Software Requirements Specification

for

VetCare

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

The purpose of this SRS document is to outline the specifications and development processes for the VetCare Online clinic. VetCare is designed to revolutionise the way pet owners manage the health and well-being of their pets by providing a comprehensive and user-friendly web application. This document will serve as a guide for the development team, ensuring that all project milestones are met and that the final product meets the needs of its users. This report will provide details of the systems features, the intended audience and the scope of the product, laying the foundation for a successful implementation.

1.2 Document Conventions

The document follows a normal structured format, to ensure clarity and ease of understanding. Key terms and features are highlighted in bold. The document is organized into sections, each addressing specific aspects of the project, including functional and non-functional requirements, system architecture and project timelines.

1.3 Intended Audience and Reading Suggestions

This report is targeted at the development team responsible for building VetCare system, including software engineers, designers and project managers. Additionally, it serves as a reference for stakeholders and clinic administrators who interact with the system. It may also be used by academic staff who will judge whether the online VetCare system provided positive progress and outcomes.

1.4 Product Scope

VetCare is a web application that gives pet owners a simple, convenient way to manage their pet’s health. By connecting with local veterinary clinics and stores, users can book appointments, access medical records, manage prescriptions and find important and helpful information about pet care. The app also provides real-time data so users will always have up to date information on available services. Additionally, there will be features such as automatic reminders, notifications and online payments included to make the process and experience even smoother. This project's scope covers the development of these core features, with room for further improvements as it evolves.

1.5 References

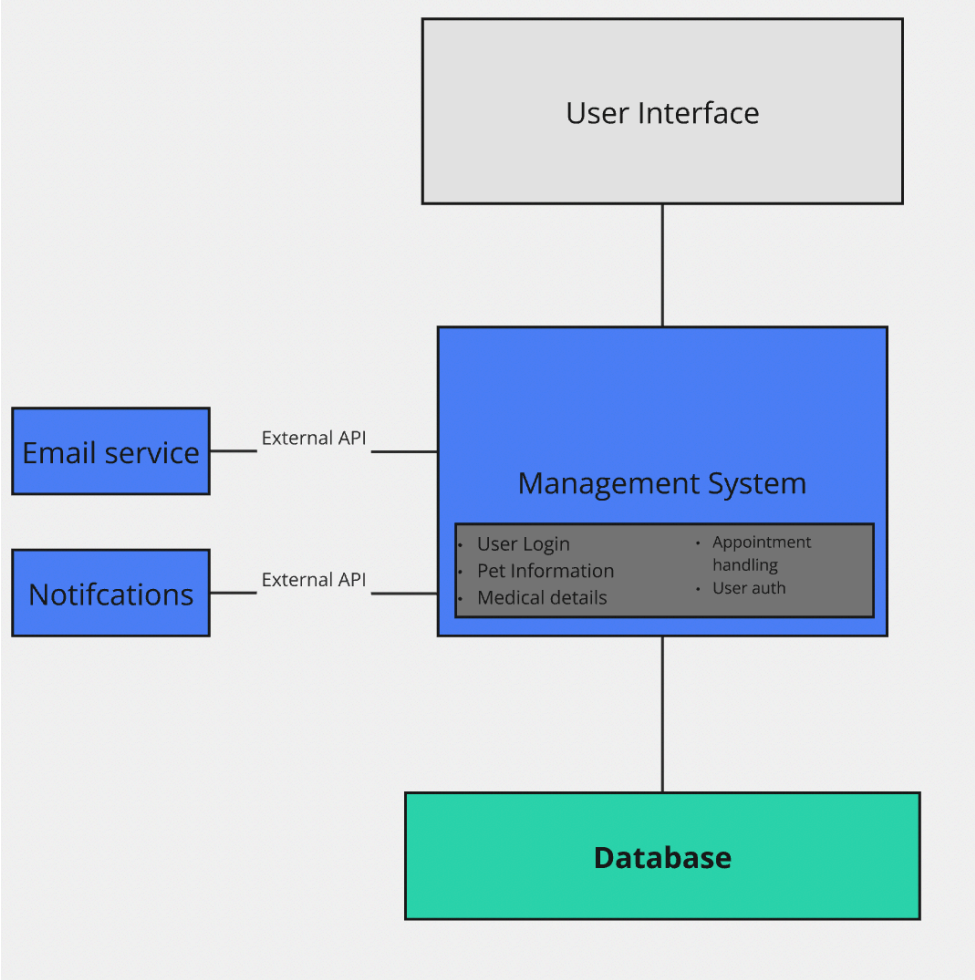
[1] "Canvas -SEPT," [Online]. Available: https://rmit.instructure.com/courses/125192/modules. [Accessed August 2024].
[2] M. B. a. J. McLaren, "Effective and ethical Data sharing at Scale," 27 May 2024. [Online]. Available: https://www.data4sdgs.org/effective-and-ethical-data-sharing-scale. [Accessed 20 August 2024].
[3] S. R. C. M. Joao Sousa Botto, "What is the Simple Mail Transfer Protocol (SMTP)?," CloudFare, 2021 September 27. [Online]. Available: https://www.cloudflare.com/en-au/learning/email-security/what-is-smtp/. [Accessed 20 August 2024].
[4] "JSON over HTTP(s)," [Online]. Available: https://www.netio-products.com/en/glossary/json-over-https. [Accessed 23 August 2024].

2. [1]Overall Description

2.1 Product Perspective

VetCare is an online vet clinic management that primarily focuses on integrating pet owners and veterinary professionals. This web application is a replacement for the manual system of veterinary management that makes tasks easy.
VetCare is designed to provide a comprehensive management for pet owners to manage their own account and access to the veterinary services and the veterinary clinics seeking to engage with their customers. Users will have access to the local veterinary clinics, services and prices, allowing them to easily schedule appointments with real-time data and up-to-date information about availability.

The simple diagram below will show major components of the overall system, subcomponents and external interfaces of the VetCare web application:



2.2 Product Functions

The VetCare web application is designed to follow these key features:

- **User Accounts Management:** The system allows users to create an account and login in order to be able to access the VetCare web application such as managing appointments, purchase a product and writing reviews.
- **Appointment Management**: The system allows users to book, reschedule and cancel appointments.
- **Medical Record Access:** The system allows users to view their pet's medical records and download the record in PDF format.
- **Prescription Management**: The system allows users to view their pet's medications and dosage instructions and request prescription refills if needed.
- **Educational Access:** The system allows users to have access to veterinary articles, videos and guides on pet care and wellness.

