Software Requirement Specification Document for Veterinary Clinic

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May 29, 2024

Table 1: Document version history

Version	Date	Reason for Change
1.0	19-Feb-2024	SRS First version's specifications are defined.

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

1 Introduction

1.1 Purpose of this document

The purpose of this document is to provide a detailed description for the veterinary clinic system . it will explain how the system works, who are the target audience , benefits of the system , the constraints under which the system will operate and how it will respond with different stimulus. this document is intended for both the stakeholders and the developers of the system .

1.2 Scope of this project

This software is aimed to be a website for veterinary clinic. the system is designed to help users choose a suitable time for their appointments , avoiding any waste in time for them waiting at the clinic . it also assists them in arranging a . it is also saves effort for doctors by avoiding any confusion could be happen for them in their appointments by listing all the reserved appointments with their medical details allowing them to have a full control on their them and the patients medical information .More specifically, the system will ease booking appointments for users , facilitate communication between doctors and users, allowing users to send feedback and messages for doctors and organize the appointments for doctors. .Furthermore, the system offers a full control on all the website for the admin to monitor and manage it's features. The system also contains a relational database , containing a list of users , appointments , admins and doctors .

1.3 Business Context

A veterinary clinic management system's Software Requirements Specification (SRS) describes the goals of the software solution's implementation as well as the business context. It outlines the clinic's activities, including its size, the services it provides, and the people it is intended for. Important obstacles are noted, including ineffective record-keeping, manual appointment

scheduling, and poor client communication. Industry developments and the need for regulatory compliance are highlighted by market analysis. The outline of business operations highlights areas that can be automated by software, such as appointment scheduling, patient registration, and billing. Key stakeholders, including clients, veterinary professionals, and support personnel, are identified and their roles and responsibilities are defined by the SRS. Success criteria are defined to gauge the software system's efficacy, with an emphasis on measures such as enhanced client happiness and a rise in appointment bookings. Through attention to these elements, the SRS guarantees that the software solution increases operational effectiveness, advances patient care, and is in line with the clinic's objectives.

2 Similar Systems

2.1 Academic

Survey three academic similar systems with references.

- JustAnswer Clinic: it is a clinic leading veterinary clinic with commitment to excellence.They have Chat with a Veterinarian to Connect with verified veterinarians in minutes, 24/7. the membership can save time and money every time the users use it. They provide veterinary services, utilizing advanced technology and compassionate care to enhance pet well-bieng and ensure the best patient outcomes.

  [1] Just N Website [1].

- Chewy Clinic: They are highly specialized veterinarian in dealing,managing and treating petanimals. They care about all details that make the pet comfort, healthy and happy.They offer all services needed of the pet as they are online clinic that are here for the pets 24/7—they're just a call, chat, email or social media message away.

2.2 Business Applications

JustAnswer Clinic: Visit JustAnswer.com for more information.

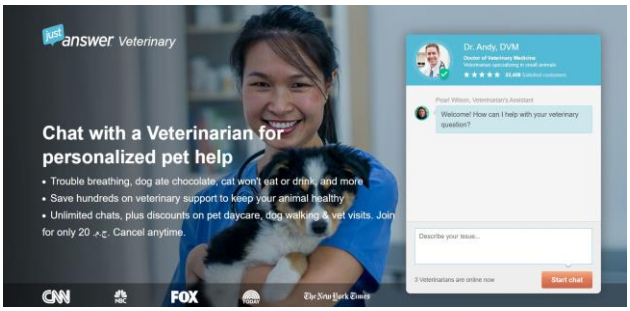

Figure 1: Just Answer

Chewy Clinic: Visit Chewy.com form more information.

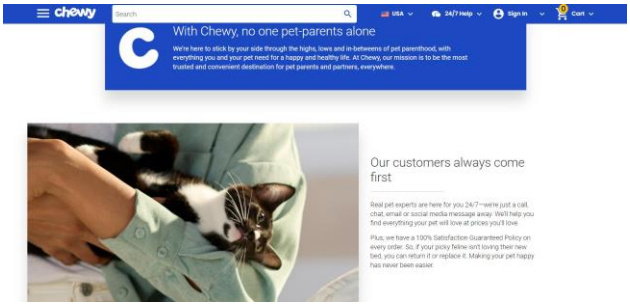

Figure 2: Chewy

3 System Description

3.1 Problem Statement

Pet Lovers clinic is veterinary clinic that is facing financial problems due to losing their clients as a result of appointments conflicts that might happen and their long time waiting to book and enter their appointment. increasing the time clients wait to book or enter their appointment and to contact the clinic has lead to losing interest in the clinic and giving it bad reputation for their unprofessional management of the reservations .Moreover, all appointments and patients data are being recorded using papers and human experience, causing lots of conflicts in appointments , wasting time and effort for clients waiting their turn in the clinic, as a result they give bad reviews and feedback on the clinic. In addition to that, the clinic is exposed to unman-aged pressure in their reserved appointments that caused lots of stress to the doctor. furthermore , Secretary department is struggling with lots of phone calls they get to answer clients questions and contact with them to book appointments and check the availability of the doctor . these old style in managing the clinic has caused disturbance to both clients and doctor leading to failure in management , financial loss and bad reputation in the medical field .

