CATSWELL: PET CARE MANAGEMENT SYSTEM

NUR SITI ZAINAB BINTI AZMI
AM2311015158

UNIVERSITI POLY-TECH MALAYSIA

CATSWELL: PET CARE MANAGEMENT SYSTEM
CATEGORY A

NUR SITI ZAINAB BINTI AZMI

THIS FINAL YEAR PROJECT REPORT IS PREPARED TO FULFILL
THE REQUIREMENT OF
DIPLOMA IN COMPUTER SCIENCE

faculty of computing & MULTIMEDIA
UNIVERSITI Poly-Tech MALAYSIA

NOVEMBER 2025

Declaration of Originality

This project is all my own work and has not been copied in part or in whole from any other source except where duly acknowledged. As such, all use of previously published work (from books, journals, magazines, internet, etc.) has been acknowledged within the main report to an item in the References or Bibliography lists.

I also agree that an electronic copy of this project may be stored and used for the purposes of plagiarism prevention and detection.

Copyright Acknowledgement

Author's Signature:
Date: 18 November 2025

Coordinator / Office Stamp

Abstract

Catswell Pet Care Management system is web app based. This is a computerized pet care management system developed to replace the manual booking methods that are commonly used by local pet care centres, such as telephone reservation or a spread-list on paper. The system streamlines service scheduling, pet profile management and record tracking in order to reduce human error and increase work efficiency. To this end, it has employed HTML, CSS, JavaScript, PHP and MySQL, allowing for real-time booking availability, data centralization in one place and the ability of staff members to communicate easily with pet-owners. Overall, Catswell makes workflows easier, improves accuracy and provides a more convenient and reliable pet care service for users than they are used to.

Table of Contents

List of Figures

List of Tables

CHAPTER 1

INTRODUCTION

1.1 Introduction

The management of pet care has gained significant importance in contemporary society as the number of pet owners continues to grow. In Malaysia, cats rank among the most favored pets, with ownership consistently rising due to their companionship and relatively low maintenance requirements compared to other animals (Department of Veterinary Services Malaysia, 2023). Nevertheless, organizing pet care appointments, particularly in bustling urban environments, presents a considerable challenge for both pet owners and service providers.

In spite of the expanding pet care industry, numerous local pet care providers, particularly small-scale enterprises, continue to depend on manual systems that are labor-intensive and vulnerable to human error. The problem is Pet care centre staff members frequently need to reach out to each customer individually via WhatsApp or phone calls to confirm or remind them about their appointments. This method is not only inefficient but also heightens the chances of double bookings or last-minute cancellations. Furthermore, administrative personnel are required to maintain separate records using tools such as spreadsheets or physical appointment books, complicating the process of tracking and updating information. Contemporary pet owners demand convenience, transparency, and dependable access to information about their pets care schedules, which renders digital platforms increasingly significant (Taylor, 2020).

The Catswell web application platform has been proposed to tackle these challenges by consolidating service booking, pet information management and communication into a unified, easily accessible system. This system is crafted to enable both pet care personnel and administrators to execute vital tasks with greater efficiency, including managing reservations, updating service availability, and maintaining comprehensive records of the pets in their care. By digitizing these operations, the platform aims to

minimize human error, enhance operational efficiency, and facilitate improved service coordination.

To guarantee strong functionality, scalability, and user accessibility, the development of Catswell will employ a mix of software tools. The front-end development will be conducted using HTML, CSS, and JavaScript. The back-end functionality will be realized through PHP for server-side scripting, while MySQL will act as the database management system to efficiently store and retrieve data related to services, bookings and pets. Furthermore, additional tools such as Visual Studio Code for coding, XAMPP for local server hosting and GitHub for version control will be utilized to optimize the development process and foster effective collaboration throughout the project lifecycle (Johnson, 2023).

In addition to tackling the issues related to the limited digital presence of pet care providers, Catswell will provides considerable advantages that benefit both operational efficiency and service accessibility. As a centralized, web application platform, it simplifies booking, record management, and communication, enabling service providers to handle appointments, pet profiles, and service histories with improved accuracy and speed. This alleviates administrative burdens and reduces the likelihood of scheduling conflicts or lost records. (Vet, 2025)

Moreover, by integrating essential services into a single system, the platform improves transparency and service tracking, ensuring that all care-related information is readily accessible when required. For administrators, the system’s integrated management tools facilitate effective oversight of service usage, financial transactions, and client trends, thereby supporting enhanced business decision-making. (PetExec, 2024)

1.2 Problem statements

1.2.1 Inefficient booking and communication process.

Currently many pet care centre depends on conventional, manual communication methods such as phone calls and WhatsApp messages to manage booking confirmations, service requests and updates. Although these methods may be suitable for informal interactions, its do not provide a structured and automated system to guarantee accuracy and reliability. This frequently leads to various operational challenges, including missed or overlooked messages, double bookings due to overlapping schedules, and difficulties in delivering real-time updates to customers. Moreover, in the absence of a dedicated booking platform, staff members invest excessive time in manually verifying schedules and confirming appointments, which diminishes overall efficiency and delays service delivery. (MoeGo, 2025)

1.2.2 Lack of centralized data management.

Many pet care centers lack a cohesive, centralized system for storing and managing crucial operational data such as pet service histories, grooming preferences, and payment transactions. This disjointed method where records are scattered across different locations or kept manually creates difficulties in swiftly retrieving information when necessary. For instance, monitoring a pet's past grooming styles, outstanding payments involves searching through numerous sources, which can result in delays, inaccuracies, or miscommunication between staff and customers. (Vedi,2025)

1.3 Project Objectives

1.3.1 To develop an online booking and Pet care management systems.

The project aims to develop a digital platform enabling customers to schedule services at their convenience, eliminating the need for manual processes like phone calls or messaging applications. By introducing automated booking, the project aims to achieve at least an 80% reduction in booking conflicts compared to traditional manual methods, such as phone calls or messaging. With this system, customers can see available time slots, secure bookings immediately and get real-time alerts for any updates or modifications.

1.3.2 To implement a centralized data management

The system will function as a comprehensive platform for the storage and management of vital information, including pet service history, grooming preferences, and payment information. By bringing all records together in one easily accessible location, staff can retrieve all the record at least 50% quicker than manual methods or scattered record keeping and decreasing data redundancy and reducing the chances of human error.

1.4 Scope and Target User

1.4.1. Project Scope and Product scope

1.4.1.1 Project Scope

The scope of the project involves creating a Pet Care Management System, designed to facilitate the management of pet profiles, grooming schedules and payment processing. The initial phase will focus on collecting requirements from primary stakeholders, including pet owners, caregiving staff and administrative personnel, ensuring their needs and expectations are thoroughly understood. The system will be developed as an online platform backed by a secure database, utilizing HTML, CSS, JavaScript, PHP and MySQL. Key phases of the project will consist of requirement gathering, system design, development, testing, deployment and review. Moreover, training will be given to staff on how to handle and update pet records, service information and payment details through the system.

1.4.1.2 Product Scope

The project aims to develop a digital management system for a pet care centre. Key features include user registration and login, pet profile management, and an online booking module for pet care services such, grooming, boarding, and pet hotel services with real-time availability. Customers will receive automated notifications for booking confirmations, reminders, and status updates via email, SMS, or web push. A built-in live chat support feature will allow customers to directly communicate with staff for inquiries, quick assistance, or special requests. An administrative dashboard will enable staff to manage bookings, customer records, and service coordination. The system will generate reports and analytics on bookings, revenue, and customer activity. Optional modules, such as a loyalty program and multi-pet account support, will further enhance customer engagement and operational flexibility.

1.4.2 Target User

1.4.2.1 Administrator and staff

The main user of this system will be administrator who are responsible for managing pet records, appointments, payments, and bookings, including handling cancellations or rescheduling. Administrator ensure up-to-date availability for services such as grooming sessions and cat hotel accommodations while also generating reports on bookings, payments, and transactions. In addition, admin manage all customer communications by providing timely responses to feedback and reviews, as well as offering real-time assistance to pet owners through the integrated live chat feature.

1.4.2.2 Pet owner (Customer)

Pet owners can easily book grooming, boarding, or cat hotel services for their pets. Pet owner can also manage pet profiles, check booking details, view payment history, and view upcoming appointments. The platform sends reminders for scheduled services, allows secure payments with digital receipts, and lets owners track their pets' progress during grooming or hotel stays. If pet owners need help, they can reach out to staff through live chat for quick support.

1.5 Project Requirement

1.5.1 Software Requirement

1.5.1.1 Visual Code Studio

Figure 1.1: Visual Code Studio ((Microsoft, 2019b)

Visual Studio Code served as the main development environment for the Pet Care Management System project. Backend logic was implemented using PHP, website structure was built with HTML, styles were applied using CSS, and interactive features were developed with JavaScript. Features like syntax highlighting, code completion (IntelliSense), and the integrated terminal helped speed up development. Additional extensions for PHP and database support made VS Code a versatile and efficient tool for building the system.

Beyond basic editing, VS Code played a key role in maintaining code quality and supporting collaboration. Integrated debugging tools enabled breakpoints and step-by-step tracing of PHP code to identify and resolve issues. Version control integration with Git provided efficient tracking of changes and management of different development stages. The option to split the editor and work on multiple files simultaneously was valuable for developing interconnected components, such as synchronizing the user interface with backend PHP scripts.

1.5.1.2 Laragon

Figure 1.2: Laragon (O V, 2023)

Laragon provides a local server environment for developing and testing applications before it deployed. It includes necessary components like a web server (Apache or Nginx), PHP and a database (MySQL, PostgreSQL or MariaDB).

The software creates a local development environment where we can run code and manage databases as if on a live server. Its integrated tools, including a database manager, simplify database administration.

Using Laragon makes development more efficient by allowing features to be tested locally in a controlled environment. This enables early error detection and resolution without affecting any live systems. Since Laragon's configuration is similar to most production servers, applications typically deploy with fewer configuration issues.

1.5.1.3 MySQL

Figure 1.3: MySQL (Brands Logos, 2025)

MySQL served as the relational database management system and central data repository for the application. All persistent data, including pet records, owner information, appointment schedules, and medical histories, were securely stored, managed, and retrieved using MySQL. With Structured Query Language (SQL) embedded in PHP code, essential operations such as adding new pets, searching for owners, and updating veterinary records were performed, ensuring data integrity and reliable access throughout the system.

The relational structure of MySQL was essential for efficiently organizing complex system data. Separate but linked tables, such as those connecting pets to owners and appointments to pets, helped eliminate redundancy and maintain consistency. This setup enabled effective queries, such as retrieving upcoming appointments for a specific veterinarian or generating a pet's complete medical history. The robustness of MySQL ensured reliable handling of critical operations, including recording new treatments and processing client invoices, providing a solid foundation for all data-driven system functions.

1.5.1.4 Canva

Figure 1.4: Canva, (Yunita, 2025)

For the Catswell Pet care management system, Canva was the main design tool employed to create the front-end visual components and user interface (UI). Its purpose was to facilitate the rapid design and prototyping of the application's visual layout prior to the development stage. Canva offered a wide range of design features, including a library filled with pre-made templates, UI elements, icons and graphics. This capability allowed for the efficient creation of consistent and visually appealing screens for various features, such as the pet profile dashboard, appointment booking interface, and service catalog. The user-friendly drag and drop interface made it easy to arrange elements and explore different layouts, even for those without advanced graphic design skills.

Utilizing Canva greatly streamlined the design process. It permitted quick iterations of design mock-ups that could be easily shared for feedback and review. This approach ensured that the visual direction and overall user experience were finalized and approved before developers began their work. Additionally, the tool’s ability to produce a clear visual blueprint was instrumental in bridging the gap between the initial concept and the final coded product, providing the development team with a precise reference for constructing the system front end.

1.5.2 Hardware Requirement

Table 1.1: Hardware Requirement

Device	Laptop (Dell Inspiron 15)
Processor	Intel Core i5 (10th gen)
RAM	8GB
Storage	512 GB SSD
Operating system	Windows 10 / 11 (64 bit)
System type	X64 based processor
Graphics	Integrated intel UHD graphics
Display	15.6-inch Full HD (1920 × 1080 resolution)

1.6 Conclusion

Catswell has been developed to modernize the operations of pet care centers by transitioning from manual methods to a streamlined, online platform. The objectives of this system are to enhance booking efficiency, improve management of pet records (database management), minimize human error and offer secure, convenient payment options for clients. Accomplishing these objectives leads to smoother operations and higher quality service.

Using the Agile methodology, Catswell features real-time appointment scheduling, centralized service histories, secure payment transactions, and automated notifications. These functionalities not only ease staff workflows but also provide pet owners with a simple way to manage appointments, monitor their pets' care, and stay updated about upcoming services.

By meeting its goals, Catswell boosts efficiency, accuracy and customer satisfaction. It presents a scalable solution that accommodates future growth and enables pet care providers to fulfill rising customer expectations in a competitive environment.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This literature review examines the primary challenges and digital solutions in pet care management systems, with a focus on issues related to booking, communication, and data management. Many pet care centers around the world face problems like fragmented communication, administrative overload, and a lack of centralized systems (Williams & Carter, 2024). Outdated manual processes, such as relying on phone calls and text messages, make these issues worse by causing booking conflicts, missed appointments, and communication gaps. The review will discuss research to find gaps in current practices and see how digital solutions can help address these problems. Studies show that digital tools like automated systems and real-time updates are important for improving booking accuracy and operational efficiency (Jones & Liu, 2023).

Recent research shows that using technology can help reduce administrative work, cut down on mistakes, and make important data easier to access (Singh et al., .2023). Digital management platforms, for example, help teams coordinate services, keep more accurate records, and save time on routine tasks (Brown & Davis, 2024). Platforms like Catswell, which let users book services and manage pet profiles in one place, can make operations run more smoothly and improve customer satisfaction. These systems also help the pet care industry move away from paper records, supporting sustainability efforts.

This review shows how the proposed system follows digital management best practices and presents Catswell as a modern way to address common challenges for pet care providers. It aims to meet the increasing demand for tools that are effective, easy to use, and sustainable in the pet care industry.

2.2 Investigation

2.2.1 Notification and reminder system

Efficient operations in any service-based business depend on clear communication and timely reminders. Managing appointments and customer expectations can become complex, particularly in a high-volume environment. An automated notification system addresses these challenges by streamlining communications, solving many of the problems associated with manual methods like phone calls or individual messaging. These traditional approaches are time-consuming for staff and prone to errors, often leading to missed appointments, scheduling disruptions, and potential revenue loss (MoeGo, 2025).

Automated systems help solve these problems by sending real-time notifications about upcoming appointments and services. These systems usually send reminders a few days in advance, giving customers enough time to confirm or change their plans. This makes communication better, cuts down on last-minute cancellations and helps keep customers happy. Studies show that automated reminders are important for reducing no-shows and missed appointments because its keep customers informed and engaged (Goodwin et al, 2018).

Reminders go out through web push notifications and email, so pet owners get updates in the way that works best for them. This approach keeps customers in the loop and makes their experience better, since customer don't have to remember to check in or follow up. By automating these routine tasks, staff have more time to focus on what matters most, like giving pets the best care possible (PetExec, 2024).

Automated reminders and notifications make the whole system run more smoothly by cutting out manual follow-ups and lowering the chance of mistakes (MoeGo, 2025). As more pet care centers look for ways to work smarter and focus on customers, Catswell's reminder system stands out as a must-have tool. It helps reduce missed appointments, which is important for keeping customers happy and protecting business revenue.

2.2.2 Digitalization in booking and communication

Online booking and communication tools have changed how service businesses connect with customers, making things more convenient and reliable. With these digital platforms, clients can book or cancel appointments whenever they want, without waiting for business hours. This meets the demand for quick digital service and helps businesses appear modern and responsive. Real-time availability also prevents double-booking and lets customers easily find a time that fits their schedule. These platforms use clear and automated rules, especially for cancellations, to keep things fair and organized. Clients can cancel appointments directly and the terms are explained upfront. Usually, if someone cancels several days ahead, they get an automatic refund. This gives clients flexibility and gives the business time to fill the spot. If a cancellation happens too close to the appointment, a refund might not be possible. This system helps manage schedules, reduces lost income from last-minute changes and treats all customers fairly. (Gino & Pisano, 2011)

Beyond the fundamental booking and cancellation mechanics, the user experience is significantly enriched by integrated, real-time communication features such as live chat. This functionality serves as a direct line to staff or administrators, enabling customers to receive immediate assistance for a wide range of needs from initial service inquiries and specific appointment modifications to communicating special requirements. The presence of live chat transcends simple transactional interaction, it plays a vital role in building trust and fostering positive customer relationships by facilitating efficient problem-solving and providing a channel for personalized attention (Elmorshidy, 2011). In today's service landscape, the capacity for instant communication is not merely an added benefit but a critical component of customer satisfaction, as timely and helpful responses are a primary driver of client loyalty and positive reviews (PetExec, 2024).

From a business perspective, digitalization enables sophisticated operational management through data-driven insights. Advanced pet care platforms typically include analytics modules that track key performance indicators such as appointment frequency, service popularity, customer retention rates, and revenue patterns. With this business intelligence, companies can better manage resources, schedule staff, and track inventory. Digital payment processing and automated billing also make financial transactions easier for everyone involved. These digital tools are especially helpful for pet care businesses that offer services like grooming, boarding, training, and veterinary care, since it helps keep operations consistent across all locations and services. (Powell, 1992)

In short, combining online booking, clear cancellation policies and instant communication tools creates an efficient experience for both customers and service providers. This approach cuts down on paperwork, makes scheduling easier, and offers quick support. As service industries become more digital, using these platforms is now essential for businesses that want to improve their operations, offer better service, and stay competitive.

2.3 Previous Case study

OUR

In this case study, I chose three pet care management platforms: PetCloud, Wag!, and Cattopia. PetCloud lets pet owners book various services like dog walking, grooming, and pet sitting, and it includes live chat support and automated appointment reminders. Wag! is known for real-time GPS tracking, so owners can follow dog walks and manage appointments, with notifications and live chat for easy communication. Cattopia stands out by offering specialized cat services like grooming and boarding. It includes features such as clear photos of their facilities, tools to manage several pet profiles, and extra security through email verification at sign-up. Each platform brings useful options like real-time tracking, easy communication, and a range of services that help create a solid pet care management system.

CHECK MARGIN! TOO WIDE

2.3.1 PetCloud

PetCloud is a platform in Australia that links pet owners with reliable local pet sitters, dog walkers, and groomers. The platform was created to tackle the issue of locating trustworthy and approved pet care providers, providing various services like dog walking, pet sitting, and grooming. PetCloud has a really intuitive user interface that makes it super easy to book services. It helps pet owners take care of all their pet needs in one spot, which is super convenient. PetCloud really helps make pet care services easier by bringing everything together in one system. A big advantage is the notification and reminder system, which helps prevent missed appointments or forgetting things.

PetCloud offers several strengths, but there are also notable weaknesses that could be addressed, particularly regarding the design and functionality. One key weakness is platform gives a lot of details about service providers; this can be too much for some people. If the profiles are really long or have too much info, it might be confusing, especially for new users who don’t know what all the details mean. Making the profiles simpler or showing the most important information first could make things easier for everyone. Another problem is that the platform isn't very personalized. It gives out a lot of general info, but it might not work well for pet owners who have pets with special needs, like health problems or certain behaviours. If the platform let people filter service providers by their special skills, it could help more pet owners find what they need.

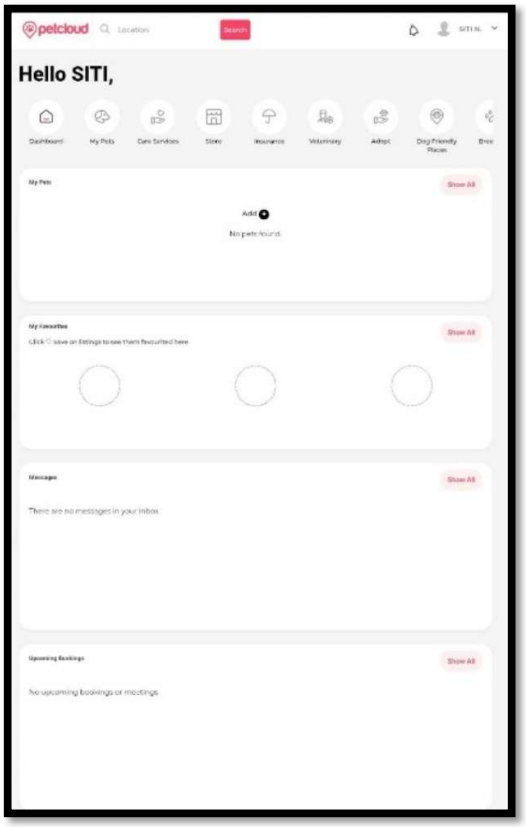


Figure 2.1: User Dashboard (Petcloud Pet Minding, 2019)

Figure 2.1 displays the user dashboard that appears when logging into the system. The "My Pets" section is clearly visible, allowing users to manage their pet profiles. Although the image does not include a booking calendar, the dashboard provides an overview with sections for Upcoming Bookings, Messages, and My Favourites. This layout helps pet owners to quickly find important information. Users can easily check for any scheduled services, new messages from the care centre or saved favourite items. The "Add" function in the "My Pets" section allows users to register new pets easily, making future service bookings more straightforward. Overall, this design improves the user experience by bringing together important tasks and information in one accessible view, thereby simplifying appointment and pet management.

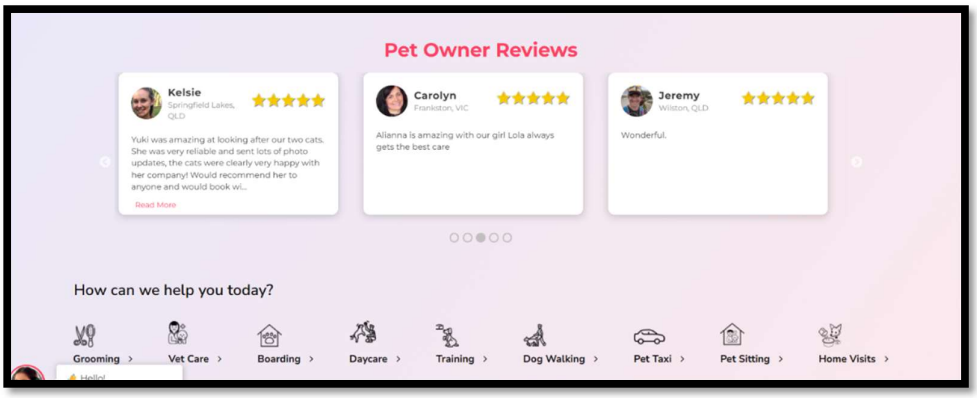


Figure 2.2: Pet owner reviews and menu list (PetCloud Pet Minding, 2019)

Figure 2.2 shows the feature (Pet owner Reviews) that builds trust and guides users by showing real pet owner reviews with names, locations, and highlights about reliable care and good communication. A 'Read More' link keeps the page tidy but let's interested visitors see full testimonials. Just below, a simple menu lists services like Grooming, Vet Care, and Pet Sitting, making it easy for users to find and book what pet owner need. This design helps people feel confident and quickly find the right service, creating a smooth experience.

2.3.2 Wag!

Wag! is a platform for pet care that focuses on services for dogs, like walking, sitting, and grooming. The platform links pet owners with nearby, reliable dog walkers and various pet care services. This platform has a bunch of important features that are really helpful for dog owners. The coolest thing about it is the real-time GPS tracking. Pet owners can feel reassured knowing their pets are being looked after by a walker. Wag! has a straightforward booking system that makes it super easy to set up services such as dog walking, sitting, and grooming. The platform has detailed profiles for service providers, allowing dog walkers to highlight their experience, ratings, and reviews. This allows pet owners to make better choices regarding the care pet owner provide for their pets. Live chat support lets users talk directly with walkers, making it easy to sort out any problems or changes right away. The platform supports secure online payments such as credit/debit cards, PayPal, or even other secure digital wallets.

Wag! offers many strengths, but there are several weaknesses to consider. Wag!'s platform lack of personalization in the booking process. Wag!'s platform could be more personalized during the booking process. Although the system is easy to use, it does not let pet owners customize services for their pets' unique needs, like medical issues or behaviour. Allowing users to add more details about their pets would help match services to each pet and create a better experience.

Another weakness is Wag!'s navigation and user flow could be improved. The platform has several pages, like booking, adding a pet, and managing profiles, which can sometimes confuse users. For instance, after booking or adding a pet, clicking 'back to home' may make it hard to find recent bookings or pet details. This can be frustrating, especially for new users or those in a rush. Making it easier to access recent actions or bookings would help users keep track of their progress and make the platform feel more intuitive.

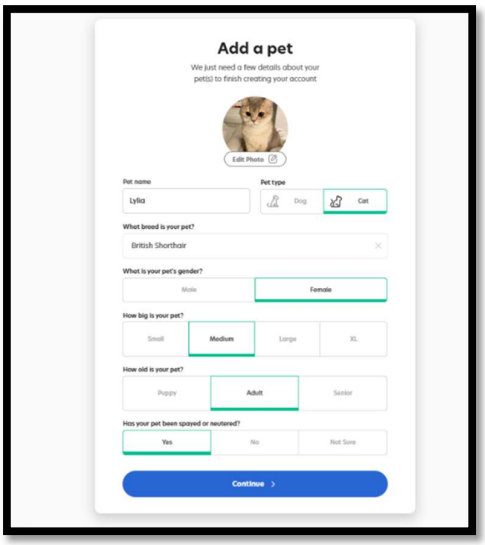


Figure 2.4: Add pet form page (Viner & viner,2019)

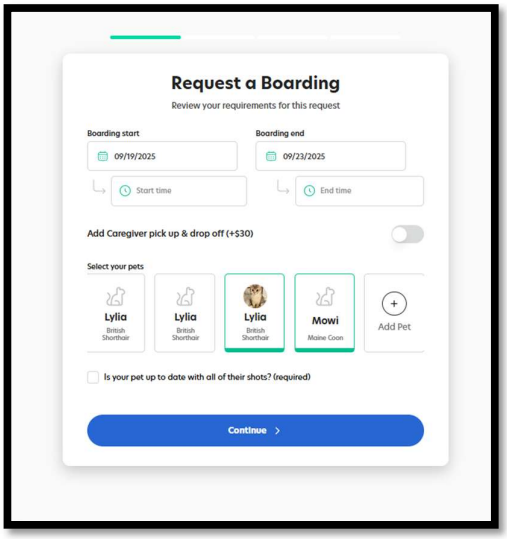


Figure 2 3: Multiple Pet booking Page (Viner & Viner, 2019)

Figure 2.3 shows that Wag! Supports multiple pet profiles. To add a new pet, users can navigate to the "Pets" section in the app's account settings and follow the prompts to input details such as breed, age, health notes, and behaviour. As shown in Figure 2.4, it shows how user add a pet detail to the Wag! Platform. Users need to enter information like their pet's name, breed, size, age, gender, and whether it's been spayed or neutered. Making this profile is important so that Wag! can find the right care services for the pet's needs. The website makes it easy for owners to fill out these details before pet owner start booking services.

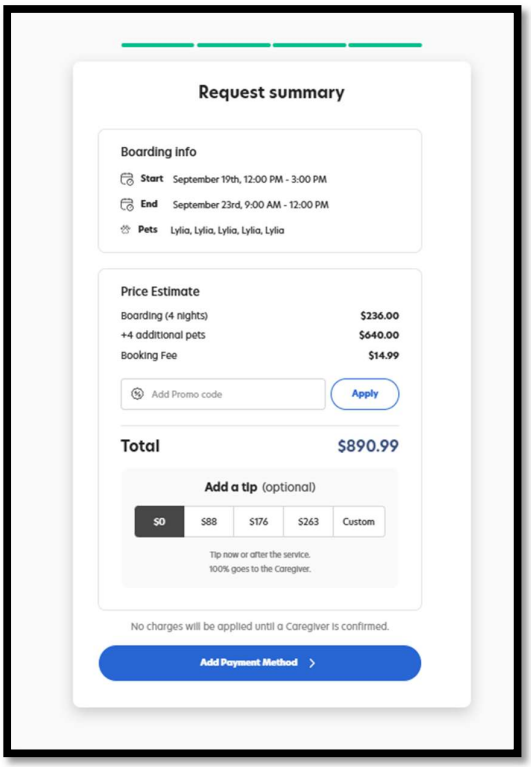


Figure 2.5: Booking summary page (Viner & Viner, 2019)

Figure 2.3 shows the booking summary page, where users can see all the details about the pet care services users want to book. The page lists things like the date, type of service (like boarding or walking), and how much it will cost. It also shows any discounts, promo codes, or extra options the user picked. This helps users double-check everything before users finish booking and pay, making the process clear and easy to understand.

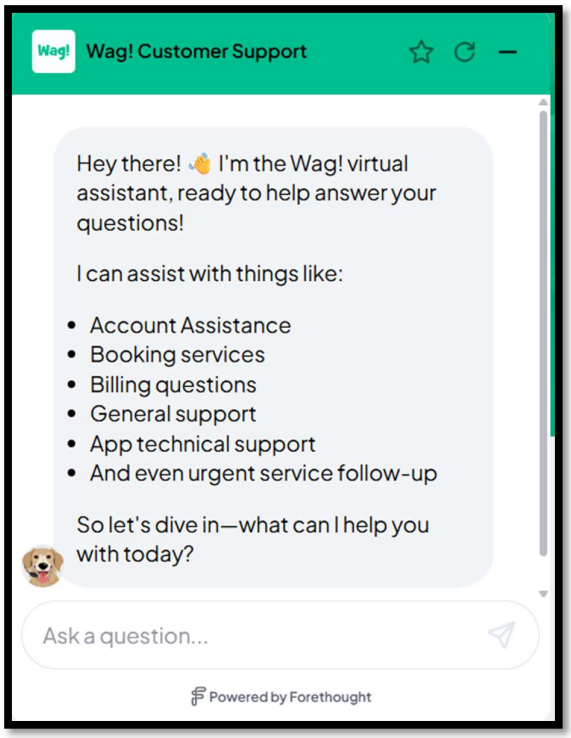


Figure 2.6: Wag! Live chat support feature (Viner & Viner, 2019)

Figure 2.6 shows Wag!'s live chat, which is a special feature on their website that helps people who use their pet care services. Users can type their questions into a chat window and get quick answers from the virtual assistant. This assistant can help with lots of things, like fixing account problems, booking services, answering billing questions, giving general info, helping with the app, and checking on urgent service requests.

2.3.3 Cattopia

Cattopia is a cat hotel and grooming service for pet owners in Malaysia. With locations in Shah Alam, Petaling Jaya, and Kajang, we focus on giving cats a comfortable, clean, and safe place to stay. Our services include cat boarding and grooming, so pet owner can feel confident their cat is well cared for while pet owner are away. Cattopia aims to make every cat feel at home with plenty of attention in a cozy setting. A primary strength of Cattopia's system is its use of clear, high-quality images to represent services such as grooming and the cat hotel. By presenting authentic photographs of facilities and services, the system enables users to visually assess the environment prior to booking. This transparency fosters trust, as potential customers can directly observe the conditions in which their pets will be cared for.

One significant weakness of Cattopia's system is that it does not support online payment methods such as FPX or other digital wallets. This limitation can be inconvenient for users who prefer the ease and security of online transactions. Without modern payment options, users may face extra steps or delays when settling bills, which could impact their overall experience. Additionally, the platform’s design also feels outdated and a bit disorganized. It looks more like an older website, with few modern features and navigation that isn’t very smooth. A clearer, more user-friendly layout would help users find what they need faster and make the site easier to use. Right now, important information can be hard to find, which may frustrate people who want quick answers. The overall look and structure could be improved to make the platform more inviting and encourage users to come back.

