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Department of Computer Engineering
CEN302 – Software Engineering**

Nimbus' PawPals

First Draft

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1. Executive Summary

1.1 Project Overview

Nimbus' PawPals is a dynamic, web-based platform designed to revolutionize the way pet shops and clinics manage their operations. Traditional methods often rely on manual, paper-based processes for booking appointments, managing pet health records, and handling retail transactions, which are not only time-intensive and prone to errors but also lack the efficiency, accessibility, and automation that modern veterinary care and customer expectations require.

Nimbus' PawPals addresses these challenges by providing a centralized, digital platform that streamlines and automates various aspects of clinical and operational management. It encompasses features such as pet reservations, appointment scheduling, staff reporting, grooming services, and detailed sales reports. This system ensures that everything from the front desk to the back office operates smoothly and effectively.

With its user-friendly interface, accessible from any device with internet connectivity, Nimbus' PawPals ensures seamless interaction among all stakeholders, including pet owners, receptionists, veterinarians, groomers, and managers. This enhances collaboration and improves the efficiency, accuracy, and customer satisfaction of pet care services.

By modernizing pet shops with advanced web technologies, Nimbus' PawPals not only streamlines operations but also meets the modern expectations of veterinary care and retail management, making it an indispensable tool for any pet care business looking to thrive in today's digital age.

1.2 Purpose and Scope of this Specification

Purpose

This specification document aims to define the functional and nonfunctional requirements of Nimbus' PawPals, a comprehensive web-based platform designed to enhance the operational efficiency of pet shops and clinics. It serves as a detailed guide for developers, stakeholders, and end-users to understand the capabilities, design principles, and technological framework of the system. This document also facilitates clear communication and alignment of project goals among the development team, ensuring that all functionalities are implemented according to specified requirements.

The system is designed to be fully accessible on any device with internet connectivity, offering a responsive and intuitive user interface that caters to various users such as pet owners, receptionists, veterinarians, groomers, and managerial staff. The specification also outlines the

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requirements for these features and the underlying technology stack that supports them, including database management, security measures, and third-party service integrations.

Scope:

In Scope

The Nimbus' PawPals platform encompasses a broad range of functionalities tailored to the needs of modern pet care establishments, which include:

- **Clinical Management:** Automates and manages appointment scheduling, pet health records, and treatment histories to streamline veterinary operations.
- **Retail Management:** Integrates tools for inventory management, product reservations, and transaction processing to enhance retail operations.
- **Grooming Services:** Provides scheduling and management tools for grooming appointments, including staff coordination and customer preferences.
- **Reporting and Analytics:** Generates detailed reports on sales, customer interactions, and operational efficiency to aid in strategic decision-making.

Out of Scope

The following items are outside the scope of this specification:

- Hardware requirements for end-users and operational environments.
- Training materials for end-users or the development team.
- Post-deployment maintenance and support details, which will be addressed in a separate maintenance and support plan.
- Third-party payment gateway integration (transactions will be logged but processed externally).
- Hardware-related solutions, such as pet tracking devices or biometric scanning.

2. Product / Service Description

2.1 Product Context

The Software is a multi-user platform that connects pet owners with pet care professionals in a single, convenient digital environment. Customers (pet owners) benefit from easy access to pet care services, while professionals can efficiently manage their business operations and provide better service.

Pet owners can browse and purchase a variety of pet products, schedule appointments with veterinarians, and access grooming services. Additionally, integrated communication tools allow

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pet owners to consult with veterinary professionals, ensuring their pets receive the best possible care.

For pet care specialists, the system offers tools to simplify daily operations and enhance the quality of service provided. Doctors can track patient health records, diagnose pets, and communicate with pet owners in real-time.

The software is versatile and scalable, making it suitable for pet clinics of any size and specialization. It supports a comprehensive set of functionalities that are crucial for efficient management and superior service delivery in modern pet care facilities.

