Initial Plan:
An Integrated Online Solution for Canine Health Management and Well-being.

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Project Title

An Integrated Online Solution for Canine Health Management and Well-being.

Project Description

The "Dogtor" project is propelled by the vision to create a user-friendly website application that serves as a one-stop solution for the varied needs of dog owners. The website will seamlessly combine health monitoring, vet records management, and a convenient shopping platform for pet supplies. This initiative is inspired by the absence of a comprehensive solution in the market, leaving dog owners grappling with fragmented resources. The aim is to provide a centralized platform that not only simplifies but enhances the overall management of dogs' health.

Problem Being Addressed: The absence of a unified platform for dog care poses a significant challenge for pet owners. Currently, there is no one-stop-show that efficiently integrates health monitoring, vet records, and pet supply shopping. This fragmentation makes it challenging for dog owners to access crucial information swiftly, especially in emergency situations.

Why This Project: The inspiration for embarking on the "Dogtor" project is deeply personal. As a devoted dog owner, the individual behind the project understands the struggles and uncertainties that come with managing a pet's health. By creating this website, they aim to fill the existing void and provide a solution that a dog owner would find invaluable. The project is driven by a passion for ensuring the well-being of dogs and easing the responsibilities of their caregivers.

The implementation of "Dogtor" involves a range of computer science concepts and teachings. The development of the website requires proficiency in web application development, database management for storing vet records securely, implementation of real-time monitoring features involving data analytics, and the incorporation of an intuitive user interface. Additionally, aspects of cybersecurity will be considered to ensure the privacy and integrity of the stored data. The project aligns with computer science teachings by applying a holistic approach to create a technologically advanced solution for a real-world problem.

Aims and Objectives

Overall Aim: Develop a comprehensive dog care website, named "Dogtor," to provide dog owners with a user-friendly solution for health monitoring, vet records management, and convenient pet supply shopping.

Specific Objectives:

- Objective 1: Implement real-time health tracking features. Develop functionalities to monitor vital signs, activity levels, and behavior trends in real time. Establish a robust system for accurate data collection and analysis.
- Objective 2: Design a secure vet records repository with automated reminders. Create a secure platform to store vaccination records, medical history, and appointment schedules. Implement an automated reminder system for timely notifications of upcoming appointments and preventive treatments.

- Objective 3: Create a user-friendly online marketplace for pet supplies. Integrate an intuitive and accessible platform for purchasing pet food, medications, toys, and other supplies. Implement features such as auto-replenishment and personalized product recommendations.
- Objective 4: Incorporate virtual vet consultation features. Develop a feature to connect users with licensed veterinarians for remote consultations. Ensure a seamless and secure virtual consultation experience.

Risks and Mitigations:

Objective 1: Risk of data accuracy – Regularly validate data sources.

Mitigation: Implement regular data validation processes to cross-verify information from various sources, ensuring the accuracy of health-related data.

Objective 2: Risk of delayed reminders – Implement redundant reminder systems.

Mitigation: Establish redundant reminder systems with multiple notification channels to mitigate the risk of delayed reminders, ensuring that users receive timely notifications for appointments and treatments.

Tools and Techniques:

- Front-End Development:
  - HTML, CSS, JavaScript: Fundamental building blocks for creating web pages. Essential for crafting the structure, style, and interactivity of the website.
- Back-End Development:
  - Node.js with Express: A user-friendly combination for server-side JavaScript development. Node.js enables server-side JavaScript execution, and Express simplifies web application and API creation.
- Database:
  - SQLite: A lightweight, file-based relational database. Easy to set up and suitable for smaller projects.
- Authentication:
  - Firebase Authentication: Firebase provides a straightforward and beginner-friendly authentication system, allowing users to sign in with various methods.
- Real-time Features:
  - Firebase Realtime Database: Easily integrated to add real-time capabilities without extensive server-side coding.
- Online Marketplace:
  - Simple Payment Integration: Initially, manual handling of transactions or integration with a simpler payment system like PayPal Buttons. Advanced solutions can be explored as the project progresses.
- Communication and Consultation:
  - Basic Forms and Notifications: Implementation of simple forms for user interactions. For notifications, start with email notifications or explore more advanced options as the project advances.
- Responsive Design:

    - Basic CSS Frameworks: Utilize simple CSS frameworks like Skeleton to assist with responsive design without overwhelming complexity.
- Hosting and Deployment:
    - GitHub Pages or Netlify: Straightforward hosting for static websites, ensuring hassle-free deployment.
- Version Control:
    - Git and GitHub: Fundamental tools for version control and collaboration. Essential for tracking changes and working on the project iteratively.
- Progressive Web Applications (PWA):
    - Service Workers and App Manifest: Integrate PWA features to enhance the user experience, including offline functionality, push notifications, and an app-like interface.

