

**VETERINARY CLINIC MANAGEMENT SYSTEM**

**BY**

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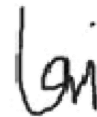
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It is hereby certified that Leong Vern Kei (ID No: 19ACB01746 ) has completed this final year project entitled “VETERINARY CLINIC MANAGEMENT SYSTEM” under the supervision of Ts Lai Siew Cheng (Supervisor) from the Department of Computer Science, Faculty of Information and Communication Technology , and Ts Sun Teik Heng Co-Supervisor from the Department of Information Systems, Faculty of Information and Communication Technology.

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## ABSTRACT

The Veterinary Clinic Management System was a web-based platform aimed at streamlining the business operations of veterinary clinics in Malaysia. Its primary objective was to develop an all-in-one solution that would upgrade the existing clinic management software by adding a pet owner-accessible portal. Despite the availability of numerous veterinary clinic systems in the market, most of them were developed by foreign companies and only for internal staff use. The project's scope included various modules, such as appointment scheduling, a pet owner-accessible portal, customer and pet profile management, medical histories, reminders, knowledge intelligence, admission, invoice, and register modules. The system had two main users: staff and pet owners. As a web-based platform, the project utilized PHP as the primary programming language and Visual Studio Code as the development environment. HTML5, CSS, and Bootstrap were also utilized to develop the system's front-end. To test and develop the system, XAMPP was used to set up a local web server environment. PhpMyAdmin was chosen as the system's database. The project was developed using phased development methodology due to its quick implementation and condensed time frame. The clinic management system was divided into several phases, with each step comprising a small number of modules. This approach allowed for quick and straightforward system development. After the development, the system had two user roles, which were staff and pet owner roles. Staff members could perform registration for the walk-in pet parent, register new pet parent profiles, manage pet parent and pet records, manage medical reports, manage admission reports, book slots, notify pet owners for appointment making, manage appointments, manage medicine, manage pet admissions, and manage invoices. Pet owners could manage their user profiles, pet profiles, make appointments, view medical history, view invoice history, admission reports, and frequently answer questions as a guideline for them when they are having a problem in operating the system. Overall, the Veterinary Clinic Management System was a promising solution that addressed the needs of veterinary clinics in Malaysia. By utilizing the latest information technology, the system streamlined business operations, reduced administrative burden, and improved overall efficiency. With the successful development and implementation of the system, veterinary clinics were able to manage their operations more effectively, ultimately leading to improved patient outcomes and customer satisfaction.

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# Chapter 1

## Introduction

Believe that everyone hears about the veterinary clinic. But does everyone know the definition of the veterinary clinic? “Veterinary clinic is a building or part of a building that provides facilities for the prevention, cure, and alleviation of disease and injury in animals, as well as their care and shelter during treatment.” [13]. However, managing a veterinary clinic can be challenging for veterinarians and nurses, as they are already busy treating animals. To alleviate their workload and improve their effectiveness, a veterinary clinic management system can be helpful to deal with the Veterinary Clinic file processing. Such as appointment scheduling, report generate, patient record, reminder, etc.

With the Veterinary Clinic Management System, all the file processing can be done easily. The system will assist the veterinarians and nurses to manage the Veterinary Clinic alleviating their workload and making their work more effective. Nowadays there are many Veterinary Clinic Management System offer in the market. But most of the systems offered in the market are developed by foreign companies and some of the functions are not well developed. Most of the Veterinary Clinic Management System had provides several useful features like customer and pet profile, activity update, appointment schedule, notification, auto generate report, inventory management etc.

However, the existing system worked well in employee authority but didn't provide the feature of a pet owner-accessible portal. This means the system can only be used by the employee but not the customer. With the intention of providing a convenient application for the Veterinary Clinic who can reduce more work of the employee, a Veterinary Clinic Management System is proposed. This system will help assist Veterinary Clinic file processing and reduce some communication work that deals with the customer.

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### 1.1 Problem Statement and Motivation

#### 1.1.1 Problem Statement

Nowadays, many veterinary clinics use a veterinary clinic management system to assist their business operations and reduce their workload. However, existing veterinary clinic management systems on the market merely replace paperwork with computerized records and database storage. Typical functionalities include owner and pet record management, inventory management, and report generation. Thus, this project aims to address the problem of reducing communication work that deals with pet owners regarding appointment scheduling and introduce new innovations to make the veterinary clinic experience more convenient for both pet owners and staff. Compared with existing systems on the market, the proposed project will focus on developing a pet owner-accessible portal to solve the inefficiencies, and inconveniences problem cause to the pet owner.

#### **Inefficiencies in Traditional Veterinary Clinic Appointment Scheduling**

Pet owners needing to visit the veterinary clinic in person to schedule an appointment. This process can be time-consuming, especially during peak hours. Moreover, scheduling appointments over the phone can pose additional challenges, especially if the clinic is busy or understaffed. In such situations, the nurse may forget to record the appointment or enter the incorrect date, resulting in scheduling conflicts and confusion. Additionally, pet owners may forget the appointment they made, necessitating the nurse to reschedule it. However, by creating an Appointment module that allows pet owners to schedule appointments online and includes a reminder function, these issues can be resolved. This will make the appointment scheduling process more efficient and convenient for both pet owners and staff.

#### **Pet Owners' Inconvenience in Retrieving and Managing Pet Medical Records**

Pet owners often face challenges in accessing and retrieving their pets' medical history reports, which can lead to inconvenience and potential health risks for their pets. This is because if a pet becomes sick or injured, the veterinarian needs to know their medical history to provide the

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best treatment. If the pet owner cannot provide this information, it can lead to potential health risks for their pet as the veterinarian may not be able to make an accurate diagnosis or provide the most effective treatment. Additionally, due to the traditional method of keeping hard copies of medical records, which can be easily misplaced or lost. Therefore, there is a need for a more efficient and accessible system that enables pet owners to access their pets' medical history reports anytime they need it, regardless of their location.

### **Inconveniences Faced by Pet Owners in Obtaining Updates on their Pets' Status During Admissions**

Pet owners face difficulties in obtaining timely updates on the status of their pets when they are admitted to the veterinary clinic. The current method of providing updates only through phone calls or physical visits. This can be inconvenient and time-consuming for both pet owners and clinic staff. In addition, this can lead to increased stress and worry for pet owners about their pet if they cannot get update of their pet condition.

#### 1.1.2 Motivation

By integrating a pet owner-accessible portal with a knowledge intelligent-based system into the Veterinary Clinic Management System, the workload of veterinarians and nurses can be reduced. Pet owners can now make appointments at any time through their portal and view their pet's record anywhere. The addition of the knowledge intelligent-based system means that pet owners no longer need to worry about using the system, as they can access help with the technology. Furthermore, the admission monitoring module provides pet owners with the latest updates on their pet's condition, providing them with peace of mind and convenience. Additionally, they can access their pet's medical history at any time. As a result, this project is of great assistance to pet owners in dealing with system problems, improving convenience, and helping to reduce the workload of veterinarians and nurses.

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### 1.2 Objectives

The primary goal of the proposed Veterinary Clinic management system is to enhance the existing systems and add some innovation so that it can function well in the veterinary clinic.

#### **To provide a pet owner-accessible portal**

By providing a pet owner-accessible portal, pet owners can make appointments for their pets at their convenience using the appointment feature within the portal. This includes booking medical check-ups, basic grooming services, and more without having to wait until they are physically at the veterinary clinic. The admission monitoring feature within the pet owner-accessible portal allows pet owners to receive timely updates about their pet's status while it is admitted to the clinic, providing them with peace of mind and convenience. Additionally, the medical report function within the portal allows pet owners to retrieve their pet's medical history record at any time. The objective of providing the pet owner-accessible portal is to enhance convenience and accessibility for pet owners while also streamlining the workflow of veterinary clinic staff.

#### **To provide an appointment module with SMS notification**

To provide an appointment module with SMS notification, which will enable the staff (doctor and admin) to send reminders to pet owners about their scheduled appointments. This feature will help reduce the likelihood of pet owners forgetting about their appointments and missing them. The SMS notification will be sent to the pet owner's registered phone number, providing them with a convenient and reliable way of receiving appointment reminders. By offering this feature, the veterinary clinic management system will improve the overall efficiency of the appointment scheduling process, enhancing the experience of both pet owners and staff.

#### **Provide a system with Knowledge-based system**

To provide a system with a knowledge-based system, which can help pet owners get familiar with the system quickly and increase their satisfaction when using it. This can be achieved by incorporating a knowledge-based system that provides helpful tips, instructions, and guidance

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to users on how to use the various features of the system. This will ensure that pet owners can easily navigate the system and use it effectively without experiencing difficulties.

### 1.3 Project Scope and Direction

After finishing the whole project will deliver a full version Veterinary Clinic Management System that contains many features such as appointment scheduling and the integrated of SMS notification, pet owner-accessible portal and the integrated of Knowledge-based systems, customer and pet profile module, medical report histories module, medical report generate, admission module, invoice module.

There will be 2 types of users in the Veterinary Clinic Management System. Which is the staff (veterinarian and nurse) and the pet owner. Each of the roles has its specific authority.

### 1.4 Contribution

By having this Veterinary Clinic Management System, it can provide benefits to both veterinary staff and pet owners. For veterinary staff, the system helps to streamline the administrative tasks of appointment scheduling, medical record keeping, and billing. With the appointment module and SMS notification feature, staff can better manage their time and reduce the risk of appointment no-shows. The medical record module ensures that all pet medical history is recorded and accessible, aiding in accurate diagnoses and treatment plans. The billing module also simplifies the payment process, reducing the need for staff to manually manage invoices and receipts. For pet owners, the system provides convenience and peace of mind. The pet owner-accessible portal allows for easy appointment scheduling, admission monitoring, and access to pet medical records. With the knowledge-based system integrated into the portal, pet owners can quickly learn how to use the system and access help when needed. The admission monitoring module keeps pet owners updated on their pet's condition, reducing the stress and worry of leaving their pets at the clinic. The system's features also

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promote transparency and communication between pet owners and veterinary staff, building trust and confidence in the care provided. In overall, the veterinary clinic management system can improve the efficiency, convenience, and communication between veterinary staff and pet owners.

### 1.5 Report Organization

This report is organised into 7 chapters: Chapter 1 Introduction, Chapter 2 Literature Review, Chapter 3 System Methodology / Approach, Chapter 4 System Design, Chapter 5 System Implementation, Chapter 6 System Evaluation and Discussion, Chapter 7 Conclusion and Recommendation. The first chapter is the introduction of this project which includes the background introduction, problem statement and motivation, project objectives, project scope and direction, project contribution, and report organisation. The second chapter is the literature review carried out on several existing veterinary management system offer in the market to evaluate the strengths and weaknesses of each system, some proposed solution that apply in the proposed develop system and the comparison between reviewed system and proposed system. The third chapter is discussing the system methodology or approach of this project. Include the system design diagram, system architecture diagram, use case diagram and description and the activity diagram. Furthermore, the fourth chapter is discussing the overall system design of this project. Inside this chapter will show the system block diagram, system components specifications, The fifth chapter is regarding the details on how the system implementation of the system. Chapter 6 is about the system evaluation and discussion. Chapter 7 is about the conclusion and recommendation



## Chapter 2

### Literature Review

#### 2.1 System Review

In this system review section, three system will be review. Which is Petotum Vet, KRELOSES Vet Software and Hippo Manager Veterinary Software.

##### 2.1.1 Petotum Vet

PetotumVet is a veterinary clinic management system developed by Deux Alpha Tech Sdn.Bhd [10] that aims to assist veterinarians and clinic staff in managing their daily tasks and streamlining their operations. The system was developed by a team of software engineers and veterinary experts, and it is designed to be user-friendly and customizable to meet the specific needs of each clinic. It is a web-based application. PetotumVet has provided many features. Such as customer and pet profiles, activity updates, invoices, automatic reminders, and managing tasks. In addition, there are also an advanced feature offers on this system which offers online booking to pet owners. They add this cool feature to their system because based on their survey 70% of pet owners prefer to book appointments online, 52% of booked appointments are made from office hours. They always up to date, develop useful feature in their system. They add in various of feature recently. For example, pet hotel management, pet grooming management, vet clinic appointment, instant sales report, mobile app for customer, and QR order and payment. For now, they are developing a new feature which call patient management. (Figure 1)

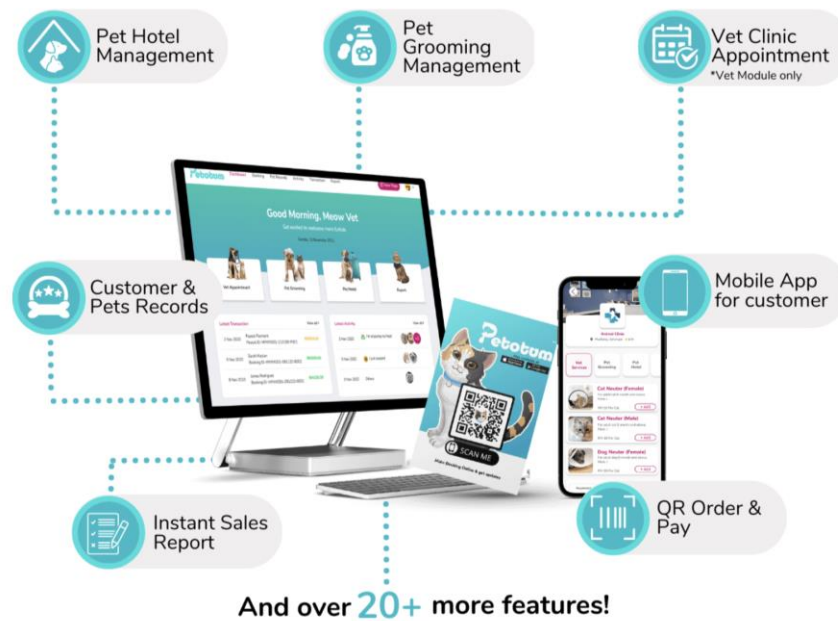


Figure 1 PetotumVET main page

Source: Adapted from [10]

### Strength

PetotumVet provides a user-friendly interface with intuitive navigation and clear labelling to make it easy to use. Additionally, the system can be customized to meet the specific needs of each clinic, allowing them to tailor the system to their workflows and processes. PetotumVet offers a comprehensive range of features that cover all aspects of clinic management, from patient records to billing and inventory management. The system is designed to be scalable and can grow with the clinic, allowing additional features and modules to be added as needed. This makes PetotumVet an excellent choice for veterinary clinics looking for a comprehensive and customizable clinic management system that is easy to use and can adapt to their changing needs over time.

### Weakness and Limitations

Lack of pet owner-accessible portal, knowledge-based system. By this the nurse need to deal with all the register word each time when the user visits the veterinary clinic. Although this system has provided appointment scheduling for the user. However, it does not apply any knowledge-based system, or even customer service. This might cause some difficulty for the user to use. Because they did not have any knowledge on how to operate the system. This might cause unsatisfaction of the pet owner and at the end they go to another veterinary clinic.

2.1.2 KRELOSES Vet Software

KRELOSES Vet Software is a cloud-based application. It is developed by Kreloses PLT. It has many features like customer profile, staff profile, produce, finance, appointment scheduling, auto generate report and message. It offers solution for all size of veterinary clinic, ease to use and richness of features. Besides, one of the interest things is KRELOSES will provide on-site training so the veterinarians and nurses no need to worry if they no time to train with the developer. In addition, if the Veterinary Clinic are an established vet using old vet software for example like Medex, VetCare, VetLite, etc. KRELOSES can import all the Veterinary Clinic data into their system. While for new business, KRELOSES is a great and easy to use product to ensure Veterinary Clinic make a smooth transition into digitization. KRELOSES Vet Software been use by many Veterinary Clinic in Malaysia. [12] (figure 2-3)

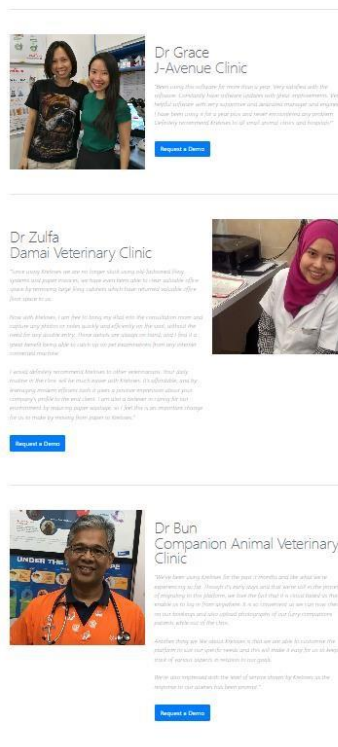


Figure 2 Review form KRELOSES Vet Software customer  
Source: Adapted from [12]



Figure 3 Veterinary Clinic that use KRELOSES Vet Software  
Source: Adapted from [12]

### Strengths

KRELOSES will constantly make the software updates with great improvements when they found out some bug or identify some useful features. Next, KRELOSES Vet Software allow the customer (Veterinary Clinic) to customize their platform so that can suit for their specific need. This will make it easy for the Veterinary Clinic to keep track of various aspects in relation to their goals. Besides, because KRELOSES Vet Software is a cloud-based application, hence Veterinarians can view the sales and stock records in a quick glance and record their consultation notes using the mobile phone anytime anywhere.

### Weakness and Limitations

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The weakness and limitation on this system is lack of pet owner-accessible portal feature. This system only has 1 authority. Which only can use by the staff (Veterinarians and nurse). Hence, this will lead to some trouble for pet owner to make appointment as the research from PetotumVET “70% of pet owners prefer to book appointments online, 52% of booked appointments are made out of office hours, and 60% of appointments are booked on mobile devices. “[10].

### 2.1.3 Hippo Manager Veterinary Software

Hippo Manager Veterinary Software is also one of the Veterinary Clinic Management Systems offered in the market. It is a cloud-based software and fully customizable with highly integrated features. It has been used for many small and large Veterinary clinics. It is built with a fresh and simple user interface that delivers everything needed for a veterinary clinic. It is developed by Hippo Manager Veterinary Software. This software contains various of features like medical histories and charting, appointment scheduler, inventory management, point of sale system, mobility and accessibility, and client communications. [11]. Recently they added in various of feature in their system which is mobile application and patient portal. (Figure 4-5)

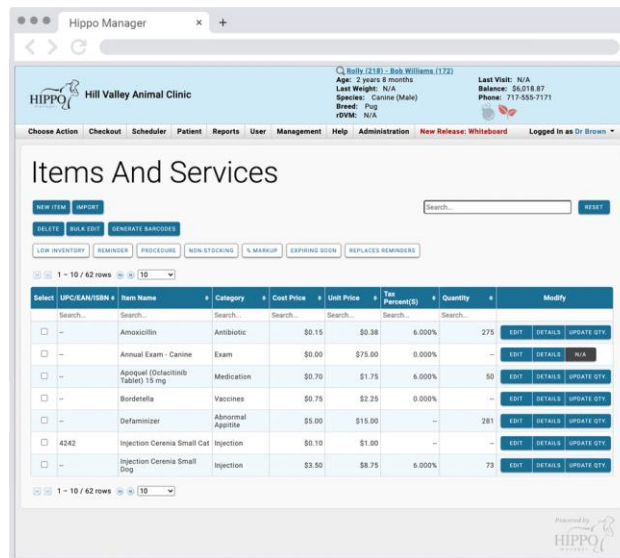


Figure 4 Hippo Manager Veterinary Software interface  
Source: Adapted from [11]

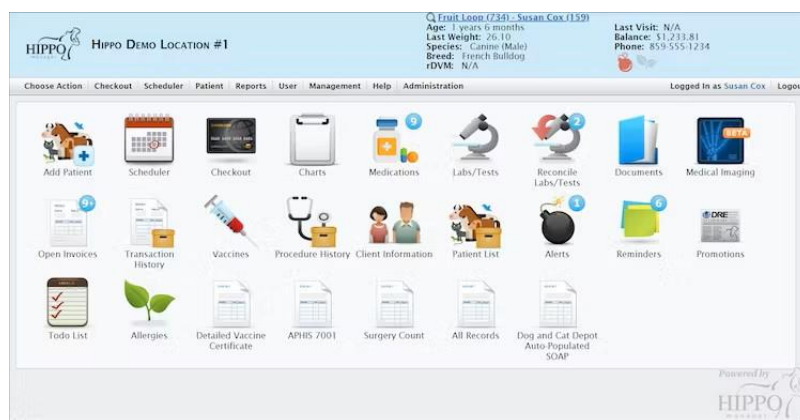


Figure 5 Hippo Manager Veterinary Software interface  
Source: Adapted from [11]

## Strengths

Hippo Manager Veterinary software is very easy to use and simple to learn. Due to it is a cloud-based veterinary software, hence it is accessible from anywhere, anytime that makes patient care easy and seamless. In addition, Hippo Manager Veterinary software had unlimited data storage means the Veterinary Clinic can store unlimited patients and users record. Moreover,

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its price pet vet per month is straightforward. Doesn't had hidden fees and no setup or installation fess. This is very good where some of the software it is very cheap but when we start to subscribe it will see more and more hidden fees.

### Weakness and Limitations

One of the Weakness and Limitations in Hippo Manager Veterinary software is didn't provide the feature of summarise. Mean Hippo Manager Veterinary software will not summary Veterinary Clinic daily appointment. If the veterinarians want to know the total of appointment of the day, they must count by themselves by open the appointment schedule.

## 2.2 Proposed Solution

### 2.2.1 Knowledge-Based Systems

Due to the proposed system is going to be use by the pet owner which for the user that did not have basic knowledge about the system. Hence, the system must be user-friendly and have operation guideline. Knowledge-based system is implemented since it can assist with solving problems and particularly complex issues that meet by the pet owner.

A knowledge-based system is a form of artificial intelligence that tries to collect human specialists' knowledge to aid decision-making [5]. A knowledge base is like a data storage hub with information on a certain product, topic, service, or concept that is easily accessible. Organizations develop knowledge bases to hold all their knowledge about a specific issue inside their company and to give a single point of access to this information. Internal personnel (in the case of a firm knowledge base) or the public (consumers or potential customers) who wish to learn more about a certain product, concept, or topic might use knowledge bases. The purpose of a knowledge base is to rationally give information to these users and, in the case of an internal system, to promote general organizational understanding [1].

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The concept behind a knowledge base can be confusing, but knowledge bases are usually straightforward in end-user practice. In real practice, the most common end-user features of knowledge base can be:

### 1. 24/7 support



Figure 6 24/7 support  
Source: Adapted from [8]

(Figure 6) 24/7 support means the user can get help and answers to their questions as soon as they come up 24 hour for 7 days (Monday until Sunday) and in real-time. The support might be staffed by human or by artificial intelligence. It is useful especially for a product or troubleshooting page.

### 2. Frequently Asked Questions

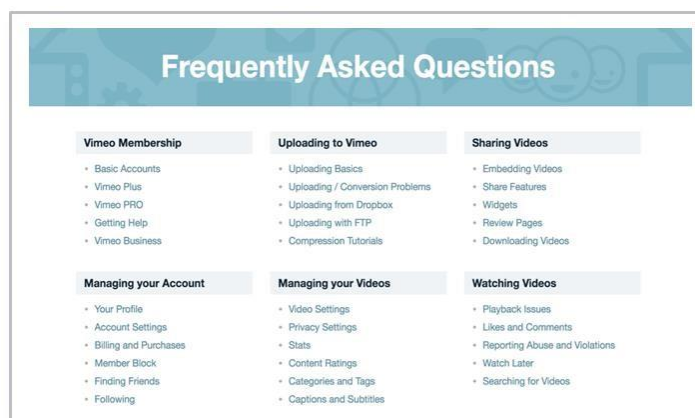


Figure 7 Example of Frequently Asked Questions



Source: Adapted from [14]

This is useful for those topics or concept that are easy to explain and don't need extensive technical support or troubleshooting. (Figure 7,8,9)

The benefit of a knowledge bases system is can increased availability of expert knowledge to lower-level employees. When the employee need help for some issue by the support of knowledge bases system such as 24/7 support or frequently asked question, they can simply reach the solution. This can satisfy customer demand for information and can also let the customer happy and increased the resolution rate [1].

As nowadays the use of Knowledge-based systems (KBS) is very common, most of the system, like Microsoft, MySejahtera, or TNG eWallet had already apply this technology. By apply this technology into the Veterinary Clinic Management System for both user authority which is employee (veterinarians and nurses) and pet owner will have a better way to solve their problem immediately.



Figure 8 Frequently Asked Questions on MySejahtera

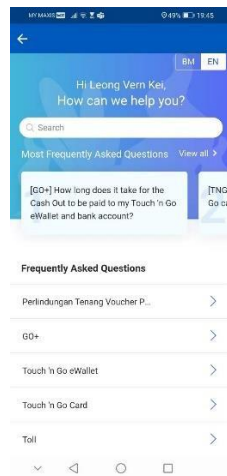


Figure 9 frequently Asked Questions on TNG eWallet

### 2.2.2 Study on SMS Implementation Using Twilio

Sometime the patient might forget the appointment they make due to busy daily life. Hence, to solve this issues, short message service (SMS) needs to be implemented in the appointment module help to notify the pet owner before each of the appointment time. The reason of using SMS is because SMS can easily reach people compare with email. Because not every individual checks their email daily. [2]

SMS commonly referred to as "text messaging". It is a service for sending short messages of up to 160 characters to mobile devices, including cellular phones and smartphones. Typical use case of SMS includes sending notification as reminder, sending a notification of delivery by e-commerce platforms, notification to a mobile phone owner of a voicemail message, promotional messages to cell phones as part of SMS marketing and such [6]. There are two kinds of SMS. Which is one way SMS and two-way SMS. The ideal of one-way message is used to send simple update and notifications. While two-way message is designed for transactional conversations requiring concise responses. [4]

In this proposed system one way SMS will be use as it is used for sending simple update and notifications. It matches our purpose that to notify the pet owner before each of the appointment

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time so that they will not forget the appointment they make. To implement the SMS feature. SMS API will be chosen to use for implementing the SMS feature. For various type of SMS API offer in the market Twilio has been chosen to implement in this proposed system. Due to it have trial API code that free to use and for the trial version.

### 2.3 Comparison between Reviewed System and Proposed System

Table 1 show the feature comparison between reviewed system and proposed system.

Table 1 Feature comparison between reviewed system and proposed system

Feature	PetotumVET	KRELOSES Vet Software	Hippo Manager Veterinary software	Proposed System
Appointment Module	/	/	/	/
Built-in DICOM Viewer Module	x	x	/	x
Instant Sales Report Module	/	x	/	x
Medical Module	/	/	/	/
Customer and Pet Record	/	/	/	/
Pet Hotel Management	/	x	<b>x</b>	x
Mobile App for customer	/	x	/	x
Pet owner-accessible portal	x	x	/	/
Admission Module	x	x	<b>x</b>	/
Lab Integrations Module	x	x	/	x
Dashboard Module	/	/	/	/
Register Module	/	/	/	/
Knowledge Intelligent Feature	<b>x</b>	<b>x</b>	x	/

Platform	Web-based	Cloud-based	Cloud-based	Web-based
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Here is the comparison table between the review system and the proposed system. Based on the table above we can see that there are many advanced modules that provide by hippo manager veterinary software. Like the built-in DICOM Viewer Module and the Lab Integrations Module that are not available for the other system in the market and the proposed system. PetotumVet system also have provide a pet hotel management system that was not offered by the other system in the market. For the proposed system offer the admission module and the pet owner-accessible portal which is also rally offer by the other system in the market. In overall, for all those basic features like appointment module, medical module, customer and pet record module, dashboard, register module are available in most of the system in the market.

Based on the 3 existing system that review. The limitation found in most of the systems is lack of pet owner accessible portal, and knowledge intelligent feature. Therefore, the proposed solution that can solve the limitation is:

#### 1. Lack Of Pet Owner-Accessible Portal

With this limitation, can add in the feature of pet owner-accessible portal. With this feature the user (pet owner) can use it to book their appointment, view their pet medical record, invoice, and the admission status of their pet.

#### 2. Lack Of Knowledge Intelligent Feature

Add in the knowledge intelligent feature. Due to the system is going to be use by the pet owner which the person who did not have the knowledge on how to operate the system. Therefore, knowledge of intelligent feature is needed so that the pet owner can have the guidelines on how to operate the system.

For other feature that will also add into the proposed system and the usage planning is:

User - Staff (veterinarian and nurse)

Inside table 2 will show all the feature usage planning for the staff role.

Table 2 Feature Usage Planning for Staff

Feature	Usage
Register Module	<ul style="list-style-type: none"> <li>- Through this module the staff can help the walk-in customer to make a register.</li> <li>-If the customer is visiting for the first time, the staff can help them to register, and the pet owner can use it to login into their portal. No need to register an account again.</li> </ul>
Dashboard Module	<ul style="list-style-type: none"> <li>- View waiting list</li> <li>- View total appointment</li> <li>- View Notify appointment</li> <li>- View restock medicine</li> <li>- View total admission</li> </ul>
Customer and pet record Module	<ul style="list-style-type: none"> <li>- manage pet parent and pet profile</li> <li>- manage medical reports</li> <li>- manage admission reports</li> </ul>
Appointment Module	<ul style="list-style-type: none"> <li>- View appointment list and make notify</li> <li>- Book slot</li> <li>- View appointment history</li> </ul>
Medical Module	<ul style="list-style-type: none"> <li>- manage medication</li> <li>- Track medication stock</li> </ul>
Admission module	<ul style="list-style-type: none"> <li>- Make admission register</li> <li>- Retrieve admission record</li> </ul>
Invoice Module	<ul style="list-style-type: none"> <li>- Manage bills</li> <li>- Manage Admission bills</li> <li>- Retrieve all bills and admission bills</li> </ul>

User - Pet owner

Inside table 3 will shown all the feature usage planning for pet owner role.

Table 3 Feature Usage Planning for Pet Owner

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Feature	Usage
User profile	<ul style="list-style-type: none"><li>- Manage pet profile</li><li>- Manage user profile</li><li>- Add pet</li></ul>
Appointment Module	<ul style="list-style-type: none"><li>- Make appointment</li><li>- View appointment make</li></ul>
Medical History	<ul style="list-style-type: none"><li>- View medical history</li><li>- Print medical report</li></ul>
Invoice History	<ul style="list-style-type: none"><li>- View invoice history</li><li>- Print invoice</li></ul>
Admission Report	<ul style="list-style-type: none"><li>- View pet admission status</li><li>- View admission history report</li></ul>

With the utilized SMS Implementation using Twilio, it is a cloud communications platform that enables the system to send and receive text messages to and from users. The algorithm for SMS Implementation using Twilio was developed to ensure that the system can send and receive messages in real-time, regardless of the user's location. With this technology implemented in the appointment module the staff can use it to notify the pet owner of the appointment they make.

With the technology and algorithm used in Knowledge-Based Systems for Frequently Asked Questions. The system may utilize a rule-based or case-based reasoning approach to answer questions based on a knowledge base or database. The system may also use natural language processing techniques to understand and interpret user questions in a more human-like manner. This can involve breaking down the question into its constituent parts, identifying keywords, and mapping the question to the appropriate answer in the knowledge base. With this technology implemented in the pet owner portal, the pet owner can always get a solution on how to operate the system when they are facing issues.

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### System Methodology / Approach

The methodology that will be used to develop the proposed system is phased development. Phased development is one of the methodologies of rapid application development. There are five- phase involve in this methodology, which is planning, requirement gathering and analysis, design, implementation, and testing. For this development methodology it will break the overall system into a series of versions which mean that are developed sequentially for each version. The most important and fundamental requirement will be bundled into the 1<sup>st</sup> version. Then work begin on version 2 once version 1 is implemented.

The first phase is planning phase in this phase will determine the reason to build the system, how to build it and what is the project objective and the project scope etc. The second phase is analysis. For this phase will try to review the existing system to find out the advantage of the system and what is the limitation of the system. Like the proposal writing, review the existing system that available on the market. Find out each system's strengths and weaknesses so that can apply the good feature into the proposed system and avoid some useless feature. Then will be started to design the system version 1. But before starting the design phase each time when we going to develop the new version of system will do an additional analysis preform based on previous requirement and combine with new idea. Then will start the design phase. In design phase will start to brainstorm the physical design, interface design which include user interface and system interface design, database, and file design etc. Design the use case diagram of the proposed system, activity diagram, sequence diagram and the Erd diagram. After finishing the design phase will go in to implement phase which is started to code the system. Work will begin on version 2 once version 1 is implemented and will be the development flow until is system is finish develop. (Figure 10)

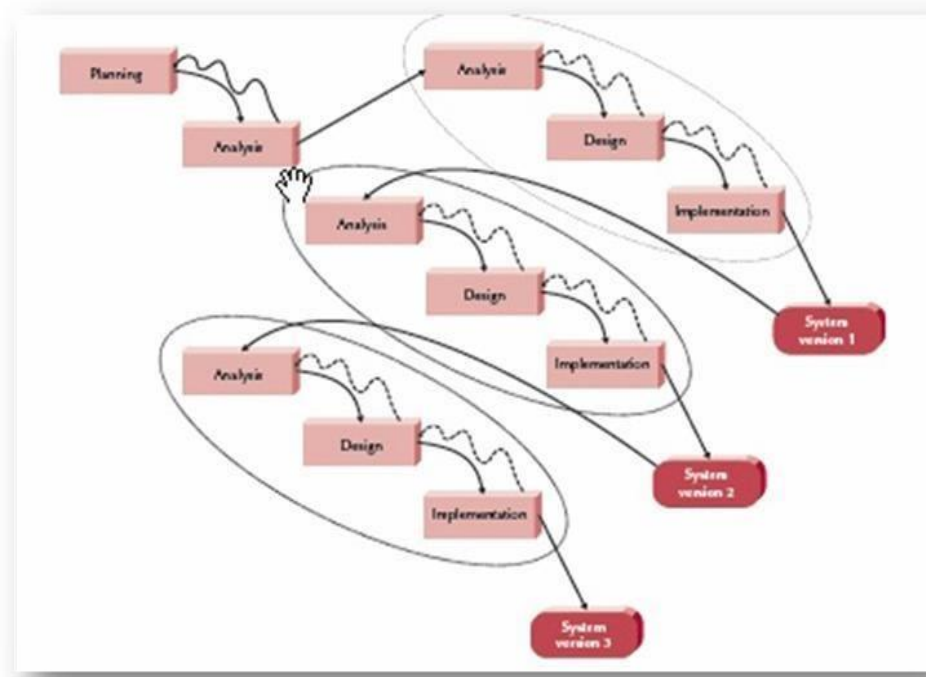


Figure 10 Phased Development  
Source: Adapted from [20]

As the proposed system have various of features and have 2 different of user which is staff (veterinarians and nurses) and pet owner. Hence, it is a huge system need to be developed. If didn't arrange properly it will be very hard to develop it on time. Therefore, it is more suitable to develop the feature one by one. Which mean develop 1 or 2 features by each version sequentially. This will be easier for develop a huge system. Like in version 1 first develop the appointment schedule and Customer and pet profile. After finishing these 2 features then will continue to go on next features.



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### 3.1 System Requirement

#### 3.1.1 Visual studio code



Figure 11 Visual Studio Code  
Source: Adapted from [22]

The reason Vision Studio Code (Figure 11) is chosen is that it is a free, open-source code editor. It is a highly customizable and lightweight editor that supports a wide range of programming languages. Like PHP, C++, Python, etc. Besides, it also provides powerful tools and extensions to enhance the development experience. In addition, it is ease of use and has built-in debugging and version control features, making it an all-in-one solution for developers. In all, this development tool will be chosen to code and compile the PHP programming scripts in this project.

#### 3.1.2 PHP



Figure 12 PHP  
Source: Adapted from [24]

PHP (Figure 12) was chosen as the programming language for this project because it is a popular choice for web development due to its ability to handle dynamic content, compatibility with many platforms, and the availability of pre-built frameworks.

### 3.1.3 XAMPP



Figure 13 XAMPP  
Source: Adapted from [21]

In this project, XAMPP (Figure 13) was chosen as the tool for developing and testing the web application. This is because XAMPP is a free and open-source cross-platform web server solution stack package built by Apache Friends, which includes the Apache HTTP Server, the MariaDB database, and interpreters for PHP and Perl scripts. Because this project is built with PHP as the coding language, hence XAMPP is an excellent choice.

### 3.1.4 PhpMyAdmin



Figure 14 PhpMyAdmin  
Source: Adapted from [25]

It was chosen because phpMyAdmin (Figure 14) is a great choice for managing the MySQL database in XAMPP because it's a web-based tool that works well with the Apache server and

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MySQL database included in XAMPP. It's easy to install and use, has a friendly interface, and supports many database tasks.

### 3.1.5 Bootstrap



Figure 15 Bootstrap  
Source: Adapted from [23]

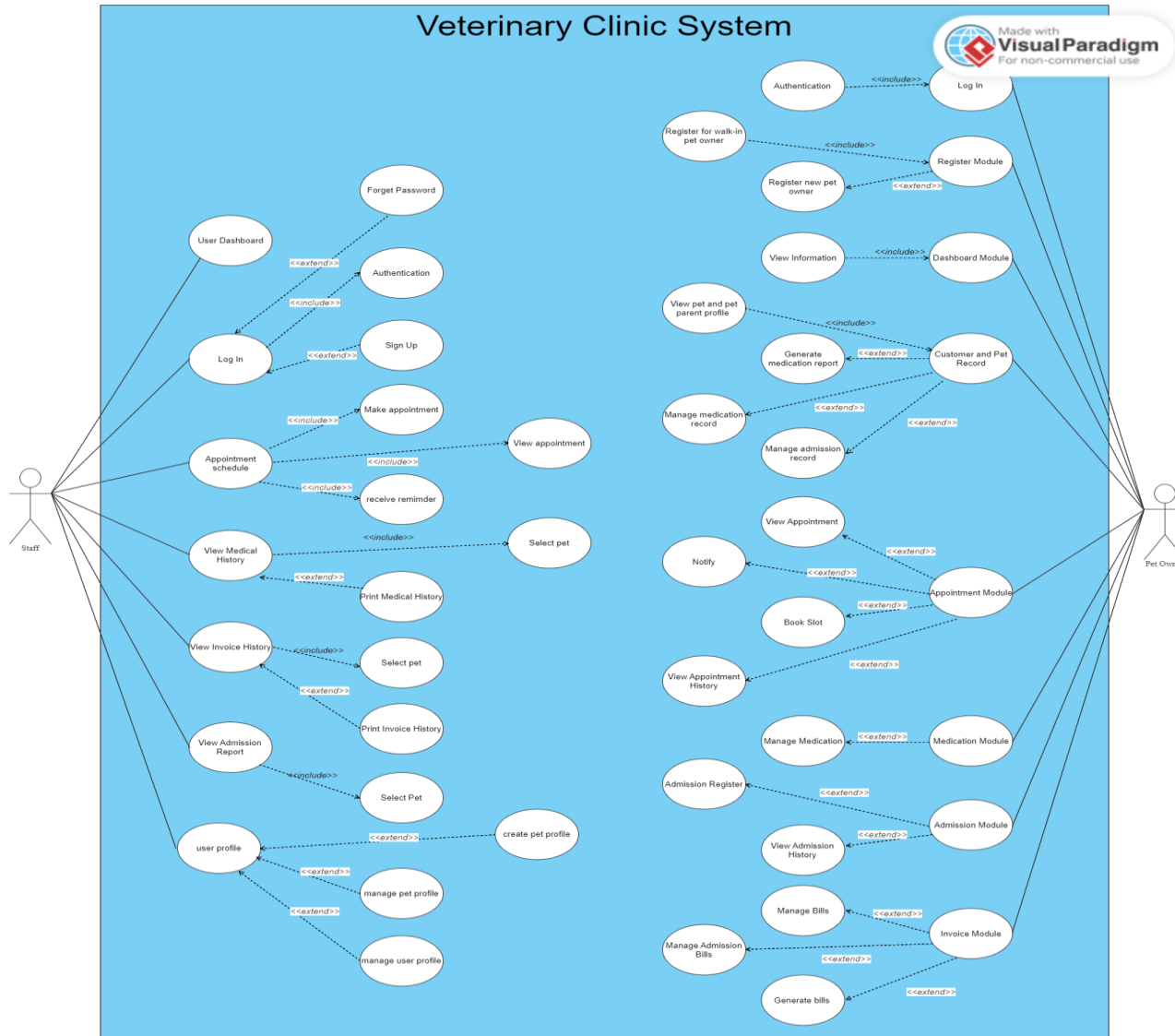
Bootstrap (Figure 15) is selected to use is because it is a popular, free, and open-source front-end development framework that provides pre-designed components and templates to build responsive websites quickly. It's also easy to learn and offers a consistent and modern design language that works well across different devices and browsers, saving developers time and effort.

## Chapter 4

### System Design

Chapter 4 is focused on the design of the proposed system. The chapter begins by presenting the use case diagram, which outlines the various actions that can be taken within the system by different users. Additionally, an activity diagram is presented to show the flow of activities within the system. An ERD diagram is also included to show the relationships between different entities in the system. Finally, a Gantt chart is presented to show the development timeline for the whole system. This chapter provides a comprehensive overview of the system design, which serves as the foundation for the implementation phase.

#### 4.1 Use Case Diagram



### Figure 16 Use Case Diagram for Veterinary Clinic

Figure 16 is the use case diagram of veterinary clinic management system. There are 2 actors in this use case diagram one is pet owner and another one is staff. For the pet owner they can go to the log in page, access the owner portal do the appointment schedule, view medical history, invoice history, and the admission report. Inside the log in module users will require to register an account if they do not have an account. After registering the account, they can start log in. Authentication will be included so that to make sure it is the valid user. If the user forgets their password, they can change their password. The pet owner is redirected to the dashboard page after logging in. The pet owner can create and manage their pet profile and manage their own user profile from the user profile section. Additionally, the pet owner can schedule appointments for their pets using the appointment schedule page and view their appointment history. The user can also view and print their pet's medical history report using the view medical history module. The view invoice history page allows the user to access their past invoices and print them if needed. Moreover, the pet owner portal provides access to the pet's admission report, allowing the user to stay updated on their pet's condition. The staff members of the veterinary clinic management system can access 8 different modules after they login into the system. Authentication is required to ensure that only valid users can access the system. Upon logging in, the staff will be directed to the dashboard page where they can view various information. To register a new pet owner who is visiting for the first time, the staff can use the register module. In addition, the staff can also use this module to register the walk-in pet owner. They can also view pet and pet owner records, generate medical reports, manage medical records, and manage admission records using the customer and pet record module. The appointment module allows the staff to book slots, view appointments, and notify pet owners about their appointments. The medication module is used to manage medicines, and the admission module is used to register pets for admission and view admission records. Lastly, the staff can use the invoice module to manage bills and generate invoices.