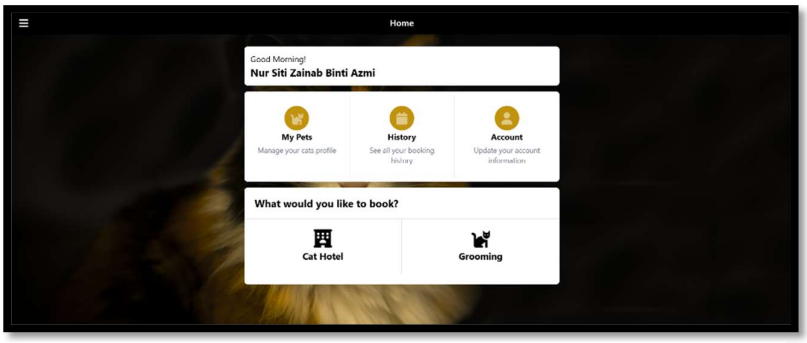


Figure 2.7: Cattopia after signup/login (Cattopia Cat Hotel & Grooming, 2025b)

Figure 2.7 shows the main dashboard of a pet service management platform that helps pet care businesses and their clients work together more easily. Pet owners can use a single portal to manage their pets' care schedules and keep digital profiles for each pet. The platform's booking tool lets customers check available times and book services like grooming or boarding on their own. Users can also see their appointment history, get automatic notifications, and review clear service policies, making the process more transparent and efficient.

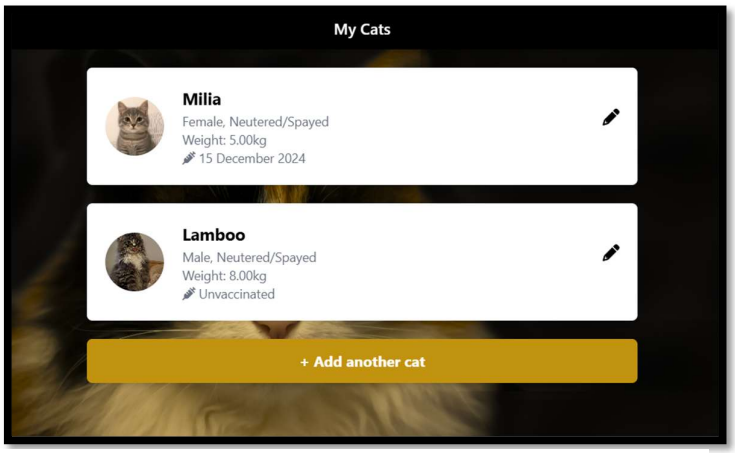


Figure 2.8: Pet profile page (Cattopia Cat Hotel & Grooming, 2025b)

Figure 2.8 shows that Cattopia's system also supports the creation of multiple pet profiles, enabling owners to manage bookings for several pets simultaneously. Users can enter specific information for each pet, including breed, size, and specific care requirements, which ensures tailored service provision. This functionality helps streamlines the booking process for multi-pet households and facilitates efficient tracking of individual care needs. As a result, the system offers a more personalized and organized user experience.

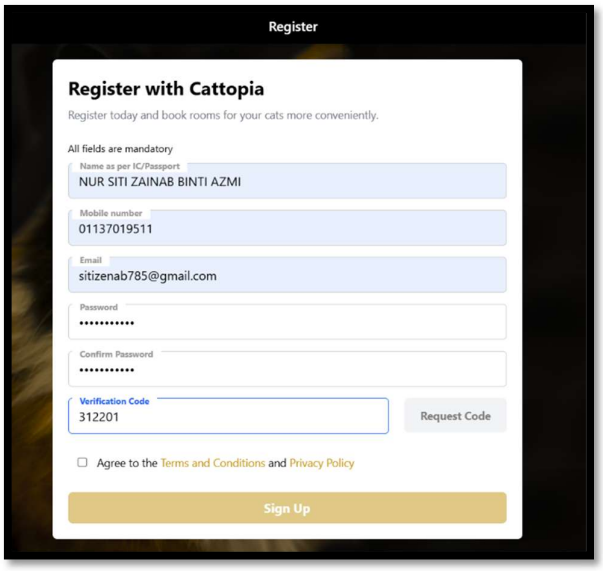


Figure 2.9: Registration Page (Cattopia Cat Hotel & Grooming, 2025b)

Figure 2.9 shows the registration page for Cattopia's system. Here, users enter their name, mobile number, email address, and create a password. One important feature is the verification code. After submitting their details, users receive a code by email and enter it to complete registration. This step helps confirm the email is correct and keeps accounts secure.

2.4 Comparison

Table 2.1: Comparison between three similar websites

Feature	Petcloud	Wag!	Cattopia
Core Services	Dog walking, Pet sitting, Grooming	Dog walking, Pet sitting, Grooming	Cat boarding, Grooming
Pet Profiles	Yes, supports multiple profiles with detailed info (name, breed, age)	Yes, supports multiple profiles with detailed info (breed, age, health/behavior notes)	Yes, supports multiple profiles with specific care requirements
Booking & Scheduling	Simple booking interface, integrated calendar with availability status	Straightforward booking system, real-time GPS tracking for walks	Fragmented. Starts online but is completed externally.
Calendar Feature	Yes, color-coded for availability (Available, Limited, Unavailable)	Implied via booking tool	Implied via booking tool
Payment Methods	Secure online payments (credit/debit, PayPal, digital wallets)	Secure online payments (credit/debit, PayPal, digital wallets)	No online payments (e.g., FPX). Pay via Qr code transfer.
Trust & Transparency	Pet owner reviews with names/locations	Service provider ratings and reviews	High-quality, authentic facility photos
Secure Messaging	Live chat feature	Live chat for direct communication	External (WhatsApp)
Automated Reminders	Send by chat/ messaging with pet sitter.	Send by an email	Send by WhatsApp

2.5 Discussion

After studying PetCloud, Wag!, and Cattopia, it's clear that there are some important features that make a pet care platform work well for users. With this in mind, the new platform design will combine the best features from these existing services and also fix the problems Petcloud, Wag! and Cattopia have.

One of the main features of my proposed system is a detailed review and testimonial section, which is based on PetCloud's successful approach (see Figure 2.2). This part is important for making the platform trustworthy and transparent. The system will show real reviews from pet owners, including their names and where pet owners from, so other users can see honest feedback. Positive points like good communication or reliable care will be highlighted, and there will be a 'Read More' option to keep things tidy but still let users read full reviews if users want. This setup will help new users feel more confident about choosing service and making good decisions.

To further enhance personalization and ensure the well being of pets, users will be able to create detailed profiles for each of their pets. Owners can enter things like their pet's name, breed, age, gender, health issues, medications, and any special behaviours. This information will help match pets with the right services, especially for pets with special needs, something that existing platforms like PetCloud and Wag! don't always do well. This way, every service will be a better fit for each pet, leading to better and safer care.

Also, as shown in Figure 2.8 about Cattopia, the system will let users make several detailed profiles for different pets. This is really important for homes with more than one pet and helps give personal care. Owners can make a profile for each pet and enter all the important details like name, breed, age, gender, health issues, medicines, and behavior. This feature will be part of the booking process, so users can pick which pet or pets need a service. By doing this, every booking is customized for each animal, which solves a big problem in platforms like PetCloud and Wag!, and makes care safer and more personal.

Finally, to make sure users can get help quickly and communicate easily, the platform will have a live chat option, similar to Wag!. This will allow users to get quick answers about their accounts, bookings, payments, or urgent issues. Having live support like this will improve the overall user experience and help fix problems right away.

2.6 Conclusion

In conclusion, the reviewed platforms PetCloud, Wag!, and Cattopia show how digital tools can improve pet care management. Each one includes helpful features like real-time tracking, live chat, automated reminders, and ways to manage multiple pet profiles. These tools address common issues such as poor communication, missed appointments, and administrative hassles. Still, there are areas to improve, including making the experience more personal, updating designs, and offering more payment choices.

New systems will be implements like Catswell show where the industry is headed, aiming to make pet care easier and more user-friendly while solving common problems. By learning from what works and fixing what doesn't, these platforms can offer better service, keep customers happy, and help the industry grow. There is a lot of room for new digital ideas that will make things run more smoothly and give both pet owners and pet care centre a more personal experience.

In the end, adding these digital solutions looks like a good way forward for pet care management. These pet Care platforms make services more efficient, easier to use, and more reliable for both providers and customers. As these platforms keep improving their systems, there's a lot of room for new ideas, which can help give even better service, make customers more involved, and help businesses do better overall.

CHAPTER 3

METHODOLOGY

3.1 Introduction

Establishing a clear methodology is essential for ensuring an organized and effective software development process, serving as a blueprint that directs activities from initial planning through to deployment. Recent studies have shown that contemporary development frameworks significantly influence project outcomes. For example, a systematic literature review in IEEE Access reports that agile methodologies raise project success rates by promoting adaptability, enhancing team productivity, and boosting customer satisfaction through iterative development and ongoing feedback (Mishra et al., 2021). These findings are further supported by a global survey of software teams, which demonstrated that agile practices play a key role in handling changing requirements and shortening time-to-market, ultimately generating increased business value (Dingsøyr et al., 2020).

The evidence from these studies highlights the importance of adopting a structured yet adaptable methodology to reduce risks, foster collaboration, and support timely project completion. A defined methodological framework enables consistent quality standards and provides stakeholders with clear insight into project progress and expectations. In the case of the Catswell Pet Care Management System, selecting an appropriate methodology was vital to achieve a balance between systematic development and adaptability for ongoing user feedback. The Agile approach supports continuous iteration, efficient use of resources, and regular assessment points, helping to produce a solution that is both robust and closely matched to user requirements. Through the implementation of this project management strategy, operational efficiency in pet care centres can be improved, scheduling conflicts minimized, and scalability for future growth achieved. Such a methodology not only addresses immediate challenges but also supports the long-term sustainability and flexibility of the system.

3.2 Agile Methodology

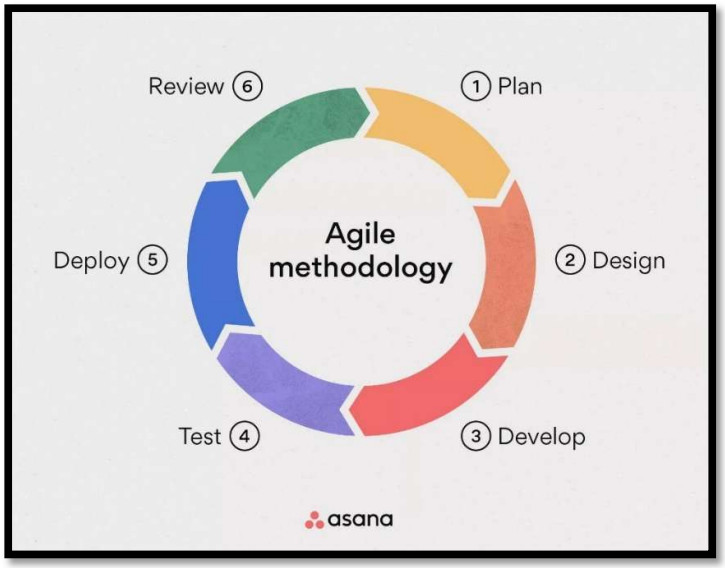


Figure 3.1: Agile Methodology (Laoyan, 2025)

Developing the Catswell Pet Care Management System necessitates a methodological framework that balances structure with adaptability. Agile methodology is identified as the most appropriate choice for this context. This approach divides the development process into smaller, manageable segments known as sprints, enabling frequent evaluation and continuous improvement. According to Dikert, Paasivaara, and Lassenius (2016), large-scale agile implementations are frequently motivated by the desire to increase responsiveness to customer requirements and raise overall product quality through iterative development. With this iterative structure, the platform can be continuously refined in response to feedback from pet owners. The ability to review and enhance each sprint facilitates the creation of a system that aligns closely with users' evolving needs.

Traditional methodologies, which rely heavily on comprehensive documentation and fixed plans, may restrict projects like Catswell Pet Care Management System that require adaptability to shifting user expectations and market conditions. In contrast, Agile methodology emphasizes collaboration and flexibility, allowing for changes in requirements even in the later stages of development, as stated in the Agile Manifesto (Beck et al., 2001). This approach is especially suitable for projects where user needs are not entirely defined at the beginning. Agile principles promote open communication

among all stakeholders, making it possible for the platform to incorporate a wide range of perspectives and real-time user input.

Delivering a high-quality, user focused solution is the central objective of the Catswell platform, and Agile methodology directly aligns with this aim through its emphasis on customer engagement. Each sprint offers opportunities for system enhancement based on user input, changing market conditions, and usability evaluations, ensuring a product that is regularly improved throughout development. Research by (Dikert et al, 2016) demonstrates that effective Agile adoption results in quicker feedback cycles and an increased emphasis on customer value. By segmenting the project into achievable components, Agile enables the system to meet a variety of user needs from booking appointments to generating administrative report, while maintaining both innovation and high standards of quality.

3.3 Phases in Agile Methodology

3.3.1 Phase 1: Plan

The first step in making the Catswell Pet Care Management System is to really understand the main problems faced by people who use the system, like pet owners. This is important because it helps us make sure the project solves real problems. We started by giving a questionnaire to pet owners, and the answers showed us some big issues that need to be fixed quickly.

The information we got shows that most people are using different and unorganized ways to manage pet care. For example, when booking services, people use four main ways: WhatsApp (44%), Walk-in (28%), Phone Call (20%), and Social Media (8%). Since lots of people use WhatsApp and other different ways, it would be easier for everyone if all bookings could be done in one simple system.

Another big problem is that 76% of pet owners said they have a hard time keeping up with their pet's important records, like vaccination records, medical histories and grooming logs. This is a serious problem because it can make pet care less safe and less effective. So, there is a real need for one place online where all pet information can be stored. To fix these problems, the next step for the Catswell platform is to carefully collect and sort out all the things users need it to do. Based on what we learned, we will first make an online booking system that lets people schedule grooming, boarding, and other services in one easy to use website, not in separate places.

We will also make a secure digital profile for each pet, so owners can see all their pet's details and service records in one spot. This will solve the problem of missing or lost records. We also want to add a system that sends reminders for upcoming appointments, so owners not forget important dates. All of these ideas are meant to make the project clear and focused on what users really need, making sure every part of the Catswell Pet Care management system will helps solve the main problems in pet care today.

3.3.2 Phase 2: Design

In the design phase, we focused on making the Catswell Pet Care Management System easy and simple for everyone to use. The main goal was to create one booking website where pet owners can easily make appointments for grooming, boarding, or pet hotel, instead of using lots of different ways.

We also designed a user dashboard that lets users manage profiles for all their pets, so owners can see each pet's grooming history and hotel booking history in one place. This helps solve the problem of losing track of important records.

At this stage, we also built a secure database to safely store user accounts, pet details, service provider info, and appointment records. This keeps everything organized and up to date. Overall, the design makes sure that both pet owners and service providers can use the system without any confusion and can manage pet care easily.

3.3.3 Phase 3: Develop

The development phase of the Catswell Pet Care Management System focused on creating the essential components and functionalities of the application. The front-end user interface was designed using Canva, with HTML, CSS, and JavaScript employed to build a responsive and functional web application.

For the back-end, PHP was chosen as the server-side language to manage the application logic effectively. A MySQL database was set up to store and organize all necessary data, including pet profiles, owner information, appointment schedules, and medical records.

During this phase, key features such as an appointment booking system, pet profile management, and a customer database were integrated. The development efforts aimed to create a comprehensive system that enables staff to manage daily operations efficiently, track vital pet information, and schedule services effectively, thus moving away from traditional paper-based methods and fragmented digital records.

3.3.4 Phase 4: Testing

In this phase, a comprehensive evaluation of the Catswell Pet Care Management System was carried out to ensure its functionality and reliability. The system was assessed based on its core requirements, including verifying that appointment bookings were processed accurately, pet profiles saved and displayed all necessary information, and user data was managed securely. The key features, such as the booking interface, customer database and administrative dashboard, were tested for accuracy and potential errors. A group of staff members and potential users participated in usability testing to ensure that the interface was logical and easy to navigate. Feedback from this testing informed the final adjustments to the system prior to full deployment.

Additionally, a series of structured tests were conducted to examine the system's performance under various conditions. This encompassed testing the application with multiple simultaneous users to confirm stability during peak booking times and validating that data entered into forms, such as pet medical notes, was stored and retrieved accurately from the database. The focus was on detecting and resolving functional bugs, such as miscalculated service durations or incorrect linking of customer records, to avoid any negative impact on daily operations.

The final stage of testing involved a thorough security review and preparations for the live environment. This included checking that user authentication functions properly and that the data of customers and pets was sufficiently protected. Furthermore, the system was configured and tested in a staging environment that closely resembled the final production server.

3.3.5 Phase 5: Deploy

Before the official launch of the Catswell web application, it was made available on the local network for final testing. By utilizing a local IP address on a shared internet connection, the application could be accessed from various devices, including tablets and mobile phones, rather than just development laptops. This step was crucial as it allowed for verification that the responsive design functioned properly across different screen sizes and devices used by the pet care centre staffs.

3.3.6 Phase 6: Review

Once the system was deployed, it entered an ongoing maintenance and review phase. The main objective during this phase is to provide continuous support, address any bugs or technical issues reported by users, and ensure overall system stability. This entails executing routine updates to the server and software components to maintain security and optimal performance.

Additionally, this phase focuses on planning for future enhancements. User feedback and usage patterns are actively collected and analysed to identify potential new features or improvements, such as different types of reports or integration with additional tools. The system is designed to be flexible, accommodating updates to service offerings, pricing, and policies as the needs of the pet care business continue to evolve.

3.4 Data Gathering and Requirement

The objective of gathering data and user requirements for the Catswell Pet Care Management System was to identify the specific challenges encountered by the staff in their daily operations. Discussions with pet care centre manager personnel revealed significant issues related to appointment bookings, the maintenance of accurate pet services histories and the tracking of customer information. The previous manual, paper based system was identified as time consuming and prone to errors, resulting in scheduling conflicts and difficulties in retrieving client records. In addition, the study seeks to explore how pet owners currently engage with and depend on existing manual processes. This investigation involves analysing the pet owner journey, rom the initial service request to the confirmation stage, as well as how pet owner manage their pet's records.

3.4.1 User Requirement Analysis

A questionnaire was utilized to collect user requirements from pet owners. The survey explored their experiences with booking appointments, receiving reminders and managing their pet's information. Responses indicated a need for a more convenient and reliable system. Key findings included a demand for online booking, automated appointment confirmations, and easy access to service history of pets. As part of our research methodology, we conducted interviews session with the staff at the pet care centre to better understand their operations and identify any limitations within their current systems. During these discussions, several challenges were brought to light. The staff reported a heavy dependence on manual, paper based booking processes, which frequently lead to double bookings.

3.4.1.1 User (Pet owner)

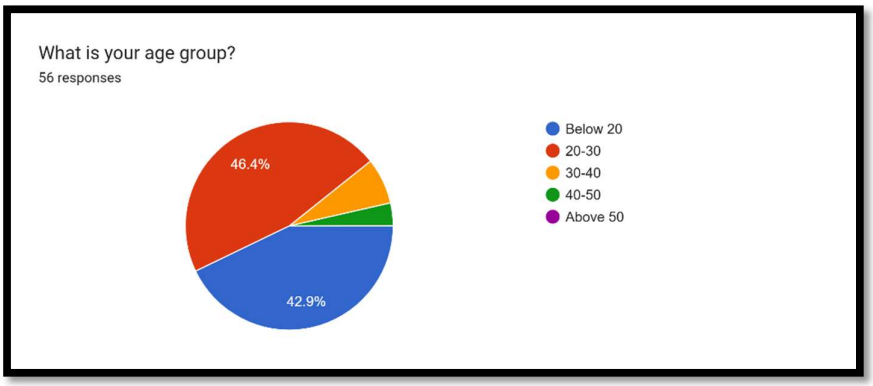


Figure 3.2: User questionnaire 1

Based on Figure 3.2, which presents data from 56 respondents regarding their age groups as pet owners. The findings show that the largest age group is 20-30 years, comprising 46.4% of the respondents. This is closely followed by the 30-40 years group at 42.9%. The age groups 'Below 20', '40-50', and 'Above 50' have fewer respondents. Overall, these results indicate that the majority of participants are young to middle-aged adults. This trend suggests that they may face challenges with manual booking systems for pet care, highlighting a clear need for a service like Catswell that could better support this demographic.

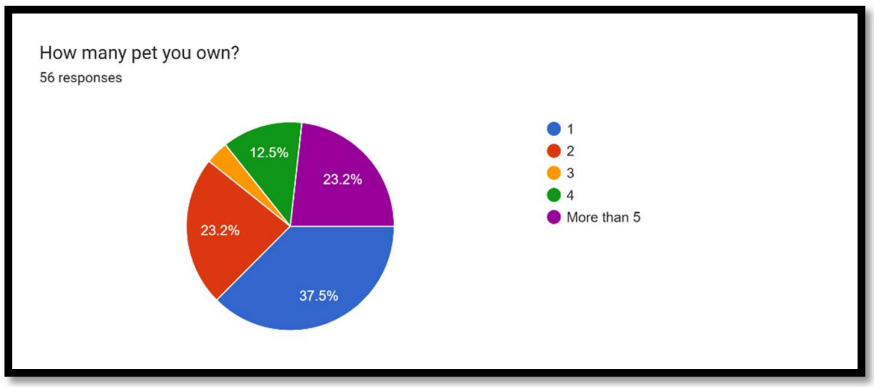


Figure 3.3: User questionnaire 2

Based on Figure 3.3, the survey conducted on pet ownership provides useful information about the customer profile for the Catswell system. The results show that 37.5% of respondents own one pet, while 23.2% have two pets, and another 23.2% own three pets. Additionally, 12.5% reported having four pets, and 3.6% have more than five pets, based on the remaining percentage.

These findings are important for system design and business planning. With over 60% of potential customers owning two or more pets, the system needs to support multiple pet profiles under a single owner's account.

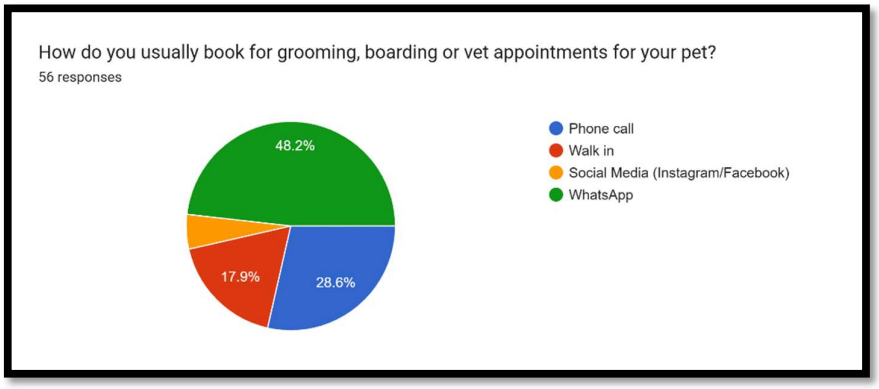


Figure 3.4: User questionnaire 3

Based on Figure 3.4, the survey results showing preferred booking methods reliance on manual processes. The majority of respondents prefer to book via phone calls, which 28.6% of the responses, followed by walk ins at 17.9% and WhatsApp at 48.2%. These findings are relevant to the Catswell Pet Care Management System, as we highlight the core issue that the system aims to address.

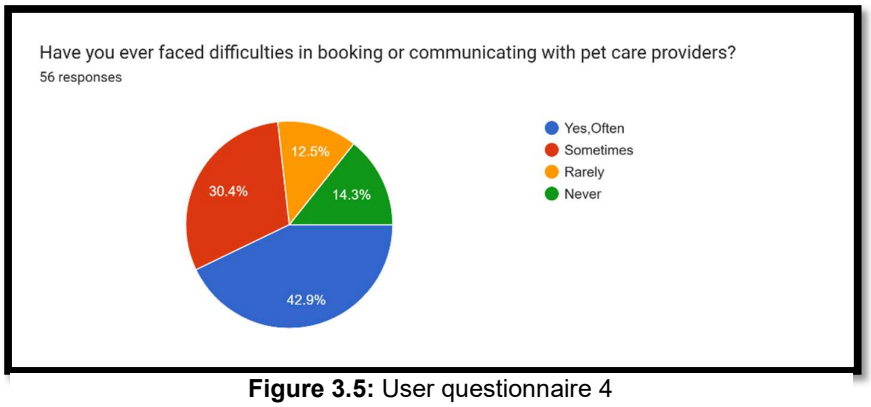


Figure 3.5: User questionnaire 4

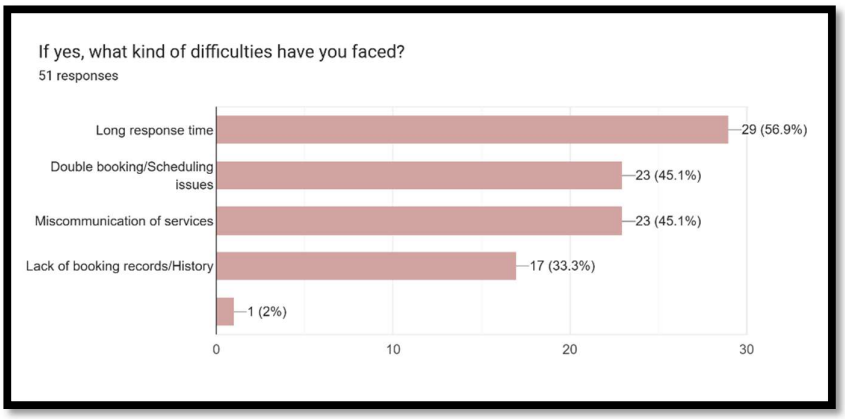


Figure 3.6: User questionnaire 5

Figure 3.5 indicates that, 42.9% often experience challenges when booking or communicating with pet care providers. When combining those who sometimes (30.4%) and rarely (14.3%) face difficulties, we find that a significant 87.6% of users have encountered problems with the current manual systems. **Figure 3.6** provides a breakdown of the specific reasons for these difficulties. The primary issues reported include long response times (56.9%), double bookings or scheduling conflicts (45.1%), and miscommunication regarding services (45.1%). Additionally, 33.3% mentioned the lack of booking records or history as a concern. This information highlights the need for the Catswell system.

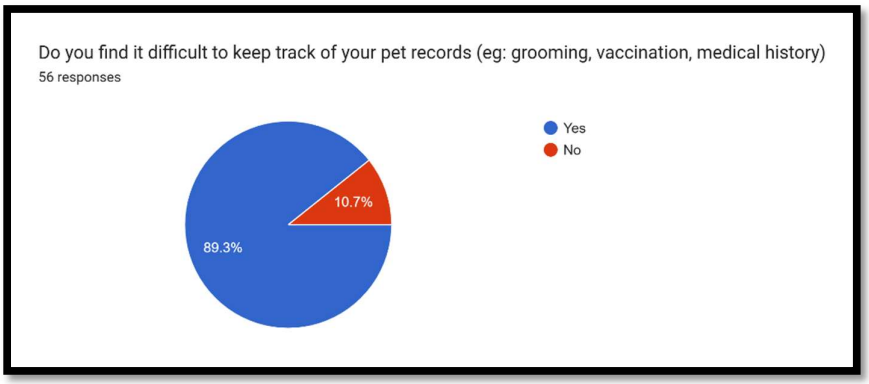


Figure 3.7: User questionnaire 6

Based on Figure 3.7, the survey result showing that a substantial majority, 89.3%, find it challenging to manage their pets' records, which include grooming, vaccination and medical history details. On the other hand, only 10.7% of participants do not experience this issue. This finding is relevant to the Catswell system, as it identifies a common problem among pet owners. The widespread difficulty in keeping track of pet records supports the need for a centralized digital profile feature. Catswell can address this challenge by providing a secure online portal where pet owners can easily access and organize their pet's health and service histories, thus simplifying the process of managing important documents and past booking.

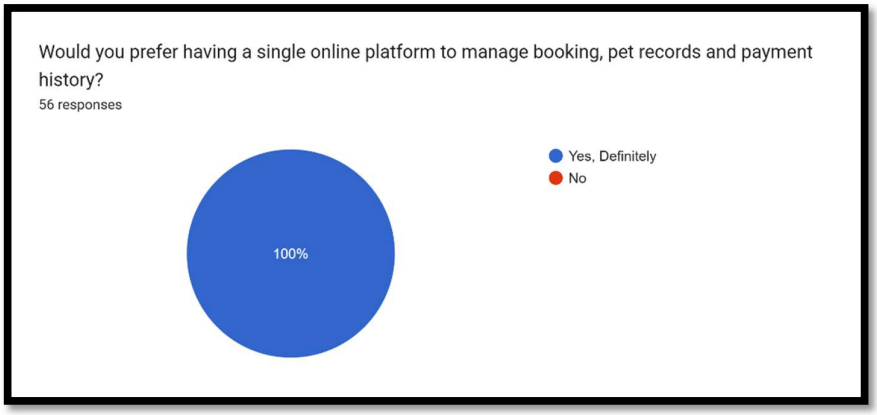


Figure 3.8: User questionnaire 7

Based on Figure 3.8, a survey shows that 100% prefer a single online platform to handle their bookings, pet records, and payment history. This result supports the main concept behind the Catswell Pet Care Management System. The preference indicates a strong market need for the integrated solution Catswell plans to provide. It justifies the development of a cohesive system that includes appointment scheduling, a digital pet profile with detailed history, and payment tracking, aligning well with what users want to simplify pet care management.

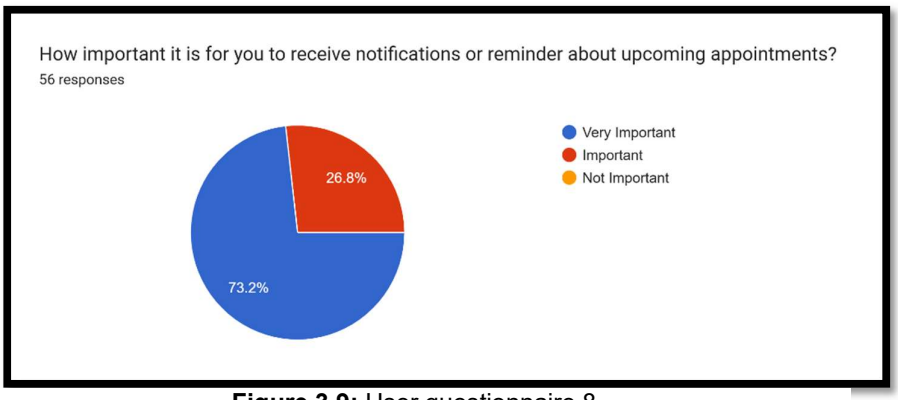


Figure 3.9: User questionnaire 8

Based on Figure 3.9, the survey results indicate that reminders for upcoming appointments are important to users. A total of 99.8% of respondents reported this feature as significant, with 73.2% identifying it as 'Very Important' and 26.6% as 'Important.' This suggests that many users prioritize this feature. The data supports the need for automated notifications, emphasizing their role as an expected feature. Therefore, incorporating a reminder system into the Catswell application would be beneficial. Implementing email alerts for upcoming bookings would help address a key user need and potentially reduce missed appointments, ultimately enhancing the user experience.

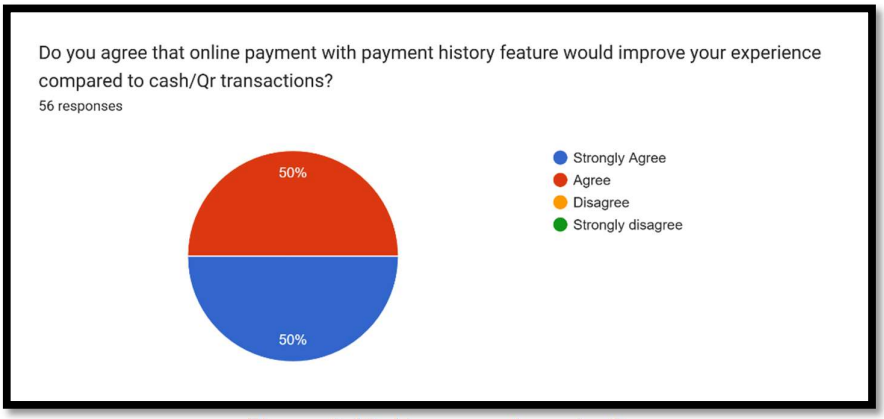


Figure 3.10: User questionnaire 9

Based on Figure 3.9, a survey indicate that all 56 respondents (100%) feel that adding an online payment feature with a payment history would enhance their experience. Specifically, 50% of these participants strongly agree, while the other 50% agree with the statement. This data emphasizes the importance of implementing a secure and user friendly online payment system.