- **User Reviews:** The system lets users write reviews for services that they already did or products.

2.3 User Classes and Characteristics

Different types of users that will use the VetCare web application:

- **Pet owners**: This is the primary users of the system. The pet owners will have their own platform to manage their pet's healthcare, schedule appointments and access medical records.
- **Veterinary professionals**: The veterinary professionals will be responsible for updating the medical records, managing the appointments and engaging with the pet owners. They will have their own administrative access.
- **Clinic Administrations:** The clinic administrations will be responsible for updating their clinic's availability and pricing. They will also have their own administrative access.
- **Guest Users:** Anyone can visit the VetCare application. They can have access to explore the clinic information and educational resources. However, they can't have access to veterinarian services such as booking appointments, managing their accounts and user reviews.

2.4 Operating Environment

The VetCare application will operate in the following environments:

- **Hardware platform**: The application will be accessible on multiple devices such as desktop/laptop, tablets and mobile devices.
- **Operating System:** Windows, Mac OS
- **Software Components:**
  - **Web Browsers:** The application will be compatible with Google Chrome, Safari, Firefox and Microsoft Edge
  - **Framework**: the application will be using Java with Spring Boot
  - **Integrated Development Environment (IDE)**: IntelliJ IDEA
  - **Database**: MySQL

2.5 Design and Implementation Constraints

The development of the VetCare Application might have some constraints:

- **Corporate or Regulatory Policies:** Option to access the healthcare records and prescription resources or example might be limited due to confidentiality data. Therefore, we might do some research and generate sample data for the medical records.

· **Database:** If we need to deal with large data such as medical records for many users, the option for bigger database storage might need to be considered.

· **Design Conventions**: Real time data update of availability for booking appointments and reflect on the user interface should be within 2 second after changing.

· **Language Requirements:** Java and Spring boot frameworks must be learnt quickly**.**

· **Security considerations:** The system should have robust authentication and verification to ensure only authorized users can have access to some of the features of the application such as medical records and user accounts.

· **External API Integration:** The use of external APIs for email services and notifications might depend on the rate limits, cost and security.

2.6 User Documentation

The VetCare web application will provide the following user documentations as below:

· **User Manual**: A comprehensive guide that shows instructions on how to manage accounts, book, cancel and schedule appointments, medical records access, prescription management and educational resources.

· **Online Help:** The instructions are embedded within each web application features as a tooltip. When the user hovers over the question mark icon, an alt text or brief description will appear to provide necessary information.

· **Question and Answers:** Frequently asked questions from the users can be addressed through the Contact page.

Documentation Format:

· **Web-based Documentation:** The users can access directly from the VetCare web application.

· **PDF Manuals:** The users can download the user manual for offline access.

2.7 Assumptions and Dependencies

The VetCare application's development and operation depends on the following assumptions and dependencies:

Assumptions:

· **Data Accuracy:** Data provided by the veterinary clinics or professionals such as appointment availability and medical records is accurate and up-to date.

- **User Accessibility**: The users should have reliable internet to get access to the VetCare web application.
- **User Authorization**: Only authorized users will have access to their own medical records, prescriptions and their account, ensure data privacy and confidentiality.

Dependencies:

- **Third-party services:** The application might rely on the third-party services for payment processing (for example PayPal) and possibly map integration such as Google Map.
- **Development tools**: The application is developed by using Java, Spring Boot and IntelliJ for development.
- **Database system:** The application is developed by using a specific database management system such as MySQL to store and manage data.
- **API and Integration**: Integration with various APIs for real-time data exchange for booking appointments and prescription management. Integration for email services and notifications.

3. [1] External Interface Requirements

3.1 User Interfaces

The home page of VetCare platform features a welcome message and provides navigation options such as Home, Schedule Appointment, Medical Records, Prescription, and Resources, along with a search bar for easy access. The appointment scheduling section enables users to view available time slots, and book or reschedule appointments, with dropdown menus for choosing veterinarians and input fields for entering pet details. The platform should allow users to create an account and login to their account. The medical record section offers a secure platform to view and manage pet medical histories, with options to filter records by date or type and a feature to download. Prescription management allows users to access detailed medical information, including forms for prescription requests and dosage instructions. Educational resources provide a library of articles and videos about pet care, which users can browse by category or search by topics. The user account management section includes features for updating personal information, managing login credentials, and reviewing past consultations. VetCare platform maintains an aesthetic theme with use of color, fonts and different layout. It is designed responsively to change to various device sizes, ensuring consistency in different devices. The website uses standard button like “Submit”, “Cancel” and “Download”**.** Error messages should be user-friendly and provides the suggestions for correction steps, with errors being clearly highlighted. A detailed high-quality image of our UI diagram will be provided in the 7th Part of this document.

3.2 Hardware Interfaces

The application is designed to be used in a range of devices, including desktops, laptops, tablets, and smartphones. For communication between the application and user devices, HTTP/HTTPS protocols are utilized to use secure data exchanges. For example, when a user submits a form or clicks a button, an HTTP or HTTPS request is sent to the application, which then carries out actions like updating data or creating reports.

3.3 Software Interfaces

Connections:

- Database: MySQL will be used to store user information, appointment schedules, medical record, prescriptions, and educational resources**.**
- Web Framework: Spring Boot (Java 17 or later**)** for application development.
- Build tool: Maven, most recent reliable version for project management.
- Unit testing: Junit5 for unit testing.
- CI/CD tool: GitHub actions.
- Containers: Docker for containerization

Data Items and messages:

- Incoming Data: Includes user inputs forms, appointment requestions and search queries.
- Outgoing Data: Consists of responses such as confirmation messages, medical records, prescription details, and educational content.