## 4.2 Activity Diagram

For the activity diagram will be separate into 2 sections. First section is the activity diagram for staff and the second section is the activity diagram for pet owner.

### 4.2.1 Activity Diagram for Staff

#### 4.2.1.1 Login Module

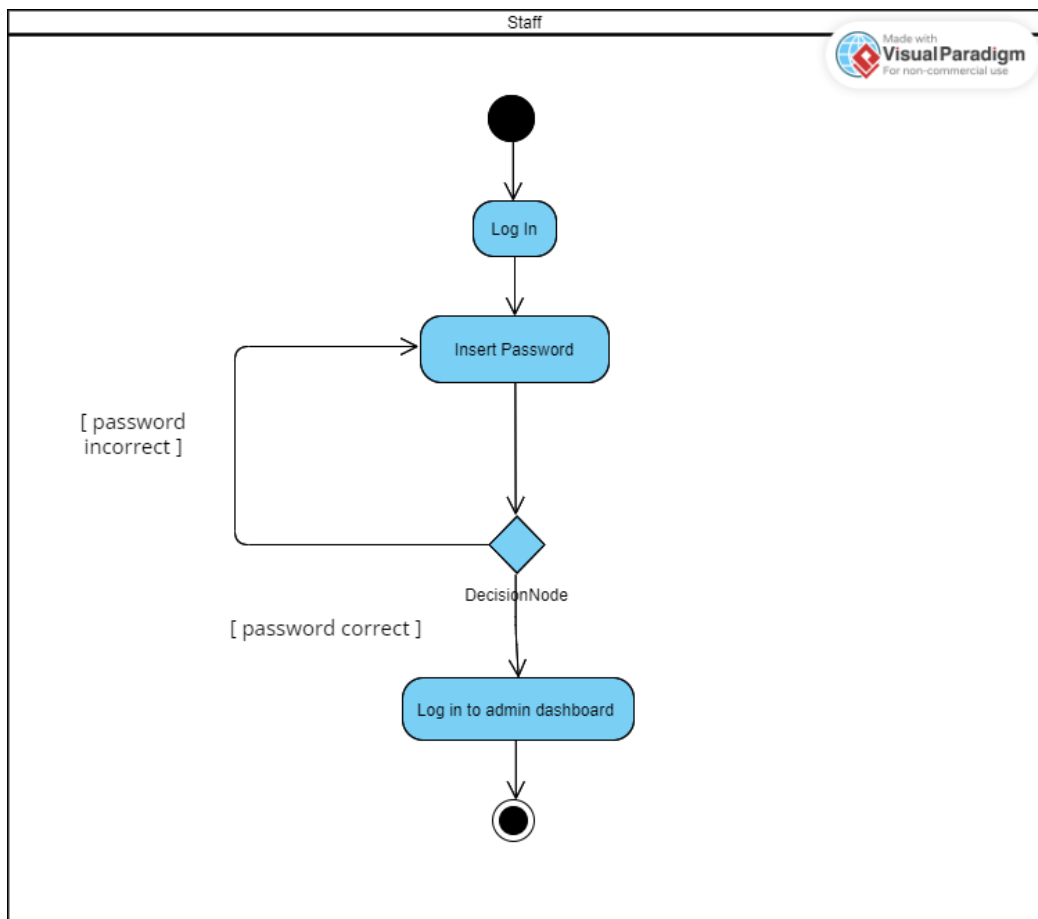


Figure 17 Activity Diagram for Login Module

Figure 17 is the activity diagram of Login Module for the staff log in. When the staff access the log in page, they need to insert the password. If the password insert is incorrect, they will require to insert the password again. If the password is correct, the staff will be redirected to the admin dashboard.

4.2.1.2 Dashboard Module

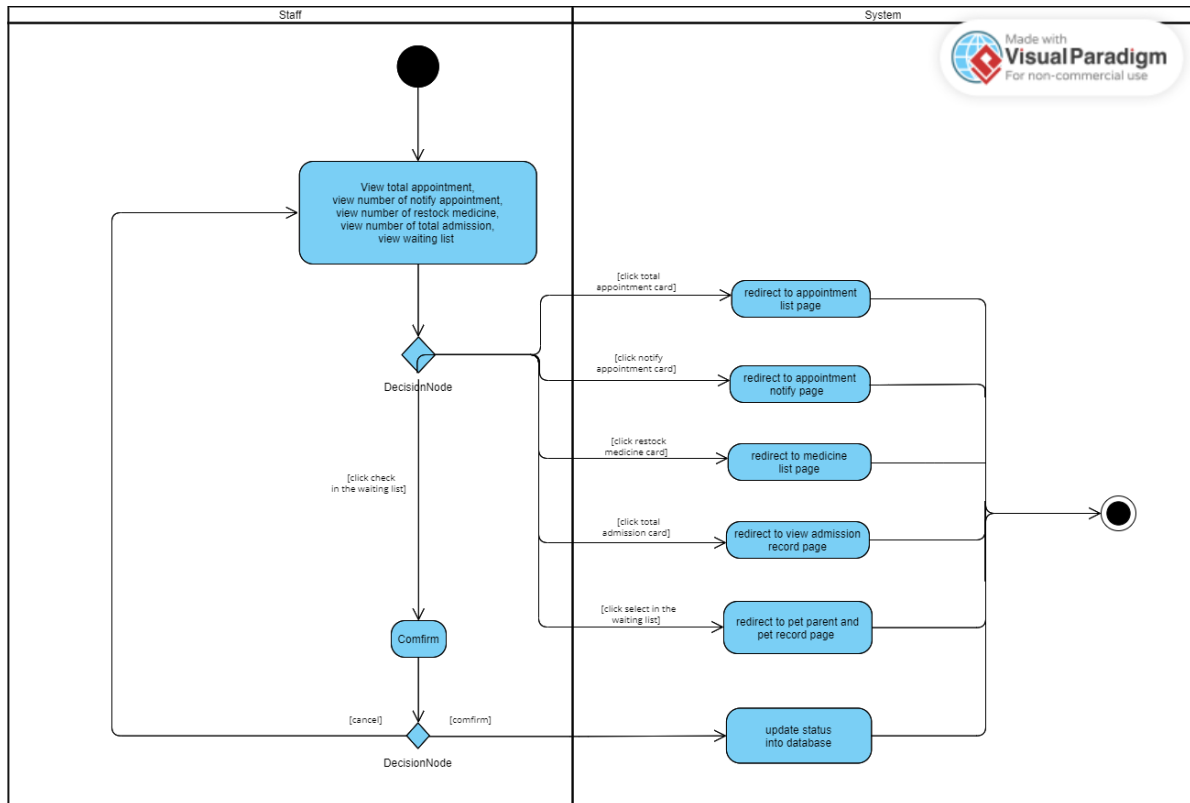


Figure 18 Activity Diagram for Dashboard Module

The Dashboard Module (Figure 18), also known as the main page, displays important information for the staff. Upon accessing the module, the staff member can view the total number of appointments, the number of appointments with notifications, the number of medicine supplies that need to be restocked, the total number of admissions, and the waiting list. To view specific details, the staff member can click on a corresponding button. After a doctor checks off a pet, they can click the check button and confirm it. The system will automatically update the status in the database.



4.2.1.3 Register Module

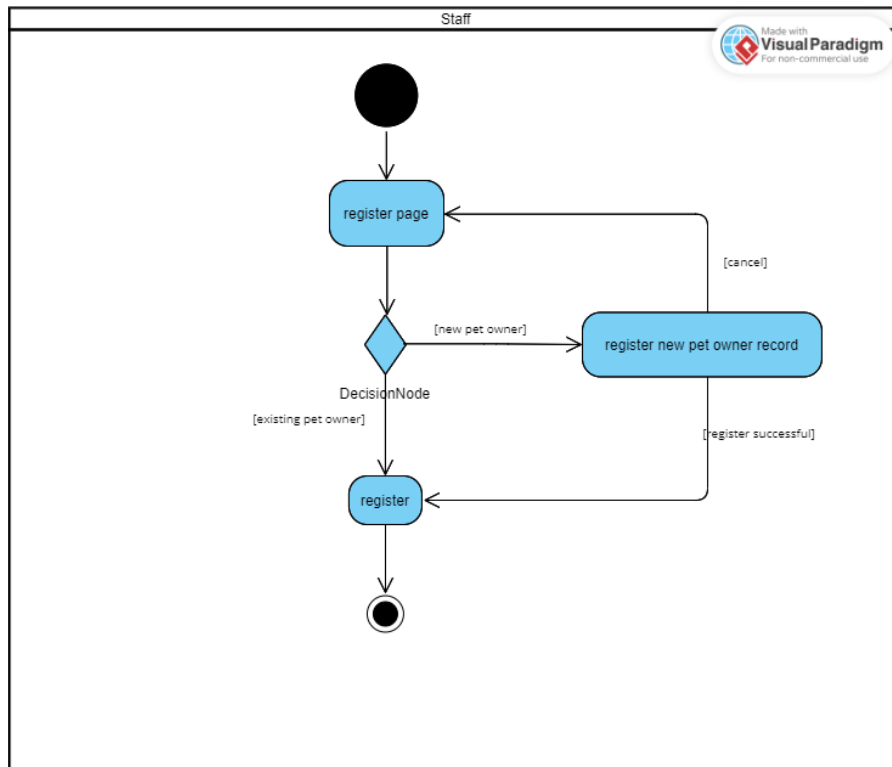


Figure 19 Activity Diagram for Register Module

Figure 19 is the activity diagram for the register module. If a walk-in pet owner is an existing customer, they can proceed with registration. However, if they are a new customer, the staff will need to help them register for an account before proceeding with registration.

4.2.1.4 Pet Parent and Pet Record Module

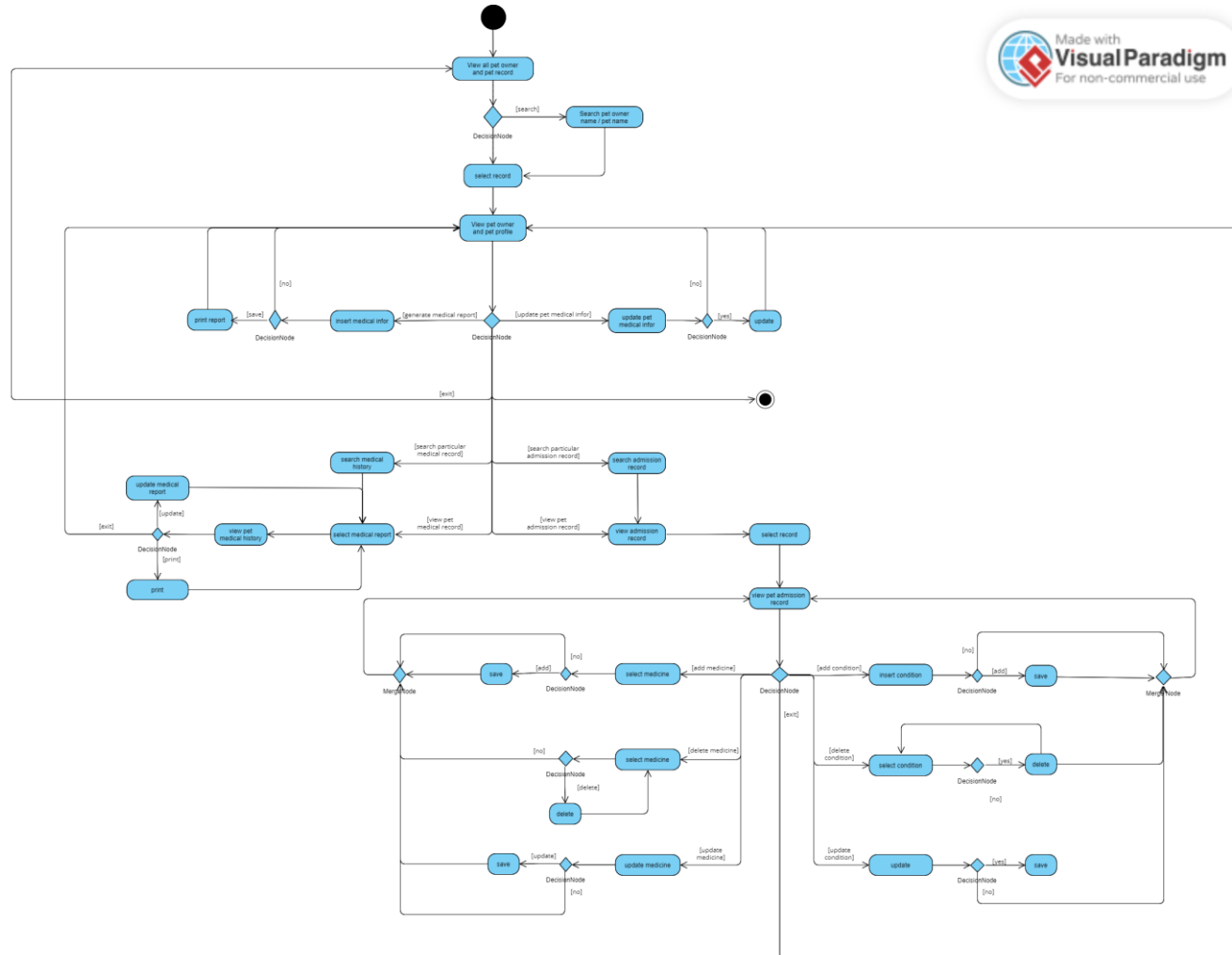


Figure 20 Activity Diagram for Pet Parent and Pet Record Module

The Pet Parent and Pet Record Module, as shown in Figure 20, allows staff members to view all pet owners and pet records. They can search for a specific record or select the desired pet parent and pet record they wish to view. After selected the record, staff members can perform various of function such as generate medical reports, update pet medical information, view pet medical records, and view pet admission records. To generate a medical report, staff members need to enter the required medical information for the pet. They can then save and print the report or exit without saving it. To update pet medical information, they simply need to click "save" after entering the updated information. If they do not wish to update the pet medical information, they can exit the page. To view a specific medical record, staff members can use the search function or select the medical report they wish to view. They can choose to update or print the report. If they choose to update, they can update the medical report and view the updated pet medical history. If they choose to print the report, they can click "print," then exit the page. Staff members can also view the admission record, they can perform the search function if they wanted to search for the desired record. They can select the record they wish to view and perform various functions on it, such as adding, updating, or deleting medical conditions and medicines. To add a condition, staff members need to enter the condition and click "add." To delete a condition, they can select the condition they wish to delete and then click "yes," repeating the process if they wish to delete more than one condition. To update a condition, they need to select the condition they wish to edit and click "yes" to save the update. To add medicine, they need to select the desired medicine and click "add." To delete medicine, they can select the medicine they wish to delete and then click "delete," repeating the process if they wish to delete more than one medicine. To update medicine, they need to click "update" and then "save." If they do not wish to update, they can exit the page. After viewing the pet admission record, if they do not wish to use any other features, they can exit and go back to the view pet owner and pet profile page.

4.2.1.5 Appoinment Module

Today's Appoinment

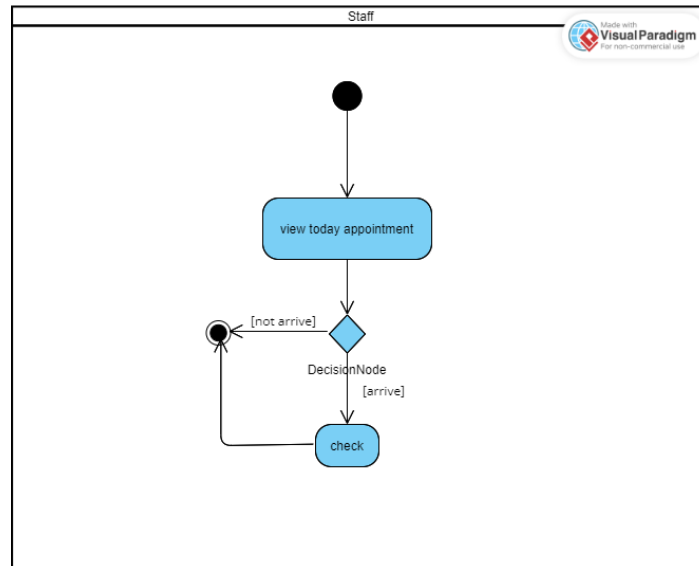


Figure 21 Activity Diagram for Today's Appointment in Appointment Module

The Activity Diagram for Today's Appointment in the Appointment Module (Figure 21) shown the process when a pet owner arrives at the veterinary clinic for their scheduled appointment. The staff can access the view today's appointment page to see the scheduled appointments for the day. They will then check the pet owner's record to confirm their attendance. Once the pet owner's attendance is confirmed, the system will update the status of the appointment to "Attend" in the database.

Appointment Reminder

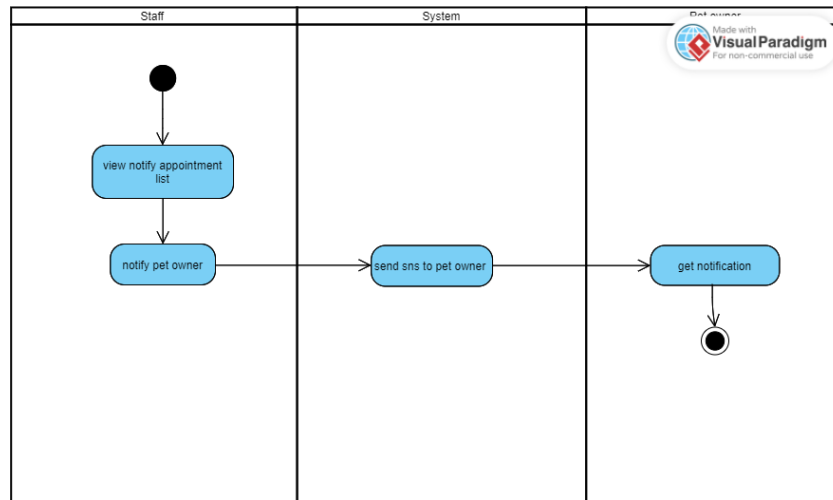


Figure 22 Activity Diagram for Appointment Reminder in Appointment Module

The Activity Diagram for Appointment Reminder in the Appointment Module (Figure 22) illustrated the process for reminding pet owners of their scheduled appointments for the next day. The staff can access the appointment reminder page to view all appointments scheduled for the following day. They will then notify the pet owner of their appointment. The system will send a notification message through an SNS (Simple Notification Service) to the pet owner's preferred method of contact, notifying them of their scheduled appointment at the veterinary clinic.

## Book Slot

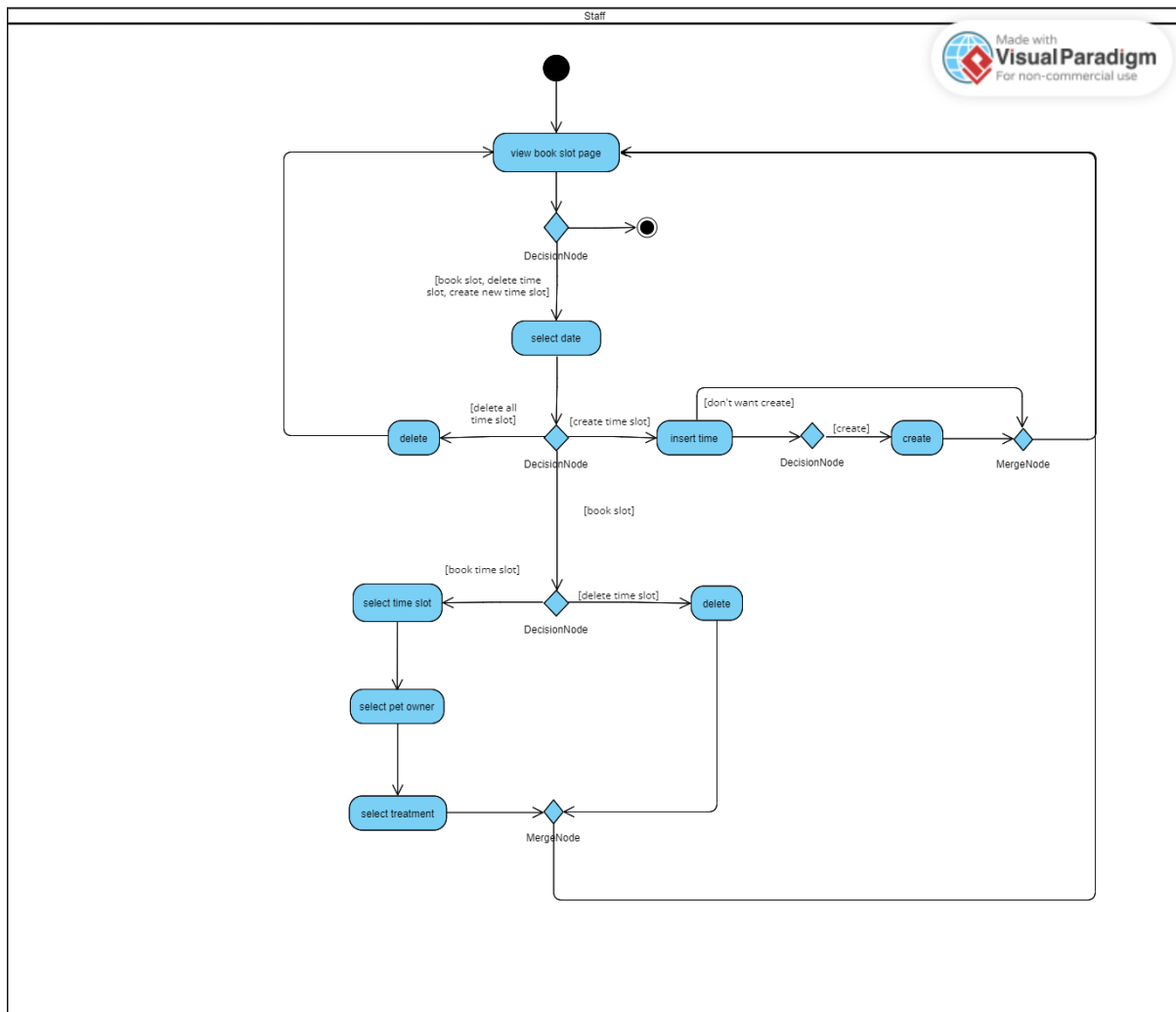


Figure 23 Activity Diagram for Book Slot in Appointment Module

Figure 23 is the activity diagram for book slot in appointment module. The staff will view the book slot page when they direct into the system, they can perform book slot, delete time slot, and create new time slot in this page. If staff wish to perform the function it requires to select a date. After select the date, they can choose to delete all time slot, create time slot, or book slot. If they choose to delete all time slot, just click on delete. All the timeslot for the selected date will be all deleted. If the user wishes to create time slot, they are required to insert the time they wanted to create then click the create button, the time slot is created successful. If they don't want to create, then can exit back to view time slot page. If the staff want to book slot, they need to first select the date they wish to make for the appointment then select the time slot available, after then search the pet owner profile then select the treatment for the appointment

make. After booking successful it will back to the view book slot page. If the staff wish to delete a particular time slot for the selected date, after select the date, click the delete button. Then the time slot selected at the date will be delete, and it will back to the view book slot page.

### Appointment Records

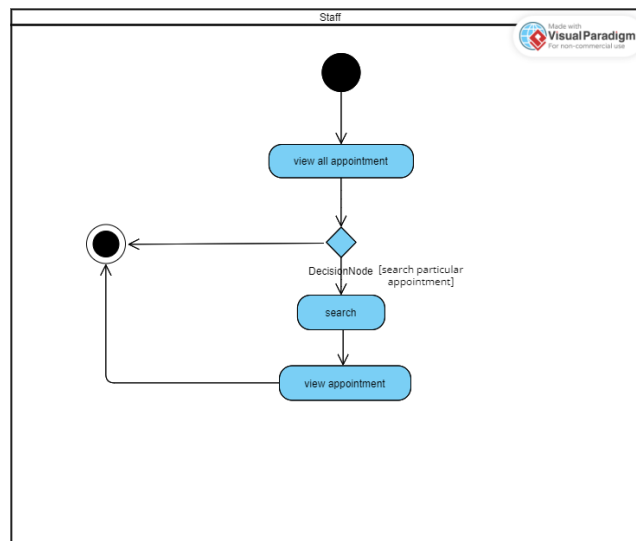


Figure 24 Activity Diagram for Appointment Record in Appointment Module

In Figure 24, the activity diagram represents the process for viewing and searching appointment records in the appointment module. When the staff enters the appointment record page, they can view all the appointments recorded in the system. They can also perform a search function to locate a specific appointment record by entering the search criteria. After entering the search criteria, the system will display the matching appointment record(s) on the screen.

4.2.1.6 Medicine Module

Medicine List

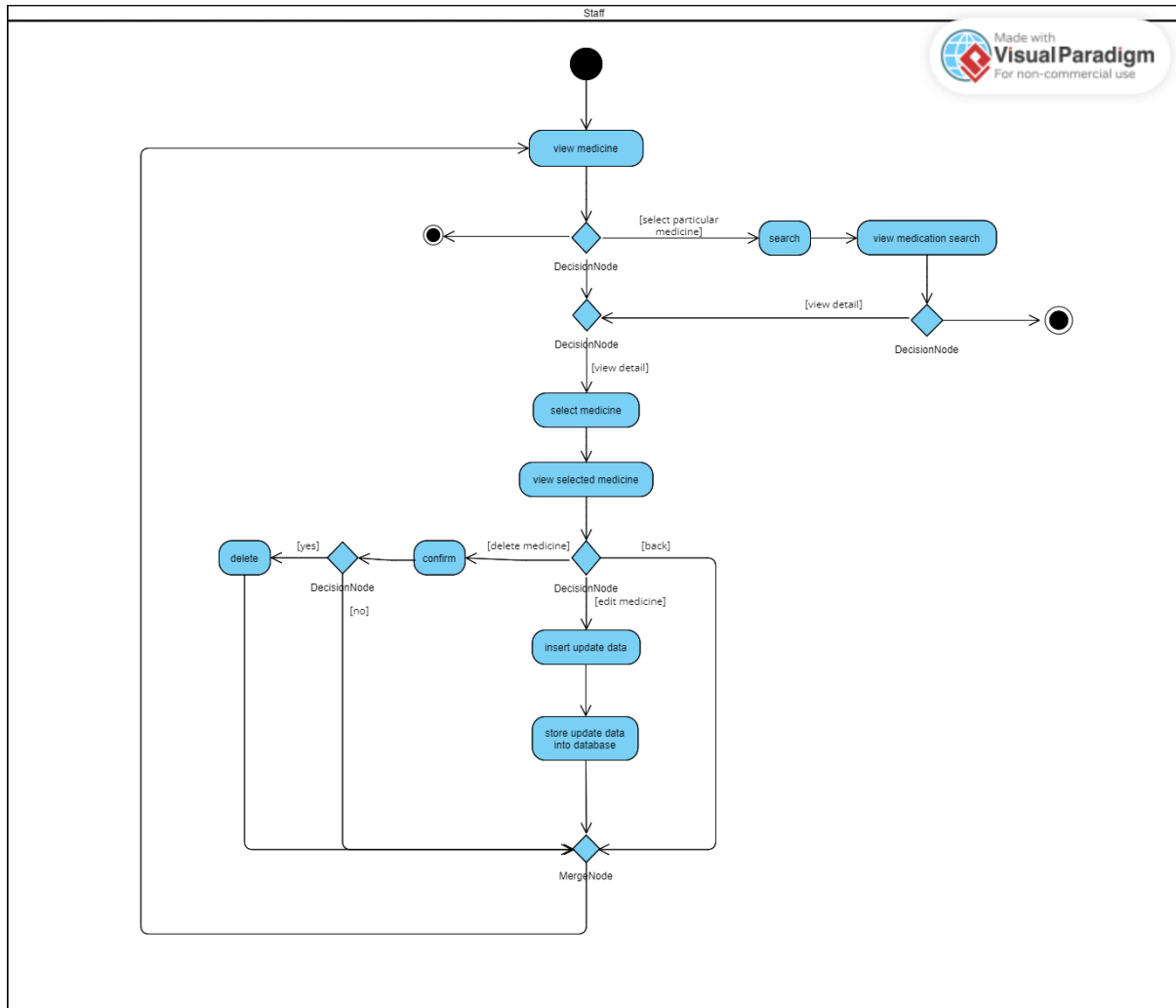


Figure 25 Activity Diagram for Medicine List in Medicine Module

Figure 25 depicts the activity diagram for the medicine list in the medicine module. The staff can access this page to view all the available medicines. To search for a particular medicine, they can use the search function by entering the medicine name and clicking on the search button. The system will display the search results. If the staff wishes to view the details of a particular medicine, they can click on the view button, and the system will display the medicine details. If the staff wants to delete a medicine, they can click on the delete button, and the system will prompt a confirmation page to confirm the deletion. If the staff confirms the deletion, the system will remove the medicine from the database. If the staff clicks on the cancel



button, the system will return to the view medicine page. If the staff wants to update the medicine details, they can click on the edit button, and the system will display the medicine details. Then, they can enter the updated data and click on the save button to save the changes to the database. After saving the changes, the system will redirect the staff to the view all medicine page. If the staff only wants to view the medicine details, they can click on the back button, and the system will navigate them back to the view medicine page.

### Add Medicine

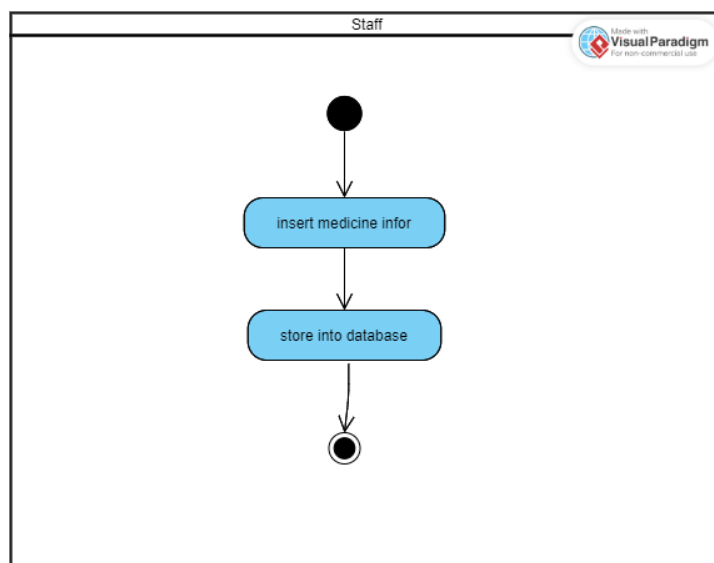


Figure 26 Activity Diagram for Add Medicine in Medicine Module

Figure 26 is the activity diagram for add medicine in medicine module. To add new medicine the staff, need to insert the required information after then click on the save button then the data will be stored into the database.

4.2.1.7 Admission Module

Admission Register

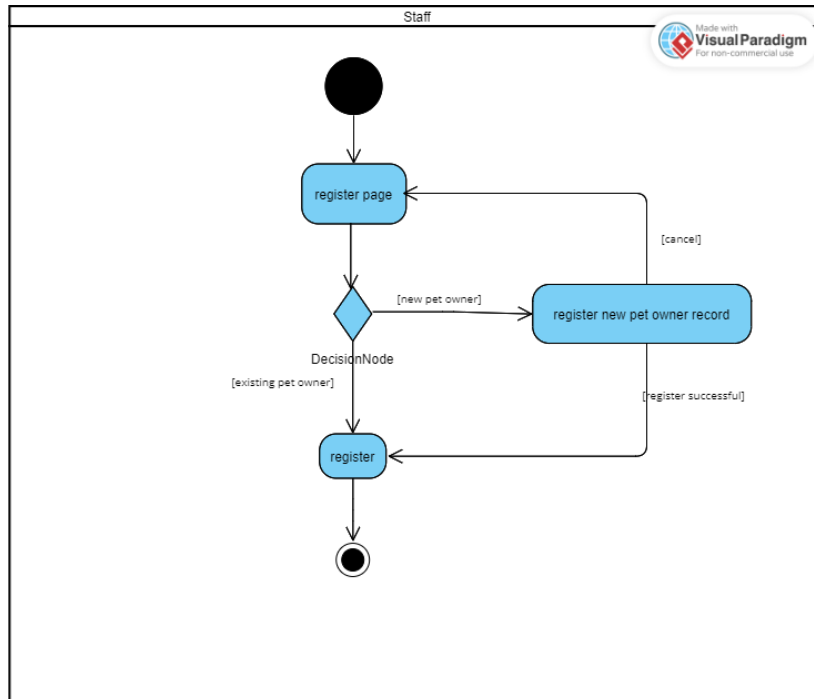


Figure 27 Activity Diagram for Admission Register in Admission Module

Figure 27 is the activity diagram for admission register in admission module. If the pet owner is the exiting pet owner, the staff can direct to the admission registration. If the pet owner is new customer, the staff will need to help the pet owner to register a pet record first only can process to the registration process.

## Admission Records

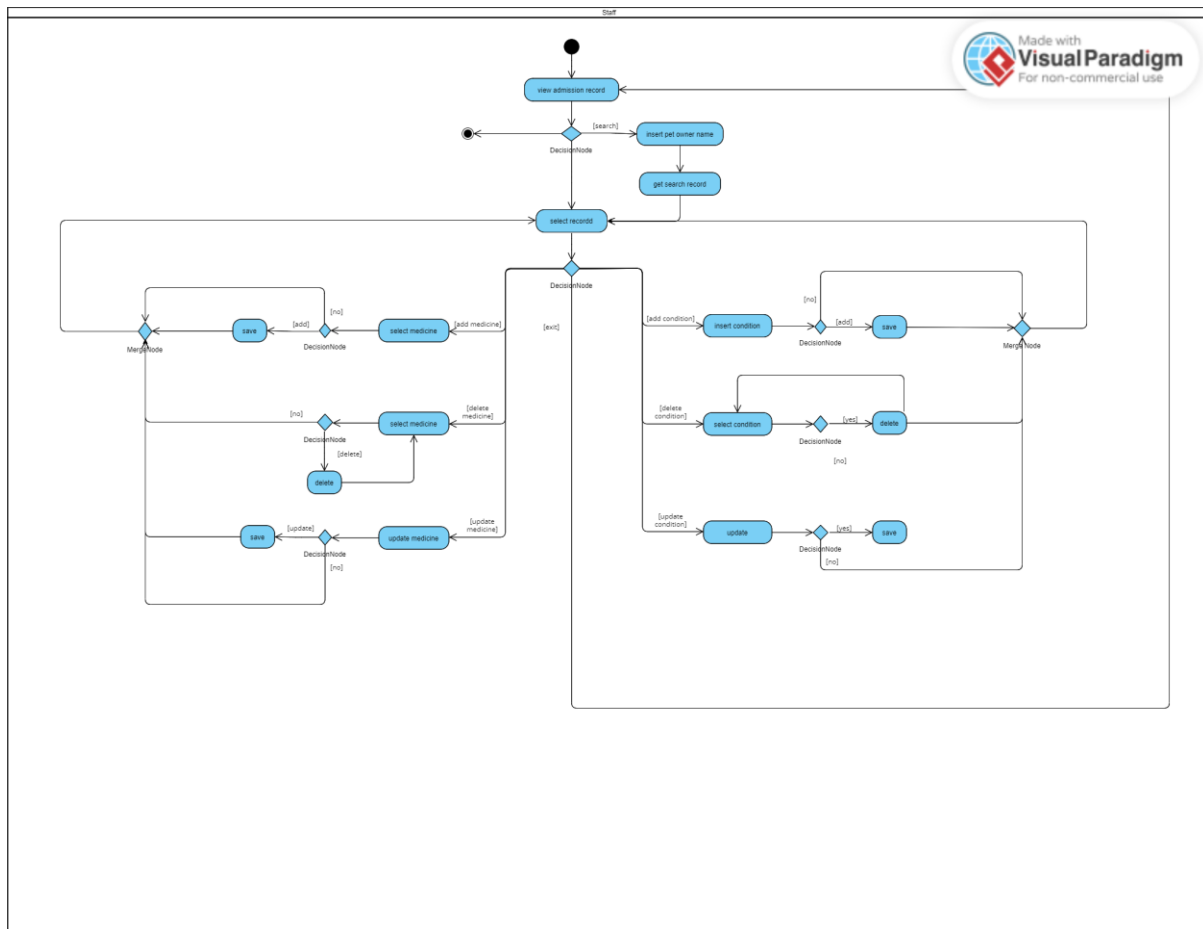


Figure 28 Activity Diagram for Admission Report in Admission Module

Figure 28 is the activity diagram for admission report in admission module. The staff can view all the admission records on this page and search for a particular record by inserting the pet owner's name. They can select the record they want to view and perform several functions. To add a condition, they need to insert the condition and click on the save button. If they want to delete a condition, they can select the condition they want to delete and click on yes, and the record will be deleted. Similarly, for updating the condition, they need to update the data and click on the save button, and the updated data will be stored into the database. The staff can also perform the function of adding or deleting medicine by clicking on the medicine button. To add a medicine, they need to select the medicine they want to add and click on the save button. To delete the medicine, they can select the medicine they want to delete and click on the delete button. They can also update the medicine by clicking on the update medicine button and updating the medicine details, followed by clicking on the save button. After the execution

of each process, the staff will be redirected back to the selected admission record page. If they exit the selected admission report page, they will be navigated back to the view all admission record page.

#### 4.2.1.8 Invoice Module

##### Bills

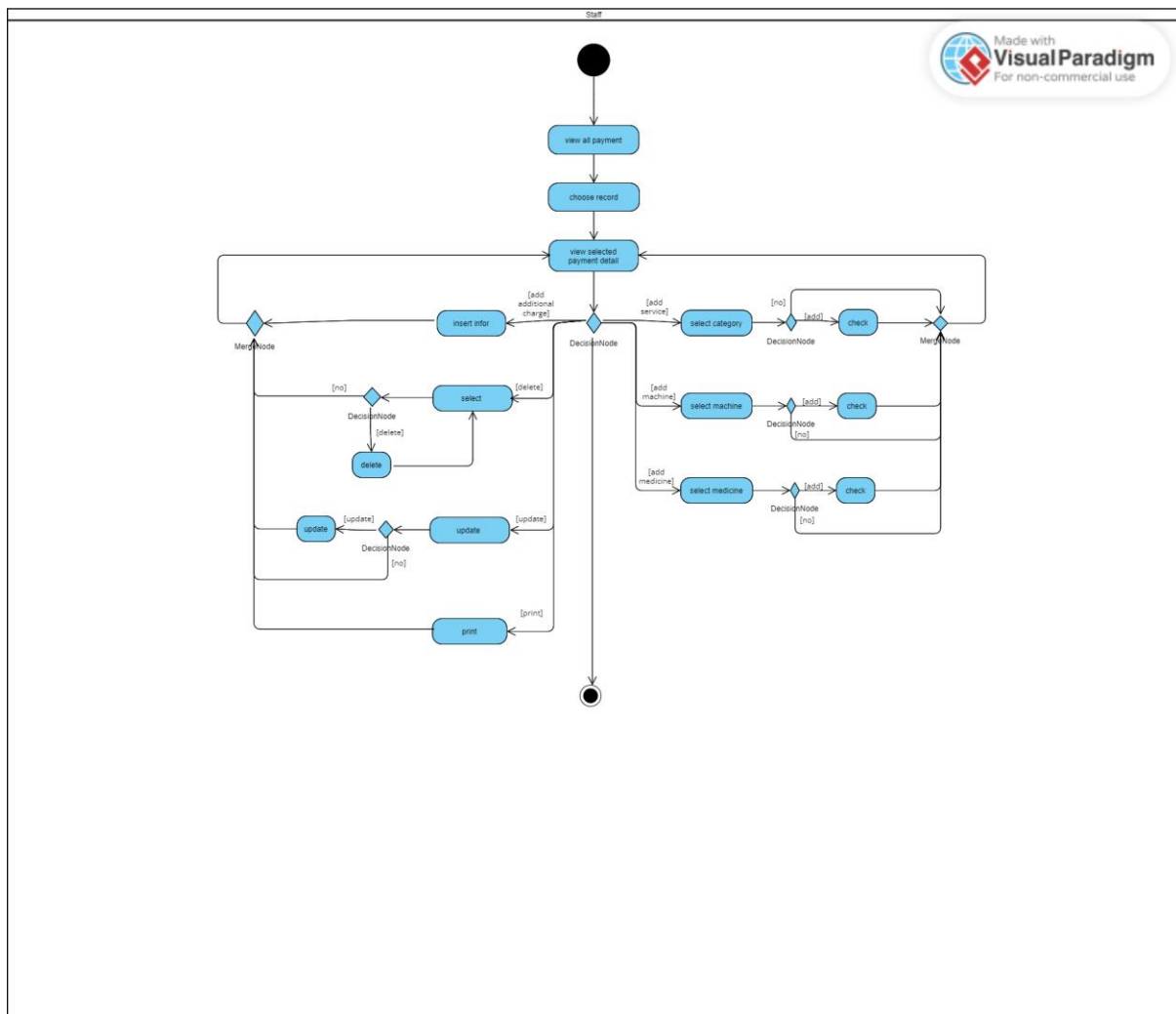


Figure 29 Activity Diagram for Bills in Invoice Module

Figure 29 is the activity diagram for bills in the invoice module. Once the staff accesses this page, they can view all the payment records. To view a specific bill record, the staff must first choose it and then proceed to view the details. Within the selected invoice, the staff can perform various functions such as adding services, machines, and medicines. To add a service, the staff

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 Faculty of Information and Communication Technology (Kampar Campus), UTAR

should click on the add service button, select the category and service, and click check to add it. To add a machine, they can click on the add machine button, select the machine, and click check. Adding medicine requires the staff to click on the medicine button, select the medicine, and click check to add it. They can also add additional charges by clicking on the additional charge button, inserting the relevant information, and clicking save. To delete a charge, they should click on the delete button, select the charge, and click on the delete button. The staff can repeat the process if they want to delete more charges. Finally, the staff can print the bill by clicking on the print button. After executing any of these processes, the system will redirect the staff back to the selected invoice page.