3.2 System Overview

The system is aimed to help managing appointments in Pets Lovers clinic and easing the connection between the doctor and clients , through creating a website representing the clinic with a booking system and contact messages section for the user . The doctor can also view his reserved appointment , contact messages from the user .As for the doctor , he has access to patients records and booked appointments as well as any message or feedback from the user . An admin is also responsible for managing all features in the website.

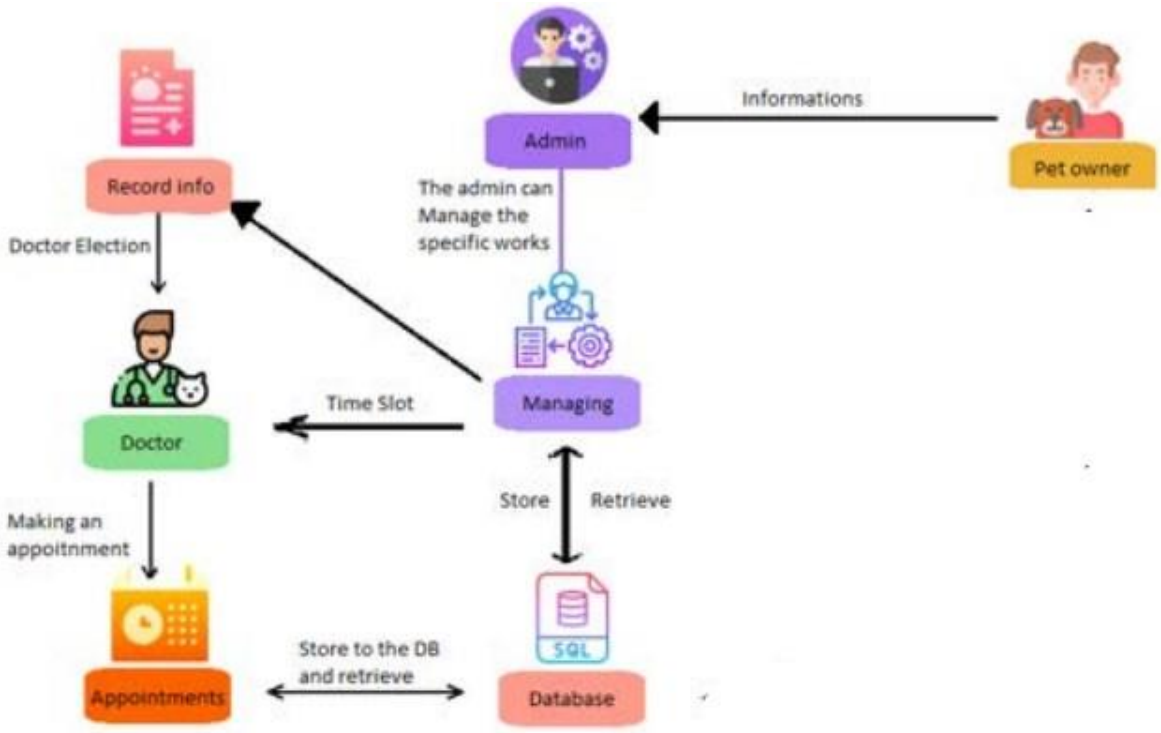

Figure 3: representation for the system

3.3 System Scope

The system is composed of three actors :

- Users : their main mission is to book an appointment for their pets , if they need they cancontact the doctor through the contact messages section and they also has the option to write their feedback.
- Doctor: he can manage his appointments and view each appointment with the patient infor-mation and all the messages from his clients
- Admin: he is responsible to manage the website, do all the crud operations and observe thewebsite statistics

3.4 System Context

Th system is very beneficial for the medical organizations as many of them use an old style for managing their clinics or hospitals causing financial, management problems in the medical field . This system can be used for most clinic owners with little change in it’s user interface but with the same functionalities.

