Software Design Description for Veterinary Clinic

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Table 1: Document version history

Version	Date	Reason for Change
1.0	20-april-2024	SDD first version's description are defined.
1.1	1-may-2024	Figures and Diagrams.
1.3	28-may-2024	Updated version and added more details.

GitHub: https://github.com/Veterinary-Clinic

Contents

Abstract

This Software Requirements Specification outlines the development of vet clinic system. The platform aims to simplify the process of scheduling appointments and managing pets records.Pet owners can easily book appointments, view available time slots through the web application. In addition to that, it facilitates the appointments and services scheduling process to the veterinarians. Administrators oversees platform operations to ensure security and transaction success. The document details user requirements,including registration, authentication, services browsing, appointments scheduling. Non-functional requirements address performance, security, usability, and scalability.Legal and compliance requirements include data protection regulations and terms of service. This SRS guides stakeholders, providing a comprehensive overview of the platform's features and constraints. It directs developers to create a secure, efficient, and user-friendly vet clinic platform for vets and pets' owners.DONE

1 Introduction

1.1 Purpose

This software design description (SDD) describes the architecture and system design of Pet-Lover clinic.

This (SDD) will guide the developers and the project manager in the process of software development. This document will also reflect the system's SRS that was submitted before by showing each use case or functional specification into detailed processes by means of different diagrams which will be shown in this document.

1.2 Scope

This Veterinary Clinic SDD describes the system design and provides essential design viewpoints for effective communication with stakeholders. This document serves as a reference for design decisions and reasons to avoid disputes over agreed-upon specifications. From pet registration to vaccinations, as well as pet hotel services and grooming appointments, the system will handle every step of the process. It will have tools for keeping track of vaccines records, managing client information, making appointments, and making sure all services run well.

1.3 Intended audience

This Software Design Description document is intended for the following key stakeholders:

- Development Team: Provide guidance in the creation and implementation of the software.

- Project Management Team: To manage the project against objectives and timeline.

- Quality control team: Understanding system design for effective testing.

- PET-Lover Representatives: To ensure the system meets business needs and objectives.
- IT and System Administrators: For system implementation and maintenance.

Security and privacy considerations:

Confidentiality : This document is intended for Developers, software architects, project managers, and other stakeholders actively engaged in the development of the Pet-Lover Clinic Web Application are among the intended recipients of this SDD. Because of the nature of the application, handling sensitive pet and client data requires careful attention to security and privacy issues. Intellectual Property: The design and information in this SDD are the property of Linko Pharm and should be used responsibly.

1.4   Reference Material

DONE

"Pet-Lover SRS" : https://www.overleaf.com/project/65d353f3365f03014498a4b0

1.5   Definitions and Acronyms

Provide definitions of all terms, acronyms, and abbreviations that might exist to properly interpret the SDD. These definitions should be items used in the SDD that are most likely not known to the audience.

Term	Definition
Software Design Document (SDD)	Used as the primary medium for communicating software design information.
A software requirements specification (SRS)	is a document that describes what the software will do and how it will be expected to perform.

2   System Overview

The Web Application is a complete solution designed to improve and enhance the operations of Pet-Lover clinic. This system offers a smooth appointment scheduling, pet information management, and clinic service management experience, meeting the needs of both pet owners and clinic administrators. Functionalities: There are several features available on the web application, such as vaccination tracking, appointment scheduling, pet registration, grooming services,

2.1   System Scope

- The Pet-Lover system enables customers to conveniently view appointments and doctorsonline.

    User Roles:

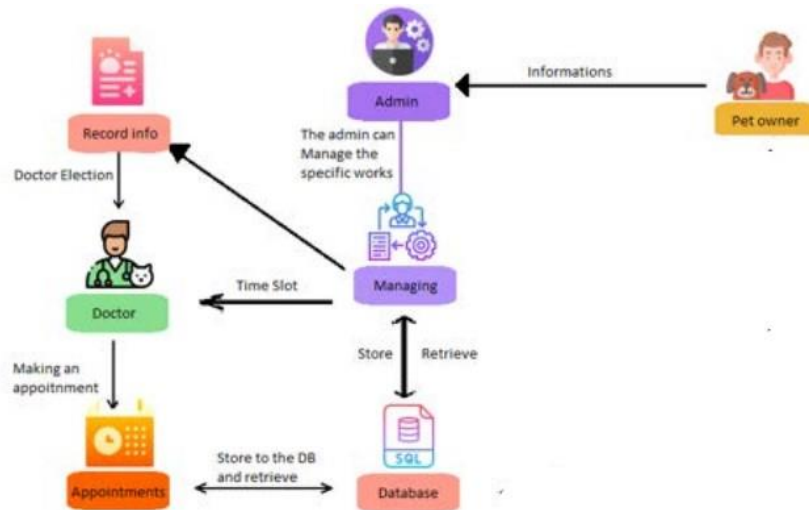- Customer: Registered users who can browse products and place appointment

Figure 1: Represenation for the system

- Administrator: System administrators who manage user accounts, appointments, and overallsystem configuration.

- User Registration and Authentication: Customers can create accounts, provide necessaryinformation, and authenticate themselves to access the system.

- Appointments: Customers can place an appointment for their pet.

- The boundaries of a project include the responsibilities of key project professionals. Thosewith expertise and relevant skills may use their knowledge and training to complete achievable tasks within boundaries for clients

- The expected outcomes of the project is a web for Pet-Lover clinic

2.2 System objectives

For the Pet-Lover website, the main objectives are:

- User Experience Improvement: To optimize web user interface and functionality for a smoothand seamless customer experience.

- Secure Account Management: Implement secure systems for creating and managing customer accounts, ensuring data privacy and security.

