**CPSC 471 Project Proposal Fall 2021**

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**Introduction**

**Definitions**

A web interface and an API for a veterinary hospital, managing appointments, serving as a platform to ask questions, interact, and other pet resources.

The problem is the lack of an online interface which is a one stop place for pet advice, products and advice.

Our proposed solution is an online web interface and API which provides services like booking appointments, social platform for pet owners, resourceful articles, an online store, patient follow ups and reminders for clinic admin and customer.

The motivation for this project is The proposed project brings the best of all worlds into a single web interface, by integrating features like booking appointments, seeking pet advice, personalised pet care etc.

The proposal is divided into various sections, listed as follows:

1. Problem Definition
   1. The history of the problem
   2. Our interest in the problem
   3. When and why does the problem occur?
   4. Current solutions
   5. Similar solutions
   6. Improvements
2. Proposed Solution
   1. The end goal
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3. Motivation
   1. Why our solution is needed
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**Problem definition**

**The history of the problem**

There are a lot of hospitals and websites which provide great interactive web services for their clinic/hospital, but they usually don’t have a personalised touch to them. They lack interaction between the client and the employees, interactions amongst clients. Most of the hospitals providing web services don’t have APIs dedicated to their web interface.There is a need for a place where everything about your pet can be discussed. Animal hospitals need a way to keep track of clients and appointments, without wasting a lot of time calling the hospital.

**Our interest in the problem**

What makes this problem interesting is the need for an interface where everything about your pet can be discussed. There are various other interesting features like an online store for medicine, food, and other products, with points for discounts. Being able to make appointments without the need to wait in line or calling. The personalised feature, where each pet owner can make a profile for their pet and talk to other pet owners.

**When and why does the problem occur?**

* When:
  + when people want to book appointments without making the job tedious and stressful
  + When people need to find an online platform to talk and discuss about their pet.
  + When people need a specialists opinion without going all the way to the clinic
* Why:
  + When someone's pet gets sick, booking appointments and calling hospitals can be a very stressful process.
  + When people don’t have enough time to go to the hospitals so they can ask questions on the online forum
  + Offline vet clinics can’t offer the personalised day-to-day service as one can’t take their pet to the vet clinic everyday

**How others have solved the problem**

There are already online databases for clients to access information about what services the clinic provides, contact information, and an online store for buying merchandise. However, (and this might not be the case with ALL animal clinics, but for McKnight 24 Hour Veterinary Hospital [1]) there isn’t an option to book an appointment on this website. At times clients can wait up to 20 minutes on hold to book an appointment. Also, there is no mobile app to access this animal hospital, so most people with inquiries about the clinic’s services probably call in to ask instead of checking the website and further increase the wait times for booking an appointment. There also is no all-in-one place that takes care of the pets’ health, sells merchandise, and provides pet services, etc. There are separate companies for each of these services. It would be much more convenient for pet owners if everything you need for a pet was in one place.

**Similar Solutions**

The common features seen among the available software in animal clinics is managing appointments, patient reminders, patient information/records, treatment plans, and storing billing information on each client (such as whether the bill is still pending or it has been paid, and the billing history)[2].

**Ways to improve them**

* Let clients book their own appointments online
* Automatically alert clients if the clinic is running behind on appointments, and approximately how much longer the wait will be
* Keep track of clinic supplies and allow staff to set up auto-ordering of supplies
* Online login for pet owners to access their pet’s history at the animal hospital, including past appointments, past tests and prescriptions, and points collected through discount program

**Proposed solution**

This project creates an all-in-one system for animal hospitals on both a website and app. It allows patients to book their own appointments online, or the front desk to book appointments over the phone. Workers in the system can manage their shifts and see who else they are working with on a particular day. There will also be walk-ins available for treatment, and there will be a wait list if there are a lot of clients at that time. People on the waitlist will be able to see approximately how much longer until they can see a doctor/access the services provided. Services such as overnight stay for pets, nail trimming, training (for dogs only) grooming will be available and can be booked using the online system. There will be an online social media type platform for pet owners to post pictures to. Also, there will be an online store where clients can buy pet products such as shampoo/conditioner, pet food, grooming kits, etc. Additionally, a discount/points system will be present on select products of the store. Each client will have a profile, and each client will have profiles for each of their pets. In a pet’s profile, their picture, information regarding the pet’s health, history of appointments, and next recommended appointment/treatment if needed will be available to view. For the client profile, it will include information on billing history, products/services bought, and upcoming appointments. A client will receive a reminder of their appointment a few days/1 week prior to it. (The client will be able to choose when they want the reminder.)

