NWAY NWAY THAN HLAING

CS3821 – FINAL YEAR FULL UNIT PROJECT

PROJECT PLAN

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BUILDING MOBILE APPLICATION

PET ASSISTANT APP

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1. Abstract

The well-being of companion animals is increasingly prioritized by both pet owners and animal welfare organizations [1] (Glanville et al, 2020). The caregiver behavior significantly influences pets' health and happiness [1] (Stafford, 2007). Most pet owners believe they are giving their pets good care [1] (Rohlf et al., 2010; Howell et al., 2016). However, pet welfare challenges can result from lack of adequate attention [3] (Hubrecht et al, 2017), such as missed veterinary appointments, inconsistent feeding schedules, and insufficient exercise. This project is motivated by these challenges and the limitations of current solutions, which often fail to integrate these needs into a single platform.

This project aims to help users fulfill their responsibilities more effectively and with less effort. It offers a centralized platform for managing all aspects of pet care, ensuring that pets receive optimal attention. Key features include personalized pet profiles, diet and activity tracking, reminders, a vet locator, event calendar and a social networking feature that allows users to connect and share experiences, promoting a supportive community.

The Pet Assistant Mobile Application is designed to give users convenient access to the pet care management. The features, that users will mostly be in contact with, will be displayed on the centralised main dashboard. Users can easily find out a display of all the pets owned. Each pet will be given an individual profile that includes their schedules for the meals, activities, and veterinary appointments. Recognizing the importance of veterinary care, the app will feature a separate section for managing vet appointment schedules for all pets, enabling owners to efficiently organize their time. This focus on easy access to veterinary appointments and health information minimizes the risk of neglecting essential care needs.

To ensure that pet owners stay on top of their responsibilities, the app will include a notification feature that alerts users whenever a task is due. All notifications will be shown in one place for easy reference. Additionally, the application will offer a flexible calendar with reminders and to-do lists, providing daily, monthly, and yearly views. This functionality will assist pet

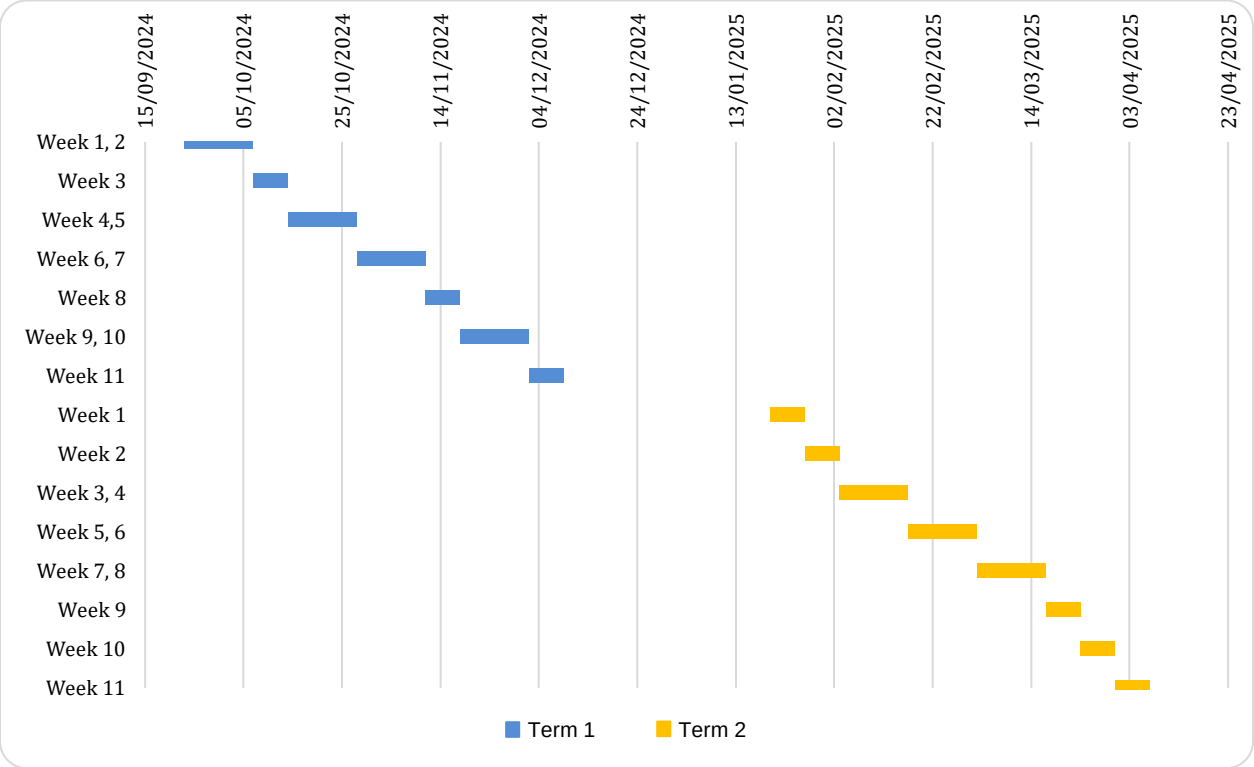
owners in scheduling critical tasks such as veterinary visits, grooming, feeding, and exercise, leading to the organized and consistent pet care routines. Users will have the capability to add, update, or delete tasks for each pet as needed.

Furthermore, the app will include a "moments" feature that allows users to document daily activities or memories and keep them in the app. This feature will create records of memories with their pets in the order of date and time. The pet social network section will allow the pet owners to connect with each other, encouraging them to share tips and advice on pet care. Users will also have the opportunity to make friends through the application, promoting a sense of community among pet owners. The app offers a solution to effectively managing pet care, enhancing the quality of life for pets and their owners.