- Optimized appointments: Create a simple and user-friendly appointments, which reducescomplexity and enhances user satisfaction.

- Booking an appointment for the customer's pets must give them all the choices the clinicprovides

- Doctors and staff should be able to know what customers they have and what appoinmentsthese customers made

- Effective Inventory Management for Doctor: Create a comprehensive inventory managementinterface for the admin, enabling efficient appointment addition and modification.

- Mobile Responsiveness: Ensure that the website is fully responsive on various mobile devices, catering to a wide range of users.

These objectives are set up to be unique to Linkopharm, achievable with available technology, reasonable in size, and based on improving the website's general usability and functionality.

2.3   System Timeline

This section provides the project plan from previous phase to next phase (SRS to Technical), including the major tasks to be accomplished, their inter-dependencies, and their tentative start/stop dates. The plan also includes information on hardware, software, and resource requirements. The project plan should be accompanied by one or more PERT or GANTT charts such as the chart shown in Figure ??.
The plan should include the projects task and who is responsible for this task. Table 2 shows an example.

Table 2: Pet-lover time plan

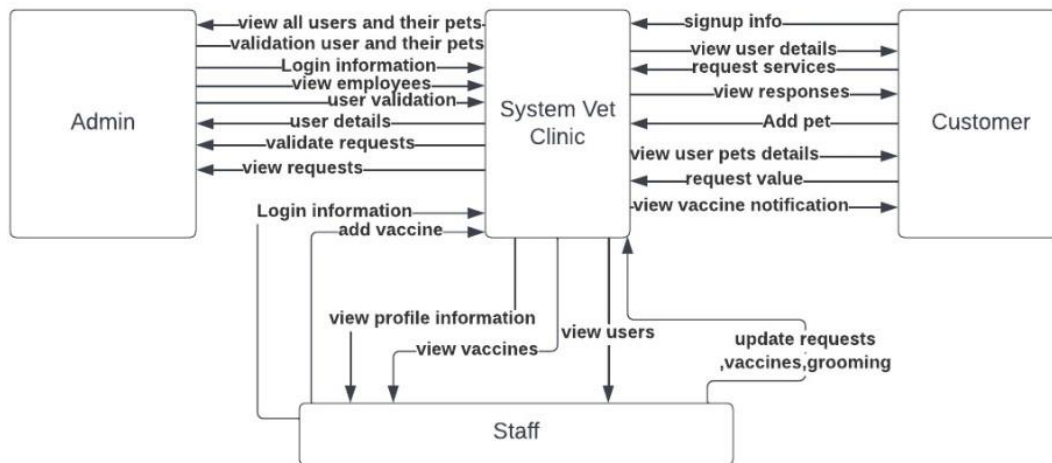| Id	Task	Start Date	Number of Days	Team Member
1	Work on Gui	5/4/2024	10	All
2	Login and Signup	6/4/2024	15	Maya
3	MVC sTRUCTURE	3/4/2024	5	All
4	CRUD	20/4/2024	5	All
5	Admin	25/4/2024	10	Nermien
6	Doctor	30/4/2024	30	Asmaa
7	Pet	2/5/2024	20	Nada
8	Appointments	5/5/2024	20	Sara

Figure 2: Context diagram for Pet-Lover Clinic

3 Design viewpoints

3.1 Context viewpoint

The Context view is often a starting point of system design. It provides a description of System's services and users. That context is defined by reference to actors that include users and other stakeholders, which interact with the design subject in its environment. The Context viewpoint provides a "black box" perspective on the design subject. The purpose of the Context viewpoint is to identify a design subject's offered services, its actors (users and other interacting stakeholders), to establish the system boundary. Design concerns: Systems services and users.

3.2 Composition viewpoint

In the Pet-Lover Clinic project, the architectural design follows a structured approach without employing the MVC pattern. The project is organized into specific folders to enhance modularity and maintainability. The primary folders include 'config', 'localhost', 'public', and 'views'. Within the 'public' directory, there are subfolders for JavaScript, CSS, and images. • The 'views' folder contains the 'admin', 'user', and 'partials' directories, which house the various subsystems that make up the system. Partials contains all the php files that is always appearing in all pages like the navigation bar for example. All subsystems contain particular functions
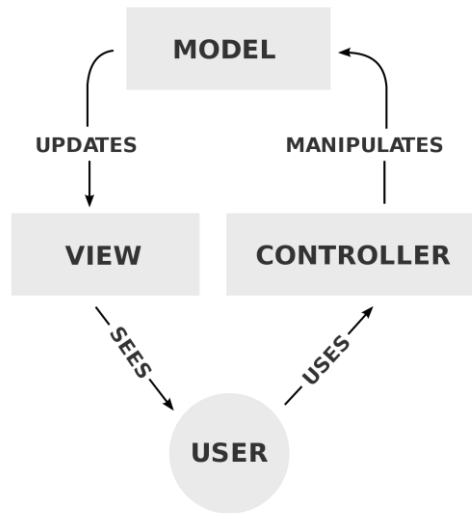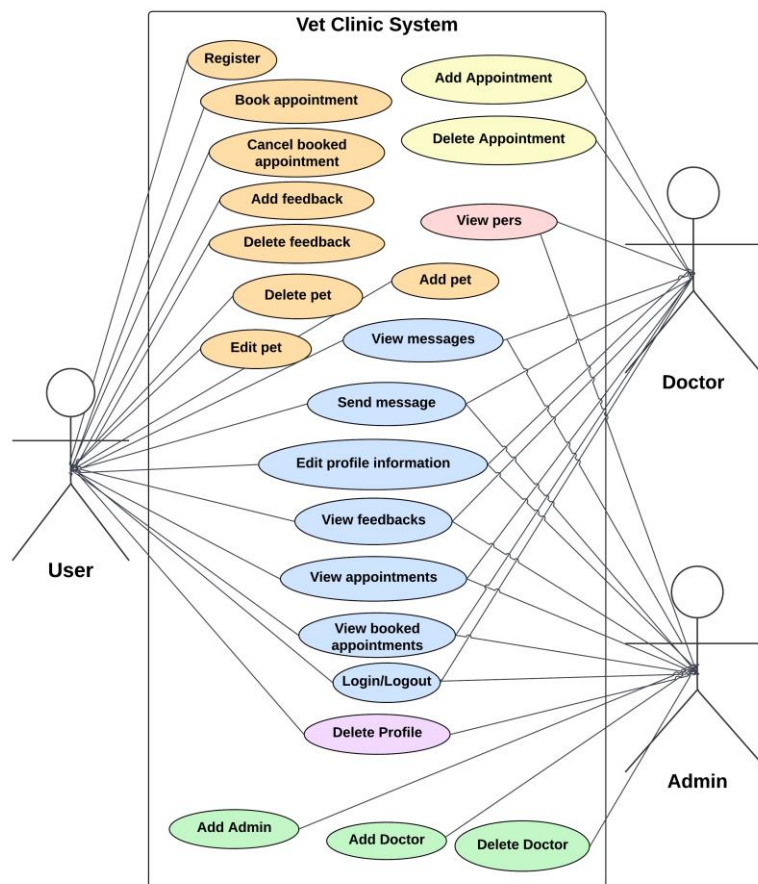
Figure 3: Architectural design