### Bills Records

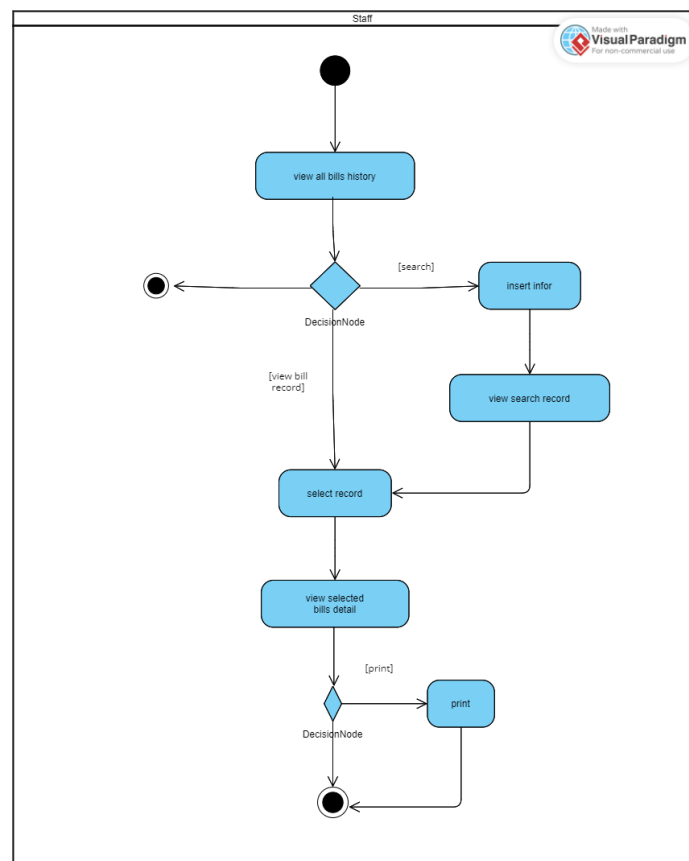


Figure 30 Activity Diagram for Bills Record in Invoice Module

Figure 30 shown the activity diagram for bills record in the invoice module. When the staff access this page, they can view all the payment records. They can use the search function by entering relevant information to retrieve specific records. After selecting a record, they can view its details and choose to print the bill.

Admission Bills

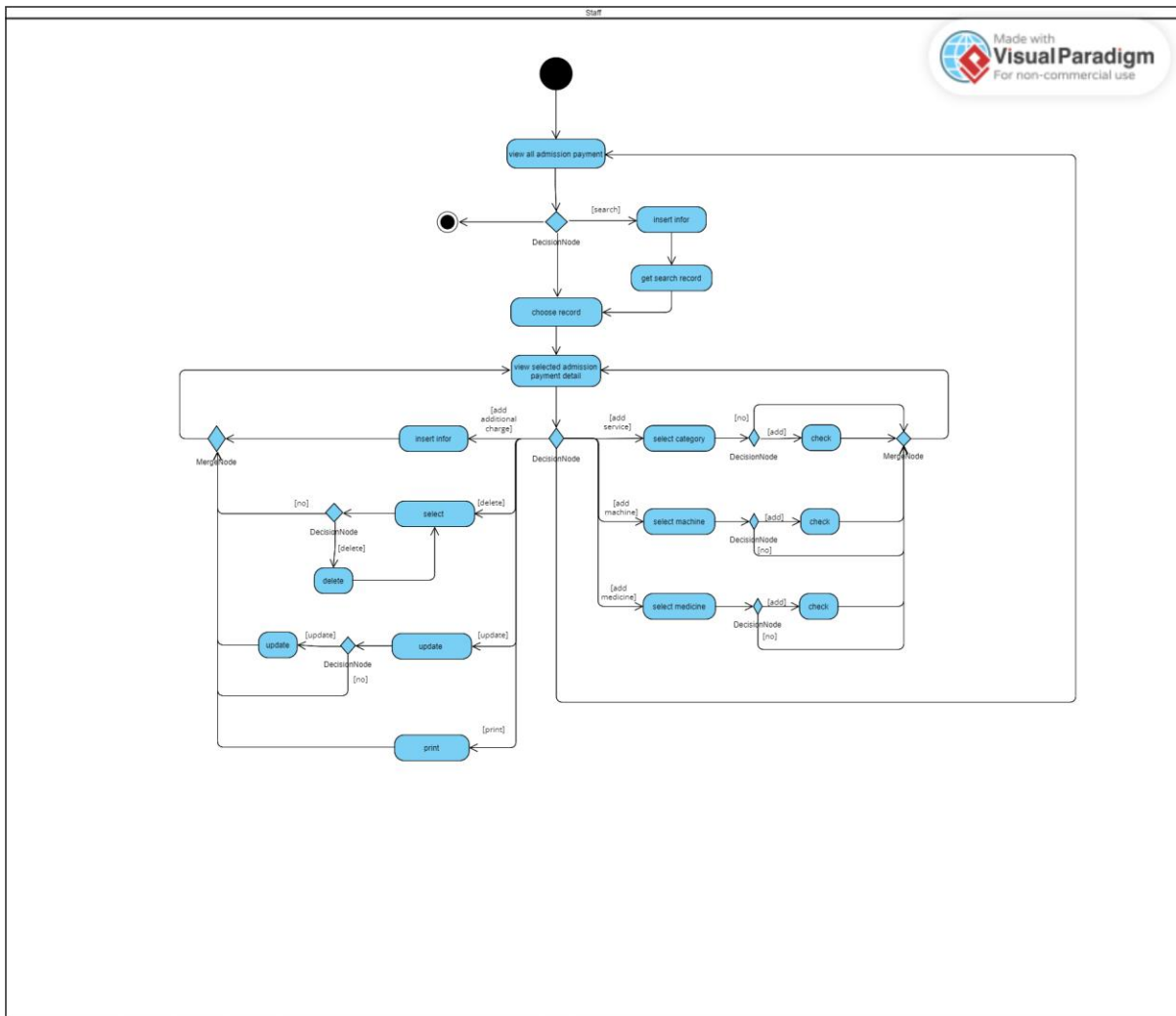


Figure 31 Activity Diagram for Admission Bills in Invoice Module

The activity diagram in Figure 31 illustrates the process for managing admission bills in the invoice module. Upon accessing the page, staff can view all the admission payments. To view a particular admission bill's record, the staff must select the invoice and then they can view the details of the selected payment. Once they have accessed the selected admission invoice, they can perform several functions. For instance, they can add a service charge by clicking on the add service button, selecting the category and service, and then clicking check to add the service. The staff can also add machines charge by clicking on the add machine button, selecting the machine they want to add, and then clicking check. If the staff want to add

medicine, they can click on the medicine button, select the medicine, and click check. They can also add additional charges by clicking on the additional charge button, entering the information, and clicking save. If they need to delete a charge, they can click on the delete button, select the charge they want to delete, and click on the delete button. They can repeat this process if they need to delete another charge. Lastly, if they want to print the selected admission bills, they can click on the print button. After executing all the required tasks, the system will redirect the staff back to the selected admission invoice page.

### Admission Bills Records

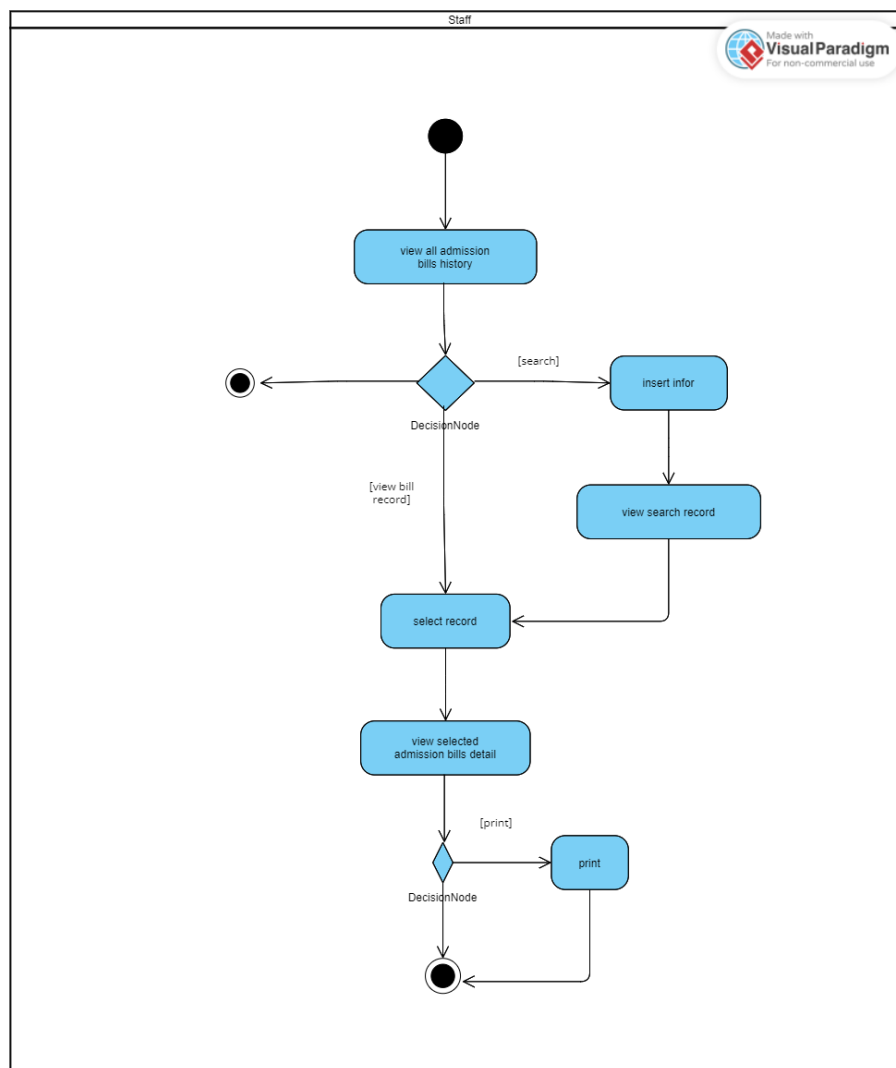


Figure 32 Activity Diagram for Admission Bills Record in Invoice Module

In Figure 32, the activity diagram displays the admission bill record in the invoice module. The staff can access this page to view the history of all admission bills. They can initiate a search function by entering the desired information. The system will retrieve the relevant records, and the staff can choose the specific record they want to view. After selecting the admission bill, the staff can print it if necessary.

#### 4.2.2 Activity Diagram for Pet Owner

##### 4.2.2.1 Login Module

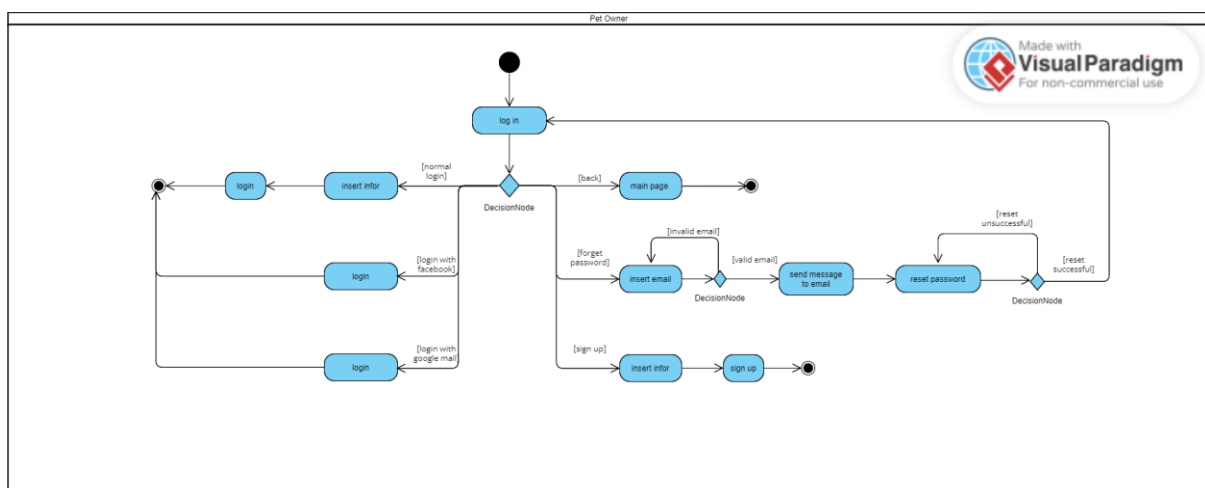


Figure 33 Activity Diagram for Login Module

Figure 33 is the activity diagram of login module for pet owners. When accessing the login page, they have the option to go back to the main page by clicking on the back button. To login normally, they need to insert their login information before being able to access the system. Alternatively, they can choose to login with Facebook or Google by clicking on the respective buttons. If the pet owner forgets their password, they can click on the forget password button and insert their email address. If the email address is valid, the system will send a message containing a reset password link to the pet owner's email address. Once the pet owner has reset



their password, the system will navigate them back to the login page. However, if an invalid email address is inserted, the pet owner will be prompted to enter their email address again. If the pet owner does not have an account, they need to sign up for one by filling in all the required information and clicking on the sign-up button to create their account.

#### 4.2.2.2 User Profile Module

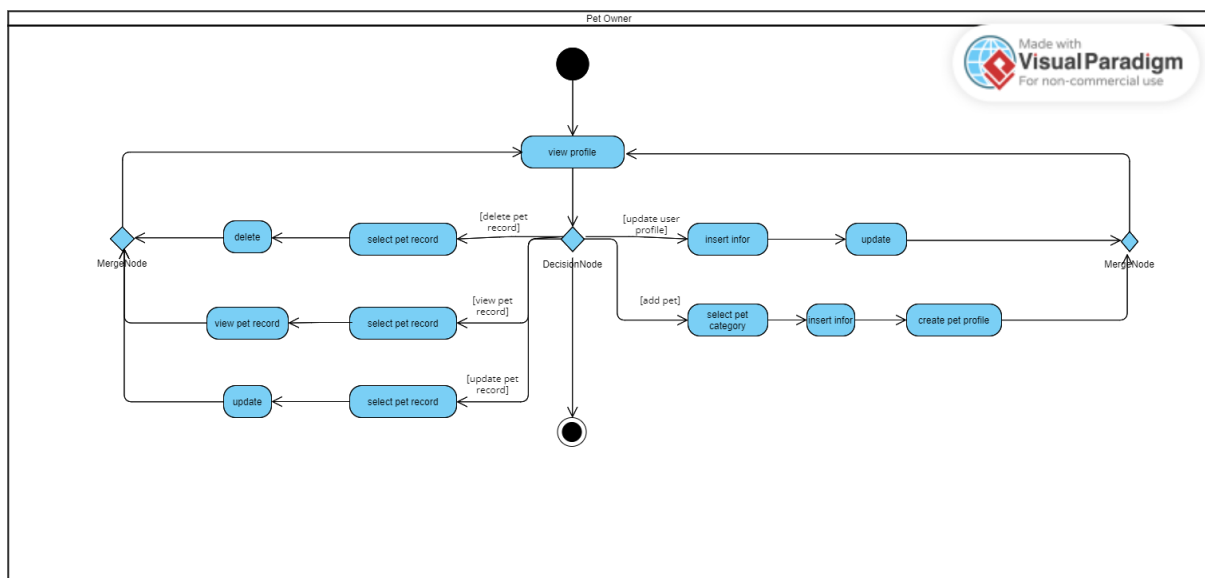


Figure 34 Activity Diagram for User Profile Module

Figure 34 is the activity diagram for user profile module. When the pet owner comes onto this page, they can view their profile on this page. They can perform several functions on this page. If the pet owner wanted to add a new pet account, they need to select the pet category after that insert all the required information and create the pet account. They can also update the pet record by selecting the pet record wanted to update and update the pet record. The pet owner can view the details of their pet record by selecting the pet record and click on the view button then they can view the detail of their pet record. The pet owner can delete the pet record by selecting the pet record wanted to delete and click on the delete button. The pet owner also can be able to update their user profile by inserting the information they want to update and click update. After finishing each of the processes the system will navigate back the pet owner to the user profile page.

## 4.2.2.3 Appointment Module

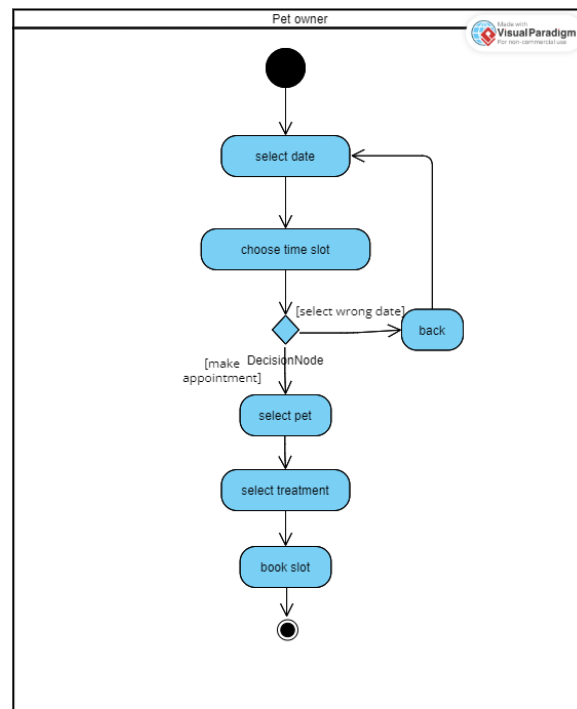


Figure 35 Activity Diagram for Appointment Module

Figure 35 is the activity diagram for appointment module. To make the appointment, the pet owner needs to select the date first then select the available time slot. If the pet owner selects the wrong date, they always go back to reselect the date again. After select the time slot, they can process to select the pet they want to make the appointment, after that select the treatment and click on the book button, the appointment will be make successful.

## 4.2.2.4 Medical History Module

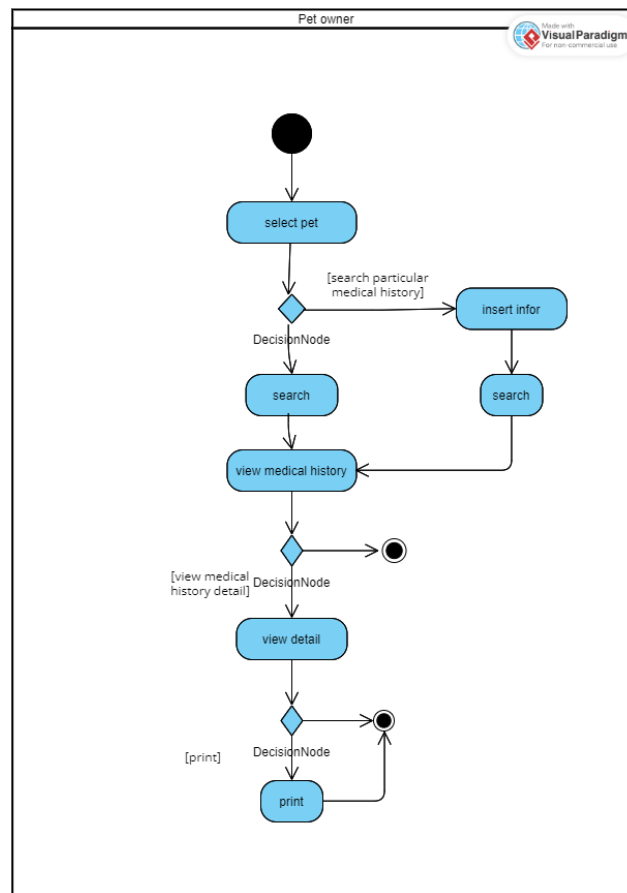


Figure 36 Activity Diagram for Medical History Module

Figure 36 is the activity diagram for the medical history module. They can select the pet they want to view and click on the search button. The system also allows them to search for specific records by entering relevant information. When the search results are displayed, the pet owner can view the details of a specific medical record by clicking on the view button. If they want a hard copy of the report, they can click on the print button.

4.2.2.5 Invoice History Module

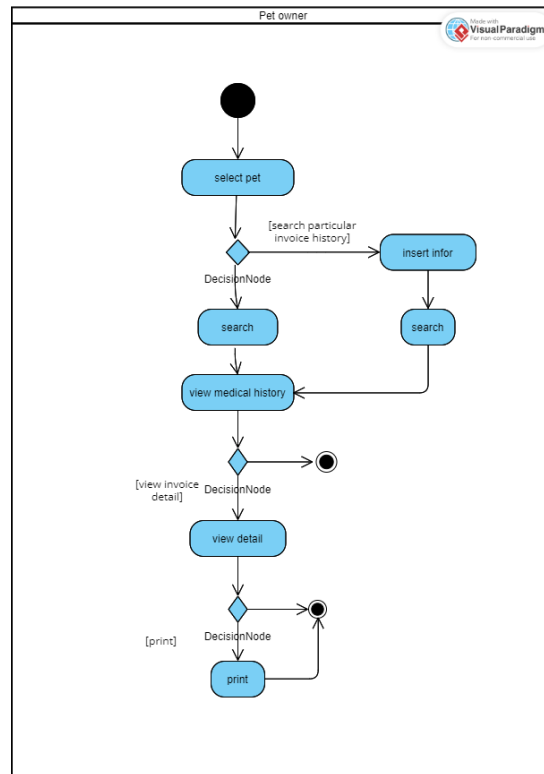


Figure 37 Activity Diagram for Invoice History Module

Figure 37 is the activity diagram for the invoice history module. To view the invoice history record, the pet owner first needs to select the pet they want to view and click on the search button. They can also search for specific records by entering the information they want to search for. Once the records are displayed, they can click on the view button to see the details of the invoice. If they wish to print the invoice, they can do so by clicking on the print button.

4.2.2.6 Admission Report Module

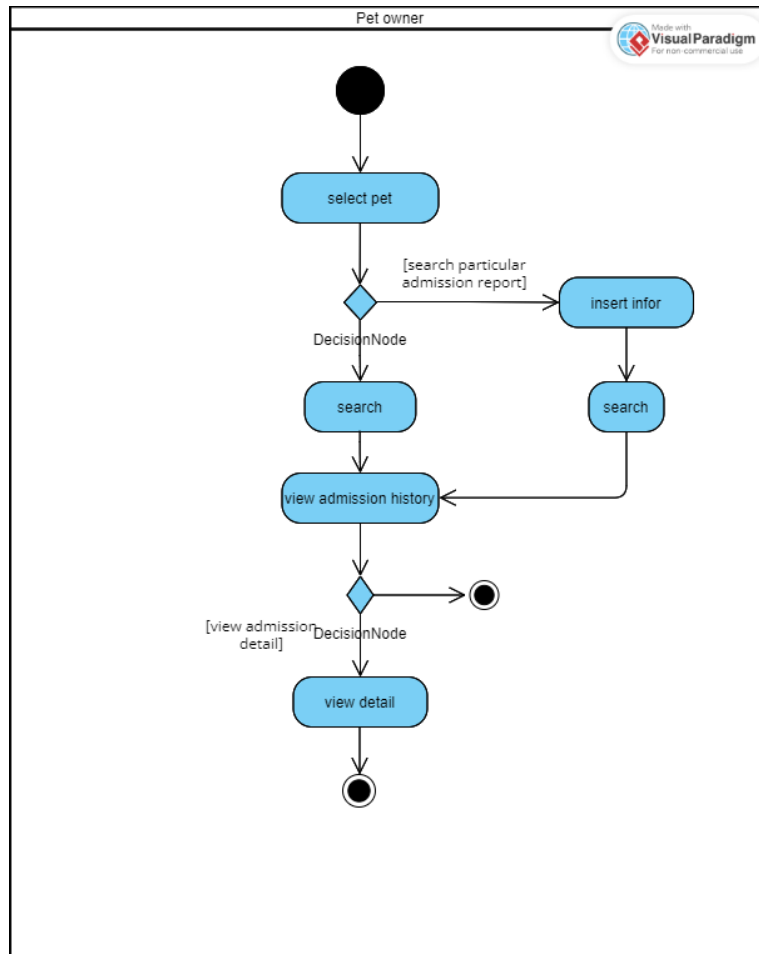


Figure 38 Activity Diagram for Admission Report Module

Figure 38 is the activity diagram for the admission report module. The pet owner needs to select the pet they wish to view the admission report and click on the search. They can also use the search function by inserting the information they wanted to search, the system will show out the record. They can always view the admission report details by clicking on the view button, the details of the admission report will be shown out.

# CHAPTER 4

## 4.3 Erd Diagram

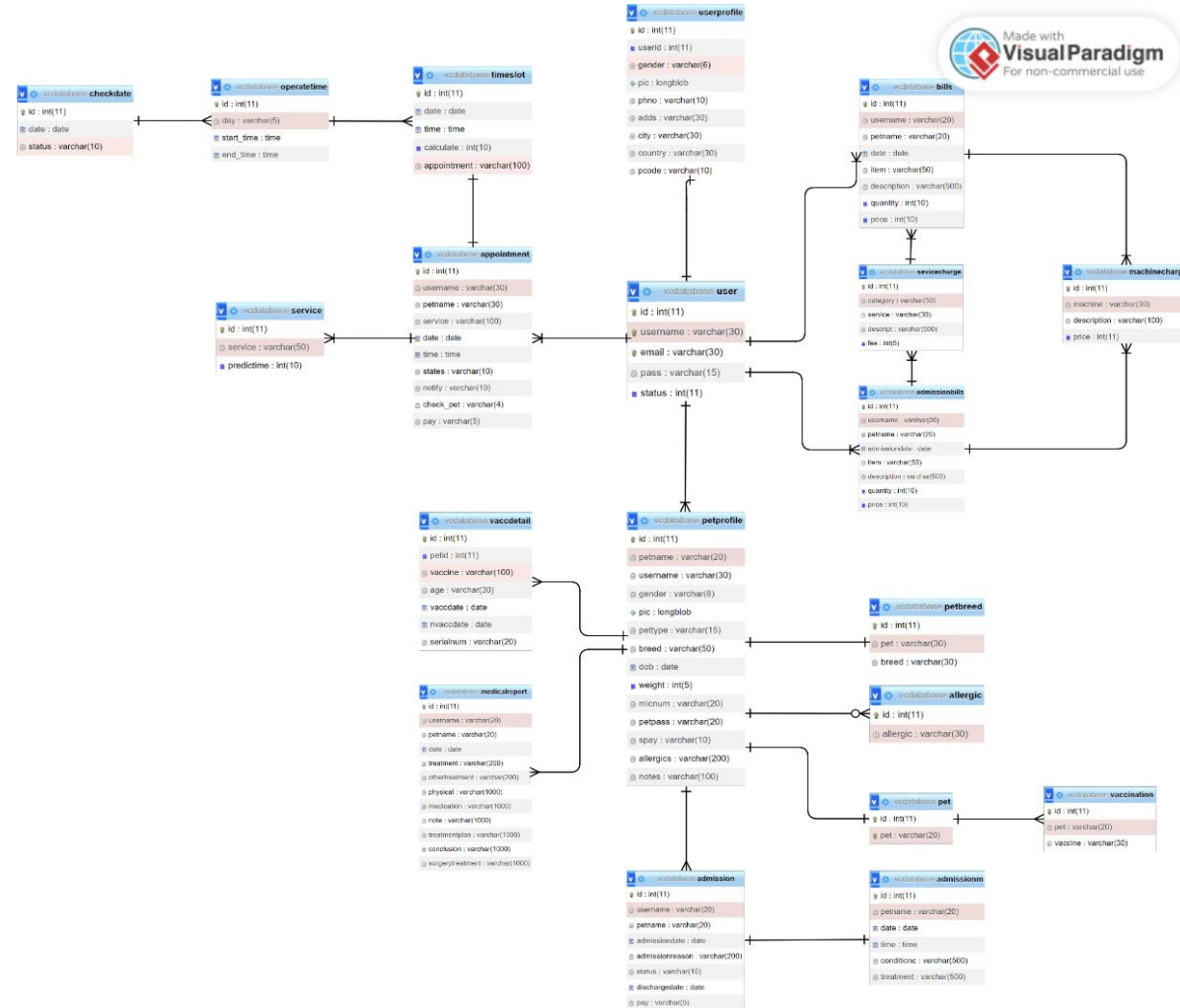


Figure 39 Erd Diagram for Veterinary Clinic

4.4 Timeline

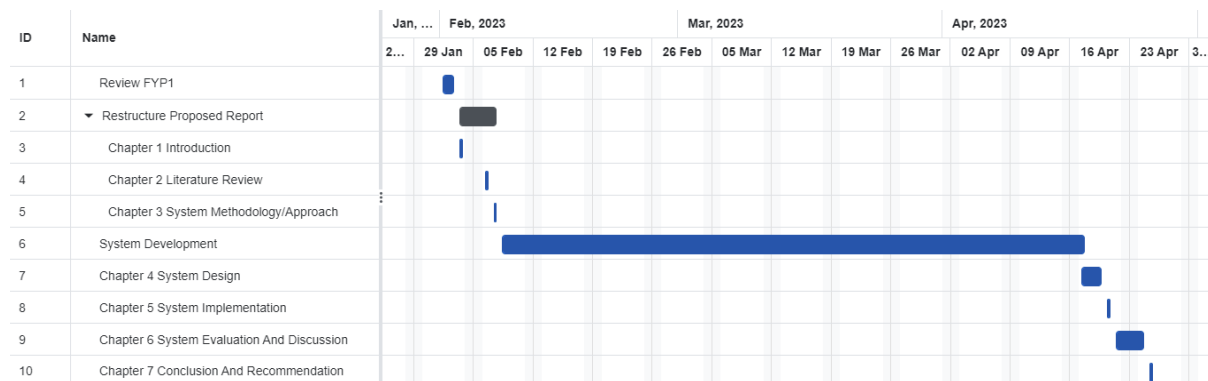


Figure 40 Gantt Chart

This is the timeline (Figure 40) for the whole project development. In overall, it breaks down into 7 parts. Which is review FYP1, restructure proposed report, system development, chapter 4 system design, chapter 5 system implementation, chapter 6 system evaluation and discussion, and chapter 7 conclusion and recommendations. The first part is a review of FYP1. The work for this part is to review back the FYP1 done previously. The time taken for this part is two days which is from February 1 to February 2. The second part is restructuring proposed report. For this part the work had done is to restructure the chapter 1 introduction, chapter 2 literature review, and chapter 3 system methodology and approach. Time take for this part is from February 3 until February 5. Next is the system development. The total time taken for this system development is from 6 of February until 16 April. After then is chapter 4 system design. There is a total of three types of diagrams that had been designed. Which is use case diagram, activity diagram, and erd diagram. All the work is done between 17 April until 19 April. After then is the chapter 5 system implementation. The work that has been done in this part is to show the software setup, setting and configuration, tools and technology application and the implementation issues and challenges. Next is chapter 6 system evaluation and discussion. The main job of this chapter is to do the system testing. The time taken for this part is from 21 April to 24 April. The last part is chapter 7, which is the conclusion and recommendations. Time taken for this part is one day. Which is 25 of April.

# Chapter 5

## System Implementation

### 5.1 Software Setup

Since this proposed system is using PHP as the programming language, Visual studio Code use as the integrated development environment for coding, debugging, and testing. XAMPP use as the tool to set up a local web development environment for testing and running web applications on personal computer. Therefore, it must be installed it in the laptop. (Figure 41,42,43)

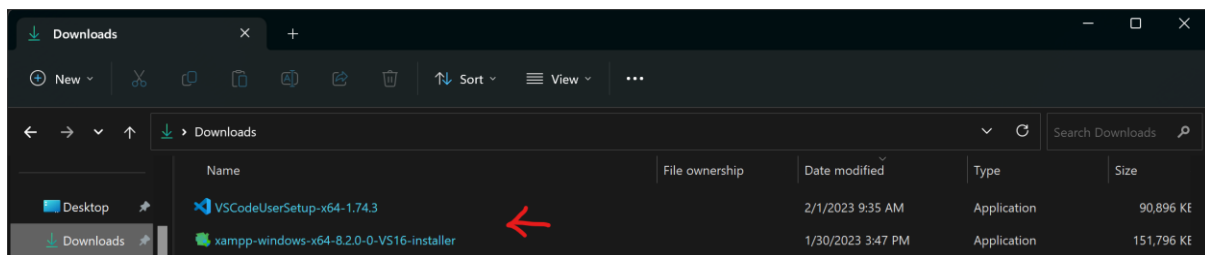


Figure 41 System Download

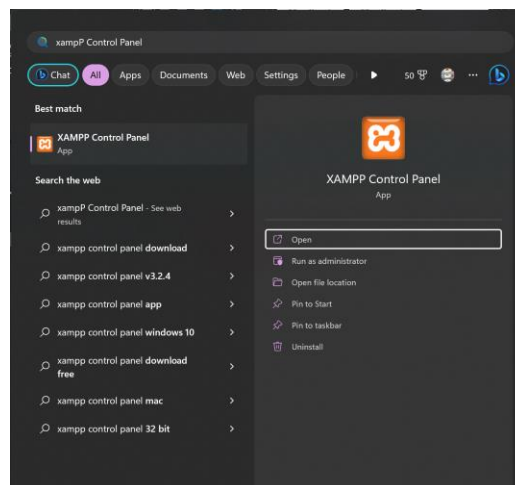


Figure 42 XAMPP



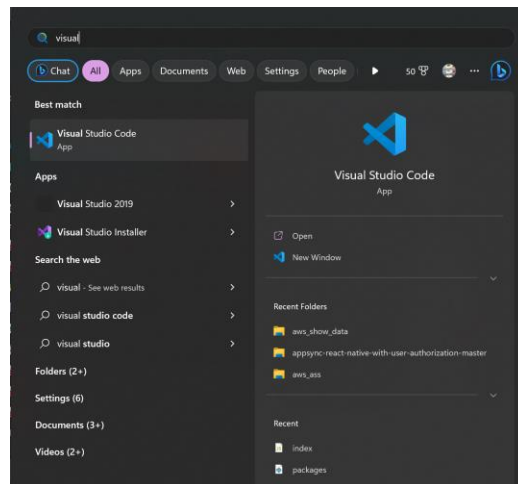


Figure 43 Visual Studio Code

## 5.2 Setting and Configuration

For the database setting is quite easy just need a few step. First, need to open the XAMPP Control Panel. Click the start button for the MySQL module (Figure 44). After that click on the admin(Figure 45), the web browser will load the PhpMyAdmin page. Then can start to create the database and table. (Figure 46)

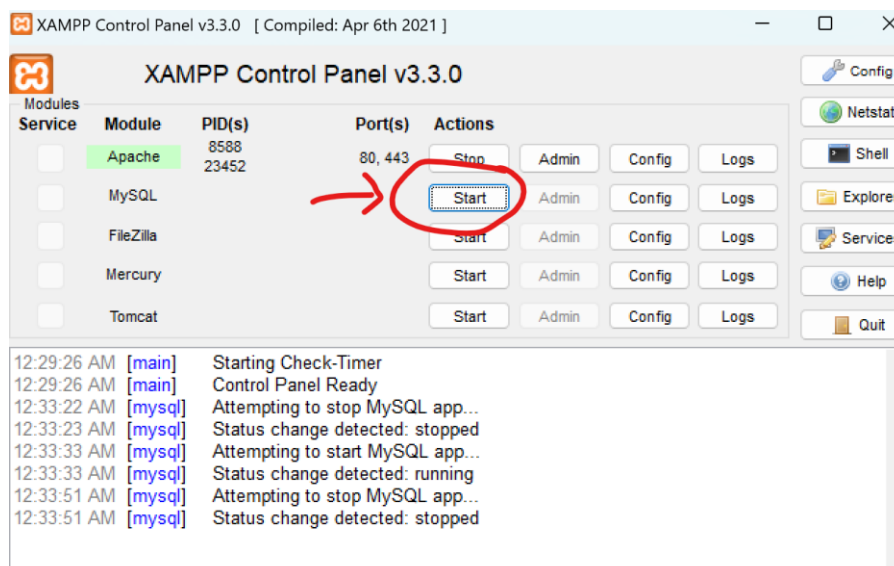


Figure 44 XAMPP Control Panel

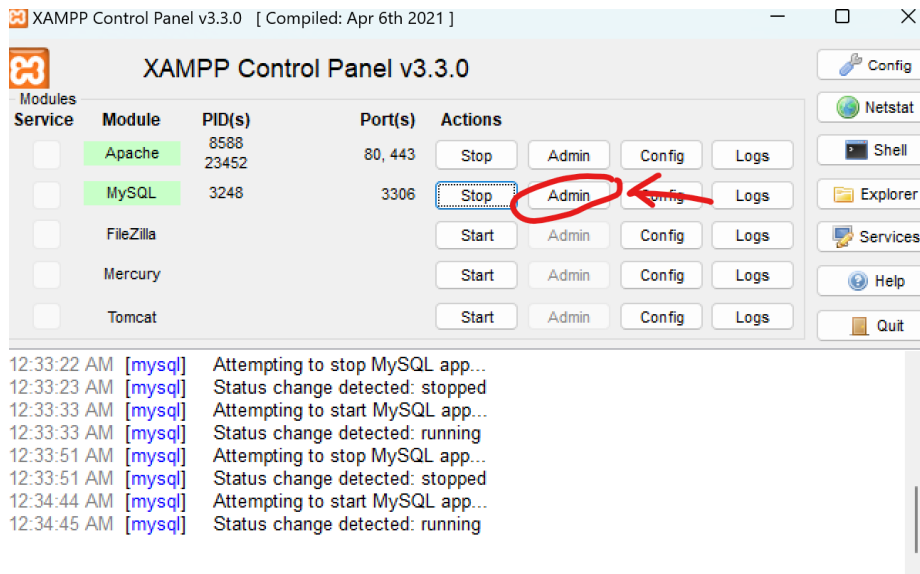


Figure 45 XAMPP Control Panel

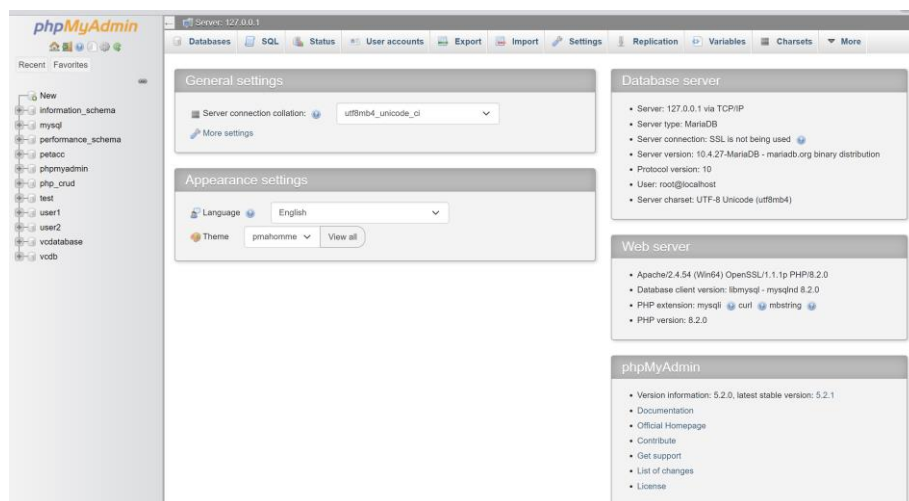


Figure 46 Main Page of phpMyAdmin

## CHAPTER 5

### 5.3 Implementation / Technology Involved

#### 5.3.1 PHP Library Use

##### TCPDF

TCPDF is used for generating PDF documents. It is a popular open-source tool used to create and manipulate PDF files using PHP code. In the proposed system it is used to generate a PDF document for medical reports and invoices. It also can be configured to print the PDF document out.

##### PHPMailer

PHPMailer is a popular open-source PHP library used for sending emails. It provides a set of functions and classes to send email messages easily and securely from a PHP application using a mail server. In the proposed system it is used on the login module for the forgot password feature. By using this library, it can be used for sending an email to the pet owner to reset their password.

#### 5.3.2 Technology Use

##### Facebook Login API

The Facebook Login API is a technology that allows users to authenticate and login to third-party applications using their Facebook credentials. In the proposed system it is used on the login module. It can allow the pet owner to login into the system by using their Facebook credentials.

##### Google Sign-In API

The Google Sign-In API is a technology or tool provided by Google to allow users to sign into applications using their Google account credentials. In this proposed project it is used on the login module. It can allow the pet owner to login into the system by using their Google account credentials.

## CHAPTER 5

### Twilio

Twilio is a cloud communication platform that provides APIs to programmatically make and receive phone calls, send, and receive text messages, and perform other communication-related tasks. In this project, it uses on the appointment module so that the staff can use it to notify the pet owner remind them the appointment they make.

### 5.4 Implementation Issues and Challenges

There were some implementation issues encountered during the development of the system, particularly with the Facebook login API and the Google Sign-in API. Although the APIs were successfully acquired, there were difficulties in using them to register user accounts, as the data was not being saved into the database. These issues continued and remained unresolved. Another implementation issue arose occur with the PHPMailer library, which was installed but failed to work properly. The system kept returning an error message stating that the PHPMailer library was not found. After several hours of troubleshooting, it was discovered that the library file had been saved with a different name in another folder, causing the PHPMailer to not be downloaded and resulting in the error message. Furthermore, there were challenges encountered in implementing the TCPDF library. It required a significant amount of time to study the code format before it could be effectively utilized in the system.

## Chapter 6

# System Evaluation and Discussion

Chapter 6 was primarily dedicated to system testing, which aimed to evaluate the system's performance through a series of tests and performance metrics, conducted tests and presented the testing setup and results for each module and to discuss the challenges encountered during project development. In addition, in this chapter will also perform the objective evaluation.

### 6.1 System Testing and Performance Metrics

System testing is a process of evaluating the functionality, performance, and overall quality of a software system. It involves running tests on the system to check if it meets the requirements and works as expected. Performance metrics are measurements used to evaluate the speed, efficiency, and effectiveness of a system. These metrics can include factors such as response time, throughput, and resource utilization. By analysing performance metrics, one can determine if a system is meeting its performance goals and identify areas for improvement. Therefore, for this section, each of the module will be test and evaluation the performance metrics by list out the testing methos, action done for the testing and the expected result or outcome and the result.

#### 6.1.1 For Staff

##### 6.1.1.1 Login Module Testing and Performance Metrics

Table 4 is the table to show the system testing and performance metrics of the login module foe the staff. This login module is used to authenticated the staff so that only the valid user can login into the system.

Objectives: To ensure only authenticated staff can login the system

Table 4 System Testing and Performance Metrics for Login Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Login with correct password	Insert with correct password (admint11)	Successfully login into the system	Pass
2.	Login with incorrect password	Insert with random password like 1234	Cannot login into the system and error message prompt out	Pass
3.	Leave blank for the password	Do not insert anything in the textbox	Cannot login into the system and error message prompt out	Pass

#### 6.1.1.2 Dashboard Module Testing and Performance Metrics

Table 5 is the table to show the system testing and performance metrics of the dashboard module for the staff. This dashboard module let the staff have a clearly understand of the total appointment have for the day, total number of pet admission, the number of medicines need to restock, the number of appointments need to be notified for the next day, and the waiting list which is the list to show the patient wait at the veterinary clinic. The staff can direct view the pet owner and pet profile by clicking on the view record button provide in the waiting list and be able to check the row after performing the service or treatment for the pet.

