MY FLUFFY PET
Veterinary clinic

Milestone 1 -Group 4

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Introduction:

The Fluffy Pet Veterinary Clinic is a privately owned veterinary clinic that aims to provide exceptional medical services to companion animals. With a team of dedicated developers, the clinic is embarking on the creation of specialized software to enhance operational efficiency and streamline various tasks such as patient records management, appointment scheduling, billing, and inventory management. The developers' motivation stems from their shared passion for animal welfare and their commitment to leveraging technology for the advancement of veterinary care. By developing a comprehensive software solution and implementing a reliable database system, the clinic aims to improve patient care, optimize administrative processes, and enhance the overall experience for both veterinary staff and pet owners.

Problem Statement:

The Fluffy Pet Veterinary Clinic currently faces challenges in managing critical tasks such as patient records, appointments, billing, and medication record keeping. The existing system lacks robust software and a reliable database, leading to inefficiencies and potential errors in data management. To address these issues, a comprehensive software solution accompanied by a secure database is necessary. Implementing such a system will establish a centralized repository for storing, retrieving, and manipulating essential information, resulting in seamless access, streamlined operations, enhanced patient care, and improved data analysis for informed decision-making. The software will serve as the backbone of the clinic, ensuring efficient data management, data integrity, and comprehensive administrative processes.

Solution:

To overcome the challenges faced by the Fluffy Pet Veterinary Clinic, a comprehensive software application and reliable database system will be developed. The development process will involve several steps to ensure a successful solution:

Requirements Analysis: The development team will conduct a thorough analysis of the clinic's needs and requirements for managing patient records, appointments, medications, billing, and medication record keeping.

Database Design: Based on the requirements analysis, the team will design a database schema that includes tables, relationships, and constraints. This schema will ensure optimal data organization and integrity.

Data Modeling: The team will specify unique identifiers for each table, establish relationships between them, define relationship optionality, and eliminate many-to-many relationships. This step ensures a well-structured and efficient database design.

Database Implementation: The team will utilize an appropriate database management system, such as Oracle, to implement the database. They will also use the required programming language to integrate the software application with the database.

Testing and Quality Assurance: Rigorous testing and quality assurance processes will be conducted to validate the functionality and performance of the database. This step ensures that the database meets the clinic's requirements and operates efficiently.

Data Backup and Recovery: The team will implement data backup and recovery mechanisms to safeguard against potential data loss. This step ensures that critical information is protected and can be recovered in case of unforeseen events.

Continuous Improvement and Feedback: Throughout the development process, the team will collaborate closely with each other and gather feedback from the clinic staff. They will continuously improve the database and software application based on the feedback received and ongoing research on industry best practices.

The result will be a robust and efficient software application accompanied by a reliable database system. This solution will enable seamless data management, improved operational efficiency, and enhanced patient care within the Fluffy Pet Veterinary Clinic.

Requirements:

1. Secure User Login/Registration System:
   a. This feature ensures that clinic staff can securely log in to the software application and register new accounts based on their roles within the clinic. It includes mechanisms for user authentication and authorization, such as username/password or two-factor authentication. Different staff roles, such as veterinarians, receptionists, and administrators, may have varying levels of access and privileges within the system.

2. Profile Management System:
   a. The profile management system allows clinic staff to efficiently manage patients' contact information. It provides a user-friendly interface to add, update, and delete patient profiles. Staff can store and retrieve essential details such as the patient's name, owner's contact information, pet's breed, age, and any additional notes relevant to the patient's care.

3. Comprehensive Patient Records Management:
   a. This module focuses on managing and maintaining comprehensive patient records within the software application. It includes features such as:

      - Storing and maintaining the patient's medical history, including previous diagnoses, treatments, and surgeries.

- Recording vaccinations and maintaining a history of administered vaccines to ensure compliance with vaccination schedules and guidelines.
- Prescribed medications are tracked, including dosage, frequency, and duration. The system cross-references medications to prevent potential drug interactions and allergies.
- Visit recording allows staff to document each patient visit, including notes on symptoms, examinations, treatments, and recommendations.
- Reminders for future vaccination dates based on guidelines specific to the Ontario vaccine schedule or any relevant regional guidelines.
- Management of medical test results, including blood tests, stool and urine samples, x-rays, and ultrasounds. The system enables storing and retrieving these results for future reference.
- Comparison of previous test results to identify changes over time, enabling a comprehensive view of the patient's health.
- A database of suggested weights for different breeds and types of animals to compare and alert staff if the entered weight falls outside the normal range.
- An alert system to highlight behavioral issues, allergies, or other critical information related to each patient's profile.

4. Appointment Scheduling and Management:
   a. This feature enables efficient scheduling and management of patient appointments within the software application. It includes the following capabilities:

      - A user-friendly schedule will be designed to provide a visual representation of booked appointments and availability in units of 10 minutes, considering working hours, holidays, scheduled breaks, and office closures.
      - Recall system: Identifies patients who have not visited the clinic within a specified timeframe and allows staff to reach out and schedule future appointments. This proactive patient outreach improves patient care and retention.
      - Reports for front desk staff: Provides necessary information to efficiently manage appointments and ensure optimal scheduling. These reports include details such as available time slots, appointment durations, and required resources.
      - Automated reminders: Sends reminders to patients via email or text message to notify them of overdue visits or upcoming vaccinations. These reminders are sent based on predetermined intervals and include personalized information.
      - Future appointment reminders: Sends automatic reminders to patients about upcoming appointments, allowing them to prepare and reduce the number of no-shows. These reminders are sent in advance to minimize scheduling conflicts and ensure efficient appointment management.
      - Same-day scheduling: Accommodates emergencies and walk-in patients by allowing staff to book immediate appointments. The system has flexibility to handle unexpected situations and ensure timely and appropriate care for urgent cases.