Figure 4: use-case diagram

3.2.1   Design Rationale

The Pet-Lover system, as described in section 3.2, used Model-View-Controller (MVC) pattern. This choice stems from the need for flexibility to fit Pet-Lover's changing needs. The MVC architecture provides a modular design while enhancing scalability and independent subsystem development, which it helps in the expected development of the system.
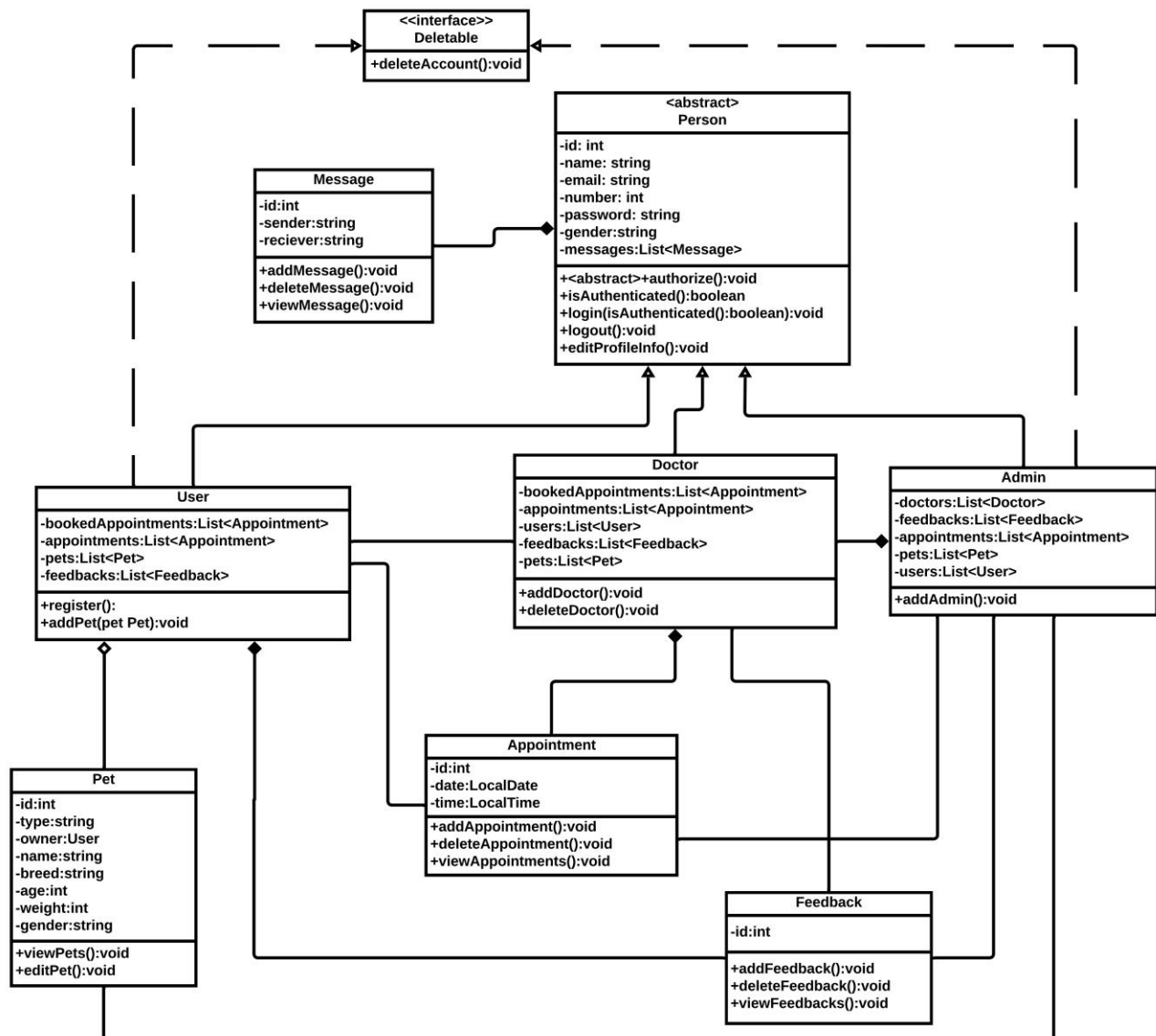
3.3   Logical viewpoint