The VetCare platform requires MySQL for managing relational data effectively. It also facilitates authentication and authorization mechanism to securely managing user identities. To make sure seamless global data sharing, the system adopts [2]global data management strategies that ensure consistency in accessing information across all application**.**

3.4 Communications Interfaces

The VetCare web application will be accessed via web browsers that support HTTP/HTTPS protocols. Data transfer between client and server use HTTPS as a secure communications channel to protect data privacy. The message exchanged will be formatted in JSON. [3] Additionally, email communication will be integrated for notifications, appointment reminders and user interactions sent via secure [3]SMTP protocol to protect data. Additionally, HTTPS will be used to transmit passwords securely over the network, protecting them from any interception during login or registration process.

4. [1] Nonfunctional Requirements

4.1 Performance Requirements

· The system must be able to handle response times for 90% of database requests within 3 seconds

· The system must be supported on all major browsers including as chrome, safari, edge and Firefox

· The system must ensure that all interactions with the platform induce minimal errors and under no circumstance does the platform crash.

· The system must ensure it can handle 100 concurrent users without any delay or errors and cannot crash due to high traffic. (testable)

· The system must ensure that downtime on the platform is minimised to 2 hours a fortnight and users are notified regarding it at least 48 hours prior to downtime.

4.2 Safety Requirements

· The system should ensure daily backups of critical data such as pet data, owner data, transaction history is made to ensure loss prevention.

· The system must ensure that it complies with the relevant healthcare compliance, data transaction compliance and data protection regulations.

· The system must ensure that critical data such as pet information, personal information, medical history and transaction history is kept confidential to comply with privacy regulations.

· The system must ensure that all crucial data such as pet data, owner data, transaction history is encrypted during transit and data at rest.

4.3 Security Requirements

· The system must ensure that user credentials, pet medical records must be encrypted both during transit and data at rest.

· The system must ensure that the relevant data privacy regulations and compliance are met.

· The system must ensure that Multi-Factor Authentication is employed to increase security.

· The system must ensure that all activity including signing in and signet and transaction history must be logged and adhered to the relevant compliance.

· The system should test for vulnerability in security at least once each quarter and in case of a data breach, vulnerability is tested once a month for 12 months.

4.4 Software Quality Attributes

· The system must be fully documented including the code and user functionalities to provide clarity to future developers.

· The system must ensure that data is correctly displayed when requested from the database including personal information, pet history, medical history and vaccination history.

· The system should automatically be upscale in case of unexpected high traffic with servers being able to cater to the relevant spike in traffic to maintain high availability and convenience to users.

· The system should ensure that interruptions such as a failed query, or interrupted processes recover from the error gracefully and without any crashing or downtime to the platform.

4.5 Business Rules

· Veterinarians can access, create, update, and delete pet medical records, including treatments, vaccinations and prescriptions.

· Pet Owners can access their pets' medical records, including vaccination history, prescriptions, and upcoming appointments, but cannot modify any records.

· Pet owners can schedule, cancel, or change appointments with veterinarians

- Pet owners cannot access other owners' personal information and data.

- Pet Owners can update their and only their personal information including change or name, address, password or relevant pet information such as name.

5. [1] Other Requirements

Database requirements: The VetCare application will use relational databases such as MySQL to store user data, prescription data and educational resources. The database also needs to ensure the data integrity such as user's passwords.

Legal requirements: The application should have a clear term of user service and agreement between the users and services.

Performance requirements: The application should respond to user action within 2 seconds such as booking appointments, viewing medical records, posting reviews.

Security Requirements: The application should ensure the user authorization and authentication for user login or creating accounts for user's data privacy.

6. [1] System Architecture

The project that we are aiming to build is basically a vet-care online web-application which is designed to help pet owners to provide the best care through the application. According to the key features of this application the summary of the fundamental decisions and solutions strategies that will be helping to shape the architecture are given below:

- Back-end: Java 17 and Spring boot along with Maven have been selected to work on the back-end side of the web-application to handle complex tasks such as processing business logic, interacting with the database and communicating with the user-interface.

- Front-end: HTML, CSS, JavaScript, Bootstrap have been selected to use to build the front-end framework but the decision according to the convenience can be changed.

- Database: MySQL was decided to be used in the web-application as database to store the important data such as user profiles, medical records, appointment details etc.

- Top Quality Attributes to achieve:

  Feasibility: The application should be ready to be used by the end of October.

Scalability: The application should be able to be used by a certain number of people.

Data Integrity: The application should be able to protect the privacy of each user and protect the data from getting lost.

User Experience: The user should be easily able to access any of the features of the web-application, which means it should be able to provide a responsive interface.

6.1 Architecture Overview

The overview of architecture of the VetCare is structured in a hierarchical manner where the white box means the main components or internal system and the black box means the sub-component or external system.

· Front-end (White box):

[Black boxes]:

1. User-Authentication component: Manages user registration, log-in, user profile etcetera.
2. Appointment component: Manages appointment scheduling, re-scheduling, cancellation of appointments etc.
3. Medical Record component: Manages displaying medical records.

· Back-end (white box):

[Black boxes]:

1. User Authentication Management: Manages authorization.
2. Appointment Management: Manages creation and updating of the appointment schedules.
3. Medical Record Management: Manages storing and retrieving medical history of the pet.

· Database (White box):

[Black boxes]:

1. User Model: Contains necessary credentials, pet details
2. Appointment Model: Contains date, time, veterinarian details, pet owner details, pet details etc.
3. Medical Record Model: Contains medial history and details of a pet.

6.2 Architectural Decisions

Front-end:

- Decision: HTML, CSS, JavaScript, Bootstrap will be used
- Rationale: These technologies are quite useful when it comes to building user friendly interfaces and Bootstrap is famous for being able to provide pre-built components for faster development.