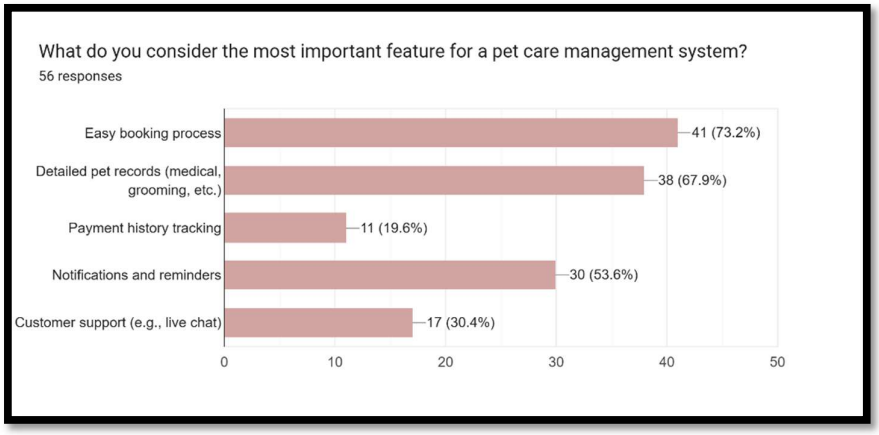


Figure 3.11: User questionnaire 10

Based on Figure 3.10, a survey shows the results, identifying the main features that users find important in a pet care management system. The top feature is an Easy Booking Process, which 73.2% of participants highlighted as essential. This is followed by Detailed Pet Records, noted by 67.9% of respondents. Additionally, over half of the users (53.6%) consider Payment History Tracking important, while Notifications and Customer Support are seen as lower priorities. This data provides a clear direction for our development.

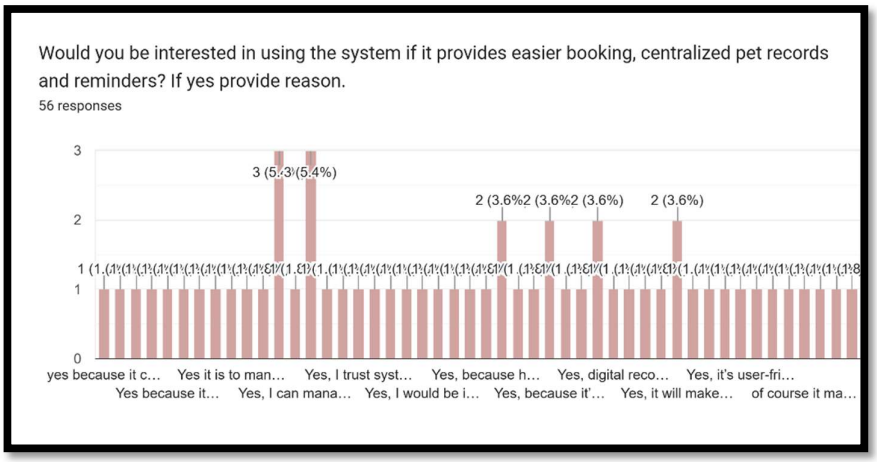


Figure 3.12: User questionnaire 11

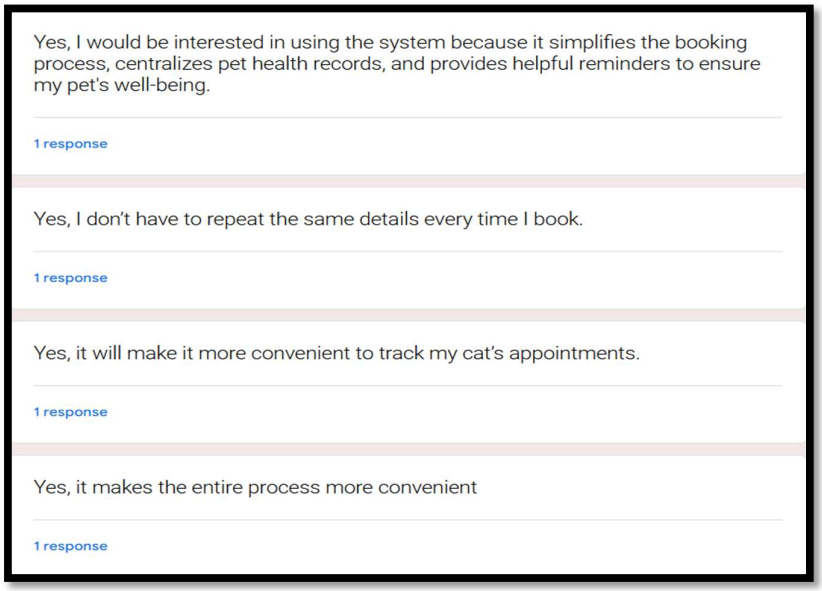


Figure 3.13: User feedback for questionnaire 11

Based on **Figures 3.12 and 3.13**, the survey results show a positive response from the majority of the 56 participants who expressed interest in using a system like Catswell. The feedback from users provides valuable insights into the system potential benefits. Respondents noted their interest primarily because the system simplifies the booking process, centralizes pet records and offers helpful reminders.

3.4.1.2 Admin (Staff Pet care centre)

Interviewee Name: Edmund Cheong
Interviewee Phone Number: 016 9965152
Date: 18 October 2025
Time: 11:00 AM
Location: Papa Zou Pawville, Taman muda, Cheras, Kuala Lumpur.
Role: Pet Care advisor.

Q: Can you briefly tell me about Papa Zou and the services it provides?
A: Papa Zou is a pet care centre that specializes in grooming services and provides a dedicated boarding facility for cats.

Q: How long has Papa Zou been operating as a pet care centre?
A: The centre has been serving the community for almost five years.

Q: How do customers currently make bookings (walk-in, phone, WhatsApp or online)?
A: Customers can make booking through WhatsApp or by visiting the centre in person, where they are required to complete a paper registration form.

Q: What kind of information do you usually collect from customers when they make a booking?
A: When booking, information collected includes the customer's name, phone number, address and details about their pets, such as breed and age, along with an emergency contact.

Q: How do you manage or track the schedule for pet care services?
A: Appointments are tracked using a Microsoft Excel spreadsheet.

Q: How do customers usually make payments (cash, online transfer, e-wallet etc.)?
A: We accept a range of payment options, including cash, online bank transfers and various e-wallets.

Q: How do you keep records of payments made by customers?
A: Payments are manually verified by reviewing WhatsApp conversations for transaction receipts, which are then recorded in the Excel spreadsheet.

Q: How do you store and manage customer details and their pets' information?

A: Customer and pet information is initially captured on paper forms and subsequently transferred to a excel spreadsheet.

3.5 Interface Design

Based on the insight gathered from admin and users, we aim to create wireframes that meet their needs. The admin interface is designed to facilitate effective management of bookings and services, incorporating a live chat feature for direct communication with pet owners. For users, the interface aims to simplify the pet care process with a straightforward booking page. This allows pet owners to add pets, browse services with detailed descriptions, make bookings, check their current bookings and manage all their pet information from one central dashboard. These wireframes will serve as the basis for developing a user-friendly system intended to improve customer service and enhance operational efficiency for the Catswell Pet Care Management System.

3.5.1 Wireframe

Wireframe for Admin:

Figure 3.14: Login Page

Figure 3.15: Sign up page for new staff member

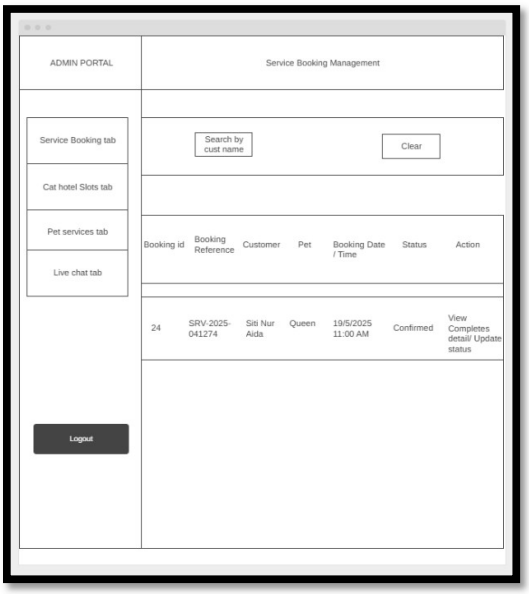


Figure 3.16: Service booking tab

Figure 3.17: Cat hotel slot tab (Hotel booking tab)

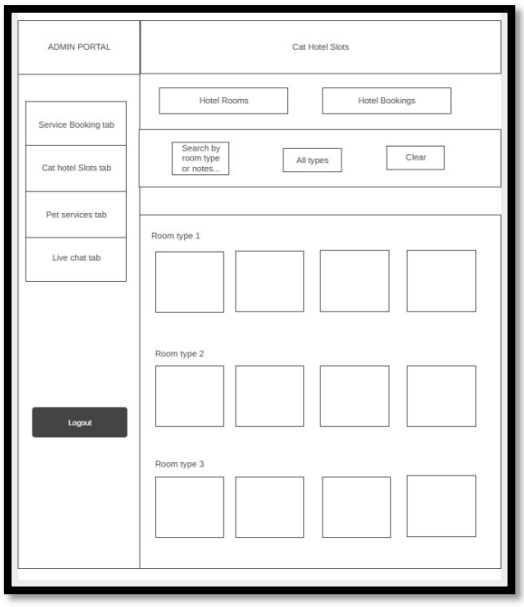


Figure 3.18: Cat hotel slot tab (Hotel room tab)

Figure 3.19: Pet services tab

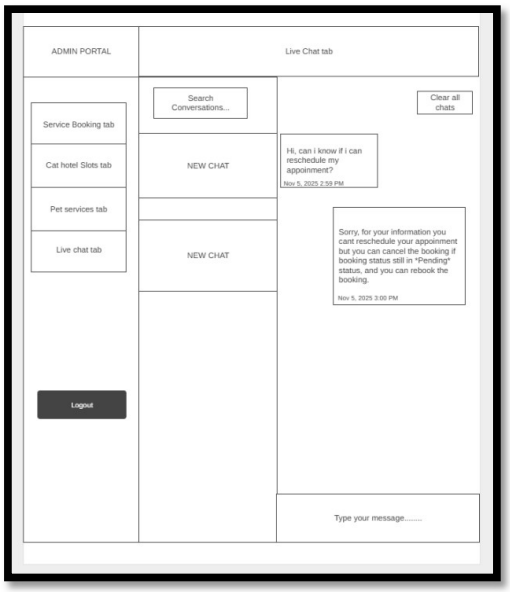


Figure 3.21: Live chat tab

Figure 3.20: Admin profile

Figure 3.22: Add new service form

Wireframe for users:

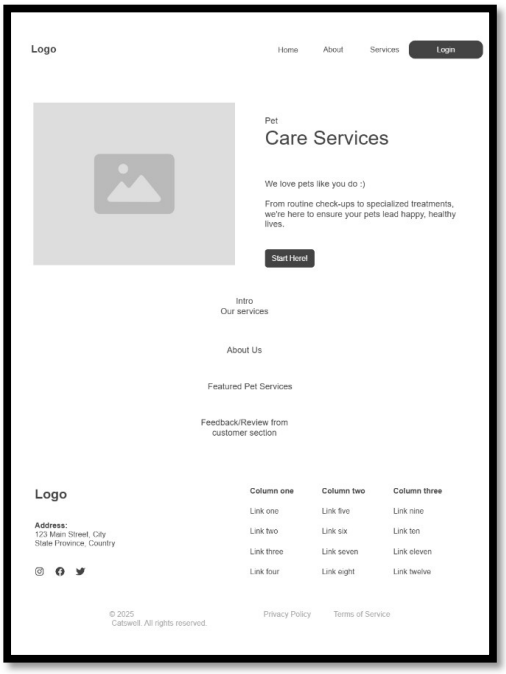


Figure 3.23: Home page

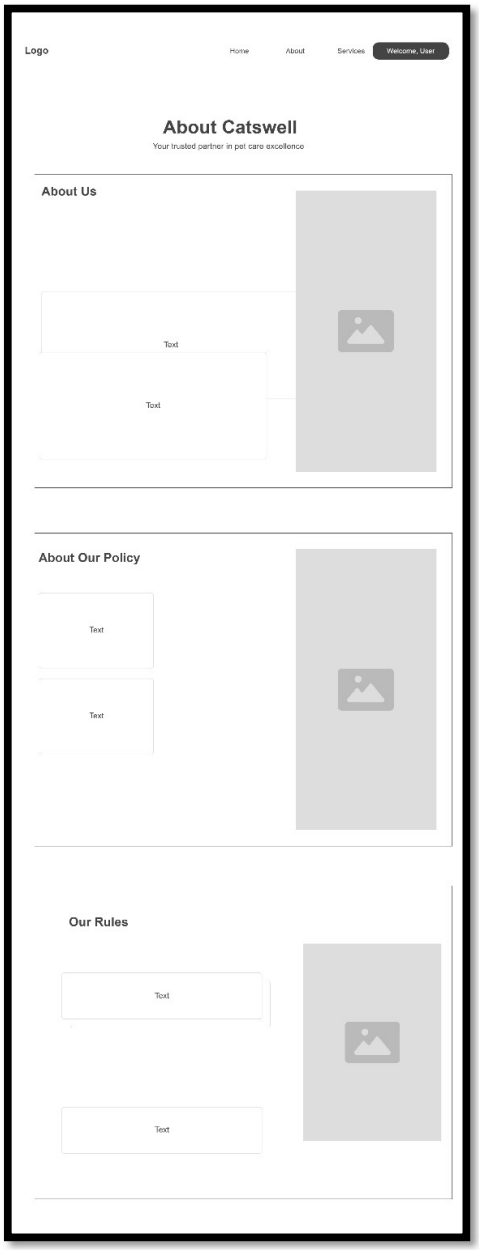


Figure 3.24: About Page

Figure 3.25: User login page

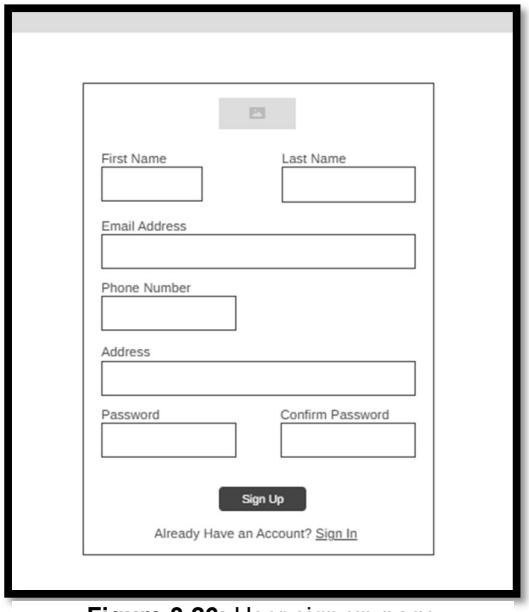


Figure 3.26: User sign up page

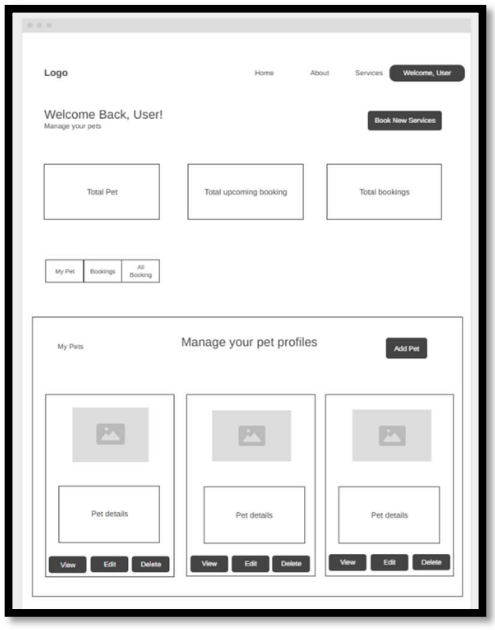


Figure 3.27: User dashboard

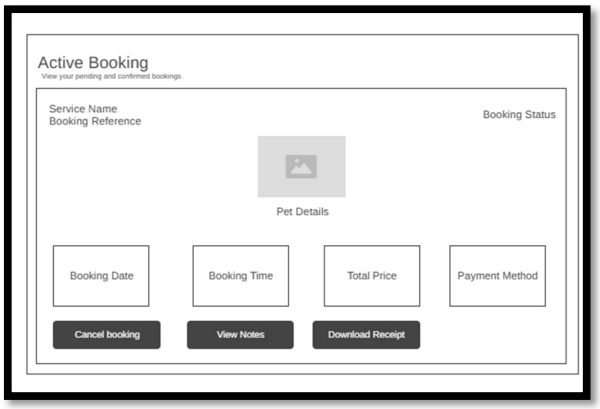


Figure 3.28: Bookings Tab

Figure 3.29: Add new pet form

Figure 3.30: Book new service page

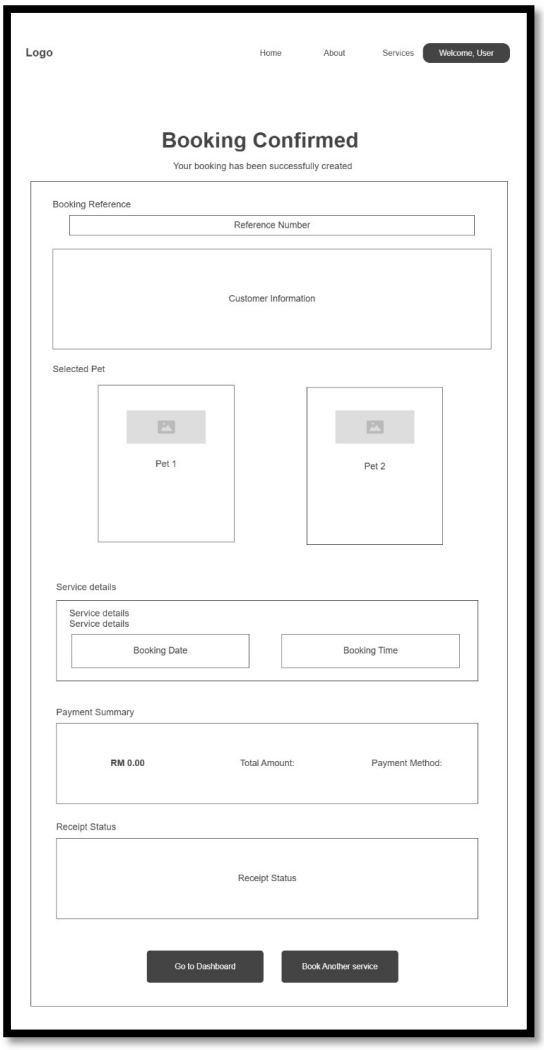


Figure 3.31: Booking confirmed page

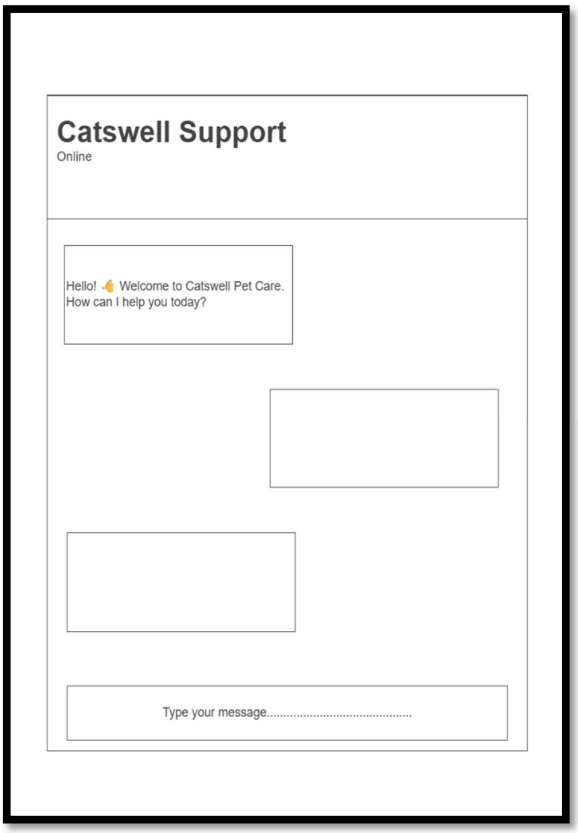


Figure 3.32: Live chat interface

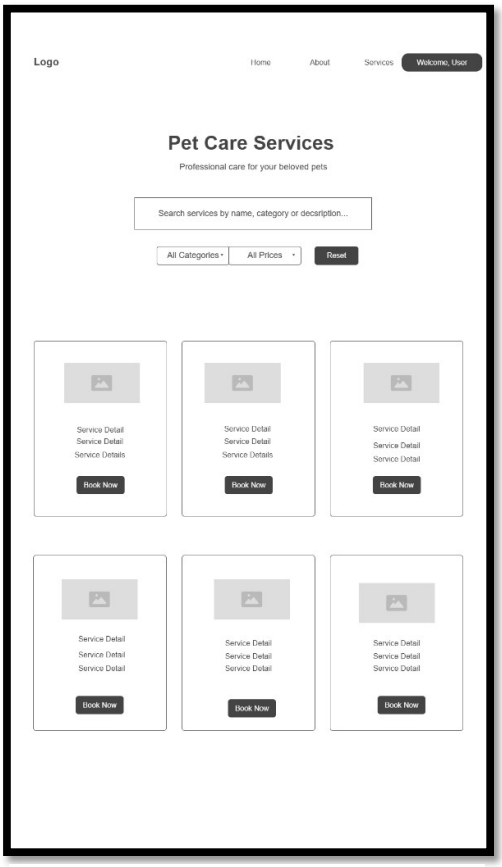


Figure 3.33: Service page

3.5.2 Actual Design

In creating the Catswell Pet Care Management System, we based our interfaces on finalized wireframes and input from both administrators and users. The admin interface is designed with a straightforward layout that helps manage daily activities like booking appointments, updating service information and facilitating real time communication through a built-in chat feature. For pet owners, the user interface emphasizes simplicity and ease of navigation, featuring a dashboard where user can create pet profiles, explore available services, book appointments and view their current schedules. Each interface effectively translates initial design ideas into functional screens, promoting a user-friendly experience that aims to improve service delivery and operational efficiency across the system.

Actual design for admin user:

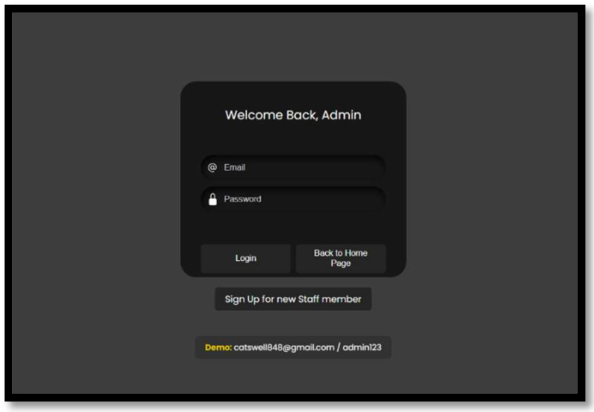


Figure 3.34: Login page for admin

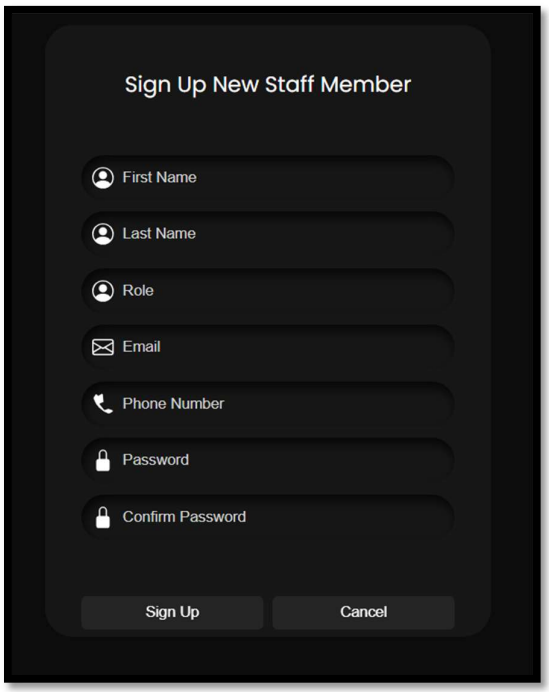


Figure 3.35: Sign up for new staff member

Based on **Figures 3.34 and 3.35**, the authentication system for the Catswell Pet Care Management System features a secure two-part access control specifically designed

for administrative staff. Figure 3.34 presents the main admin login interface, which acts as the primary entry point for authorized personnel to access the systems backend functions. Figure 3.34 illustrates the staff registration module, which allows existing administrators to create new staff accounts.

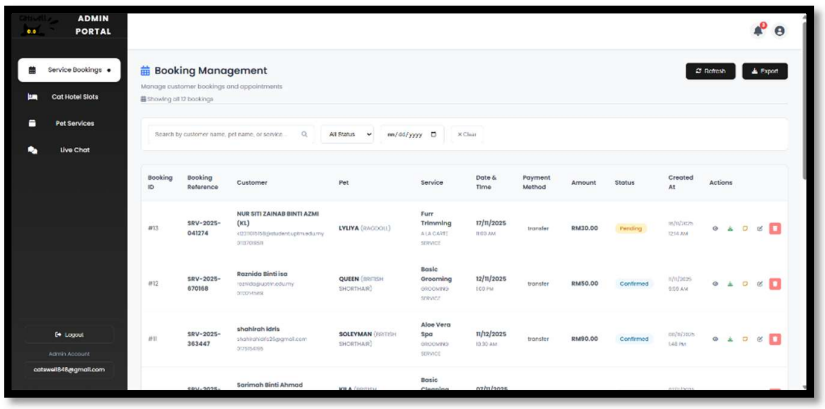


Figure 3.36: Admin dashboard displaying service booking tab

Based on Figure 3.36, the Booking Management interface in the Catswell Pet Care Management System provides a clear dashboard for administrators to manage customer appointments. The interface includes a centralized table that displays important booking information such as customer and pet details, service type, scheduled date and time, payment method, cost, and current status.

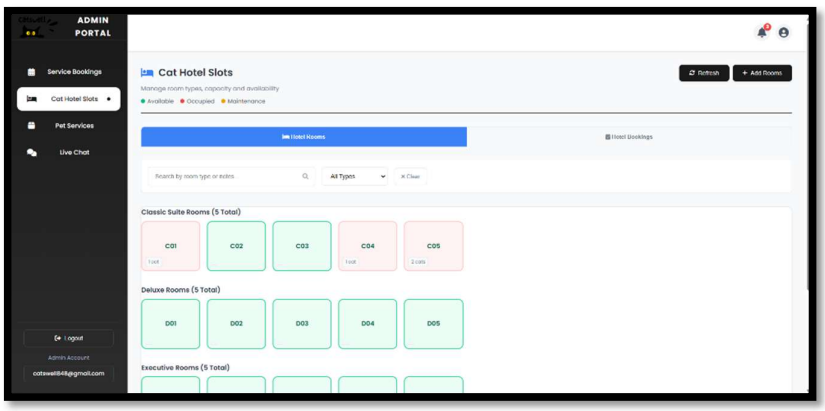


Figure 3.37: Cat hotel slot tab (Hotel room tab)

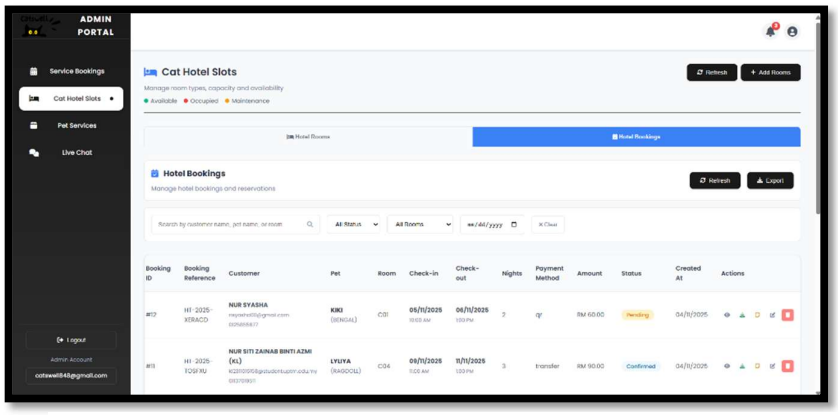


Figure 3.38: Cat hotel slot tab (Hotel bookings tab)

Based on **Figures 3.37 and 3.38**, the Cat Hotel management module within the Catswell Pet Care Management System offers a well-structured two-tier interface for managing boarding operations.

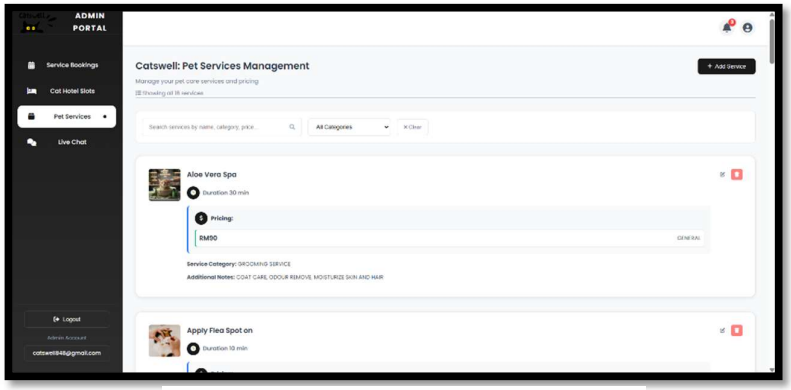


Figure 3.39: Pet care services list tab

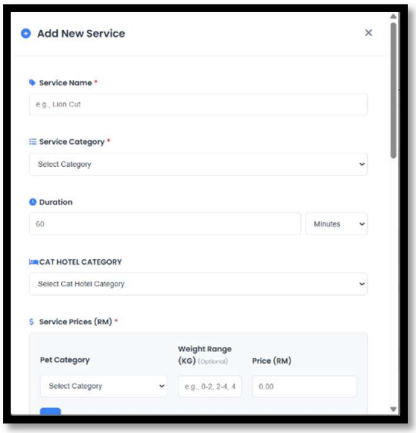


Figure 3.40: Add new service form

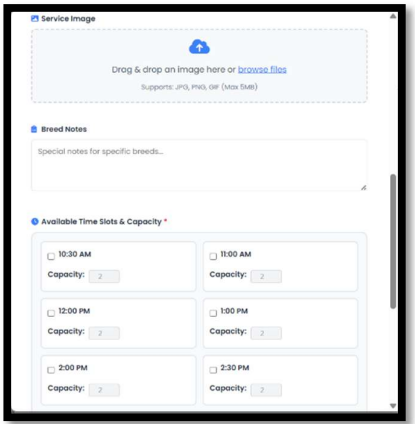


Figure 3.41: Add new service form

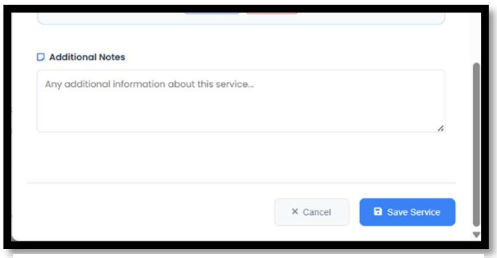


Figure 3. 42: Add new service form

Based on **Figures 3.39,3.40, 3.41 and 3.42** the Service Management feature in the Catswell Pet Care Management System offers administrators effective tools for creating and managing pet care services.