Figure 5: vet clinic class diagram

Table 3: Class Admin

Abstract or Concrete	Concrete
Superclasses	Person
Subclasses	-

Purpose	Manage doctors, other admins, view doctors and their appointments
Collaborations	-
Attributes	id, Name, username, gender, password, phone number
Operations	addProduct(), editProduct(), deleteProduct(), addUser(), editUser(), deleteUser(), addOrder(), editOrder(), deleteOrder()

Table 4: Class User

Abstract or Concrete	Concrete
Superclasses	Person
Subclasses	Pet, Feedback.
Purpose	Register on the website, Log in to the website, Place cart, Place order
Collaborations	-
Attributes	id, Name, username, email, phone, password
Operations	register(), addPet().

Table 5: Pet

Abstract or Concrete	Concrete
Superclasses	-
Subclasses	-
Purpose	Stores information about the pets at the clinic
Collaborations	-
Attributes	id, name, breed, type, age, gender, weight
Operations	ViewPets(), editPet()

3.4   Patterns use viewpoint

The Usage of Patterns In Linko Pharm project, viewpoint is an essential lens that is used to study design concepts and the application of design patterns. This perspective uses UML package and class diagrams to show how system architecture makes strategic use of design patterns.
Model-View-Controller, or MVC, Pattern:
The system is organized using the Model (data and business logic), View (user interface), and Controller (handles user input and system behavior) patterns, which are integrated. Maintainability and modularity are improved by this division.
As an example: UML class diagrams demonstrate the relationships and interactions between the Table 6: Class Doctor

Abstract or Concrete	Concrete
Superclasses	Person
Subclasses	Appointment , feedback
Purpose	Processorders, Manage cart

Collaborations	Products class
Attributes	id, name, email, password, gender , phone number
Operations	addDoctor() , deleteDoctor()

Table 7: Class Appointment

Abstract or Concrete	Concrete
Superclasses	-
Subclasses	
Purpose	Manage cart
Collaborations	Products class
Attributes	id, date, starthr, endhr
Operations	editAppointment() , deletAppointment() , ViewAppointment()

Model, View, and Controller components by showing separate classes for each component.

3.4.1   Design Rationale

The Pet-Lover project's implementation of these design patterns is supported by strategic considerations meant to maximize the architecture of the system and guarantee scalability, maintainability, and extensibility. The reasoning for implementing these design patterns is explained in the following rationale:

Improved Maintainability and Modularity:

Model, View, and Controller components can be developed and maintained independently thanks to the MVC design, That improve the division of labor. Because of the system's modular design, updates and alterations can be installed with ease and without interfering with the operation of the entire system.
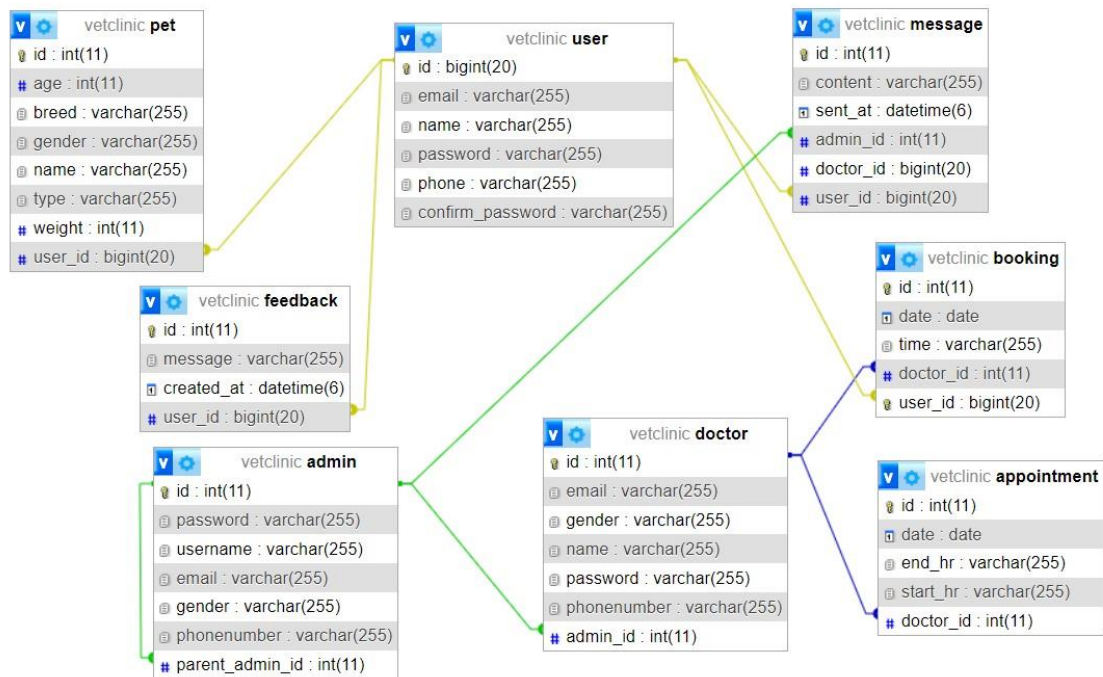
Figure 6: class diagram

3.5   Interaction Viewpoint

3.6   Interface viewpoint

• Customer Account Interface: Defines the protocol for creating, validating, and managingclient account. This includes procedures for account registration, login/logout, password recovery, and updating account information.

• Doctor Management Interface: Defines the roles of inventory management, including appointment addition, update, deletion, and appointment fulfillment processes Defines the access methods and permissions required for doctor roles.