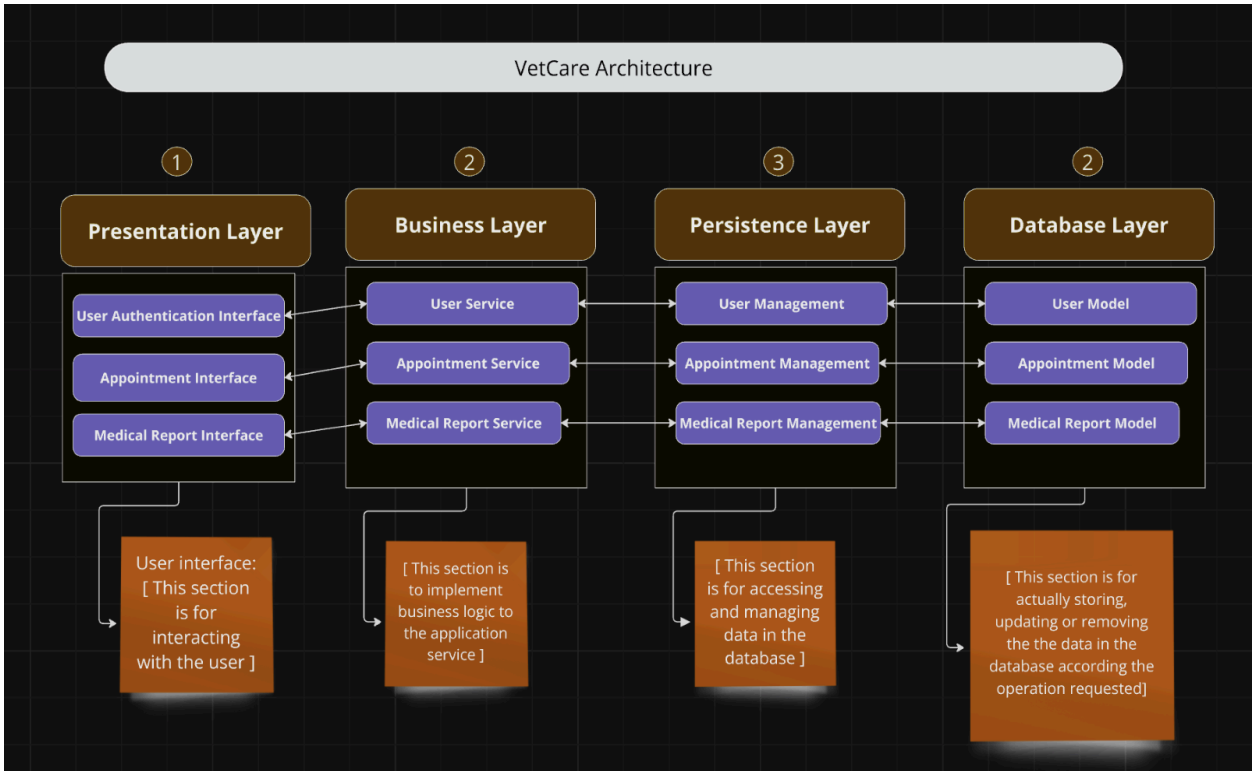
Back-end:

- Decision: Java 17 and Spring Boot will be used along with Maven.
- Rationale: The selected technologies are a great example of providing perfect back-end framework while ensuring effective interaction between database and user-interface.

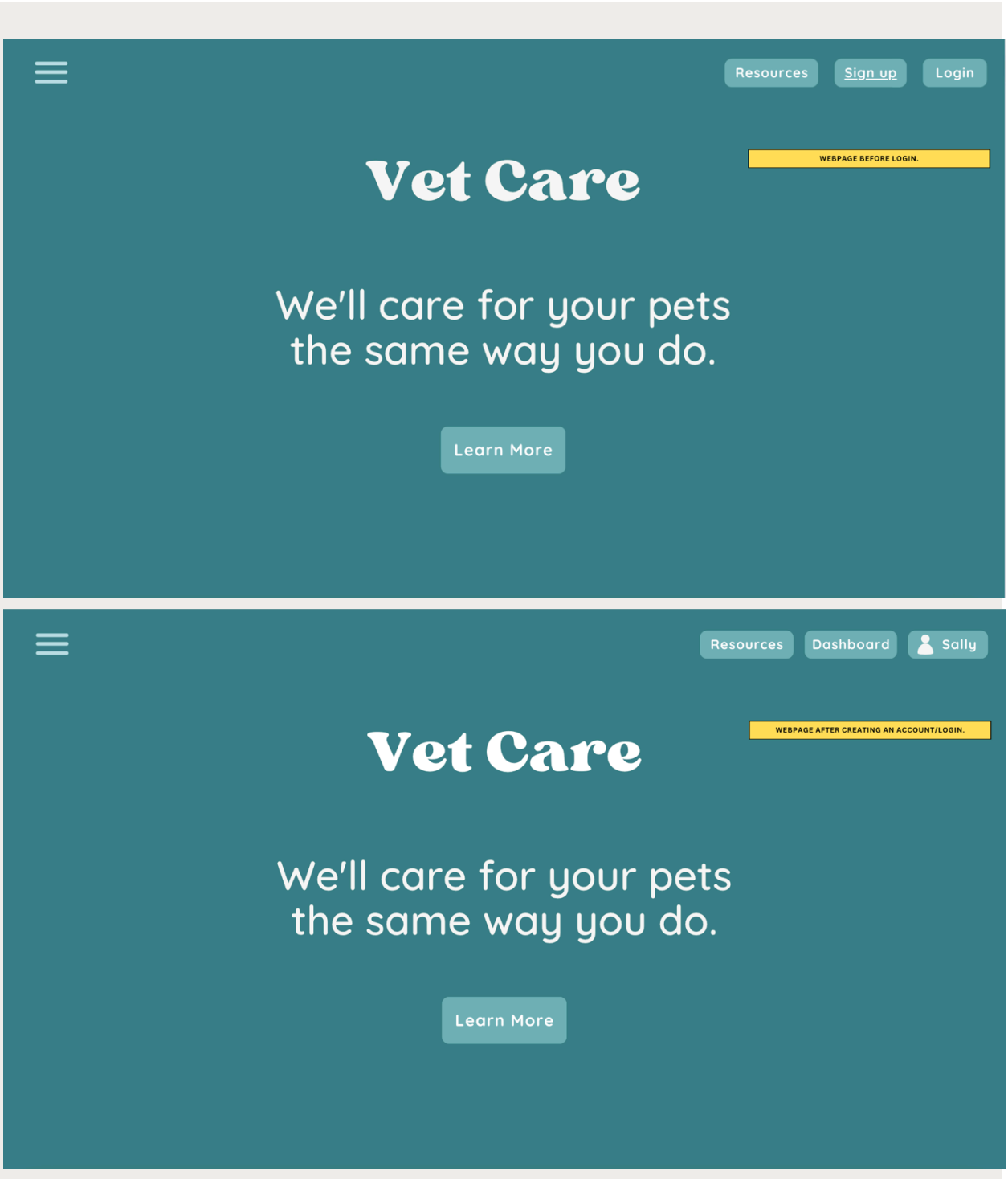
Database:

