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Cat Care and Services Booking Management System

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Abstract

The Cat Care and Services Booking Management System was developed to resolve issues with manual bookings at Cats Capsule, such as overlapping schedules, miscalculated charges, and data loss. This web-based platform streamlines service bookings while enhancing administrative efficiency and customer satisfaction. The system includes modules such as user and cat profile management, booking and payment modules, calendar scheduling, and review submission. The project scope covers functionalities for both customers and administrators—customers can register, manage cat profiles, make bookings, view calendar slots, submit payments, and leave reviews, while administrators can manage services, time slots, bookings, and view reports. The system was developed using PHP and MySQL within a XAMPP environment. The system supports responsiveness and accessibility. Agile methodology enabled iterative development with regular feedback. To validate system readiness, User Acceptance Testing (UAT) was conducted, confirming that all modules met user requirements and performed as expected. With real-time slot viewing, automated email notifications, and review features, the system enhances operational accuracy and service quality. It offers a reliable, user-friendly solution for managing cat care services efficiently.

1. Introduction

A pet cat care centre is a place where cat owners can send their pet cats to care for their cats' welfare. [1] Cats are domesticated animals kept for companionship, protection, or entertainment. Therefore, owning a pet cat implies responsibility for its care, not merely possession. Pet cat care centres are important in the life of someone who has a pet cat. There are various services at cat care centres, including accommodation for the cat and bathing sessions. [2] these cat care centres provide many benefits and conveniences to pet cat owners who want to ensure the cleanliness, safety, and happiness of their pets.

The demand for high-quality cat care and accommodation services has triggered the development of a booking system for Cats Capsule. Cat owners are now starting to get busy with their lives, so they need to provide accommodation for their cats when they want to go on vacation or have other business. Cats Capsule, which uses manual booking methods, often faces various challenges, including difficulty managing a large number of reservations, the risk of duplicate bookings, errors in calculating charges, and the lack of a structured data storage system. These problems not only harm the centre's daily operations but also affect customer satisfaction because they do not receive the desired service. Therefore, the proposal to develop an online booking system for the Cats Capsule is seen as an important step in meeting this demand. The development of this system will automate some staff tasks and only requires cat owners to choose a place to stay through a website with internet access.

To resolve these challenges, this study aims to develop a Cat Care and Services Booking Management System. The objectives are to analyze user needs, design an intuitive web interface, implement real-time booking and calendar features, and test the system's effectiveness. The project adopts the Agile methodology to ensure flexibility and ongoing improvements.

The scope of the project includes the creation of a web-based system that serves two types of users: customers and administrators. For customers, the system allows user registration and login, cat profile management, bookings (room, grooming, and spay/neuter), real-time calendar viewing, secure payment with receipt generation, and submission of reviews and ratings. For administrators, the system provides tools to manage reservations, process check-ins and check-outs, update service and time slot information, update payment and status, and generate reports for strategic decision-making. By integrating these modules, the system aims to streamline operations, minimize human error, and improve the overall user experience for both customers and staff at Cats Capsule.

This article is organized in detail to provide a comprehensive overview of the development of the Cat Care and Services Booking Management System, covering every important aspect involved in this project. This article is divided into six sections. The first section is an introduction that explains the project context. The second section discusses the literature review. The third section discusses the methodology. The fourth section is the analysis and design. The fifth section is implementation and testing. The last section discusses the conclusions and recommendations.

2. Literature Review

The study was conducted at a pet care center, Cats Capsule, located in Cheng, Melaka. This care center has been operating for several years but still uses a manual system to manage all information including service bookings from customers. One of the existing managements relies on communication via phone calls, WhatsApp, and recording information in Microsoft Excel. For walk-in bookings, staff will enter customer information into the tablet. Although the system functions adequately for basic customer interactions, it has several limitations. First, this manual system does not offer a backup feature, so bookings may be lost. In addition, it is especially difficult to manage time during the holiday season when many customers walk-in. The manual process also takes more time in booking management. However, this system has several advantages. This system saves time and resources in managing purchases. It provides communication opportunities for customers to work on explaining their special needs. The initial cost of this system is also low because several basic tools are used such as telephone, WhatsApp, and Microsoft Excel. Even though it provides the basics, the system operates only through manual methods. The system uses Microsoft Excel so that staff have to enter details for every customer's booking. This approach is prone to human errors, time-consuming, and makes it challenging to manage large volumes of information. Since the system isn't automated, it is difficult to manage reservations that cause conflicts or are simply complex. Thus, it becomes obvious that automated systems should be developed to make entering and managing info easier for users and administrators. These problems can be sorted out by using web-based systems to handle bookings, merge important services, and organize data professionally.

The booking system developed for Cat Capsule utilizes modern technologies, ensuring stability, responsiveness, and user-friendliness. The main tools here are the Windows operating system, the MySQL database, PHP programming language, and XAMPP as a local server environment. Windows was chosen as the main operating system because it provides stable operations and a lot of development software support. Windows becomes a reliable platform for developing web applications that must perform and remain stable. [3] Due to being open source, flexible, and very easy to work with, PHP is popular for developing websites, especially since it connects easily to databases such as MySQL. [4] Besides, MySQL is an RDBMS, famous for giving dependable results and strong performance, especially for small and medium web applications. XAMPP is used as a local server platform to provide a more practical development environment. XAMPP is an open-source software that provides a complete package for web development, including Apache, MySQL, and PHP servers.

The three existing systems studied will be compared with the features of the proposed system. This study aims to identify the advantages and disadvantages of each existing system to provide a basis for the development of a more comprehensive web-based system that meets the operational needs of Cat Capsule. This analysis also highlights aspects that need to be considered in the development of a new system. The comparison is presented in Table 1.

Table 1 *Comparison Between Existing Systems With Cat Capsule Systems*

System / Features	Maobulous	Furrytel	L Residence Pet Hotel	Cat Capsule
System Type	Web-based system	Web-based system	Web-based system	Web-based system
Registration Module	None	Yes	Yes	Yes

Service Management Module	None	Yes	Yes	Yes
Booking Management	None	Yes	None	Yes
Payment Module	None	Yes	None	Yes

Table 1 *(Cont).*

System / Features	Maobulous	Furrytel	L Residence Pet Hotel	Cat Capsule
Reporting Module	None	No Module Special.	No Module Special.	Yes
Review and Rating Module	None	No Module Special.	No Module Special.	Yes

Table 1 compares the existing systems used by several pet care centres, including Maobulous, FurryTel, and L Residence Pet Hotel, with the system planned for Cat Capsule Hotel. The comparison is based on key features such as system type, registration module, information management module, booking module, payment module, reporting module, and review and rating module.

3. Methodology

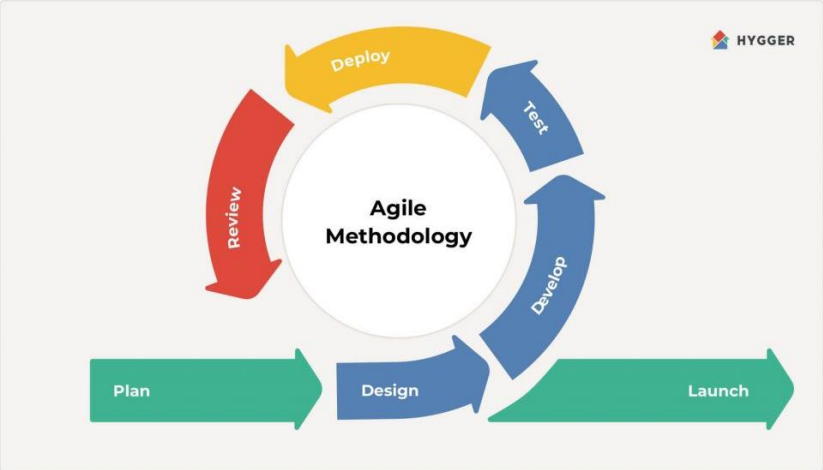

Fig. 1 *Agile Methodology*.

Figure 1 is the development of this system will use a methodology known as Agile, which is one of the flexible software development frameworks. [5] This framework was chosen because it allows the development of the system to dynamically adapt to changing requirements and provide added value to the user as events change and impact the level of use of the system at each iteration. A fixed schedule also reduces the likelihood of errors and helps the project succeed by always checking and monitoring its progress. [6] Problems can be spotted early on by the development team and dealt with appropriately. This is how the framework enables project management by setting up a chance for all parties to enhance the project's success opportunities. Table 2 shows the phases and activities in the system.

Table 2 *Phases and Activities During System Development*

Phase	Activity	Tools
Planning	Determine basic system requirements and additional requirement.	WhatsApp
	Identify hardware and software.	Interview one-to-one
Design	Prepare design specification documents.	draw.io
	Design the system wireframe interface.	
	Designing the database structure.	
Development	Building the main modules of the system.	Sublime Text 3, PHP, Javascript,
	Integrate the database with the system.	