• Appointment Interface: Defines a clear, intuitive form for selecting appointment type, date,and time.

• Doctor Profiles: Defines detailed profiles with qualifications, reviews, and photos.
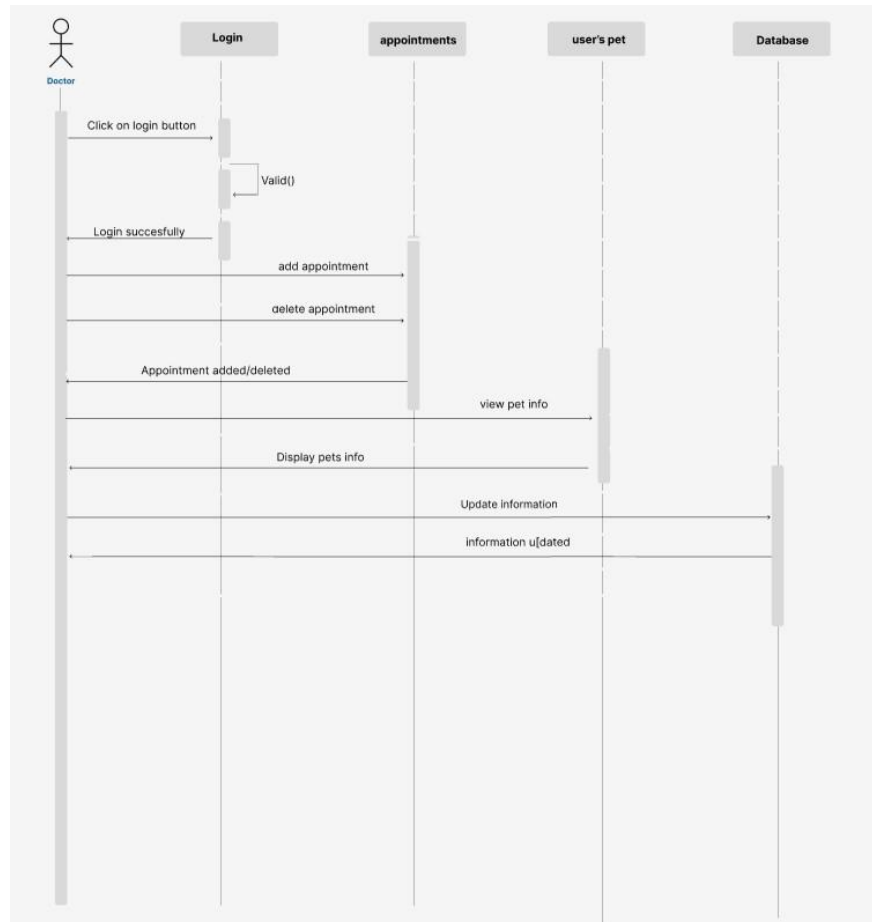
Figure 7: Doctor
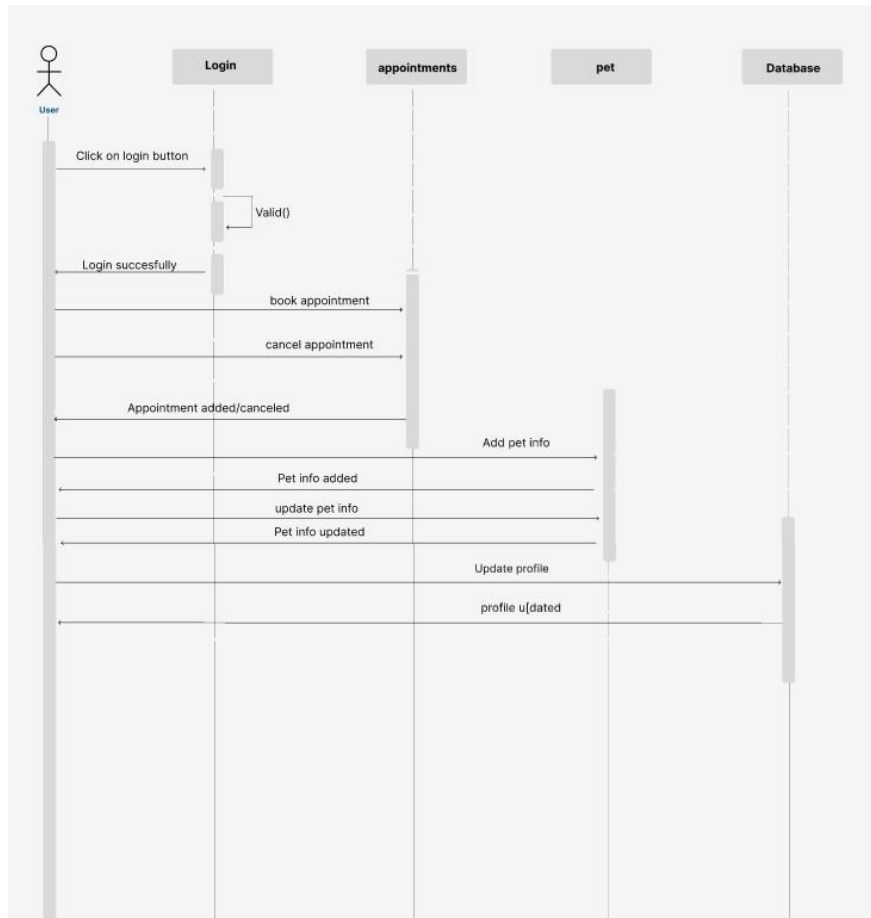
Figure 8: User
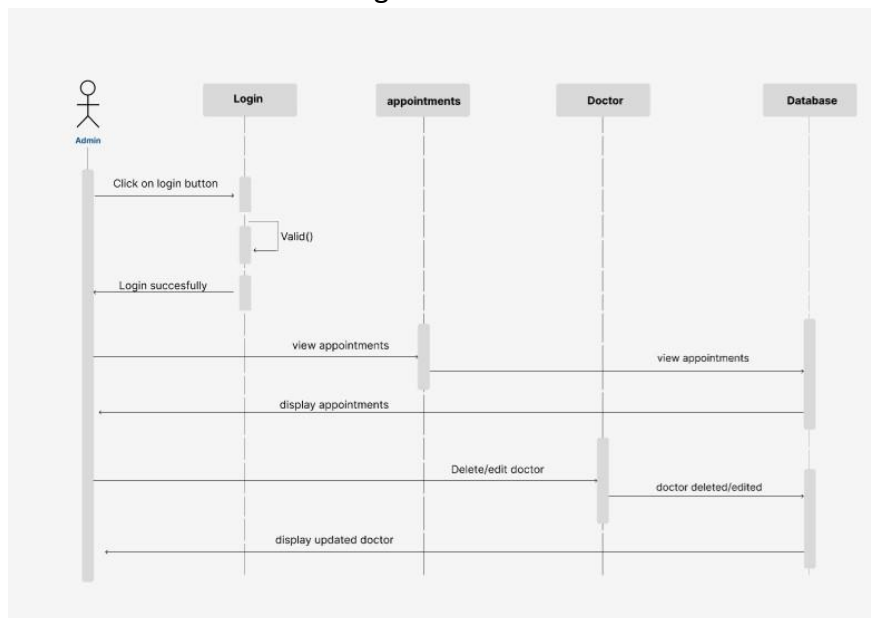
Figure 9: Admin