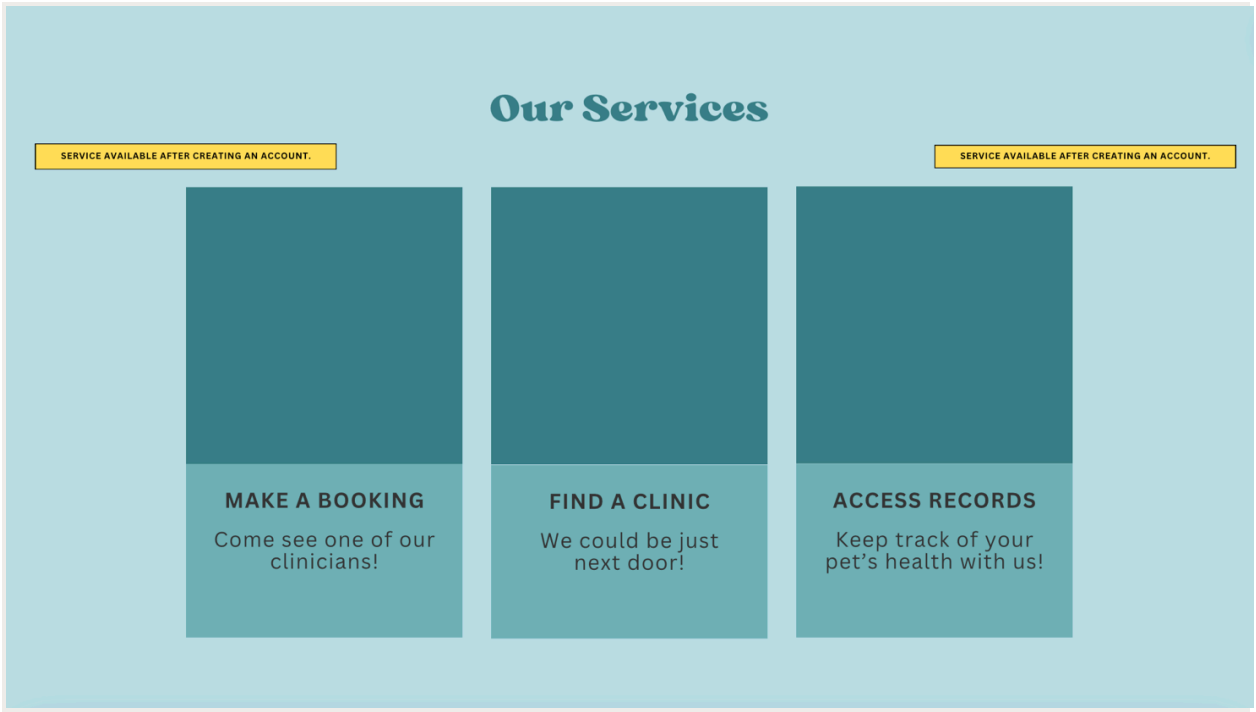
- Decision: MySQL is selected to be used in this web-application development.
- Rationale: MySQL is one of the most famous and widely used database systems that provides secure and reliable performances in handling data.

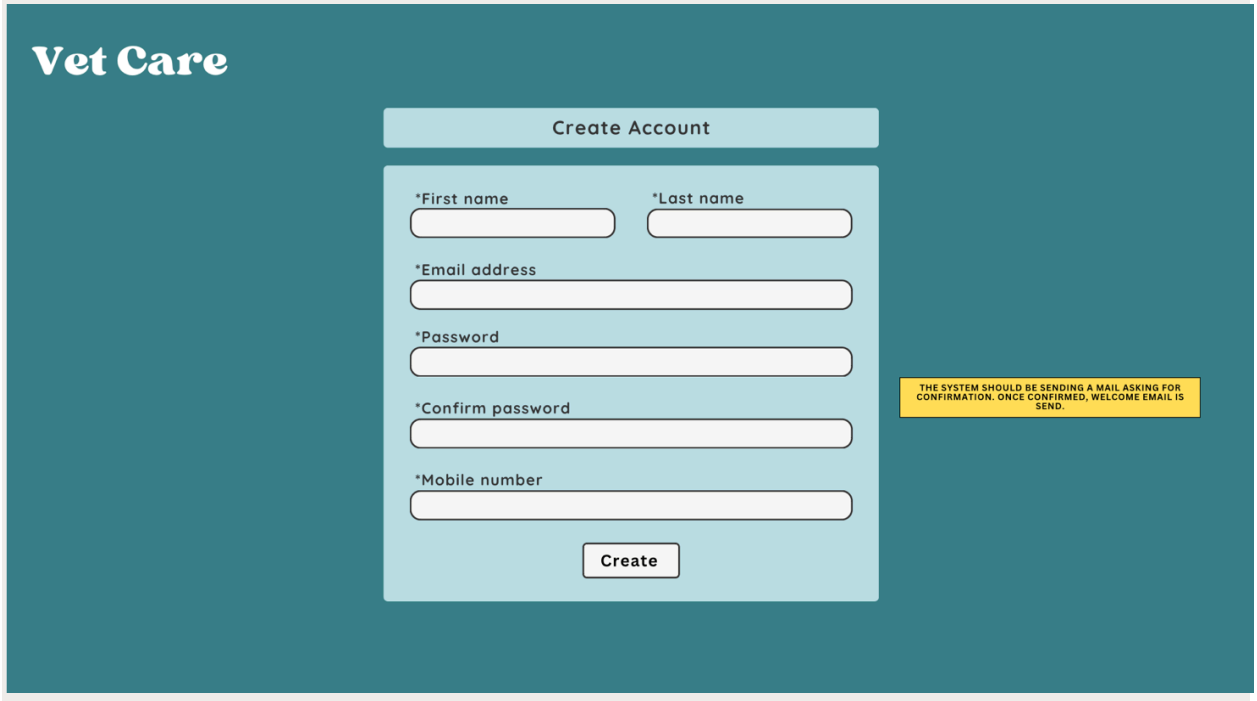
Architecture design:

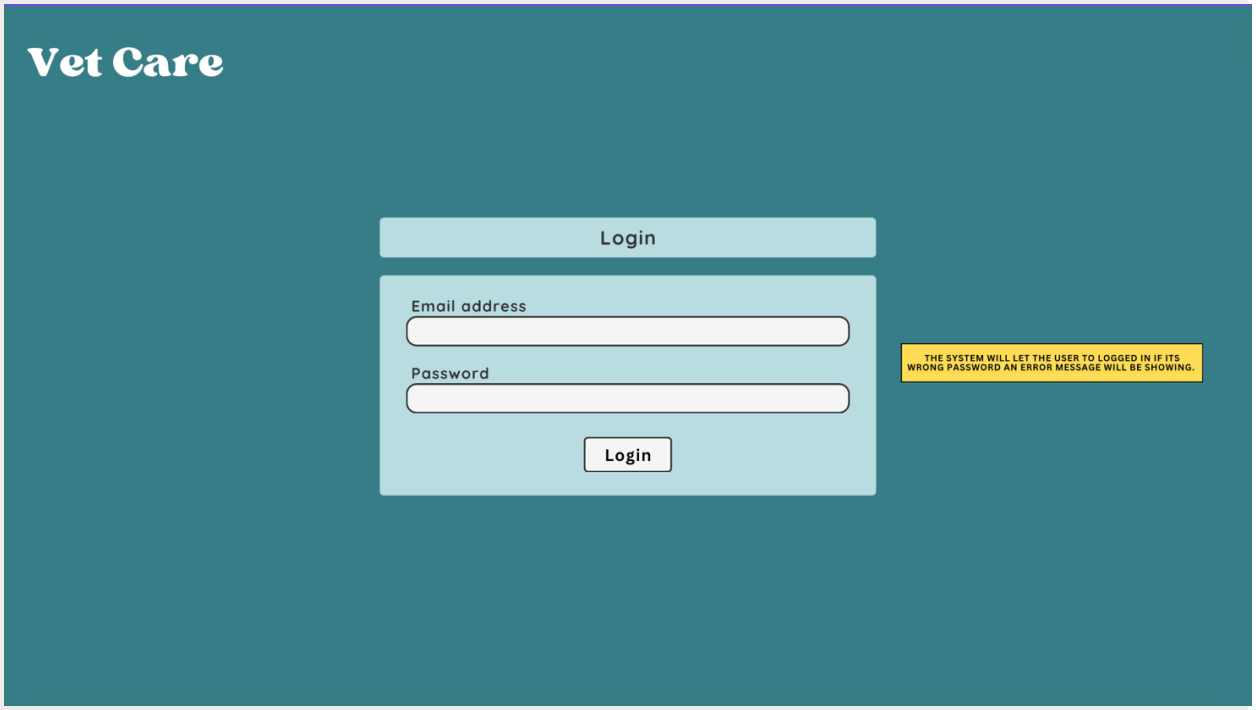


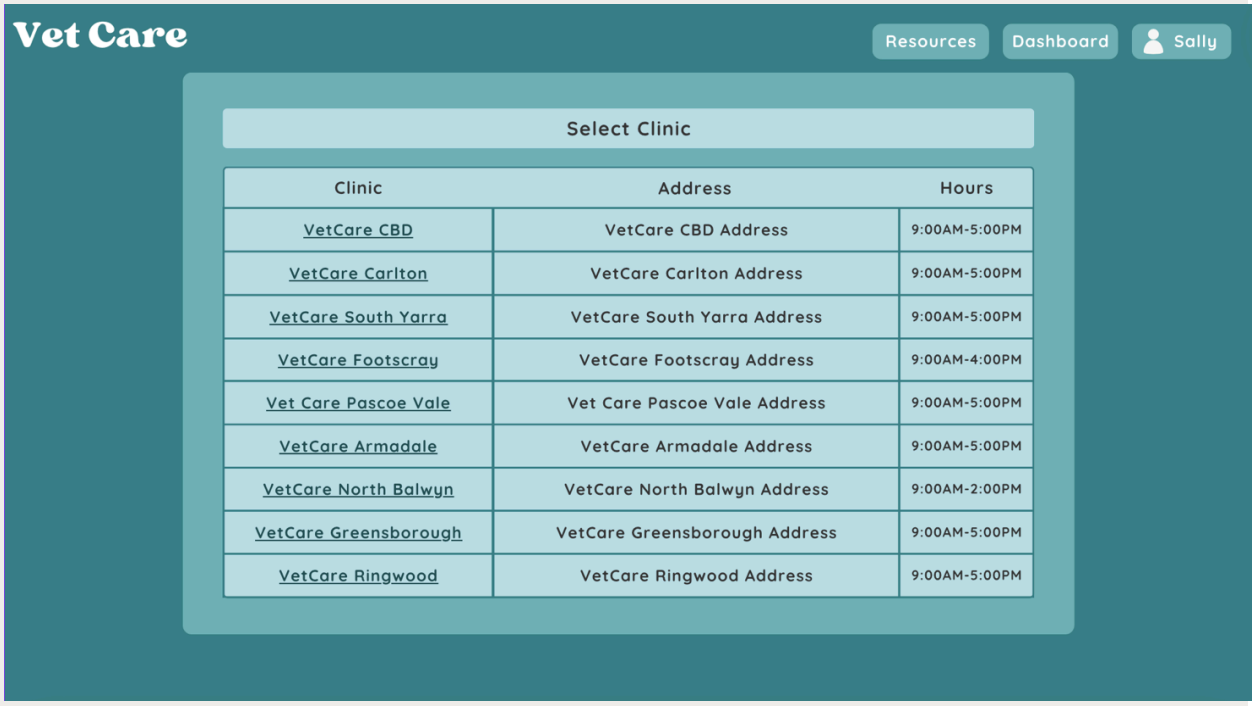
7. **User Interface Design**




Our Services
SERVICE AVAILABLE AFTER CREATING AN ACCOUNT.
SERVICE AVAILABLE AFTER CREATING AN ACCOUNT.
MAKE A BOOKING
Come see one of our clinicians!
FIND A CLINIC
We could be just next door!
ACCESS RECORDS
Keep track of your pet's health with us!


