

Project Title :

# Spring PetClinic Application

A Full Stack Web Application with React and Springboot

## Final Year Project : Review 1

### STUDENT DETAILS

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## ABSTRACT

Veterinary clinics often manage owners, pets, medical records, and appointments manually, leading to frequent errors and delays. HappyPaws is a full-stack web application developed using [React for frontend](#) and [Spring Boot for backend](#) based on the enhanced Spring PetClinic architecture. The system provides pet registration, owner management, appointment tracking, and veterinarian assignments in one unified platform.

[RESTful APIs](#) ensure smooth data interaction between client and server, while role-based authentication secures the application by assigning appropriate access to veterinarians, staff, and administrators. This project demonstrates industry-standard architecture, leveraging modern enterprise technologies to create a [reliable, scalable, and efficient veterinary clinic management solution](#).

# INTRODUCTION

Animal healthcare has significantly evolved, yet many veterinary clinics still rely on traditional methods for maintaining medical records and appointments. Missing data, inefficient workflows, and weak information security are major challenges.

HappyPaws modernizes veterinary operations by allowing digital management of clinic activities. The system ensures:

- Quick access to [patient health history](#)
- Efficient [tracking](#) of visits and treatments
- [Real-time communication](#) between staff and system
- Reduced human errors in [record handling](#)

This application acts as a practical reference for full-stack enterprise-level development using Java and React.

# PROBLEM STATEMENT

Veterinary clinics struggle with:

- ❖ Manual paperwork leading to misplaced information
- ❖ No centralized platform for pet history, visits & doctor allocation
- ❖ Difficulty in maintaining accurate treatment data
- ❖ Slow administrative operations due to outdated systems

Hence, a **secure**, **scalable**, and **digital** solution is needed to improve clinic workflow and enhance pet care experience.

## LIMITATIONS EXISTING SYSTEM :

- ❖ Traditional manual record maintenance
- ❖ Limited automation
- ❖ Poor security and backup mechanisms
- ❖ **Time-consuming** appointment & history lookup

## OBJECTIVES :

- ❖ Implement a production-oriented full-stack veterinary management system
- ❖ Showcase enterprise-level development using **React + Spring Boot**
- ❖ Provide modular, scalable, and secure architecture
- ❖ Enable real-time data access using **REST APIs**
- ❖ Improve operational efficiency in veterinary clinics

## PROPOSED SYSTEM :

HappyPaws introduces:

- ❖ A digital platform to store and manage pet & owner details
- ❖ **CRUD**-based management for pets, owners, visits, veterinarians
- ❖ Secure login system with **Role-Based Access Control (RBAC)**
- ❖ REST-based architecture for seamless integration
- ❖ Centralized database for consistency and reliability

# LITERATURE SURVEY

Digital veterinary management systems have been explored in various research and development projects, each focusing on improving the efficiency of clinic operations and maintaining animal health records. Several systems primarily concentrate on digitizing owner and pet information along with appointment scheduling.

[S. Singh et al. \(2021\)](#) proposed a pet healthcare monitoring application using Android technology where pet owners could track vaccinations, medication schedules, and appointments. Although beneficial for pet owners, the system lacked a robust backend architecture suitable for enterprise-level clinics and did not include veterinarian role management.

[R. Prasad and K. Manjunath \(2020\)](#) developed a veterinary clinic management system using PHP and MySQL that allowed veterinarians to maintain pets' medical history and treatment logs. However, the solution faced limitations in scalability, security, and layered design, restricting its use in larger organizations.

A study by [A. Sharma et al. \(2022\)](#) implemented cloud-based storage for animal healthcare data, enabling distributed access to patient records. While this system improved accessibility, the dependency on constant internet connectivity caused issues in low-network environments.

The original [Spring PetClinic](#) project developed by the Spring team provides an architectural foundation demonstrating layered patterns, MVC structure, and [CRUD operations for clinic-related data](#). Although widely used in academic demonstrations, it lacks a modern UI and advanced functionality such as role-based authorization and frontend-backend decoupling.

Some advanced systems integrate Machine Learning technology for predictive analytics, such as illness risk detection and automatic treatment recommendations. While innovative, these systems require high computational resources and extensive datasets, making them complex for beginners and smaller clinics.

## Gaps Identified in Existing Works:

- ❖ Limited support for enterprise-grade security, particularly **RBAC** (Role-Based Access Control)
- ❖ Lack of scalable and modular architecture for multi-clinic expansion
- ❖ Poor or outdated **user interfaces**, reducing **usability**
- ❖ Weak separation of concerns between frontend and backend
- ❖ Minimal **real-time data communication** and failure-handling
- ❖ No unified solution combining both clinic workflow automation and modern web technology standards

## Contribution of HappyPaws :

HappyPaws overcomes the limitations mentioned above by providing:

- ❖ Full-stack decoupled architecture (**React + Spring Boot**)
- ❖ Secure authentication and authorization
- ❖ Modern **RESTful API** communication
- ❖ User-friendly, clean, and responsive UI
- ❖ Robust database persistence with **Spring Data JPA**
- ❖ Suitable as a **scalable enterprise** reference project

## REFERENCES

S.NO	BRAND	REFERENCES LINK
1	Dr. Pet Online	<a href="https://drpetonline.in/">https://drpetonline.in/</a>
2	Supertails Clinic	<a href="https://supertails.com/">https://supertails.com/</a>
3	Zigly Pet Care	<a href="https://stores.zigly.com/-">https://stores.zigly.com/-</a>
4	Dr. Paws	<a href="https://visitdrpaws.com/">https://visitdrpaws.com/</a>
5	Vet Live	<a href="https://www.vetlive.in/">https://www.vetlive.in/</a>

# THANK YOU

*By Team HappyPaws*