4 Data Design

4.1 Data Description

After the customer is greeted to the website, they are shown a home page with different features of the website. Then, the user is prompted to login or sign up. The sign up is a form that inserts the 9 user "First Name," "Last Name," "Email," and "Password" into a SQL database. (after validation). Then, the user is automatically logged in and a "session" is created based on their credentials. From there, the user can log out or access the different parts of the website. If the user chooses to book an appointment or service, they are prompted to enter the name of their pets (optionaly) and their type of pet. (as in dog, cat, or breed of dog, etc.) After this process, they may choose one of the services provided by the clinic. Once the user is ready to confirm the appointment or service, a receipt is generated and its details are saved inside another database. This is a huge upgrade to the "paper based" system the clinic was using beforehand. The users database is expected to be around 200-400 users long, each with his own User ID and the appointments is expected to be around 500-1,000 entries long containing the date and time the appointment is booked and when they are supposed to happen in the real world
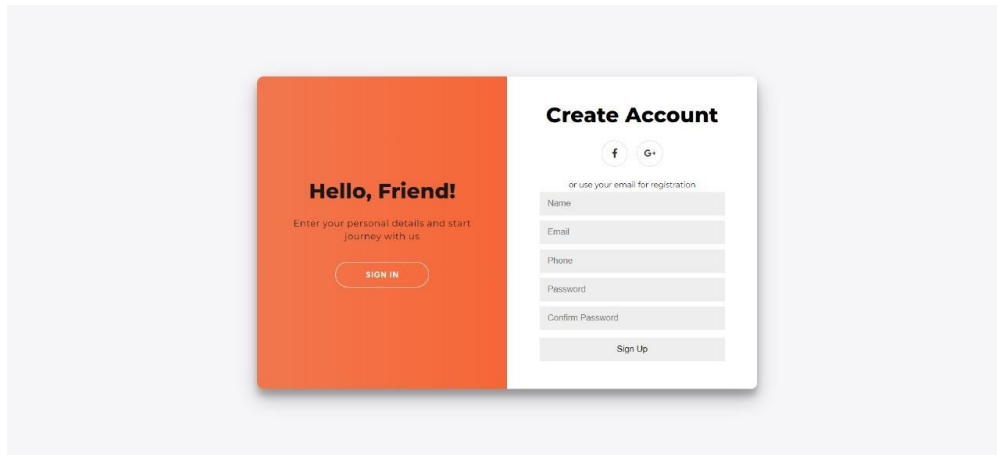
Figure 10: signup page

4.2 Database Design Description

5 Human Interface Design

5.1 User Interface

The proposed web application gives the user fast, simple, and interesting experience. Creating a new account or logging in with an existing one allows users to easily navigate the application. By accessing the account he'll be referenced to one of two sides of the web application. There are two main user roles: the admin side and the pet owner side or the side that appears to all non admins. any new user won't be able to enter any page except after creating an account or signing in. Navigating through the customer side begins with the home page or the landing page which contains a lot of information about the clinic, the Services button and the profile button. The services page contains four options to book: an Appointment, a Grooming, a Pet hotel, and Vaccine times, each option opens a booking form for the user to fill out. The profile tab allows the user to see his profile, and edit or delete it. The navigation bar enables the user to navigate simply through the website between the Home page or his profile or Services. he can also log out. and only an admin can make another user admin. Navigating through the admin side allows the admin to enter many different pages and helps him handle his work better. the side navigation bar contains The working hours section where the doctor enters his available working hours so that the user choose from it on the user side, The clients tab which displays all registered users, The pets tab which contains all the pets and all their information, and The appointments section which displays for the doctor all the upcoming booked appointments.