Vet Care
Create Account
*First name
*Last name
*Email address
*Password
*Confirm password
*Mobile number
Create
THE SYSTEM SHOULD BE SENDING A MAIL ASKING FOR CONFIRMATION. ONCE CONFIRMED, WELCOME EMAIL IS SEND.


Vet Care
Login
Email address
Password
Login
THE SYSTEM WILL LET THE USER TO LOGGED IN IF ITS WRONG PASSWORD AN ERROR MESSAGE WILL BE SHOWING.


Vet Care
Resources
Dashboard
Sally
Select Clinic
Clinic
Address
Hours
VetCare CBD
VetCare CBD Address
9:00AM-5:00PM
VetCare Carlton
VetCare Carlton Address
9:00AM-5:00PM
VetCare South Yarra
VetCare South Yarra Address
9:00AM-5:00PM
VetCare Footscray
VetCare Footscray Address
9:00AM-4:00PM
Vet Care Pascoe Vale
Vet Care Pascoe Vale Address
9:00AM-5:00PM
VetCare Armadale
VetCare Armadale Address
9:00AM-5:00PM
VetCare North Balwyn
VetCare North Balwyn Address
9:00AM-2:00PM
VetCare Greensborough
VetCare Greensborough Address
9:00AM-5:00PM
VetCare Ringwood
VetCare Ringwood Address
9:00AM-5:00PM

Vet Care

Resources | Dashboard | Sally

Select Pet

Fluffy
Age: 4 Sex: F
Species: Cat
Breed: British Shorthair

Select

Bentley
Age: 2 Sex: M
Species: Dog
Breed: Beagle

Selected

*Treatment

*Notes

Next

New Pet

*Name | *Age | *Sex

*Species | *Breed

*Treatment

*Notes

Next

Vet Care

Resources | Dashboard | Sally

Select Appointment Time

MON Dec 30	TUE Dec 31	WED Jan 1	THU Jan 2	FRI Jan 3	SAT Jan 4	SUN Jan 5
10:00		9:00	2:00	12:00	8:30	
10:30		9:30	2:30		3:00	
		10:30	3:30			
		12:30				
		1:00				
		3:30				
		4:00				

Clinician Preference

- Dr. David Perry
- Dr. James Santos
- Dr Samuel Foster
- Dr. Leo Russell
- Dr. Philip Evans
- Dr. Amelia Zhou
- No preference

Vet Care

Resources | Dashboard | Sally

My Dashboard

My Pets

Fluffy
Age: 4 Sex: F
Species: Cat
Breed: British Shorthair
View

Bentley
Age: 2 Sex: M
Species: Dog
Breed: Beagle
View

Georgie
Age: 7 Sex: M
Species: Cat
Breed: Tabby
View

My Appointments

Date:June 26 2024, 4:30 PM
Clinic: VetCare Carlton
Pet: Fluffy
Reason(s) for visit: Sore foot
Attended
View

Date:June 26 2024, 4:30 PM
Clinic: VetCare Greensborough
Pet: Bentley
Reason(s) for visit: Vaccinations
Cancelled
View

Date:June 26 2024, 4:30 PM
Clinic: VetCare Pascoe Vale
Pet: Bentley
Reason(s) for visit: Vaccinations
Attended
View

Date:June 26 2024, 4:30 PM
Clinic: VetCare Pascoe Vale
Pet: Georgie
Reason(s) for visit: Trouble eating
Upcoming
Edit

Vet Care

Resources | Dashboard | Sally

Fluffy's Information

Pet Details

Fluffy
Age: 4 Sex: F
Species: Cat
Breed: British Shorthair

Notes: Be cautious when picking up Fluffy, she may become aggressive and often bites.

Vaccination Record

Vaccination	Date
Feline Leukemia Vaccine	2/7/24
Rabies Vaccine	2/7/24
Chlamydia Vaccine	18/7/24

Vet Care

Resources | Dashboard | Sally

Fluffy's Information

Pet Details

Fluffy

Age: 4 Sex: F

Species: Cat

Breed: British Shorthair

Notes: Be cautious when picking up Fluffy, she may become aggressive and often bites.