#### Objectives:

- To ensure staff can view the correct information for today total appointment (if any appointment on the day), notify appointment (if any appointment for tomorrow), restock medicine (if the medicine number is equal or less then 10), total admission number (if any pet under admission)
- To ensure the staff can navigate to the specific page when they click on the card
- To ensure the queue list is correct all the time
- To ensure staff can navigate to the correct pet owner and pet record on the waiting list

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-To be ensure the record in the waiting list is correct only show the pet are pending veterinary check-up and treatment

Table 5 System Testing and Performance Metrics for Dashboard Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Edit the data in the database to check the value retrieve is correct or not	1. Add in new appointment for today and tomorrow  2. Edit the number of the medicine to less then 10, equal to 10, and more then 10  3. Add new pet admission record	Show all the correct total number of today's appointment number, notify appointment number, restock medicine number and total admission number	Pass
2.	Click on the card to check did the staff will navigate to the page or not when the card is click	Click on the card	Navigate to the correct page	Pass
3.	Even the walk-in pet owner come first, the appointment pet owner always has the priority in the waiting list	Add in 1 walk-in pet owner register at 3:03pm, and 1 appointment on 3:00pm	The pet owner who makes the appointment will be queue in front of the walk-in customer in the waiting list	Pass
4.	Click on the select button on the view record to check does it navigation the staff to the correct pet owner and pet profile record or not	Click on the select button	Navigate to the correct pet owner and pet profile record	Pass

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5.	Click on the check then check the waiting list still have the checked record or not	Click on the check button	The checked record will no longer show in the waiting list	Pass
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### 6.1.1.3 Register Module Testing and Performance Metrics

Table 6 shows the system testing and performance metrics for register module. This module lets the staff make the registration for the walk-in customer and to register an account for the pet owner if they visit for the first time and process the registration process after the register of an account.

#### Objectives:

- To ensure that the pet owner must have record only can make the registration.
- To ensure that can register a new record for the pet owner if the pet owner visiting the first time.
- To ensure that the search function can be used to search for the record or all record.

Table 6 System Testing and Performance Metrics for Register Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Insert a valid existing pet owner name in the textbox	In the search textbox insert the name of the pet owner (freen)	Show out the searched pet owner and their pet record	Pass
2.	Leave the textbox blank	Leave the search textbox blank	Show out all the pet owner and their pet record	Pass
3.	Insert an unexisting pet owner name in the textbox	In the search textbox insert some random name like jesi	No record show	Pass
4.	Register an account for the new pet owner and make the registration	Insert the information and click save	The new create record will be show out and can continue for the registration	Pass



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5.	Check the waiting list for the registration make	Make the registration for the walk-in customer	The waiting list will show out the registration make	Pass
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### 6.1.1.4 Pet Parent and Pet Record Module Testing and Performance Metrics

Table 7 shows the system testing and performance metrics for pet parent and pet record module. This pet parent and pet record module allow the staff to retrieve the record of the pet parent and pet to view their profile, medical information, medical record history, admission detail, manage admission report, and manage medical report.

#### Objectives:

- To make sure can retrieve the pet owner and pet record
- To make sure when the staff click on the selected pet parent and pet record it will navigate the staff to the correct profile
- To ensure the data will update into the database when the staff update new medical infor
- To ensure the staff can retrieve the correct selected admission record
- To make sure the search function in the admission record page is work well for the staff to use to search for a particular record
- To ensure each of the feature inside the admission report can be able to work well
- To ensure report can be generate all the data can be store into the database and can be able to view in PDF format.
- To ensure the staff can retrieve the correct selected medical record
- To make sure the search function for the medical record is work well for the staff to use to search for a particular record

Table 7 System Testing and Performance Metrics for Pet Parent and Pet record Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the pet parent record textbox blank	Leave the search textbox blank	Show out all the pet owner and their pet record	Pass

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2.	Insert a valid existing pet owner name in the pet parent record textbox	In the search textbox insert the name of the pet owner (freen)	Show out the searched pet owner and their pet record	Pass
3.	Insert an unexisting pet owner name in the pet parent record textbox	In the search textbox insert some random name like jesi	No record show	Pass
4.	Click on the select button to check did the correct profile retrieved	Click on the select button	The correct pet owner and pet record profile show out	Pass
5.	Make some changes of the medical information	Update new medical data	The new data will be store into the database	Pass
6.	Click on the select button to check did the correct admission report retrieved	Click on the select button	The selected admission record show out	Pass
7.	Leave the admission record textbox blank	Leave the search textbox blank	Show out all the admission record	Pass
8.	Insert data wanted to search in the admission record textbox	In the search textbox insert the admission date or admission reason or status	Show out the searched admission record	Pass
9.	Insert a random data in the admission record textbox	In the search textbox insert some random data.	No record show	Pass
10.	add, delete and edit the condition and the medication to check the performance of each of the function	Use the feature and	All the data can be insert, update, delete in the database with no error	Pass
11.	Insert data into the medical report and save the medical report After save the report click on print button to check does it show in PDF format	Insert data into the medical report and save, then click on the print button	The data will be store into database. When the print button being click the data will be view in PDF format	Pass

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12.	Leave the search medical history textbox blank	Leave the search medical history textbox blank	Show out all the medical history report	Pass
13.	Insert the correct data in the medical history search textbox	In the search textbox insert the correct data like the date or treatment or summary or medication	Show out the searched medical history record	Pass
14.	Insert random data in the medical history search textbox	In the search textbox insert some random data	No record show	Pass
15.	Click on the view button to check did the correct profile retrieved	Click on the view button	Correct medical history data will be show out	Pass

### 6.1.1.5 Appointment Module Testing and Performance Metrics

Table 8 shown the system testing and performance metrics for today' appointment in appointment module. This module lets the staff check the attendance for the pet owner who makes the appointment for the day. While table 9 shown the system testing and performance metrics for appointment reminder in appointment module. For this module is used to let the staff to notify the pet owner who make the appointment for the next day. Besides, the table 10 shown the system testing and performance metrics for book slot in appointment module. This module is to let the staff make an appointment for the pet owner. Lastly, the table 11 shown the system testing and performance metrics for appointment records in appointment module. This module is to let the staff view all the appointments made previously and the future. The staff have the ability to delete the appointment make.

#### Today's Appointment

#### Objectives:

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- To make sure all the appointment of the day will be retrieved, and the staff can be able to check the attend when the pet owner arrive to the veterinary clinic and the record will be show out in the waiting list on the dashboard.

Table 8 System Testing and Performance Metrics for Today' Appoinment in Appointment Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Count the appointment retrieve on the today's appointment page and retrieve the appointment on the database to check does the number of the appointment same or not	Count appointment on the appointment page and the database	The page retrieved correct number of record	Pass
2.	Check on the pet owner to see will the record retrieved at the waiting list on the dashboard page	Click the attend button	The record of the pet owner will be view on the waiting list	Pass

### Appointment Reminder

#### Objectives:

-To ensure the appointment of the second day will be retrieved, and the notification function work well. When the staff click on the button the SMS can be send to the pet owner.

Table 9 System Testing and Performance Metrics for Appointment Reminder in Appointment Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Count the appointment retrieve and retrieve the appointment on the database to check does	Count appointment and retrieve the second day appointment from the database	The page retrieved correct number of record and only the appointment haven't be notify show on the page	Pass

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	the number of the appointment same or not and check it's only the appointment haven't be notify will show out			
2.	Click on the notify button	Click the button	The pet owner will receive an SMS to remind them the appointment they make	Pass

### Book Slot

#### Objectives:

- To ensure the staff can make the appointment for the pet owner. Have the authorize to create new time slot for selected day, delete all time slot for selected day and also delete particular time slot for selected day

Table 10 System Testing and Performance Metrics for Book Slot in Appointment Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Make appointment with the selected date	Select date, time slot wishes to book. Then search for the pet parent record and choose the service	Time slot book successful and the time slot is lock for the pet owner. Other pet owner cannot make the appointment at the time slot	Pass
2.	Make appointment without selected date	Click on the search button without select any date	Cannot process to book slot and error prompt out	Pass
3.	Create time slot with the selected date	Insert the time slot wanted to add for the selected date	Time slots add successful for the selected date	Pass
4.	Create time slot without selected date	Click on the add time slot button without select any date	Cannot process to add time slot and error prompt out	Pass

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5.	Delete all time slot with the selected date	Click the delete all time slot button for the selected date	An alert will prompt out to confirm the delete action of all the time slot for the selected date. It cancel the nothing change. If delete, all the time slot for the selected date will be deleted.	Pass
6.	Delete all time slot without selected date	Click on the Delete all time slot button without select any date	Cannot process to next step and error prompt out	Pass

### Appointment Records

#### Objectives:

- To ensure the staff can view all the appointment records made by the pet owner previously and the future. They also can perform search function to retrieve the record they want and delete the appointment make.

Table 11 System Testing and Performance Metrics for Appointment Records in Appointment Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the search textbox blank	No type in anything in the search textbox	All the record will be show out	Pass
2.	Type in something in the search textbox with the correct data	Type in the correct data like the correct date, time, pet owner name, pet name, service etc	The search row all be show out	Pass
3.	Type in something in the search textbox with the random data	Type in the random data like jkjk which is no meaning	No record retrieve and error show out	Pass
4.	Go inside the page to see all the future appointment can show out or not and	Check the number of the future appointment in the database match with	Correct number of the row of appointment showing out, when the appointment	Pass

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	try to delete the appointment and check the book record still have the appointment or not	the number of appointments show when go in the page and click on the delete button to delete the appointment	is deleted, the appointment won't show again on the book slot and the slot is open for other to make appointment	
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### 6.1.1.6 Medicine Module Testing and Performance Metrics

Table 12 shown the system testing and performance metrics for medicine list in medicine module. This module can let the staff view, edit, and delete the medicine. While the table 13 shown the system testing and performance metrics for add medicine in medicine module. This module can let the staff add new medicine into the system.

#### Medicine List

##### Objectives:

- To ensure all the medicine can be retrieve from the database, staff can view, add, delete, edit the medicine, and search for the medicine.

Table 12 System Testing and Performance Metrics for Medicine List in Medicine Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Insert correct medicine name	Insert correct medicine name like Prednisolone	The medicine search will be show out	Pass
2.	Insert wrong medicine mame	Insert wrong medicine name like jkjk	No medicine show out and an message prompt out	Pass
3.	Leave the the search medicine textbox blank	Just click the search button without insert any text	All the medicine will show out	Pass
4.	click on the detail button to view the detail of the selected medicine	Click on the view detail button	All the detail of the medicine will be showing out	Pass

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5.	Click on the delete button to delete the selected medicine	Click on the delete medicine button	The system will prompt out an alert module to confirm the deletion. If click on cancel nothing change. But if click on delete the medicine will be deleted from the database	Pass
6.	Click on the edit button to edit the data of the selected medicine	Click on the edit medicine button	It will redirect the staff to another page to perform the edit process after the staff save change, the new change will be update to the database.	Pass

### Add medicine

#### Objectives:

- To ensure that the staff can add in new medication

Table 13 System Testing and Performance Metrics for Add Medicine in Medicine Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the textbox blank and click save	Click save button without insert any text	The system will prompt out error message	Pass
2.	Insert text into the textbox and click save	Click save button after insert all the textbox	Save successful the medicine save will be insert into the database	Pass

#### 6.1.1.7 Admission Module Testing and Performance Metrics

Table 14 shown the system testing and performance metrics for admission register in admission module. This module is to let the staff make the admission registration for the pet owner. While



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if the pet owner is first time visiting the veterinary clinic, the staff need to register an account for the pet owner only can process to the admission registration process. Next, the table 15 shown the system testing and performance metrics for admission records in admission module. For this module, the staff view all the admission records and view the details of a selected admission report.

### Admission Register

#### Objectives:

- To ensure that the pet owner must have record only can make the admission registration. The staff can be able to register a new record for the pet owner if the pet owner visiting for the first time. The registration process done well.

Table 14 System Testing and Performance Metrics for Admission Register in Admission Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Insert a valid existing pet owner name in the textbox	In the search textbox insert the name of the pet owner (freen)	Show out the searched pet owner and their pet record	Pass
2.	Leave the textbox blank	Leave the search textbox blank	Show out all the pet owner and their pet record	Pass
3.	Insert an unexisting pet owner name in the textbox	In the search textbox insert some random name like jesi	No record show	Pass
4.	Register an account for the new pet owner and make the admission registration	Insert the information and click save	The new create record will be show out and can continue for the admission registration	Pass
5.	Check the admission record for the admission registration make	Make admission registration	The admission records will show out the admission registration make	Pass
6.	Leave the admission reason blank	Leave the text area blank	Admission registers successful	Pass

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7.	Insert admission reason	Insert admission reason in the text area	The registration can more be made and an error message prompt out	Pass
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### Admission Records

#### Objectives:

- To ensure the staff can view all the admission records. They also can perform search function to retrieve the record they want. And also ensure that the staff will be navigate to the admission report page with the record selected based on the status of the admission.

Table 15 System Testing and Performance Metrics for Admission Records in Admission Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the search textbox blank	No type in anything in the search textbox	All the admission record will be show out and display follow the order of the status	Pass
2.	Type in something in the search textbox with the correct data	Type in the correct data like the correct admission date, pet parent name, pet name, and admission status	The search result that match with the data insert in the textbox will be retrieved and showing out	Pass
3.	Type in something in the search textbox with the random data	Type in the random data like jkjk which is no meaning	No record retrieve and error show out	Pass
4.	check all the record retrieved are under which status	Click on the page link	All the record show are under the status of admission	Pass

5.	Click on the select on both record under different status	Click select for the record under status in admission and discharge	If the status is under admission, it will be able to insert or update the report. If the status is under discharge, the report only can be view by the staff	Pass
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### 6.1.1.8 Invoice Module Testing and Performance Metrics

Table 16 shown the system testing and performance metrics for bills in invoice module. This module lets the staff be able to view the bills and able to manage the bills that open for the pet owner. While for table 17 shown the system testing and performance metrics for bills record in invoice module. For this module, it able to let the staff to view all the bills record history, and can be able to view the detail for selected bills record history and print it out. Next, for table 18 shown the system testing and performance metrics for admission bills in invoice module. In this module, the staff can be able to view the admission bills and able to manage the admission bills that open for the pet owner. Lastly, is table 19. This table shown the system testing and performance metrics for admission bills records in invoice module. For this module, it able to let the staff to view all the admission bills record history, can be able to view the detail for selected admission bills record history and print it out.

### Bills

#### Objectives:

- To ensure that the bills will only have record after the pet is checked or treated. Inside the bills the staff will be able to perform add service fee, machine charge, add medication, add additional fee, edit and delete. To make sure the bills can be show in PDF format and be able to print.

Table 16 System Testing and Performance Metrics for Bills in Invoice Module

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No.	Testing Method	Action Done	Expected Result	Result
1.	Do not generate medical report	Do not insert anything in the medical report and not generate the medical report	Inside the bills page will no show the record	Pass
2.	Generate medical report	Insert data into the medical report and generate the medical report	Inside the bills page will show the record	Pass
3.	Click on the pay and perform add service fee, machine charge, add medication, add additional fee, edit and delete	Perform each of the function inside the invoice generate page	Each of the function will be able to work well	Pass
4.	Click the print button and view the invoice	Click the print button	The bills will be able to show in PDF format	Pass

### Bills Records

#### Objective:

- To ensure the staff can retrieve the payment that has already been paid, can view the detail of the payment, print the bills, and retrieve the record they want by using the search function

Table 17 System Testing and Performance Metrics for Bills Record in Invoice Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the search textbox blank	No type in anything in the search textbox	All the bills will be show out and display follow the order of the status	Pass
2.	Type in something in the search textbox with the correct data	Type in the correct data like the correct date, pet parent name, pet name, and treatment	The search result that matches with the data insert in the textbox will be retrieved and showing out	Pass

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3.	Type in something in the search textbox with the random data	Type in the random data like jkjk which is no meaning	No record retrieve and error show out	Pass
4.	Check the retrieve bills to make sure the bills retrieve is already pay	Retrieve the data in the database to check the status of the bills is under pay or not	The bills retrieved is under the status of pay	Pass
5.	Click on view pay button, check the page direct is the correct selected row and click on the print button	Click on the view pay button check the information make sure the page direct is the selected row and click the print button	The page direct is the row select and staff can be able to view the invoice in PDF format	Pass

### Admission Bills

#### Objectives:

- To ensure that the admission bills that show on this page is under the status of admission. Inside the admission bills the staff will be able to perform add service fee, machine charge, add medication, add additional fee, edit and delete. To make sure the admission bills can be show in PDF format and be able to print. Also make sure the search function is perform well.

Table 18 System Testing and Performance Metrics for Admission Bills in Invoice Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Click on the pay and perform add service fee, machine charge, add medication, add additional fee, edit, and delete	Perform each of the function inside the admission invoice generate page	Each of the function will be able to work well	Pass
2.	Click the print button and view the invoice	Click the print button	The bills will be able to show in PDF format	Pass
3.	Check the retrieve admission bills to make	Retrieve the data in the database to check the	The bills retrieved is under the status of admission	Pass

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	sure the admission bills retrieve is under the status of admission	status of the admission bills is under admission or discharge		
4.	Leave the search textbox blank	No type in anything in the search textbox	All the admission bills will be show out and display follow the order of the status	Pass
5.	Type in something in the search textbox with the correct data	Type in the correct data like the correct admission date, pet parent name, pet name, and admission reason	The search result that matches with the data insert in the textbox will be retrieved and showing out	Pass
6.	Type in something in the search textbox with the random data	Type in the random data like jkjk which is no meaning	No record retrieve and error show out	Pass

### Admission Bills Records

#### Objective:

- To ensure the staff can retrieve the admission bills record that has already been paid, can view the detail of the payment, print the bills, and retrieve the record they want by using the search function

Table 19 System Testing and Performance Metrics for Admission Bills Records in Invoice Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the search textbox blank	No type in anything in the search textbox	All the admission bills will be show out and display follow the order of the status	Pass
2.	Type in something in the search textbox with the correct data	Type in the correct data like the correct admission date, pet parent name, pet name, and discharge date	The search result that matches with the data insert in the textbox will be retrieved and showing out	Pass

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3.	Type in something in the search textbox with the random data	Type in the random data like jkjk which is no meaning	No record retrieve and error show out	Pass
4.	Check the retrieve admission bills to make sure the bills retrieve is already pay	Retrieve the data in the database to check the status of the bills is under pay or no	The admission bills retrieved is under the status of pay	Pass
5.	Click on view pay button, check the page direct is the correct selected row and click on the print button	Click on the view pay button check the information make sure the page direct is the selected row and click the print button	The page direct is the row select and staff can be able to view the invoice in PDF format	Pass

### 6.1.2 For Pet Owner

#### 6.1.2.1 Login Module Testing and Performance Metrics

Table 20 shown the system testing and performance metrics of login module for pet owner. For this module able to authenticate the pet owner, only the valid user can go into the system. They also can reset the password when they forget the password they set. Besides, the pet owner is also able to sign up an account if they are new user. They also can login to the system through alternative login ways.

**Objective:** To ensure only a valid pet owner can login into the system. They can reset the password anytime they forget about the password they set. Sign up an account if they did have an account and can login into the system with Facebook or google credential.

Table 20 System Testing and Performance Metrics for Login Module

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No.	Testing Method	Action Done	Expected Result	Result
1.	Login with correct email and password	Insert with correct email and password	Successfully login into the system	Pass
2.	Login with incorrect email and password	Insert with random email or password	Cannot login into the system and error message prompt out	Pass
3.	Leave blank for the email and password	Do not insert anything in the textbox	Cannot login into the system and error message prompt out	Pass
4.	Sign up an account without insert any data	Leave all the textbox blank and click on the create button	The account cannot be register and error prompt out	Pass
5.	Sign up an account with insert data	Insert all the information required and click on the create button after finish inserted the data	Account creates successful	Pass
6.	Login with facebook login api	Click on the facebook api and try to login into the system	The user can login into the system by retrieve the email and the password of facebook to login into the system	Fail
7.	Login with google sign-in api	Click on the google api and try to login into the system	The user can login into the system by retrieve the email and the password of google to login into the system	Fail
8.	Reset password with insert invalid email	Insert invalid email address to rest password	Cannot reset password an error show out	Pass
9.	Reset password with insert valid email	Insert valid email address to rest password	Password reset successful	Pass



## 6.1.2.2 Dashboard Module Testing and Performance Metrics

Table 21 shown the system testing and performance metrics for dashboard module. For this module able to let the pet owner to have a clear understanding on the number of appointments they make, number of the pet on admission and the total number of the pet.

Objective:

-To ensure pet owner can view the correct information for appointment make (if any appointment make by the pet owner), pet admission (if their pet is admitted in the veterinary clinic), pet number (number of the total pet account have). Also, to ensure the pet owner can navigate to the specific page when they click on the card.

Table 21 System Testing and Performance Metrics for Dashboard Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Edit the data in the database to check the value retrieve is correct or not	1. Add in appointment 2. Add pet admission 3. Delete 1 pet record	Show all the correct total number of today's appointment make, pet admission number, and total pet number	Pass
2.	Click on the card to check did the pet owner will navigate to the page or not when the card is click	Click on the card	Navigate to the correct page	Pass

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### 6.1.2.3 User Profile Module Testing and Performance Metrics

Table 22 shown the system testing and performance metrics for user profile module. This module allows the pet owner to manage their user profile, pet profile and add a new pet account.

Objective:

- To ensure the pet owner able to edit their user profile, add new pet, and manage their pet profile. Besides, the type of vaccine and the type of breed will change with the type of pet the pet owner select.

Table 22 System Testing and Performance Metrics for User Profile Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Edit the pet owner profile without insert any information	Leave the textbox blank and click the update button	Update unsuccessful and error show out	Pass
2.	Edit the pet owner profile by insert new information	Update existing information with new information and click on the update button	Update successful new edited information will be show out	Pass
3.	Create pet account without insert any information	Leave the textbox blank and click create account	Account creates unsuccessful and error show out	Pass
4.	Create pet account by insert information	Insert all the required data and create account	Account creates successful	Pass
5.	Select different type of pet to check did the type of pet and type of vaccine got change or not	Select different type of pet	The type of breed and vaccine will change according to the type of pet select by the pet owner	Pass
6.	Perform view, update, and delete function for the pet record	Update the pet record, view it and delete 1 of the pet record	All the function will be work well	Pass

#### 6.1.2.4 Appointment Module Testing and Performance Metrics

Table 23 shown the system testing and performance metrics for appointment module. For this module, the pet owner can make an appointment for their pet though this module.

Objective:

- To ensure the appointment booking process work well.

Table 23 System Testing and Performance Metrics for Appoinment Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Make appointment booking without insert anything and select anything	Leave all blank and just click the button for each of the process of booking appointment	Appointment cannot be making an error prompt out	Pass
2.	Make appointment booking without insert all the required data	Insert all the required data requested and make the appointment	Booking successful and it will show out the appointment make on the page	Pass

#### 6.1.2.5 Medical History Module Testing and Performance Metrics

Table 24 show the system testing and performance metrics for medical history module. This module enables the pet owner to view the medical history of their pet and can be print the report out.

## Objective:

- To ensure the pet owner can view the selected pet medical history report and able to be view the detail of the report in PDF format and always be able to print the report out. Besides, they can also use the search function to search for record they want to get.

Table 24 System Testing and Performance Metrics for Medical History Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the search textbox blank	Leave the textbox blank and click on the search button	All the medical history report will be showing out	Pass
2.	Insert random data into the search textbox	Insert random data like jkjk	No medical report showing out and an error message is show out	Pass
3.	Insert correct data into the search textbox	Insert correct data input like the date or treatment	All the medical report that match with the value insert will be show out	Pass
4	Select random row of medical report and click the view button to check the medical report retrieve is match with the selected row or not, and see are the report view in PDF format or not	Click view button	The selected row of report will be show out in PDF format	Pass

## 6.1.2.6 Invoice History Module Testing and Performance Metrics

Table 25 shown the system testing and performance metrics for invoice module. This module enables the pet owner to view all the invoice history of their pet and be able to print the invoice.

Objective:

- To ensure the pet owner can view the selected pet invoice which are under the status of pay and able to be view the detail of the invoice in PDF format and always be able to print the report out. Besides, they can also use the search function to search for the record they want to retrieve.

Table 25 System Testing and Performance Metrics for Invoice Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the search textbox blank	Leave the textbox blank and click on the search button	All the invoice will be showing out	Pass
2.	Insert random data into the search textbox	Insert random data like jkjk	No invoice showing out and an error message is show out	Pass
3.	Insert correct data into the search textbox	Insert correct data input like the date or treatment	All the invoice that match with the value insert will be show out	Pass
4.	Select random row of invoice and click the view button to check the invoice retrieve is match with the selected row or not, and see are the invoice view in PDF format or not	Click view button	The selected row of invoice will be show out in PDF format	Pass
5.	Check the invoice view in the invoice history are the record under the status of pay, check all the bills and admission bills have list out or not	Retrieve the number of the bills and admission bills are under the status of pay and match with the record number show in the page	All the invoice under the status of pay is showing out	Pass

## 6.1.2.6 Admission Report Module Testing and Performance Metrics

Table 26 shown the system testing and performance metrics for admission report module. For this module, the pet owner can view the admission report for the pet in admission get the latest condition update of their pet and also able to let the pet owner to view the previous admission report.

Objective:

- To ensure the pet owner can always view the updated admission report to get the latest information about their pet in admission and can view the history admission report. Besides, they can also use the search function to search for the record they want to retrieve.

Table 26 System Testing and Performance Metrics for Admission Report Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Leave the search textbox blank	Leave the textbox blank and click on the search button	All the admission report will be showing out	Pass
2.	Insert random data into the search textbox	Insert random data like jkjk	No report showing out and an error message is show out	Pass
3.	Insert correct data into the search textbox	Insert correct data input like the admission date or status	All the admission report that match with the value insert will be show out	Pass
4.	Select random row of admission report and click the view button to check the admission report retrieve is match with the selected row or not	Click view button	The selected row of admission report will be show out	Pass

### 6.1.2.7 FAQ Module Testing and Performance Metrics

Table 27 shown the system testing and performance metrics for the FAQ module. For the module it able to let the pet owner get the solution they meet when they facing issues on operate the system.

Objective: To ensure that the pet owner can always get the solution when they are facing any issues or operate the system.

Table 27 System Testing and Performance Metrics for FAQ Module

No.	Testing Method	Action Done	Expected Result	Result
1.	Click on the question to get the answer	Click on the question	Can get the answer to the question	PASS

## 6.2 Testing Setup and Result

Testing Setup refers to the preparation and configuration of the testing environment and tools that will be used to conduct the testing of the software or system. This includes setting up the hardware, software, and network infrastructure, as well as configuring any testing frameworks, tools, or scripts that will be used to execute the tests. Testing Result refers to the outcome of the testing process, which may include pass/fail status, error messages, performance metrics, and other relevant data that helps to evaluate the quality and effectiveness of the software or system being tested. The testing results are used to identify defects, validate requirements, and ensure that the software or system meets the desired quality standards. Hence, in this section will show all the system testing of each of the module with the screenshot of the testing system.

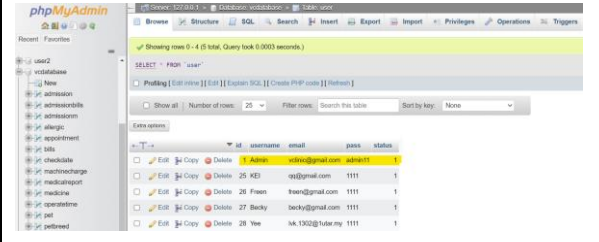
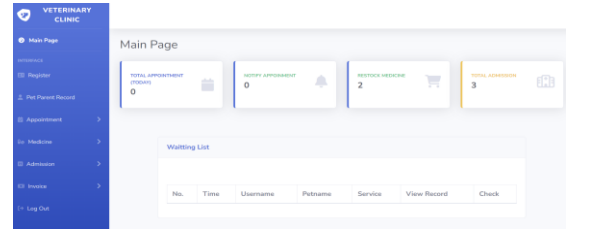

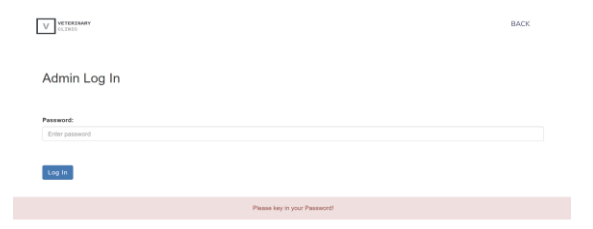
### 6.2.1 Staff

CHAPTER 6

6.2.1.1 Login Module Testing Setup and Result

Table 27 shown the Testing Setup and Result of the Login Module for the staff.

Table 28 Testing Setup and Result for Login Module

<p>1.</p>  <p>Figure 47 User Database</p> <p>Here is the admin password store in the database. (Figure 47)</p>	<p>2.</p>  <p>Figure 48 Staff Dashboard</p> <p>With the correct password the staff can login into the system. (Figure 48)</p>
<p>3.</p>  <p>Figure 49 Admin Login Page with Invalid User Error</p> <p>With the incorrect password insert cannot login to the system and error message will be prompt out show invalid user. (Figure 49)</p>	<p>4.</p>  <p>Figure 50 Admin Login Page with Key in Password Error</p> <p>For leaving the textbox blank, cannot login to the system and error message prompt out show please key in the password. (Figure 50)</p>

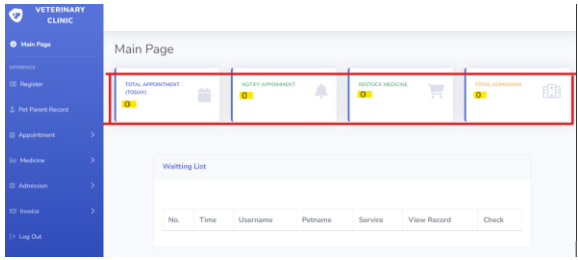
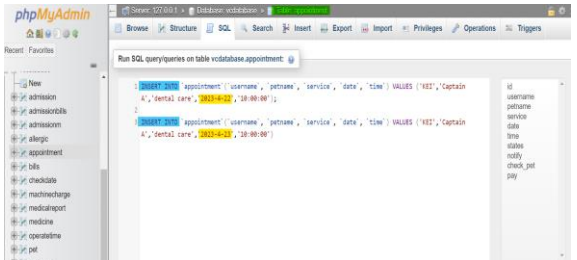

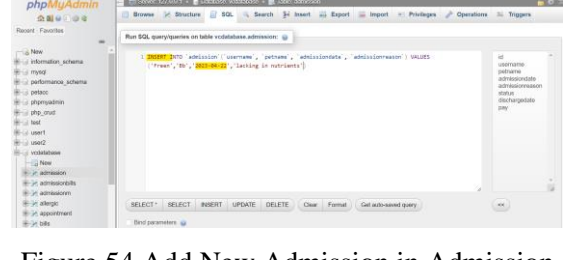
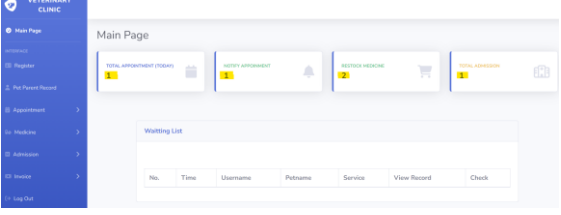


## CHAPTER 6

### 6.2.1.2 Dashboard Module Testing Setup and Result

Table 28 show the testing setup and result for information card in dashboard module, while table 29 show the testing setup and result for waiting list in dashboard module.

Table 29 Testing Setup and Result for Information Card in Dashboard Module

<p>1.</p>  <p>Figure 51 Admin Dashboard</p> <p>Here is the original number show. (Figure 50)</p>	<p>2.</p>  <p>Figure 52 Add New Appointment in Appointment Database</p> <p>Add in new appointments for today and tomorrow. (Figure 52)</p>
<p>3.</p>  <p>Figure 53 Edit Medicine in Medicine Database</p> <p>Edit the medicine number to less than 10, equal to 10, and more than 10. (Figure 53)</p>	<p>4.</p>  <p>Figure 54 Add New Admission in Admission Database</p> <p>Add in new admission. (Figure 54)</p>
<p>5.</p>  <p>Figure 55 Admin Dashboard</p>	

After edit the database here is the new result. (Figure 55)

6.

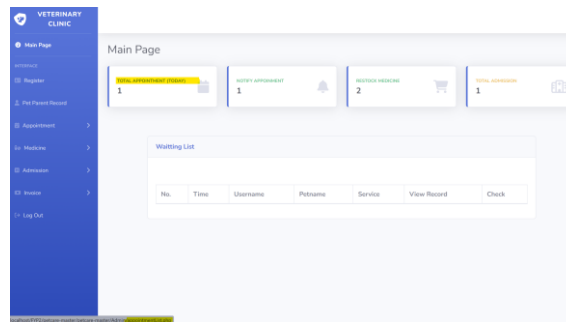


Figure 56 Admin Dashboard with the click of Total Appointment Card

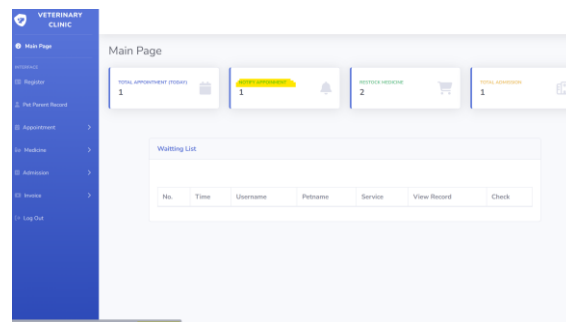


Figure 57 Admin Dashboard with the click of Notify Appointment

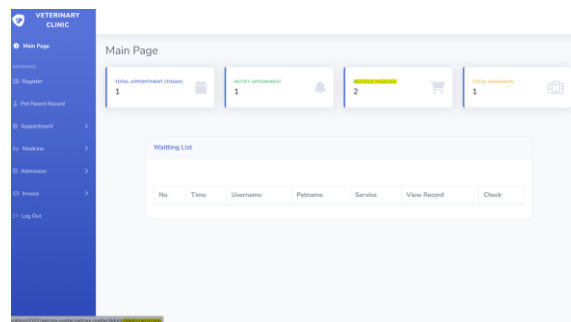


Figure 58 Admin Dashboard with the click of Restock Medicine

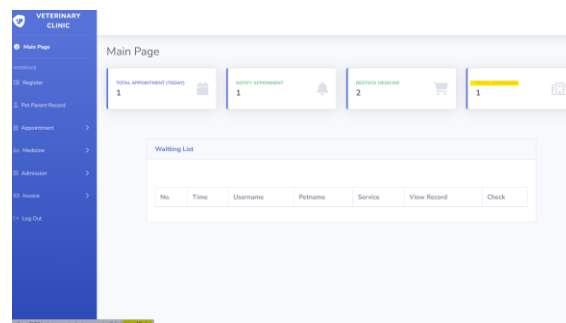


Figure 59 Admin Dashboard with the click of Total Admission

The staff will navigate to the correct page when they click on the card. (Figure 56-59)

Table 30 Testing Setup and Result for Waiting List in Dashboard Module

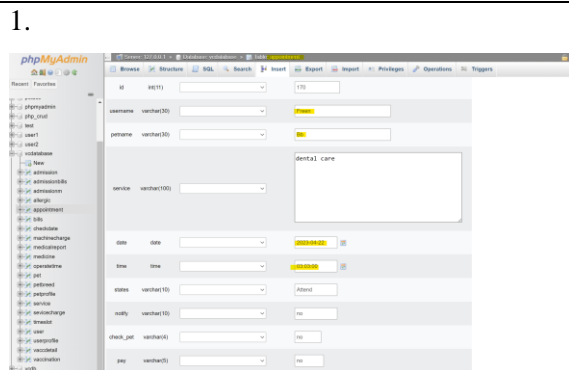


Figure 60 Add Appointment in Appointment Database

Insert new walk-in pet owner at 3:03pm. (Figure 60)

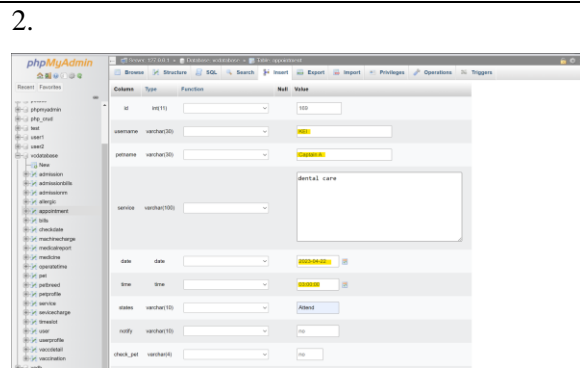


Figure 61 Add Appointment in Appointment Database

Add new appointment for pet owner at 3:00pm. (Figure 61)

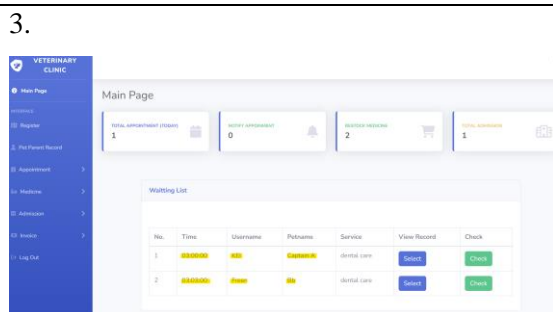


Figure 62 Admin Dashboard

The appointment will always have the higher priority than the walk-in pet owner. (Figure 62)

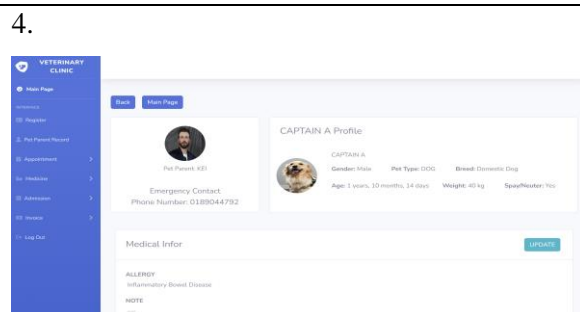


Figure 63 Pet Parent and Pet Profile

Correct pet owner and pet profile record is show when click on the select button. (Figure 63)

5.

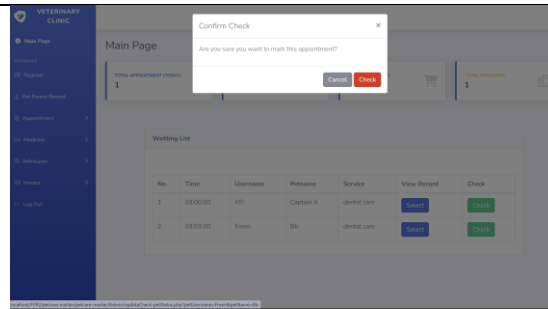


Figure 64 Click Check on Admin Dashboard

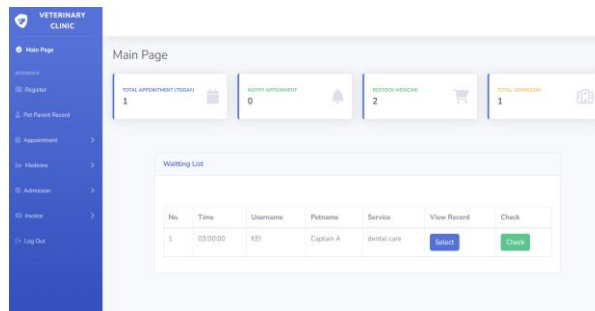


Figure 65 The Record is got at the waiting List in Admin Dashboard

After click on the check button the system will show a module (Figure 64) to confirm if click check the database will update the status of the selected record. And the record will no longer show on the waiting list. (Figure 65)

### 6.2.1.3 Register Module Testing Setup and Result

Table 30 shown the Testing Setup and Result for Registration in Register Module. The following table, which is table 31 shown the testing setup and result for register new customer in register module.

Table 31 Testing Setup and Result for Registration in Register Module

1.	2.
----	----

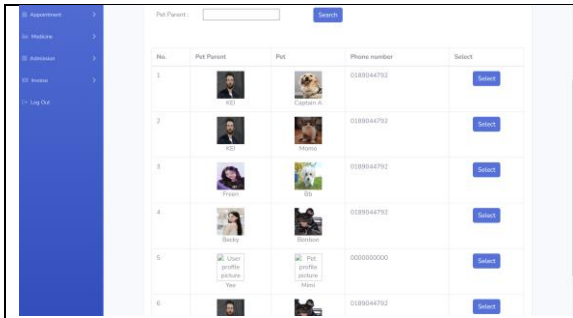


Figure 66 Search All Pet Parent at Register Page

All the record will be show out if didn't insert any pet owner name. (Figure 66)

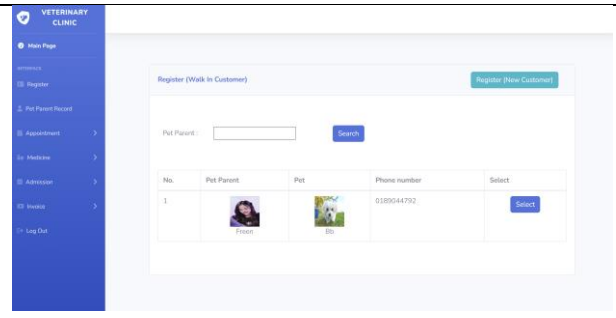


Figure 67 Search Pet Parent Name at Register Page

The record will be show out by searching the pet parent name. (Figure 67)

3.

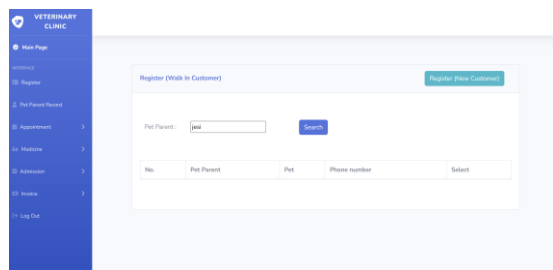


Figure 68 Search Invalid Pet Parent at Register Page

If the pet parent name search is not an existing pet parent, then not record will not be show out. (Figure 68)

4.

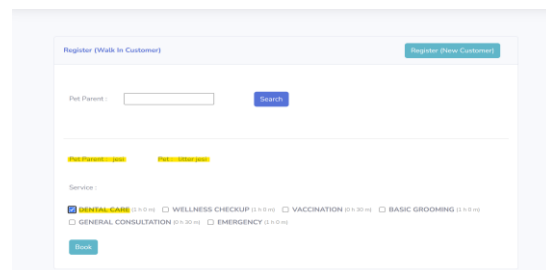


Figure 69 Make Registration for the Selected Pet Parent

Make registration after select the pet owner. (Figure 69)

5.