Feasibility

Potential Issues:

- Ethical Approval:
    - Overview: The nature of the application, centered around pet care, is not anticipated to raise ethical concerns traditionally associated with human-focused research. However, it is crucial to consider ethical aspects related to user data privacy, consent, and the well-being of animals.
    - Mitigation: A comprehensive ethical framework will be established during the development process, ensuring that user data is handled responsibly, and the application adheres to ethical standards in pet care.
- Legal Issues:
    - Overview: Intellectual property (IP) and licensing considerations are paramount to protect the unique aspects of the app and ensure compliance with relevant laws. This involves safeguarding the app's code, design, and any proprietary features.
    - Mitigation: Legal experts or resources specializing in technology law will be consulted to establish clear ownership of the app's intellectual property. Licensing agreements, if any, will be carefully crafted to define how the app can be used, distributed, and modified.
- Resources:
    - Overview: The development of the app is expected to require standard hardware and software resources. However, the specific needs may evolve during the development stages, requiring careful consideration and adaptation.
    - Mitigation: A thorough analysis of hardware and software requirements will be conducted at the outset of the project. Any specialized resources deemed necessary for the app's functionalities will be identified and plans for their acquisition or implementation will be incorporated into the development timeline.

Work plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
	Jan 29 - Feb 4	Feb 4 - Feb 11	Feb 12 - Feb 18	Feb 19 - Feb 25	Feb 26 - March 3	Mar 4 - Mar 10	Mar 11 - Mar 17	Mar 18 - Mar 24	April 15 - April 21	April 22 - April 28	April 29 - May 5	May 6 - May 12
Health Record Management:												
Implement Real-time Health Monitoring												
Develop Customizable Alerts												
Set Up Secure Record Repository												
Implement Automated Reminders												
Launch Initial Survey for User Feedback												
Collect and Document Initial Survey Responses												
Prototype Health Monitoring UI												
Design Alerts Interface												
Test Health Monitoring Features												
Local Vet Finder:												
Design User Interface for Vet Finder												
Integrate Map API for Locating Vets												
Conduct Testing and Debugging for Vet Finder												
Make Iterative Changes to Improve Vet Finder												
Prototype Vet Finder UI												
Test Map Integration												
Dog Sitting Services:												
Design User Interface for Dog Sitting Service												

Implement Search Functionality for Local Dog Sitters												
Conduct Testing and Debugging for Dog Sitting Service												
Make Iterative Changes to Improve Dog Sitting Service												
Prototype Dog Sitting UI												
Test Search Functionality												
Online Shopping:												
Design User Interface for Online Pet Shop												
Implement E-commerce Functionality												
Integrate Online Payment System												
Conduct Testing and Debugging for Online Pet Shop												
Make Iterative Changes to Improve Online Pet Shop												
Prototype Online Pet Shop UI												
Test E-commerce Features												
Report Writing and Reflection:												
Begin Writing Introduction Section												
Draft Background Section												
Draft Methodology / Approach Section												
Start Results and Evaluation Section												
Conclude and Reflect on Learning												
Review and Edit Report												
User Feedback and Iteration:												
Analyze Overall User Feedback												

Make Global Iterative Changes to Website												
Conduct Final Testing and Debugging												
Finalize Report Writing												
Proofread and Edit Report												
Submit Final Report												

Focused Deliverables:

- Real-time health tracking module
- Vet records repository
- Online marketplace
- Virtual vet consultation feature
- Final report

References

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Appendix

Data Collection

Pre-Website Development (Research Phase):

- **Surveys:**
  - **Open-Ended Question:**
    - Question: Can you describe your current methods for managing your dog's health and well-being?
    - Reasoning: Understanding the current practices of dog owners provides insights into their pain points and challenges.
    - Question: What features do you think are essential for a comprehensive dog care app?
    - Reasoning: Gathering opinions on essential features helps in identifying priorities for the app.
  - **Closed-Ended Question:**
    - Question: On a scale of 1-10, how satisfied are you with existing dog care solutions available in the market?
    - Reasoning: Quantifying satisfaction levels helps gauge the perceived effectiveness of current solutions.
- **Interviews:**
  - **Open-Ended Question:**
    - Question: Can you share a specific instance where you faced challenges in managing your dog's health?
    - Reasoning: Extracting real-life scenarios aids in understanding specific pain points for users.
    - Question: What improvements would you like to see in existing dog care solutions?
    - Reasoning: Encouraging users to suggest improvements provides direct insights into their expectations.
  - **Closed-Ended Question:**
    - Question: How often do you visit the vet for routine check-ups and consultations?
    - Reasoning: Quantifying vet visit frequencies helps in designing features related to vet interactions.

Post-Website Development (User Testing and Evaluation): capacity to change based on final product

- **Surveys:**
  - **Open-Ended Question:**
    - Question: What specific challenges did you face while using the "Dogtor" app?

        - Reasoning: Identifying challenges provides actionable feedback for refinement.
    - **Closed-Ended Question:**
        - Question: On a scale of 1-5, how easy was it to navigate and use the "Dogtor" app?
        - Reasoning: Quantifying user experience helps in evaluating the usability of the app.
        - Question: How likely are you to recommend the "Dogtor" app to other dog owners?
        - Reasoning: Measuring likelihood to recommend reflects overall satisfaction and perceived value.
- **Interviews:**
    - **Open-Ended Question:**
        - Question: Can you share an instance where the "Dogtor" app positively impacted your dog care routine?
        - Reasoning: Capturing positive experiences provides valuable testimonials for the app.
        - Question: What additional features or improvements would you suggest for the "Dogtor" app?
        - Reasoning: Post-implementation, gathering feedback on potential enhancements guides future development iterations.
    - **Closed-Ended Question:**
        - Question: Did the app's health monitoring feature effectively alert you to any concerning changes in your dog's health?
        - Reasoning: Assessing the effectiveness of specific features helps in refinement and enhancement.