		XAMPP, phpMyAdmin
Testing	Testing system performance. Conduct UAT testing with users.	UAT tools

Table 2 *(Cont).*

Phase	Activity	Tools
Deployment	Ensure that module operates properly in a real environment. Provide technical support to users if there are issues.	Client devices
Review	Coordinate user feedback to the system. Improving modules based on feedback.	Server maintenance
Launch	Officially launch the system to all users. Carrying out system marketing activities to customers.	

Table 2 shows there are seven main phases which include planning, design, development, testing, deployment, review, and launch. All of these phases are important for the system being developed to ensure that the new system has good quality, is user-friendly, and is in accordance with the operational needs of Cat Capsule. Appendix A shows the Gantt chart outlines the complete project timeline for the development of the Cat's Capsule system, detailing the major phases from October 2024 to June 2025. The Cat Capsule system has seven main phases. The project starts in October 2024, with the planning phase, and ends with the launch phase in June 2025. With this approach, all phases are well planned and scheduled to be carried out sequentially. The project is expected to meet customer needs on time, as planned.

3.1 Functional and Non-Functional Requirements

This section will provide an in-depth explanation of the system requirements needed to build a Cat Care and Services Booking Management System. This analysis is done to ensure that the system built can efficiently meet the needs of users. The analysis of these requirements when referring to functional and non-functional requirements, will be explained as follows.

Table 3 *Functional Requirements.*

Functional	Descriptions
Registration	This system allows new users to register for an account by providing information such as full name, email, contact number, and password.
User	The system allows users to log in and log out. Administrators can manage user accounts.
Booking	Users can make booking for room, grooming and neutering based on available time slots. The system provides an automatic calendar to avoid duplicate bookings. The administrator can monitor the bookings made by customers.
Cat Profile	Cat owners can enter information about their cat such as name, age, basic needs and vaccination records.
Payment	The system provides various payment methods that can be used such as debit or credit cards, bank transfer and cash. The system also issues electronic receipts to facilitate payments.
Notification	This system sends email notifications regarding bookings.
Reports and Analysis	This module is for administrator's view. Administrators can generate booking, and financial reports.
Service Management	Allows administrators to add, update, and remove service such as room, grooming, or neutering.
Booking History	Customers and administrators can view booking history
Calendar	Customer can view all their bookings — rooms, grooming, and spay/neuter.

Table 5 the main functional features of the system and what they mean. Functional requirements refer to the main functions that need to be provided by the system to ensure that all modules function as designed. This table highlights the main activities and relationships required for managing everything related to users, services, and bookings.

Table 4 Non-*Functional Requirements.*

Non-Functional	Descriptions
Security	Users enter customer, booking and payment information.
Usability	A user-friendly interface is easily accessible to users.
Performance	A system that is easily accessible at any time.

Table 4 the non-functional requirements refer to parts of the system that improve its user experience and how it operates but are different from the main function. Because there is security, users are safe when submitting details like customer, booking, and payment records. An intuitive and user-friendly interface is important in usability, so that users have no trouble working with the system. It brings attention to the need for the system to be working at all times, giving users zero problems with accessing it. These rules are necessary to offer the best user experience and keep the security of the system.

4. Design

System design is an important step to ensure that the planned processes meet user needs and support system operations. This section explains the process flow in a Cat Care and Services Booking Management System through a Flowchart, Context Diagrams, Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD) with a focus on key modules such as registration, profile management, booking, payment, and reporting.

4.1 Flowchart

This study introduces the process flow of the management system applied to the Cat Care and Services Booking Management System. Appendix C shows separate flowcharts are created for customers and administrators to reflect their respective roles and responsibilities within the system. There are several main flowcharts.

For customers, the booking process begins with logging into the system. After successful authentication, the customer selects the type of service— whether it's a room, grooming, or spay/neuter. The system then displays the available time slots in a interface. Customers proceed by selecting their cat, entering booking details and submit payment using the available methods. After authentication, the system sends an automated email to the customer, and a record of the booking is stored in the database. If the customer selects grooming or neutering services, the process also includes selecting a specific time slot for the procedure.

For administrators, the flowchart begins with a login step that provides access to the admin dashboard. From there, admins can view all pending and confirmed bookings. Admins can perform actions such as checking in or checking out cats, updating grooming or neutering status (e.g., pending, completed, or canceled), payment status, and generating booking reports. Additionally, admins can manage available services and configure time slots for grooming and neutering to avoid scheduling conflicts.

Each flowchart ensures a logical, linear sequence of actions and includes validation checks to prevent errors. Clear segregation of duties between customers and administrators increases system usability and minimizes operational confusion. This flowchart-driven approach supports a smooth, user-friendly workflow that aligns with the goals of automation and efficiency for Cats Capsule.

4.2 Context Diagram

The context diagram is a fundamental component of the structure-based design approach, providing a high-level overview of the system and its interaction with external entities. For the Cat Care and Services Booking Management System, the context diagram illustrates how the system communicates with users such as administrators, and customers (pet owners). [7] This diagram serves as a starting point for understanding the boundaries of the system, explaining what data enters and exits the system, and identifying key relationships. It ensures that stakeholders and developers have a shared understanding of the purpose and scope of the system before delving into more detailed design. By clearly depicting these interactions, context diagrams help prevent scope creep and ensure that all necessary interfaces are considered during the design phase.

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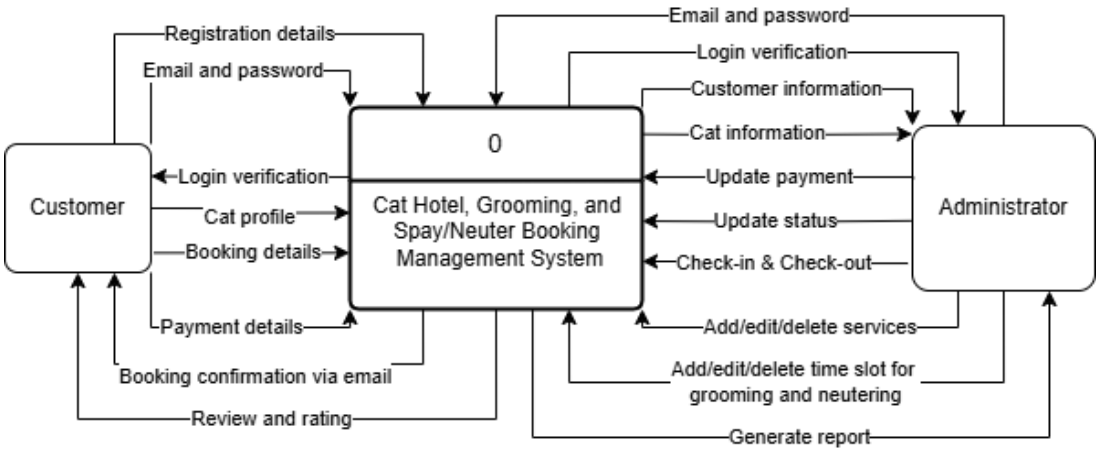

Fig. 2 *Context Diagram*

The context diagram above depicts the entire system where two main users deal, namely customers and administrator. This system is developed to manage customer information, cats, bookings, payments, and service. Customers communicate with the system through the registration and login process. Customers are asked to provide an email and password. After successful login, customers can update cat information, make bookings, and complete the payment process. For administrator, they manage operations behind the scenes. They will view customer and cat information, monitor payment for grooming, and manage services such as adding, updating, or deleting services. They will also adding, editing, or deleting time slot for grooming and neutering. Other than that, the admin needs to update the total or price for grooming, and update the status for grooming and neutering. In addition, admin can view the booking analysis report. In this context diagram, this system can help outline and data interactions that occur between the main user and the system. All functions in the system are designed to meet the needs of users.

4.3 Data Flow Diagram

The Data Flow Diagram (DFD) is an important tool used in system design to represent how data moves through a system. In the context of the Cat Care and Services Booking Management System, the DFD breaks down a system process into manageable components by illustrating the flow of information between system processes, data stores, and external entities. It provides a more detailed view than the context diagram, offering insights into how data is entered, processed, stored, and output at various levels in the system.

The DFD is typically developed in multiple levels, starting with a DFD level 0 (also known as a basic system model), which shows the main processes and data flows. Further levels, such as Level 1 shown in Appendix B, break down these main processes into more specific subprocesses. This helps developers and stakeholders understand the inner workings of the system and identify potential inefficiencies or redundancies early in the development cycle.

By using DFDs, system designers can ensure that functional requirements are properly captured and all data interactions are logically structured. [8] This leads to a more organized and efficient system that meets user expectations and supports long-term maintainability.

