Capstone Project Proposal

Barking Shelter

A Pet Adoption Web Application

DEPARTMENT OF DATA SCIENCE

FACULTY OF COMPUTING

SABARAGAMUWA UNIVERSITY OF SRI LANKA

Approval of Capstone Project in Data Science I

1. Title of the Capstone Project : Barking Shelter
2. Details of the Student :

Index No	Name with Initials	Email	Mobile No	Signature of Student
22CDS0412	A Pooja	22cds0412@ms.sab.ac.lk	0775064635	

1. Name of the Internal Supervisor : Ms. Saleem Adeeba
2. Internal Supervisor's designation : Lecturer (Probationary)
   Dept. of Computing & Information Systems
   Sabaragamuwa University of Sri Lanka

For office use only:

Approved/Not approved

Signature of the Internal Supervisor

Date:

Suggest if any:

Index

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.

Introduction

Dogs are among the most loyal, loving, and human-friendly animals, making them cherished companions worldwide. Despite their endearing nature, a significant number of dogs, especially strays, lack basic necessities such as shelter, food, and medical care. These homeless dogs often endure harsh conditions, leading to illness, starvation, or accidents.

On the other hand, many people wish to adopt a pet dog but face challenges in finding a suitable companion. Additionally, some pet owners lack essential knowledge about dog care, including proper feeding, grooming, and healthcare, which can hinder a pet's well-being. Addressing these challenges is crucial, both for improving the lives of stray dogs and for promoting responsible pet ownership.

Objective

This project aims to develop a web-based platform dedicated to pet adoption, focusing on helping stray dogs find loving homes. The platform will act as a bridge, connecting prospective pet owners with dogs in need of care.

Key features of the platform will include:

- **Dog Profiles**: Users can browse profiles of available dogs, categorized by age, breed, size, and temperament, ensuring a tailored match for adopters.
- **Pet Care Guide**: A comprehensive resource offering feeding schedules, grooming tips, general healthcare advice, and specific medical instructions tailored for dogs.
- **Veterinary Directory**: A directory of nearby veterinary services to assist pet owners in ensuring their dog's health and safety.

By fostering connections between homeless dogs and responsible pet owners, this platform seeks to address the challenges of pet adoption while encouraging a culture of care and compassion. Adopting a dog not only provides a homeless pet with a loving home but also offers individuals the joy of companionship and a sense of purpose.

Adoption is also a more affordable and ethical option compared to purchasing a dog from a breeder, making it accessible to a broader audience. Through this initiative, we aim to create a positive impact on both human lives and the well-being of dogs, contributing to a more compassionate society.

Analysis

Feasibility Study

Technical feasibility

Technologies Used:

- **Frontend:** React JS with Tailwind CSS.
- **Backend:** Django (Python).
- **Database:** MySQL for data management.

Tools:

- All tools and platforms used are free.

Challenges:

- Integration between Django and MySQL.

Solution:

- Use Django's built-in MySQL support with online resources and tutorials for guidance.

Operational feasibility

Development Process:

- Start with essential features: pet listings, adopter registration, and shelter onboarding.
- Add optional features like user reviews and donations later.

Maintenance:

- Regular updates for bug fixes and improvements.