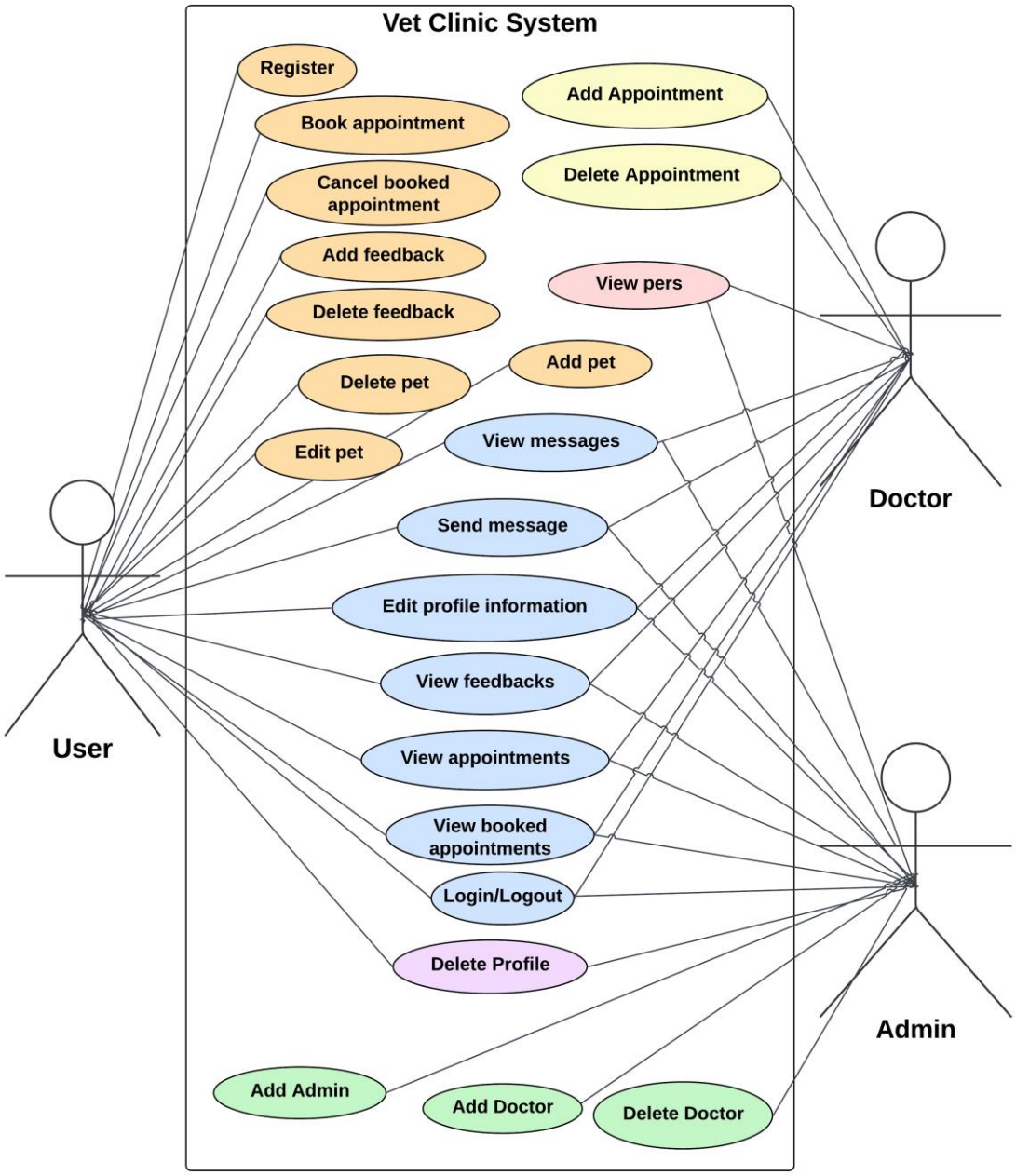

Figure 4: Use Case diagram

3.5 Objectives

The main objectives is to facilitate many processes for the clinic and the patients to save time and effort.Provide a fast and user-friendly application. User Management: allow users to create an account,make appointment and login. It also allow administrators to manage users, control access, and set up user roles.Customer Service: The website should have a contact us page that

includes contact information,and a help desk.The patient makes appointment with the doctor that he wants.
It should also contains customer service chat to resolve disputes.

3.6 User Characteristics

The users of this website are supposed to be pet owners who are empathetic and caring people who have strong sense of compassion for their animals . they could be regular or irregular owners for sick pets that need check ups and examination or vaccinations. they are concerned with their pets medical state and hygiene . They want to make sure that there pets are given the appropriate health care according to their case .

4 Functional Requirements

4.1 System Functions

1. Authentication
    - The system shall provide secure login functionality with user authentication (email and password).
2. Role-Based Access Control:
    - The system provides different user roles (user,admin,doctor) access to specific functionalities based on their permissions.
3. Admin
    - The system shall allow admins to:
        - Add other admin (A01)
        - Add doctor accounts within the system. (A02)
        - Delete doctor accounts within the system. (A03)
        - View pets. (A04)
        - View users' booking.(A05)
        - View users' feedback.(A06)
        - Edit their profile information.(A07)
        - Delete their account.(A08)
        - Send a message to the doctor. (A09)
        - Send a message to the user.(A10)
        - View messages.(A11)
        - View available appointments.(A12)
        - View booked appointments.(A13)