5.2 Screen Images

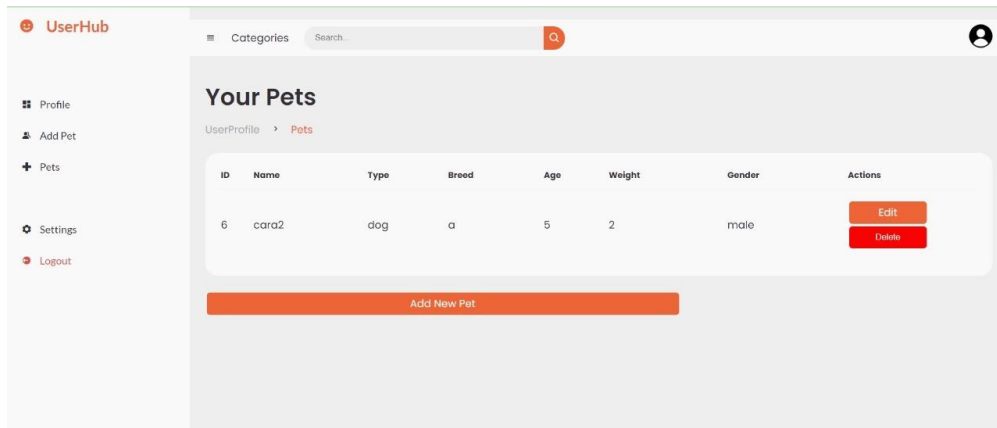Figure 11: homepage

Figure 12: Addpet form

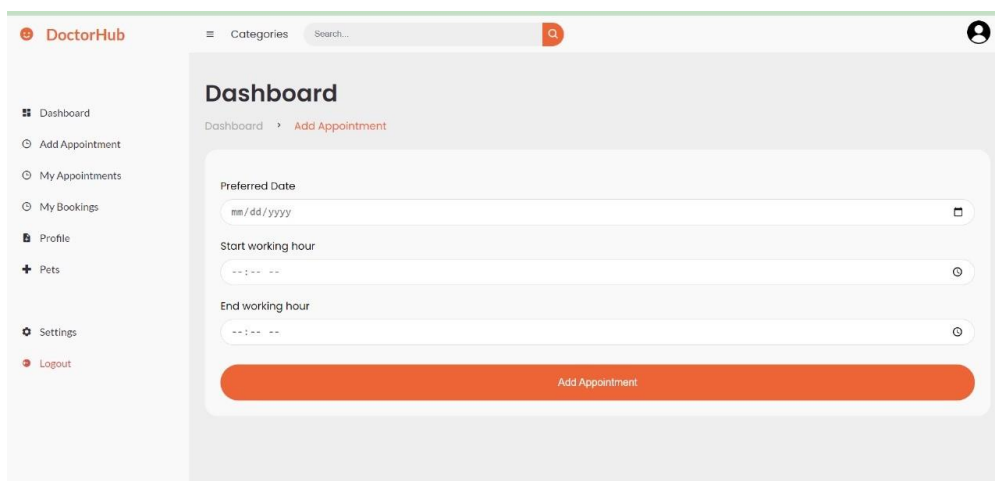
Figure 13: Edit form

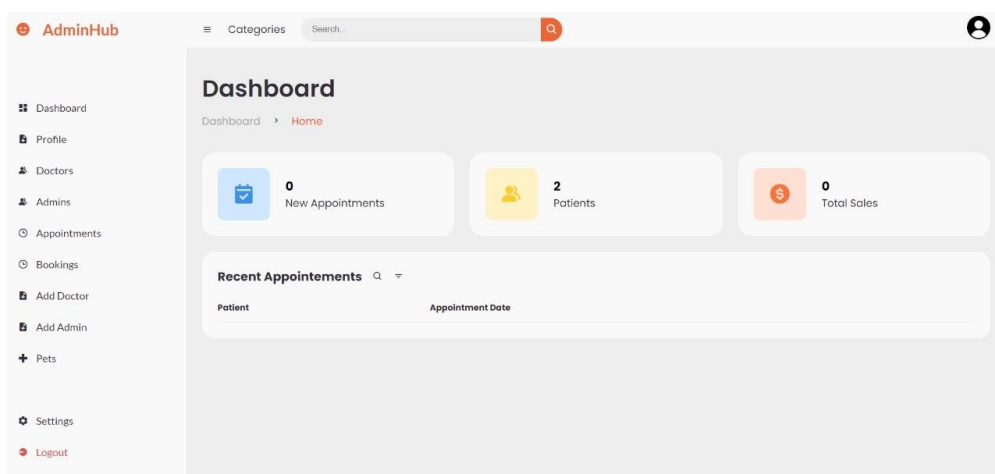Figure 14: edit form
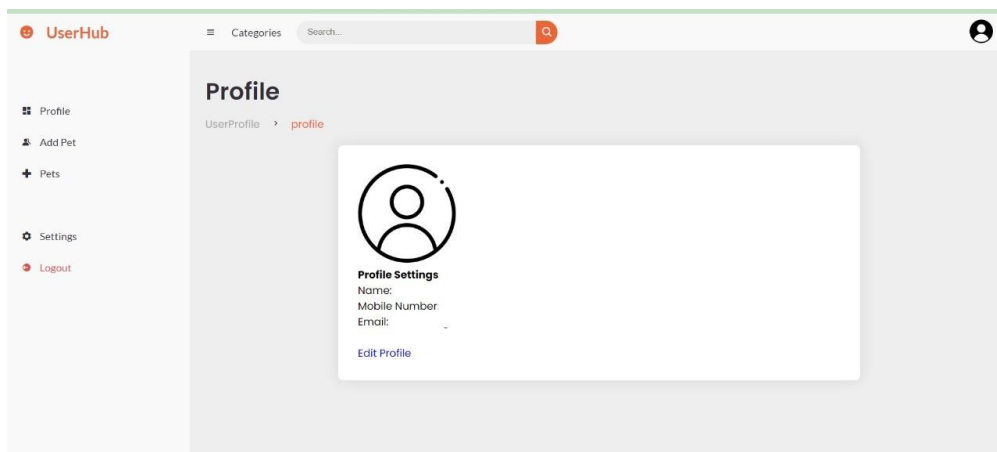
Figure 15: user profile

Figure 16: dashboard

Figure 17: add appointment

Figure 18: Dashboard

Figure 19: Dashboard

5.3   Screen Objects and Actions

1-   Signup: It acts as an entry point, including input fields for name and passwords, signup button,forgot password link, and login if there is already an account link.