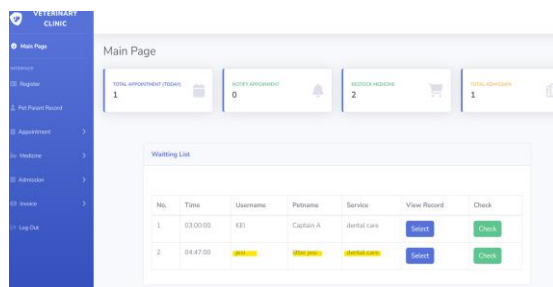
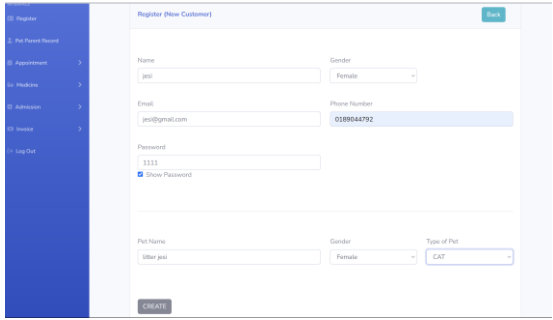
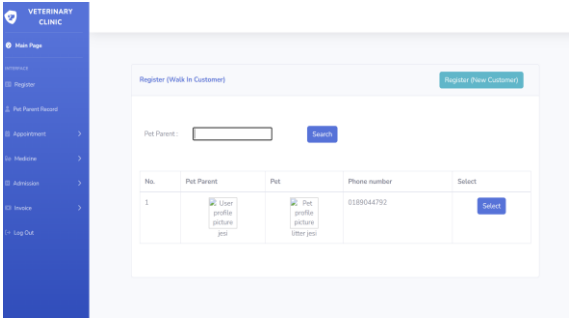


Figure 70 View the Register at Admin Dashboard

After making the registration the waiting list will show out the register record. (Figure 70)

Table 32 Testing Setup and Result for Register New Customer in Register Module

<p>1.</p>  <p>Figure 71 Register for New Pet Owner</p> <p>Create a new account for the new pet owner (jesi). (Figure 71)</p>	<p>2.</p>  <p>Figure 72 View the New Register Record</p> <p>After created the account the record will be show out and can be able to make the registration. (Figure 72)</p>
---	---

6.2.1.4 Pet Parent and Pet Record Module Testing Setup and Result

Due to the Pet Parent and Pet Record Module is a large module that combines several features. Hence, they will have 8 tables showing the different testing from this module. The first table, table 32 displayed the testing setup and result for search function in pet parent and pet record module, table 33 illustrated the testing setup and result for update medical information in pet parent and pet record module, table 34 shown the testing setup and result for admission detail in pet parent and pet record module, while Table 35 displayed the testing setup and result for add, delete, edit, search for condition section in admission report, next the table 36 demonstrated the testing setup and result of the add, delete, edit for the medication section in the admission report, furthermore, table 37 shown the testing setup and result of generate medical report in pet parent and pet record module, table 38 illustrated the testing setup and result of the search function for medical history section in the pet parent and pet record module,

and lastly, table 39 shown the testing setup and result for view medical report function in pet parent and pet record module.

Table 33 Testing Setup and Result for search function in Pet Parent and Pet Record Module

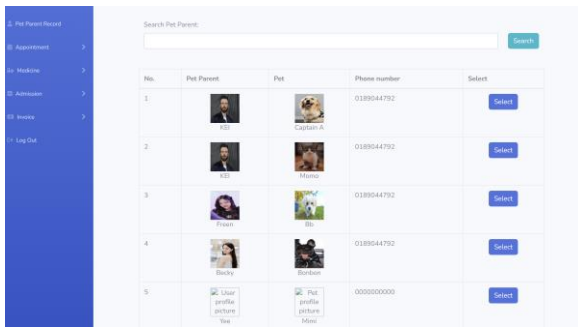
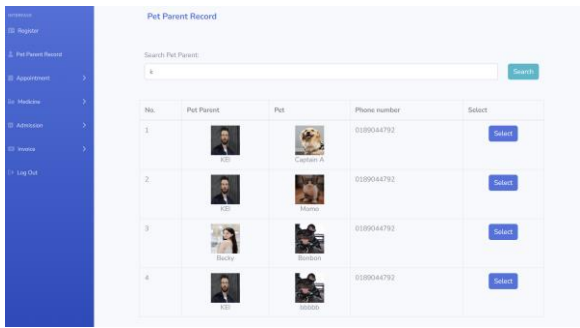
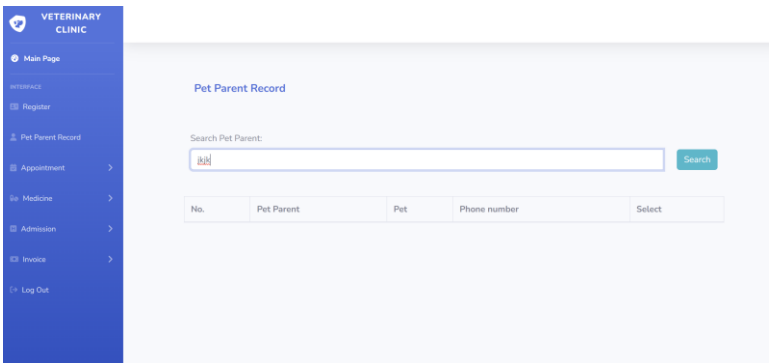
<p>1.</p>  <p>Figure 73 Search All Pet Parent and Pet Record</p> <p>All the pet parent and pet record will be show out if leave the pet parent record textbox blank. (Figure 73)</p>	<p>2.</p>  <p>Figure 74 Search Record with Pet Parent Name</p> <p>It will show out the record that match with the search function. (Figure 74)</p>
<p>3.</p>  <p>Figure 75 Search Record with Random Data</p> <p>It will not show anything if the data in the search function no match with the data store in the database. (Figure 75)</p>	

Table 34 Testing Setup and Result for Update Medical Information in Pet Parent and Pet Record Module



Figure 76 Medical Infor Section in Pet Parent and Pet Profile

Here is the medical information of the pet show inside the pet parent and pet profile it will update when new medical information update by the staff. (Figure 76)

1.

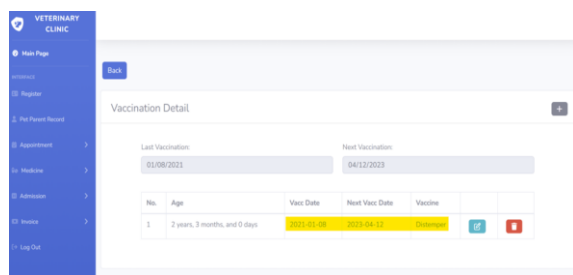


Figure 77 Vaccination Detail Page

This is the vaccination detail. We can see that the data is match with what it shows on the pet parent and pet profile. (Figure 77)

2.

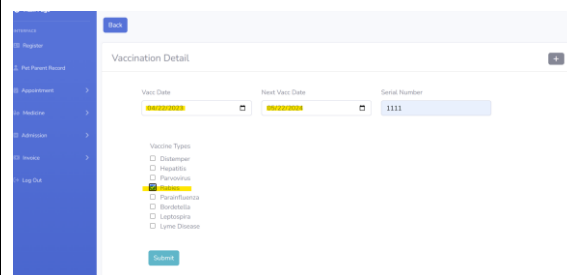


Figure 78 Add New Vaccination Record

Add new vaccination. (Figure 78)

3.

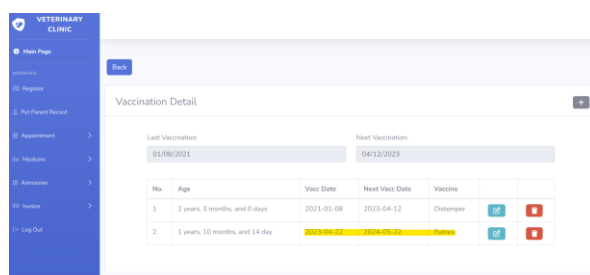


Figure 79 Add Vaccine Successful in Vaccination Detail

4.

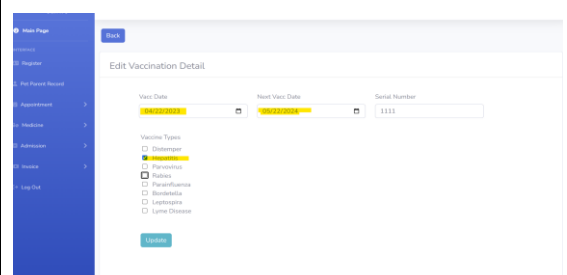


Figure 80 Edit Vaccination Detail

Edit vaccination detail. (Figure 80)



Add successful. (Figure 79)

5.

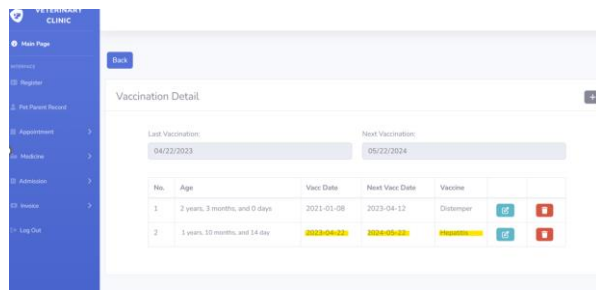


Figure 81 Edit Successful

Edit Successful. (Figure 81)

6.

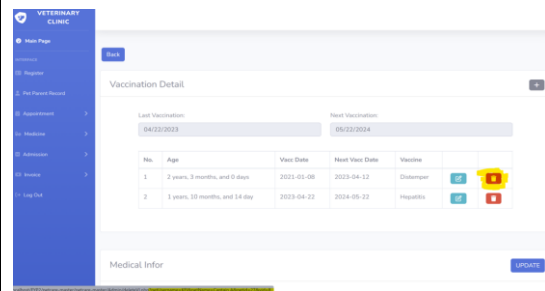


Figure 82 Select Vaccination to Perform Delete Function

Delete for the selected row. (Figure 82)

7.

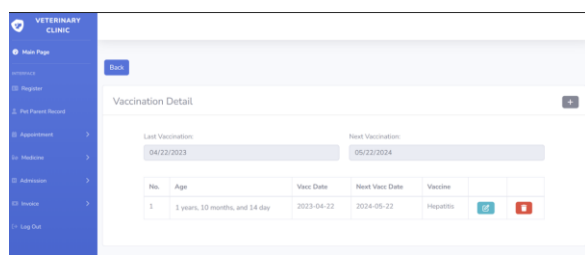


Figure 83 Delete Successful

Delete successful now only left one vaccination detail record. (Figure 83)

8.

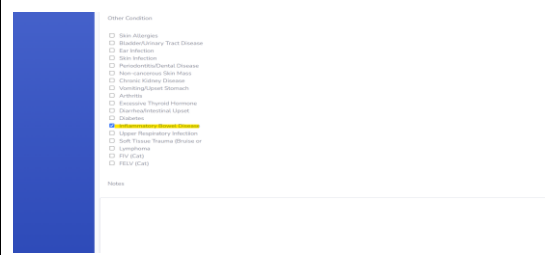


Figure 84 Update Medical Infor Page

Here is the update of the note and the allergy, before update (Figure 84)

9.

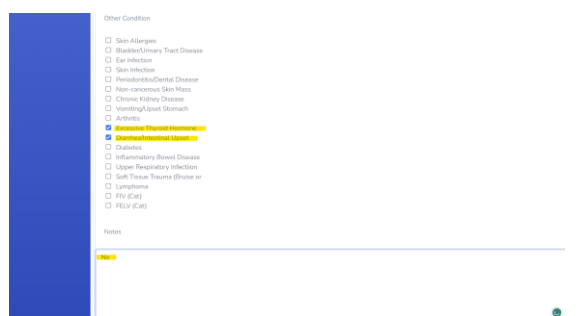


Figure 85 Update Medical Infor

Update the allergy and note. (Figure 85)

10.

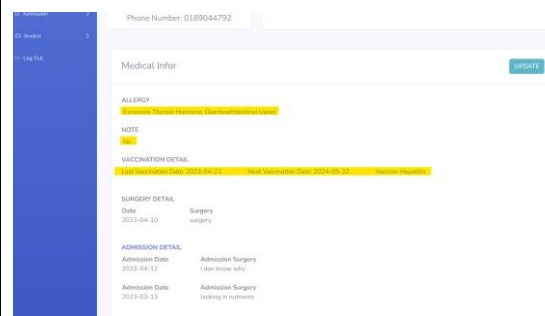


Figure 86 All the Update will show in Pet Parent and Pet Profile

Here is the result after the update of the medical information. (Figure 86)

Table 35 Testing Setup and Result for Admission Detail in Pet Parent and Pet Record Module

1.

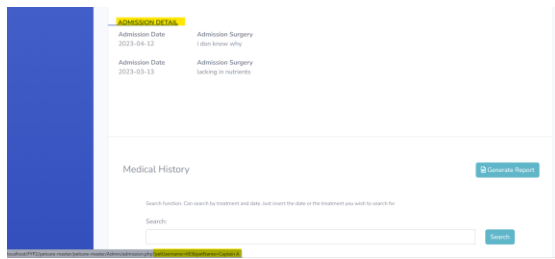


Figure 87 Admission Detail Link

Here is the link to navigate the staff to the admission page for the current pet parent and pet record. (Figure 87)

2.

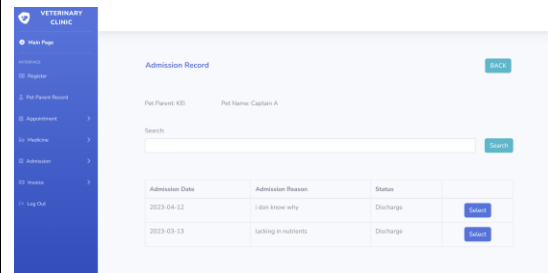


Figure 88 Admission Record Page

After navigating to the page will show all the admission report for the pet. (Figure 88)

3. The search function is working well like the other search function tested.

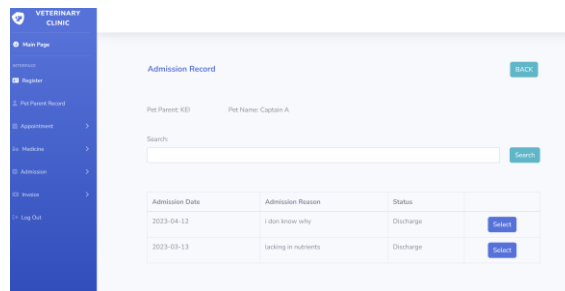


Figure 89 Search All Admission Record

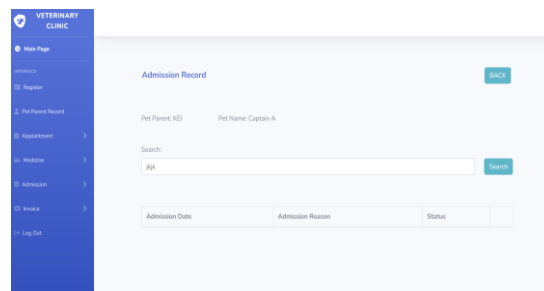


Figure 90 Search Admission Record with Random Data

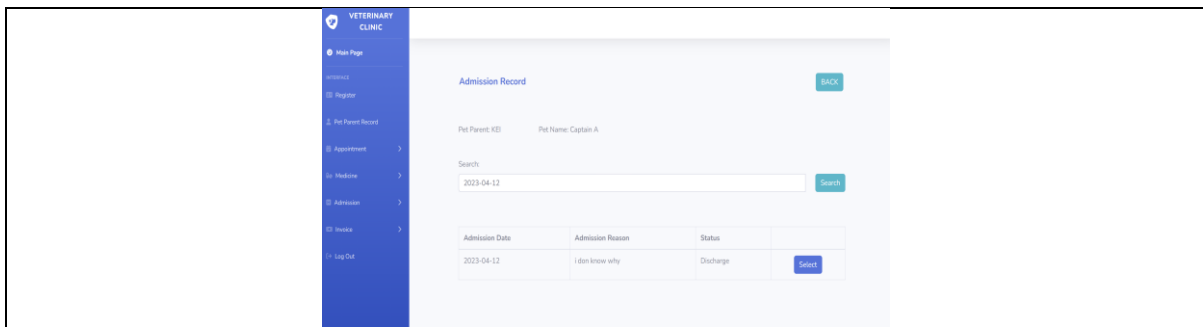


Figure 91 Search Admission Record with Admission Date

All the admission report will be show out if leave search textbox blank (Figure 89). It will not show anything if the data in the search function no match with the data store in the database (Figure 90). It will show out the record that match with the search function. (Figure 91)

4.

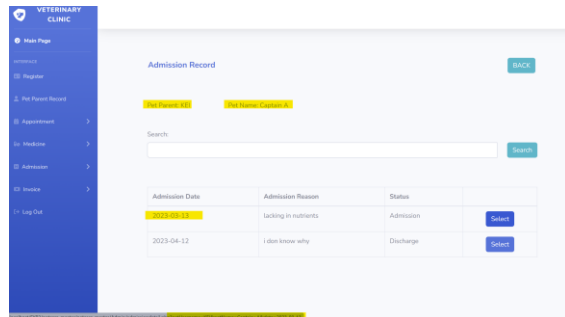


Figure 92 Admission Record Page with the Selected Pet Record

It will direct the staff to the selected admission record by passing the pet parent name, pet name, and the admission date of the selected row. (Figure 92)

Table 36 Testing Setup and Result for Add, Delete, Edit, Search for Condition section in Admission Report

1.	2.
----	----

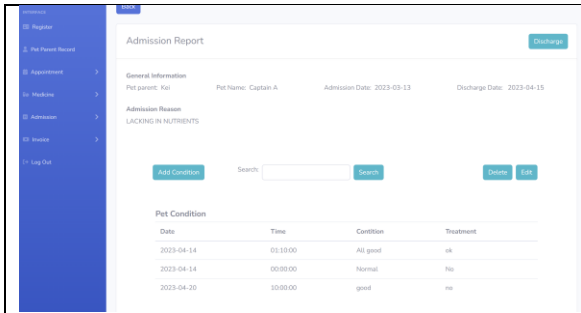


Figure 93 Admission Report Page

This is data show in the admission report before the testing. (Figure 93)

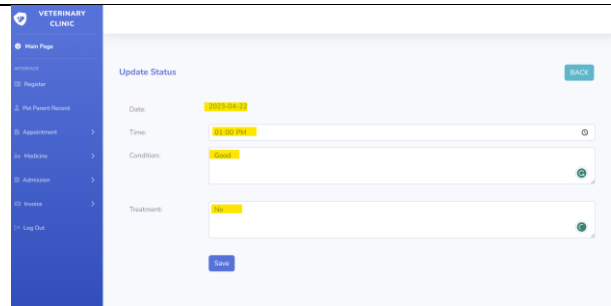


Figure 94 Add Condition in Admission Report

add pet condition. (Figure 94)

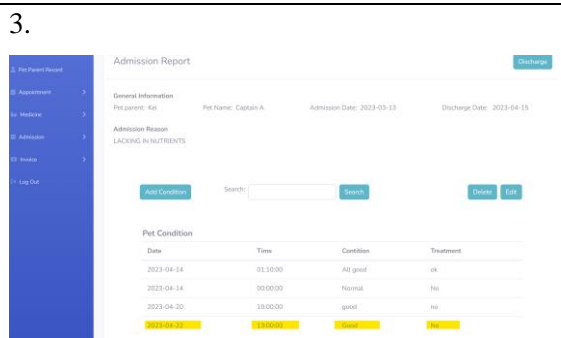


Figure 95 Condition Add Successful

The condition add is showing on the admission report. (Figure 95)

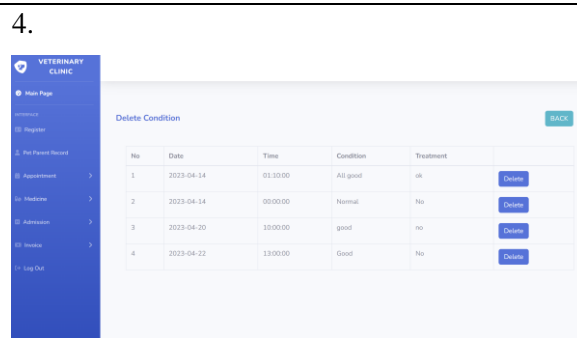


Figure 96 Delete Condition Page

This is the delete condition function when click on the delete button the selected row of data will be deleted from the database. Now perform delete for the row 3 and 4. (Figure 96)

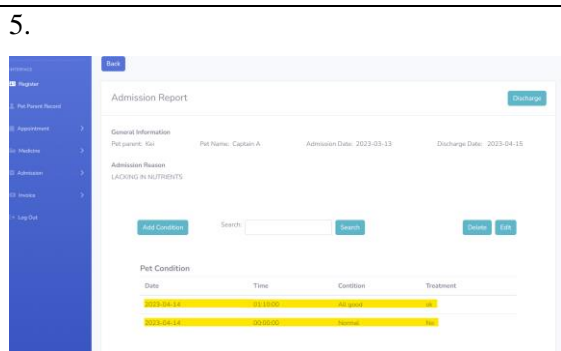


Figure 97 Delete Successful

After performing the delete now only left two row of the pet condition. (Figure 97)

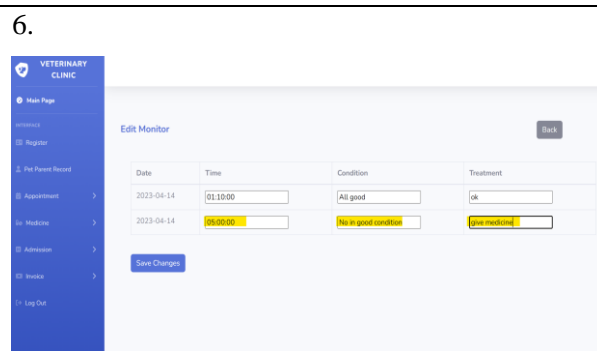


Figure 98 Edit Condition

Edit pet condition. (Figure 98)

7.

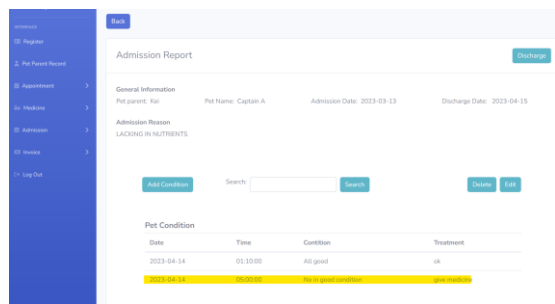


Figure 99 Condition Edit Successful

Update successful. (Figure 99)

8.

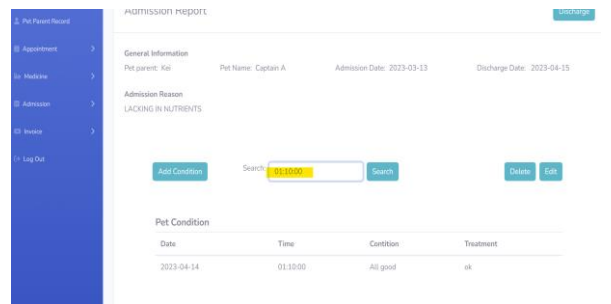


Figure 100 Search Condition by Time

The staff can use this search function to search particular condition with time, date, condition, and treatment. This is search with time. (Figure 100)

9.

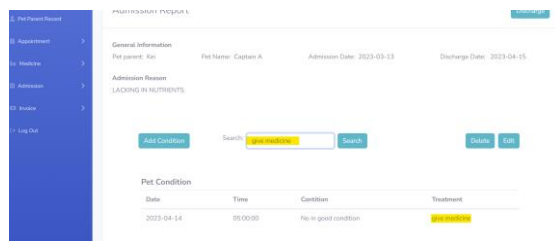


Figure 101 Search Condition by Treatment

Search with treatment. (Figure 101)

10.

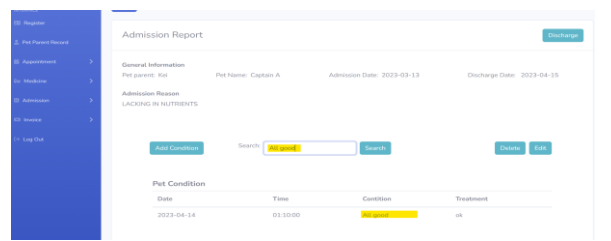


Figure 102 Search Condition by Condition

Search with condition. (Figure 102)

Table 37 Testing Setup and Result of the Add, Delete, Edit for the Medication Section in the Admission Report

1.

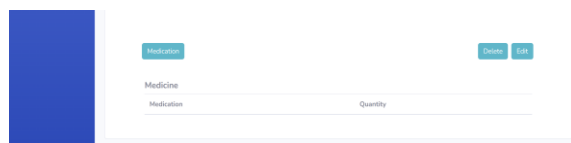


Figure 103 Medicine Section in Admission Report

This is the medicine part in the admission report before executing the function. (Figure 103, 104)

2.

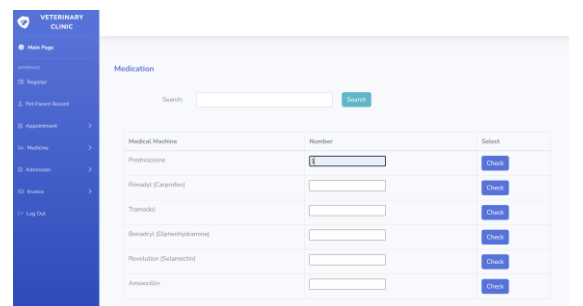


Figure 105 Add Medicine

Figure 104 Medicine Record inside Database

Add medicine. After click on check button the select medicine will be insert into the database. (Figure 105)

2.

Figure 106 Medicine Add Successful

Add successful. (Figure 106, 107)

Figure 107 Medicine Record inside Database

3.

Figure 108 Edit Medicine

Edit the number of the medicine into 2. (Figure 108)

4.

Figure 109 Edit Medicine Successful

Edit successful. (Figure 109,110)

Figure 110 Medicine Record inside Database

5.

Figure 111 Delete Medicine

Delete the medicine. (Figure 111)

6.

Figure 112 Medicine Delete Successful

Delete successful. (Figure 112,113)

Figure 113 Medicine Record inside Database

Table 38 Testing Setup and Result of Generate Medical Report in Pet Parent and Pet Record Module

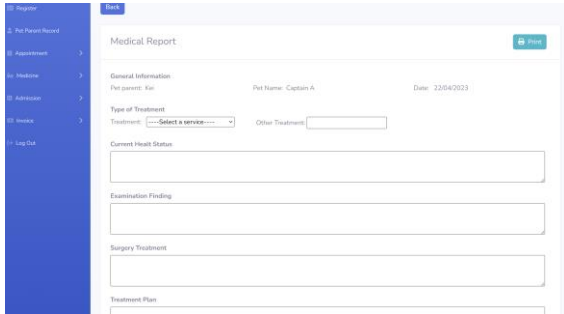
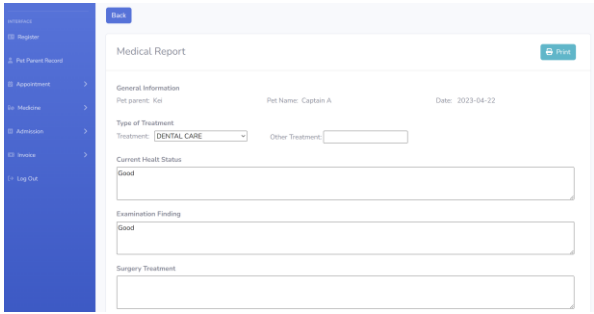

<p>1.</p>  <p>Figure 114 Medical Report Page Before generating the report. (Figure 114)</p>	<p>2.</p>  <p>Figure 115 Create Medical Report After insert the data and click save. The data will be retrieved from the database and show to the staff. (Figure 115)</p>
<p>3.</p>  <p>Figure 116 Medical Report View in PDF Format</p> <p>The medical report will show in PDF format when user click on the print button. (Figure 116)</p>	

Table 39 Testing Setup and Result of the Search Function for Medical History Section in the Pet Parent and Pet Record Module

1.	2.
----	----

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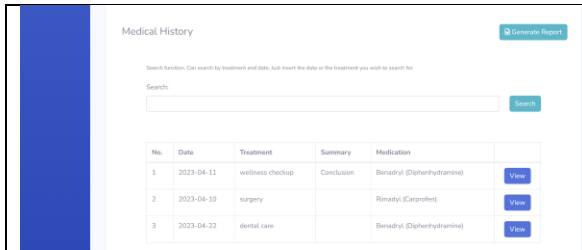


Figure 117 Search All Medical History

All the medical report will be show out if leave the search textbox blank. (Figure 117)

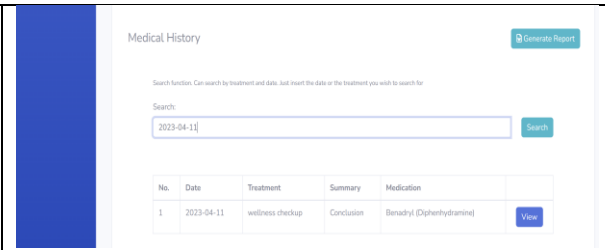


Figure 118 Search Medical History by Date

Search by time. (Figure 118)

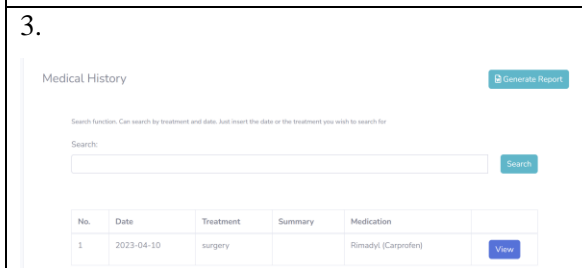


Figure 119 Search Medical History by Treatment

Search by treatment. (Figure 119)



Table 40 Testing Setup and Result for View Medical Report Function in Pet Parent and Pet Record Module

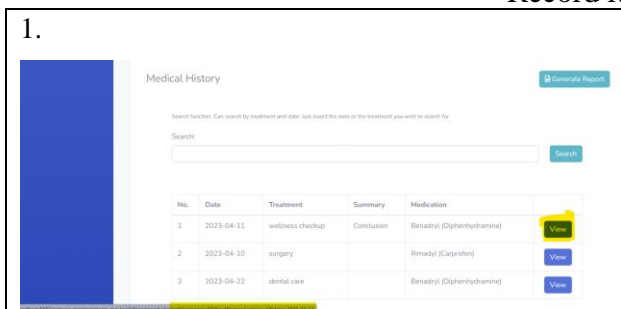


Figure 120 Select Medical History

The system will direct the staff to the medical report for the select row of the medical report. (Figure 120)

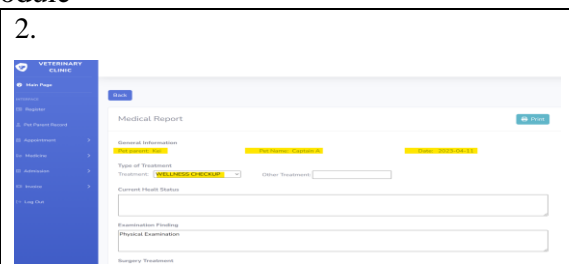
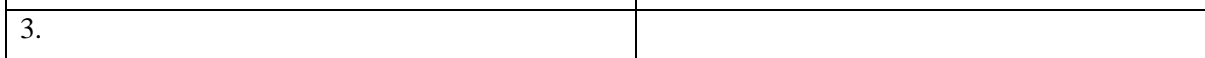


Figure 121 The Selected Medical History will be view out

The selected medical report. (Figure 121)





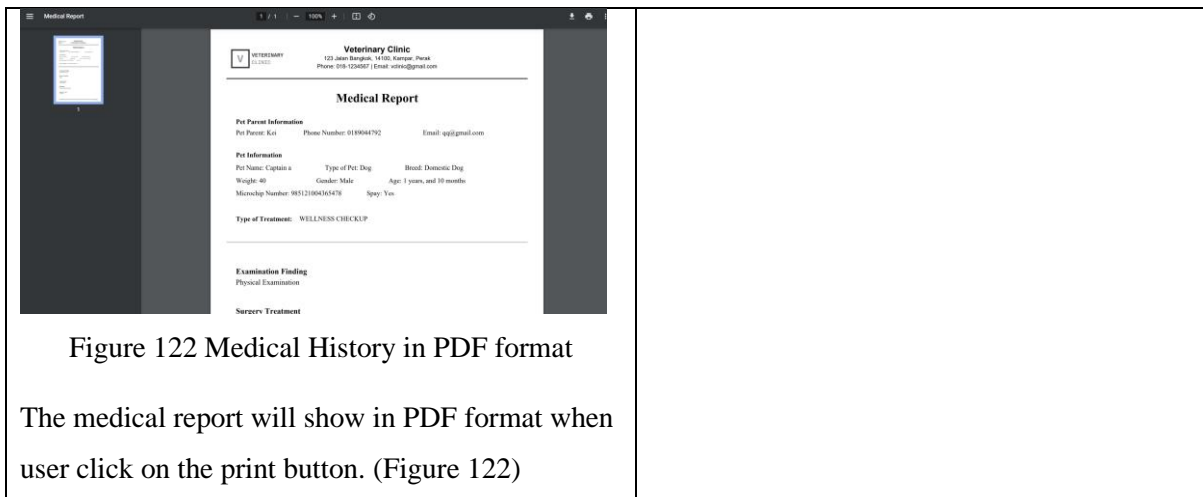


Figure 122 Medical History in PDF format

The medical report will show in PDF format when user click on the print button. (Figure 122)

### 6.2.1.5 Appointment Module Testing Setup and Result

For this appointment module is also a big module which separates the module into several submodules. Hence, there are in total 7 different testing setups and result from this module. Table 40 show the testing setup and result for the record retrieve in appointment reminder, table 41 displays the testing setup and result for notify function in appointment module, while table 42 presented the testing setup and result for make appointment in appointment module, next, table 43 demonstrated the testing setup and result for create time slot in the appointment module, furthermore, table 44 shown the testing setup and result for delete all slot in appointment module, moreover, table 45 presented the testing setup and result for appointment records in appointment module and lastly, table 46 shown the testing setup and result for search function in appointment module.

### Appointment Reminder

Table 41 Testing Setup and Result for the Record Retrieve in Appointment Reminder

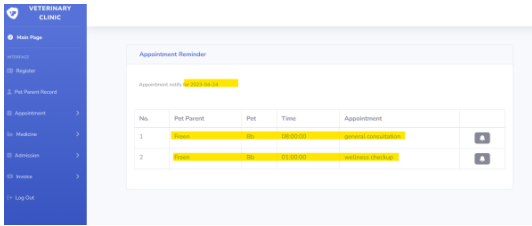


Figure 123 Appointment Database

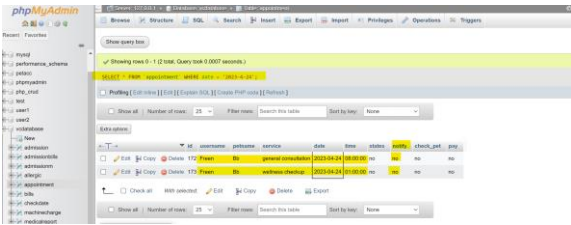
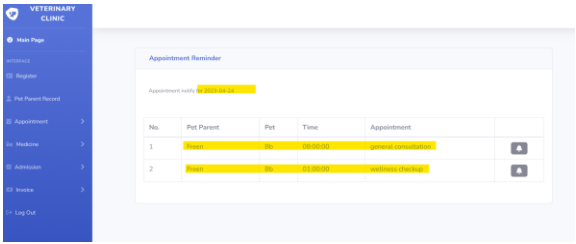
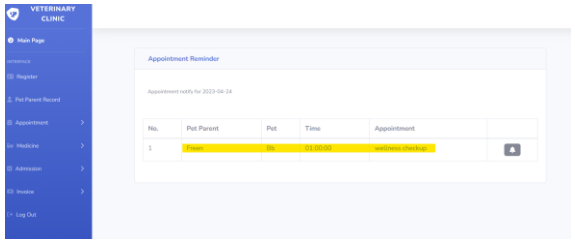


Figure 124 Appointment Reminder Page

This is the data show on the appointment reminder page (Figure 123) it is same with the data inside the database (Figure 124). Only the appointment hasn't be notify show on the page.

Table 42 Testing Setup and Result for Notify Function in Appointment Module

<p>1.</p> <div style="text-align: center; margin-bottom: 20px;">  <p>Figure 125 Notify Pet Parent</p> </div> <p>When click on the notify button, the pet owner will retrieve the SMS and it will update the notify status into database and the record will not show out after notify the pet owner. (Figure 125)</p>	<p>2.</p> <div style="text-align: center; margin-bottom: 20px;">  <p>Figure 126 After Notify the Record will not showing anymore</p> </div> <p>After notifying. (Figure 126)</p>
<p>3.</p>	<p>4.</p>

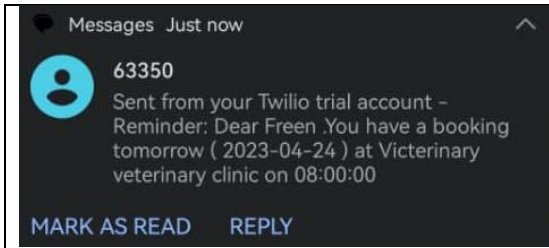


Figure 127 SMS Recieve by the Pet Owner

The pet owner will receive the reminder. (Figure 127)



Figure 128 Appointment Database

The notify status will be update in database. (Figure 128)

Book Slot

Table 43 Testing Setup and Result for Make Appointment in Appointment Module

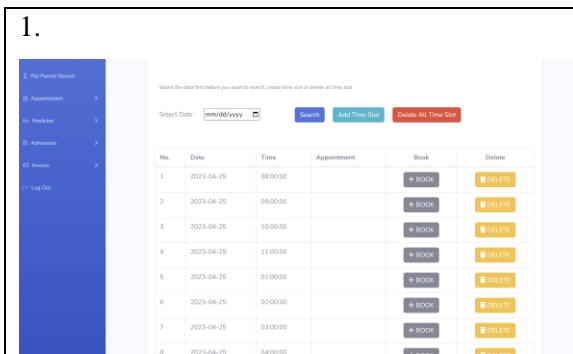


Figure 129 Book Slot Page

The time slot will show out after select the date wanted to make the appointment. (Figure 129)

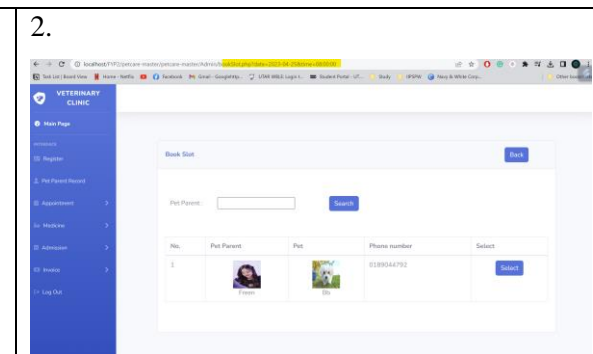


Figure 130 Select Pet Record

After select the time slot, search pet owner to make the appointment (Figure 130) .For the following book appointment process is similar with the register module.

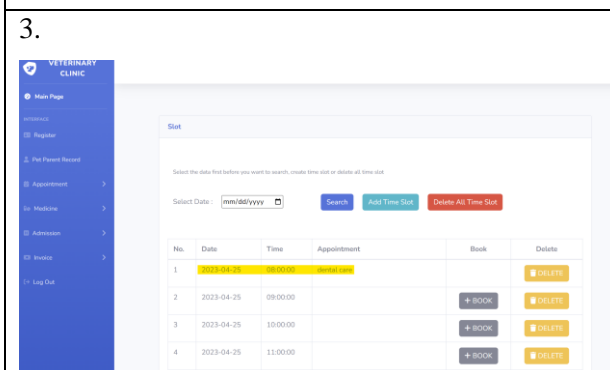


Figure 131 Book Slot successful

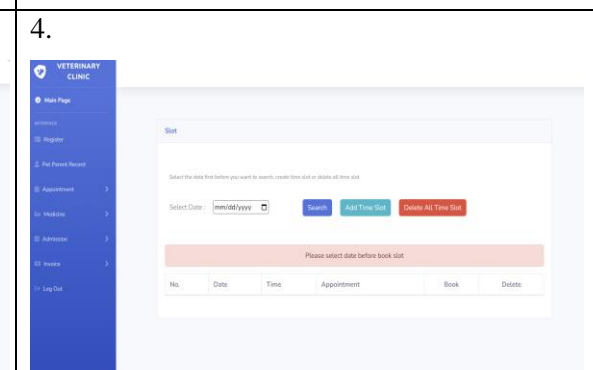


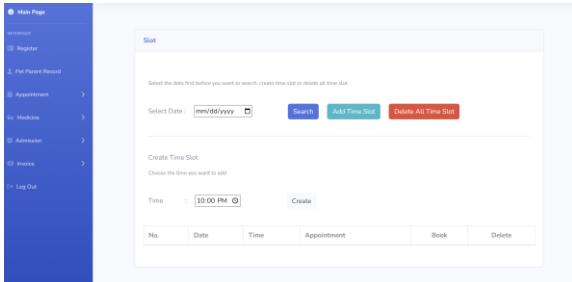
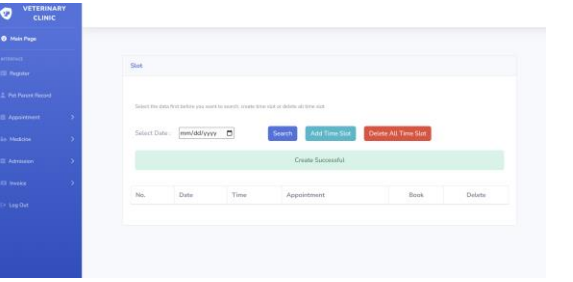

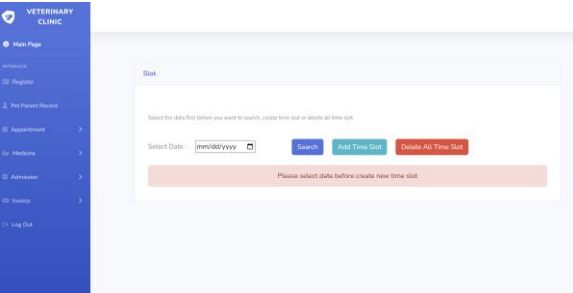
Figure 132 Error Show if didn't select Date

CHAPTER 6

<p>After making the appointment the slot is lock for the pet owner and other cannot make the appointment during the time. (Figure 131)</p>	<p>The error will show out if the staff didn't select date before start to make the appointment. (Figure 132)</p>
--	---

Create time slot

Table 44 Testing Setup and Result for Create Time Slot in the Appointment Module

<p>1.</p>  <p>Figure 133 Create Time Slot for Selected Date</p> <p>The staff can create time slot for a selected date. (Figure 133)</p>	<p>2.</p>  <p>Figure 134 Create Successful</p> <p>It will show a message when the time slot creates successful. (Figure 134)</p>
<p>3.</p>  <p>Figure 135 View Time Slot Added</p> <p>The time slot created will be show out on the date. (Figure 135)</p>	<p>4.</p>  <p>Figure 136 Error Show if didn't Select the Date</p> <p>Error show when the staff want to create time slot but didn't selete the date. (Figure 136)</p>

Delete all time slot

Table 45 Testing Setup and Result for Delete All Slot in Appointment Module

1.