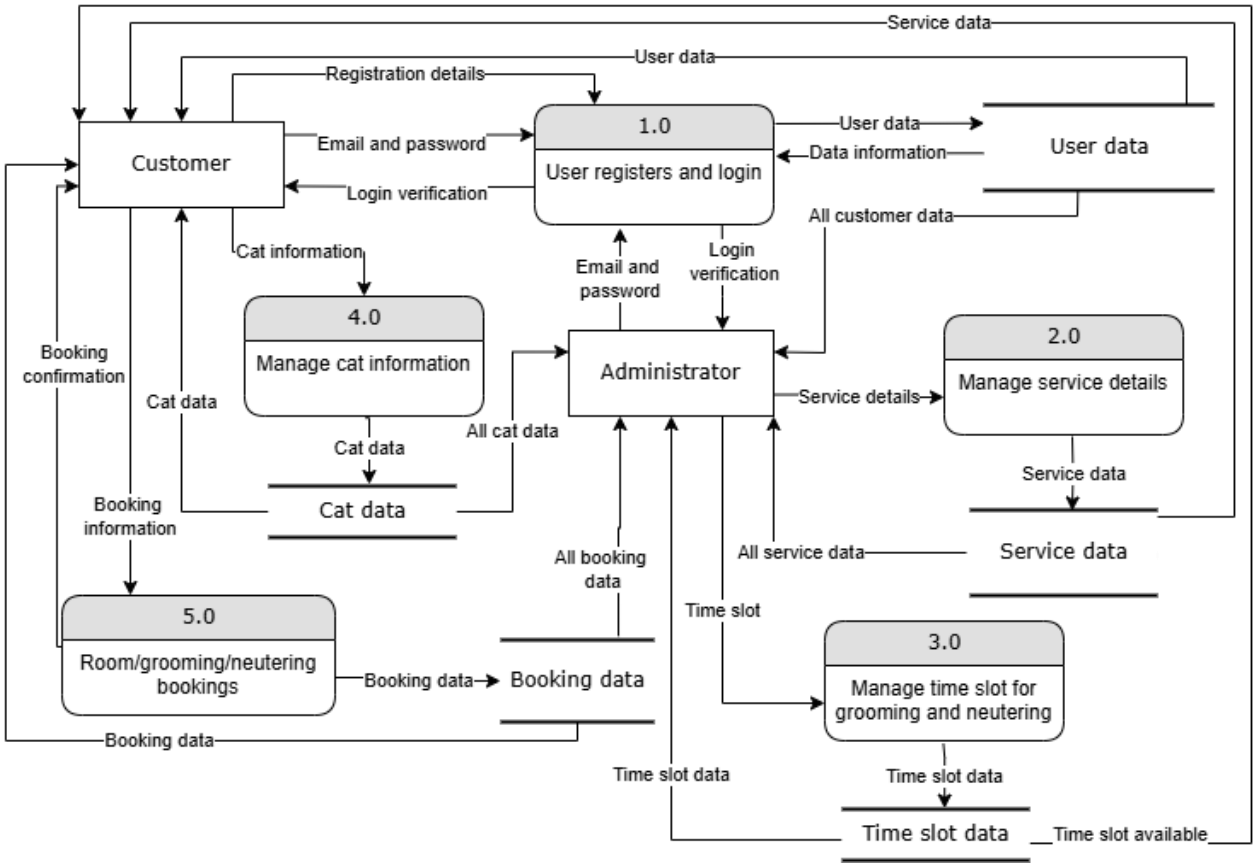

Fig. 3 *Data Flow Diagram level 0*

Figure 3 provides a high-level overview of the data flow within a management system. It illustrates how data moves between different processes, external entities (customers and administrators), and data stores. The diagram starts with the Customer, who interacts with the system by registering and logging in through Process 1.0 (User registers and login). This process involves sending registration details and login credentials, which are validated, and the user data is stored in the User data store. After logging in, the customer can manage their cat's details via Process 4.0 (Manage cat information), which involves inputting and updating cat data stored in the cat data store. The customer also interacts with Process 5.0 (Room/grooming/neutering bookings) to make bookings, with relevant booking data stored in the Booking data store. On the administrative side, the Administrator handles login verification and manages data across the system. They interact with Process 2.0 (Manage service details) to update service offerings stored in the service data store, and Process 3.0 (Manage time slot for grooming and neutering) to organize time slots, with time-related information stored in the time slot data store. Throughout the diagram, arrows indicate the flow of specific data elements, such as user credentials, cat data, booking details, and service configurations. This DFD Level 0 offers a structured and clear representation of how the core system components interact to support efficient pet service management.

4.4 Entity Relationship Diagram

The Entity Relationship Diagram (ERD) for the Cat Care and Services Booking Management System outlines the structure of the relational database by identifying key entities, their attributes, and the relationships between them. ERDs are designed to ensure orderly data flow, eliminate redundancy through normalization, and support efficient information retrieval for both customer and administrative functions.

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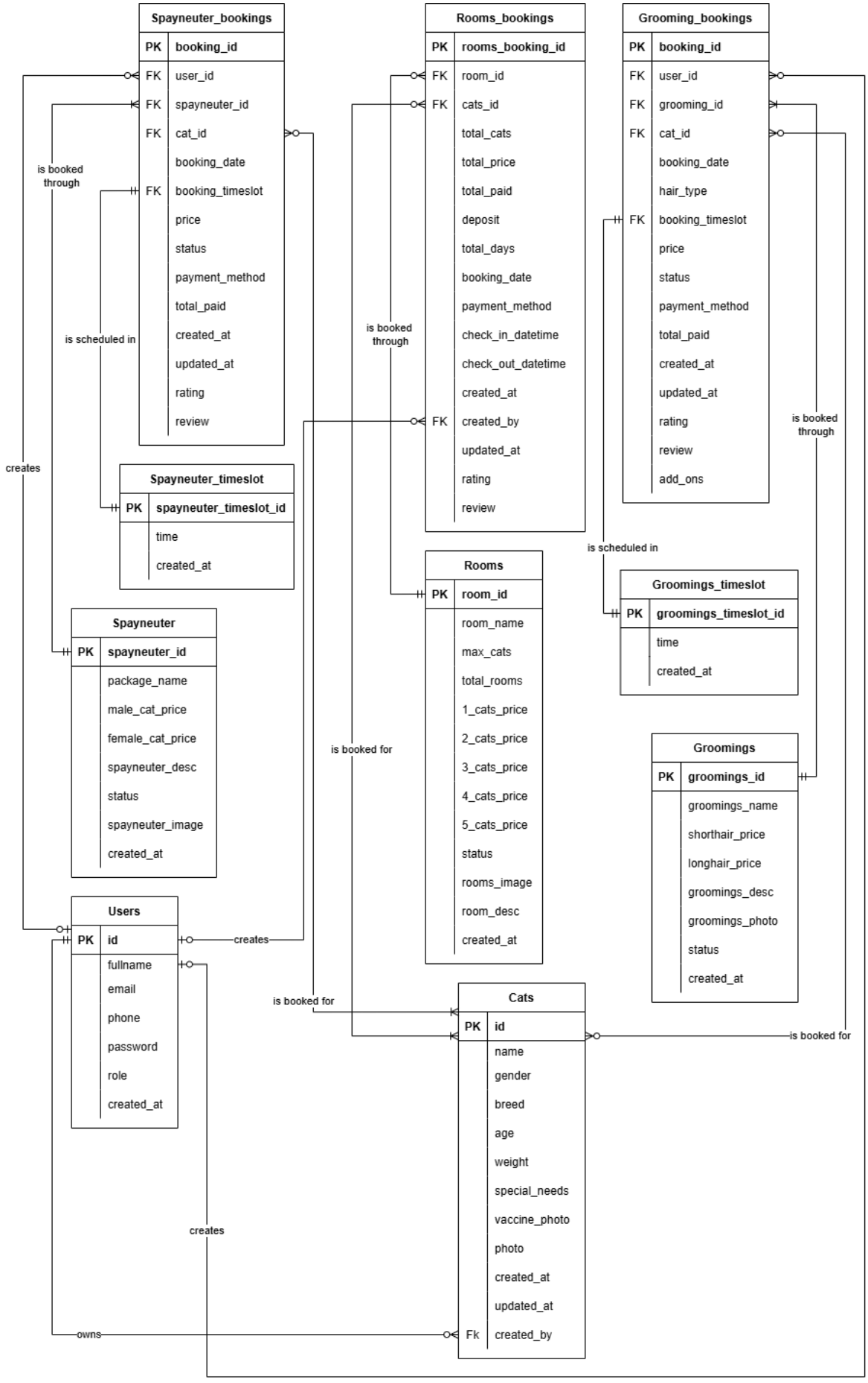


Fig. 4 *Data Flow Diagram level 0*

Figure 4 above shows the Entity-Relationship Diagram (ERD), which represents a Cat Care and Services Booking Management System, and it seems to be correctly organized and very close to being complete. The diagram includes key entities such as Users, Cats, Rooms, Groomings, Spay/Neuter services, and their respective bookings and timeslots. A main key called the Primary Key (PK) defines every table, and proper Foreign Key (FK) are used to join related tables together by relationship. For example, Users and cats are connected through the user id, and each type of bookings like room bookings, grooming bookings, and spay neuter bookings relates cats to both services and timeslots. This acts as a protection for data and helps us identify any of each booking's trackable information. Putting grooming and spay/neuter services into two separate Timeslot tables is a good practice because it prevents bookings for the same time. Even so, having a similar system for booking classes won't work for booking rooms since that can cause schedule clashes. Putting in a timeslot or datetime field for room bookings would enhance this field. It would also assist booking tables if they had more fields, for example, booking date, created at, and status, to handle and monitor the process better. It should also be ensured that the main keys (grooming_id and grooming timeslot_id) are properly linked to guarantee that the chosen timeslot works together with the assigned grooming service. All in all, the ERD is structured properly and could improve slightly to become more functional and consistent.