Medical Record

Procedure	Date
X-Ray	14/9/24
Gastrotomy	23/9/24

Vet Care

Resources | Dashboard | Sally

Fluffy's Information

Pet Details

Fluffy

Age: 4 Sex: F

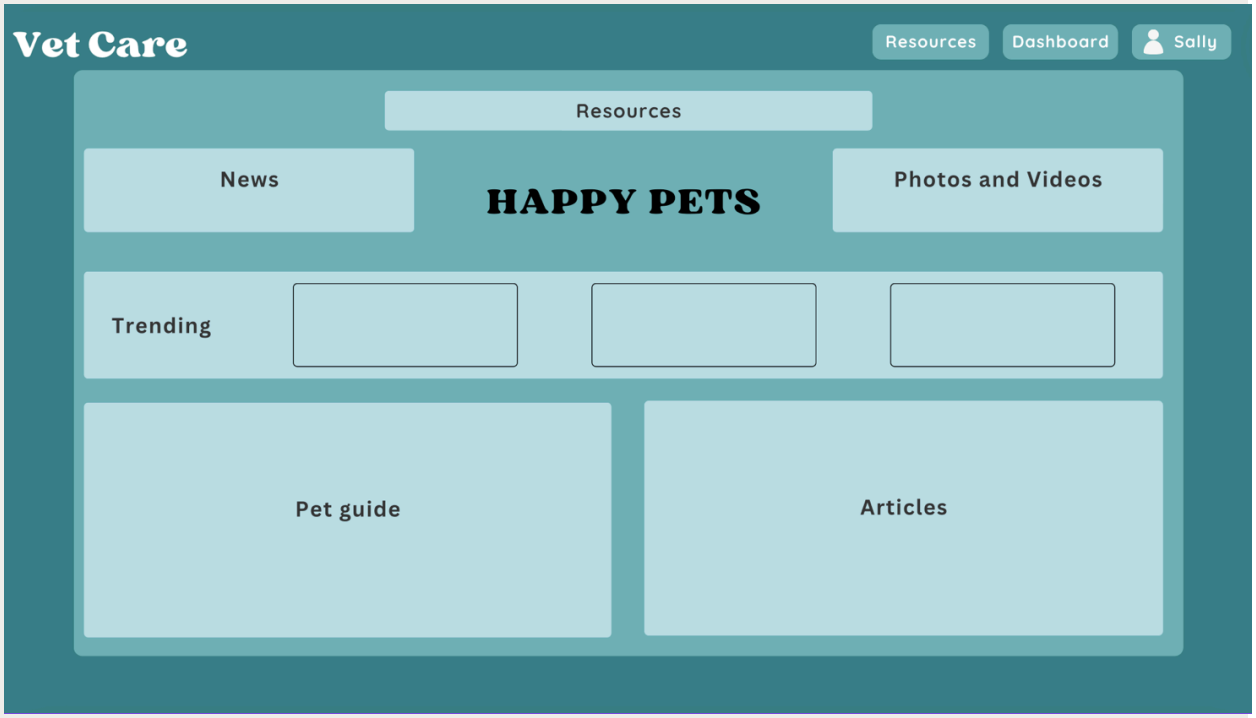
Species: Cat

Breed: British Shorthair

Notes: Be cautious when picking up Fluffy, she may become aggressive and often bites.

Medication

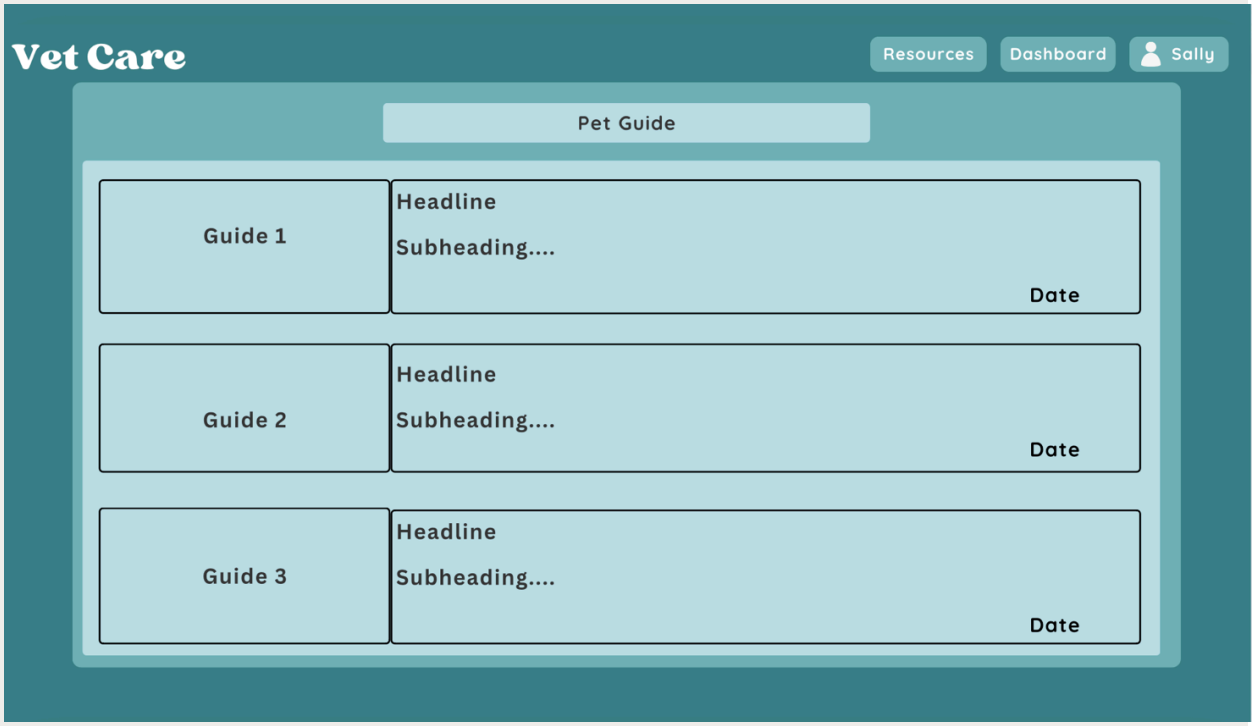
Medication	Repeats	
Prednisone	2	View
Clavamox	0	View


Vet Care
Resources
Dashboard
Sally
Resources
News
HAPPY PETS
Photos and Videos
Trending
Pet guide
Articles


Vet Care
Resources
Dashboard
Sally
News
News 1 photo
ABC
Heading
Date
News 2 photo
Times
Heading
Date
News 3 photo
XYZ
Heading
Date
News 4 photo
News
Heading
Date
News 5 photo
ABC
Heading
Date
News 6 photo
BBC
Heading
Date


Vet Care
Resources
Dashboard
Sally
Photos and Videos
HAPPY PETS


Vet Care
Resources
Dashboard
Sally
Articles
Sort by
Article 1
HAPPY PETS
Article 2
Article 3
Article 4
Article 5
Article 6
Article 7
Article 8



Appendix A: Glossary

- SRS: Software Requirements Specification
- VetCare: Name of the web application to be developed as part of this assignment
- JSON: JavaScript Object Notation format used for transferring date for the web application.
- IDE: Integrated Development Environment to write test and debug code.
- SMTP: Simple Mail Transfer Protocol for sending emails across internet.
- UI: User Interface includes the visual elements of the website which allow users to interact with the website.
- UX: User Experience to make the website easy to use.
- HTTP: Hypertext Transfer Protocol for transmitting hypertext requests and information on the internet.
- HTTPS: Hypertext Transfer Protocol Secure for secure communication over the internet.
- Spring Boot: A Java based framework used for back-end services.
- MySQL: A database where data is stored to be used in different ways.
- Docker: A platform which is used to deploy and manage applications in containers ensuring it works efficiently in every environment.
- CI/CD: Continuous Integration / Continuous Deployment which is basically a development process that involves automatic testing and deployment of the updates to the platform to ensure better delivery of the new feature or fixes.

Appendix B: Analysis Models

<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>

Appendix C: To Be Determined List

- Custom features of the website.
- Prescription refills and tracking.
- Color theme of the website.