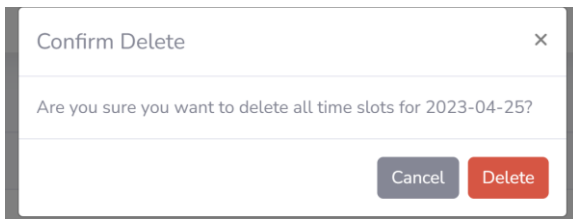


Figure 137 Delete Confirmation

After selected the date to delete all the time slot the system will prompt out a module to ask to the confirmation. (Figure 137)

2.

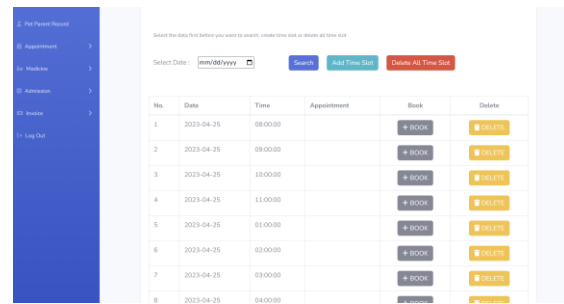


Figure 138 Time Slot for the selected Date

If click cancel, the time slot will not be deleted. (Figure 138)

3.

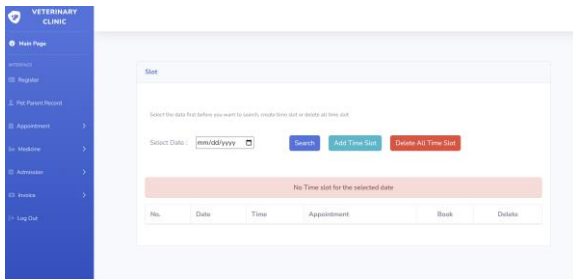


Figure 139 Delete Time Slot Successful

If click yes, all the time slot for the selected date will be deleted. If the staff try to search the time slot for the date. It will show out a message. (Figure 139)

4.

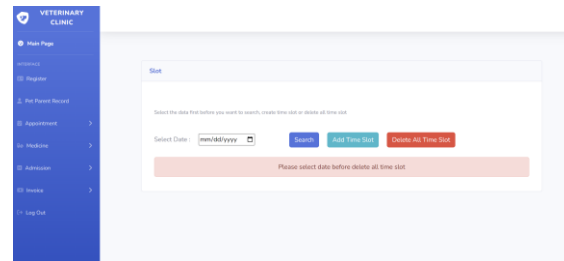


Figure 140 Error show if didn't Select Date

Error show it the staff did select the date before perform the delete all time slot function. (Figure 140)

## Appointment Records

Table 46 Testing Setup and Result for Appointment Records in Appointment Module

1.

2.

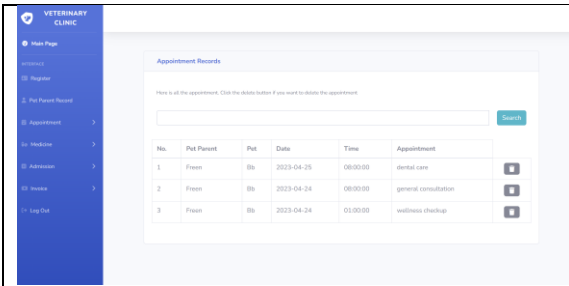


Figure 141 Appointment Record Page

Correct number of the row of appointment showing out, when the appointment is deleted, the appointment won't show again on the book slot and the slot is open for other to make appointment. (Figure 141)

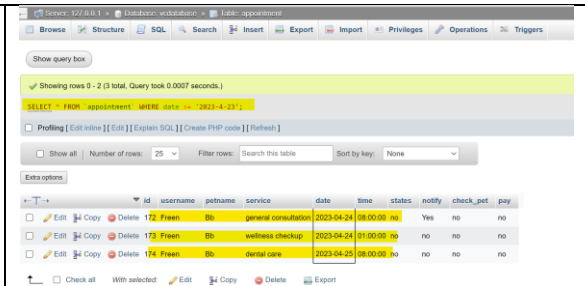


Figure 142 Appointment Database

Correct number of the row of appointment showing out. (Figure 142)

3.

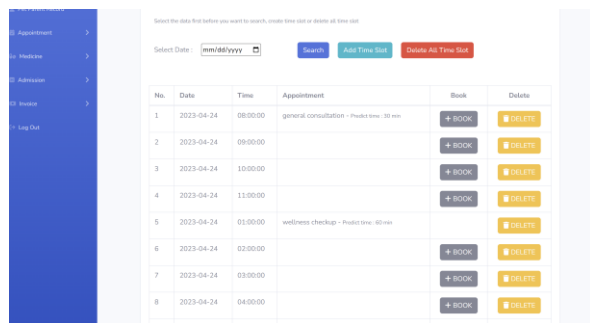


Figure 143 Book Slot Page

Here is the book slot page. (Figure 143)

4.

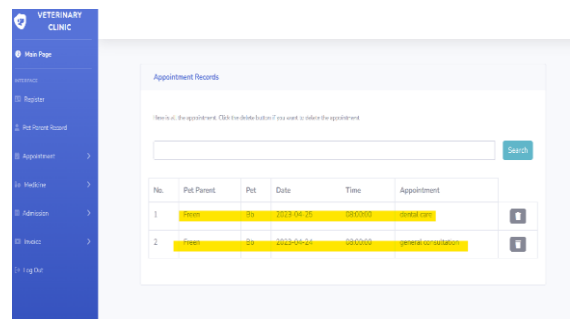


Figure 144 Delete Appointment Make

Appointment no3 is deleted, and the delete appointment will not longer showing out at the appointment record again. (Figure 144)

5.

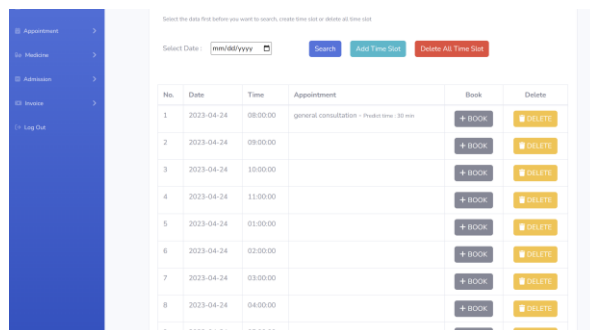


Figure 145 Appointment Delete Successful

After delete the appointment, the time slot for the selected date is free so it open up for another pet owner to make the appointment during the time. (Figure 145)

Table 47 Testing Setup and Result for Search Function in Appointment Module

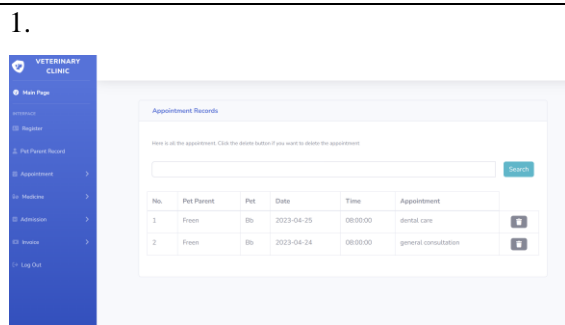


Figure 146 Appointment Record Page

Page show when we come in this page. (Figure 146)

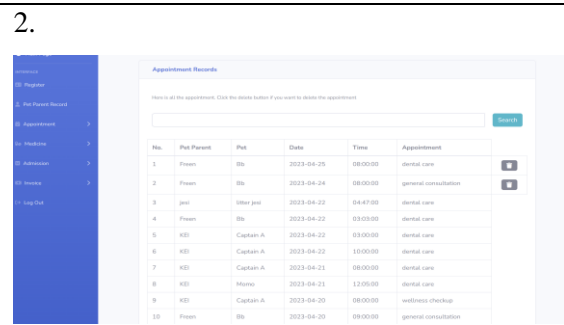


Figure 147 Search All Appointment Record

Leave the search textbox blank and click the search function, all the record will be show out. (Figure 147)

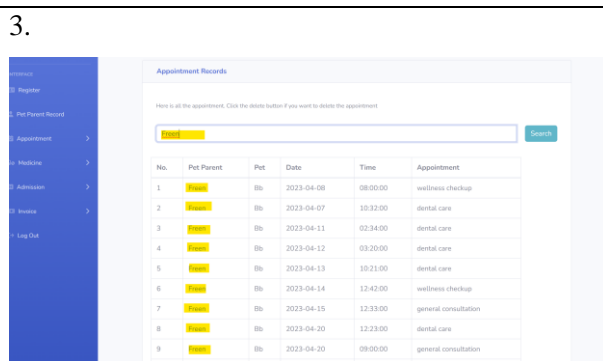


Figure 148 Search Appointment Record by Pet Parent Name

Search by pet parent name. (Figure 148)

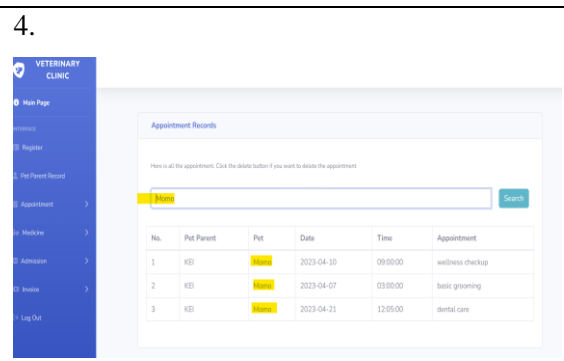


Figure 149 Search Appointment Record by Pet Name

Search by pet name. (Figure 149)

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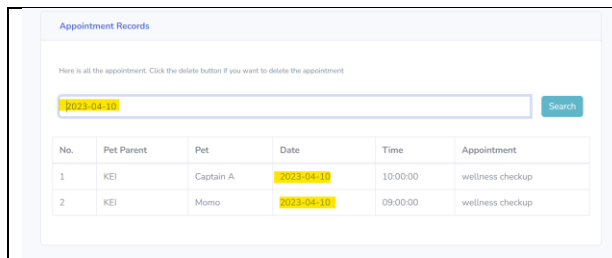


Figure 150 Search Appointment Record by Date  
Search by date. (Figure 150)

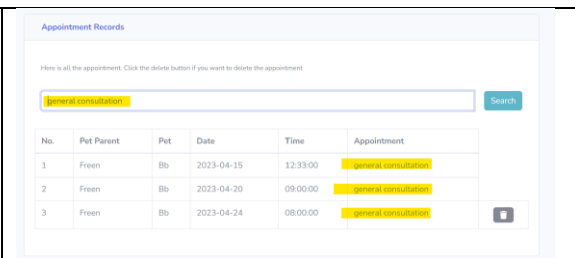


Figure 151 Search Appointment Record by Treatment  
Search by treatment. (Figure 151)

7.

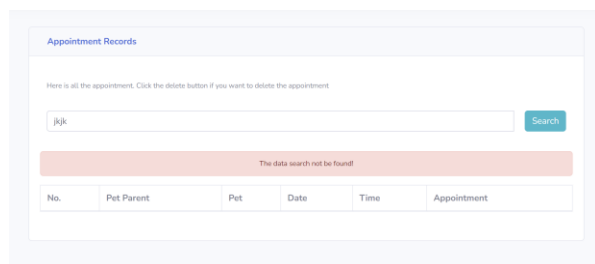


Figure 152 Search Appointment Record by Random Data  
Error will prompt out if search using random data. (Figure 152)

### 6.2.1.6 Medicine Module Testing Setup and Result

Table 47 shown the testing setup and result for medicine list in medicine module, and Table 48 displayed the testing setup and result for add medicine in medicine module.

#### Medicine list

Table 48 Testing Setup and Result for Medicine List in Medicine Module

1.



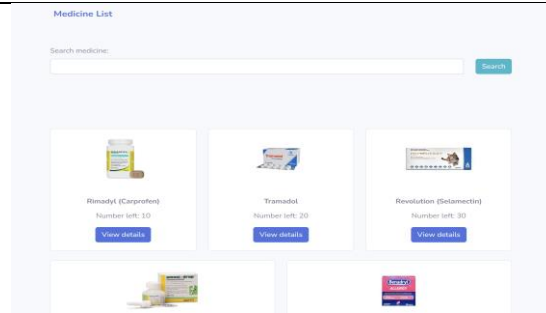


Figure 153 Medicine Database

Extra options										
	id	medicine	indication	dosage	side_effect	contraindications	picture	num	use_for	price
<input type="checkbox"/>	7	Rimadyl (Carprofen)	Pain and inflammation relief	2mg per pound of body weight, twice daily	Vomiting, diarrhea, loss of appetite, liver and kidney...	Dogs with liver or kidney disease, or bleeding di...	[Rimadyl - 22.7 KB]	10	DOG	15
<input type="checkbox"/>	6	Tramadol	Pain relief	0.5mg to 1mg per pound of body weight, every 8 to 12 hours	Sedation, vomiting, diarrhea, loss of appetite, c...	Dogs with liver or kidney disease, or history of s...	[Tramadol - 307.0 KB]	20	DOG	10
<input type="checkbox"/>	9	Rimadyl (Carprofen)	Allergy relief, itching	1mg per pound of body weight, every 8 to 12 hours	Drowsiness, dry mouth, decreased appetite	Dogs with glaucoma, high blood pressure, heart di...	[Rimadyl - 5.8 KB]	50	DOG	15
<input type="checkbox"/>	10	Revolution (Selamectin)	Flea, tick, ear mite, and heartworm prevention	Apply topically, one dose per month, according to ...	Hair loss, itching, vomiting, diarrhea, lethargy	Kittens under 8 weeks of age	[Revolution - 6.3 KB]	30	CAT	10
<input type="checkbox"/>	11	Amoxicillin	Antibiotic for bacterial infections	Varies depending on condition, usually 5mg to 10mg...	Vomiting, diarrhea, loss of appetite, allergic rea...	Cats with a known allergy to penicillin or cephalo...	[Amoxicillin - 44.4 KB]	30	CAT	10

Figure 154 Medicine List Page

All the medicine (Figure 153) is retrieved from the database (Figure 154).

2.

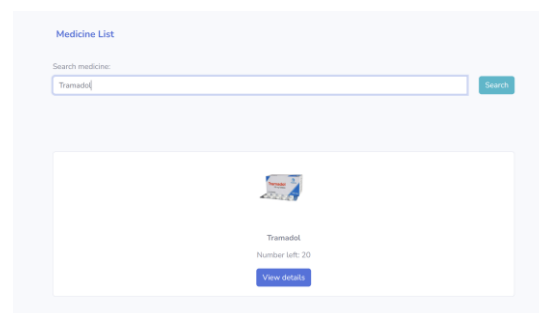


Figure 155 Search Medicine

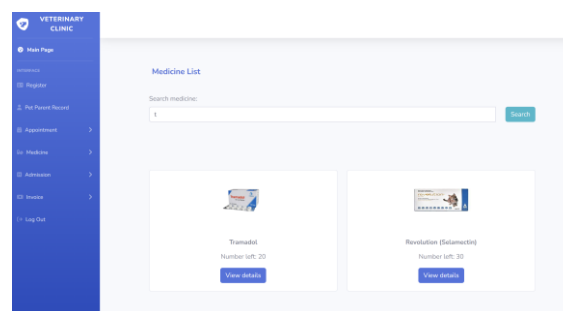


Figure 156 Search Medicine

The medicine search will be show out if search will the valid medicine name or similar name. (Figure 155,156)

3.

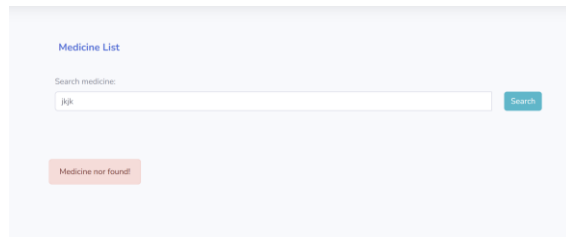


Figure 157 Search Medicine by Random Data

Error message will show if the text insert not match with the database. (Figure 157)

4.

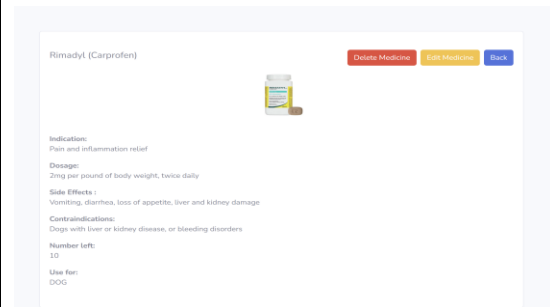


Figure 158 View Medicine Detail

When click on the view detail button it will show out all the detail of the medicine. (Figure 158)

5.

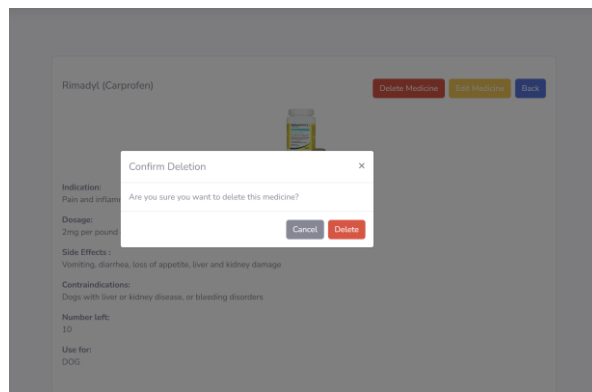


Figure 159 Delete Confirmation

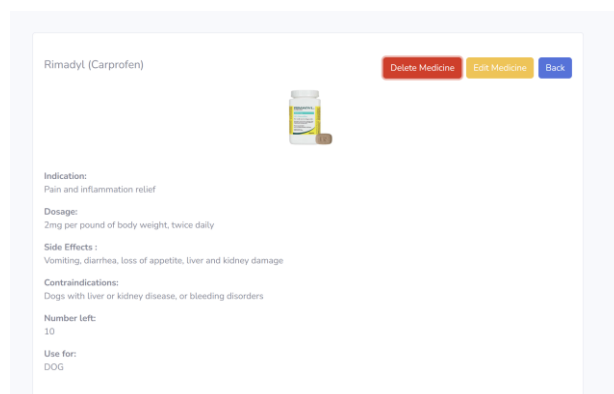


Figure 160 Cancel Delete

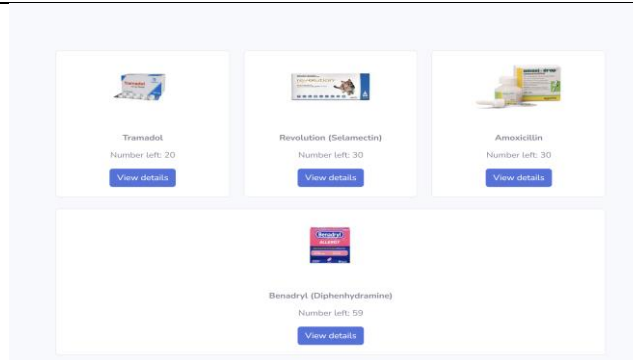


Figure 161 Delete Successful

The system will prompt out an alert module (Figure 159) to confirm the deletion. If click on cancel nothing change (Figure 160). But if click on delete the medicine will be deleted. (Figure 161)

6.

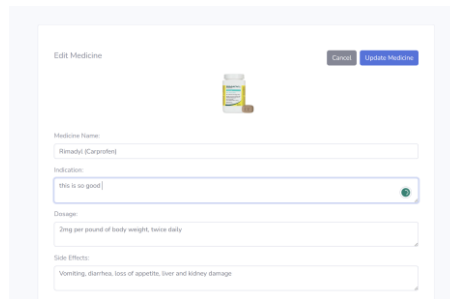


Figure 162 Edit Medicine Detail

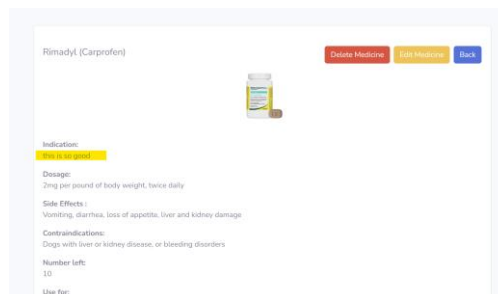


Figure 163 Edit Successful

It will redirect the staff to another page to perform the edit process (Figure 162). After the staff save change, the new change will be updated. (Figure 163)

### Add medicine

Table 49 Testing Setup and Result for Add Medicine in Medicine Module

1.	2.
----	----

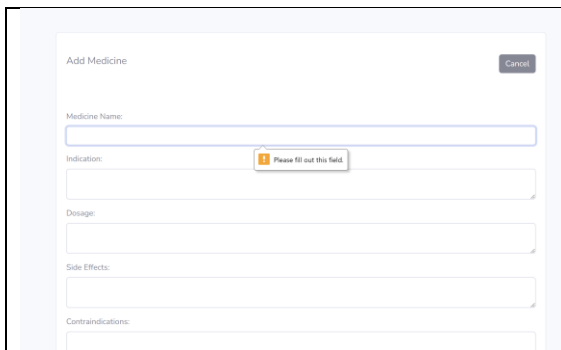


Figure 164 Error show

The system will prompt out error message if the staff try to save the medicine without insert any text in the textbox. (Figure 164)

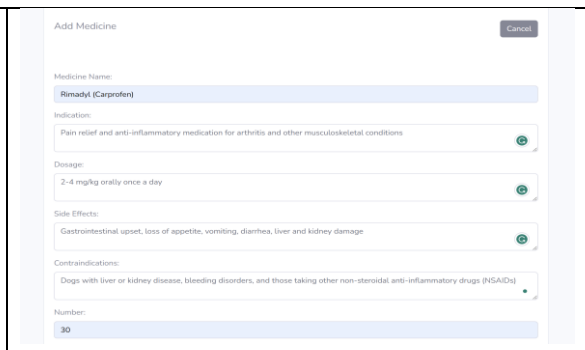


Figure 165 Add Medicine

Add medicine. (Figure 165)

3.

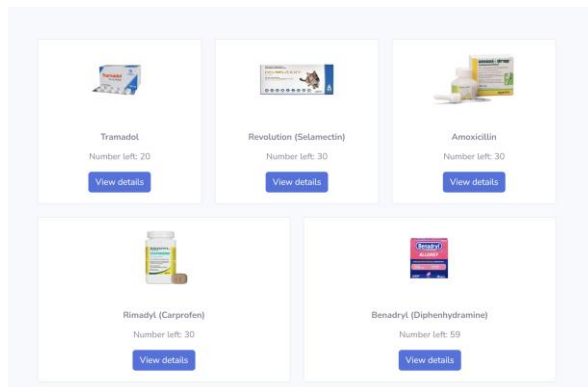


Figure 166 Medicine Add Successful

Medicine add successful. (Figure 166,167)

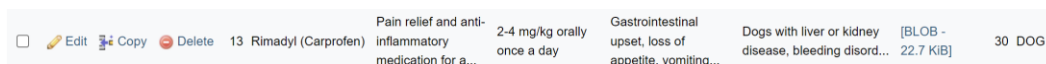


Figure 167 Medicine Database

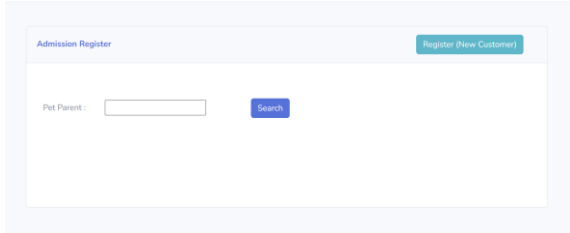
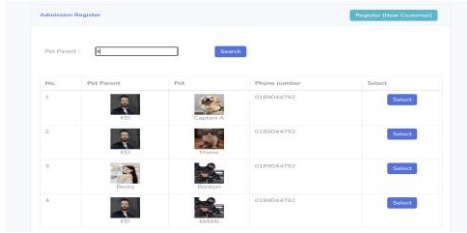
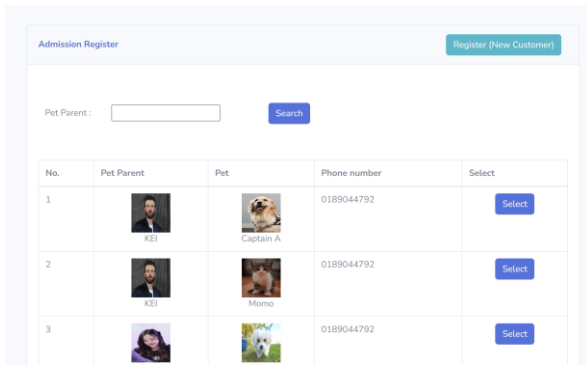
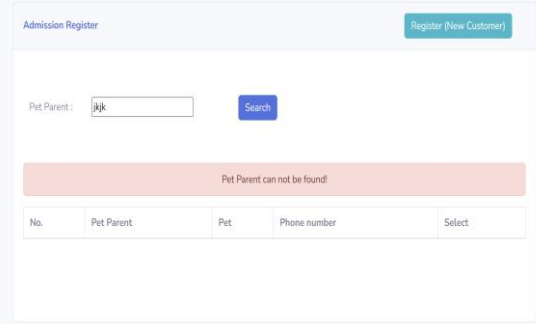
### 6.2.1.7 Admission Module Testing Setup and Result

Table 49 showing the testing setup and result for admission registration in admission register for admission module, table 50 displayed the testing setup and result for register new pet owner

in admission register for admission module, and table 51 presented the testing setup and result for admission records in admission module.

Admission register

Table 50 Testing Setup and Result for Admission Registration in Admission Register for Admission Module

<p>1.</p>  <p>Figure 168 Admission Register Page</p> <p>Here is the admission registers page need to search the pet parent name. the pet owner must have record only can make the admission registration. (Figure 168)</p>	<p>2.</p>  <p>Figure 169 Search Pet Parent Record by Pet Parent Name</p> <p>Insert the pet owner name. it will retrieve all the pet owner with match the text search. (Figure 169)</p>
<p>3.</p>  <p>Figure 170 Search All Pet Parent Record</p> <p>All the records will be retrieved if didn't insert anything in the search textbox. (Figure 170)</p>	<p>4.</p>  <p>Figure 171 Search Pet Parent Record with Random Data</p> <p>It will prompt out error when not such pet parent record. (Figure 171)</p>
<p>5.</p>	<p>6.</p>

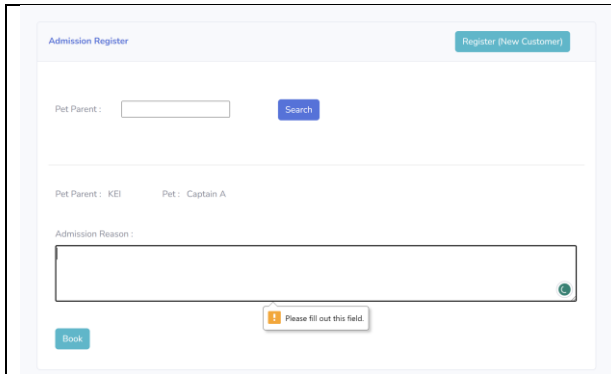


Figure 172 Error show Out

It will prompt out an error if the staff didn't insert the admission reason and click register button. (Figure 172)

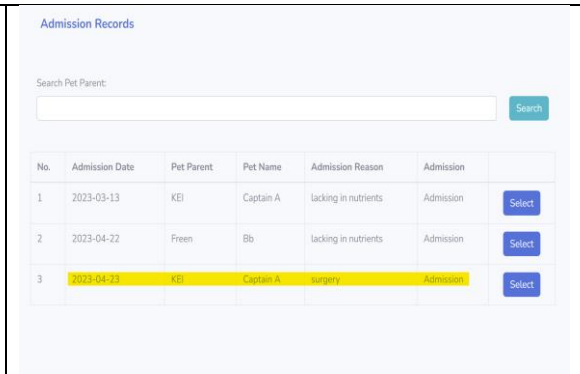


Figure 173 Admission Register Successful

It will show out the admission record page when admission register successful. (Figure 173)

Table 51 Testing Setup and Result for Register New Pet Owner in Admission Register for Admission Module

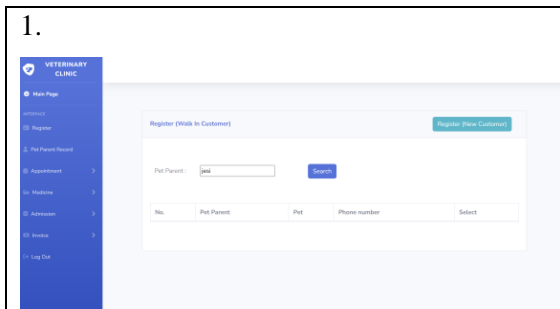


Figure 174 Register New Pet Owner

Create a new account for the new pet owner (jesi) (Figure 174)

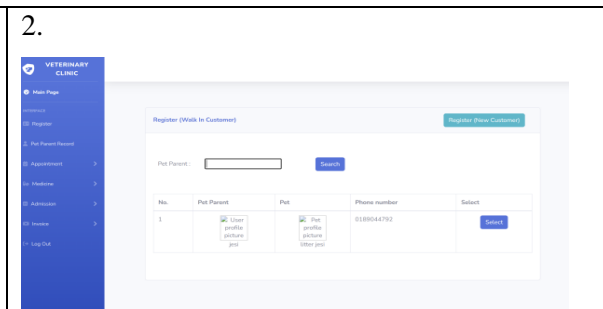


Figure 175 New Pet Owner Register Successful

After created the account the record will be show out and can be able to make the registration. (Figure 175)

Admission records

Table 52 Testing Setup and Result for Admission Records in Admission Module



Admission Records

Search Pet Parent:  Search

No.	Admission Date	Pet Parent	Pet Name	Admission Reason	Admission	
1	2023-03-13	KEI	Captain A	Lacking in nutrients	Admission	Select
2	2023-04-22	Freen	Bb	lacking in nutrients	Admission	Select
3	2023-04-23	KEI	Captain A	surgery	Admission	Select

Figure 176 Admission Record

Showing rows 0 - 4 (5 total. Query took 0.0003 seconds.)

```
SELECT * FROM `admission`
```

id	username	petsname	admissiondate	admissionreason	status	discharge date	pay
2	KEI	Captain A	2023-04-12	i don know why	Discharge	2023-04-15	pay
3	KEI	Captain A	2023-03-13	lacking in nutrients	Admission	NULL	no
4	Freen	Bb	2023-04-22	lacking in nutrients	Admission	NULL	no
6	KEI	Captain A	2023-04-23	surgery	Admission	NULL	no

Figure 177 Admission Database

When go inside the page all the record show are under the status of admission. (Figure 176,177)

2.

Admission Records

Search Pet Parent:  Search

No.	Admission Date	Pet Parent	Pet Name	Admission Reason	Admission	
1	2023-03-13	KEI	Captain A	lacking in nutrients	Admission	Select

Figure 178 Search Admission Record by Admission Date

Admission Records

Search Pet Parent:  Search

No.	Admission Date	Pet Parent	Pet Name	Admission Reason	Admission	
1	2023-03-13	KEI	Captain A	lacking in nutrients	Admission	Select
2	2023-04-23	KEI	Captain A	surgery	Admission	Select

Figure 179 Search Admission Record by Pet Parent Name

Admission Records

Search Pet Parent:  Search

No.	Admission Date	Pet Parent	Pet Name	Admission Reason	Admission	
1	2023-04-22	Freen	Bb	lacking in nutrients	Admission	Select

Figure 180 Search Admission Record by Pet Name

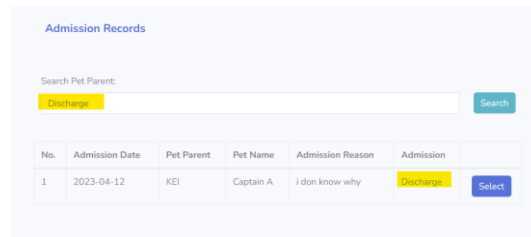


Figure 181 Search Admission Record by Admission Status

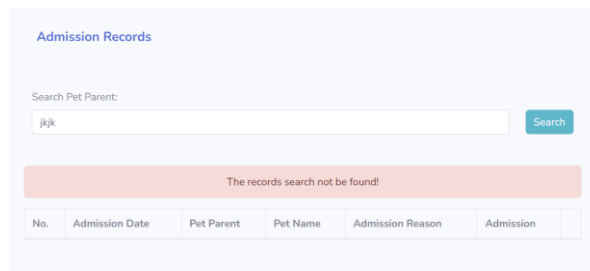


Figure 182 Search Admission Record by Random Data

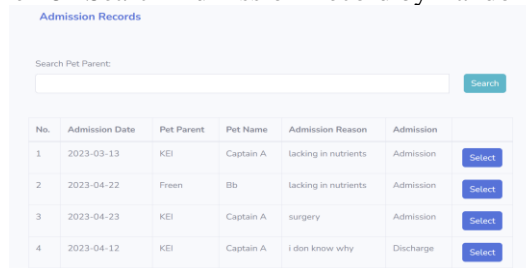


Figure 183 Search All Admission Record

Search function is work well. It can use to search by admission date (Figure 178), pet parent (Figure 179), pet name (Figure 180), and admission status (Figure 181). It will show an error if the text insert didn't match the data in the database (Figure 182). If no insert anything and click on the search all the record will be show out. (Figure 183)

3.

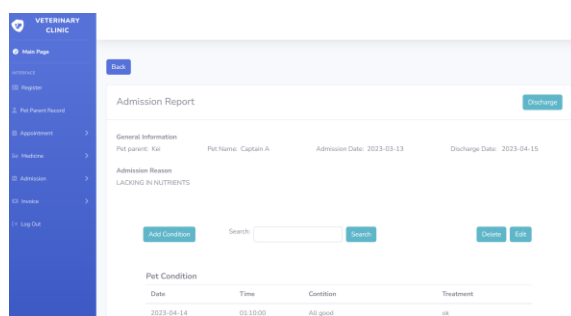


Figure 184 Admission Report Page

It will navigate the staff to the admission report page. If the status is under admission, it will be able to insert or update the report. (Figure 184)

4.

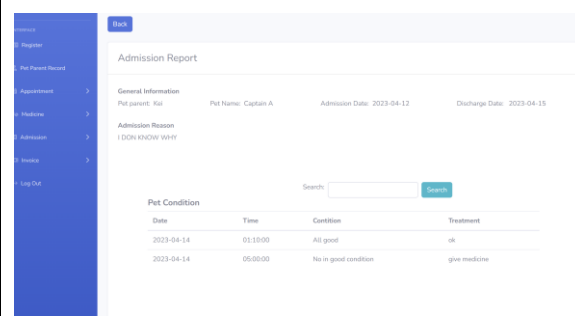


Figure 185 Admission Report Page

It will navigate the staff to the admission report page. If the status is under discharge, the report only can be view by the staff. (Figure 185)



--	--

### 6.2.1.8 Invoice Module Testing Setup and Result

For invoice module it is also one of the larger modules which have several submodules inside this invoice module. Therefore, there are 7 different tables showing the different testing setup and result for each function inside this module. Table 52 shown the testing setup and result for record retrieve in bills for invoice module, table 53 presented the testing setup and result for the function inside the invoice generate in bills for invoice module, next, table 54 displayed the testing setup and result for the record retrieve in the bills records for the invoice module, while, table 55 illustrated the testing setup and result for the view function in the bills record for the invoice function, table 56 shown the testing setup and result of the search function in bills record for invoice module, table 57 present the testing setup and result for the admission bills in the invoice module, and lastly, Table 58 shown the testing setup and result of the admission bills record in the invoice module.

## Bills

Table 53 Testing Setup and Result for Record Retrieve in Bills for Invoice Module

1.



Figure 186 Bills Page

Medical Report

General Information  
 Pet parent: [Name] Pet Name: [Name] Date: [Date]

Type of Treatment  
 Treatment: [Select a service]

Current Health Status  
 [Text Area]

Examination Findings  
 [Text Area]

Surgery Treatment  
 [Text Area]

Treatment Plan  
 [Text Area]

Figure 187 Medical Report Page

The bills will only have record after the pet is checked or treated. Inside the bills page will no show the record if didn't generate the medical report. (Figure 186, 187)

2.

Bills

No.	Pet Parent	Pet	Treatment	
1	[Name]	[Name]	[Dental Care]	[Pay]

Figure 188 Bills Page

Medical Report

General Information  
 Pet parent: [Name] Pet Name: [Name] Date: [Date]

Type of Treatment  
 Treatment: [Select a service]

Current Health Status  
 [Text Area]

Examination Findings  
 [Text Area]

Surgery Treatment  
 [Text Area]

Treatment Plan  
 [Text Area]

Figure 189 Medical Report Page

The bills page will show the record only when the report is generated. (Figure 188, 189)

Table 54 Testing Setup and Result for The Function inside the Invoice Generate in Bills for Invoice Module

1.

Invoice Generate

General Information  
 Pet parent: [Name] Pet Name: [Name] Date: 2023-04-23

Type of Treatment  
 Treatment: Dental care

[Service] [Medicine] [Medication] [Additional] [Delete] [Edit]

Item	Description	Quantity	Price	Amount
	Consultation Fee	1	50	50
	Benzyl (Diphenhydramine)	1	15	15
Total				65

[Save]

Figure 190 Invoice Generate Page

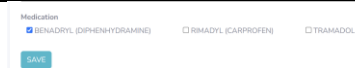


Figure 191 Medication Section under Medical Report Page

Test the function inside the invoice generate (all the prices will be auto calculated). The consultation fee is automatically added into the invoice, no matter what treatment (Figure 190). The medicine is from the medical report. (Figure 191)

2.

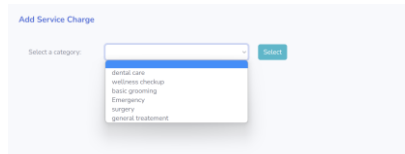


Figure 192 Add Service Charge Page

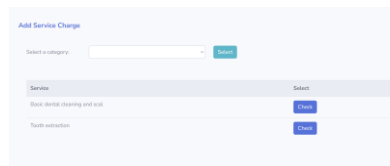


Figure 193 Add Service

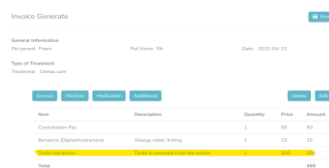


Figure 194 Service Add Successful

Staff can add the service charge by click on the serve button, select category (Figure 192) then check the the service perform (Figure 193). The service checked will show on inside the invoice. (Figure 194)

3.

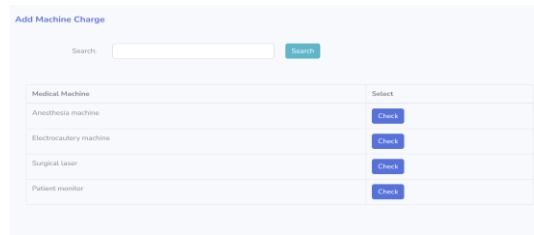


Figure 195 Search All Machine Charge

The screenshot shows a successful machine add, displaying a table of items in an invoice. The table has columns for 'Item', 'Description', 'Quantity', 'Price', and 'Amount'. The items listed are: Consultation Fee, Benadryl (Diphenhydramine), Tooth extraction, Anesthesia machine, and a Total row.

Item	Description	Quantity	Price	Amount
Consultation Fee		1	50	50
Benadryl (Diphenhydramine)	Allergy relief, itching	1	15	15
Tooth extraction	Tooth is removed from the mouth	1	300	300
Anesthesia machine	Delivers and monitors the anesthetics that keeps the pet unconscious and pain-free during the surgery	1	150	150
<b>Total</b>				<b>515</b>

Figure 196 Machine Add Successful

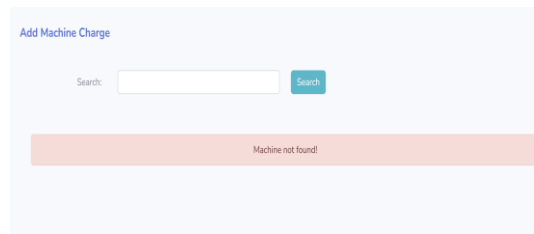


Figure 197 Search Machine with Random Data

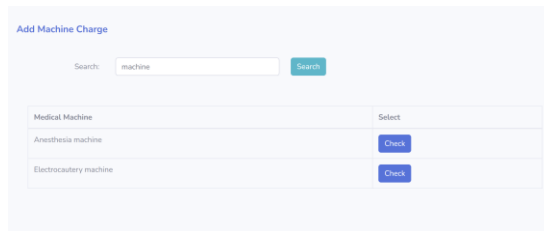


Figure 198 Search machine by Machine name

Staff can add the machine charge by click on the machine button, check on the machine wanted to charge (Figure 195), then the machine checked will add inside the invoice (Figure 196). As the same the search function inside the machine charge page work well. It will prompt out error when the user insert wrong machine name (Figure 197), retrieve data when the machine name is match in the database. (Figure 198)

4.