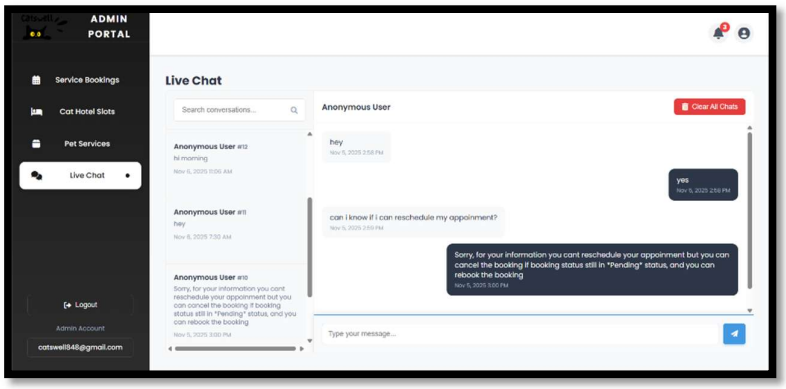


Figure 3.43: Live chat feature interfaces

Based on Figure 3.43, the Live Chat feature in the Catswell Pet Care Management System provides administrators with a straightforward way to communicate with customers in real-time.

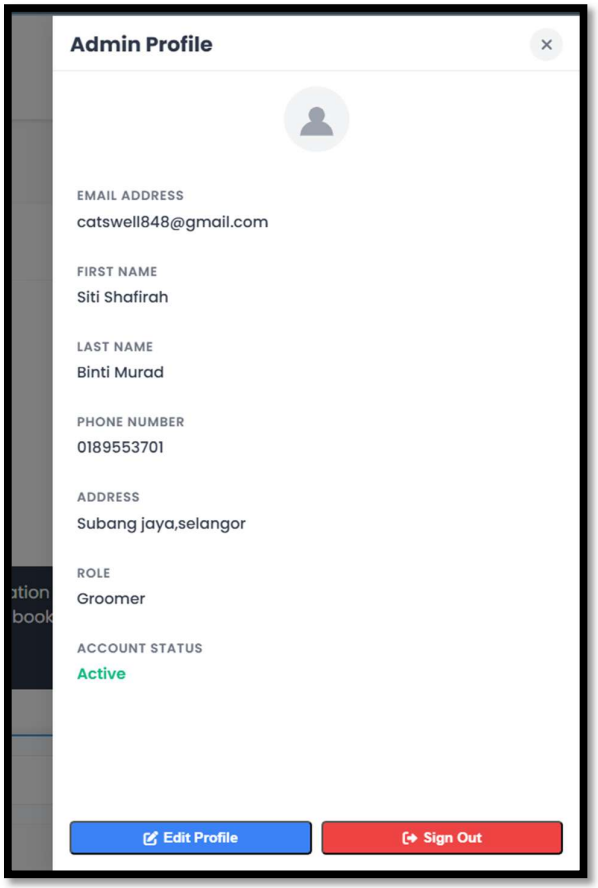


Figure 3.44: Admin profile sidebar

Based on Figure 3.44, the Admin Profile management feature in the Catswell Pet Care Management System serves as a centralized hub for administrators to manage their personal account information.

Actual design for user (pet owner):

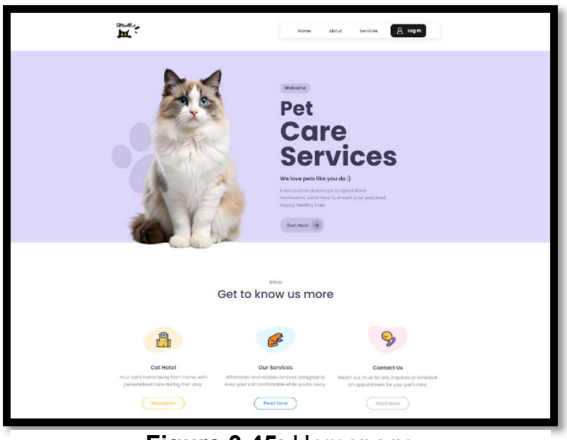


Figure 3.45: Homepage

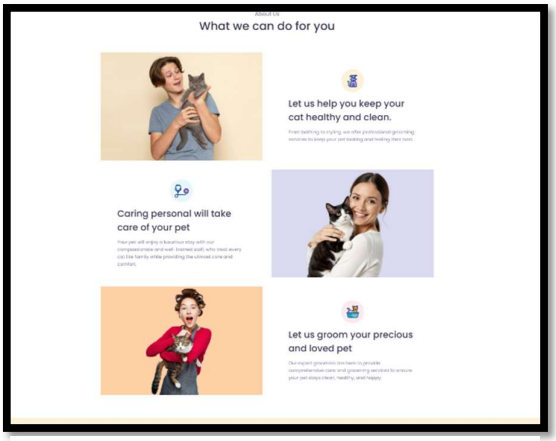


Figure 3.46: About section on homepage

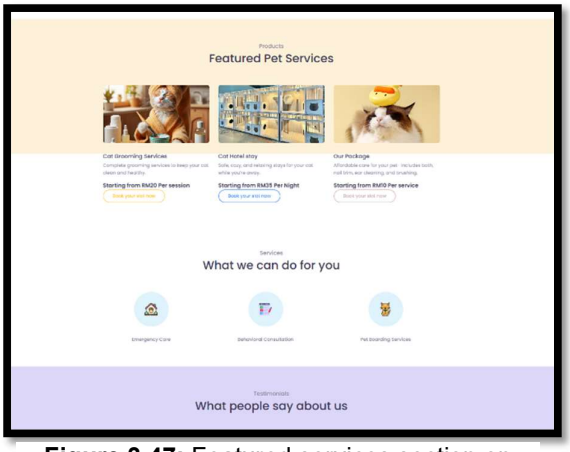


Figure 3.47: Featured services section on homepage

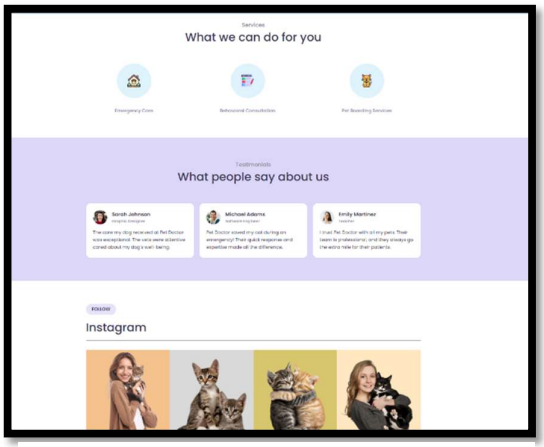


Figure 3.48: Feedback from customer section

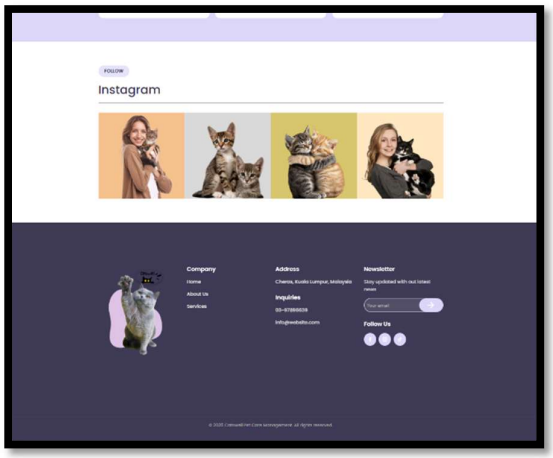


Figure 3. 49: social media and footer section

Based on **Figures 3.45 to 3.48**, show the homepage that provides a clear and informative introduction to the company's services and brand.

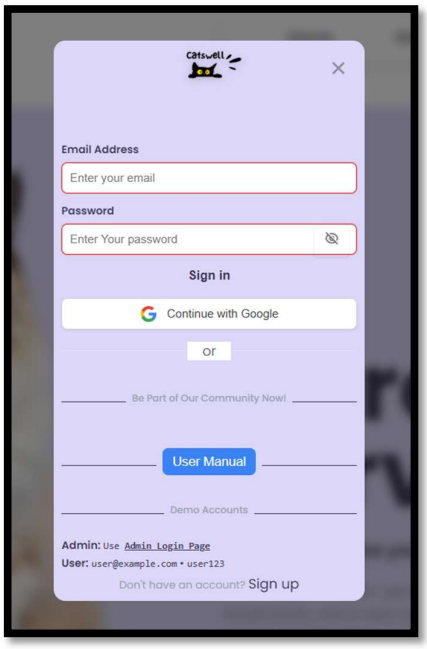


Figure 3.51: Login page for user

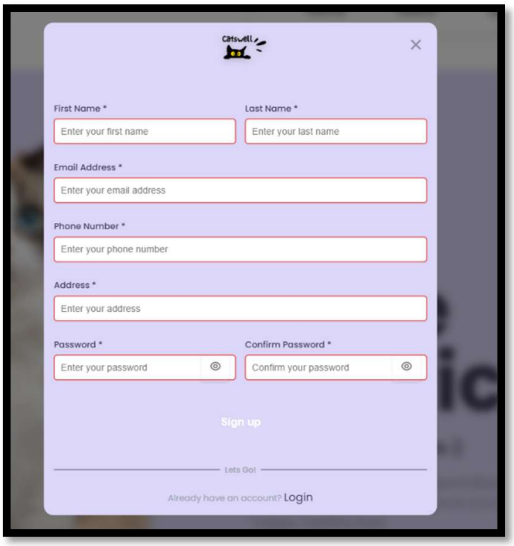


Figure 3.50: Sign up page for user

Based on **Figures 3.50 and 3.51,** the user authentication system for the Catswell Pet Care Management System features distinct interfaces for user login and registration. Figure 3.49 illustrates the login page, which includes straightforward email and password fields, as well as options for social login. Figure 3.51 shows the detailed registration form that collects important customer information, including personal and contact details, along with a secure password creation option and a confirmation field.

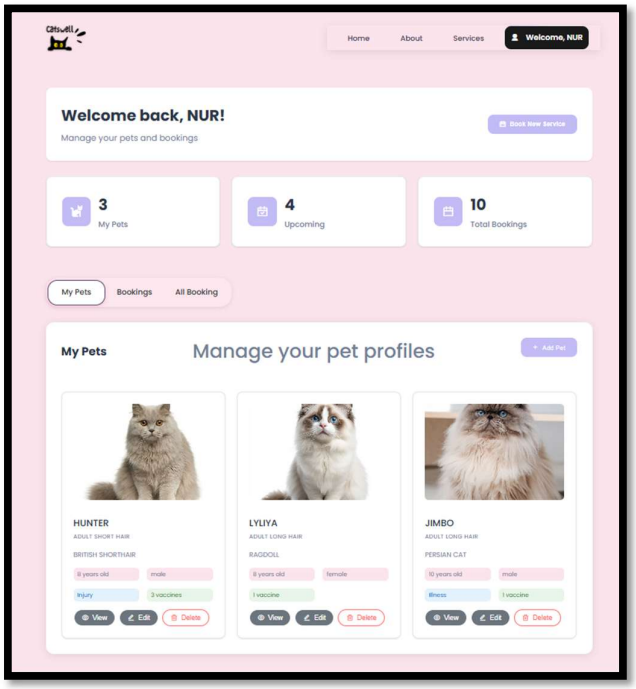


Figure 3.52: User dashboard

Based on Figure 3.52, the User Dashboard for the Catswell Pet Care Management System serves as a centralized hub for pet owners to manage their pets and bookings. The dashboard features a personalized greeting and displays important metrics, including a "Total Bookings" count. In the "My Pets" section, users can view detailed profiles of their pets in a card based format, which includes information such as name, breed, age, gender, and vaccination history.

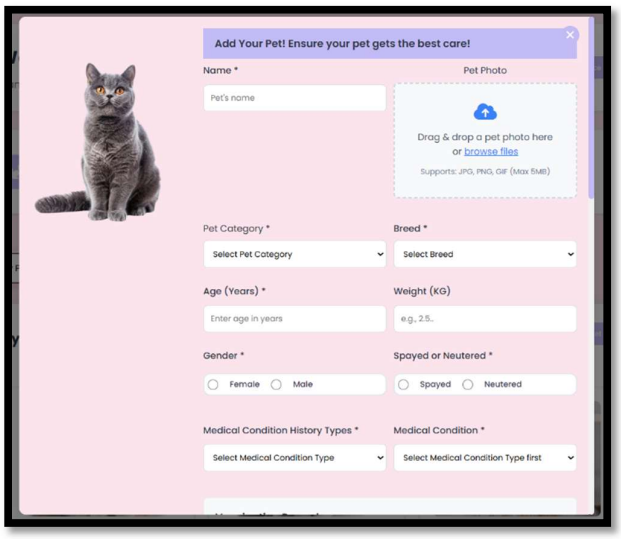


Figure 3.53: Add pet form

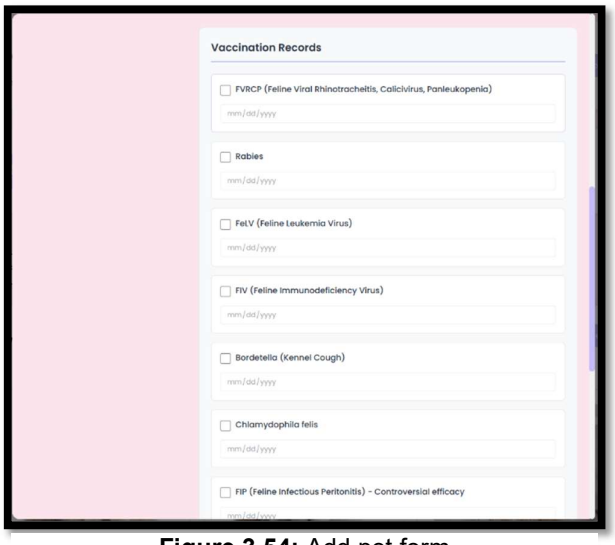


Figure 3.54: Add pet form

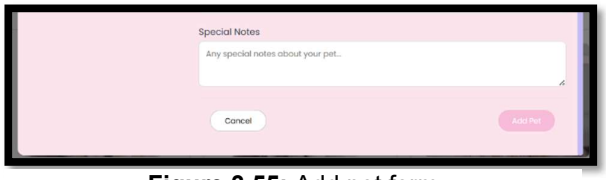


Figure 3.55: Add pet form

Based on Figures 3.53, 3.54, and 3.55, the Pet Registration feature within the Catswell Pet Care Management System that allows users to create detailed profiles for their pets.

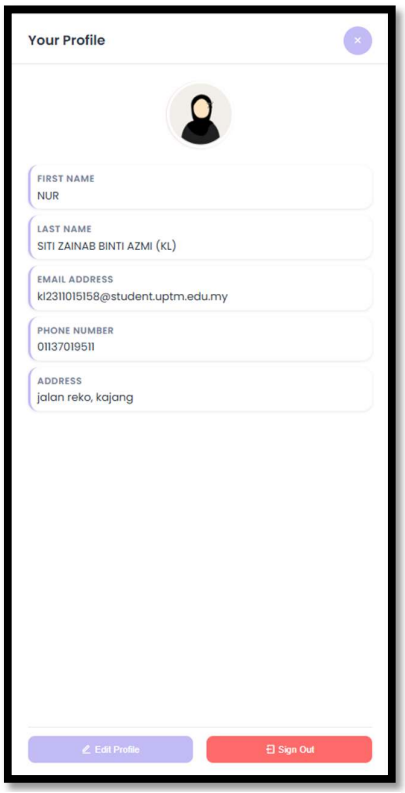


Figure 3.56: User sidebar profile

Based on Figure 3.56, the User Profile feature in the Catswell Pet Care Management System offers users an interactive interface to view and manage their personal account details.

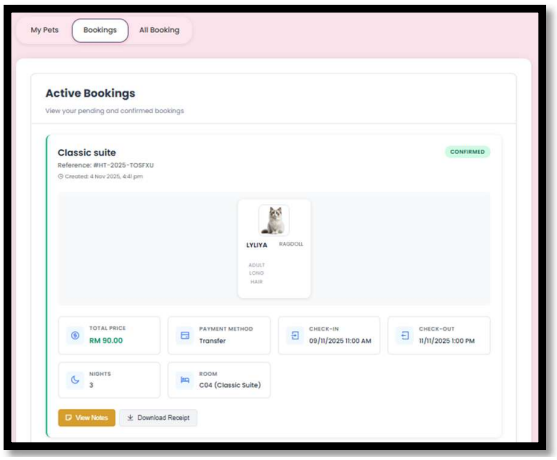


Figure 3.57: User bookings tab

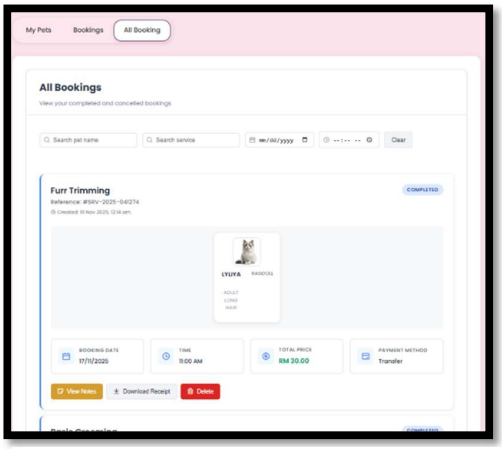


Figure 3.58: User all bookings tab

Based on **Figures 3.57 and 3.58,** the Booking Management interface in the Catswell Pet Care Management System offers users interactive design for tracking and managing their pet care appointments across various status types.

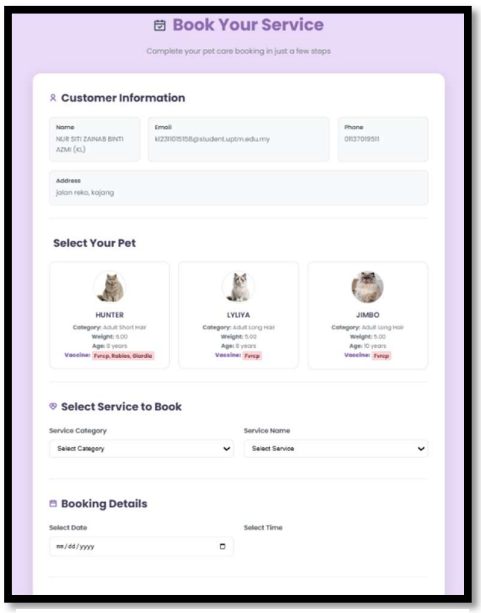


Figure 3.59: Booking process page

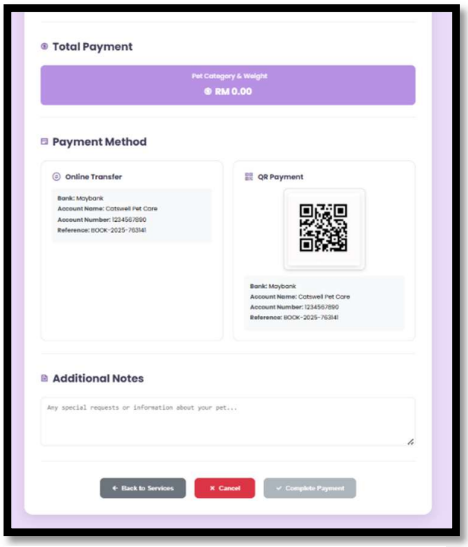


Figure 3.60: Booking process page

Based on Figures 3.59 and 3.60, the booking process of the Catswell Pet Care Management System assists users in confirming their service details and completing a secure transaction.

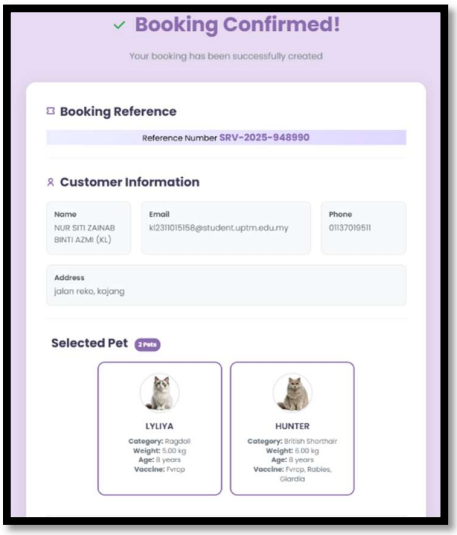


Figure 3.61: Booking confirmed page

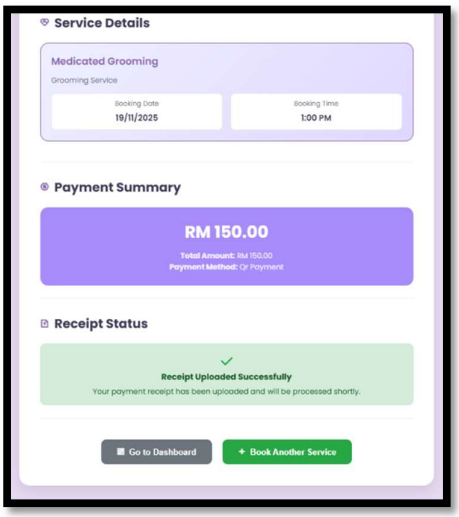


Figure 3.62: Booking confirmed page

Based on Figures 3.61 and 3.62, the Booking Confirmation feature offers users a detailed summary of their completed bookings.

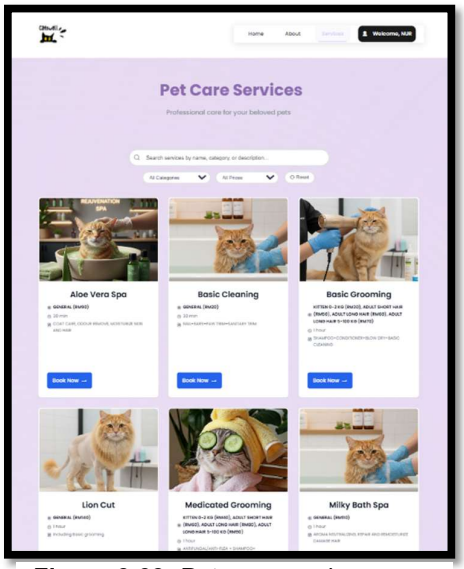


Figure 3.63: Pet care services page

Based on Figure 3.63, the Pet Care Services page serves as an extensive service catalogue, allowing users to explore and hoose from various services for their pets.

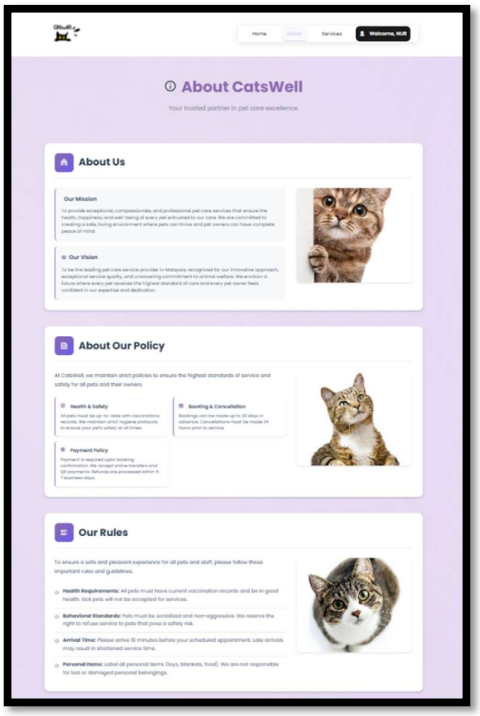


Figure 3.64: About page

Based on Figure 3.64, the "About Catswell" page functions as a thorough informational resource aimed at fostering trust and setting clear expectations for users of the pet care service.

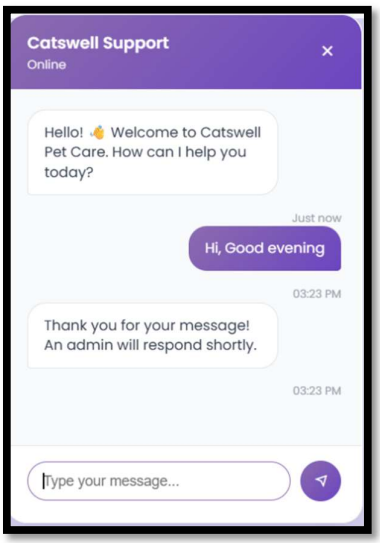


Figure 3.65: Live chat feature interfaces

Based on Figure 3.65, the Catswell Support feature offers a straightforward communication channel for users seeking assistance and it is integrated into the pet care management system.

3.6 System and Application Modelling

Based on the system requirements and intended features for the Catswell Pet Care Management System, we utilized various modelling tools to effectively represent the system's structure and behaviour based on the identified requirements and features. The flowchart outlines the overall process flow of the system, clearly showing the user actions alongside the corresponding system responses. Meanwhile, the use case diagram illustrates the different activities of the two primary user types, admin and pet owners and their interactions with various system functionalities. The entity relationship diagram (ERD) provides a clear overview of the relationships among essential data entities, including users, pets, services, bookings and payments, which aids in designing the database. Additionally, a data dictionary offers detailed descriptions of all data elements used within the system, ensuring clarity and consistency during the development process. Collectively, these modelling tools function as a guiding framework for the design, development and implementation of the Catswell system.

3.6.1 Flowchart

Flowchart for users:

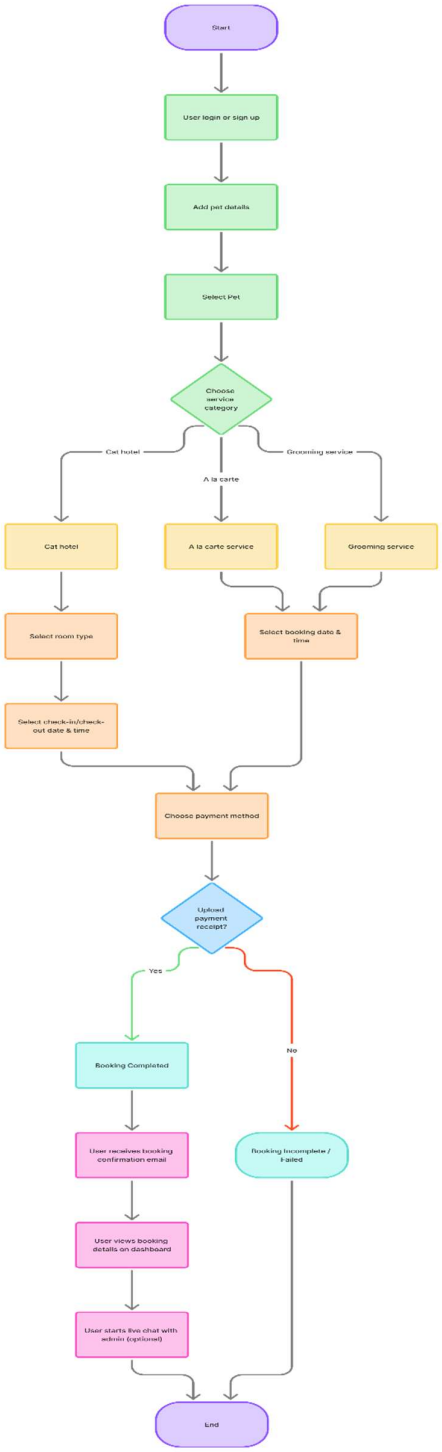


Figure 3.66: Flowchart Diagram for users

Flowchart for admin:

Figure 3.67: Flowchart Diagram for admin user

3.6.2 Use Case Diagram

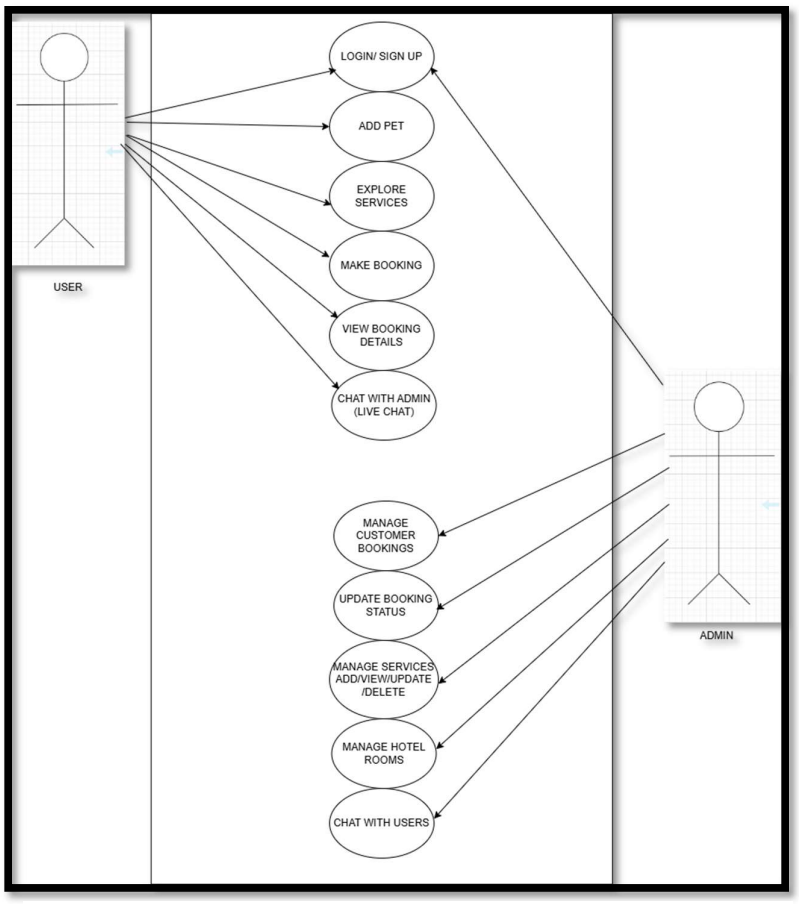


Figure 3.68: Use case Diagram

3.6.3 Entity Relational Diagram (ERD)

The Entity-Relationship Diagram (ERD) outlines the data structure for the Catswell Pet Care Management System and illustrates the connections between entities such as Users, Pets, Service Bookings and Pet Services. Each entity features specific attributes for instance, the Users entity includes id, email, first name, last name and role, while the Pets entity contains information such as name, breed, age, weight and vaccine records. The Service Bookings entity serves as a central link, connecting users with their selected services and pets, while also keeping track of crucial booking details like date, time, total amount and payment method.

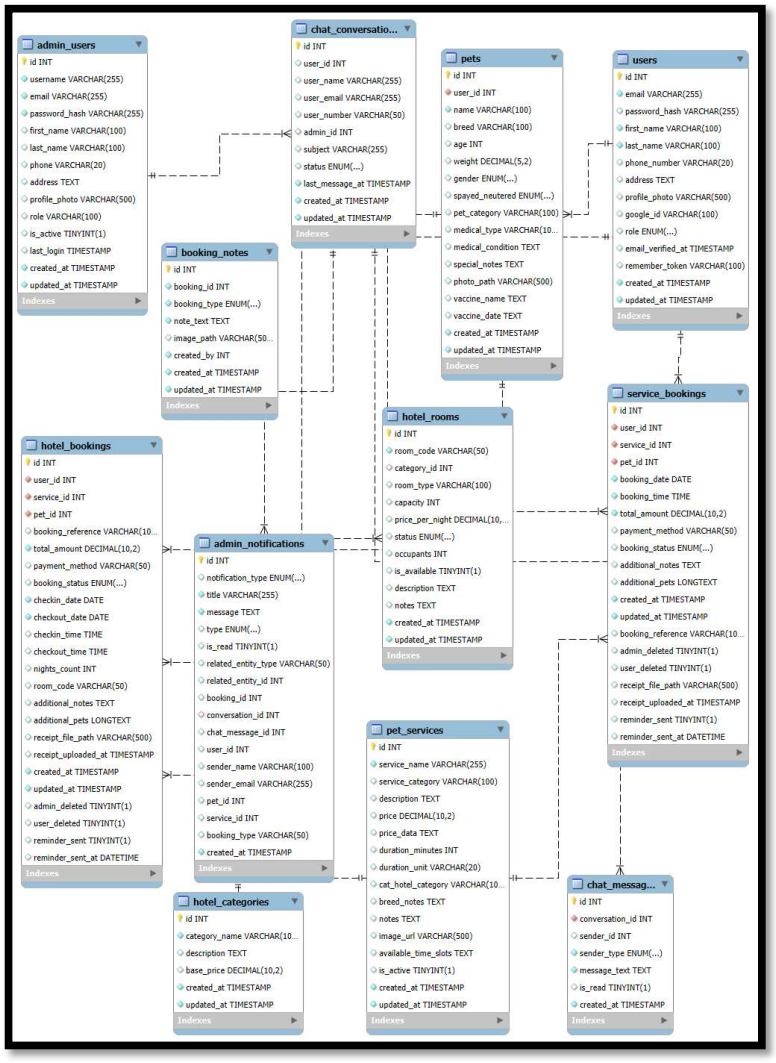


Figure 3.69: ERD Diagram

3.6.4 Data Dictionary

The data dictionary serves as a detailed reference for every database field utilized in the Catswell Pet Care Management System. It outlines the names of tables and fields, their data types and descriptions, such as primary and foreign keys. For instance, the id field in the users table is defined as an Integer and is designated as the primary key, effectively allowing each pet owner to be uniquely identified. In addition, the user_id field in the pets table acts as a foreign key, linking pets to their respective owners. Furthermore, the booking_reference in the service_bookings table is a unique string used to track each appointment within the system. This thorough data dictionary promotes consistency and clarity in the database schema, ensuring that all information related to customers, pets, services, and booking records is accurately maintained and appropriately connected.