2.2 User Characteristics

Manager

- Oversees the day-to-day operations of the pet shop, ensuring smooth functioning across all departments (retail, clinic, grooming, and hotel services).
- Manages product inventory, including adding, editing, deleting, and viewing product details to ensure accurate stock levels.
- Oversees pet management, including adding, editing, and deleting pet-related information.
- Tracks sales, processes orders, and generates detailed reports to monitor business performance and make data-driven decisions.
- Manages employee scheduling, training, and performance evaluations to maintain a productive workforce.
- Oversees hotel management functions, including viewing, adding, and editing hotel appointments and pet boarding details.
- Monitors and maintains personal information for staff (receptionists, groomers, and doctors) to ensure accurate records.
- Views and analyzes business analytics, such as the number of animals, sales revenue, and inventory trends.
- Strong organizational and leadership skills to manage multiple tasks and teams effectively.
- Proficient in using software systems for inventory management, sales tracking, and reporting.
- Excellent problem-solving and decision-making abilities to handle operational challenges.
- Customer-focused mindset to ensure a positive experience for clients.

Receptionists

- Greets customers, answers phone calls, and provides information about the pet shop's services.

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- Schedules and overlooks appointments for grooming, medical care, and hotel stays using the software system.
- Manages customer information, including adding, editing, and deleting client and pet details.
- Tracks appointments, processes payments, and generates invoices for services rendered.
- Maintains and updates pet health records, ensuring accuracy and confidentiality.
- Views purchase history and product information to assist clients with their needs.
- Oversees the cleanliness and organization of the reception area to create a welcoming environment.
- Assists with hotel management by viewing, adding, and editing hotel-related appointments.
- Provides customer support to ensure client satisfaction.
- Strong communication and customer service skills to interact effectively with clients.
- Proficient in using software systems for appointment scheduling, payment processing, and record management.
- Attention to detail to ensure accurate data entry and record-keeping.

Clients

- Visit the pet shop to purchase products, schedule appointments, or seek medical care for their pets.
- Use the software system to browse products, make purchases, and view pet health records.
- Schedule appointments online for services such as grooming, medical care, or hotel stays.
- Provide feedback regarding their experience and satisfaction with the pet shop's services.
- View purchase history to track previous transactions and orders.
- Non-logged-in users have limited access, restricted to browsing products and services only.
- Login credentials are required to access personalized features, such as viewing pet medical records and editing account details or personal information.
- Possess basic computer skills and familiarity with online systems to navigate the software effectively.
- Willing to provide feedback to help improve the pet shop's services.
- Responsible for providing accurate personal and pet information in the system.

Doctor

- Responsible for diagnosing and treating pets, maintaining accurate medical records, and managing their daily schedule.
- Conducts pet consultations, issues medical diagnoses, and prescribes medications.

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- Views appointment schedules and checks appointment details, including the pet's name, owner, and reason for the visit.
- Accesses a pet's complete medical history, including past illnesses, treatments, and vaccination records.
- Provides pet owners with detailed post-treatment care instructions to ensure proper recovery.
- Shares pet health reports with groomers before grooming services and receives notifications from groomers regarding potential health concerns.
- Coordinates with receptionists to reschedule appointments and communicate important updates with clients.
- Can view personal information relevant to appointments and treatment records.
- Requires strong diagnostic skills, attention to detail, and empathy when interacting with pets and their owners.

Groomer

- Responsible for maintaining the hygiene and appearance of pets through grooming services such as bathing, fur trimming, nail clipping, and other cosmetic care.
- Access scheduled grooming appointments and client requests.
- View schedule of grooming sessions.
- Check appointment details, including the pet's name, breed, and requested services.
- View pre-grooming health clearance status from the Doctor.
- Notify the Receptionist if a pet is unfit for grooming due to medical concerns.
- Provide aftercare tips and suggest pet care products based on the pet's skin type, fur type, and allergies.
- Can view personal information relevant to the grooming appointments and client interactions.
- Requires attention to detail, patience, and knowledge of pet grooming techniques and products.

2.3 Assumptions

Staff and clients are familiar with using web applications for managing appointments, purchases, and records.

The system operates under the assumption of a stable and reliable internet connection.

Product listings and stock information are regularly updated to ensure accurate availability for clients.

The software supports commonly used payment methods, such as credit and debit cards.

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Receptionists, veterinarians, groomers, and managers have received or will receive adequate training to effectively use the application.