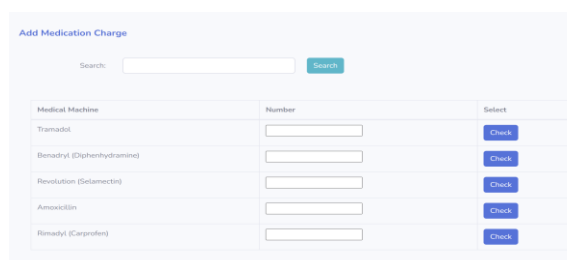


Figure 199 Add Medicine Page

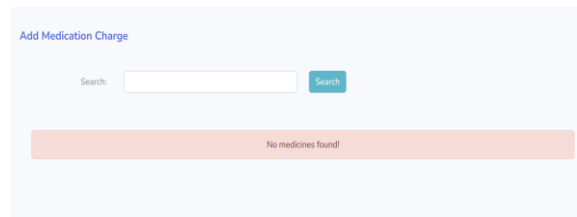


Figure 200 Search Medicine with Random Data

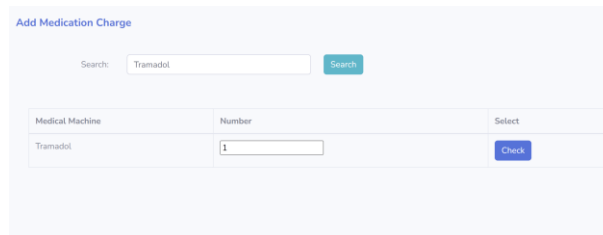


Figure 201 Search Medicine with Medicine Name

Item	Description	Quantity	Price	Amount
Consultation Fee		1	50	50
Benadryl (Diphenhydramine)	Allergy relief, itching	1	15	15
Tooth extraction	Tooth is removed from the mouth	1	300	300
Anesthesia machine	Delivers and monitors the anesthesia that keeps the pet unconscious and pain-free during the surgery	1	150	150
Tramadol	Pain relief	1	50	50
<b>Total</b>				<b>525</b>

Figure 202 Medicine Add successful

id	medicine	indication	dosage	side_effect	contraindications	picture	unit	use_for	price
	Tramadol	Pain relief	0.5mg to 1mg per pound of body weight, every 8 to	Sedation, vomiting, diarrhea, loss of appetite, c...	Dogs with liver or kidney disease, or history of s...		DOG		10

Figure 203 Before Add Medicine

id	medicine	indication	dosage	side_effect	contraindications	picture	unit	use_for	price
	Tramadol	Pain relief	0.5mg to 1mg per pound of body weight, every 8 to	Sedation, vomiting, diarrhea, loss of appetite, c...	Dogs with liver or kidney disease, or history of s...		DOG		10

Figure 204 After Add Medicine

Staff can add medicine by click on the medication button, insert value and check on the medicine wanted to add (Figure 199), then the medicine checked will add inside the invoice (Figure 202,203,204). As the same the search function inside the medicine page work well. It will prompt out error when the user insert wrong medicine name (Figure 200), retrieve medicine when the medicine name is match in the database. (Figure 201)

5.

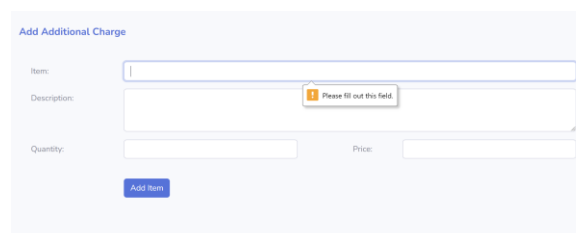


Figure 205 Error show

Figure 206 Add Additional Charge

Item	Description	Quantity	Price	Amount
Consultation Fee		1	50	50
Benadryl (Diphenhydramine)	Allergy relief, itching	1	15	15
Tooth extraction	Tooth is removed from the mouth	1	300	300
Anesthesia machine	Delivers and monitors the anesthesia that keeps the pet unconscious and pain-free during the surgery	1	150	150
Tramadol	Pain relief	1	10	10
additional charge		3	10	30
Total				555

Figure 207 Add Additional Charge Successful

Staff can add additional charge by click on the additional button, insert the information and click the add item button (Figure 206), then the additional charge will add inside the invoice(Figure 207). It will prompt out error if the staff didn't insert data and try to add the item. (Figure 205)

6.

No	Item	Quantity	Price	Amount
1	Benadryl (Diphenhydramine)	1	15	15
2	Tooth extraction	1	300	300
3	Anesthesia machine	1	150	150
4	additional charge	3	10	30

Figure 208 Delete

Item	Description	Quantity	Price	Amount
Consultation Fee		1	50	50
Tooth extraction	Tooth is removed from the mouth	1	300	300
Anesthesia machine	Delivers and monitors the anesthesia that keeps the pet unconscious and pain-free during the surgery	1	150	150
additional charge		3	10	30
Total				530

Figure 209 Delete Successful

medicine	indication	dosage	side_effect	contraindications	picture	use_for	price
Tramadol	Pain relief	0.5mg to 1mg per pound of body weight, every 8 to 12 hours	Sedation, vomiting, diarrhea, loss of appetite, c...	Dogs with liver or kidney disease, or history of a...	[PIC]	DOG	10
Benadryl (Diphenhydramine)	Allergy relief, itching	1mg per pound of body weight, every 8 to 12 hours	Drowsiness, dry mouth, decreased appetite	Dogs with glaucoma, high blood pressure, heart di...	[PIC]	DOG	15

Figure 210 Before Delete

medicine	indication	dosage	side_effect	contraindications	picture	use_for	price
Tramadol	Pain relief	0.5mg to 1mg per pound of body weight, every 8 to 12 hours	Sedation, vomiting, diarrhea, loss of appetite, c...	Dogs with liver or kidney disease, or history of a...	[PIC]	DOG	10

Figure 211 After Delete

Click on the delete button the row of data will be deleted, and the database will be updated. (Figure 210, 208 ,209 ,211)

7.

Item	Description	Quantity	Price
Tooth extraction	Tooth is removed from the mouth	1	300
Anesthesia machine	Delivers and monitors the anesthesia that keeps the pet unconscious and pain-free during the surgery	1	150
additional charge		3	10

Figure 212 Edit Page

Item	Description	Quantity	Price
Tooth extraction	Tooth is removed from the mouth	1	300
Anesthesia machine	Delivers and monitors the anesthesia that keeps the pet unconscious and pain-free during the surgery	1	150
additional charge		3	10

Figure 213 Edit

Item	Description	Quantity	Price	Amount
Consultation Fee		1	50	50
Tooth extraction	Tooth is removed from the mouth	1	300	300
Anesthesia machine	Delivers and monitors the anesthesia that keeps the pet unconscious and pain-free during the surgery	1	150	150
additional charge		3	10	30
Total				680

Figure 214 Edit Successful

The edit function is performed well. (Figure 212, 213, 214)

8.

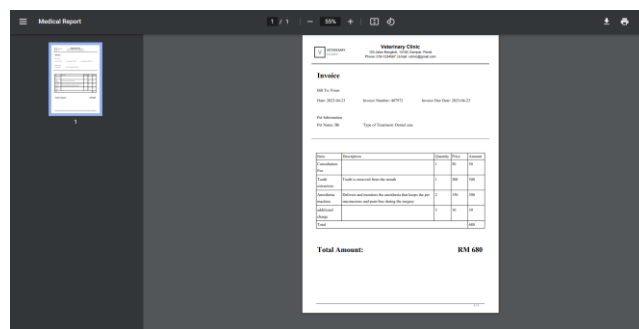


Figure 215 Invoice view in PDF format

The bills able to show in PDF format. (Figure 215)

## Bills Records

Table 55 Testing Setup and Result for the Record Retrieve in the Bills Records for the Invoice Module

1.

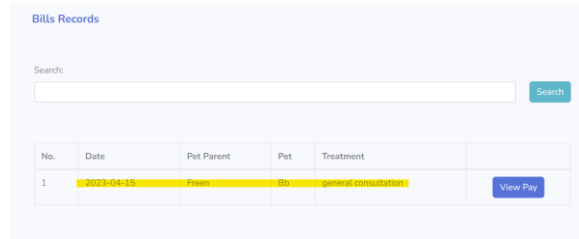


Figure 216 Bills Record Page

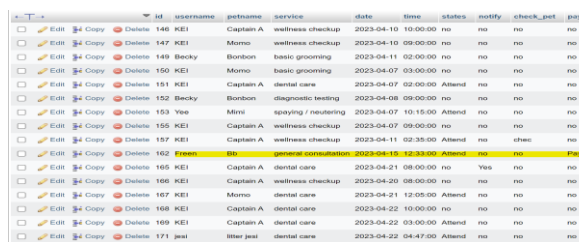


Figure 217 Appointment Database

The bills retrieved is under the status of pay. (Figure 216, 217)

Table 56 Testing Setup and Result for the View Function in the Bills Record for the Invoice Function

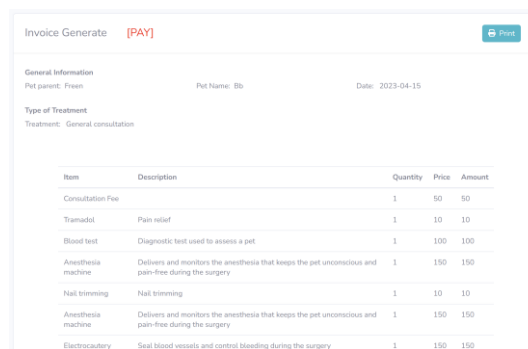


Figure 218 View Invoice Page



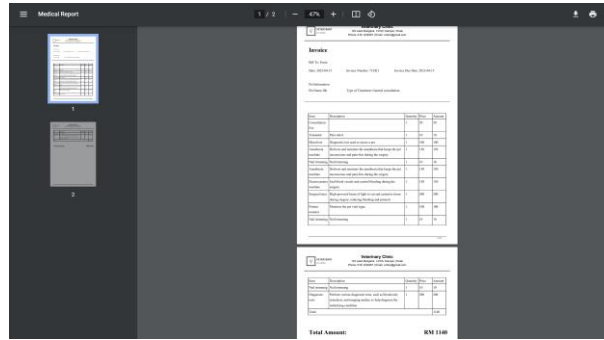


Figure 219 Invoice able to view in PDF format

When click on view pay the staff are able to see the detail of the pay (Figure 218). When click on the print the invoice is able to view in PDF format. (Figure 219)

Table 57 Testing Setup and Result of the Search Function in Bills Record for Invoice Module

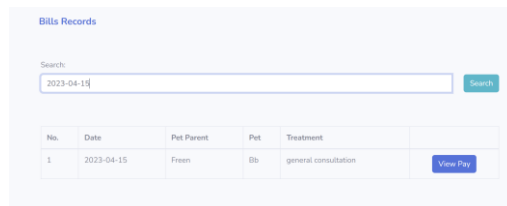


Figure 220 Search bills record by Date

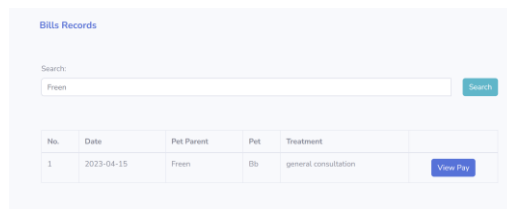


Figure 221 Search bills record by Pet Parent Name

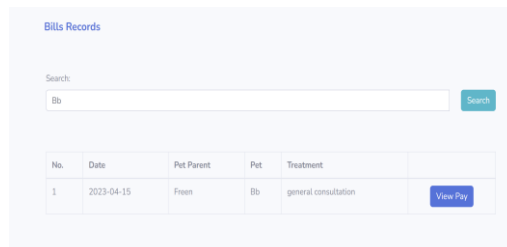


Figure 222 Search bills record by Pet Name

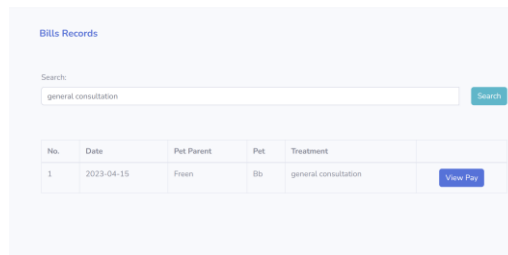


Figure 223 Search bills record by Treatment

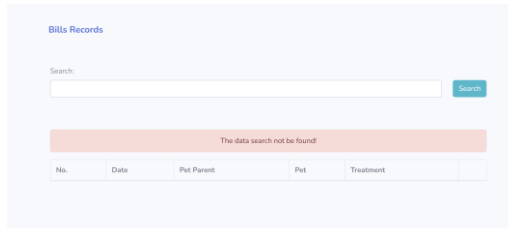


Figure 224 Search bills record by Random Data

As the same the search function is work well. The staff can do perform the search by date (Figure 220), by pet parent name (Figure 221), by pet name (Figure 222), by treatment (Figure 223) and it will show out error when the staff search it by random data (Figure 224).

## Admission Bills

Table 58 Testing Setup and Result for the Admission Bills in the Invoice Module

1.

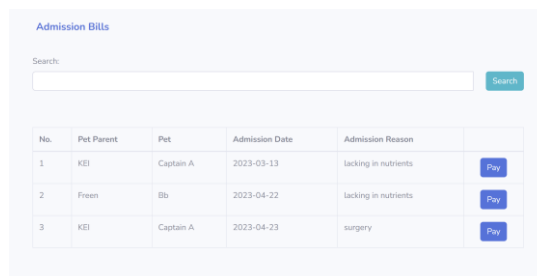


Figure 225 Admission Bills Page

	id	username	petname	admissiondate	admissionreason	status	dischargedate	pay
<input type="checkbox"/>	2	KEI	Captain A	2023-04-12	I don know why	Discharge	2023-04-15	Pay
<input type="checkbox"/>	3	KEI	Captain A	2023-03-13	lacking in nutrients	Admission	NULL	no
<input type="checkbox"/>	4	Freen	Bb	2023-04-22	lacking in nutrients	Admission	NULL	no
<input type="checkbox"/>	6	KEI	Captain A	2023-04-23	surgery	Admission	NULL	no

Figure 226 Admission Database

The admission bills will only show the record with the status under admission and the record display with the order of the date. (Figure 225, 226)

2.

Admission Bills

Search:

No.	Pet Parent	Pet	Admission Date	Admission Reason	
1	KEI	Captain A	2023-03-13	lacking in nutrients	<input type="button" value="Pay"/>
2	Freen	Bb	2023-04-22	lacking in nutrients	<input type="button" value="Pay"/>
3	KEI	Captain A	2023-04-23	surgery	<input type="button" value="Pay"/>

Figure 227 Search All Admission Bills

Admission Bills

Search:

No.	Pet Parent	Pet	Admission Date	Admission Reason	
1	KEI	Captain A	2023-03-13	lacking in nutrients	<input type="button" value="Pay"/>
2	KEI	Captain A	2023-04-23	surgery	<input type="button" value="Pay"/>

Figure 228 Search Admission Bills by Pet Parent Name

Admission Bills

Search:

No.	Pet Parent	Pet	Admission Date	Admission Reason	
1	KEI	Captain A	2023-04-23	surgery	<input type="button" value="Pay"/>

Figure 229 Search Admission Bills by Admission Date

Admission Bills

Search:

No.	Pet Parent	Pet	Admission Date	Admission Reason	
1	KEI	Captain A	2023-03-13	lacking in nutrients	<input type="button" value="Pay"/>
2	Freen	Bb	2023-04-22	lacking in nutrients	<input type="button" value="Pay"/>
3	KEI	Captain A	2023-04-23	surgery	<input type="button" value="Pay"/>

Figure 230 Search Admission Bills by Pet Name

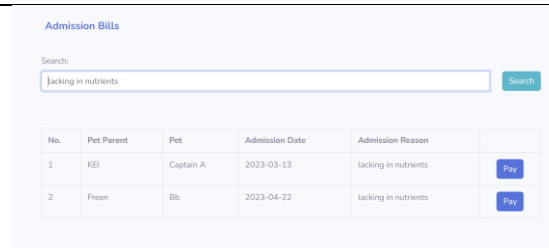


Figure 231 Search Admission Bills by Admission Reason

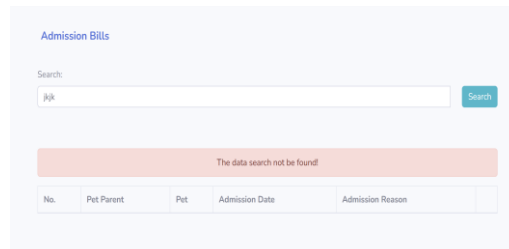


Figure 232 Search Admission Bills by Random Data

Search function perform well it can retrieve the data from the database when the data insert match with the database (Figure 228, 229, 230, 231) and show out the error when the data insert not match with the data inside the database (Figure 232), and retrieve all the data if leave the search textbox blank (Figure 237).

After clicking on the pay button. The staff will navigate to the admission invoice generate page (Figure 233). For the function of the add service fee, machine charge, add medication, add additional fee, edit, and delete is same as the test result of the function inside the invoice generate. The only difference is for admission invoice will not have consultation fee but have admission fee. The admission fee will only be calculated when the pet is discharged.

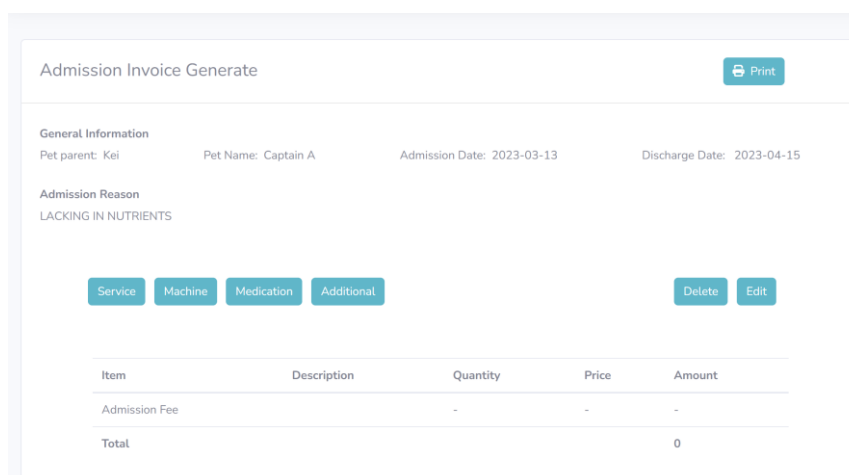


Figure 233 Admission Invoice Page

Admission Bills Records

Table 59 Testing Setup and Result of the Admission Bills Record in the Invoice Module

1.

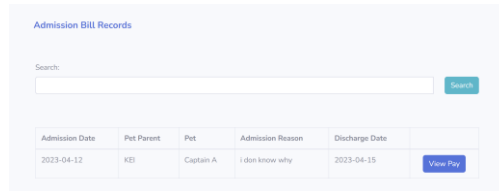


Figure 234 Admission Bills Record Page

	id	username	petname	admissiondate	admissionreason	status	dischargedate	pay
<input type="checkbox"/>	2	KEI	Captain A	2023-04-12	I don know why	Discharge	2023-04-15	Pay
<input type="checkbox"/>	3	KEI	Captain A	2023-03-13	lacking in nutrients	Admission	NULL	no
<input type="checkbox"/>	4	Freem	Bb	2023-04-22	lacking in nutrients	Admission	NULL	no
<input type="checkbox"/>	6	KEI	Captain A	2023-04-23	surgery	Admission	NULL	no

Figure 235 Admission Database

The admission bill record will only retrieve the record where the pay status is under pay. (Figure 234, 235)

2.

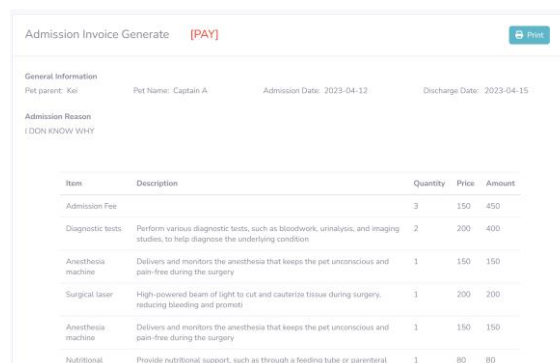


Figure 236 View Admission Invoice

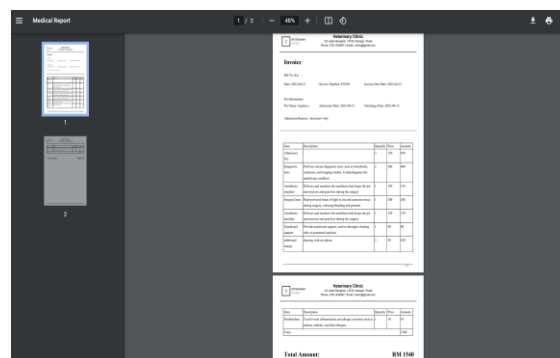


Figure 237 View Admission Invoice in PDF format

When click in the view pay button. Staff can see the detail of the admission invoice (Figure 236) and when click on the print button, the admission invoice will be able to view in PDF format. (Figure 237)

## 6.2.2 Pet Owner

### 6.2.2.1 Login Module Test Result

There are 3 tables to show the test result of the login module for the pet owner. The first table is table 59, inside this table shows the testing setup and result of login for login module. Next, table 60 displayed the testing setup and result of sign up for login module. Lastly, table 61 presented the testing setup and result of reset password for login module.

Table 60 Testing Setup and Result of Login for Login Module

1.

The screenshot shows a login form with the following elements:
 

- Title: Log In
- Email field: 111@gmail.com
- Password field: Enter password
- Log In button
- OR separator
- Sign in with Facebook button
- Sign in with Google button
- Error message: Please key in your Password

Figure 238 Login Page with Key in Password Error

This is a duplicate of the screenshot above, showing the same login form and error message: "Please key in your Password".

Figure 239 Login Page with Key in Email and Password Error



Figure 240 Login Page with insert Email Error

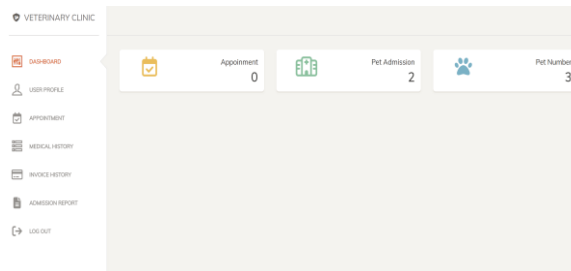


Figure 241 Login Successful



Figure 242 Login Page with Invalid User Error

The system will show out different error message based on the information the pet owner leaves blank or insert incorrect (Figure 238, 239, 240, 242), and login into the system when the pet owner inserts the correct email and password that match with database. (Figure 241)

2.



Figure 243 Facebook Login API

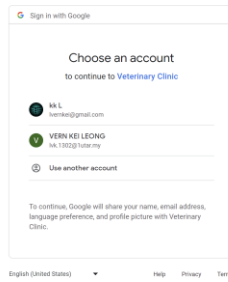


Figure 244 Google Sign-Up API

The pet owner can login into the system though their Facebook or google credential (Figure 243, 244). But the problem meet now is that they can successfully login into the system, but their username, email and phone number cannot be store into the system

Table 61 Testing Setup and Result of Sign Up for Login Module

1.

Figure 245 Error show out in Sign In page

The error will show out when the pet owner try to create an account without insert the required information. (Figure 245)

2.

Figure 246 Sign Up an Account



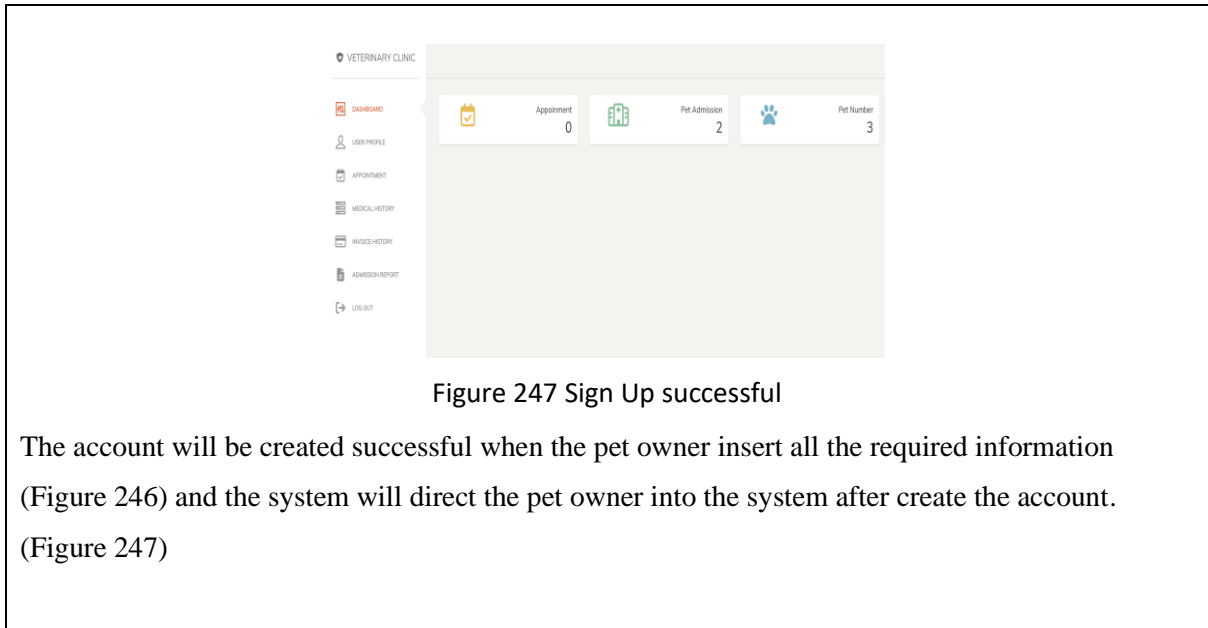


Figure 247 Sign Up successful

The account will be created successful when the pet owner insert all the required information (Figure 246) and the system will direct the pet owner into the system after create the account. (Figure 247)

Table 62 Testing Setup and Result of Reset Password for Login Module

1.

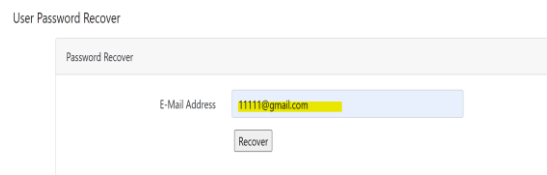


Figure 248 Password Recovery Page

	id	username	email	pass	status
<input type="checkbox"/>	1	Admin	vclinic@gmail.com	admin11	1
<input type="checkbox"/>	25	KEI	qq@gmail.com	1111	1
<input type="checkbox"/>	26	Freen	freen@gmail.com	1111	1
<input type="checkbox"/>	27	Becky	becky@gmail.com	1111	1
<input type="checkbox"/>	28	Yee	lvk.1302@1utar.my	1111	1
<input type="checkbox"/>	31	jesi	jesi@gmail.com	1111	1

Figure 249 User Database

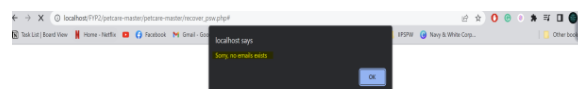


Figure 250 Error Prompt out

If the email insert does not match with the email inside the database error will show out. (Figure 248, 249, 250)

2.

User Password Recover

Password Recover

E-Mail Address: lvk.1302@tutar.my

Recover

Figure 251 Password Recovery Page

	id	username	email	pass	status
<input type="checkbox"/>	1	Admin	vclinic@gmail.com	admin11	1
<input type="checkbox"/>	25	KEI	qq@gmail.com	1111	1
<input type="checkbox"/>	26	Freen	freen@gmail.com	1111	1
<input type="checkbox"/>	27	Becky	becky@gmail.com	1111	1
<input type="checkbox"/>	28	Yee	lvk.1302@tutar.my	1111	1
<input type="checkbox"/>	31	jesi	jesi@gmail.com	1111	1

Figure 252 User Database

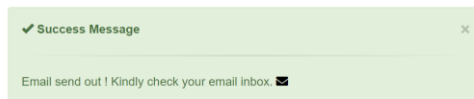


Figure 253 Send Mail Successful

If the email insert match with the email inside the database and it is a valid email (Figure 251, 252), the reset password link will be sent to the pet owner Gmail. (Figure 253)

3.

User Password Recover

Password Recover

E-Mail Address: qq@gmail.com

Recover

Figure 254 Password Recovery Page

	id	username	email	pass	status
<input type="checkbox"/>	1	Admin	vclinic@gmail.com	admin11	1
<input type="checkbox"/>	25	KEI	qq@gmail.com	1111	1
<input type="checkbox"/>	26	Freen	freen@gmail.com	1111	1
<input type="checkbox"/>	27	Becky	becky@gmail.com	1111	1
<input type="checkbox"/>	28	Yee	lvk.1302@tutar.my	1234	1
<input type="checkbox"/>	31	jesi	jesi@gmail.com	1111	1

Figure 255 User Database

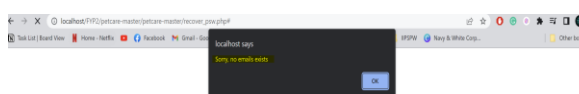


Figure 256 Error Prompt out

If the email insert match with the email inside the database but it is not a valid email (Figure 254, 255), error prompt out. (Figure 256)

4.

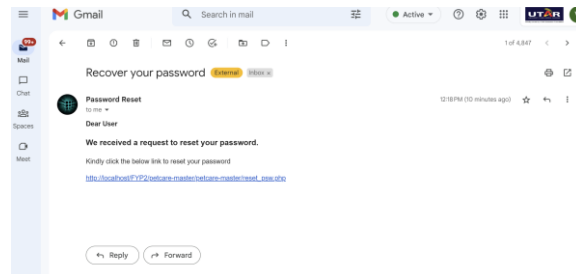


Figure 257 Check Gmail

Password Reset Form

Reset Your Password

New Password

Figure 258 Reset Password

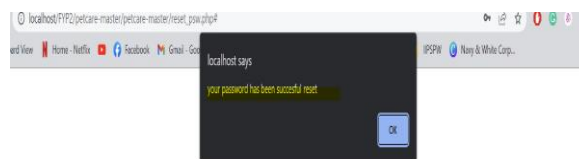


Figure 259 Password Reset Successful

	id	username	email	pass	status
<input type="checkbox"/>	1	Admin	vclinic@gmail.com	admin11	1
<input type="checkbox"/>	25	KEI	qq@gmail.com	1111	1
<input type="checkbox"/>	26	Freen	freen@gmail.com	1111	1
<input type="checkbox"/>	27	Becky	becky@gmail.com	1111	1
<input type="checkbox"/>	28	Yee	lvk.1302@1utar.my	1234	1
<input type="checkbox"/>	31	jesi	jesi@gmail.com	1111	1

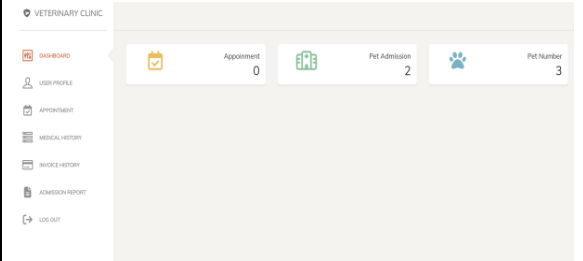
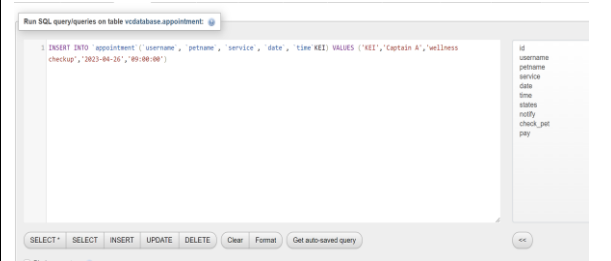
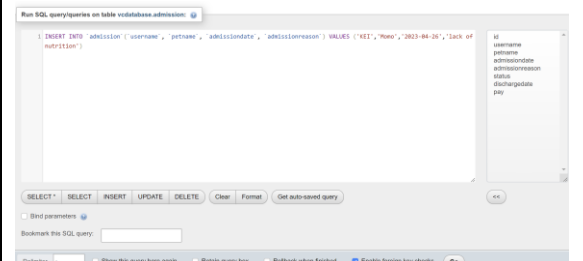
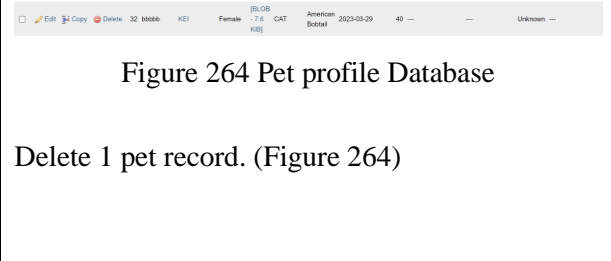
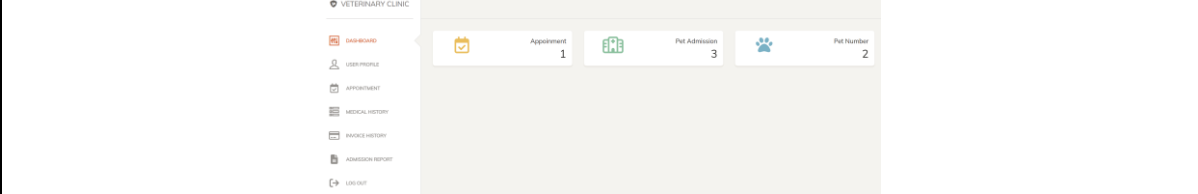
Figure 260 User Database

Pet owner can check their email (Figure 257) and click the link to reset a new password (Figure 258). After resetting, it will show a message to inform the pet owner (Figure 259) and the new password is updated into the database. (Figure 260)

### 6.2.2.2 Dashboard Module Test Result

Table 62 shown the testing setup and result of information card for the dashboard module.

Table 63 Testing Setup and Result of Information Card for the Dashboard Module

<p>1.</p>  <p>Figure 261 Pet Owner Dashboard Before updating anything. (Figure 261)</p>	<p>2.</p>  <p>Figure 262 Add Appointment into Database Add 1 appointment. (Figure 262)</p>
<p>3.</p>  <p>Figure 263 Add Admission into Database Add 1 pet admission. (Figure 263)</p>	<p>4.</p>  <p>Figure 264 Pet profile Database Delete 1 pet record. (Figure 264)</p>
<p>5.</p>  <p>Figure 265 Pet Owner Dashboard After updating. (Figure 265)</p>	
<p>6.</p>	

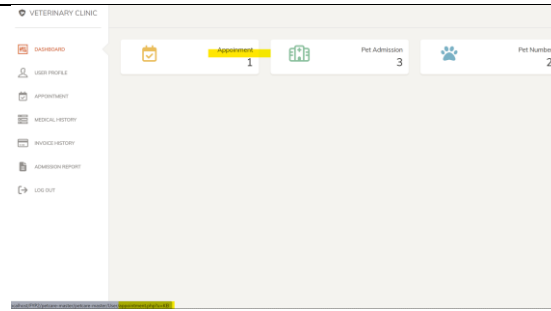


Figure 266 Navigate to Appointment Page

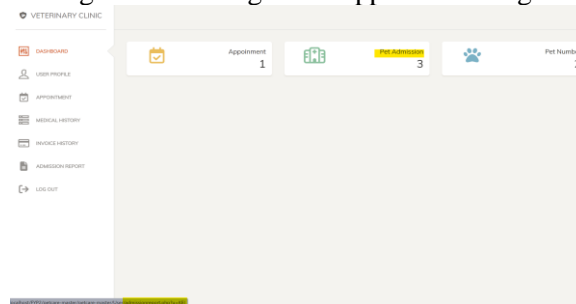


Figure 267 Navigate to Pet Admission Page

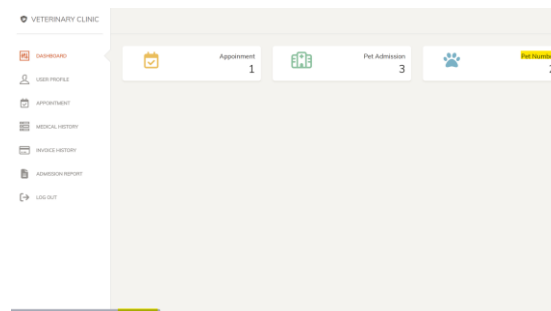


Figure 268 Navigate to User Profile Page

It will direct the pet owner to the page when user click on the card. (Figure 266, 267, 268)

### 6.2.2.3 User Profile Module Test Result

This section presents the test results for the different functions in the User Profile module. There are three tables in this section. Table 63 shows the testing setup and result for updating the pet parent profile in the User Profile module. Table 64 displays the testing setup and result for adding a pet record in the User Profile module. Lastly, Table 65 presents the testing setup and result for viewing, updating, and deleting pet records in the User Profile module.

Table 64 Testing Setup and Result of Update Pet Parent Profile for User Profile Module

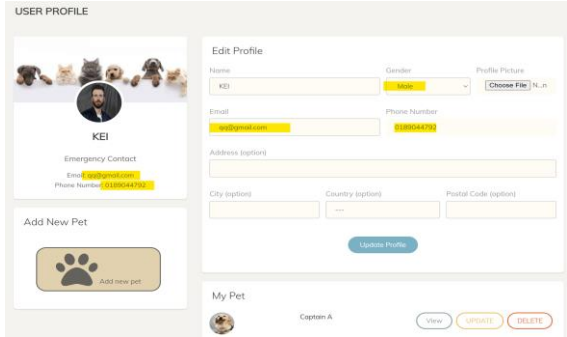
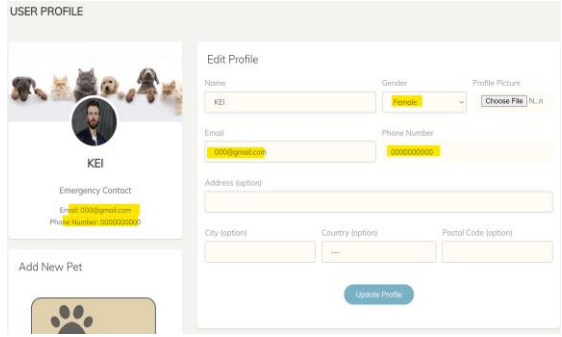
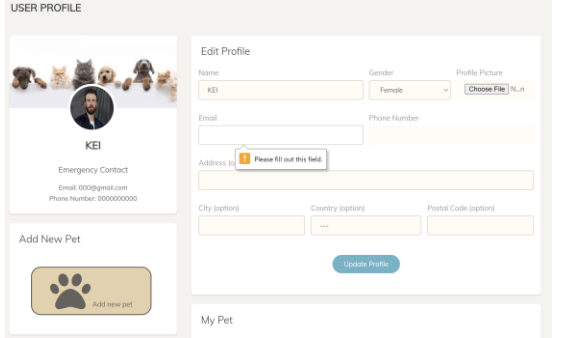

<p>1.</p>  <p>Figure 269 User Profile Page Before update. (Figure 269)</p>	<p>2.</p>  <p>Figure 270 Update Successful Update successful. (Figure 270)</p>
<p>3.</p>  <p>Figure 271 Error prompt out Error will prompt out if try to update the profile without insert the information. (Figure 271)</p>	

Table 65 Testing Setup and Result of Add Pet Record for User Profile Module

<p>1.</p>  <p>Figure 272 Select type of pet</p>
---

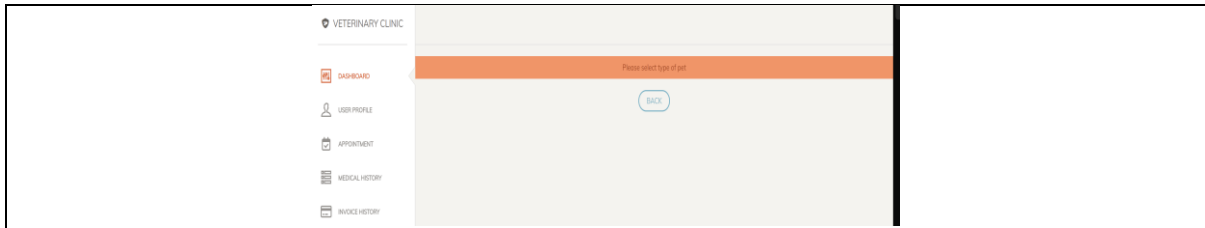


Figure 273 Error show out

Error show out if didn't select the type of pet. (Figure 272, 273)

2.

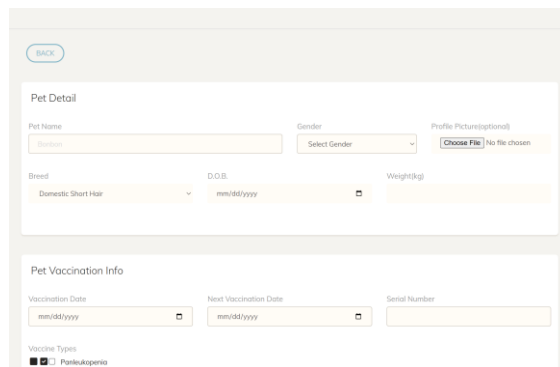


Figure 274 Create Pet Profile Page

After select the type of pet it will navigate the pet owner to another page to insert the information of their pet. (Figure 274)

3.

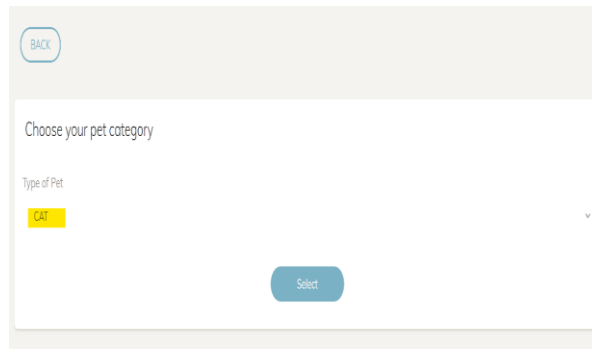


Figure 275 Select Cat

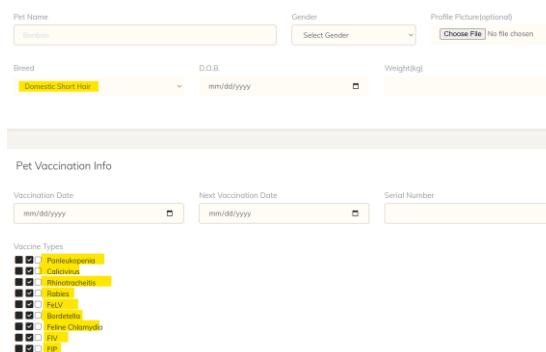


Figure 276 Cat Breed and Vaccine show out

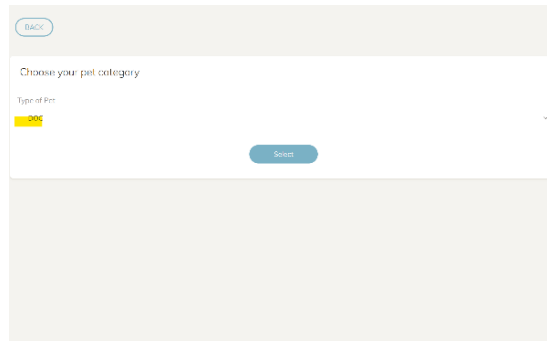


Figure 277 Select Dog

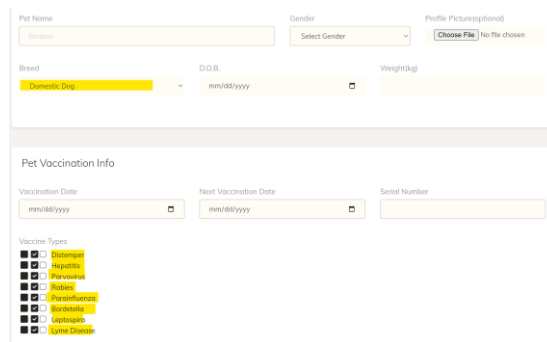


Figure 278 Dog Breed and Vaccine show out

The type of breed and vaccine will be change according to the type of pet select by the pet owner. If the type of breed is cat (Figure 275), the type of breed and vaccine will be the cat type of breed and vaccine (Figure 276), and vice versa (Figure 277, 278).