Table 3.1: Users Table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each user	101	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
email	VARCHAR(255)	User's email address, used for login and communication	siti.zanab@example.com	UNIQUE, NOT NULL
password_hash	VARCHAR(255)	Securely hashed version of the user's password	$2y$10$...	NOT NULL
first_name	VARCHAR(100)	User's first name	Siti	NOT NULL
last_name	VARCHAR(100)	User's last name	Zanab	NOT NULL
phone_number	VARCHAR(20)	User's contact number	01837018511	NOT NULL

Field Name	Data Type	Description	Example	Constraints
address	TEXT	User's physical address	Jalan Reko, Kajang	NOT NULL
profile_photo	VARCHAR(500)	File path to the user's profile picture	uploads/profiles/siti.jpg	NULL
role	ENUM('customer', 'admin')	The user's system role	customer	NOT NULL, DEFAULT 'customer'

Table 3.2: pets table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each pet	25	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
user_id	INT	Foreign Key linking to the users table. Identifies the pet's owner	101	FOREIGN KEY (users.id), NOT NULL
name	VARCHAR(100)	The name of the pet	Hunter	NOT NULL
breed	VARCHAR(100)	The breed of the pet	British Shorthair	NOT NULL
age	INT	The age of the pet in years	9	NOT NULL
weight	DECIMAL(5,2)	The weight of the pet in kilograms	5.00	NOT NULL
pet_category	VARCHAR(100)	The category of the pet for service pricing	Adult Short Hair	NOT NULL
vaccine_name	TEXT	A list of vaccines the pet has received	FVRCP, Rabies	NULL

Table 3.3: pets_services table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each service	5	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
service_name	VARCHAR(255)	The name of the service	Medicated Grooming	NOT NULL, UNIQUE
service_category	VARCHAR(100)	The category of the service	Grooming	NOT NULL
description	TEXT	A detailed description of the service	Antifungal/Anti-tea shampoo treatment...	NULL
price	DECIMAL(10, 2)	The base price of the service	150.00	NOT NULL
duration_minutes	INT	The expected duration of the service in minutes	60	NOT NULL

Table 3.4: service_bookings table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each booking	1001	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
user_id	INT	Foreign Key to the users table	101	FOREIGN KEY (users.id), NOT NULL
service_id	INT	Foreign Key to the pet_services table	5	FOREIGN KEY (pet_services.id), NOT NULL
pet_id	INT	Foreign Key to the pets table	25	FOREIGN KEY (pets.id), NOT NULL
booking_date	DATE	The scheduled date for the service	2025-11-19	NOT NULL
booking_time	TIME	The scheduled time for the service	13:00:00	NOT NULL
total_amount	DECIMAL(10,2)	The final amount charged for the booking	150.00	NOT NULL
payment_method	VARCHAR(50)	The method used for payment	Qr Payment	NOT NULL
booking_reference	VARCHAR(20)	Unique reference number for the booking	SRV-2025-948990	UNIQUE, NOT NULL
booking_status	ENUM('pending', 'confirmed', 'completed', 'cancelled')	The current status of the booking	confirmed	NOT NULL, DEFAULT 'pending'

Table 3.5: admin_users table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each admin user	1	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
username	VARCHAR(255)	The admin's username for system login	admin_johan	UNIQUE, NOT NULL
email	VARCHAR(255)	The admin's email address	johan@catswell.com	UNIQUE, NOT NULL
role	VARCHAR(100)	The administrative role	super_admin	NOT NULL

Table 3.6: booking_notes table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each note	55	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
booking_id	INT	Foreign Key to service_bookings table	1001	FOREIGN KEY (service_bookings.id), NOT NULL
note_text	TEXT	Content of internal note	Pet has sensitive skin behind ears	NOT NULL
image_path	VARCHAR(500)	Path to uploaded image	notes/matting_20251119.jpg	NULL
created_by	INT	Foreign Key to admin_users table	1	FOREIGN KEY (admin_users.id), NOT NULL
created_at	TIMESTAMP	Note creation timestamp	2025-11-17 10:30:00	NOT NULL, DEFAULT CURRENT_TIMESTAMP

Table 3.7: admin_notifications table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for notification	202	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
title	VARCHAR(255)	Short title for notification	New Booking Received	NOT NULL
message	TEXT	Detailed message of notification	NUR SITI ZANAB booked Medicated Grooming for Hunter	NOT NULL
related_entity_type	VARCHAR(50)	Type of related entity	booking	NOT NULL
related_entity_id	INT	ID of related entity	1001	NOT NULL
is_read	TINYINT(1)	Read status flag	0	NOT NULL, DEFAULT 0
created_at	TIMESTAMP	Notification creation timestamp	2025-11-17 14:30:00	NOT NULL, DEFAULT CURRENT_TIMESTAMP

Table 3.8: hotel_bookings table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for hotel booking	501	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
user_id	INT	Foreign Key to users table	101	FOREIGN KEY (users.id), NOT NULL
pet_id	INT	Foreign Key to pets table	25	FOREIGN KEY (pets.id), NOT NULL
checkin_date	DATE	Check-in date	2025-12-01	NOT NULL
checkout_date	DATE	Check-out date	2025-12-05	NOT NULL
nights_count	INT	Number of nights stay	4	NOT NULL
total_amount	DECIMAL(10,2)	Total booking amount	320.00	NOT NULL
room_code	VARCHAR(50)	Assigned room code	C01	NOT NULL
booking_status	ENUM('pending', 'confirmed', 'checked-in', 'completed', 'cancelled')	Current booking status	confirmed	NOT NULL, DEFAULT 'pending'

Table 3.9: hotel_rooms table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each room	2	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
room_code	VARCHAR(50)	Unique code for the room	D02	UNIQUE, NOT NULL
category_id	INT	Foreign Key to hotel_categories.id	2	FOREIGN KEY (hotel_categories.id), NOT NULL
status	ENUM('available', 'occupied', 'maintenance')	Current room status	available	NOT NULL, DEFAULT 'available'
is_available	TINYINT(1)	Availability for booking	1	NOT NULL, DEFAULT 1

Table 3.10: chat_messages table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each message	3001	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
sender_id	INT	ID of the user/admin who sent the message	101	NOT NULL
sender_type	ENUM('user', 'admin')	Type of sender	user	NOT NULL
message_text	TEXT	The content of the message	Good evening, I have a question	NOT NULL
is_read	TINYINT(1)	Whether the message has been read	1	NOT NULL, DEFAULT 0

Table 3.11: hotel_categories table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each category	2	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
category_name	VARCHAR(100)	Name of the hotel category	Deluxe Suite	UNIQUE, NOT NULL
description	TEXT	Description of the suite	Spacious suite with climbing tree	NULL
base_price	DECIMAL(10,2)	Standard price per night	80.00	NOT NULL

Table 3.12: chat_conversations table

Field Name	Data Type	Description	Example	Constraints
id	INT	Unique identifier for each chat conversation	45	PRIMARY KEY, AUTO_INCREMENT, NOT NULL
user_id	INT	Foreign Key to users.id	101	FOREIGN KEY (users.id), NOT NULL
status	ENUM('open', 'closed', 'resolved')	Current status of the conversation	open	NOT NULL, DEFAULT 'open'
created_at	TIMESTAMP	When the conversation was started	2025-11-17 14:30:00	NOT NULL, DEFAULT CURRENT_TIMESTAMP

3.7 Conclusion

This chapter explained the phase in methodology used to develop the Catswell Pet Care Management System, showing how the project progressed from an idea to a working application. By using Agile methodology, the team was able to handle challenges effectively while always prioritizing user needs. The iterative Agile process, with stages like planning, design, development, testing, deployment, and review, made it possible to improve the system continuously based on feedback and changing requirements.

The initial steps of collecting data and analysing user requirements were very important in making sure the system would solve real problems faced by pet owners and admin staff. Feedback from surveys and interviews showed that there was a strong need for a single digital platform, rather than old manual ways of booking and keeping records. This focus on users shaped every part of the system, including the easy-to-use wireframes and the practical interfaces for both customers and administrators.

In addition, using modelling tools such as flowcharts, use case diagrams, Entity-Relationship Diagrams (ERD), and a data dictionary gave the project team a clear plan to follow during development. These tools helped everyone involved understand how the system works and how it should be built, which made it easier to design a well-organized database and application. To sum up, the careful and structured approach described in this chapter provided a strong base for the Catswell system, making it ready for the next steps of implementation and evaluation.

CHAPTER 4

FINDING AND RESULTS

4.1 Introduction

Chapter 4 looks at testing and evaluating the Catswell Pet Care Management System, which is really important to make sure that the system works as it should for its main users pet owners and administrators. This process is really important to make sure that the portal provides a smooth and effective way to manage pet care services. The testing will check if administrators can manage service catalogues, process bookings, and keep pet records effectively, while pet owners can easily browse services, book appointments, and make payments. The main aim is to make sure the system works reliably, offering all the essential features for effective pet care management while also being easy to use for everyone.

This chapter explains the various kinds of testing that are done to ensure the system is strong and reliable. Unit testing helps ensure that every single feature, like managing pet profiles and processing payments, functions properly and without any mistakes. Integration testing will help make sure that all the connected parts, like linking a service booking to a specific pet and sending a notification to the admin, function as expected. System testing will check if the entire portal meets the design and performance requirements that were set. Finally, User Acceptance Testing (UAT) will show whether the system actually meets the real needs and expectations of both pet owners and administrative staff. All these tests together give a complete look at how well the system works, how stable it is, and if it's ready to be deployed.

4.2 System Evaluation

The assessment of the Catswell system looks at its overall performance, particularly how its usability and functionality meet the essential needs of pet owners and administrators. The testing is meant to check that the portal works as it should and is easy to use in real-life situations. A clear testing process with specific stages is followed to find any problems that might affect system performance, user satisfaction, or business operations. The goal is to create a reliable system that ensures a smooth experience for booking and managing pet care services without any interruptions.

The testing process includes a few important stages: Unit Testing, Integration Testing, System Testing, and User Acceptance Testing. Every phase looks at a particular part of the system, starting with how individual features work, such as the booking interface and payment gateway, then examining how the modules interact and ultimately assessing the overall user experience from start to finish. During this process, we find areas where we can improve and we also see the system's strengths, like its easy-to-use interface and efficient workflow. This thorough assessment makes sure that the Catswell Pet Care Management System is reliable, easy to use, and completely ready for launch, aiming to provide a dependable and user-friendly experience for everyone involved.

4.2.1 Unit Testing

Unit testing for the Catswell Pet Care Management System is done on individual features and functions to make sure that each part works as it should. Every test is set up with particular input data and expected outcomes to check how well the main features work, like booking services, managing pet profiles, processing payments, and handling administrative tasks. Test cases check that features such as the booking process accurately calculate service duration and pricing, that pet medical history records are validated and stored correctly and that payment details are stored successfully. If the actual results are the same as what we expected, then the test is considered a pass. If there are any inconsistencies, the code gets reviewed and updated as needed. This careful process makes sure that each part of the system works properly before it gets combined with other modules.

Table 4.1: Unit Testing for admin

Module Testing	Input Data	Expected Output	Error Handling	Result
Admin Login	Username: "catswell848@gmail.com", Password: "SecurePass123"	Successful login, redirect to admin dashboard	Displays "Invalid credentials" for wrong password	**PASS**
Service Management - Add New Service	Service: "Basic Grooming", Category: "Grooming", Price: 75.00, Duration: 30	New service added to catalog, success message displayed	Validates required fields, shows error for missing price	**PASS**
Add New Room	Room Code: " D02", Category: "Deluxe Suite", Price: 80.00	New room added to specified category, success confirmation	Validates unique room code, checks category existence	**PASS**
Update Room Status	Room Code: "C01", New Status: "maintenance"	Room status updated, removed from available rooms list	Validates room existence, ensures valid status transition	**PASS**
Add Booking Notes	Booking ID: 10, Note: "Pet has matted fur requiring special attention"	Note saved to booking record, timestamp and admin ID recorded	Validates booking existence, prevents empty notes	**PASS**
View Full Booking Details	Booking Reference: "SRV-2025-948990"	Displays complete booking info: customer, pet, service, payment	Handles invalid reference, shows "booking not found"	**PASS**
Chat Management - Send Message	User ID: Anonymous 102, Message: "We recommend bringing vaccination records"	Message delivered to user chat, appears in conversation history	Validates user existence, prevents empty messages	**PASS**
Chat Management - Delete Chat	Conversation ID: 45, Action: "delete"	Entire conversation history	Confirms deletion action, logs	**PASS**

Module Testing	Input Data	Expected Output	Error Handling	Result
		removed from database	moderation activity	

Table 4.2: Unit Testing for Users

Module Testing	Input Data	Expected Output	Error Handling	Result
User Registration	First Name: "Siti “, Last Name:” Zainab”, Email: "sitizainab@email.com", Phone: "0123456789"	Account created, verification email sent	Validates email format, checks duplicate email	**PASS**
Pet Profile Creation	Name: "Milo", Breed: "Siamese", Weight: 4.5, Image: "milo.jpg", Vaccination: "Rabies 2024", Notes: "Allergic to chicken", Age: 2	Pet profile saved with all details, added to user's pet list	Validates required fields, checks file type for image	**PASS**
Service Booking with Notes	Service: "Medicated Grooming", Pet: "Milo", Date: "2025-12-10", Notes: "Please use hypoallergenic shampoo"	Booking confirmed with notes, reference number generated	Validates note length, checks service availability	**PASS**
Hotel Booking	Category: "Deluxe Suite", Room: "D02", Pet: "Milo", Check-in: "2025-12-01", Check-out: "2025-12-03", Notes: "Bring own food"	Hotel booking confirmed, room assigned, total calculated	Validates date range, checks room availability	**PASS**
View Booking Dashboard	User ID: 101	Displays all bookings with clear status, dates, and actions	Shows organized layout with filtering options	**PASS**
Cancel Booking	Booking Reference: "SRV-2025-948990", Reason: "Change of plans"	Booking status updated to cancelled, notification sent	Validates cancellation policy, time restrictions	**PASS**

Module Testing	Input Data	Expected Output	Error Handling	Result
Delete Booking	Booking Reference: "SRV-2025-763142", Action: "delete"	Booking removed from user view, soft delete in database	Confirms deletion, maintains admin visibility	**PASS**
Download Receipt	Booking Reference: "SRV-2025-948990"	PDF receipt downloads with all booking and payment details	Handles missing receipt file gracefully	**PASS**
View Admin Notes	Booking Reference: "SRV-2025-948990"	Displays admin notes section with timestamps and author	Shows "No notes" when none exist	**PASS**
Payment Processing with Receipt Upload	Amount: 150.00, Method: "QR Payment", Reference: "BOOK-2025-763141", Receipt: "payment_receipt.jpg"	Payment successful, receipt uploaded, booking status "pending"	Prevents booking completion if receipt not uploaded; shows "Receipt upload required" error message	**PASS**

Table 4.3: Unit Testing for Notifications Module

Module Testing	Input Data	Expected Output	Error Handling	Result
Booking Confirmation Email	Booking ID: 20, User Email: "ali@email.com"	"Booking Confirmed" email sent successfully with booking details and reference number.	Handles invalid email format; retries if email service fails.	**PASS**
Reminder Email	Booking ID: 20, User Email: "ali@email.com"	"Appointment Reminder" email sent 24 hours before the booking time.	Does not send if booking is cancelled; handles email failures.	**PASS**

4.2.2 Integration testing

Integration testing of the Catswell Pet Care Management System involves bringing together and assessing how the key modules of the system work together. This includes service booking, payment processing, pet profile management, and hotel room allocation. The goal is to make sure that data moves smoothly between different modules and that these modules work together collaboratively as part of an integrated system. For instance, when someone finishes booking a service and makes a payment, integration testing will check that this transaction shows up correctly in the user's booking history and on the admin's notification dashboard. It will check that real time updates to room availability are shown correctly in all parts of the system. The testing process is really important for spotting mismatches and possible communication problems between modules, ensuring that both pet owners and administrative staff have a consistent experience.

Table 4.4: Integration Testing

Module Testing	Input Data	Expected Output	Error Handling	Result
User Registration & Pet Profile	New user registers and creates a pet profile.	User account and pet profile are saved in the database.	Stops if registration fails.	**PASS**
Service Booking & Payment	User selects a service, pet, date, time, and pays.	Booking is created and marked as 'pending verification'.	Cancels booking if payment fails.	**PASS**
Hotel Booking & Room Allocation	User books a hotel room for specific dates.	Room is marked as occupied and booking is confirmed.	Prevents double-booking.	**PASS**
Admin Notes	Admin adds a note to a booking.	Note is saved to the booking record.	Stops if booking ID is invalid.	**PASS**
Booking Cancellation	User cancels a hotel booking.	Booking status is updated and room is made available again.	Prevents cancellation of completed bookings.	**PASS**

Module Testing	Input Data	Expected Output	Error Handling	Result
Pet Profile & Service Eligibility	User with a pet books a service requiring vaccines.	System checks the pet's vaccine records.	Blocks booking if requirements are not met.	**PASS**
Live Chat System	Anonymous user asks a general question.	Chat session starts without needing a login.	Manages multiple chat sessions.	**PASS**
Room Maintenance	Admin sets a room to maintenance.	Room status is updated for all users to see.	Maintains correct status display.	**PASS**
User Dashboard	User views their dashboard.	All bookings are shown in order.	Shows a blank state if no bookings exist.	**PASS**
Automated Reminder System	System runs 24 hours before a booking.	Sends a reminder email to the user.	Handles email failures.	**PASS**

4.2.3 System Testing

System testing of the CatsWell Pet Care Management System makes sure that the system works for both types of users: customers and administrators. Functional testing makes sure that basic tasks like booking a service, collecting payments, managing pet profiles, and giving out hotel rooms work as they should. When there are a lot of bookings or more than one person is using the system at the same time, performance testing makes sure that it stays responsive.

Acceptance testing makes sure that the system meets the needs of the business and makes things easy for both staff and pet owners. Testing for usability makes sure that people with different levels of technical knowledge can easily understand and use the interface. Reliability testing makes sure that the system stays stable while it does important things like processing payments and changing bookings. Testing for security makes sure that only people who are allowed to see private information about customers and pets can do so.

Table 4.5: System testing

Testing Type	Scenario	Expected Result	Result
Functional Testing	Test service booking, payment, pet profiles, and admin functions.	All features work correctly without errors.	**PASS**
Usability Testing	Evaluate interface navigation and workflow for users and admins.	Interface is intuitive and easy to use.	**PASS**
Security Testing	Attempt unauthorized access to admin features and user data.	System blocks unauthorized access and secures data.	**PASS**
Reliability Testing	Perform repeated logins, bookings, and profile updates.	System remains stable under normal use.	**PASS**
Acceptance Testing	Real users complete full booking and payment process.	System meets business requirements and user needs.	**PASS**
Compatibility Testing	Test on laptop (Chrome, Firefox), iPad (Safari), and Android phone via local IP address.	System works correctly across all devices and browsers.	**PASS**
Interface Testing	Verify data flow between UI and database.	Data transfers correctly without errors.	**PASS**

Testing Type	Scenario	Expected Result	Result
Performance Testing	Simulate multiple concurrent users making bookings.	System maintains good performance under load.	**PASS**
Regression Testing	Test existing features after updates and bug fixes.	Previous functionality continues to work properly.	**PASS**

4.2.4 User Acceptance Testing (UAT)

This will ensure the feedback survey collected from a Google Form questionnaire for admin and users can guarantee that their requirements have met their expectations.

User acceptance testing for admin:

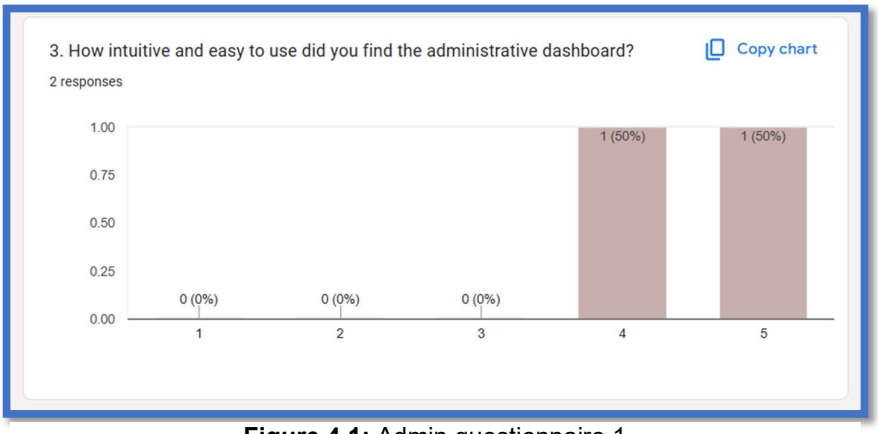


Figure 4.1: Admin questionnaire 1

Figure 4.1 shows that how admin satisfy with the user-friendliness and intuitiveness of the administrative dashboard. According to the 50% of the respondents who rated the dashboard 4/5, and the other 50% who rated 5/5, no respondents rated it lower than 4. Administrators were able to evaluate the dashboard effectively in keeping records of pet care services, service bookings, and customer information.

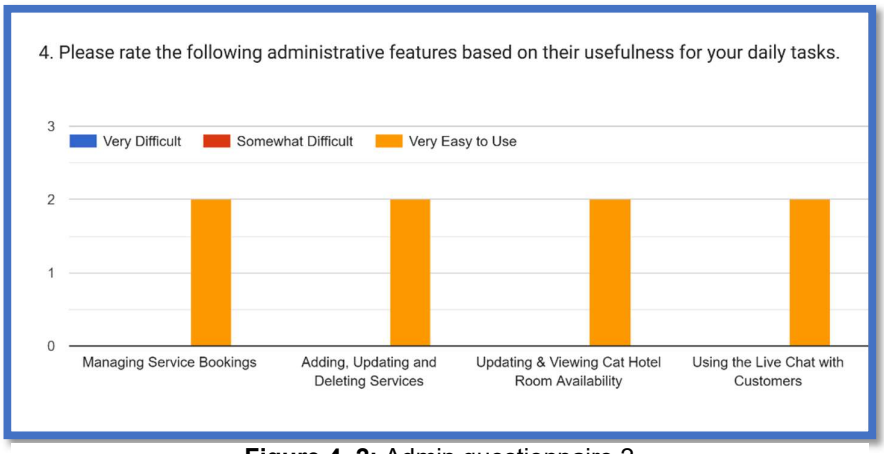


Figure 4. 2: Admin questionnaire 2

In Figure 4.2, the most important functionalities in daily operations are shown. Managing Service Bookings and Using the Live Chat with Customers were rated Very Easy to Use and are, thus, important and usable features.

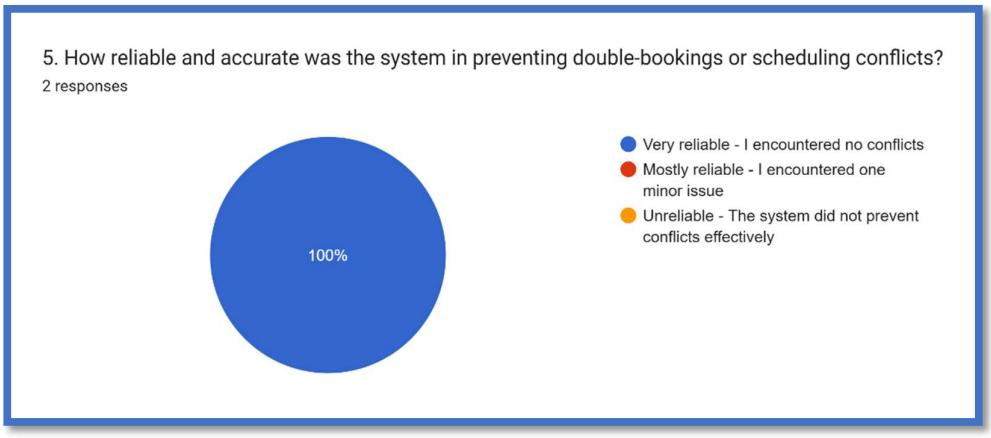


Figure 4.3: Admin questionnaire 3

According to Figure 4.3, responses from administrators regarding the system's effectiveness in preventing double bookings. Every respondent characterized the system as "very reliable" and reported no difficulties in scheduling. This suggests the reservation and allocation system is effective.

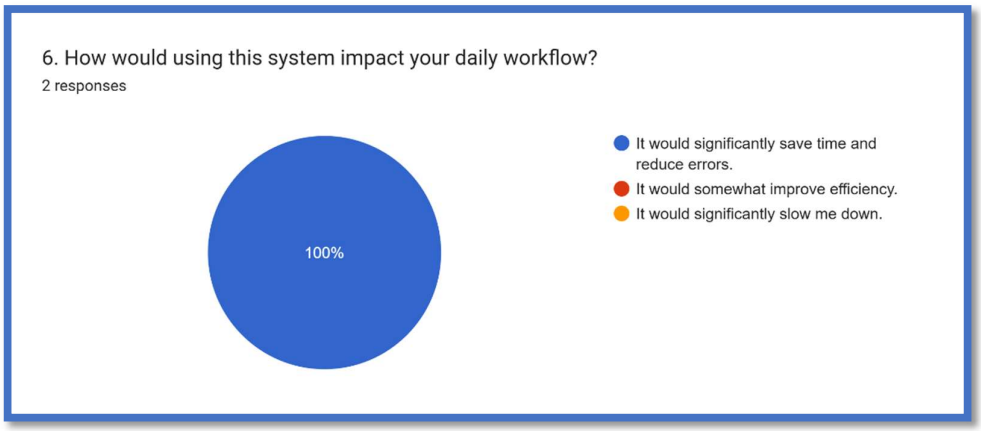


Figure 4.4: Admin questionnaire 4

Figure 4.4 presents admin feedback about how the system affects daily workflow. All respondents said the system "would significantly save time and reduce errors." This suggests the administrative features help make daily tasks more efficient and accurate.

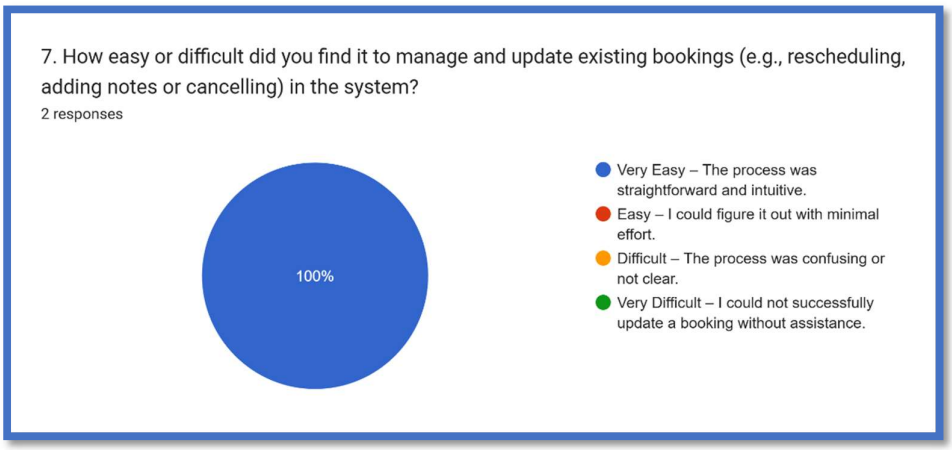


Figure 4.5: Admin questionnaire 5

Figure 4.5 shows the admin feedback on managing and updating bookings. All respondents said the process was "Very Easy" and described it as straightforward and intuitive. This shows that rescheduling, adding notes and cancelling bookings are user-friendly and efficient.

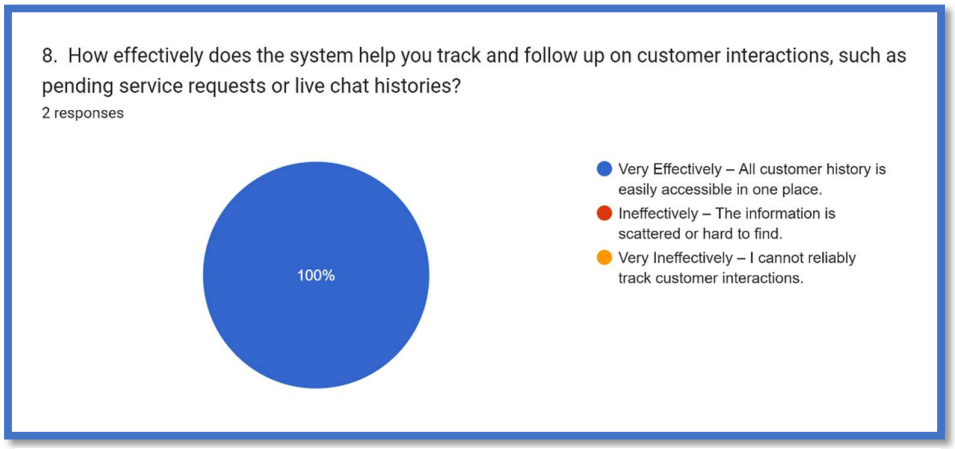


Figure 4.6: Admin questionnaire 6

Figure 4.6 shows the admin feedback on tracking customer interactions. All respondents said the system works "Very Effectively" and that customer history is easy to find in one place. This shows the system centralizes service requests and chat histories for easier management.

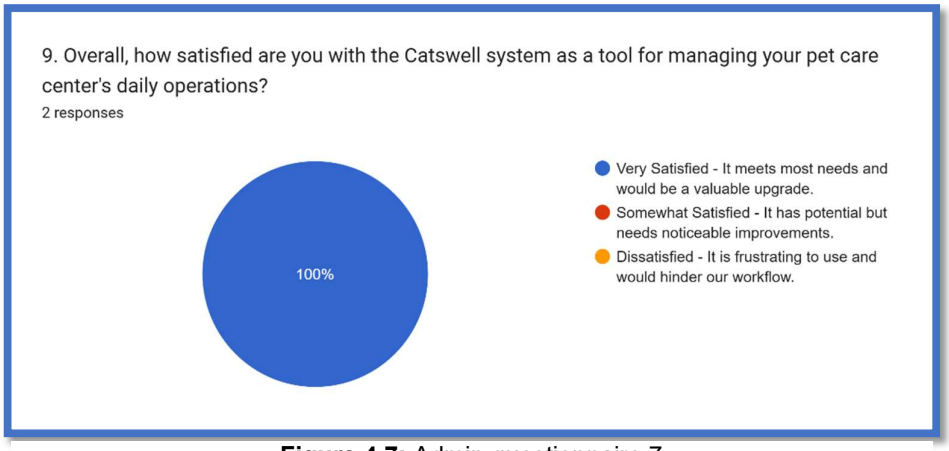


Figure 4.7: Admin questionnaire 7

Figure 4.7 shows the overall admin satisfaction with the Catswell system. All respondents said they were "Very Satisfied," noting that the system meets most of their needs and would be a valuable upgrade. These results show that the system works well for managing daily pet care tasks.