4.5 Interface Design

Interface design is a visual that focuses on the style of the system used by users. [2] The interface design was sketched using the wireframe method to illustrate how the process in the system runs according to each module that has been provided in this project.

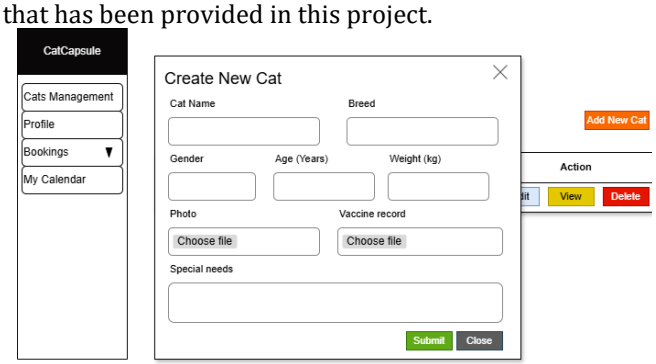


Fig. 5 *Data Flow Diagram level 0*

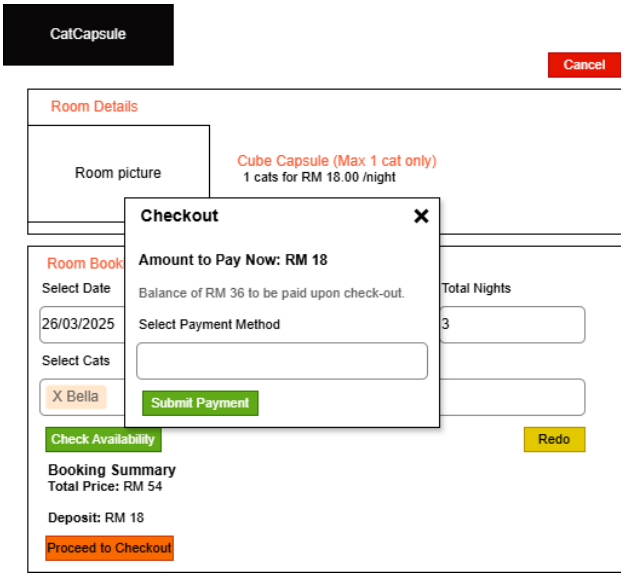


Fig. 6 *Room Booking for User*

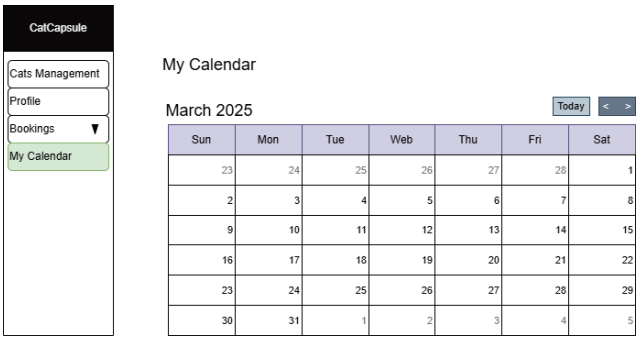


Fig. 7 *Booking Calendar for User*

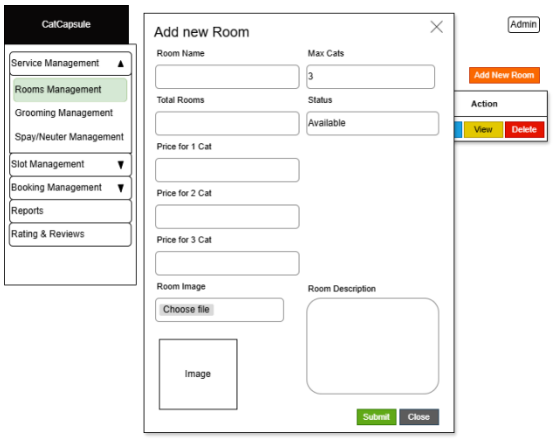


Fig. 8 Room *Management in Administrator*

Figure 5 to figure 8 are the user interface design displays how a user would go through registration, book, and manage services. By looking at this section, it becomes clear how this system improves efficiency, lowers errors committed by humans, and makes the user interface better.

5. Implementation and Testing

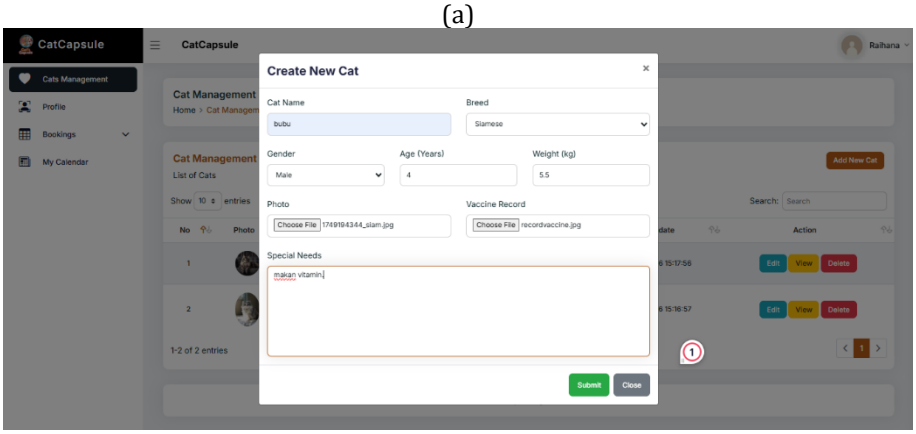
This section covers the implementation process, which involves programming actual system components using appropriate tools. [9] Module integration and connecting to a database at this stage makes sure the system runs as planned. Every module like user registration, managing a cat's profile, and making bookings was developed according to what was required in the earlier phases. It also shows how system testing was done to make sure no errors exist in the software and that each part is working properly.

5.1 Implementation Module

The system was implemented as a web-based platform using PHP for backend processing, MySQL for data management, and HTML/CSS/JavaScript for the front-end interface. The implementation followed a modular approach to promote scalability, code reusability, and easier maintenance. Each core functionality of the system was separated into distinct modules, allowing both customers and administrators to interact with the system based on their roles.

```
$(document).on("click", ".create", function() {

    $('#photo_src').attr('src', '').hide();
    $('#vaccine_photo_src').attr('src', '').hide();

    $('#photo').show().prop('required', true);
    $('#vaccine_photo').show().prop('required', true);

    $('#name, #breed, #age, #weight, #special_needs, #gender').val('').prop('disabled', false);
    $('#submitbtn').html('Submit').show();
    $('#type').val('C');
    $('.modal-title').html('Create New Cat');
});

});
</script>
```

(a)



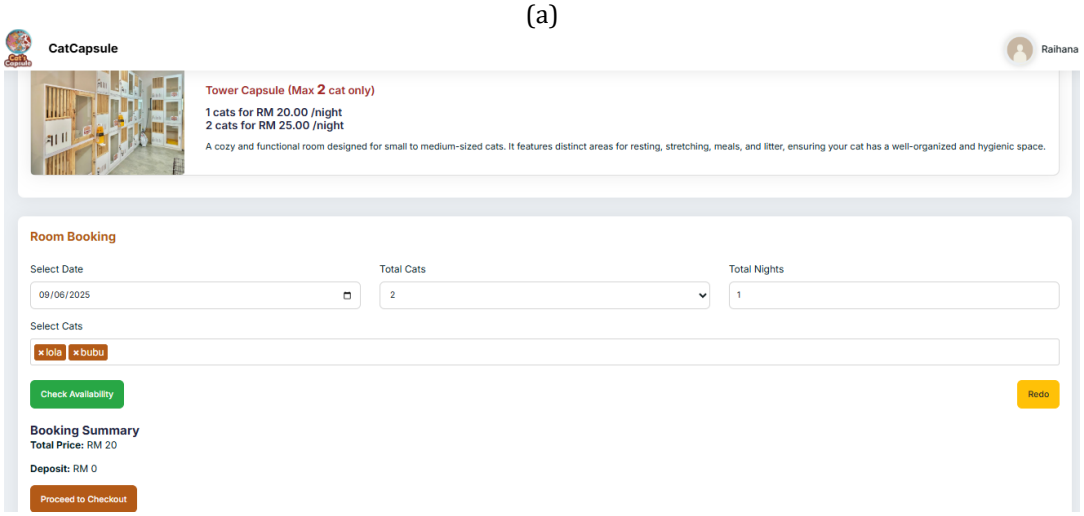
(b)