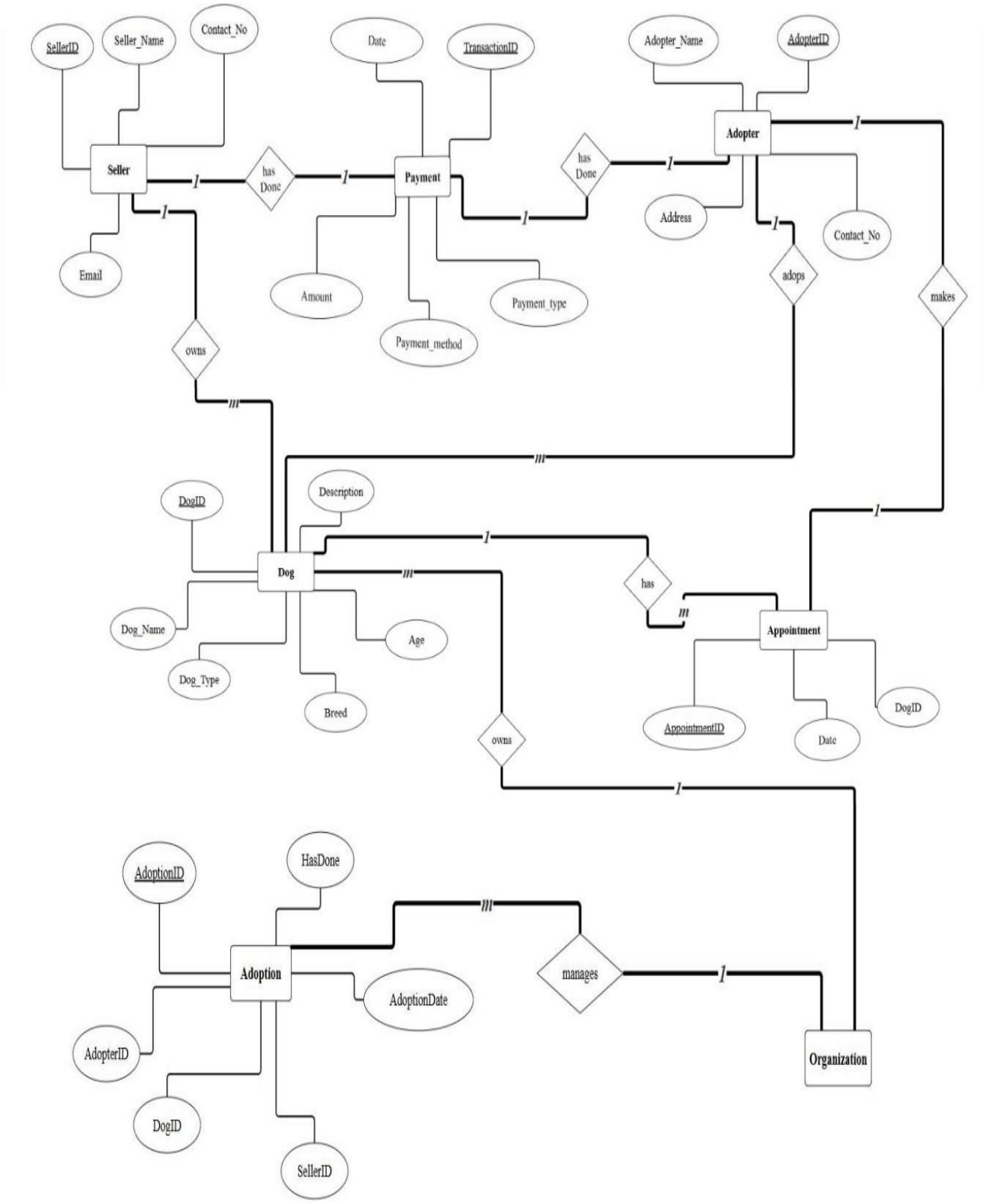
Team:

- Solo development is manageable with occasional external feedback for testing and design.

Financial feasibility

- Free tools for development (React, Django, MySQL).
- Low development cost with good potential for sustainability.

ER Diagram


SellerID
Seller_Name
Contact_No
Seller
has Done
Payment
Date
TransactionID
Amount
Payment_type
Payment_method
has Done
Adopter
Adopter_Name
AdopterID
Address
Contact_No
adops
makes
Email
owns
DogID
Description
Dog
Dog_Name
Dog_Type
Breed
Age
has
Appointment
AppointmentID
Date
DogID
owns
AdoptionID
HasDone
Adoption
AdoptionDate
AdopterID
DogID
SellerID
manages
Organization

Hardware requirements

Development hardware

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

Software Requirements

Frontend development

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

Backend development

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

Database

- DBMS – MySQL

Version control system

- Git-Hub – To host my code repositories

Development environment

- Local development server
  - Python manage.py run server – Django comes with a built-in server.
  - Browser – Google Chrome

Deployment

- Herok

Tables, modules and data structure

Tables

- Seller table
- Payment table
- Adopter table
- Dog table
- Appointment table
- Organization table
- Adoption table