User acceptance testing for users:

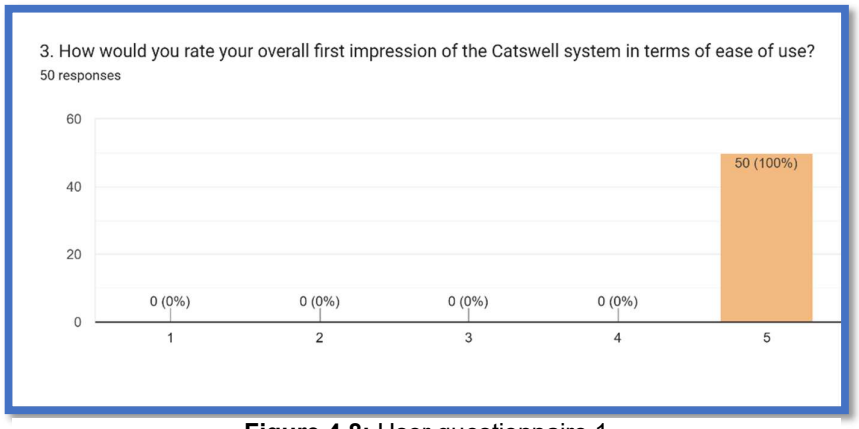


Figure 4.8: User questionnaire 1

Figure 4.8, shows the user feedback on their first impression of the Catswell system's ease of use. All 50 respondents gave it a top score of 5 out of 5. This result suggests users found the system easy to understand and use for booking services and managing pet profiles right away.

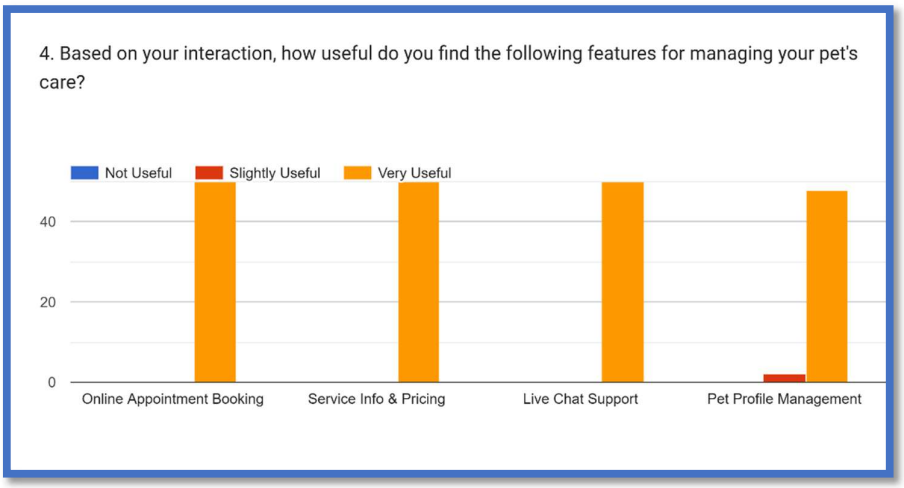


Figure 4.9: User questionnaire 2

Figure 4.9 shows user ratings for the usefulness of key system features. All features, including Online Appointment Booking, Service Info & Pricing, Live Chat Support, and Pet Profile Management, were rated as "Very Useful" by users. This suggests that the main functions of the system meet pet owners' needs for managing their pets' care.

Figure 4.10: User questionnare 3

Figure 4.10 shows what users thought about how easy it was to find information and features in the system. 98% of the 50 people said it was "Very easy" because the menu and layout made sense. This high percentage means that users can easily and logically find their way around the system.

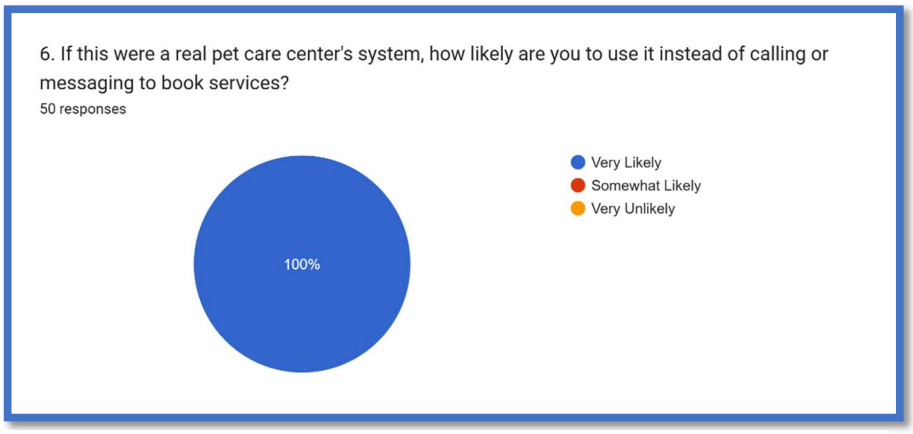


Figure 4. 11: User questionnaire 4

Figure 4.11 illustrates that users are highly willing to adopt the Catswell system for real world web applications. In the survey, all 50 respondents stated that they are "Very Likely" to use the system for booking services, rather than making phone calls or sending messages. This result clearly indicates strong user acceptance and a strong preference for the digital booking platform compared to traditional booking methods.

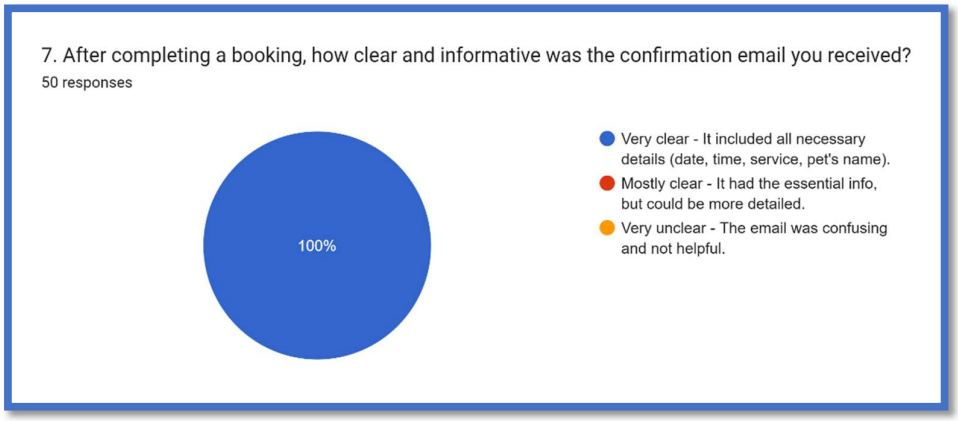


Figure 4.12: User questionnaire 5

Figure 4.12 presents users' opinions on the booking confirmation emails. All 50 respondents (100%) said the emails were "Very clear" and included key details like the day, time, service, and pet's name. This suggests the system communicates effectively after a booking.

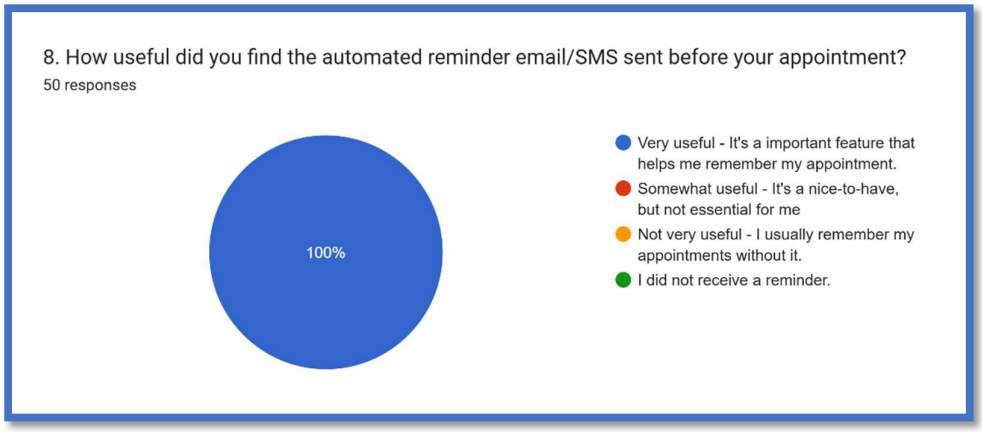


Figure 4.13: User questionnaire 6

Figure 4.13 shows how users feel about automated reminder emails and texts. All respondents said these reminders are "Very useful" and help them remember appointments. This shows the notification system is a valuable part of the user experience.

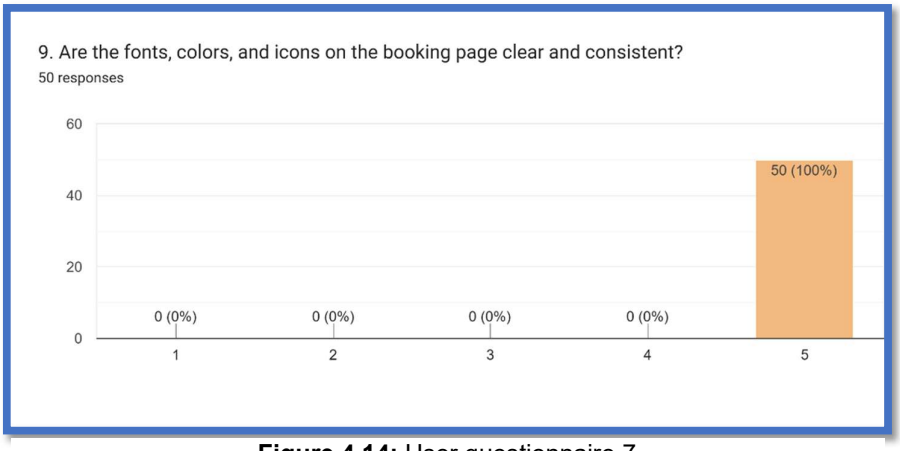


Figure 4.14: User questionnaire 7

Figure 4.14 shows how users rated the interface's visual design. All 50 users gave it a perfect score for clear and consistent fonts, colors, and icons on the booking page.

This feedback suggests the design is professional, easy to use, and helps with overall usability.

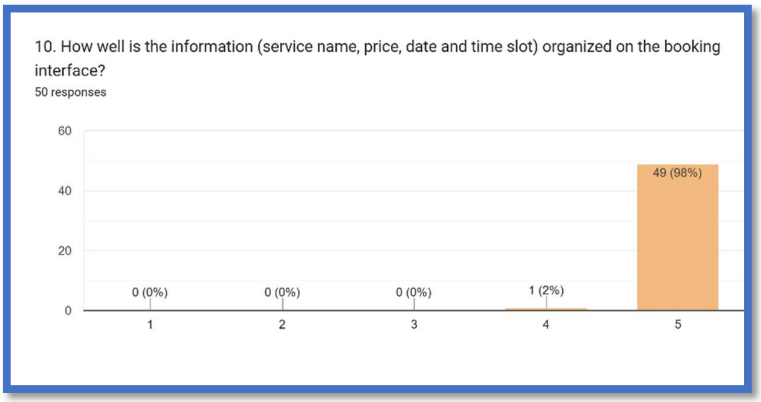


Figure 4.15: User questionnaire 8

Figure 4.15 shows what users thought about how easy it was to use the main system interface. Half of the users gave it a perfect score of 5 out of 5, and the other half gave it a score of 4 out of 5. This means that the overall user interface is very easy to use and understand when looking for services and making bookings.

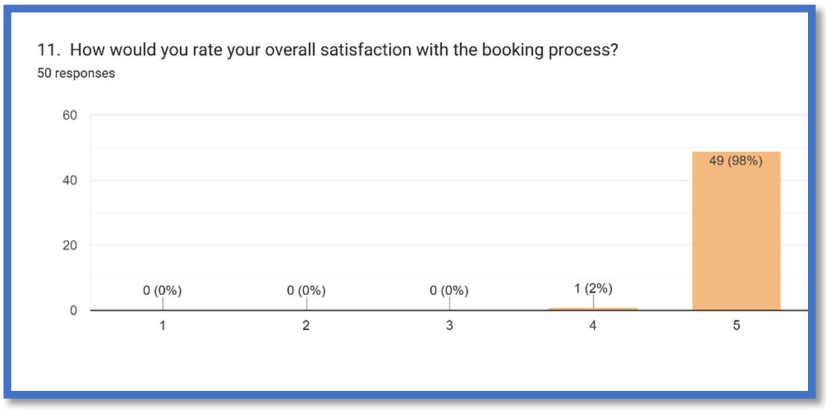


Figure 4.16: User questionnaire 9

Figure 4.16 shows overall user satisfaction with the booking process. The average rating was 4.98 out of 5, with most users choosing the highest score. This means the booking steps, from choosing a service to confirming payment, meet user expectations well.

4.3 Discussion

All test categories showed positive results for The Catswell Pet Care Management System. The unit testings showed there were no failures with each test case. There were 22 test cases and all passed. This result indicates there is the necessary and essential foundational core of the system's code and is of certifiable reliability for frontend and backend functionality.

Integration testing confirmed different system modules worked efficiently together during essential and high priority actions including serviced bookings with payments and hotels with room allocations. However, admin user acceptance testing identify a minor discrepancy between fully aligned expectations of the administrator with 4 out of 5 star ratings given and the empty 5 star rating suggesting there is an improvement opportunity for the interface administered dashboard.

The platform is stable and the system testing results confirmed the system is seamless, secure on all platforms, devices and operating systems. The system is highly useful and operational during busy peak times which is essential for multiple bookings managed by a user in a time critical scenario. Achieving a 100% pass rate in all system tests demonstrates that the platform is operational and performs on reliability.

The feedback obtained through user acceptance testing was from both users and admin. The pet owner found the system user-friendly, interactive and clear information layout and the automated reminders. Interestingly, all users, 100%, indicated a preference for this system compared to standard booking practices. Moreover, administrators identified time savings and reduced errors, confirming the system's utility and practicality to the system's users.

4.4 Conclusion

As far as the comprehensive test results , Catswell Pet Care Management System has passed all the evaluation criteria satisfactorily. The unit testing initially done indicated that, all 22 test cases showed that the system's components were functioning as they'd been designed and implemented. This implies that the system's core code is equally reliable and builds credibility on the gatekeeping functions both for the system's users and administrators. The integration testing showed there was no outstanding issues as far as the data flow between the system's modules is concerned, especially in the critical steps of service booking with payment and hotel reservation with room allocation. Such integration further enhances the system's usability. The system testing showed that the system is robust, secure and adaptable across a range of devices and operating systems. There was also a significant responsiveness of the system during the performance tests, even with maximum loading of the system, which is important when considering the scenario of multiple bookings being done concurrently.

The indicates that system is reliable. System Testing provided by both user and admin received positive feedback. Pet owners praised the straightforward manner of the booking process, the organized presentation of information, and the automated notifications. Users claimed a total preference towards this system over any other conventional booking systems. Administrators also noted time and error deficiency which indicates that the system meets the operational needs of the businesses.

CHAPTER 5

CONCLUSION

5.1 Introduction

The last results of the Catswell Pet Care Management System project in this chapter are given. This section provides the overview of how the system can effectively achieve the project goals, what shortcomings have been faced and what recommendations can be made to make further improvements towards the system. The system offers serious advantages to the local pet care centers and cat owners as it will help centralize the booking system, pet profiles, records of services performed, and communication of the system in one platform. A recent study revealed that digital management systems are beneficial in terms of efficiency and reduced use because they help to eliminate manual errors and improve workflow in service-based industries. Having combined several functions, including setting appointments, maintaining information about pets, and direct communication in the same web application, this project will enable more precision, better quality of services and make the entire process convenient in general to both employees and to pet owners. Finally, Catswell system reinforces the efficacy of operations and increases the quality of provided care to cats in grooming, boarding, and health-related services.

5.2 Project Achievement

5.2.1 To develop an online booking and Pet care management systems.

The Catswell Pet Care Management System successfully achieved its main objective to design a web platform. The system provides pet owners with a convenient method to make appointments and bookings to have their pets groomed and boarded without having to use other communication approaches such as making a call or using WhatsApp. Using a website interface, one is able to register their pets, view available services, and access time slots to make appointments.

Proof of achieving this goals:

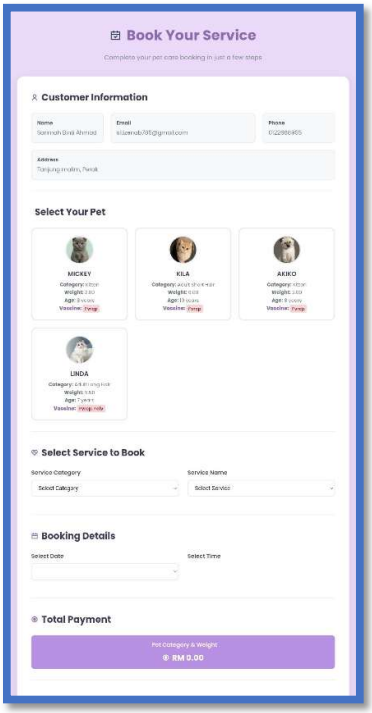


Figure 5.1: User booking page

Based on Figure 5.1 above clearly indicates that users can choose their pets, services, dates and times and even view the total amount payable. This confirms the system offers an end to end booking process for the users.

5.2.2 To implement a centralized data management.

By bringing together crucial pet care data in a single platform, the Catswell Pet Care Management System has succeeded in the implementation of centralized data management. Staff and admins alike can access precise, up-to-date information at any time whether for customer details or for records on one person's pets.

Before this project, information was scattered across WhatsApp messages, scraps of paper and Excel datasets making it difficult to track bookings or find pet history effectively. With centralized data management, the system eliminates repetitive duplication, reduces manual errors and improves decision-making. All bookings records are easily viewable to admins, upcoming appointments can be tracked at a glance and consistent records on each pet are maintained.

Proof of achieving this goals:

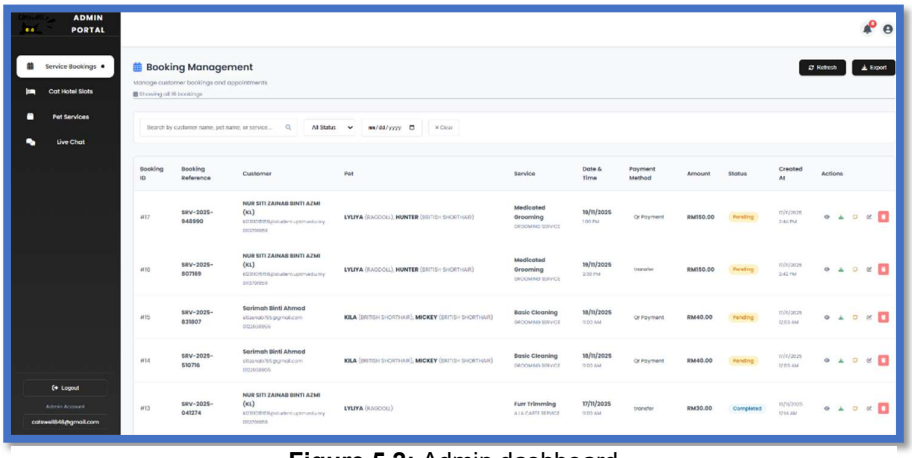


Figure 5.2: Admin dashboard

The centralization of management is realized and the example is shown in Figure 5.2 Admin dashboard page), where all booking data such as the information of customers, pets, service types, service details and created time are saved to database is shown together on one dashboard. With this centralized management, admins are able to see the bookings in real-time, filtering through records via date, status, month or year. Admin can download receipt uploaded by users and booking progress, having full access to complete customer & pet details such as name, age, and breed of any particular pet. Admin also can edit, deleting or changing things around on bookings. This is the proof that no more to switch between excel sheets or WhatsApp and everything is well structured database fetched from admin portal.

5.4 Project Constraint and Limitation

During the deployment and evaluation of the modules of the Catswell Pet Care Management System, multiple flaws came to the fore. Chief among them is the fact that users cant reset passwords, resulting in potential account lockouts and system access inequity issues. Also, the system is devoid of any automated updating booking status to reflect the passage of time and the date in the future. This requires that admins, already have high workloads, manually mark a booking as completed or cancelled.

Also, users have no system generated messages or notifications of any kind pertaining to the status of booking, including booking that have been confirmed or approved and those that have been completed. This could lower the pertaining engagement at the system and might underscore the importance of messages that contain updates messages that system users need to prioritize. Not with standing these limitations, the system still provides functional modules that assist users in managing day to day operations in pet care.

5.4 Recommendation and Future Work

The system could implement an analytics dashboard so by analysing trends in bookings, customer behaviour and service demand, administrators can make better decisions and carry out more effectively all its operations plan made.

Additionally, the system could be implemented as a mobile application on Android and iOS platforms, allowing the pet owner to conveniently arrange services, get informed in time about progress being made with their pets and consult lists of past pet care. This means an increase in user accessibility, and users satisfied for it is both convenient and inexpensive.

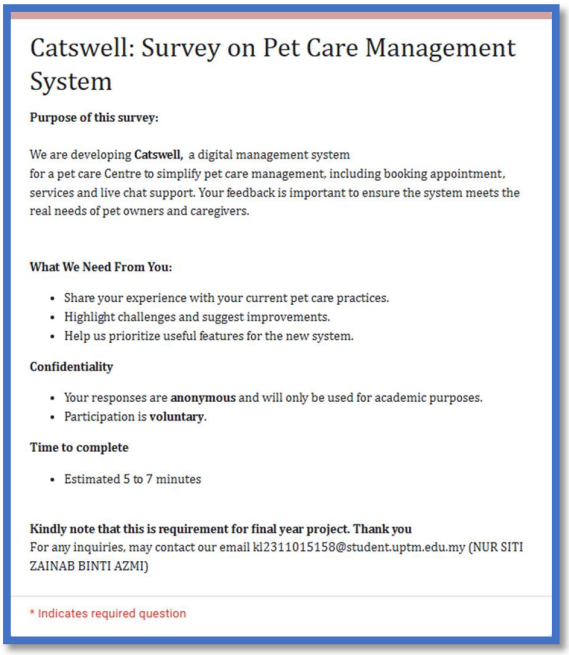
Last but not least, the incorporation of secure online payment methods such as credit cards, bank transfers, e-wallets and online banking will lead to a smoother, cashless and yet more convenient payment process. These innovations would greatly improve the reliability of the system and service it provides to both staff and customers.

5.5 Conclusion

The original intention of the Catswell Pet Care Management System was to connect pet profiles with service and booking in a more organized manner. The system also helps to increase pet care canters operating style and a relatively higher level of booking convenience for pet owners Although there are still a number of weaknesses, no password reset feature, no self-updating booking status updates and no direct notification to mobile users, the system is equipped with important facilities that go a long way in helping daily work to be done. With future improvements such as analytic reporting, development of a single mobile application to become internationally applicable and integration of the online payment system design, this service may become a perfect pet care management solution.

APPENDIX A- QUESTIONNAIRE

Questionnaire data gathering for Users:



Catswell: Survey on Pet Care Management System

Purpose of this survey:

We are developing **Catswell**, a digital management system for a pet care Centre to simplify pet care management, including booking appointment, services and live chat support. Your feedback is important to ensure the system meets the real needs of pet owners and caregivers.

What We Need From You:

- Share your experience with your current pet care practices.
- Highlight challenges and suggest improvements.
- Help us prioritize useful features for the new system.

Confidentiality

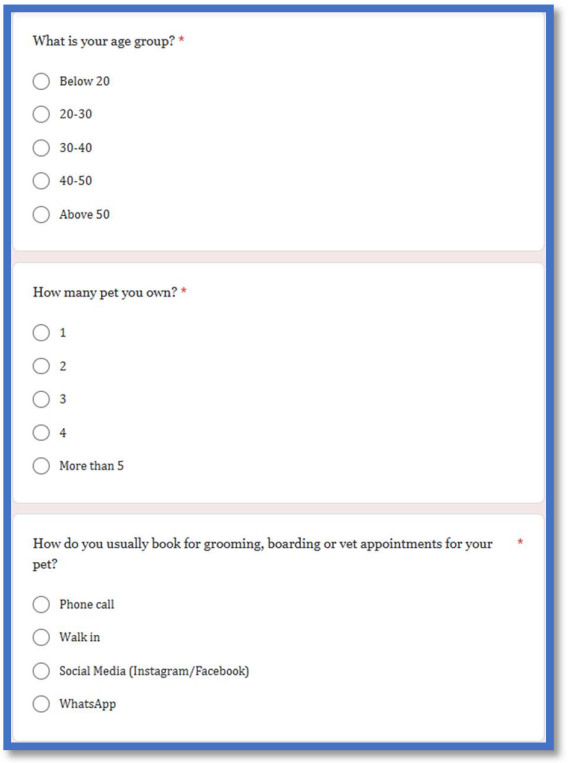
- Your responses are **anonymous** and will only be used for academic purposes.
- Participation is **voluntary**.

Time to complete

- Estimated 5 to 7 minutes

Kindly note that this is requirement for final year project. Thank you
For any inquiries, may contact our email kl2311015158@student.uptm.edu.my (NUR SITI ZAINAB BINTI AZMI)

* Indicates required question



What is your age group? *

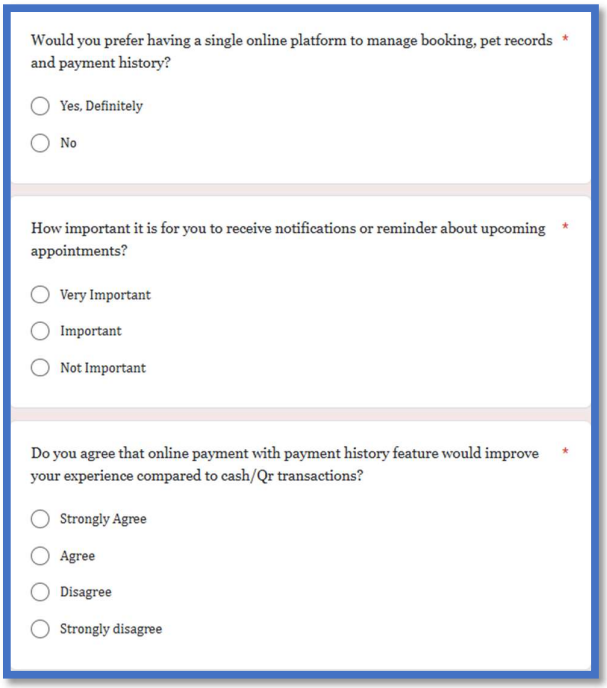
- ◯ Below 20
- ◯ 20-30
- ◯ 30-40
- ◯ 40-50
- ◯ Above 50

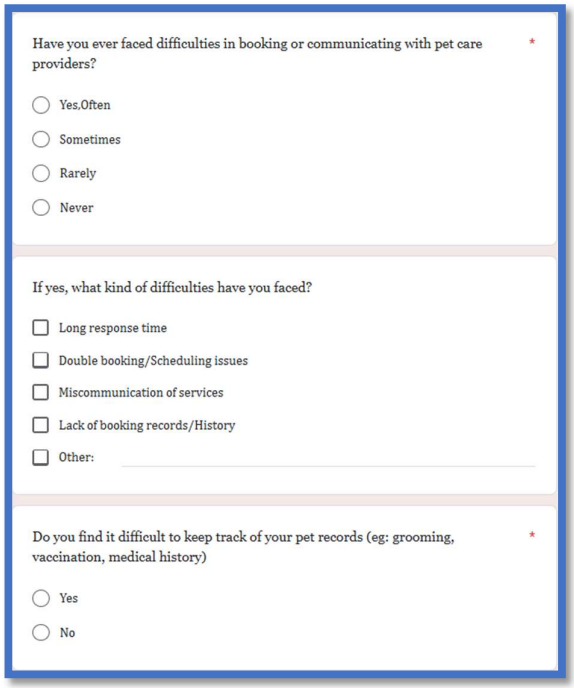
How many pet you own? *

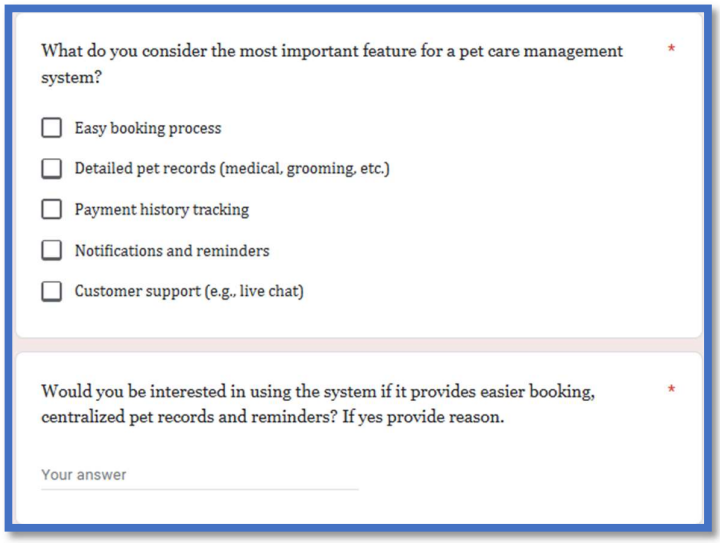
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ More than 5

How do you usually book for grooming, boarding or vet appointments for your pet? *

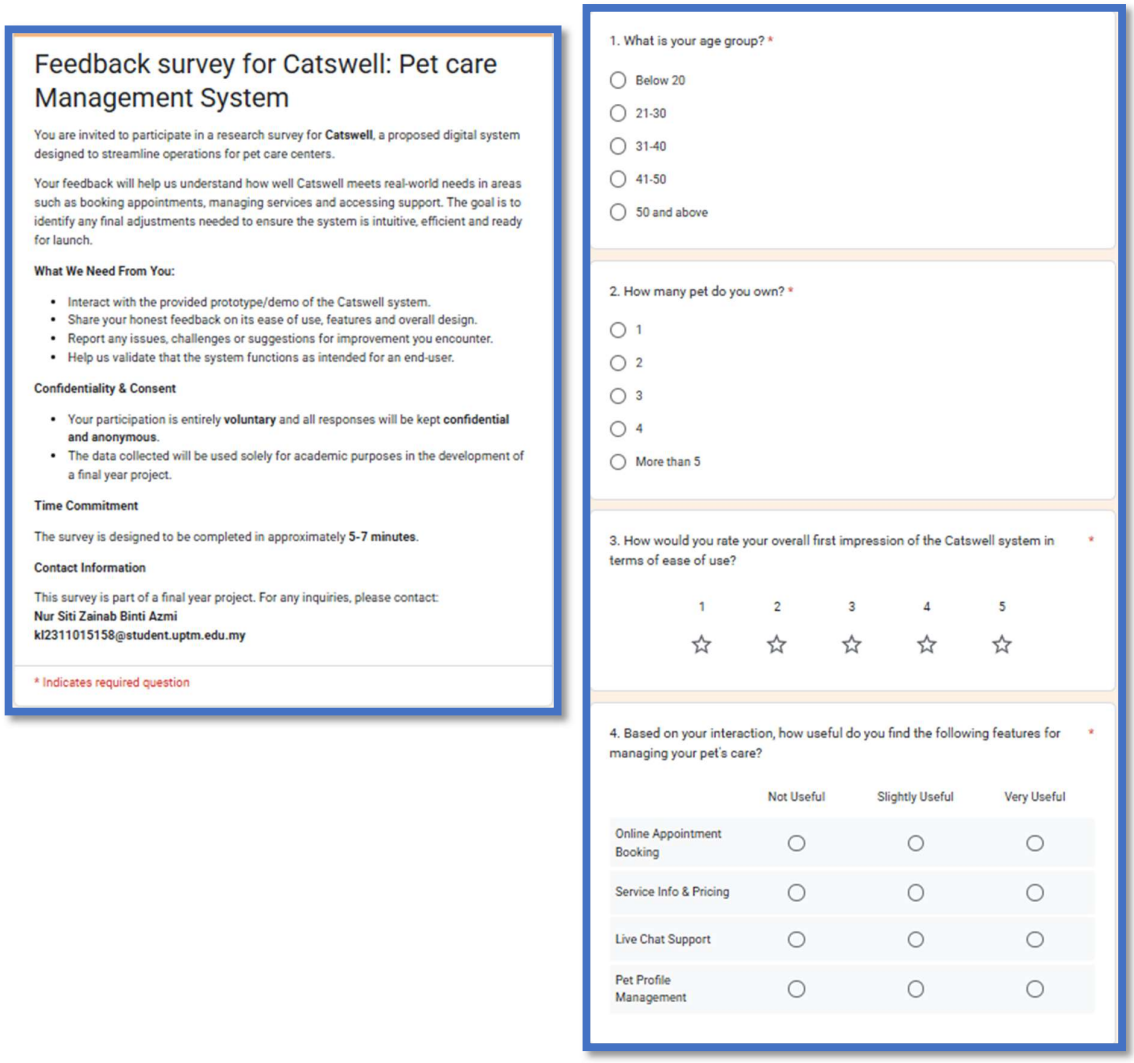
- ◯ Phone call
- ◯ Walk in
- ◯ Social Media (Instagram/Facebook)
- ◯ WhatsApp


Would you prefer having a single online platform to manage booking, pet records and payment history? *
Yes, Definitely
No
How important it is for you to receive notifications or reminder about upcoming appointments? *
Very Important
Important
Not Important
Do you agree that online payment with payment history feature would improve your experience compared to cash/Qr transactions? *
Strongly Agree
Agree
Disagree
Strongly disagree


Have you ever faced difficulties in booking or communicating with pet care providers? *
Yes,Often
Sometimes
Rarely
Never
If yes, what kind of difficulties have you faced?
Long response time
Double booking/Scheduling issues
Miscommunication of services
Lack of booking records/History
Other:
Do you find it difficult to keep track of your pet records (eg: grooming, vaccination, medical history) *
Yes
No


What do you consider the most important feature for a pet care management system? *
Easy booking process
Detailed pet records (medical, grooming, etc.)
Payment history tracking
Notifications and reminders
Customer support (e.g., live chat)
Would you be interested in using the system if it provides easier booking, centralized pet records and reminders? If yes provide reason. *
Your answer

Questionnaire User acceptance testing for users:



Feedback survey for Catswell: Pet care Management System

You are invited to participate in a research survey for **Catswell**, a proposed digital system designed to streamline operations for pet care centers.