The Pet Assistant application will be developed using Flutter to ensure cross-platform compatibility on both iOS and Android devices, reducing the development time [4] (Anil et al., 2020). Firebase will provide backend services such as user authentication and data storage. The application will prioritize user experience, integrating modern design principles to create an intuitive environment. Overall, the combination of Flutter and Firebase will facilitate the development of a comprehensive tool that meets the needs of pet owners, contributing to smoother pet care management.

This project not only offers a tool for managing pets, but also aims to build a community of active pet owners. By bringing together different features into one single platform, the Pet Assistant application will provide pet information tracking in a more organized manner compared to traditional tracking and promote social interaction among pet owners. From the psychological point of view. With a successful launch planned, this project aims to improve pet care management, making it easier for pet owners to fulfill their responsibilities.

2. Project Timeline and Weekly Milestones



Gantt Chart Display of Project Timeline and Weekly Phases

2.1. Term 1:

Week	Description	Start Date	End Date
1, 2	Research on similar apps, User Requirements, Project Planning	23/09/2024	06/10/2024
3	Scaffolding App Architecture, UI/UX Prototyping	07/10/2024	13/10/2024
4, 5	Building app layout for user authentication, user profile, pet profiles, and vet appointments	14/10/2024	27/10/2024
6, 7	Adding more features such as scheduling reminders for meal, activity and medical records	28/10/2024	10/11/2024
8	Implementing calendar with to-do list and reminders, Providing daily, monthly and yearly views	11/11/2024	17/11/2024
9	Test APIs, and all MVP features, refactor if required	18/11/2024	24/11/2024
10, 11	Interim Report and Presentation	25/11/2024	08/12/2024

2.2. Term 2:

Week	Description	Start Date	End Date
1	Research Social networking in app Define Requirements	20/01/2025	26/01/2025
2	Design UI for Pet social network	27/01/2025	02/02/2025
3, 4	Develop features: Content sharing layout	03/02/2025	16/02/2025
5, 6	Develop Friendship feature for frontend	17/02/2025	02/03/2025
7, 8	Integrate backend for social features	03/03/2025	16/03/2025
9	Test APIs, and all features, refactor if required	17/03/2025	23/03/2025
10, 11	Final Report and Presentation	24/03/2025	02/04/2025

3. Risks and Mitigations

3.1. Data Privacy and Security Risks

- Risk: Handling sensitive user information, such as medical records and personal data; presents risks related to unauthorized access.
- Mitigation: Implementing strong encryption techniques for both data storage and transmission [2] (Simeon et al., 2022); Regularly conducting security audits.

3.2. User Engagement Risks

- Risk: Users may find the application challenging to navigate or may not engage with all its features.
- Mitigation: Developing clear minimalist design for User Experience.

3.3. Technical Feasibility Risks

- Risk: The chosen technologies (Flutter for mobile development and Firebase for backend support) may not fulfill all project requirements or could face compatibility challenges.

- Mitigation: Identifying potential technical issues early in development; Maintaining flexibility to adapt or replace technologies to align with project goals.

3.4. Project Bloat

- Risk: The desire to incorporate additional features beyond the original plan may lead to scope creep, which can adversely affect timelines, resource allocation, and project focus.
- Mitigation: Having clear project scope and utilizing agile project management techniques to improve over project timeline while focusing on the core features identified; Regularly reviewing project milestones.

3.5. Loss of Functionality During Offline Periods

- Risk: When users lose internet connection unexpectedly, they may experience data loss, preventing them from continuing their activities once they reconnect.
- Mitigation:
    - Local data storage: Implementing local databases such as SQLite to save user inputs and any changes made while offline, enabling specific features to function independently of an internet connection.
    - Persistent session management: Use session tokens to maintain active user sessions, so that users can resume their activities without the need of logging in again when they come back online [5] (Kim et al., 2020).

4. <u>Acronyms</u>

- **MVP**: Minimum Viable Product
- **UI/UX**: User Interface/User Experience
- **API**: Application Programming Interface

5. Glossary

- **Firebase**: A platform developed by Google for creating mobile and web applications that includes features like authentication, database management, and cloud storage.
- **Flutter**: An open-source UI software development toolkit by Google for building locally compiled applications for mobile, web, and desktop from a single codebase.

6. References

[1] Glanville, C., Hemsworth, P. and Coleman, G. (2020) 'Conceptualising dog owner motivations: The Pet Care Competency model and role of "duty of care"', *Animal Welfare*, 29(3), pp. 271–284. doi:10.7120/09627286.29.3.271.

[2] Simeon, O., Joseph, A. and Ezeh, G.N., 2022. Smart phone security threats and risk Mitigation strategies. *People*, *72*, p.84.

[3] Hubrecht R, Wickens S and Kirkwood JK2017 The welfare of dogs in human care. In: Serpell JA (ed) The Domestic Dog: Its Evolution, Behavior and Interactions with People, Second Edition pp 272-299. Cambridge University Press: Cambridge, UK. https://doi.org/10.1017/9781139161800.014

[4] Anil, Y., Sahoo, A. and Shoby, P., A Research Paper on a Pet-Friendly Application using Flutter and Firebase.

[5] Kim, H.W., 2020. A study on the mobile application security threats and vulnerability analysis cases. *International Journal of Internet, Broadcasting and Communication*, *12*(4), pp.180-187.