4.

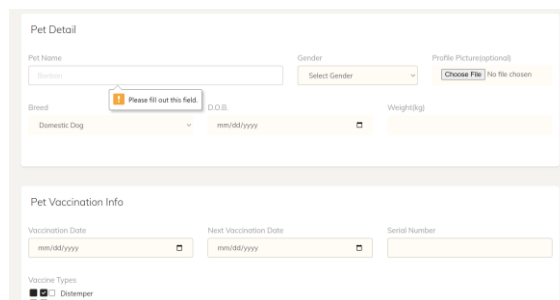


Figure 279 Error Show Out

It will prompt out an error if the pet owner click on the create button without insert all the required information. (Figure 279)

5.



Figure 280 Pet Account Create Successful

id	petname	username	gender	pic	pettype	breed	dob	weight	micnum	petpass	spay	allergies
27	Captain A	KIC	Male	[pic]	DOG	Domestic Dog	2021-06-08	40	85121004365478	GBR123456789	Yes	Essence Thimel Hormone Disruptor Upse...

Figure 281 Pet Profile Database

The pet account will create successful when the pet owner insert all the required information. (Figure 280, 218)

Table 66 Testing Setup and Result of View, Update, Delete for Pet Record in User Profile

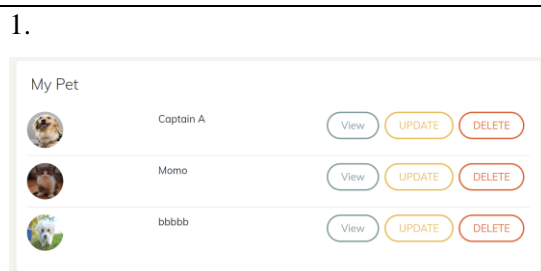


Figure 282 Pet Record in User Profile

Before delete. (Figure 282)

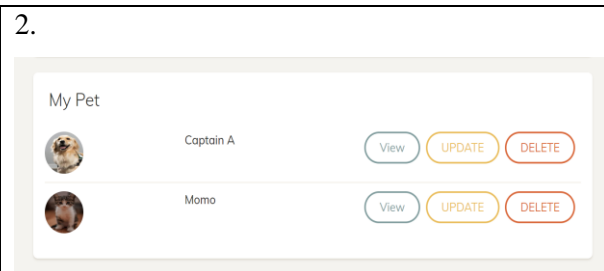


Figure 283 Delete Successful

Delete successfully. (Figure 283)

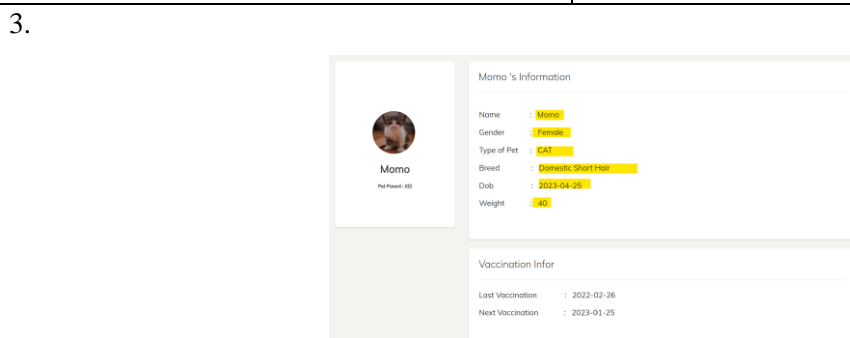


Figure 284 Pet Profile

Pet owner can view detail of the pet profile by click on the view button. (Figure 284)

4.

The screenshot shows a 'Pet Detail' form with the following fields and values:

- Pet Name:** Momo (highlighted with an error message: 'Please fill out this field.')
- Gender:** Male
- Breed:** Domestic Dog
- D.O.B.:** 06/08/2021
- Weight(kg):** (empty)
- Microchip Number:** 985121004365478
- Pet Passport Number:** GBR123456789
- Spray / Neuter Status:** Yes

Figure 285 Error Show Out

It will prompt out an error if the pet owner tries to update the pet profile without insert the required information. (Figure 285)

5.

The screenshot shows the 'Pet Detail' form with updated information:

- Pet Name:** Captain A
- Gender:** Female
- Breed:** Domestic Dog
- D.O.B.:** 06/08/2021
- Weight(kg):** 35
- Microchip Number:** 985121004365478
- Pet Passport Number:** GBR123456789
- Spray / Neuter Status:** Yes

Figure 286 Update Pet Profile

The screenshot shows the pet profile page for 'Momo' with the following details:

- Name:** Momo
- Gender:** Female
- Type of Pet:** CAT
- Breed:** Domestic Short Hair
- Dob:** 2021-06-08
- Weight:** 35

Figure 287 Update Successful

Update successful. (Figure 286, 287)

#### 6.2.2.4 Appointment Module Test Result

Table 66 shown the testing setup and result of make appointment in appointment module.

Table 67 Testing Setup and Result of Make Appointment in Appointment Module  
 Bachelor of Information Systems (Honours) Information Systems Engineering  
 Faculty of Information and Communication Technology (Kampar Campus), UTAR

1.

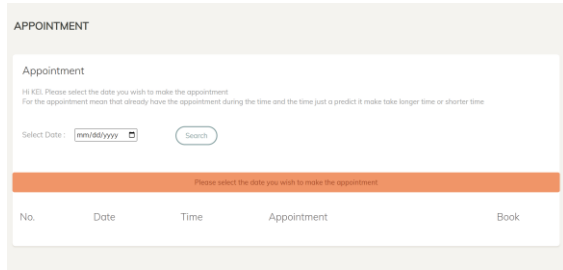


Figure 288 Error Show Out

It will show out the error if did not select the date that wish to make the appointment. (Figure 288)

2.

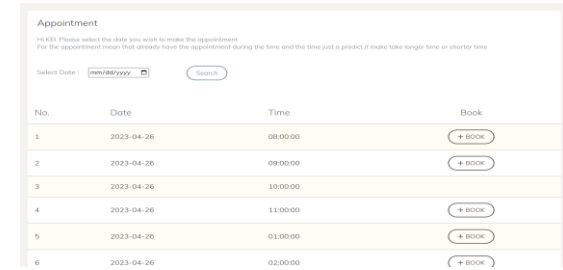


Figure 289 Book Slot Page

After select the date pet owner call view all the time slot on the date and choose the time slot wanted to book. If the time slot already be booked by other pet owner. The book button will not show out. (Figure 289)

3.

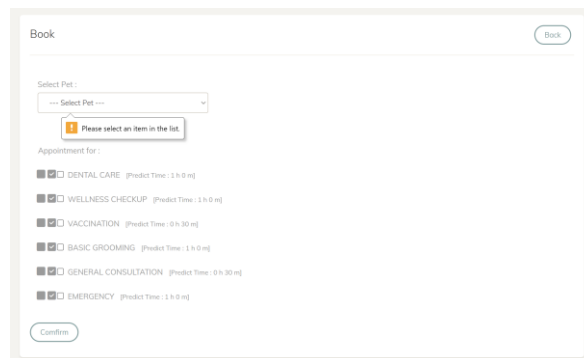


Figure 290 Error Show Out

After select the time slot pet owner will need to select the pet and the appointment. It will show out error when the pet owner did not provide the required information. (Figure 290)

4.



Figure 291 Book Slot

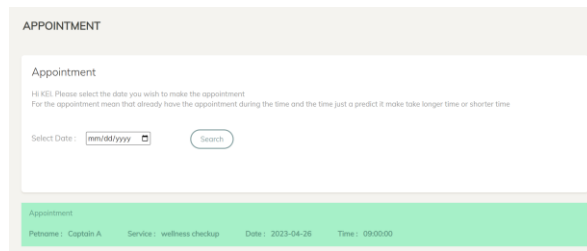


Figure 292 Book Slot Successful

The appointment page will show out the appointment made by the pet owner. (Figure 291, 292)

5.

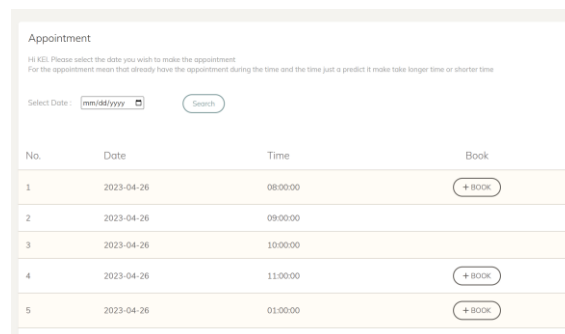


Figure 293 Book Slot Page

The time slot successfully books by the pet owner. (Figure 293)

### 6.2.2.5 Medical History Module Test Result

Table 67 shown the testing setup and result of medical history module.

Table 68 Testing Setup and Result of Medical History Module

1.

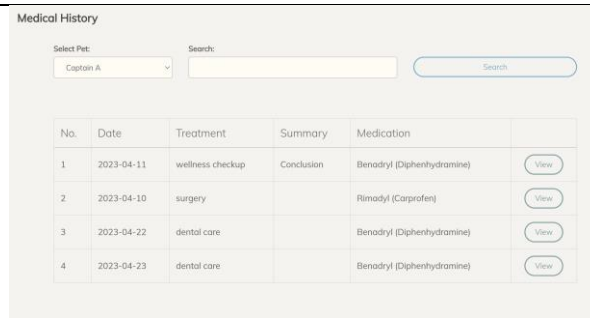


Figure 294 Medical History Page

After select the pet that wish to view the medical history click on the search button all the medical report for the selected pet will be showing out. (Figure 294)

2.

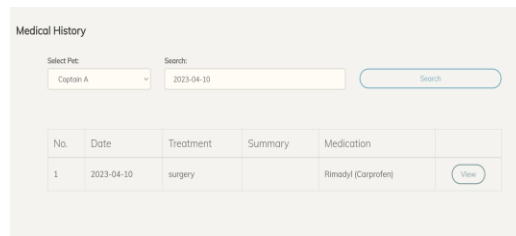


Figure 295 Search by Date

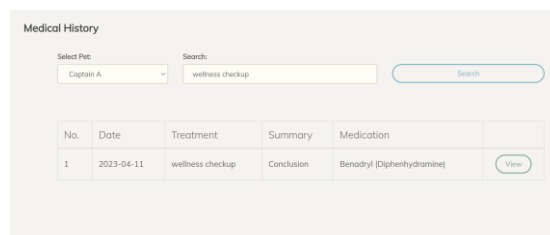


Figure 296 Search by Medication

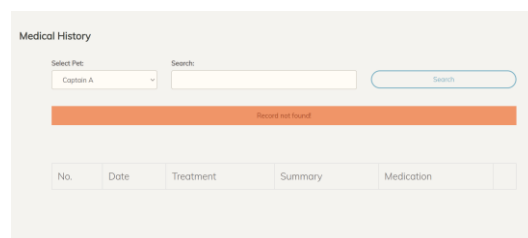


Figure 297 Error show if Search by using random data

As the same the pet owner can use the search function to search the records, it will show out all the record that match with the data insert by the pet owner (Figure 295, 296), and an error will show if the data insert did not match with the database. (Figure 297)

3.

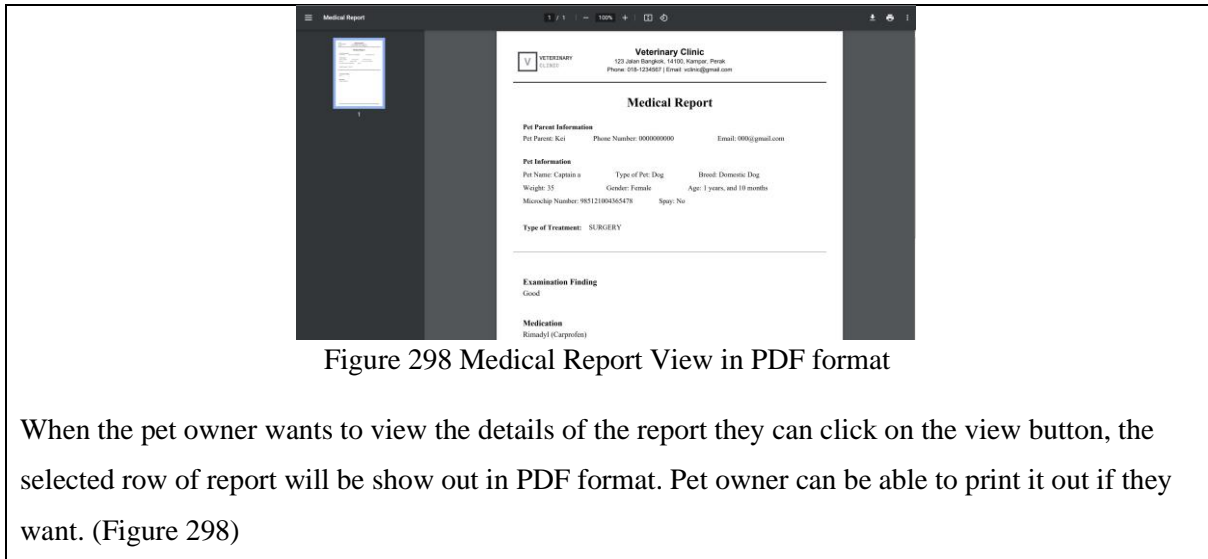


Figure 298 Medical Report View in PDF format

When the pet owner wants to view the details of the report they can click on the view button, the selected row of report will be show out in PDF format. Pet owner can be able to print it out if they want. (Figure 298)

### 6.2.2.6 Invoice Module Test Result

Table 68 shown the testing setup and result of invoice module.

Table 69 Testing Setup and Result of Invoice Module

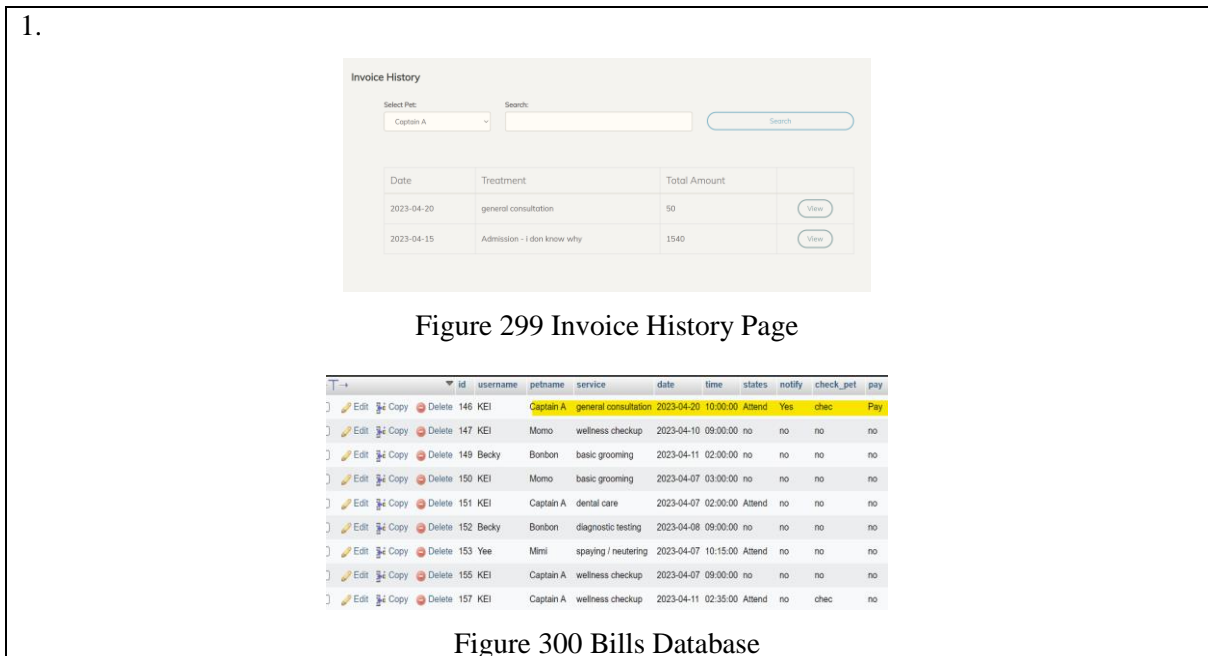


Figure 299 Invoice History Page

Figure 300 Bills Database

	id	username	petname	admissiondate	admissionreason	status	dischargedate	pay
<input type="checkbox"/> Edit Copy Delete	2	KEI	Captain A	2023-04-12	i don know why	Discharge	2023-04-15	Pay
<input type="checkbox"/> Edit Copy Delete	3	KEI	Captain A	2023-03-13	lacking in nutrients	Admission	NULL	no
<input type="checkbox"/> Edit Copy Delete	4	Freen	Bb	2023-04-22	lacking in nutrients	Admission	NULL	no
<input type="checkbox"/> Edit Copy Delete	6	KEI	Captain A	2023-04-23	surgery	Admission	NULL	no
<input type="checkbox"/> Edit Copy Delete	7	KEI	Momo	2023-04-26	lack of nutrition	Admission	NULL	no

Figure 301 Admission Bills Database

Only the invoice under the status of pay is showing out. (Figure 299, 300, 301)

2.

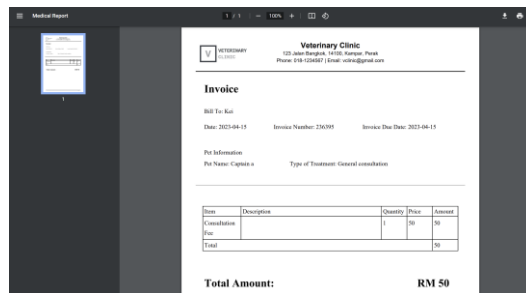


Figure 302 Invoice View in PDF format

The selected row of invoice will be show out in PDF format. (Figure 302)

3.

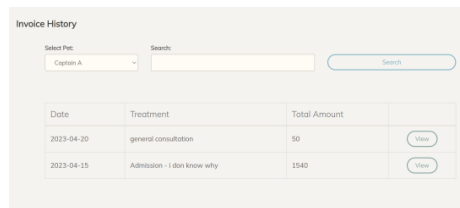


Figure 303 Search All Invoice

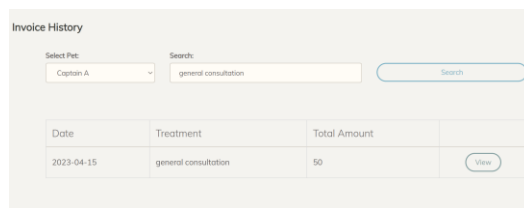


Figure 304 Search Invoice by Treatment

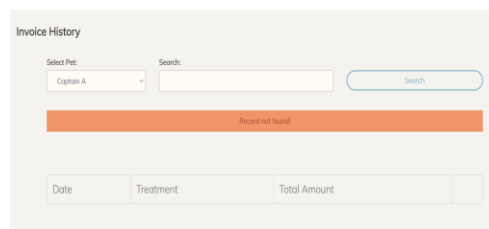


Figure 305 Search Invoice by Random Data

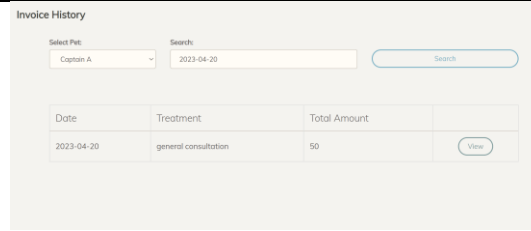


Figure 306 Search Invoice by Date

As the same the pet owner can use the search function to search the records, it will show out all the record that match with the data insert by the pet owner (Figure 303 ,304, 306), and an error will show if the data insert did not match with the database. (Figure 305)

### 6.2.2.7 Admission Module Test Result

In this section, present the testing setup and results for the admission module. Below is Table 69, which displays the testing setup and result of the admission module.

Table 70 Testing Setup and Result of Admission Module

1.

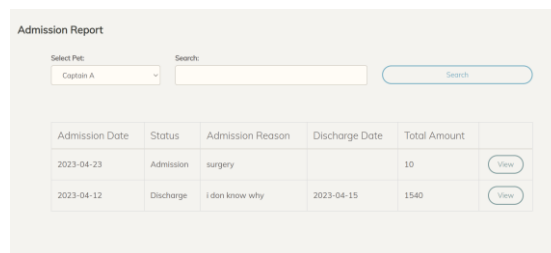


Figure 307 Admission Report Page

	id	username	petsname	admissiondate	admissionreason	status	dischargedate	pay
<input type="checkbox"/>	2	KEI	Captain A	2023-04-12	I don know why	Discharge	2023-04-15	Pay
<input type="checkbox"/>	4	Freem	Bb	2023-04-22	lacking in nutrients	Admission	NULL	no
<input type="checkbox"/>	6	KEI	Captain A	2023-04-23	surgery	Admission	NULL	no
<input type="checkbox"/>	7	KEI	Momo	2023-04-26	lack of nutrition	Admission	NULL	no

Figure 308 Admisison Report Database

All the admission report will be show out for the selected pet. (Figure 307, 308)

2.



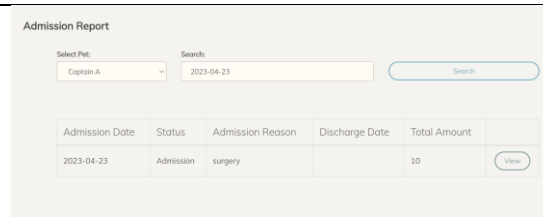


Figure 309 Search Admission Report by date

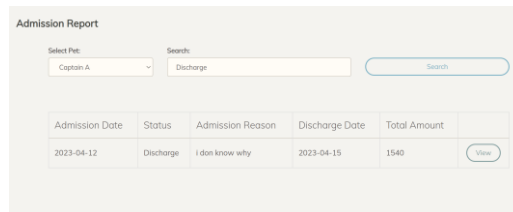


Figure 310 Search Admission Report by Status

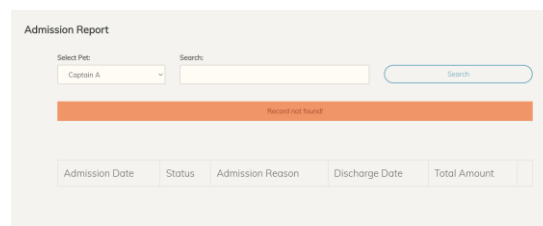


Figure 311 Search Admission Report by random data

As the same the pet owner can use the search function to search the records, it will show out all the record that match with the data insert by the pet owner (Figure 309, 310), and an error will show if the data insert did not match with the database. (Figure 311)

3.

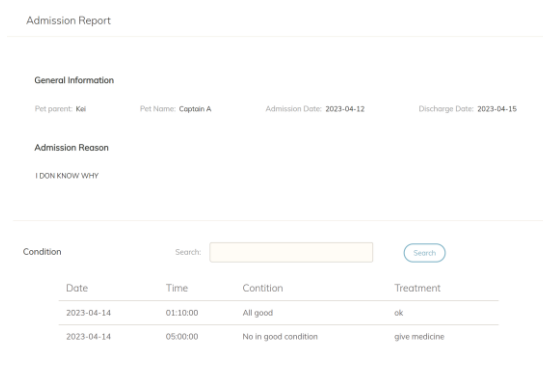


Figure 312 Admission Report

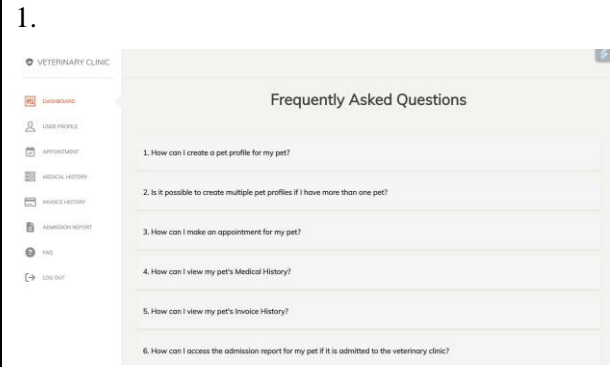
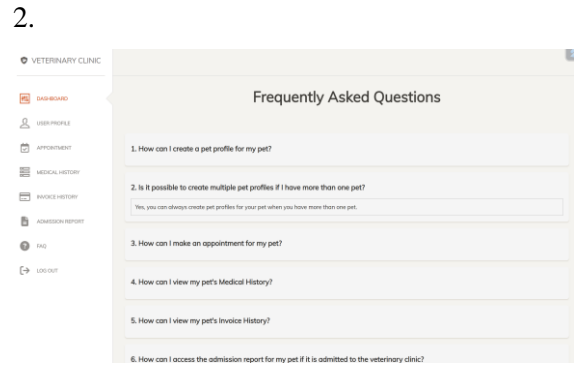
Pet owner can view the detail of their pet condition by click on the view button. (Figure 312)

## CHAPTER 6

### 6.2.2.8 FAQ Module Test Result

In this section, present the testing setup and results for the FAQ module. Below is Table 71, which displays the testing setup and result of the FAQ module.

Table 71 Testing Setup and Result of FAQ Module

<p>1.</p> 	<p>2.</p> 
<p>Figure 313 Frequently Asked Questions Page</p> <p>Here is the interface of the frequently asked question page. (Figure 313)</p>	<p>Figure 314 Solution Show</p> <p>The solution is show when the pet owner clicks on the question they had face. (Figure 314)</p>

## 6.3 Project Challenge

During the project development, many challenges were faced. The first challenge will be the coding part. As the proposed project had many modules and two user roles, making it time-consuming to develop. Some of the problem encounter like write a code to let the system auto generate the appointment slot, make sure the system work fine without hitting error between each page. Secondly, managing the relationship between each entity was tough because there were many tables, and the system will always meet an error with the entities relationship for example “Fatal error: Uncaught mysqli\_sql\_exception: Cannot delete or update a parent row: a foreign key constraint fails”.

Additionally, errors were also encountered while trying to implement PHP libraries such as PHPMailer and TCPDF. It took a lot of time to implement each of these libraries. The implementation of Facebook Login API and Google sign-in API was particularly challenging.

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## CHAPTER 6

Despite dedicating a lot of time to it, the system is still unable to retrieve user credentials such as username, email, and phone number from Facebook and Google store into the database, can log in to the system, but the account is not created. The implementation of Twilio is still ok due to the documentation provided by the provider being very clear and easy.

One challenge that had a significant impact on the development process was time constraints. Due to the simplicity of the system developed previously, several parts of the system had to be redone to make it more user-friendly. This causes the development process to become rushed.

Overall, the project's development was challenging due to the system's complexity, various issues encountered while coding and implementing APIs and libraries, and time constraints.

### 6.4 Objectives Evaluation

The system has successfully achieved its objectives by providing a pet owner-accessible portal with an appointment module, admission monitoring feature, and medical report function. The portal has enhanced the convenience and accessibility for pet owners, providing them with a reliable and efficient way of booking appointments and accessing their pet's medical history. The appointment module with SMS notification has helped reduce the likelihood of pet owners forgetting about their appointments, thus improving the efficiency of the appointment scheduling process. Moreover, the knowledge-based system has provided helpful tips, instructions, and guidance to users on how to use the various features of the system, ensuring a smooth user experience for pet owners.

For the staff, the system has provided various modules, including login, dashboard, register, pet parent and pet record, appointment, medicine, admission, and invoice modules. These modules have helped streamline the workflow of veterinary clinic staff, enabling them to manage appointments, medicine, and admissions efficiently. The login module ensures secure access for staff members, while the dashboard module provides a summary of important information, including treatment schedules and patient information. The pet parent and pet record module allow staff members to manage pet information, while the appointment and

## CHAPTER 6

admission modules help manage appointment scheduling and admission processes. The medicine and invoice modules help staff members manage medicine inventory and billing processes effectively.

For the pet owner, the system provides login, dashboard, user profile, appointment, medical history, invoice history, and admission report modules. These modules enable pet owners to manage their pet's medical history, schedule appointments, and view invoices and admission reports. The user profile module allows pet owners to update their personal information and their pet information. The medical history module provides a record of all medical procedures performed on the pet, enabling pet owners to access this information whenever necessary. The invoice history module provides a summary of all the pet's bills, while the admission report can let the pet owner receive timely updates about their pet's status while it is admitted to the clinic.

Overall, the system has successfully achieved its objectives by providing a user-friendly and efficient platform for pet owners and staff members to manage pet healthcare processes.

## Chapter 7

### Conclusion and Recommendations

#### 7.1 Conclusion

In conclusion, veterinary clinic management system is a web-based system. By having this Veterinary Clinic Management System, it can provide benefits to both veterinary staff and pet owners.

For veterinary staff, the system helps to streamline the administrative tasks of appointment scheduling, medical record management, billing, admission record management, pet owner and pet record, managing medicine, and registration process. With the appointment module that integrates with Twilio SMS API. This would allow staff to send appointment reminders and notifications to pet owners via SMS so that the pet owner won't forget the appointment they make. Besides, this module allows staff to book slots and manage the appointment. In addition, by integrating TCPDF into the system, staff can generate PDF files of medical reports and admission reports. This feature allows staff to easily print out these reports given to the pet owner as a physical copy.

For the pet owner, by providing a pet owner-accessible portal with knowledge intelligent based system, pet owners can use this portal to make appointment at their convenience without having to wait until they are physically at the veterinary clinic, view medical record, view invoice history, view admission report to receive timely updates about their pet's status while it is admitted to the clinic, providing them with peace of mind and convenience, and manage their pet and their user profile. With the implementation of knowledge intelligent based system of the frequently asked questions, the pet owner can always find a solution when they meet any operate question. Besides, with the implementation of the PHPMailer, Facebook login API, and google sign-in API in the pet owner login module. The pet owner can login into the system by using their Facebook or google credentials to login the system. If a pet owner forgets their password, they can reset it using their email address. The system will send a reset password

## CHAPTER 7

link to their email through the PHPMailer integration. Once they receive the link, they can use it to reset their password and log back into the system. This feature provides an easy and convenient way for pet owners to regain access to their accounts if they forget their login credentials.

Overall, the veterinary clinic management system provided benefits to both the veterinary staff and pet owners by streamlining administrative tasks and providing convenience and peace of mind. The proposed system provides a solution on solving the issues where most of the systems in the market are only used by veterinary clinics, but the proposed system also benefits pet owners. However, some systems in the market are beginning to realize this and offering similar features such as mobile apps or pet owner portals.

### 7.2 Recommendation

After the development of the proposed system, it was identified that there are areas that could be improved in the future to enhance the system's performance and further improve the user experience.

#### Implement Auto-Notify Function:

The notification function in the proposed system requires staff to execute notifications manually. This was because there was a limit to the SMS feature provided by the service provider. However, it would have been more efficient to implement an auto-notify function, which would have automatically sent out notifications to pet owner to remind them of the appointment they make.

#### Separate the Role of Staff into Doctor and Admin:

In the proposed system, the roles of doctor and admin staff were not clearly defined. Separating these roles would have been beneficial as their job scopes were different. The doctor staff

## CHAPTER 7

would have been responsible for managing patient appointments, reviewing patient records, and providing medical advice. The admin staff would have been responsible for managing the system's database, processing payments, and providing administrative support to the doctor staff. This would have improved the system's overall efficiency and effectiveness and would have helped to ensure a smoother and more efficient patient experience.

### Complete the System Functionality:

The proposed system had the important modules that are necessary for a veterinary clinic, but it was not a complete version of the system. The system still lacks the management functions which are also important for veterinary clinic. For example, the ability to add new pets' category, add new services to the system, and the ability to add new machines etc. The addition of these missing features would greatly enhance the system's functionality and allow the veterinary clinic to manage their operations more effectively.

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## FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year:</b> Year 3 Sem 3	<b>Study week no.:</b> Week 2
<b>Student Name &amp; ID:</b> Leong Vern Kei 1901746	
<b>Supervisor:</b> Ms. Lai Siew Cheng	
<b>Project Title:</b> Veterinary Clinic Management System	

### 1. WORK DONE

Finish the review of FYP1 and restructure the proposed report for chapter 1,2, and 3

### 2. WORK TO BE DONE

Develop the login module, dashboard module and the register module for the staff role

### 3. PROBLEMS ENCOUNTERED

Time management not good

### 4. SELF EVALUATION OF THE PROGRESS

Need to spend more time to do the FYP2

Supervisor's signature

Student's signature

## FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year:</b> Year 3 Sem 3	<b>Study week no.:</b> Week 4
<b>Student Name &amp; ID:</b> Leong Vern Kei 1901746	
<b>Supervisor:</b> Ms. Lai Siew Cheng	
<b>Project Title:</b> Veterinary Clinic Management System	

### 1. WORK DONE

Finish the development of the login module, dashboard module and the register module for the staff role

### 2. WORK TO BE DONE

Develop pet parent and pet record module and appointment module for the staff role

### 3. PROBLEMS ENCOUNTERED

Unable to implement the Twilio SMS service into the system. Still finding the ways for the implementation. Besides, the development of the pet parent and pet record module always hit error. Due to this module have a lot of functions inside, like generate medical report, admission report etc. The implementation of the TCPDF PHP library also encountered a lot of issues.

### 4. SELF EVALUATION OF THE PROGRESS

Need to spend more time to develop the function if not will cause the delay of the whole project development



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Supervisor's signature



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Student's signature

## FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year:</b> Year 3 Sem 3	<b>Study week no.:</b> Week 6
<b>Student Name &amp; ID:</b> Leong Vern Kei 1901746	
<b>Supervisor:</b> Ms. Lai Siew Cheng	
<b>Project Title:</b> Veterinary Clinic Management System	

### 1. WORK DONE

Finish the develop of pet parent and pet record module and appointment module for the staff

### 2. WORK TO BE DONE

Develop the medicine module, admission module, and invoice module for the staff role

### 3. PROBLEMS ENCOUNTERED

Time constraint, a lot of module need to develop in two week of time.

### 4. SELF EVALUATION OF THE PROGRESS

The development is still on the track.

Supervisor's signature

Student's signature

## FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year:</b> Year 3 Sem 3	<b>Study week no.:</b> Week 8
<b>Student Name &amp; ID:</b> Leong Vern Kei 1901746	
<b>Supervisor:</b> Ms. Lai Siew Cheng	
<b>Project Title:</b> Veterinary Clinic Management System	

### 1. WORK DONE

Finish the develop of the medicine module, admission module, and invoice module for the staff role

### 2. WORK TO BE DONE

Redo several parts of the system, and develop login module, user profile module, and appointment module for pet owner role

### 3. PROBLEMS ENCOUNTERED

Due to the simplicity and not user-friendly system need to redo several parts of the system. this causes a serious delay in the timeline of the development and the whole project development becomes rushed. Besides, during the implementation of the PHPMailer and the Facebook and google sign-up also meeting a lot of error.

### 4. SELF EVALUATION OF THE PROGRESS

Need to put more effort and time to develop the system, so that the system can be more user friendly and get the project back on track.

Supervisor's signature

Student's signature

## FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year:</b> Year 3 Sem 3	<b>Study week no.:</b> Week 10
<b>Student Name &amp; ID:</b> Leong Vern Kei 1901746	
<b>Supervisor:</b> Ms. Lai Siew Cheng	
<b>Project Title:</b> Veterinary Clinic Management System	

### 1. WORK DONE

Finish the develop of the login module, user profile module, and appointment module for pet owner role

### 2. WORK TO BE DONE

Redo several parts of the system, develop medical history module, invoice history medule and admission report module

### 3. PROBLEMS ENCOUNTERED

During the development meet so many challenges such as the coding part where to let the system auto generate the appointment slot, the track of the medicine, the calculating part take a lot of time to think and develop.

### 4. SELF EVALUATION OF THE PROGRESS

Need to put more effort and time to develop the system, so that the system can be more user friendly and get the project back on track.

Supervisor's signature

Student's signature

## FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year:</b> Year 3 Sem 3	<b>Study week no.:</b> Week 12
<b>Student Name &amp; ID:</b> Leong Vern Kei 1901746	
<b>Supervisor:</b> Ms. Lai Siew Cheng	
<b>Project Title:</b> Veterinary Clinic Management System	

### 1. WORK DONE

Finish the redo parts of the system, the development of the medical history module, invoice history module and admission report module

### 2. WORK TO BE DONE


Test the system and fix bug, and do the FYP2 report for chapter 4,5,6, and 7


### 3. PROBLEMS ENCOUNTERED

There are many bugs found when performing the system testing, and the report has many things to do

### 4. SELF EVALUATION OF THE PROGRESS

Need to spend a lot of time if not the whole report will not be delivery on time

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Student's signature



## FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year:</b> Year 3 Sem 3	<b>Study week no.:</b> Week 13
<b>Student Name &amp; ID:</b> Leong Vern Kei 1901746	
<b>Supervisor:</b> Ms. Lai Siew Cheng	
<b>Project Title:</b> Veterinary Clinic Management System	

### 1. WORK DONE

Finish the report for chapter 4,5, and 7

### 2. WORK TO BE DONE

Chapter 6 testing setup and result and the system testing and performance metrics

### 3. PROBLEMS ENCOUNTERED

There are many bugs found when performing the system testing

### 4. SELF EVALUATION OF THE PROGRESS

Need to spend a lot of time if not the whole report will not be delivery on time



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Supervisor's signature



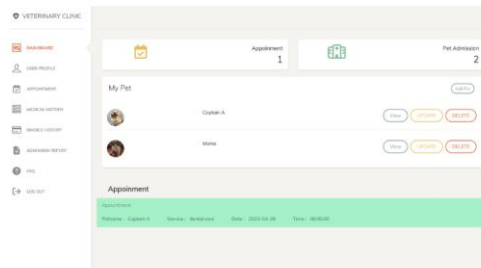
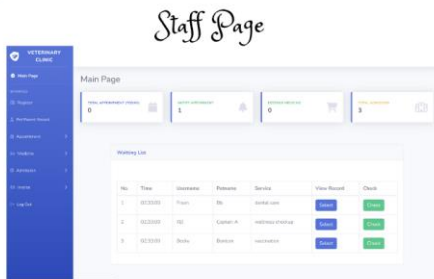
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Student's signature

# FICT

Veterinary Clinic Management System with pet owner-accessible portal with knowledge intelligent based system



**Provide a useful TWO in ONE system for the Staff and Pet Owner**



Pet Owner Portal



**Provide Pet Owner Portal  
SMS Reminder  
Invoice and Medical Report Generate  
Auto Time Slot Generate  
Provide Alternative Sign-in Method  
Provide Frequently Asked Questions (FAQ)**



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<b>Form Title : Supervisor's Comments on Originality Report Generated by Turnitin for Submission of Final Year Project Report (for Undergraduate Programmes)</b>			
Form Number: FM-IAD-005	Rev No.: 0	Effective Date: 01/10/2013	Page No.: 1 of 1



**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY**

<b>Full Name(s) of Candidate(s)</b>	Leong Vern Kei
<b>ID Number(s)</b>	19ACB01746
<b>Programme / Course</b>	IA
<b>Title of Final Year Project</b>	Veterinary Clinic Management System

<b>Similarity</b>	<b>Supervisor's Comments (Compulsory if parameters of originality exceeds the limits approved by UTAR)</b>
<b>Overall similarity index: 6%</b> <b>Similarity by source</b> Internet Sources: 5% Publications: 0% Student Papers: 3%	
<b>Number of individual sources listed of more than 3% similarity: 0%</b>	
<b>Parameters of originality required and limits approved by UTAR are as Follows:</b> (i) Overall similarity index is 20% and below, and (ii) Matching of individual sources listed must be less than 3% each, and (iii) Matching texts in continuous block must not exceed 8 words <i>Note: Parameters (i) – (ii) shall exclude quotes, bibliography and text matches which are less than 8 words.</i>	

Note Supervisor/Candidate(s) is/are required to provide softcopy of full set of the originality report to Faculty/Institute

***Based on the above results, I hereby declare that I am satisfied with the originality of the Final Year Project Report submitted by my student(s) as named above.***

*Lai*

\_\_\_\_\_  
Signature of Supervisor

\_\_\_\_\_  
Signature of Co-Supervisor

Name: Lai Siew Cheng

Name: \_\_\_\_\_

Date: 28/4/2023

Date: \_\_\_\_\_

## CHECKLIST


**UNIVERSITI TUNKU ABDUL RAHMAN**
**FACULTY OF INFORMATION & COMMUNICATION TECHNOLOGY  
(KAMPAR CAMPUS)**
**CHECKLIST FOR FYP2 THESIS SUBMISSION**

Student Id	19ACB01746
Student Name	Leong Vern Kei
Supervisor Name	Ms. Lai Siew Cheng

TICK (✓)	DOCUMENT ITEMS
	Your report must include all the items below. Put a tick on the left column after you have checked your report with respect to the corresponding item.
/	Front Plastic Cover (for hardcopy)
/	Title Page
/	Signed Report Status Declaration Form
/	Signed FYP Thesis Submission Form
/	Signed form of the Declaration of Originality
/	Acknowledgement
/	Abstract
/	Table of Contents
/	List of Figures (if applicable)
/	List of Tables (if applicable)
-	List of Symbols (if applicable)
-	List of Abbreviations (if applicable)
/	Chapters / Content
/	Bibliography (or References)
/	All references in bibliography are cited in the thesis, especially in the chapter of literature review
/	Appendices (if applicable)
/	Weekly Log
/	Poster
/	Signed Turnitin Report (Plagiarism Check Result - Form Number: FM-IAD-005)
/	I agree 5 marks will be deducted due to incorrect format, declare wrongly the ticked of these items, and/or any dispute happening for these items in this report.

\*Include this form (checklist) in the thesis (Bind together as the last page)

I, the author, have checked and confirmed all the items listed in the table are included in my report.

(Signature of Student)

Date: 25/4/2023

## CHECKLIST