Your feedback will help us understand how well Catswell meets real-world needs in areas such as booking appointments, managing services and accessing support. The goal is to identify any final adjustments needed to ensure the system is intuitive, efficient and ready for launch.

What We Need From You:

- Interact with the provided prototype/demo of the Catswell system.
- Share your honest feedback on its ease of use, features and overall design.
- Report any issues, challenges or suggestions for improvement you encounter.
- Help us validate that the system functions as intended for an end-user.

Confidentiality & Consent

- Your participation is entirely **voluntary** and all responses will be kept **confidential and anonymous**.
- The data collected will be used solely for academic purposes in the development of a final year project.

Time Commitment

The survey is designed to be completed in approximately **5-7 minutes**.

Contact Information

This survey is part of a final year project. For any inquiries, please contact:
Nur Siti Zainab Binti Azmi
kl2311015158@student.uptm.edu.my

* Indicates required question

1. What is your age group? *

- ○ Below 20
- ○ 21-30
- ○ 31-40
- ○ 41-50
- ○ 50 and above

2. How many pet do you own? *

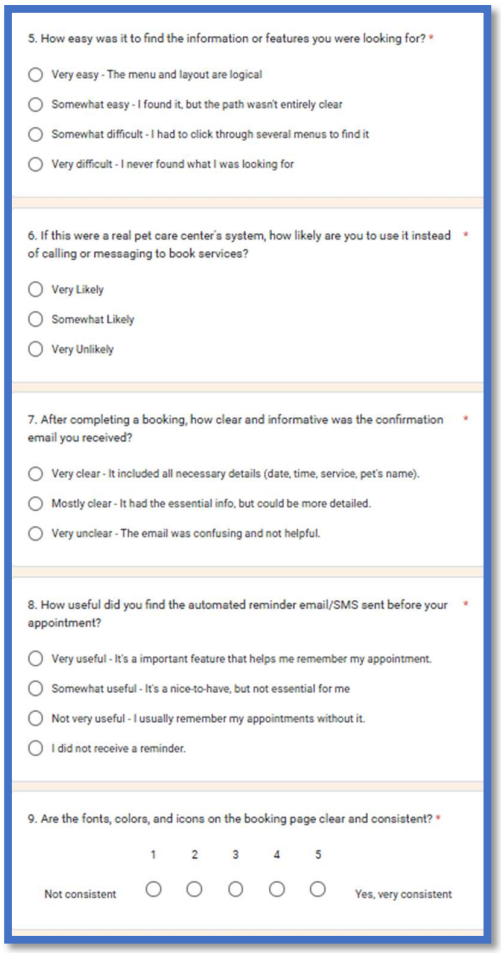
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ More than 5

3. How would you rate your overall first impression of the Catswell system in terms of ease of use? *

1 ☆ 2 ☆ 3 ☆ 4 ☆ 5 ☆

4. Based on your interaction, how useful do you find the following features for managing your pet's care? *

	Not Useful	Slightly Useful	Very Useful
Online Appointment Booking	○	○	○
Service Info & Pricing	○	○	○
Live Chat Support	○	○	○
Pet Profile Management	○	○	○



5. How easy was it to find the information or features you were looking for? *

- ◯ Very easy - The menu and layout are logical
- ◯ Somewhat easy - I found it, but the path wasn't entirely clear
- ◯ Somewhat difficult - I had to click through several menus to find it
- ◯ Very difficult - I never found what I was looking for

6. If this were a real pet care center's system, how likely are you to use it instead of calling or messaging to book services? *

- ◯ Very Likely
- ◯ Somewhat Likely
- ◯ Very Unlikely

7. After completing a booking, how clear and informative was the confirmation email you received? *

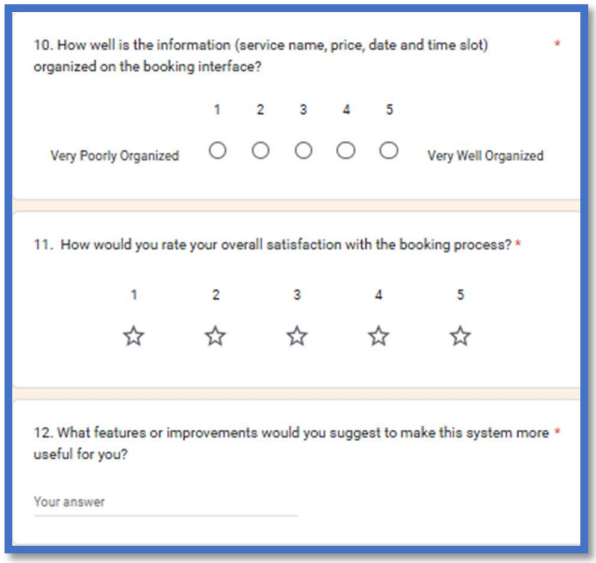
- ◯ Very clear - It included all necessary details (date, time, service, pet's name).
- ◯ Mostly clear - It had the essential info, but could be more detailed.
- ◯ Very unclear - The email was confusing and not helpful.

8. How useful did you find the automated reminder email/SMS sent before your appointment? *

- ◯ Very useful - It's a important feature that helps me remember my appointment.
- ◯ Somewhat useful - It's a nice-to-have, but not essential for me
- ◯ Not very useful - I usually remember my appointments without it.
- ◯ I did not receive a reminder.

9. Are the fonts, colors, and icons on the booking page clear and consistent? *

	1	2	3	4	5	
Not consistent	◯	◯	◯	◯	◯	Yes, very consistent



10. How well is the information (service name, price, date and time slot) organized on the booking interface? *

	1	2	3	4	5	
Very Poorly Organized	◯	◯	◯	◯	◯	Very Well Organized

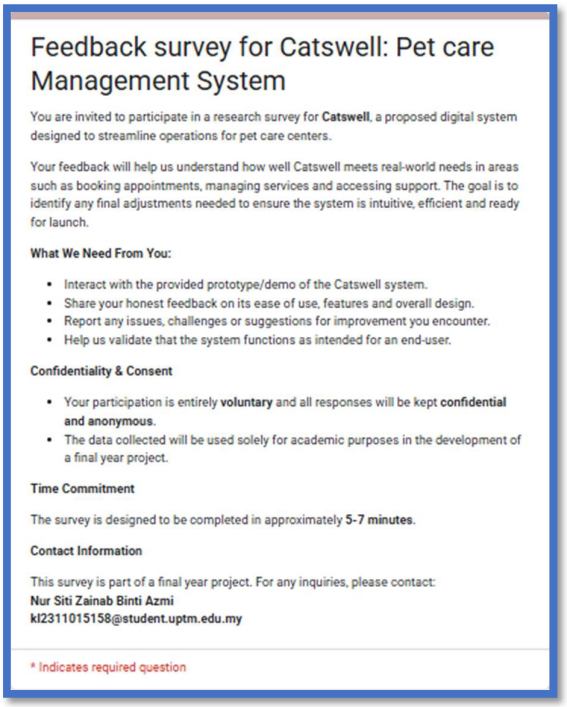
11. How would you rate your overall satisfaction with the booking process? *

1	2	3	4	5
☆	☆	☆	☆	☆

12. What features or improvements would you suggest to make this system more useful for you? *

Your answer

Questionnaire User acceptance testing for Admin:



Feedback survey for Catswell: Pet care Management System

You are invited to participate in a research survey for **Catswell**, a proposed digital system designed to streamline operations for pet care centers.

Your feedback will help us understand how well Catswell meets real-world needs in areas such as booking appointments, managing services and accessing support. The goal is to identify any final adjustments needed to ensure the system is intuitive, efficient and ready for launch.

What We Need From You:

- Interact with the provided prototype/demo of the Catswell system.
- Share your honest feedback on its ease of use, features and overall design.
- Report any issues, challenges or suggestions for improvement you encounter.
- Help us validate that the system functions as intended for an end-user.

Confidentiality & Consent

- Your participation is entirely **voluntary** and all responses will be kept **confidential and anonymous**.
- The data collected will be used solely for academic purposes in the development of a final year project.

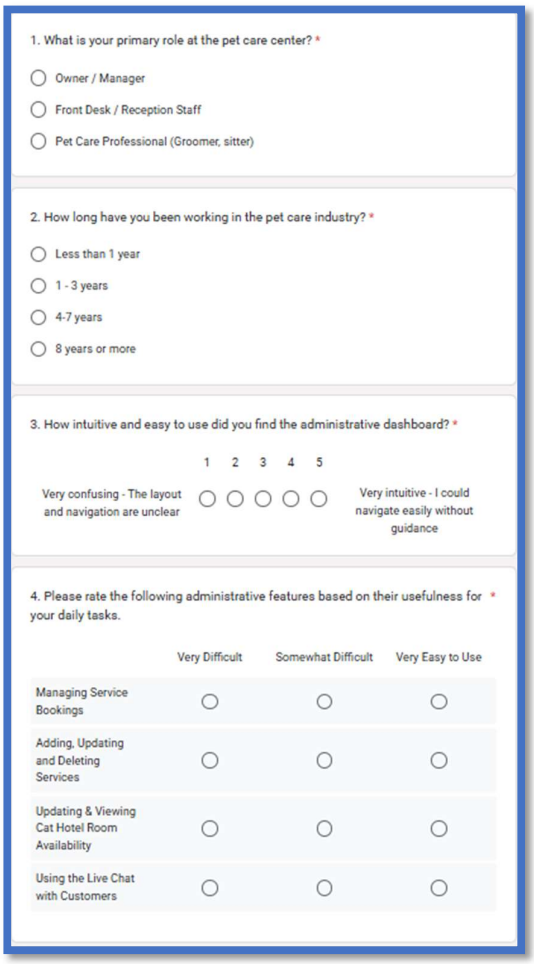
Time Commitment

The survey is designed to be completed in approximately **5-7 minutes**.

Contact Information

This survey is part of a final year project. For any inquiries, please contact:
Nur Siti Zainab Binti Azmi
kl2311015158@student.uptm.edu.my

* Indicates required question



1. What is your primary role at the pet care center? *

- ◯ Owner / Manager
- ◯ Front Desk / Reception Staff
- ◯ Pet Care Professional (Groomer, sitter)

2. How long have you been working in the pet care industry? *

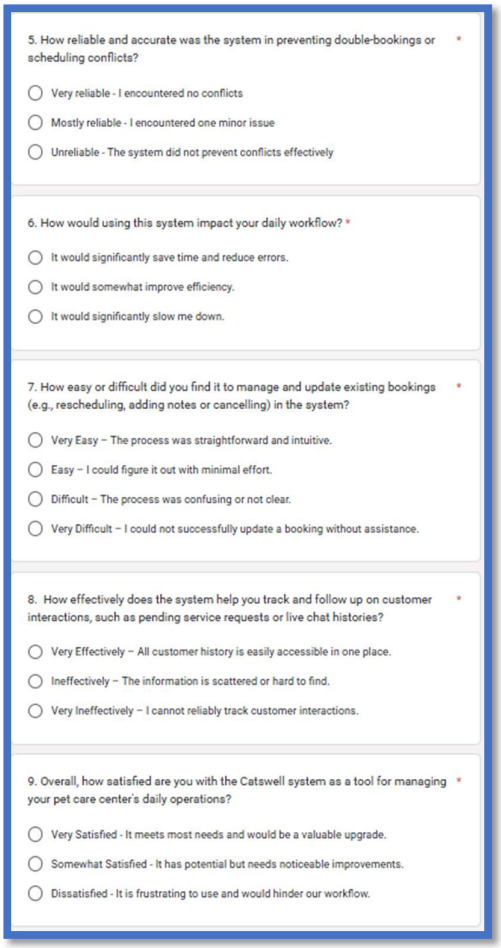
- ◯ Less than 1 year
- ◯ 1 - 3 years
- ◯ 4-7 years
- ◯ 8 years or more

3. How intuitive and easy to use did you find the administrative dashboard? *

	1	2	3	4	5	
Very confusing - The layout and navigation are unclear	◯	◯	◯	◯	◯	Very intuitive - I could navigate easily without guidance

4. Please rate the following administrative features based on their usefulness for your daily tasks. *

	Very Difficult	Somewhat Difficult	Very Easy to Use
Managing Service Bookings	◯	◯	◯
Adding, Updating and Deleting Services	◯	◯	◯
Updating & Viewing Cat Hotel Room Availability	◯	◯	◯
Using the Live Chat with Customers	◯	◯	◯



5. How reliable and accurate was the system in preventing double-bookings or scheduling conflicts? *

- Very reliable - I encountered no conflicts
- Mostly reliable - I encountered one minor issue
- Unreliable - The system did not prevent conflicts effectively

6. How would using this system impact your daily workflow? *

- It would significantly save time and reduce errors.
- It would somewhat improve efficiency.
- It would significantly slow me down.

7. How easy or difficult did you find it to manage and update existing bookings (e.g., rescheduling, adding notes or cancelling) in the system? *

- Very Easy – The process was straightforward and intuitive.
- Easy – I could figure it out with minimal effort.
- Difficult – The process was confusing or not clear.
- Very Difficult – I could not successfully update a booking without assistance.

8. How effectively does the system help you track and follow up on customer interactions, such as pending service requests or live chat histories? *

- Very Effectively – All customer history is easily accessible in one place.
- Ineffectively – The information is scattered or hard to find.
- Very Ineffectively – I cannot reliably track customer interactions.

9. Overall, how satisfied are you with the Catswell system as a tool for managing your pet care center's daily operations? *

- Very Satisfied - It meets most needs and would be a valuable upgrade.
- Somewhat Satisfied - It has potential but needs noticeable improvements.
- Dissatisfied - It is frustrating to use and would hinder our workflow.

10. What is the most critical issue, missing feature, or improvement you noticed that must be addressed? *

Your answer

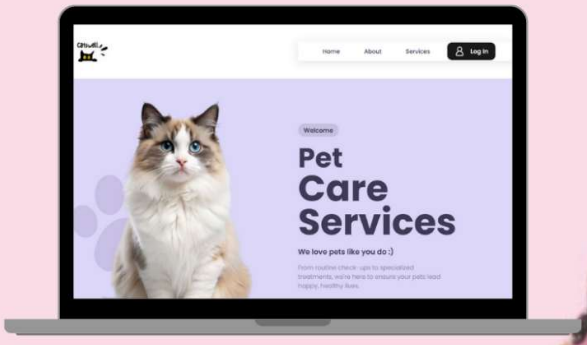
Appendix B- User Manual

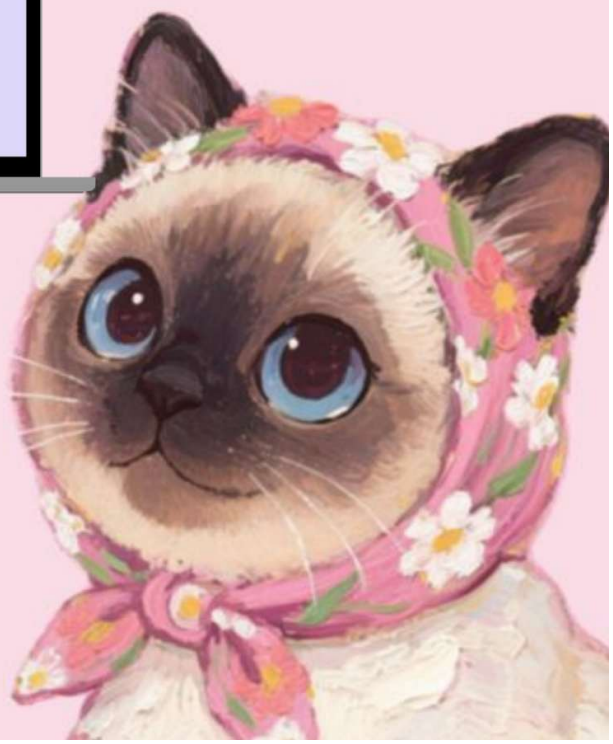
UNIVERSITI POLY-TECH MALAYSIA
UPTM
DU060 (W)

FCOM
Faculty of Computing & Multimedia

CATSWELL : PET CARE MANAGEMENT SYSTEM

USER MANUAL





WRITER:
NUR SITI ZAINAB BINTI AZMI
AM2311015158

TABLE OF CONTENTS

1.0 INTRODUCTION

The Catswell Pet Care Management System is a centralized web app that replaces manual methods like phone calls and spreadsheets by organizing appointment bookings, pet profiles and service history in one place, making it easier for staff to manage operations and for pet owners to access reliable pet cat care.

2.0 USER ROLE IN CATSWELL

General User

users can create an account, manage their pet profiles, browse available services, make bookings, view booking history, receive Email reminders and communicate with the center through the platform.

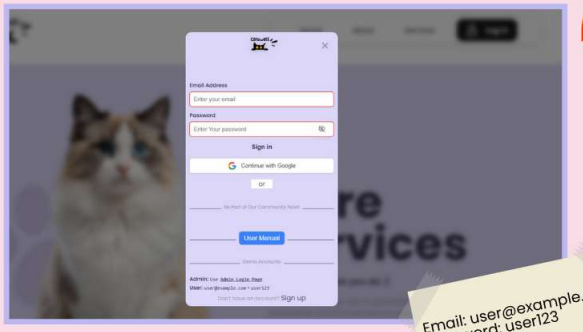
Administrator

Admins can manage all bookings, update booking status, access customer and pet information, handle payment records, manage services, monitor system activity, and communicate with pet owners through the admin dashboard.

02

3.0 ACCESSING CATSWELL AS A GENERAL USER

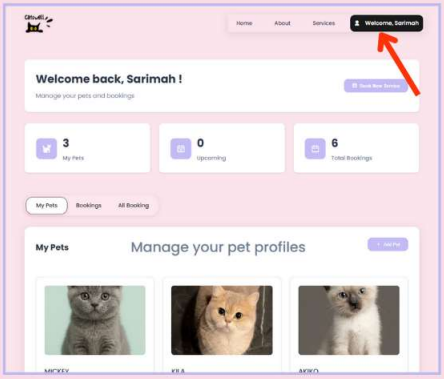
Login

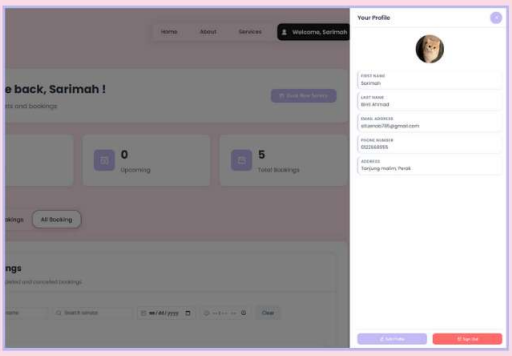


To access the Catswell system, users must log in using their created credentials, For the first time using Catswell, users need to go "Don't have an account? Sign up"

Email: user@example.com
password: user123

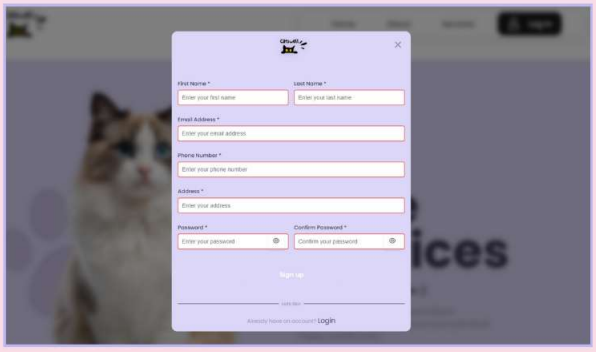
User can manage their personal details on sidebar profile by clicking the "Welcome" button.





3.0 ACCESSING CATSWELL AS GENERAL USER

Sign Up for new user



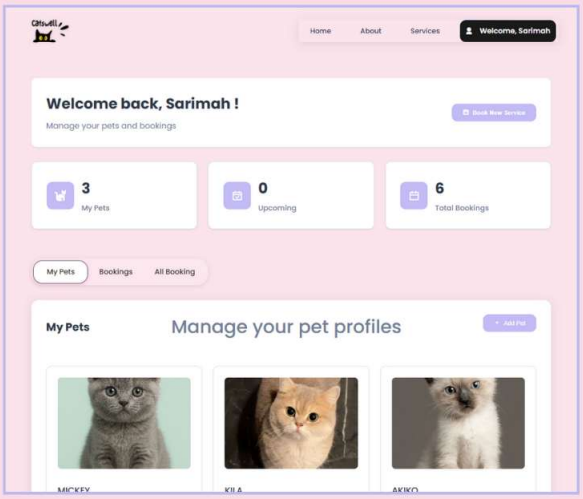
First-time users must fill in all required fields and re-enter their password to confirm it matches.

Example Credentials:

First Name: Siti Zainab
Last Name: Binti Azmi
Email Address: siti12@gmail.com
Phone Number: 011-XXXXXXXX
Address: Taman Selasih, Selayang,Kuala Lumpur
Password: Siti123
Confirm Password: Siti123

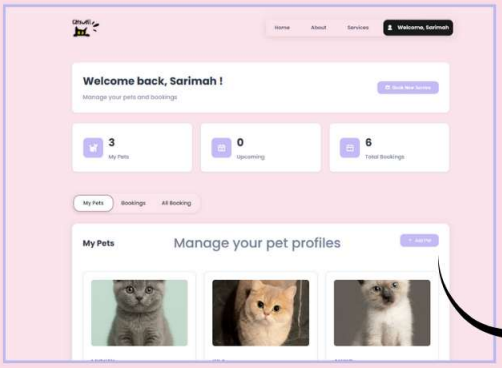
*Please be noted that password length must be at least 6 characters

After user fill in, **click Sign Up button** it will redirect to user dashboard so user doesnt need to Login back.

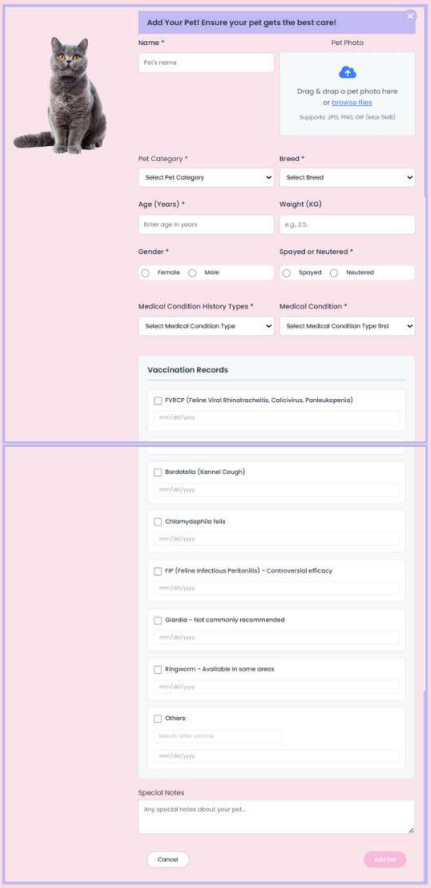


04

4.0 PET PROFILE CREATION



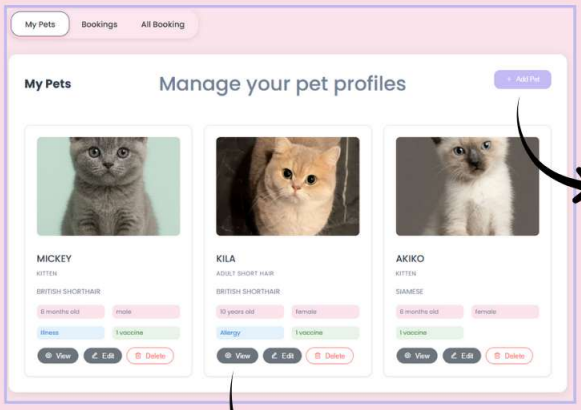
After that, user can add their pet details by clicking "+Add Pet" Button



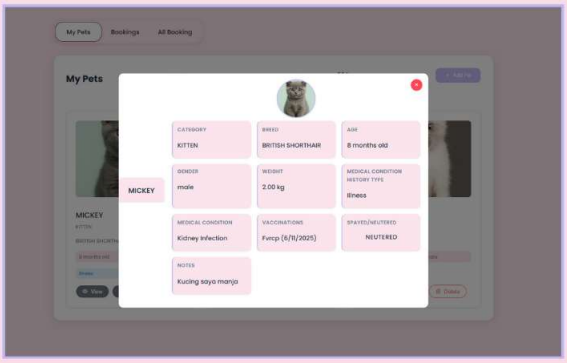
After the user clicks the "Add Pet" button, an add pet form will appear where the user can fill in all the required details.

05

5.0 MANAGING PET PROFILE



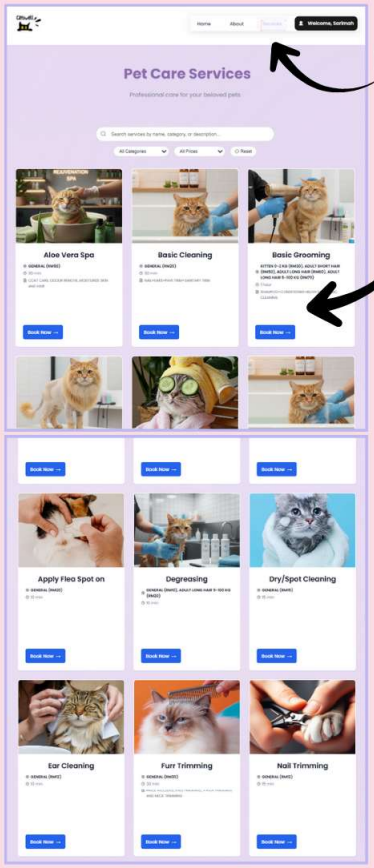
After user successful add their pet details they can view the details when clicking the view button on the Pet Profile cards.



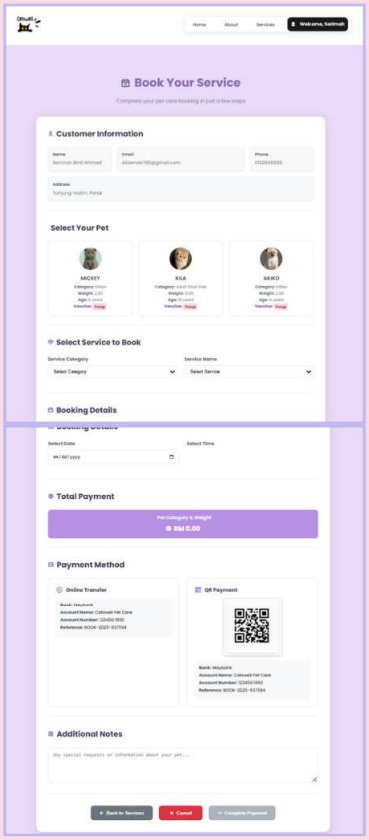
Here user can view all completes Pet profile details and they can edit or delete pet profile.

06

6.0 BOOKING GUIDE



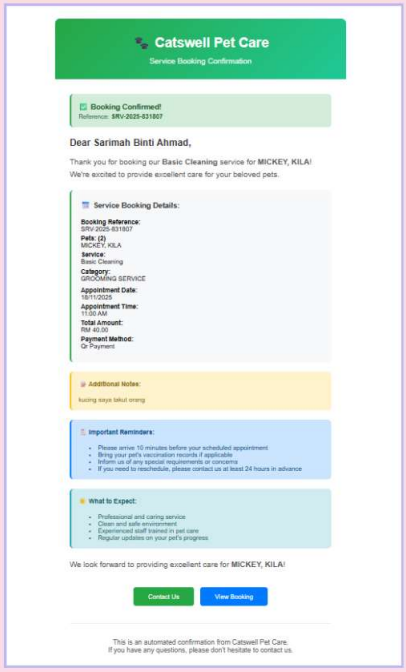
After completing creating pet profile, user can explore available service at Services page and user can make booking by clicking at any "Book Now" to open booking page.



User can select Multiple pet for one booking. User may complete the booking with uploading the payment receipt if not, user cant complete booking.

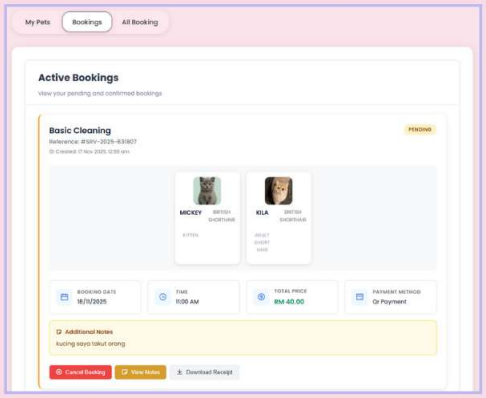
07

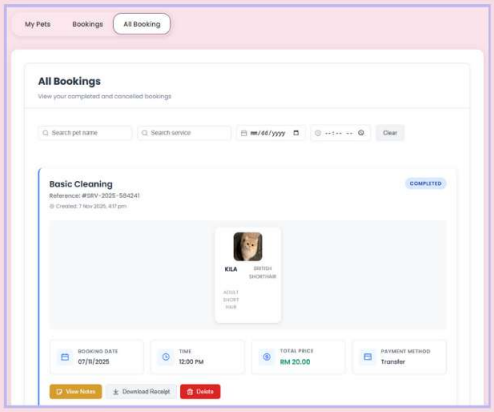
6.0 BOOKING GUIDE



After user complete make booking, they will get an Email confirmation booking that display all the booking details.

Also, user can view and manage their booking details on user dashboard. Bookings tab are for active booking with Pending and Confirmed status.

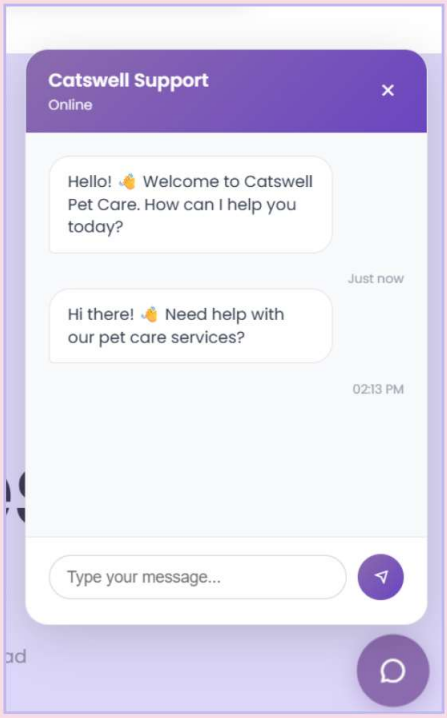




Meanwhile for All bookings tab are for bookings with status Completed or cancelled.