Fig. 9 *Source Code (a) Adding Cat Profile (b) By customer*

Figure 9 displays the source code used to add and manage cat profiles in the database. The code handles form submissions, file uploads (for cat photos and vaccination records), and links each profile to a registered user account using foreign keys. User interface shown here enables pet owners to input detailed information about their cats. Users can upload photos, specify breed, age, weight, and any special needs. This feature ensures each pet is uniquely identified and well-documented within the system.

```
$('#total_cats').on('change', function () {
    var totalCats = $(this).val();

    if (totalCats) {
        $.ajax({
            url: "fetch_cats.php",
            type: "GET",
            data: {
                uid: <?php echo json_encode($uid); ?>,
                limit: totalCats
            },
            success: function (response) {
                $('#selected_cats').html(response);

                // Safely reinit Select2 with updated max selection
                $('#selected_cats').select2('destroy').select2({
                    placeholder: "Select your cats",
                    maximumSelectionLength: totalCats,
                    width: '100%'
                });
            }
        });
    }
});


$('#checkAvailability').click(function() {
var bookingDate = $('#booking_date').val();
var totalCats = $('#total_cats').val();
var totalNights = $('#total_nights').val();
var selectedCats = $('#selected_cats').val();

if (!bookingDate || !totalCats || !totalNights || selectedCats.length != totalCats) {
Swal.fire({
icon: 'warning',
title: 'Incomplete Details',
text: 'Please fill all details and select the correct number of cats.',
});
return;
}
```

(a)



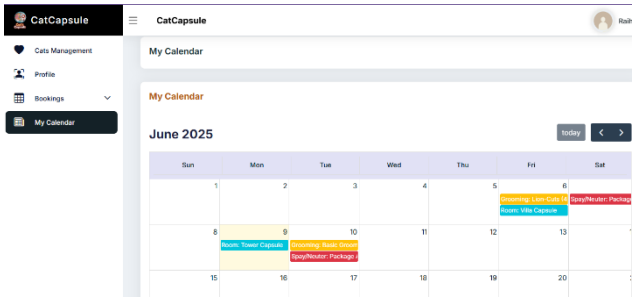
(b)

Fig. 10 *Source Code (a) Room Booking (b) By customer*

Figure 10 shows the code processes room booking requests submitted by users. It validates inputs like dates and cat IDs, checks room availability, calculates total price, and inserts booking data into the database, ensuring the booking process runs automatically and accurately. The user interface is designed for ease of navigation and error prevention, facilitating a smooth booking process.

```
<script>
document.addEventListener('DOMContentLoaded', function() {
    var calendarEl = document.getElementById('calendar');

    var calendar = new FullCalendar.Calendar(calendarEl, {
        initialView: 'dayGridMonth',
        locale: 'en',
        height: 650,
        events: 'fetch_all_bookings.php',
        eventColor: '#378006',
        eventClick: function(info) {
            alert(info.event.title + "\n" + info.event.start.toDateString()
        }
    });

    calendar.render();
});
</script>
```

(a)



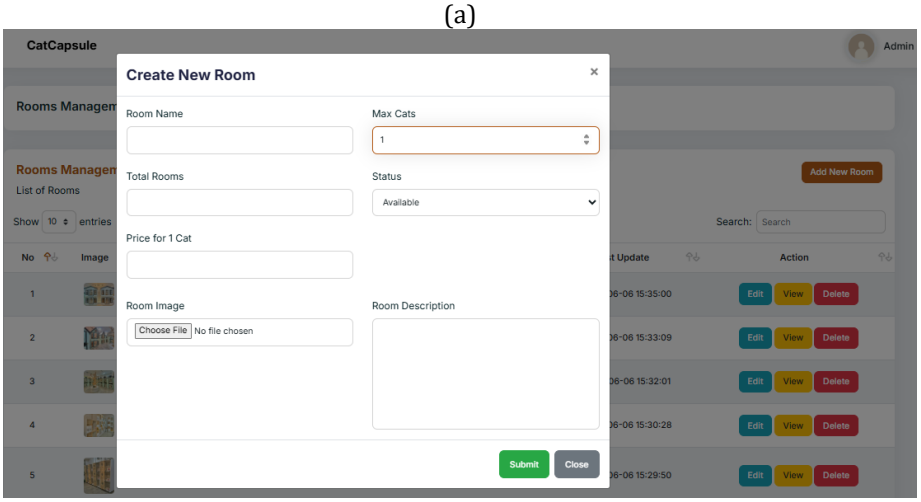
(b)

Fig. 11 *Source Code (a) Booking Calendar (b) By customer*

Figure 11 shows the source code generates a dynamic calendar that retrieves and displays booking data in real time. It integrates with other modules to prevent overlapping bookings and gives staff a visual overview of reservations. The calendar interface visually represents confirmed bookings. It allows users to track scheduled appointments for rooms, grooming, and spay&neuter services, enhancing scheduling transparency.

```
$(document).ready(function() {
    function generatePriceFields(maxCats, data = {}) {
        let html = '';
        for (let i = 1; i <= maxCats; i++) {
            html += `
<div class="row mb-2">
    <div class="col-md-6">
        <label>Price for ${i} Cat${i > 1 ? 's' : ''}</label>
        <input type="number" class="form-control" name="${i}_cats_price" id="${i}_cats_price" step="0.01" min="0" required value="
            ${data[i + '_cats_price'] || ''}">
    </div>
</div>`;
        }
        $('#priceFields').html(html);
    }

    $('#max_cats').on('change', function() {
        let max = parseInt($(this).val());
        if (max >= 1 && max <= 5) {
            generatePriceFields(max);
        } else {
            $('#priceFields').html('');
        }
    });
```

(a)



(b)

Fig. 12 *Source Code (a) Room Management (b) By administrator*

Figure 12 displays the code used to add, edit, or delete service options like room types, grooming packages, and spay/neuter services. The admin can update service status and pricing easily. The admin interface for managing service information, specifically for setting up room services. A notable feature here is the dynamic pricing input based on the maximum number of cats allowed. When the administrator enters a value in the "Max Cats" field (e.g., 1, 2, 3...), the system will automatically generate the corresponding number of price input fields. For example, if "Max Cats" is set to 1, only one price field appears — "Price for 1 cat." If the value is 2, two fields appear — "Price for 1 cat" and "Price for 2 cats," and so on. This dynamic display simplifies data entry and ensures accurate pricing setup tailored to different room capacities.

5.2 User Acceptance Testing

[7] User Acceptance Testing (UAT) is a critical phase in the software development life cycle, designed to verify whether the system meets the business needs and end-user expectations. For this project, the UAT was conducted after the system passed functionality and internal testing phases. The main goal was to ensure that the developed features of the Cat Care and Services Booking Management System align with real-world operations at Cats Capsule.