4. User

- The system shall allow users to:
  - Login with his personal information. (U01)
  - Register a new account. (U02)
  - Book appointment for clinic.(U03)
  - Cancel appointment for clinic.(U04)
  - Send a message to the doctor.(U05)
  - Send a message to the admin.(U06)
  - View messages.(U07)
  - Add his feedback. (U08)
  - Delete his feedback.(U09)
  - View users' feedback.(U10)
  - Add pet. (U11) – Edit pet. (U12)
  - Delete pet.(U13)
  - Edit their profile information.(U14) – Delete their account.(U15)
  - View available appointments.(U16)
  - View their booked appointments.(U17)

5. Doctor

- The system shall allow doctor to:
  - Add his appointments. (D01)
  - View his booked appointments. (D02)
  - View his appointments. (D03)
  - Delete appointments. (D04)
  - View messages. (D05)
  - Send a message to the user.(D06)
  - Send a message to the admin.(D07)
  - View pets. (D08)
  - View users' feedback. (D09)
  - Edit their account. (D10)

4.2 Detailed Functional Specification

Name	Add doctor accounts within the system
Code	A02
Priority	Extreme

Critical	This is one of the most crucial functionalities in the system as the admin must add doctors as it is necessary for users to book their appointments.
Description	This functionality allows the admins to add new doctor accounts to the system. A doctor account includes essential information such as personal details, contact information, and credentials necessary for system access.
Input	Doctor's name, gender, email Address, phone number, password
Output	None
Pre-Condition	The user must be logged in as an administrator with the necessary privileges.
Post-Condition	The doctor's account details are stored securely in the system database. The doctor can log in using the provided credentials.
Dependency	Proper authentication and authorization mechanisms should be in place to ensure that only administrators can access this functionality.
Risk	1. Incorrect or incomplete information provided during account creationmay lead to issues with the doctor's account or compromise data integrity. 2. Inadequate authentication may pose a security risk, allowingunauthorized access to the system.
Name	Book appointment with the doctor
Code	U03
Priority	Extreme
Critical	This functionality is a critical feature for a scheduling system that allows users to schedule appointments with their preferred doctotrs.
Description	The user chooses his preffered available appointments. The user then books an appointment with the doctor
Input	select date and time
Output	Booked appointments details.
Pre-Condition	1. User must be registered/logged in to the system. 2. Available time slots must be up-to-date. 3. User should have the necessary permissions to book an appointment
Post-Condition	Appointment details are stored in the system database.
Dependency	None
Risk	Inaccurate availability information may lead to overbooking or scheduling conflicts.
Name	View booked appointments
Code	D02
Priority	Extreme
Critical	This functionality is crucial as it allows doctors to access and review their scheduled appointments within the system.

Description	After the users book their appointments, the all booked appointments are presented to the user
Input	None
Output	Booked appointments details.
Pre-Condition	Doctor should have the necessary permissions to book an appointment
Post-Condition	Any changes made by the user (cancellations) are updated in the system.
Dependency	None
Risk	None

Name	Delete pet.
Code	U13
Priority	Medium
Critical	This functionality allows users to delete a pet they have added.
Description	The users view their add cats and select one then delete it.
Input	None
Output	User's added pets
Pre-Condition	User should have the necessary permissions to delete a pet
Post-Condition	The pet is permanently removed from the system
Dependency	Availability of the pet data in the system.
Risk	Unauthorized access may lead to the deletion of pets by malicious users

5 Design Constraints

The technology stack specifications, hardware restrictions, integration needs with current systems, security measures for data privacy, user interface guidelines, performance expectations, budgetary constraints, and legal compliance are some of the design constraints for a veterinary clinic management system SRS. These limits influence how systems are designed and implemented, guaranteeing interoperability, user-friendliness, and compliance with regulations while taking user wants and resource constraints into account. Following these guidelines is essential to creating software that supports clinic operations efficiently and satisfies stakeholder expectations and industry standards.

5.1 Standards Compliance

The device must be connected to the internet to use any online features.

5.2 Hardware Limitations

The website will be designed responsive and compatible with all web browsers and devices.

6 Non-functional Requirements

- Performance
  - The System should ensure that the website loads within the specified time of the user's request to open.
  - Database queries should return results within 1 second, even if there are load conditions.
  - synchronous users should not have a delay while using the website, and if there is, it must not exceed the specified time.
- Security
  - Data Protection: features such as data encryption should be employed to protect sensitive information stored in the system's databases from unauthorized access.
  - Access Control: User authentication should be implemented to ensure that only authorized users can access specific measures.
- Usability
  - User interface design(UI): the user should feel comfortable while using the system with clear navigation paths.
  - User feedback: sending error messages and tips to guide users to help them complete their tasks.
- Scalability
  - Database capacity should be able to add new patients and appointments.
- Compatibility
  - the user can use the system in different web browsers such as Chrome, and Firefox.