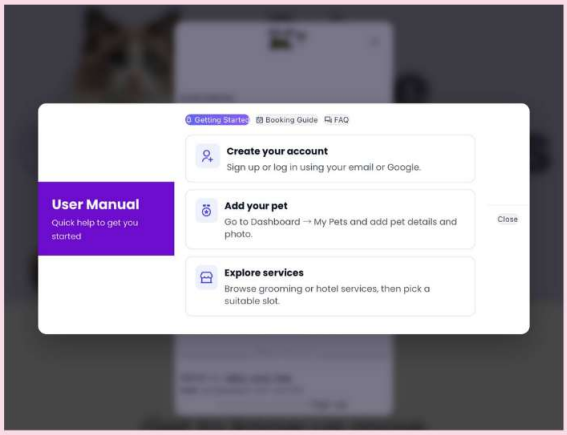
08

7.0 GETTING HELP WITH LIVE CHAT AND GUIDENCE



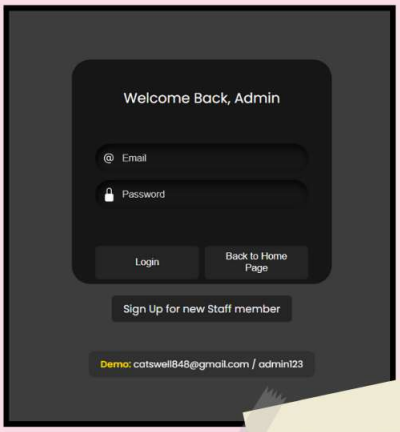
For any inquiries, User can contact Catswell via Live chat feature on the Homepage.

User can also view user manual on the login page



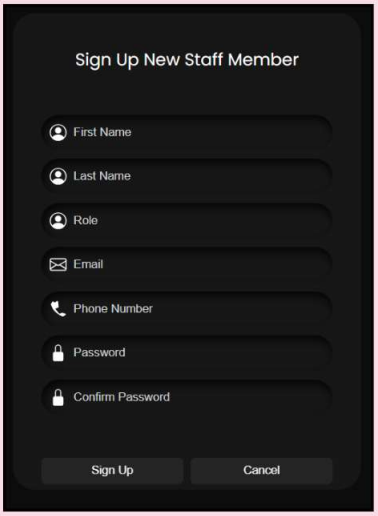
09

8.0 ADMINISTRATOR

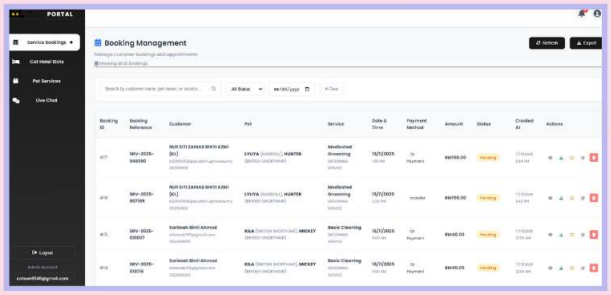


For Admin, they need to login using the provided Email and password.

Email:
catswell848@gmail.com
Password: admin123



For new staff member they also can register as new staff member and fill in the required details.



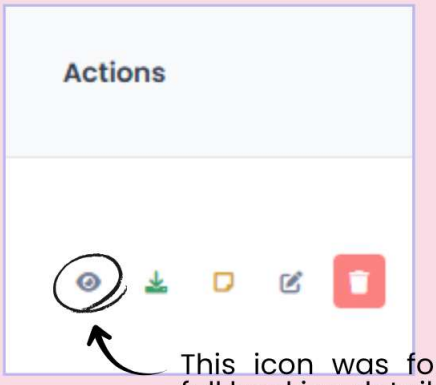
After admin login, it will ridirect to dashboard that displaying the booking management (Service bookings tab)

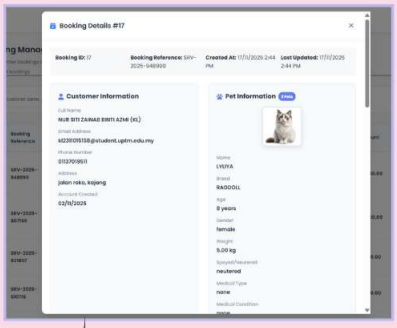
10

9.0 UNDERSTANDING ADMIN DASHBOARD

For action part, there are 5 function that admin can do.

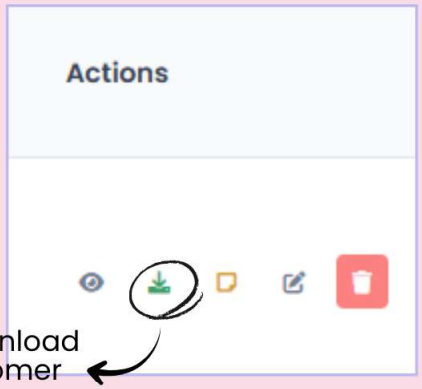
1.





This icon was for view full booking details.

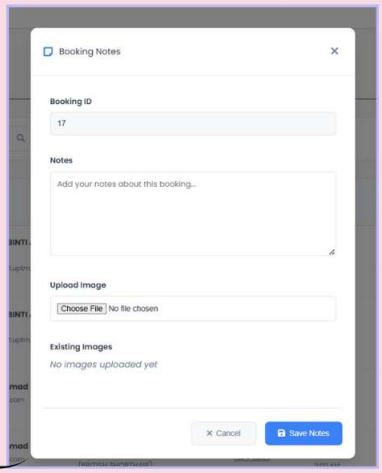
2.



This icon was for download receipt uploaded by customer

3.

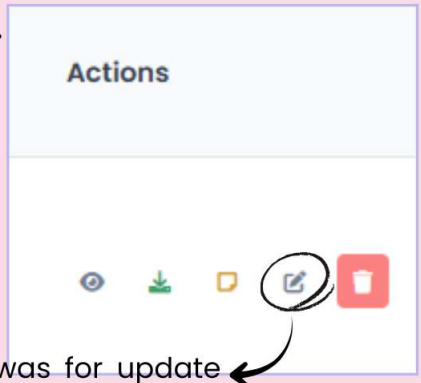
This icon was for Add booking notes

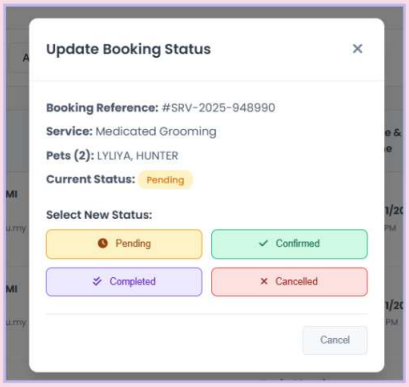


11

9.0 UNDERSTANDING ADMIN DASHBOARD

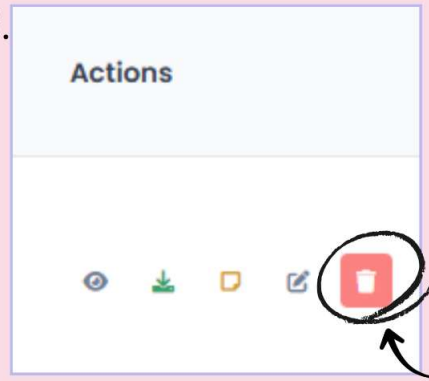
4.

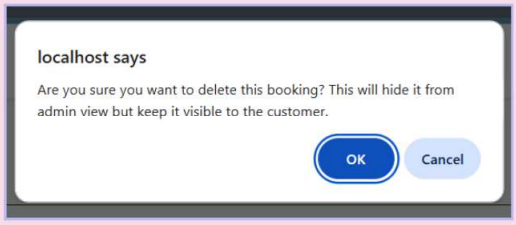




This icon was for update booking status.

5.

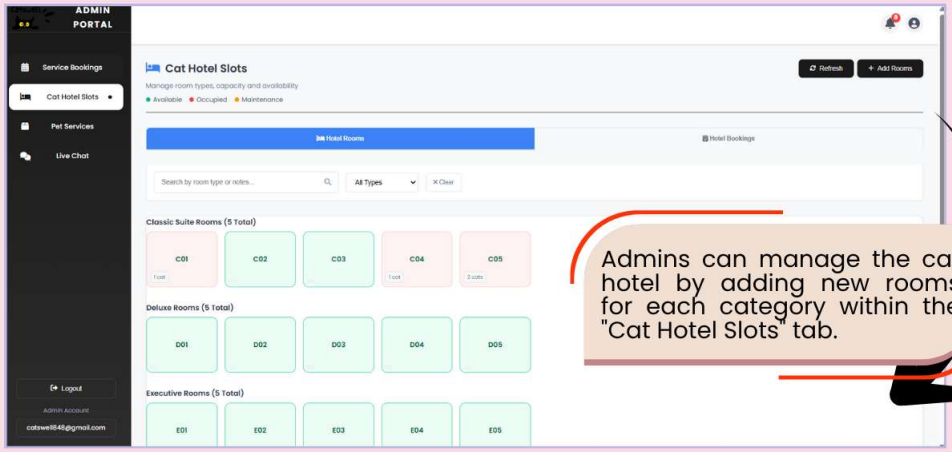




This icon was for delete booking

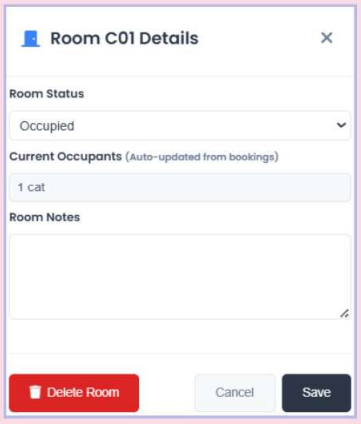
12

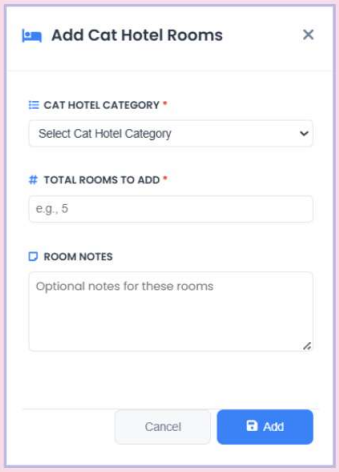
9.0 UNDERSTANDING ADMIN DASHBOARD



Admins can manage the cat hotel by adding new rooms for each category within the "Cat Hotel Slots" tab.

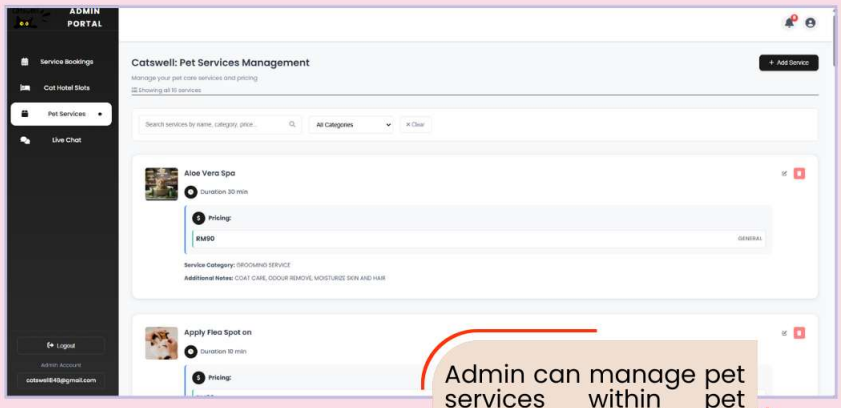
Admin add new room and fill in required details.





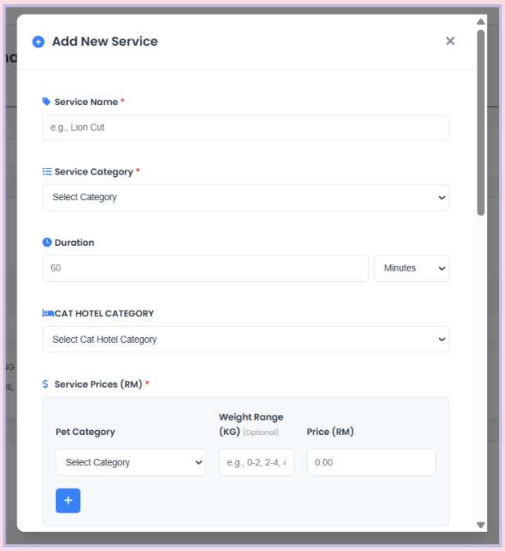
Admins can view and update room statuses directly by clicking on a room.

9.0 UNDERSTANDING ADMIN DASHBOARD



Admin can manage pet services within pet services tab.

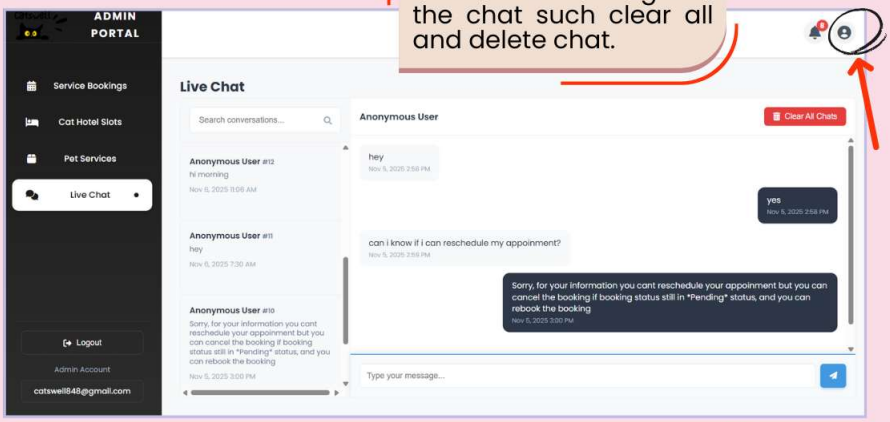
To add new service admin can click on "Add service" button and complete all required details.



14

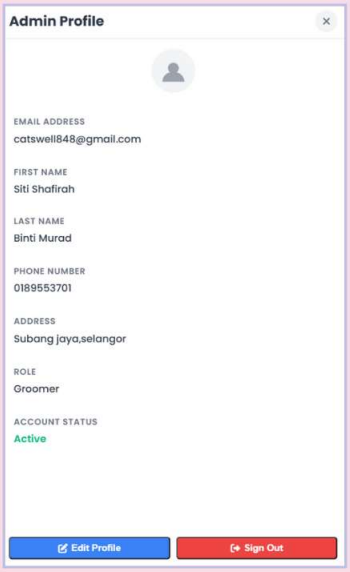
9.0 UNDERSTANDING ADMIN DASHBOARD

Admin can manage all the chat such clear all and delete chat.



For live chat tab, admin can communicate with users. On the left panel showing list of chat that admin can reply.

Admin can manage their personal details on sidebar profile.



15

Refences

DaySmart. (2017, July 16). *Top 7 advantages of pet grooming software.* DaySmart.

Department of Veterinary Services Malaysia. (2023). *Pet ownership trends in Malaysia.*

Ministry of Agriculture and Food Security.

Hygger. (2021, March 7). *What is Agile?* Hygger.io Guides. https://hygger.io/guides/agile/

Johnson, P. (2023). Innovative solutions in pet care and management systems. *Journal of*

Emerging Technologies, 14(1), 88–102.

MoeGo. (2025, July 26). *Pet care management software explained: From scheduling to success.* MoeGo.pet.https://www.moego.pet/blog/pet-care-management-software?

PetBusiness.com. (n.d.). *The benefits of using salon software.* Grooming Stories, Pet Business.

PetDesk. (2024). *Enhancing clinic efficiency: How automated veterinary reminder systems reduce no-shows.*https://petdesk.com/blog/reduce-no-shows-automated-veterinary-reminder-system/

PetExec. (2024). *Business management software for pet businesses.* PetExec. https://www.petexec.net/resources/technology/business-management-software-for-pet-businesses?

Slite. (n.d.). *What is Agile?*

Suppiah, Y., Duriat, N., & Widyarto, S. (2020). Agile methodology adoption in software development: A literature review. *Proceedings of the Informatics Conference, 2*(2), 5–11.

Taylor, S. (2020). Trends in pet ownership and consumer expectations. *Pet Care Business Review, 7*(3), 33–41.

VitusVet. (2025). *Enhancing your veterinary practice with pet care management software.* VitusVet.com. https://vitusvet.com/blog/enhancing-your-veterinary-practice-with-pet-care-management-software/?

Aspinall, V. (2016). *Aspinall's complete textbook of veterinary nursing* (E-book). Elsevier. https://books.google.com.my/books?id=HIpLDAAAQBAJ

Beck, K., Beedle, M., van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A., Jeffries, R., Kern, J., Marick, B., Martin, R. C., Mellor, S., Schwaber, K., Sutherland, J., & Thomas, D. (2001). *Manifesto for agile software development.* https://agilemanifesto.org/

Dikert, K., Paasivaara, M., & Lassenius, C. (2019). Challenges and success factors for large-scale agile transformations: A systematic literature review. *Journal of Systems and Software, 119*, 87–108. https://doi.org/10.1016/j.jss.2016.06.013

Dingsøyr, T., Moe, N. B., & Seim, E. A. (2020). Coordinating knowledge work in multi-team programs: A systematic literature review. *Proceedings of the 53rd Hawaii International Conference on System Sciences.*

Deepa, N., Kortana, T., Saisama, C., Pungnirund, B., & Promyoo, T. (2024). A study on the application of innovations to enhance management efficiency in pet hotel businesses in Bangkok. *Proceedings National & International Conference, 17*(1), 318. http://journalgrad.ssru.ac.th/index.php/8thconference/article/view/4956

Gino, F., & Pisano, G. P. (2011). Why leaders don't learn from success. *Harvard Business Review.* https://hbr.org/2011/04/why-leaders-dont-learn-from-success

Goodwin, K., Rand, J., Morton, J., Uthappa, V., & Walduck, R. (2018). Email reminders increase the frequency that pet owners update their microchip information. *Animals, 8*(2), 20. https://doi.org/10.3390/ani8020020

Lambert, A. (2016). *Aspinall's complete textbook of veterinary nursing* (E-book). Google Books.

https://books.google.com.my/books?id=HIpLDAAAQBAJ
Mishra, A., & Mishra, D. (2021). A systematic literature review on agile project success: A comprehensive analysis. *IEEE Access, 9*, 157058–157079.

PetBacker. (n.d.). *Dog, cat boarding, grooming, pet taxi by pet sitters.* https://www.petbacker.my/

PetCloud. (2019). *PetCloud pet minding.* https://www.petcloud.com.au/

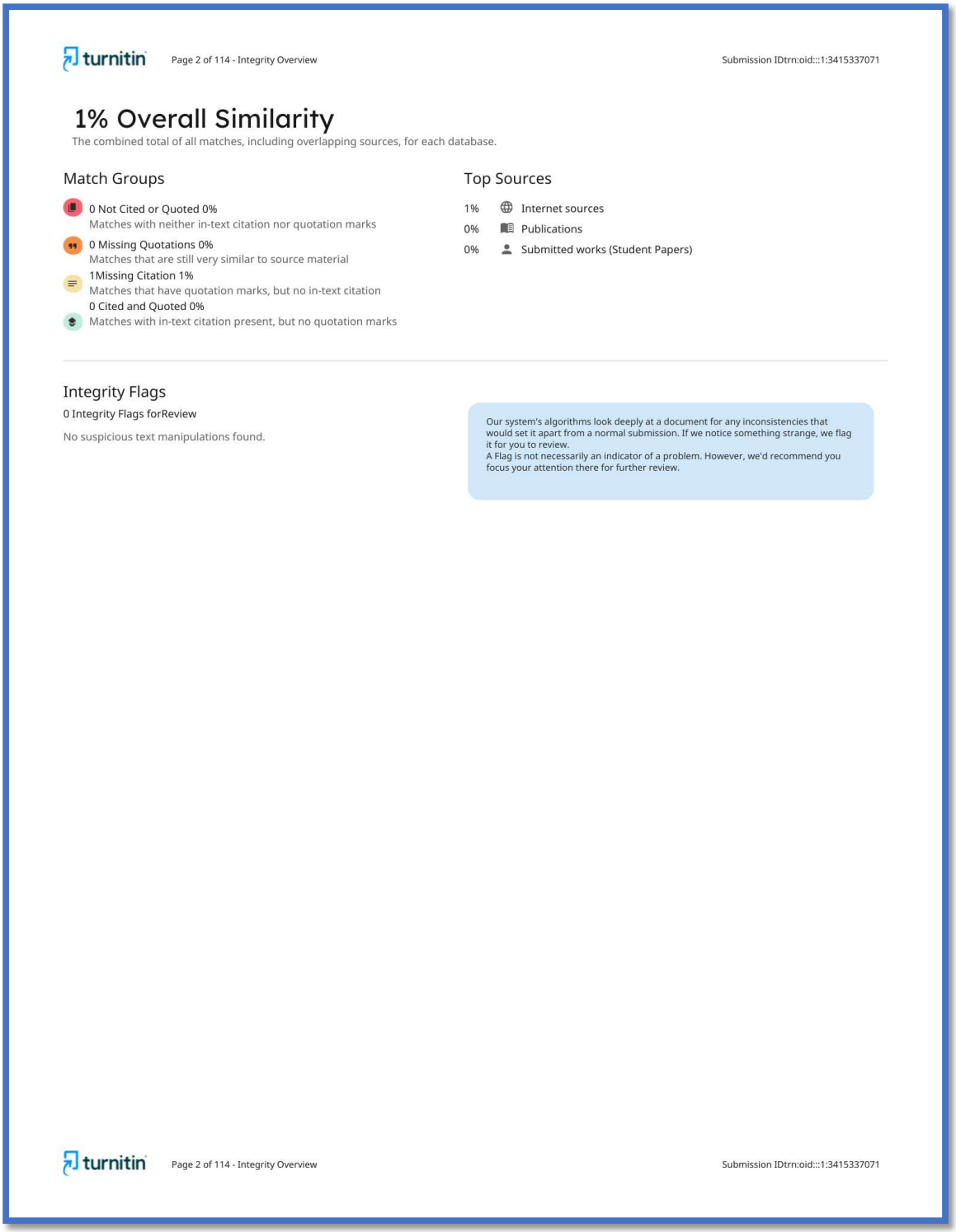
Powell, T. C. (1992). Organizational alignment as competitive advantage. *Strategic Management Journal, 13*(2), 119–134. https://doi.org/10.1002/smj.4250130204

Tee, V. (2016). *Dog, cat boarding, grooming, pet taxi by pet sitters.* https://www.petbacker.my/

Viner, J., & Viner, J. (2019). *WagWalking.com – Leading local dog walker service for dog owners.* https://wagwalking.com/

Yeow, J. R., & Kamaludin, H. (2023). Pet care management system. *Applied Information Technology and Computer Science, 4*(2), 2019–2038. https://publisher.uthm.edu.my/periodicals/index.php/aitcs/article/view/11969

Originality Results:



turnitin Page 2 of 114 - Integrity Overview Submission IDtrn:oid:::1:3415337071

1% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Match Groups

- 0 Not Cited or Quoted 0%
  Matches with neither in-text citation nor quotation marks
- 0 Missing Quotations 0%
  Matches that are still very similar to source material
- 1Missing Citation 1%
  Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

1% Internet sources
0% Publications
0% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags forReview

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.
A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

turnitin Page 2 of 114 - Integrity Overview Submission IDtrn:oid:::1:3415337071

Match Groups

- 0 Not Cited or Quoted 0%
  Matches with neither in-text citation nor quotation marks
- 0 Missing Quotations 0%
  Matches that are still very similar to source material
- 1 Missing Citation 1%
  Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

1% Internet sources
0% Publications
0% Submitted works (Student Papers)

Top Sources

Thesourceswiththe highest number of matches within the submission. Overlapping sources will not be displayed.

1 Internet

www.carriganforcongress.com 1%

*% detected as AI

The percentage indicates the combined amount of likely AI-generated text as well as likely AI-generated text that was also likely AI-paraphrased.

Caution: Review required.
It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.

Detection Groups

0 AI-generated only 0%
Likely AI-generated text from a large-language model.

0 AI-generated text that was AI-paraphrased 0%
Likely AI-generated text that was likely revised using an AI-paraphrase tool or word spinner.

Disclaimer
OurAI writing assessment is designed to help educators identify text that might be prepared by a generative AI tool. Our AI writing assessment may not always be accurate (it may misidentify writing that is likely AI generated as AI generated and AI paraphrased or likely AI generated and AI paraphrased writing as only AI generated) so it should not be used as the sole basis for adverse actions against a student. It takes further scrutiny and human judgment in conjunction with an organization's application of its specific academic policies to determine whether any academic misconduct has occurred.

Frequently Asked Questions

How should I interpret Turnitin's AIwriting percentage and false positives?
The percentage shown in the AI writing report is the amount of qualifying text within the submission that Turnitin's AI writing detection model determines was either likely AI-generated text from a large-language model or likely AI-generated text that was likely revised using an AI paraphrase tool or word spinner.

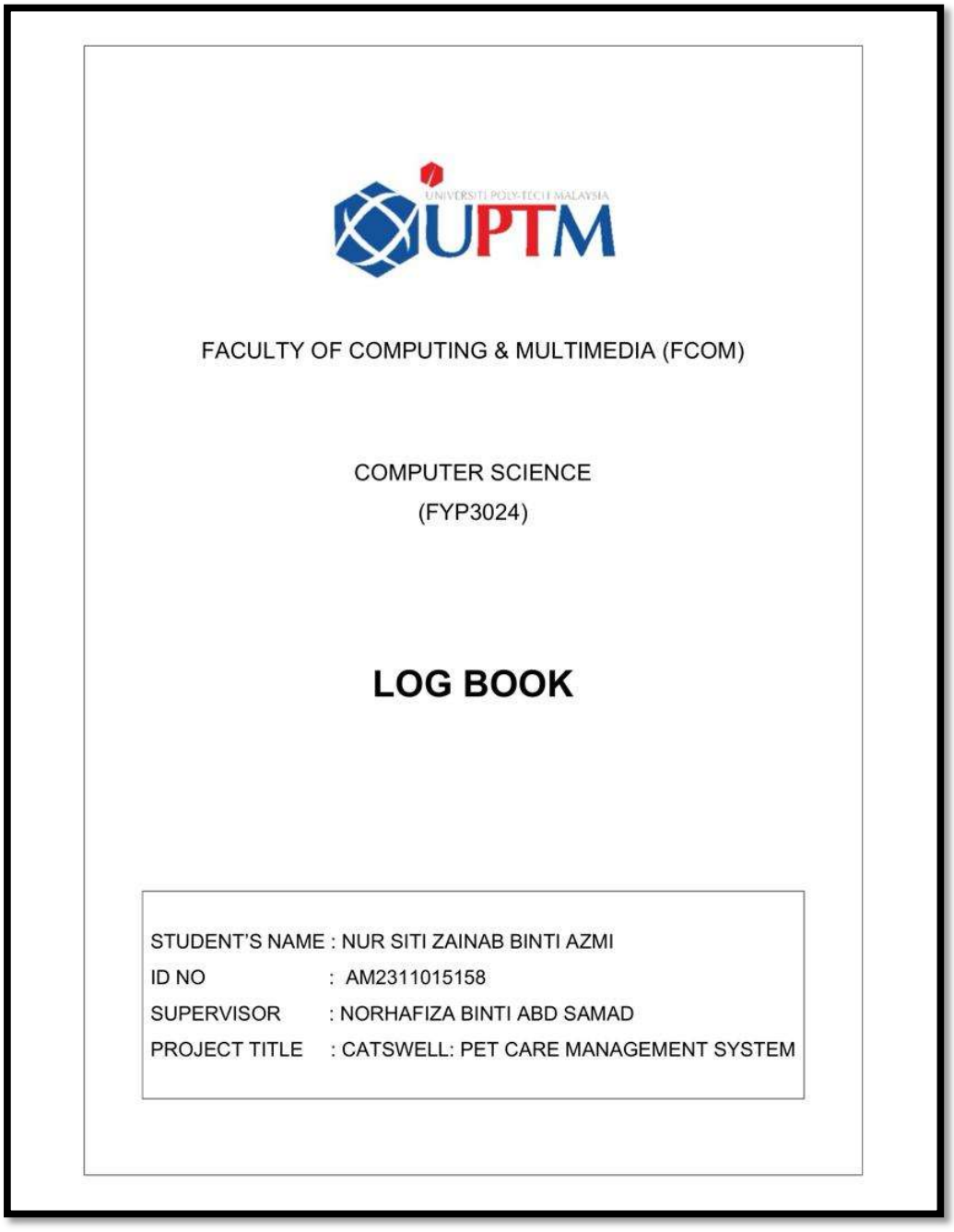
False positives (incorrectly flagging human-written text as AI-generated) are a possibility in AI models.

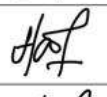
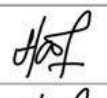
AI detection scores under 20%, which we do not surface in new reports, have a higher likelihood of false positives. To reduce the likelihood of misinterpretation, no score or highlights are attributed and are indicated with an asterisk in the report (*%).

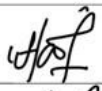
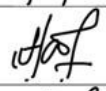
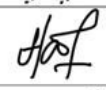
The AI writing percentage should not be the sole basis to determine whether misconduct has occurred. The reviewer/instructor should use the percentage as a means to start a formative conversation with their student and/or use it to examine the submitted assignment in accordance with their school's policies.

What does 'qualifying text' mean?
Our model only processes qualifying text in the form of long-form writing. Long-form writing means individual sentences contained in paragraphs that make up a longer piece of written work, such as an essay, a dissertation, or an article, etc. Qualifying text that has been determined to be likely AI-generated will be highlighted in cyan in the submission, and likely AI-generated and then likely AI-paraphrased will be highlighted purple.

Non-qualifying text, such as bullet points, annotated bibliographies, etc., will not be processed and can create disparity between the submission highlights and the percentage shown.


UNIVERSITI POLY-TECH MALAYSIA
UPTM
FACULTY OF COMPUTING & MULTIMEDIA (FCOM)
COMPUTER SCIENCE
(FYP3024)
LOG BOOK
STUDENT'S NAME : NUR SITI ZAINAB BINTI AZMI
ID NO : AM2311015158
SUPERVISOR : NORHAFIZA BINTI ABD SAMAD
PROJECT TITLE : CATSWELL: PET CARE MANAGEMENT SYSTEM

Date/ Week		Agenda	Next Agenda	Signature (Supervisor)
7/8/2025	1	Find potential supervisor	Finalize the title with supervisor	
15/8/2025	2	Disscused the topic with supervisor	Proposal writing.	
20/8/2025	3	Proposal writing.	Proposal submission.	
27/8/2025	4	Writing chapter 1 and consult with supervisor.	Develop survey/ interview questions. Draft Chapter 2 (Literature Review)	
5/9/2025	5	Discuss survey(user questionnare) and interview questions	Conduct interview and distribute survey.	
15/9/2025	6	Conduct interview with admin.	Report discussion for chapter 1 and 2 with supervisor.	
24/9/2025	7	Report discussion for Chapter 1 & 2, Wireframing & UI/UX design	Show progress on design & literature review.	
7/10/2025	8	Show progress on project design and Chapter 2	Discussion for improvement on the system design. Start with development.	
10/10/2025	9	Discussion for improvement on the system. Start with development	Report discussion for Chapter 3 (Methodology). Continue development	
14/10/2025	10	Report discussion for Chapter 3 (Methodology).	Show progress on the project (working prototype)	

21/11/2025	11	Demo: Present working prototype	Conduct internal/usability testing. Debugging the system.	
29/11/2025	12	Analyze usability test feedback and improve the system.	Finalize app features and prepare for user acceptance testing (UAT).	
7/11/2025	13	Conduct final User Acceptance Testing (UAT)	Analyze all data, finalize system development.	
11/11/2025	14	Presentation	Report submission.	

Github link: https://github.com/Sitizai19/FINAL_YEAR_PROJECT_2025

User manual video: https://youtu.be/WWAu0AdZt74?si=E89poVvdETyiHrtO