Table 5 *User Acceptance Testing for Administrator*

Module	Test Case	Test Results
Log in	Enter a valid email and password.	Successful
	Enter incorrect email and password.	Successful

Table 5 *(Cont).*

Module	Test Case	Test Results
Service management	Adding new service information to the system	Successful
	Updating and deleting service information.	Successful
Service time slot	Adding new time slot to the system	Successful
	Updating and deleting time slot information.	Successful
Booking management	Check-in and check-out processes.	Successful
	Updating payment for grooming service.	Successful
	Updating the current status of grooming and spay/neuter services.	Successful
Report and analysis	Booking data exists in the system.	Successful

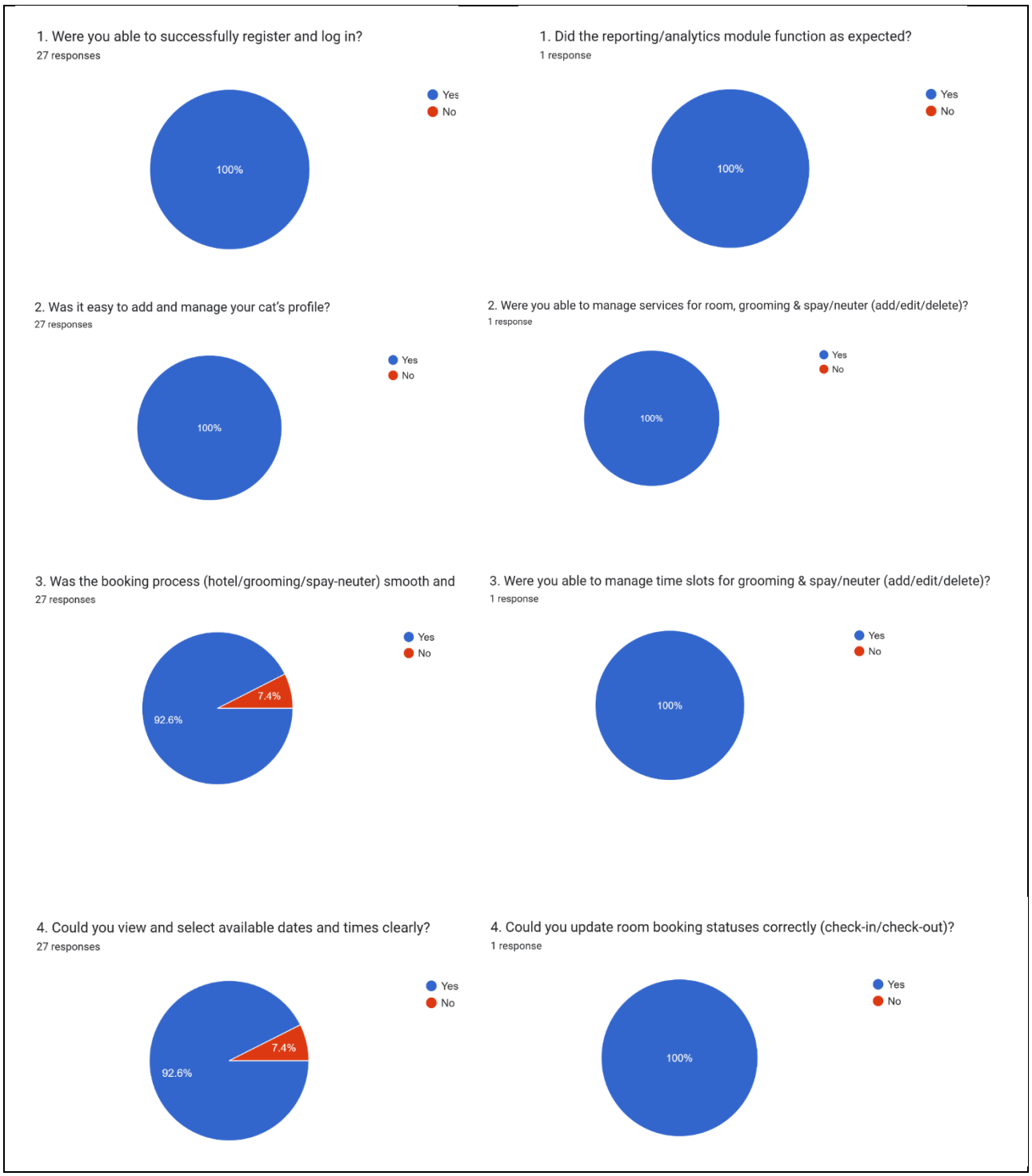
Table 5 displays the detailed results of the system functionality testing conducted on the Cat Care and Services Booking Management System. Each test case corresponds to a specific function or module in the system, including key areas such as user registration, login, cat profile management, service booking (room, grooming, and neutering), payment processing, and review submission. For each test case, the table includes descriptions of the input data used, the expected output, the actual result observed during testing, and the final status indicating whether the test case passed or failed. The purpose of this table is to verify that the system behaves as intended and meets the functional requirements specified during the design phase. The results indicate that all functionalities tested produced the correct outputs and were marked as "Succeeded" demonstrating that the system components are working effectively and are ready for real-world use.

Table 6 *User Acceptance Testing for Customer.*

Module	Test Case	Test Results
User management	Register by entering full name, email address, phone number, and password	Successful
	Enter a valid email and password.	Successful
	Entered incorrect email and password.	Successful
Cat profile management	Register animals by entering the name, breed gender, weight, special needs, and upload vaccine photo and cat's photo.	Successful
	Updating and deleting profile.	Successful
Booking	Book room services by filling date, total of night, total of cat, and select cats.	Successful
	Not filling in all the room information required to make a reservation.	Successful
	Book grooming services by filling time slot, date, select cats, hair type, and add-ons.	Successful
	Not filling in all the grooming information required to make a reservation.	Successful
	Book spay/neuter services by filling time slot, date, and select cats.	Successful
	Not filling in all the spay/neuter information required to make a reservation.	Successful
Booking calendar	Time slot and date display on the calendar.	Successful
Payment	Payment method options such as bank tranfer, credit card, or cash.	Successful
Reviews and ratings	Entering the review and rating for services.	Successful

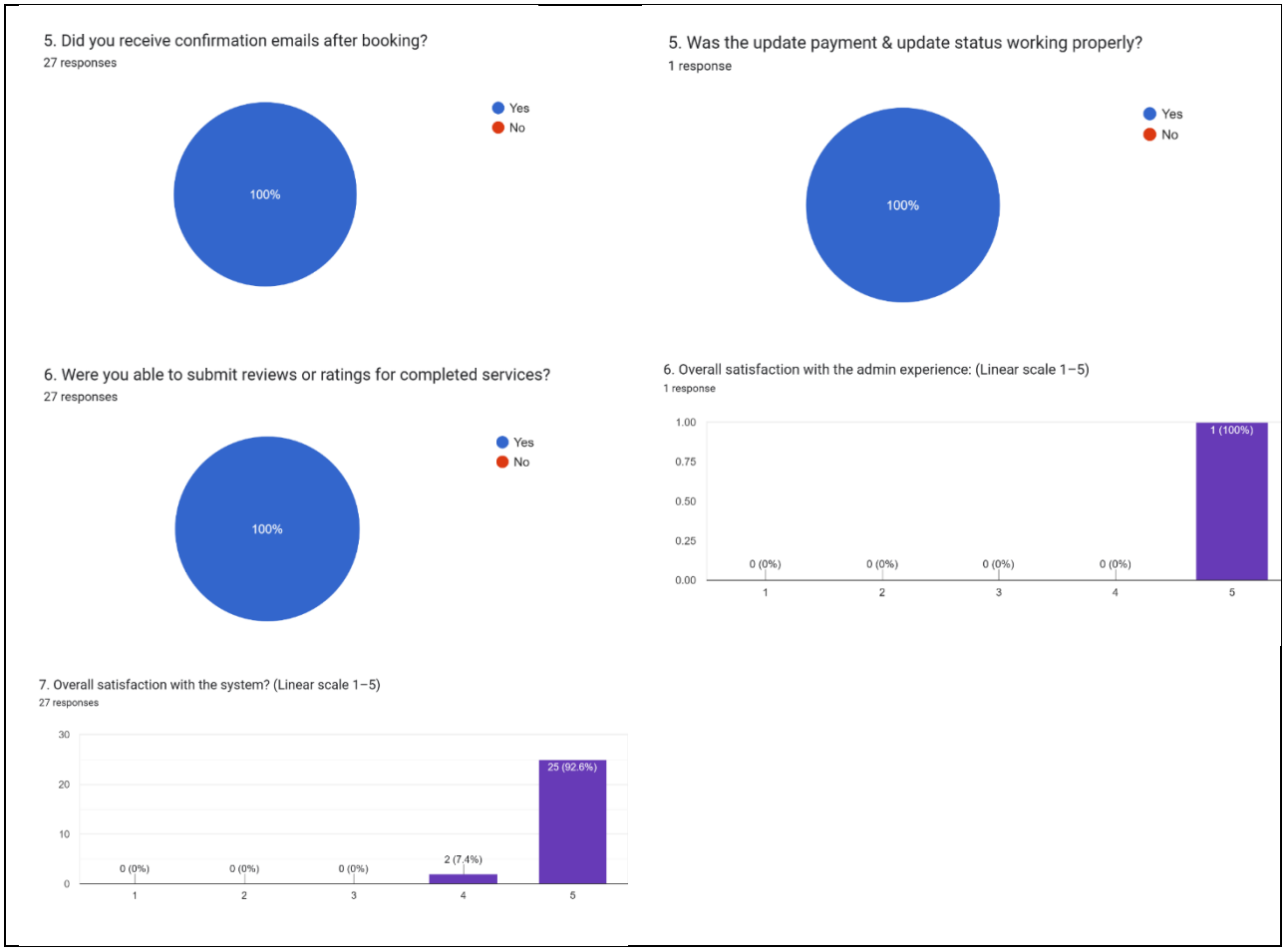
Table 6 provides a summary of the outcomes from the functionality testing shown in Table 19. According to the summary, all test cases have passed and marked as "Succeeded. This indicates that the system meets its functional objectives and performs reliably under the tested conditions. The summary in Table 20 offers a quick

overview of the system's overall stability and readiness for deployment, reflecting the robustness of the development process and the effectiveness of the implemented features. Furthermore, it ensures that the Cat Capsule system functions well and without any serious errors, which is very important for both the system's customers and its administrators.