It will allow customers/clients of animal hospitals to be able to independently access the services and information available. This system will have all the possible services for pets, all in one place instead of having to have 1 place for grooming, another place for training, another for pet-sitting (babysitting for pets), etc.

**The features of our project:**

* Appointment booking will be done manually by the client - there will be time slots that the client will have to pick from. There will be penalties for cancelling appointments too close to the date
* When booking an appointment for your pet, you will fill out a digital report of your pet's symptoms/concerns. There will also be a section for the doctor to give feedback/suggestions for the next visit which the client can see
* A separate portal for employees to sign in and see their shift dates and times, as well as see who else is working with them
* A shop to sell merchandise, such as food products, treats, grooming products, and recommended products by doctors. Basically, all pet necessities will be sold at this store
* Patient follow up reminders - uses historical data of pets such as previous tests/check ups to make suggestions on what to do next
* Scheduling overnight stays for pets - for situations when the owner needs to travel out of town and needs someone to take care of their pet
* Providing services such as grooming, trimming
* Profiles for each pet - with pet history (illnesses, health, previous owners, behavior, etc)
* Sends a reminder to clients 1 week prior to their appointment
* Walk - in wait times for non emergencies will be available during open hours
* System that manages wait-lists for walk ins in case there are a lot of clients coming at once
* For the shop- there will be inventory management, and an alert to order more stock of an item that is running low. There will also be a “best sellers” list which displays the most popular items most frequently bought
* Training sessions for dogs - sorting clients with trainers, session times, hourly rate. Profiles for dog trainers available
* Suggestions for clients/customers based on what others have done at the hospital. Reminders and warnings will be sent accordingly
* Billing information/history

**Motivation**

**Why our solution is needed**

Our solution is needed because although there are database systems designed for use in animal hospitals, they do not allow clients to book their appointments online, which leads to long wait times when calling and a lot of time spent on hold. This makes booking appointments much faster and easier for non-emergencies. The online booking system will allow the client to choose the kind of appointment they need and whether they want to use any points they’ve earned through the discount system. It also means that clients who do need to book an emergency appointment will not have to spend as much time on hold and will be able to get in faster. We also plan to set up a way for clients to be notified if a situation occurs that could mean their appointment might not happen on time.

**What makes our solution unique**

Our solution is unique because there aren’t any animal hospitals that we could find who offer a social media like platform to post pictures, ask questions, and get advice for working with your pet. This will allow pet owners to communicate with each other and ask questions of the veterinarians on staff without needing to come in. Then, the questions are available for other clients, so they may be able to find answers to their questions very quickly if that question has been asked before. Over time, an archive of questions will be built up that will make finding accurate and helpful information easier.

**What we will achieve**

Combining everything that an animal hospital will need to function effectively all in one system will make our project appealing to animal hospitals because it allows them to have one system for all their needs, from ordering supplies to appointment management to handling emergencies. It means that animal hospitals are able to put more resources into what they are meant to do - help people keep their pets happy and healthy.

**Proposed Timeline**

October 2: Start working on making a detailed extended/expanded Extended Relationship Diagram

October 9: start learning web design & flutter (for the mobile app portion)

October 20: Finish ER model, ask TA for feedback/any last minute questions

October 22: ER Model is due

October 26: Begin deriving the initial (logical) relational model

October 28: ask for feedback from TA/inquiries

November 3: Finish relational model

November 5: Relational model due

November 7: Start drafting the functional design of the project and the web design

November 23: fully complete the draft

November 25: initial draft of programming & web design due

November 28: Start making an easily readable User Manual, that gives the user an overall Walkthrough of the project, highlighting all the functionalities of the Web Interface

December 3: Finish full implementation

December 7: Finish final report

December 9: Final report due

December 6 - 9: Demonstration with TA

**Conclusion**

In conclusion we are trying to make a website and a web interface for a veterinary clinic so that they can solve the problem of being able to let clients make appointments online, provide online shopping services and reduce paper waste, make patient follow ups, and being able to chat with the clinic admins which makes the work more efficient. By providing a functioning web interface and an API for appointments, shopping, and a social network dedicated to pets, providing patient details, online invoice and a chat feature, these problems can be solved. The goal for our project is to reduce the long wait time, providing a tool for people to care for their pet when they are busy, and being able to provide advice, services and support for pet owners.

**References**

[1]“McKnight 24 Hour Veterinary Hospital: Pet Clinic in Calgary, AB,” McKnight 24 Hour Veterinary Hospital, 2021. <https://www.mcknightveterinaryhospital.ca> (accessed Sep. 25, 2021).

[2]“Best Veterinary Software - 2021 Reviews, Pricing & Demos,” Software Advice, 2021. <https://www.softwareadvice.com/ca/veterinary/> (accessed Sep. 21, 2021).