2-   Homepage: high-resolution product carousel, intuitive navigation bar, search functionality, and promotional banners facilitate seamless navigation.

3-   The menu: offers a list of items, filter options, and sorting tools for a customized user experience.

4-   Cart: displays add-ons with options for removal, order form, and overall price, ensuring proper cart management.

5-   About Us: provides insight into Linko Pharm's mission, team members, and contact information, giving users a comprehensive understanding of the company.

6   Requirements Matrix

Table 8: Requirements Matrix

| Req. ID	Req Desc	Class	Test Cases ID	Status
U01	User login	User	TC01, TC02, TC03 , TC04 , TC05	Done
U03	User book appointment	Booking	TC06, TC07 , TC08	Done
U11	User add pet	Pet	TC09, TC10	Done
D10	Doctor update his profile	Doctor	TC11, TC12 , TC13	Done
D01	Doctor add appointment	Appointment	TC14, TC15 , TC16	Done
A02	Admin add doctor	Doctor	TC17, TC18	Done
A01	Admin add admin	admin	TC19, TC20	Done
A07	Admin updates his profile	admin	TC21, TC22 , TC23	Done
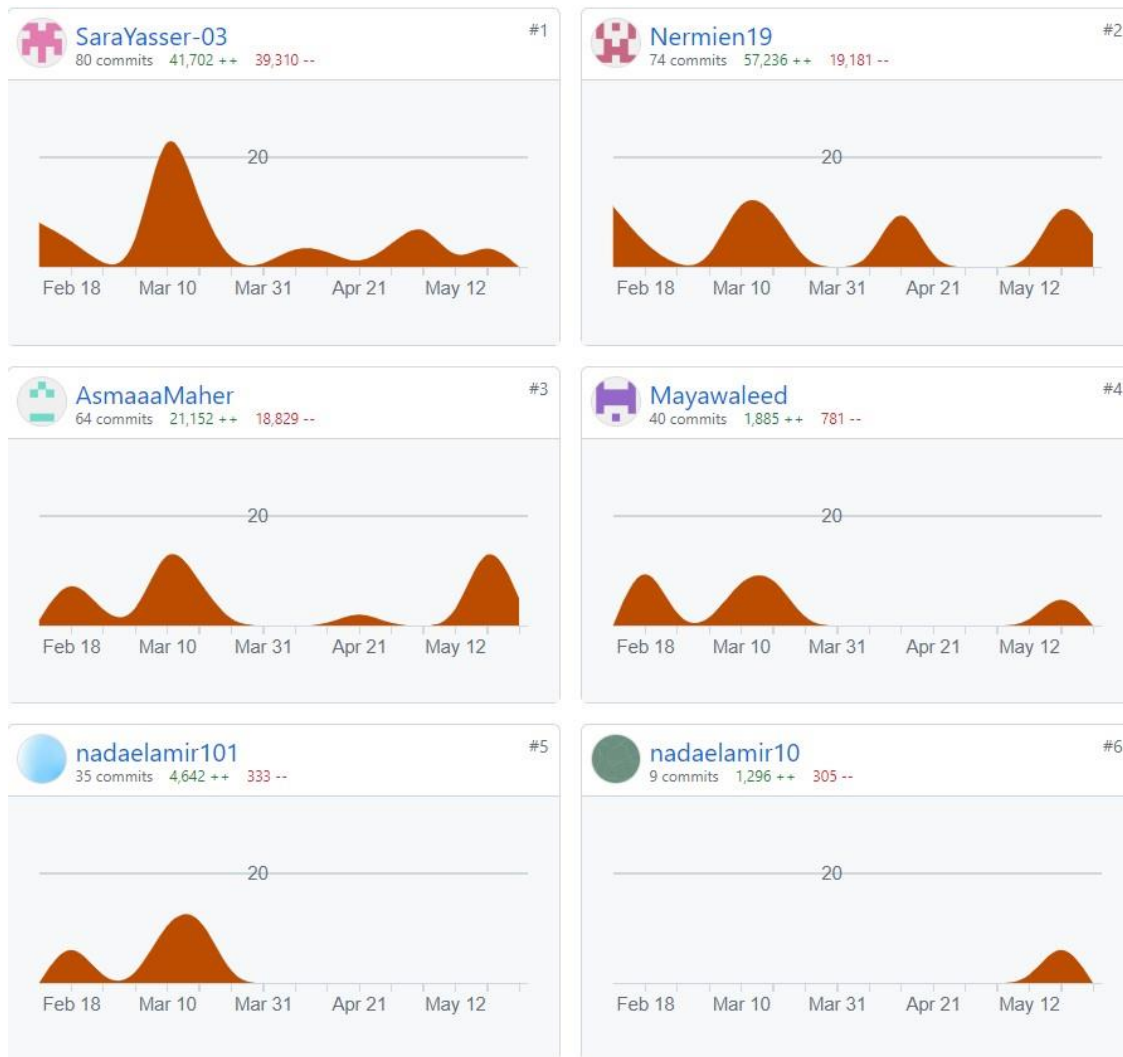
Figure 20: Enter Caption

7 APPENDICES

7.1 Github