(a) (b)

Fig. 13 *Customer (a) Administrator (b) User Acceptance Testing Feedback.*



(a) (b)

Fig. 13 *(Cont).*

Figure 13 presents the User Acceptance Testing (UAT) feedback collected from both administrators and customers, highlighting the overall effectiveness and satisfaction with the Cat Care and Services Booking Management System. The administrator feedback (Figure 13b) indicates that system features such as service management, booking handling, and report generation have been successfully implemented and facilitated a smoother operational process. Administrators found it efficient to update services, manage time slots, and monitor bookings and payments. Meanwhile, the customer feedback (Figure 13a) reflects a positive user experience, emphasizing the system's ease of use, intuitive interface, and streamlined booking process for various services. Customers appreciated features such as a real-time calendar view, multiple payment options, and the ability to leave service reviews. Overall, Figure 13 reinforces that the system met its functional objectives and was well received by its primary users, confirming its readiness for real-world use.

6. Conclusion

The project successfully achieved its objective of developing a user-friendly booking system for cat care centre employees. The platform successfully included user management, looking after cats' records, a booking system, a calendar for organizing appointments, payment features, setting up service slots, and ways to collect feedback. These modules collectively improved the efficiency of service operations, reduced errors from manual bookings, and enhanced customer satisfaction through real-time email notifications and review systems. Moreover, the testing results confirmed that all features operated as expected, validating the reliability and usability of the system in a practical environment.

To enhance the functionality and usability of the Cat Care and Services Booking Management System, several improvements are recommended. For example, adding a cancellation module would be helpful in dealing with possible payment issues and improving users' trust. Also, although the website performs well on any device, an Android and iOS app would make the platform more convenient, easier to use, and improve awareness by offering high speed, notifications right on mobile devices, and access when offline. Also, integrating real-time alerts such as SMS and push notifications can streamline communication between users and the system on confirmations, reminders, and updates. Furthermore, the system could be enhanced in the future by adding a health management

system that reminds owners about vaccinations, involves diets and meal habits, and stores the cat's medical information. [10] Lastly, providing live updates on cats thanks to Internet of Things gear such as smart collars would help both customers and the business be clear about how the cats are cared for. By introducing these additions, we could increase the system's ability to serve pets and remain at the level of technology used in pet care.

The chapter finishes the development process of the Cat Care and Services Booking Management System. The project is considered successful since it offered a web platform that is simple to use, makes operations more efficient, and greatly helps users. Finally, this system addresses the main issues faced by the Cats Capsule centre, especially regarding manual steps, loss of information, and overlapping appointments. Although the system is effective, it was found to have several limited features, for example, there is no refund module, no push notifications, and pet health tracking is offered with very few tools. Therefore, it is suggested that new strategies like mobile apps, integrating things, and new monitoring ways could solve these problems. [2] These changes are expected to help the system adapt to new trends and remain up to date in today's world.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: ***study conception and design:*** *Raihana Puteri Binti Mohamad Hassan, Noor Zuraidin Bin Mohd Safar;* ***data collection:*** *Raihana Puteri Binti Mohamad Hassan, Noor Zuraidin Bin Mohd Safar;* ***analysis and interpretation of results:*** *Raihana Puteri Binti Mohamad Hassan, Noor Zuraidin Bin Mohd Safar;* ***draft manuscript preparation:*** *Raihana Puteri Binti Mohamad Hassan, Noor Zuraidin Bin Mohd Safar. All authors reviewed the results and approved the final version of the manuscript.*

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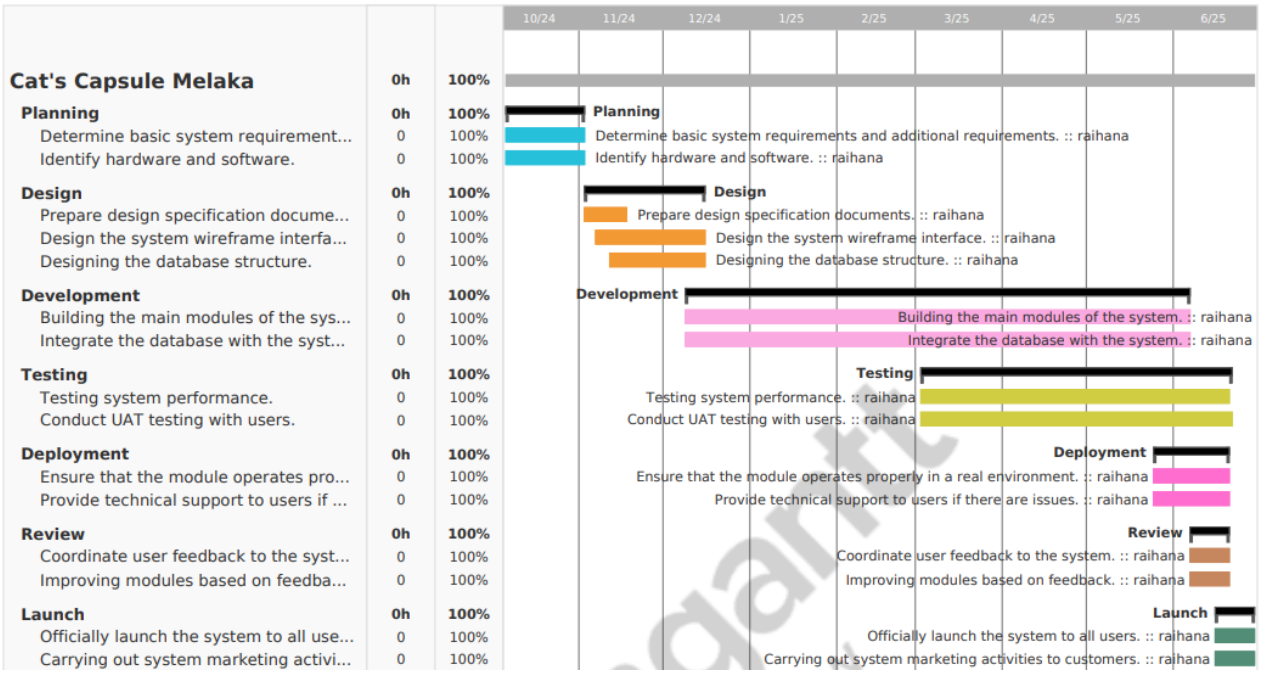
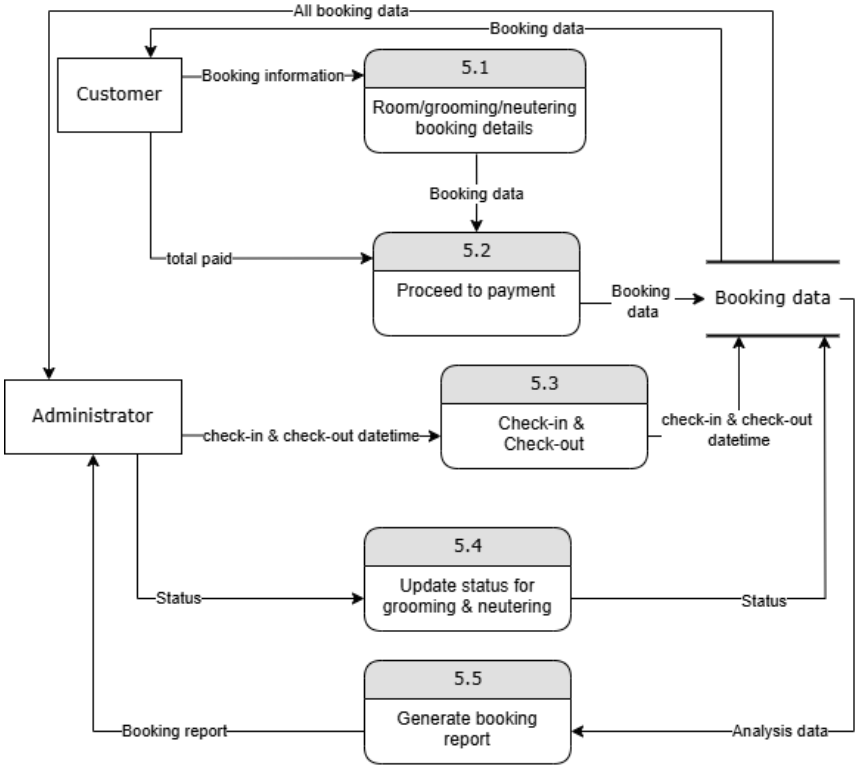
Appendix A: Gantt chart