7 Data Design

- Database Name: PetLover Clinic DB
- Database Description: PetLover Clinic DB is a database designed to manage information for a veterinary clinic. It stores data related to pets, pet owners, veterinarians, appointments, doctors, and other relevant information needed to efficiently operate a veterinary clinic. The database aims to streamline clinic operations, manage appointments effectively and provide comprehensive care for pets.
- Tables:

1. User:
   - Description: Stores information about the registered pets' owners at the clinic.
   - Columns:
     * id: INT - Unique identifier for the pet owner (Primary Key)
     * name: VARCHAR - Name of the pet owner
     * email: VARCHAR - Email address of the pet owner
     * phone: VARCHAR - Phone number of the pet owner
     * password: VARCHAR - Password of the pet owner
2. Pet:
   - Description: Stores information about the pets at the clinic.
   - Columns:
     * id: INT - Unique identifier for the pet. (Primary Key) * name: VARCHAR - Name of the pet.
     * breed: VARCHAR - Breed of the pet.
     * type: VARCHAR - Type of the pet.
     * age: INT - Age of the pet.
     * gender: INT - Gender of the pet.
     * weight: INT - Weight of the pet owner.
     * user_id: INT - Unique identifier for the pet's owner. (Foreign Key)
3. Admin:
   - Description: Stores information about the admins of the system.
   - Columns:
     * id: INT - Unique identifier for the admin. (Primary Key) * name: VARCHAR - Name of the admin.
     * username: VARCHAR - Username of the admin.
     * password: VARCHAR - Password of the admin.
     * gender: INT - Gender of the admin.
     * phonenumber: INT - Phone number of the admin.
     * parent_admin_id: INT - Unique identifier for the parent admin (Foreign Key)
4. Doctor:
   - Description: Stores information about the doctors who works for the clinic.

- Columns:
    - id: INT - Unique identifier for the doctor. (Primary Key) ∗ name: VARCHAR - Name of the doctor.
    - email: VARCHAR - Email address of the doctor.
    - password: VARCHAR - Password of the doctor.
    - gender: INT - Gender of the doctor.
    - phonenumber: INT - Phone number of the doctor.
    - admin_id: INT - Unique identifier for the admin (Foreign Key)

5. Appointment:
    - Description: Stores the available appointments details for each doctor.
    - Columns:
        - id: INT - Unique identifier for the appointment. (Primary Key) ∗ date: date - Date of the available appointment.
        - startHr: VARCHAR - Start time of the available appointment.
        - endHr: VARCHAR - End time of the available appointment.
        - doctor_id: INT - Unique identifier for the doctor having that available appointment. (Foreign Key)
6. Booking:
    - Description: Stores the booked appointments details.
    - Columns:
        - id: INT - Unique identifier for the appointment. (Primary Key) ∗ date: date - Date of the booked appointment.
        - time: VARCHAR -Time of the booked appointment.
        - user_id: INT - Unique identifier for the pet owner, who booked the appointment. (Foreign Key)
        - doctor_id: INT - Unique identifier for the doctor, who has the booked appointment . (Foreign Key)
7. Feedback:
    - Description: Stores the details of user feedback.
    - Columns:
        - id: INT - Unique identifier for the feedback. (Primary Key) ∗ createdAt: date - Creation date of the feedback.

* message: VARCHAR - Feedback message.
* user_id: INT - Unique identifier for the user, who wrote feedback (Foreign Key)

8. Message:
   - Description: Stores information about messages exchanged between users.
   - Columns:
     * id: INT - Unique identifier for the feedback. (Primary Key) * sentAt: date - Date when the message is sent.
     * content: VARCHAR - Content of exchanged messages.
     * admin_id: INT - Unique identifier for the admin. (Foreign Key)
     * doctor_id: INT - Unique identifier for the doctor. (Foreign Key)
     * user_id: INT - Unique identifier for the user. (Foreign Key)