The clinic has the necessary infrastructure, including computers and stable internet connectivity, to support the operation of the web application.

The system is expected to function properly across various devices (desktops, tablets, smartphones).

Regular system maintenance will be scheduled to ensure optimal performance and to minimize downtime.

It is assumed that the appointment is approved by the receptionist.

Proper verification and validation of client, pet, and staff information will be performed during data entry to maintain data integrity and accuracy.

Staff members (veterinarians and groomers) will only be able to view their own scheduled appointments. Veterinarians will have access to pet medical records as required for treatment.

Pet health records and grooming histories will be updated by authorized personnel only to ensure data accuracy and confidentiality.

The system will perform regular data backups to prevent data loss in case of system failure or unexpected issues.

Clients are responsible for providing accurate personal and pet information when registering and booking services through the application.

Receptionists are expected to assist in everyday administrative tasks to support the smooth operation of the clinic.

It is assumed that the clinic provides a suitable environment for hosting and caring for pets, including hotel stays and grooming services.

It is assumed that the clinic is equipped with the necessary medical tools and equipment, and that these are maintained appropriately for services.

It is assumed that the pet store has got a working email address.

2.4 Constraints

The application must function efficiently across various devices and browsers, ensuring a seamless user experience.

As a web-based application, a stable and reliable internet connection is required for proper functionality and to avoid performance issues.

Budget limitations may restrict the ability to implement certain advanced features or enhancements during the development phase.

The software must be developed, tested, and deployed within a predefined timeline to ensure timely delivery and meet project goals.

The system may face challenges when handling a large number of concurrent users or transactions, potentially requiring infrastructure upgrades to scale effectively.

The application must comply with applicable data protection laws (e.g., GDPR, CCPA) and industry standards to ensure data privacy and security.

Access levels will be enforced based on user roles (e.g., admin, staff, customer), ensuring appropriate permissions and security for each type of user.

The system's performance may be affected by third-party services, such as payment gateways and delivery providers, which could cause slowdowns or disruptions.

The user interface and overall functionality of the application may be constrained by the limitations of the web technologies and frameworks used in its development.

Staff may have varying levels of familiarity with the software, requiring adequate training and ongoing support to ensure effective use.

The accuracy and completeness of data entered into the system will directly impact the effectiveness of the search function, limiting the quality of search results.

External factors such as supplier delays or shipping constraints may impact order processing and delivery times, affecting customer satisfaction.

Customers are required to log in to make purchases, although browsing products and services is available to all users without authentication.

Refunds and returns are subject to the pet shop's store policies, which may define limitations on how and when items can be returned or exchanged.

Hotel services may be limited by space availability, with bookings subject to restrictions based on capacity.

2.5 Dependencies

The software relies on external services, such as PayPal, for payment processing, which may affect transaction reliability and availability.

A robust database is essential for securely storing user and product information, ensuring data integrity and accessibility.

The performance and availability of the software depend on the chosen hosting environment (e.g., AWS, Azure), which provides the necessary infrastructure and scalability.

The development of the project is reliant on specific technologies, including .NET, ReactJS, and MySQL, for backend, frontend, and database management, respectively.

The creation, editing, and deletion of appointments are managed by receptionists, making their role crucial for appointment scheduling and modifications.

Receptionists are also responsible for creating, editing, and deleting pet records, which are integral to maintaining accurate client data.

Veterinarians depend on the receptionist to provide detailed pet records, ensuring that proper medical care is given based on the pet's health history.

The manager plays a central role in tracking product inventory, staff information, and overall business operations, ensuring smooth daily functions.

The availability of general clinic information, such as client pet details, depends on the application's uptime and accessibility to authorized users.

The efficiency of the online store depends on accurate and timely inventory updates, as well as reliable supplier availability, to ensure that products are in stock and ready for purchase.

System performance and user experience are contingent upon stable and high-speed internet connectivity, which affects both functionality and user satisfaction.

Customer interactions, purchases, and access to personalized features depend on secure authentication mechanisms and role-based access control to protect user data.

The overall software experience is influenced by third-party suppliers for products, services, and equipment, which may affect inventory availability, service quality, and operational performance.

3. REQUIREMENTS