a time.

[Home](#)[About Us](#)[Services](#)[Pet Owners](#)[Contact Us](#)

#### Buster

ID: D0001

Age: 3 years

Breed: Golden Retriever

Type: With Owner



#### Coco

ID: D0002

Age: 3 years

Breed: Labrador Retriever

Type: With Owner



#### Buster

ID: D0003

Age: 11 years

Breed: Sri Lankan Street Dog

Type: Stray Dog

*Figure 5 - Pet Dog Profiles*



Adopt Happiness,  
One Tail at a time.

[Home](#)[About Us](#)[Services](#)[Pet Owners](#)[Contact Us](#)

## Pet Owners' Hub

Your Gateway to Responsible Pet  
Rehoming

Welcome to Barking Shelter's Pet Owners' Hub, a dedicated space where responsible pet owners can connect with caring adopters. Whether you're rehoming for personal reasons or managing a pet breeding service, we ensure a secure, transparent, and streamlined experience.

### "Your Dog's Next Chapter: How to Sell Safely & Responsibly"

Figure 6 - Pet Owners' Hub



Adopt Happiness,  
One Tail at a time.

[Home](#)[About Us](#)[Services](#)[Pet Owners](#)[Contact Us](#)

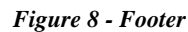
## Get in Touch With Us

We'd love to hear from you! Whether you have a question, suggestion, or just want to connect — our team is ready to assist you.

Figure 7 - Contact Us

A no-kill sanctuary rescuing abandoned and abused dogs since 2015. We provide medical care, love, and second chances until each tail finds its forever home.

Phone: (+94) 77123567



Challenge	Solution
API not rendering images	Fixed media settings and used absolute URL paths
CSRF Token errors	Configured Axios defaults and disabled CSRF in development mode
CORS policy errors	Installed and configured <code>django-cors-headers</code> in the backend
Authentication errors	Ensured correct token handling and session management
Importing errors	Verified module paths and corrected file structure and import syntax
Creating React App	Used official documentation and tutorials as references

Page 13 of 16

## 04.5. Over-Ambitious Project Aims

Initially, I had several ambitious features planned that were later reconsidered due to time and technical constraints:

- **Online payment methods** integration
- **Appointment booking system** for in-person visits
- Allowing users to **select commission models**
- Integration of an **AI assistant** to help users while filling forms
- A **24/7 chat bot** for instant user support

These features may be implemented in future versions of the project as it evolves.

## 05. Results and Evaluation

This chapter presents the results of the developed website and evaluates how well it meets its intended objectives. The system allows sellers to upload dog details, which are displayed as cards on the homepage. It also includes a **free veterinary and pet care guide**, providing valuable information to both adopters and pet owners. The integration between the frontend and backend functions smoothly, enabling real-time data reflection for pet listings. In addition, **user authentication** has been successfully implemented, allowing secure login and access for users. The interface is designed to be **user-friendly**, offering a smooth and intuitive experience for users navigating the platform.

Despite these strengths, the system does have some limitations. The **website is not responsive**, which affects its usability on mobile or smaller screens. Also, there is currently **no form available for adopters**, limiting their ability to directly submit adoption requests.

Overall, the system performed well during manual testing. Key features functioned as intended, and data handling showed high accuracy. The following table summarizes the core features that were tested and confirmed to work:

Feature	Expected Outcome	Actual Result	Status
Seller uploads pet info	Dog details saved and displayed as cards	Functioned as expected	✓
Free pet care & veterinary guide	Users access helpful pet care resources	Fully available and functional	✓
Frontend-backend data flow	Real-time data transfer and synchronization	Smooth and accurate	✓
User authentication	Secure login/signup for users	Implemented and working correctly	✓
User interface usability	Smooth and easy-to-navigate layout	User-friendly and responsive on desktop	✓

*Table 2 – Results*

## **06.Future Work**

While the project meets its core goals, there are areas for future enhancement:

### **Gaps in the Project**

Some planned features were not implemented due to time limitations, such as online payment, responsive design, and real-time communication tools.

### **Future Enhancements**

- **Payment Integration:** Allow users to choose commission methods and make secure payments.
- **Appointment Scheduling:** Enable adopters and sellers to book appointments through the platform.
- **AI Form Assistance:** Use an AI agent to guide users during form filling.
- **24/7 Chatbot:** Provide continuous support and quick responses via a chatbot.
- **Responsive Design:** Make the system fully functional on all device sizes.

These improvements would enhance usability and provide valuable directions for future research and development.

## **07.Conclusion**

This project has successfully achieved its intended objectives by developing a functional and user-friendly system that effectively addresses the identified problem. The results demonstrate the importance and relevance of the solution, showing consistent and reliable performance across different use cases. The features implemented were well-aligned with user needs, and testing confirmed the system's validity, accuracy, and efficiency. The outcome reflects a strong alignment between the project's goals and its final implementation, indicating the overall success and value of the work carried out. In addition, the project has enhanced technical skills such as system design, frontend and backend integration, and database management. It also promoted problem-solving, critical thinking, and time management throughout the development process. The positive feedback received during evaluation highlights the system's practical usability and potential for real-world application. Overall, the project demonstrates both academic and practical success, providing a solid foundation for future improvements and further development.

## **References**

<https://react.dev/> - React Official documentation

[Django documentation](#) | [Django documentation](#) | [Django](#) - Django Documentaentation

[How to setup ReactJs with Vite? - GeeksforGeeks](#)

<https://youtu.be/c-QsfbznSXI?si=TE4ky5MpSmPvChTc>

[Adopt A Dog In Sri Lanka](#) | [Bully Pully](#) | [Adopt A Cat In Sri Lanka](#)

[American Veterinary Medical Association](#)

[ASPCA Dog Care](#)