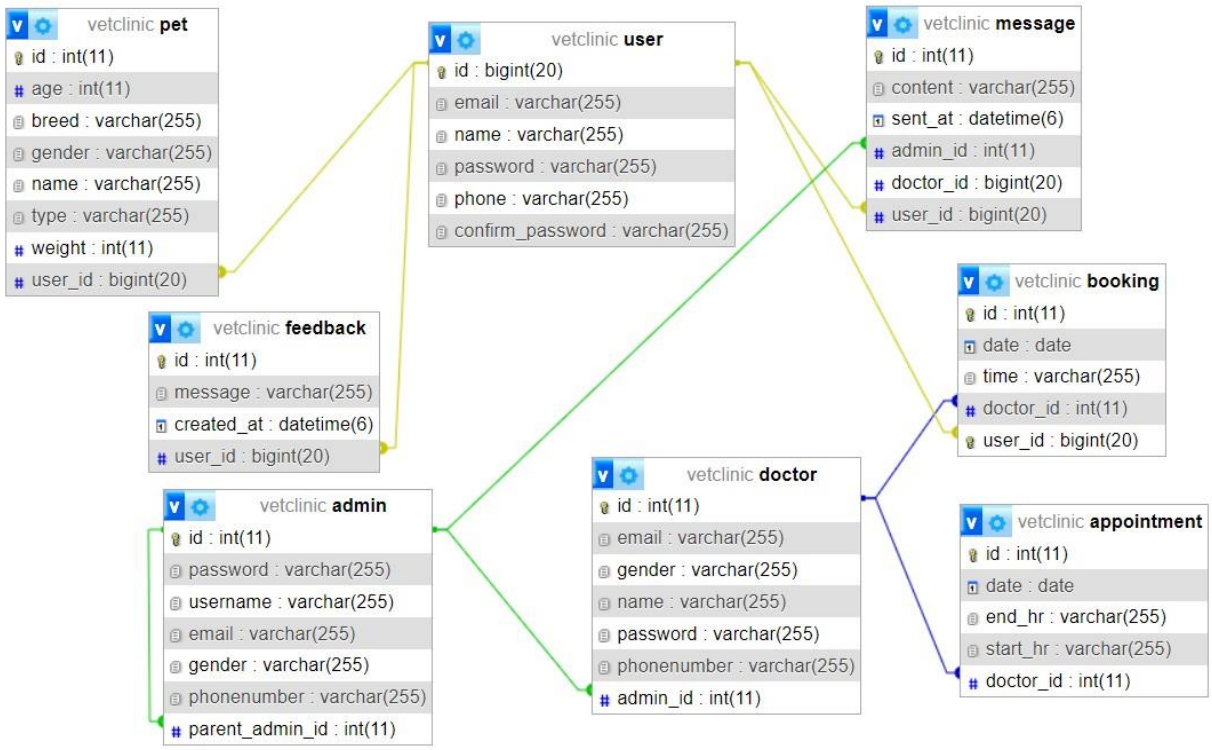

Figure 5: Class diagram

8 Preliminary Object-Oriented Domain Analysis

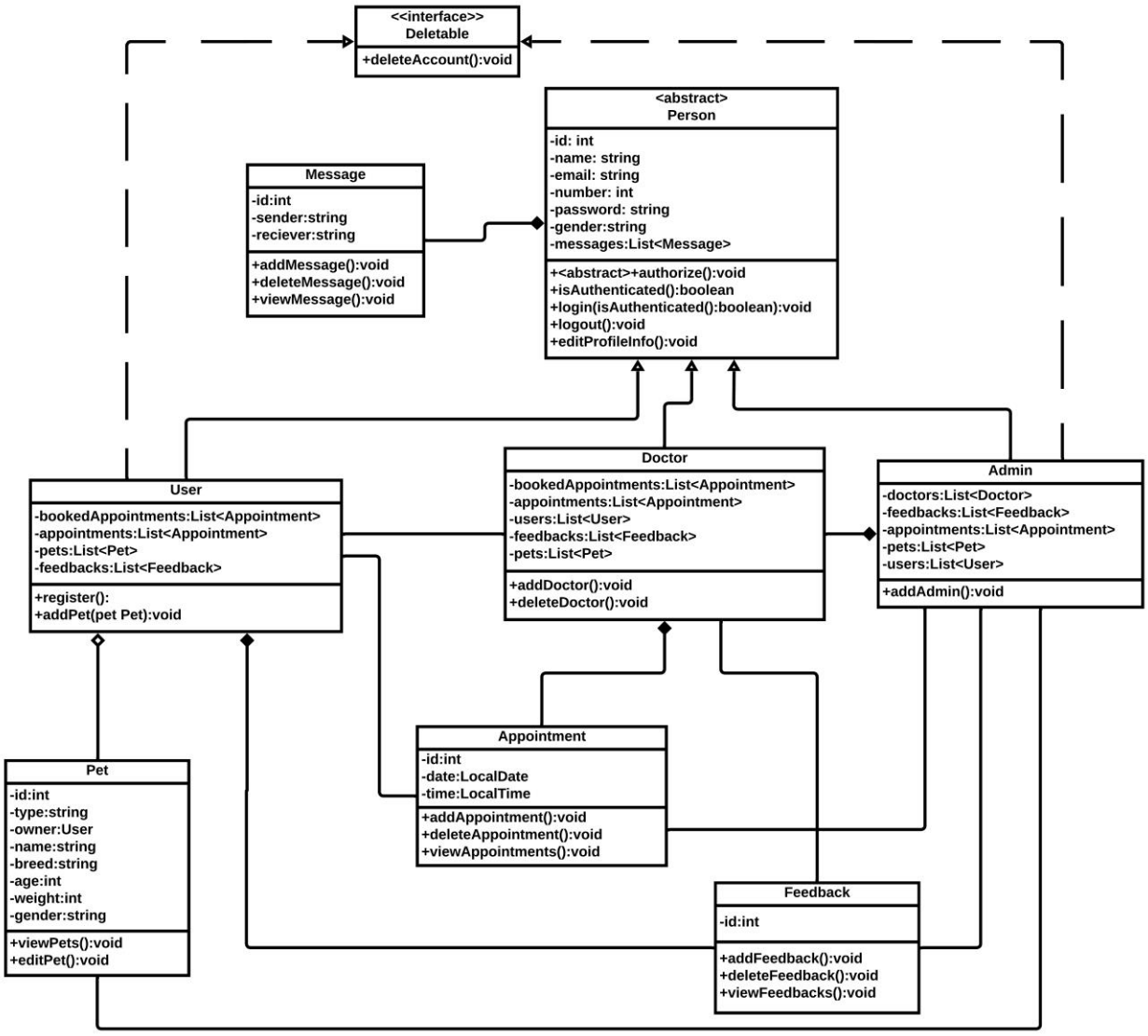

Figure 6: Class diagram

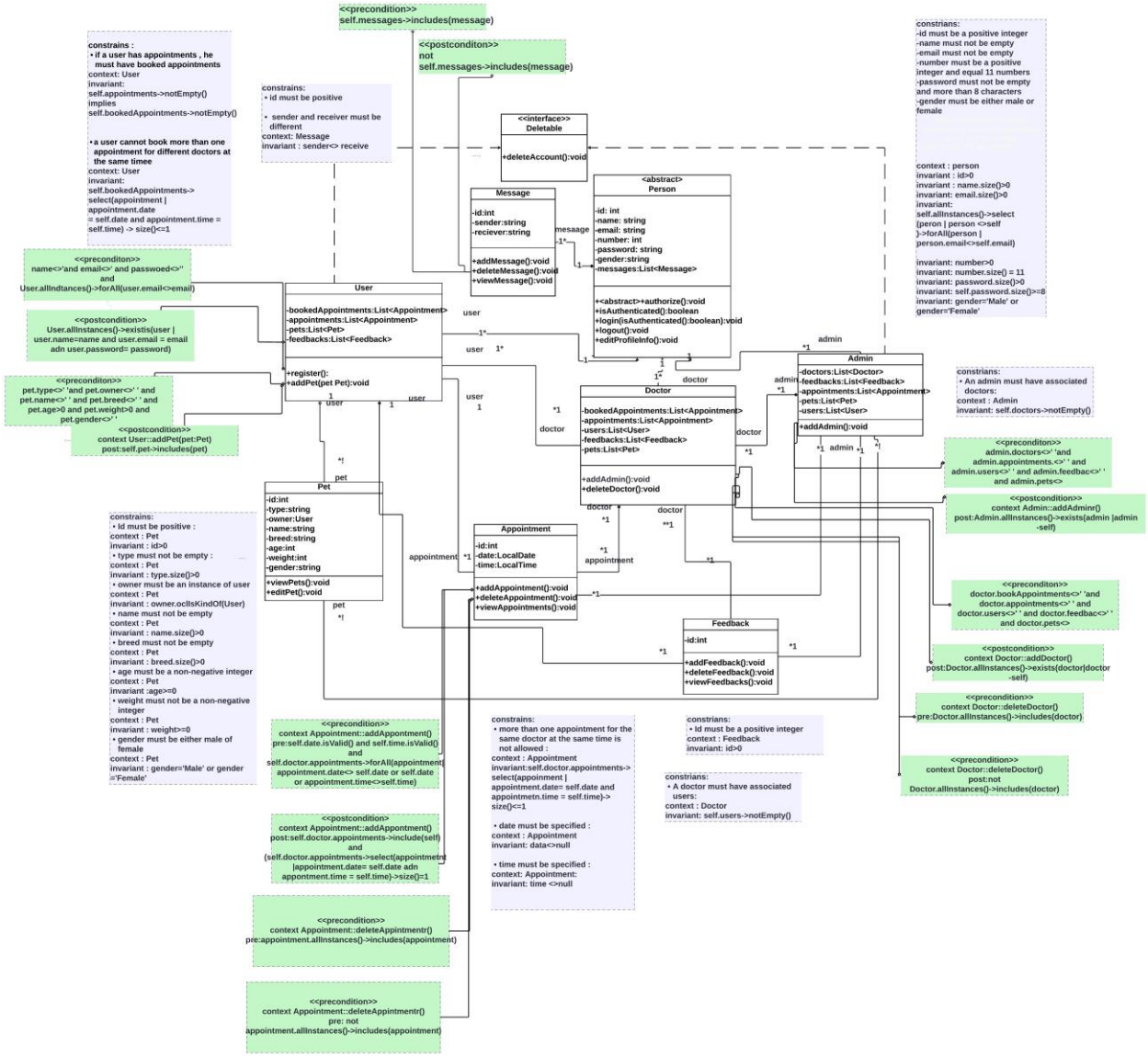

Figure 7: OCL diagram

9 Operational Scenarios

9.1 User Scenarios

9.1.1 Scenario 1: Successful User Registration

- Preconditions:
  - The user has access to a device with internet connectivity and a web browser.
  - The user has not previously registered on the system.

- Post-conditions:
  - The user is successfully registered on the system with a valid account.
  - The user is redirected to the login page.
  - The user's provided information is securely stored in the system.