Modules

1. **User Management System**
    - This module handles all the details about the users (sellers and adopters).
    - It manages user-related operations such as inserting, updating, or removing user details.
    - Any changes in the system, like adding or removing users or modifying user information, are reflected here.
2. **Dog profiles**
    - This module manages all the details about the dogs in the system.
    - Each dog is assigned a unique ID number for identification.
    - The module stores information such as the dog's name, color, age, and a brief description (including unique features or qualities).
    - Dogs are categorized by breed, making it easier to manage a large amount of data.
3. **Appointment Module**
    - This module facilitates appointments between adopters and pets.
    - Adopters can schedule a time to meet the dogs they are interested in adopting.
    - The system notifies the owners to confirm and coordinate the appointments.
    - All appointment details are maintained for smooth management.
4. **Adoption Management System**
    - This module tracks adoption-related details, including the adopter, seller, dog, and adoption date.
    - It plays a crucial role in integrating and supporting the User Management and Pet Management Systems.
5. **Payment Management System**
    - This module manages all payment transactions within the system.
    - Adopters make payments for the dogs they adopt, while sellers pay commissions and fees for advertising.
    - Payment details are tailored to meet specific requirements, with multiple plans available for users.
6. **Veterinary Directory**
    - This module provides free veterinary guidance to users as part of the organization's services.
    - It includes information on how to take care of pets, manage their health conditions, and provide them with a proper food list.
    - The system is designed to maintain all veterinary-related details and resources, ensuring easy access and effective support for pet owners.

Data structures

- Users table – stores information about website (adopters, sellers etc...)
- Pets table – stores data about pets available for adoption.
- Adoption_requests tables – tracks user requests to adopt pets.

Proposed system

This project aims to develop a web-based platform for pet adoption, connecting prospective owners with dogs in need, including both stray dogs and those given up by their owners. The platform will feature:

- **Dog Profiles**: Browse categorized profiles by age, breed, size, and temperament.
- **Pet Care Guide**: Access feeding, grooming, and healthcare tips.
- **Veterinary Directory**: Find nearby vet services easily.

The system fosters ethical adoption, offering a compassionate solution for homeless and rehomed dogs while promoting responsible pet ownership.

Functional Requirements

1. **View Dog Details:**
    - Users can view all dog details, including features, at least four pictures, and seller details (name and contact information).
2. **Search Functionality:**
    - Users can search for dogs based on their preferences.
3. **Seller Selling Methods:**
    - Sellers can view information about selling methods, such as the organization's commission structure or payment methods.
4. **Social Media Integration:**
    - When users click on the website's social media pages, they should open and be accessible.
5. **Seller Registration Form:**
    - Sellers can connect with the organization by filling out a registration form.
    - The form includes questions about payment methods and other relevant details.
6. **User-Implemented Form Functionality:**
    - The website should allow users to fill and submit forms effectively.

Non-functional Requirements

1. **Performance:**
    - The website should load quickly, even with multiple images and user interactions.

2. **Security:**
    - Secure user data, especially seller registration details and contact information, using encryption.
    - Protect against unauthorized access.
3. **Usability:**
    - Ensure the website is easy to navigate for both adopters and sellers.
    - The design should be intuitive and user-friendly.

4. **Scalability:**
    - The system should handle an increasing number of users, sellers, and dogs listed without performance degradation.

Methodology

Agile methodology

01. Requirements gatherings

- Dummy Data from Pet Websites
- Use Random Data Generators
    - ex : Mockaroo or Faker
- AI Image Generators
- Generate Completely Random Data

02. System design

- Develop the DFD diagrams and ER diagrams to visualize the system architecture and data flow.

03. Development

- Architecture design: The backend database is designed with Django using Python.
- Database design : For the database, I am using the MySQL for the database.
- UI/UX design : The frontend development is designed with React JS + Tailwind CSS.

04. Testing

- Testing each unit as individual components.
- Using integration testing for ensure interaction between modules.

05. Deployment

- Host the application locally for testing and demonstrate.

Modules split-up & Gantt chart

Gantt chart

Activity	Time Duration (in weeks)													
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Project Planning														
Requirement gatherings														
System Design														
Backend/Frontend development														
Testing and Debug														
Deployment and Documentation														

Cost analysis

1. Hosting
   - Open source and local
2. IDE, text editors, testing software
   - Free and open source
3. Cost of equipment
   - No need of extra specific equipment
4. Project staff
   - Free of cost due to academic purpose
5. Marketing cost
   - No need of marketing cost since we can do the marketing part through the social media platform