- Overnight stay module: Provides features to manage overnight stays for boarding, surgical, and emergency cases. This includes calculating possible expenses for food, medication, and staff hourly rates, developing package costs to cover expenses and generate revenue.

5. Inventory Management:
   a. This module allows the clinic to efficiently manage its inventory of supplies, medications, and equipment. Key features include:

   - Medication records: Ensures accurate and up-to-date medication tracking, aligning with medication schedules and performing regular stock checks.
   - Expiry date tracking: Monitors the expiry dates of medications and equipment and notifies staff of upcoming due dates to ensure timely replacements and prevent the use of expired items.
   - Stock management: Tracks the stock levels of other patient care medical supplies, personal protective equipment, food products, shampoos, grooming equipment, and other inventory items. It provides alerts for low stock items, ensuring that necessary items are reordered in a timely manner.
   - Recording details: Maintains a record of item details such as brand, purchase price, and last purchase date for each inventory item, allowing the clinic to analyze expenses and make informed purchasing decisions.

6. Accounts Receivable and Accounts Payable Systems:
   a. This feature incorporates billing and invoicing systems to track payments and manage accounts receivable and accounts payable. Key functionalities include:

   - Billing and invoicing: Generates invoices for services provided to patients and tracks payments made by credit card, checks, or cash. The system should record payment details, such as payment method and date, and allow for partial or full payments.
   - Suggested price schedules: Maintains a record of suggested price schedules for treatments based on guidelines provided by the Ontario Veterinary College or other relevant authorities. This ensures consistent and accurate billing.
   - Treatment packages: Allows the creation of treatment packages for patients to purchase, providing bundled services at a set price.
   - Insurance billing: Facilitates direct billing to insurance companies and enables the assignment of benefits for covered treatments and services.
   - Reports and record-keeping: Generate weekly reports of overdue payments and discrepancies, tracks accounts payable invoices, and records payments made to settle expenses. The system should provide proper user credentials and explanations for any financial adjustments made to accounts receivable or accounts payable.

7. Daily Revenue and Financial Transaction Reports:
   a. This reporting system generates daily revenue reports, providing an overview of the clinic's financial transactions for each day. The reports include details such as total revenue, payment methods used (credit card, cash, checks), and any adjustments made to accounts receivable or accounts payable. The system also includes information on additional revenue sources, such as product sales or special services offered, to provide a comprehensive view of the clinic's financial performance. The reports are easily accessible and presented in a user-friendly format, enabling clinic management and staff to analyze and interpret the financial data effectively.

8. Revenue Reports by Service or Treatment Category:
   a. This reporting feature allows the generation of revenue reports categorized by different services or treatment types offered by the clinic. It provides detailed information on revenue generated from consultations, vaccinations, surgeries, diagnostic tests, medications, and other specific services provided. The reports enable comparisons of revenue across different time periods (e.g., monthly, quarterly, yearly) to identify trends and patterns in service demand and profitability. Visual representations, such as charts or graphs, aid in presenting the revenue data clearly and help with decision-making and identifying areas of potential growth or improvement. The reports also provide options to filter and drill down into specific categories or subcategories to gain deeper insights into revenue performance and identify areas that require attention or strategic adjustments.

9. Data modeling:
   - The Clinic contains one Grooming Room.
   - The Clinic contains two Examination Rooms.
   - The Clinic contains one Lab.
   - The Lab contains radiography and other specialty testing equipment.
   - The Clinic contains a Kennel.
   - The Kennel contains multiple Crates (e.g., 30 crates).
   - Each Crate in the Kennel can be assigned to one Pet.
   - The clinic has several employees: veterinarians, groomers, clinical staff, and administrative staff.
   - Cleaning services are outsourced to an external Cleaning Company.
   - The clinic stores medications and vaccine vials in either a freezer or a stockroom for shelf-stable medicine.
   - Each Appointment is associated with a Service.
   - Each Appointment is assigned one Vet and one Assistant.
   - Each Appointment is assigned one room (Grooming Room or Examination Room) based on the Service.
   - Each Grooming Appointment is assigned one Groomer and one Grooming Room.
   - Pets can stay in the Kennel based on the Service (e.g., boarding, surgery).
   - Pets can have a Boarding Stay, which can be for overnight or a period up to two weeks.

By incorporating these features, the software application will facilitate informed decision-making by providing timely and accurate financial reports. This will not only enable the clinic to optimize its revenue streams and allocate resources effectively but also ensure the delivery of excellent patient care. The generated reports will allow clinic management to assess the financial health of the clinic, identify areas for improvement, and make strategic decisions to enhance both financial performance and patient care.