9.1.2 Scenario 2: Valid User Login

- Preconditions:
  - The user has a valid account on the system.
  - The user credentials are correct (username and password).
  - The system is online and functioning normally.
- Post-conditions:
  - The user is successfully logged in to the system.
  - The user is redirected to their profile page.

9.1.3 Scenario 3: Invalid User Login

- Preconditions:
  - The user may or may not have an account on the system.
  - Provided user credentials are either incorrect or incomplete.
- Post-conditions:
  - The user is not logged in to the system.
  - The system displays error message (e.g., invalid credentials).

9.1.4 Scenario 4: User Cancels an Appointment

- Preconditions:
  - The user is logged in to the system.
  - The user has a booked appointment.
- Post-conditions:
  - The system cancels the selected appointment.

9.2 Admin Scenarios

9.2.1 Scenario 1: Successful Admin Login

- Preconditions:
  - The admin has a valid administrator account on the system.
  - The admin credentials are correct (username and password).
- Post-conditions:
  - The admin is successfully logged in to the system.
  - The admin is redirected to the administrator dashboard.

9.2.2 Scenario 2: Admin Adds a New Doctor

- Preconditions:
  - The admin is logged in to the system and has the necessary permissions to add doctors.
- Post-conditions:
  - A new doctor account is successfully created in the system.
  - System logs record the creation of the new doctor account.

9.2.3 Scenario 3: Admin Views Appointment Bookings

- Preconditions:
  - The admin is logged in to the system and has the necessary permissions to view appointments.
  - Appointment booking data is available in the system.
- Post-conditions:
  - The system fetches and displays accurate information about the total number of appointments booked.
  - The system presents detailed information about each appointment, including:
    * user information
    * pet information
    * Doctor information
    * Date and time

9.2.4 Scenario 4 : Admin Views Responds to User Message

- Preconditions:
  - The admin is logged in to the system.
  - The admin has the necessary permissions to view and respond to user message.
  - The admin selects a specific user message they want to respond to.
- Post-conditions:
  - The system allows the admin to compose a response to the selected user message.
  - Once submitted, the response is added to the user respond message and is visible to the user.

9.3 Doctor Scenarios

9.3.1 Scenario 1: Successful Doctor Login

- Preconditions:
  - The doctor has a valid doctor account on the system.
  - The doctor credentials are correct (username and password).
- Post-conditions:
  - The doctor is successfully logged in to the system.
  - The doctor is redirected to the doctor dashboard.

9.3.2 Scenario 2: Doctor Views Appointment Bookings

- Preconditions:
  - The doctor is logged in to the system and has the necessary permissions to view appointments
  - Appointment booking data is available in the system.
- Post-conditions:
  - The system presents detailed information about each appointment, including:
    * user information
    * pet information
    * Date and time

10 Project Plan

Task no.	Task name	Task Description	Duation in days	Assigned to
1	Fronend for all pages	Desiging the frontend for all the project using html and css	15 days	All
2	SRS	Writitng a software requirement specification for the project	28 days	All
3	User add pets	The user can add his pet information to easily share the info with the doctor	5 days	Nada
4	User view pets	The user can view his pet information by navigating to pets	3 days	Nada
5	User edit and delete pet	The user can edit his pet information easily , he also can delete it if he wants	4 days	Nada
6	Test plan documentation	A doucemnt describes the test plan and test scenarios with detials of the project	6 days	Nada
7	Log in	The user can log in by entering the email and password	3 days	Maya
8	sign up	The user can make a new account and enter his information	4 days	Maya
9	sign up validation	validations on the email,phone,password and confirmation password	5 days	Maya
10	Log in validation	validations on the email and password	5 days	Maya
11	save data in pro-file	retrieve data of user after log in to his profile	3 days	Maya
12	dr add appointment	dr can add date and working hours	3 days	sara

13	user book appointment	user book appointment after choosing his preferred date	2 days	sara
16	add admin to the website	admin can add another addmin to monitor with him through the admin dashboard	3 days	Nermien
17	edit admin	an admin can edit in another admin in the system	3 days	Nermien
18	edit doctor	the admin has the ability to edit doctors that are logged in the website	3 days	Nermien

1	doctor canadd appointment	doctor can add appointments to make user booking in the time he is free on it	3 days	Asmaa
2	doctor view pets	doctor can view pets that to make user booking in the time he is free on it	2 days	Asmaa
3	doctor can log in	doctor can log in to be able to access features of website	2 days	Asmaa
4	doctor can view his profile	doctor can view and edit his profile	2 days	Asmaa
5	delete doctor	the admin has the ability to delete doctors from the system	3 days	Nermien
6	view admins	the admin has the ability to view the list of admins logged in the system	3 days	Nermien

11 Supportive Documents

References

[1] *MSWindowsNTKernelDescription*. https://investor.chewy.com/news-and-events/news/news-details/2023/Chewy-to-Open-Its-First-Veterinary-Practiceswith-Launch-of-Chewy-Vet-Care/default.aspx. Accessed: 2010-09-30.