Appendix B: Data Flow Diagram level 1



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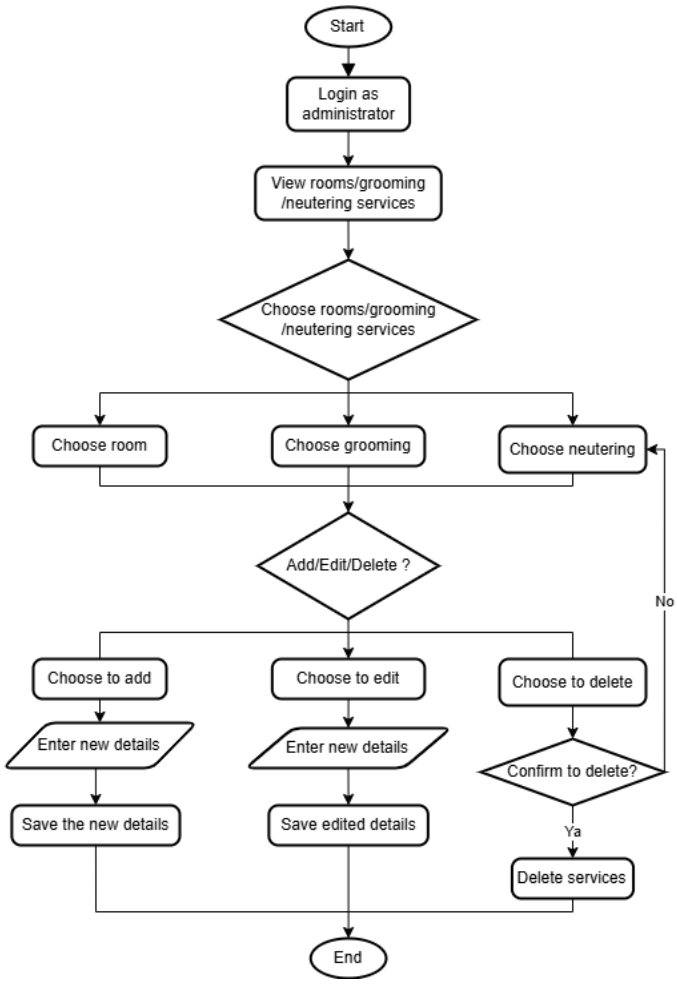
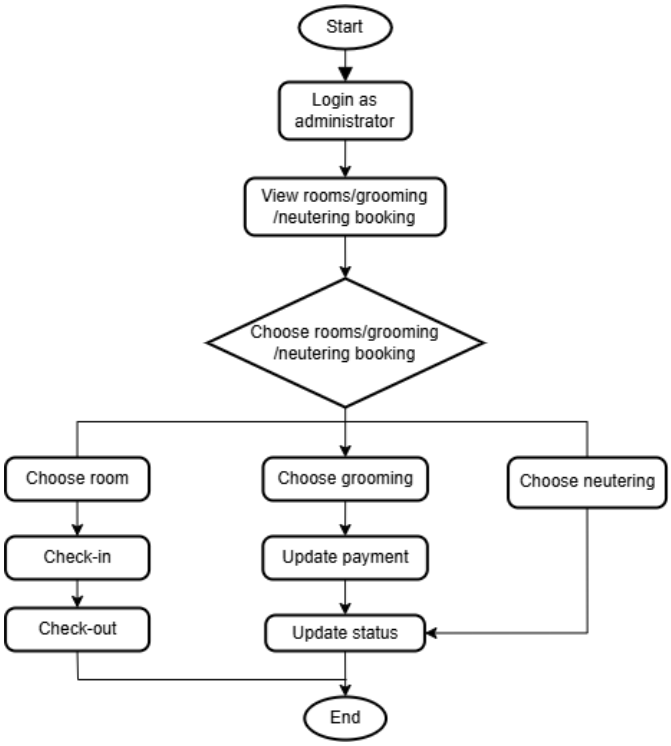
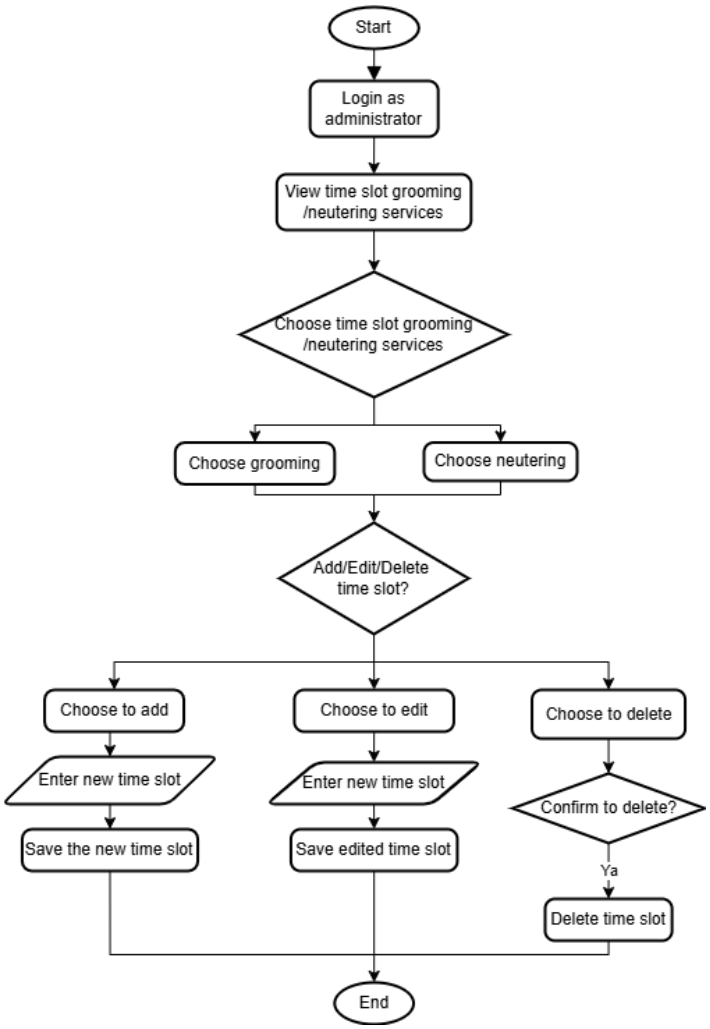
Appendix C: Service Management Flowchart for Administrator



Appendix C: Booking Management Flowchart for Administrator



Appendix C: Service Time Slot Management Flowchart for Administrator



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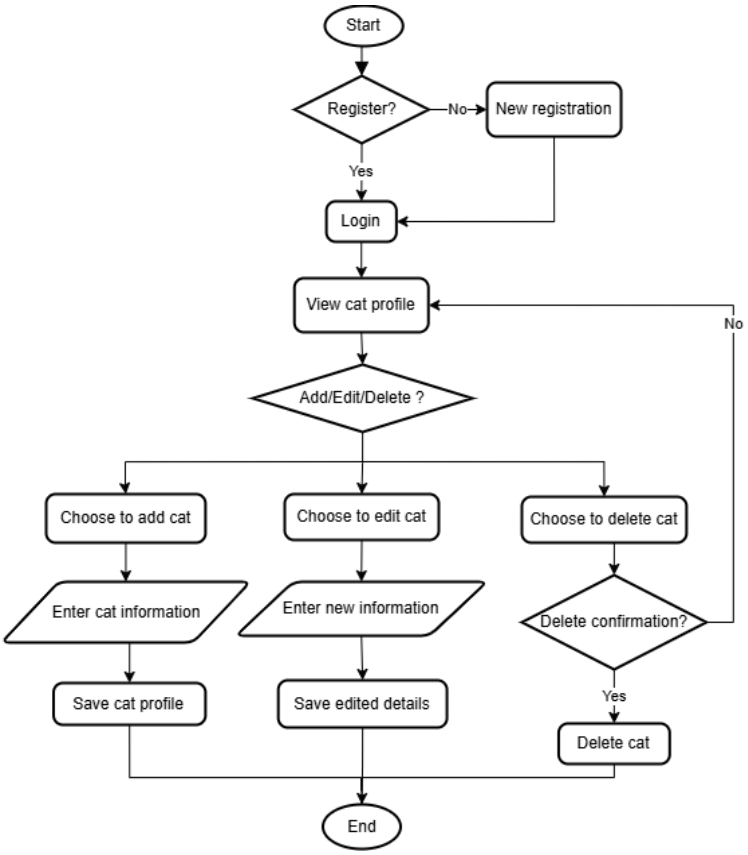
Appendix C: Cat Profile Management Flowchart for Customer



Appendix C: Booking Management Flowchart for Customer