

Group 26

Pet Minder App

ECS506U Software Engineering Group Project

Problem/Domain Analysis Report

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1. Introduction

The problem:

Currently, the pet care sector lacks a reliable platform that connects pet owners with pet minders in a structured, trustworthy and safe way. Platforms such as Rover and Wag dominate the pet care market but have been criticized for inconsistent vetting of walkers and occasional safety incidents. [1] This shows there is a lack of reliability and trust in existing services. This emphasises the need for a more transparent and dependable system. Many owners rely on informal arrangements such as social media posts or small local services that do not provide clear information about the pet minder's experience, availability, ratings and safety practices. Owners often have no convenient way to give detailed instructions for pet minders, such as walking routes, feeding schedules and behavioural notes. One issue that owners come across is the lack of real time visibility of what happens during a walk or visit. These issues create uncertainty for owners, the lack of instructions reduces the quality of care pets receive, and limits pet minders' ability to present their services professionally.

The need for the application:

There is a growing need for a dedicated platform that makes pet minding services transparent, dependable and easy to access. Market reports indicate that the global pet sitting market is growing rapidly and is projected to more than double by 2030 as demand increases for convenient and trustworthy care services. [2] Owners want reassurance that their pets are safe, cared for correctly and are looked after by trustworthy individuals. Pet minders, on the other hand, need a structured way to showcase their services, manage bookings and organize instructions. Developing this system is motivated by the intention to solve these gaps by creating a hub where both parties can interact confidently. The domain analysis supports this goal by identifying user needs, system requirements and the behaviours that the software must support to be effective.

How the software solves the problem:

Pet minder addresses these problems by integrating key features into one platform. It offers a powerful search and matching system that allows pet owners to find suitable minders based on ratings, reviews, location, price and availability. This ensures a transparent and informed selection process. Owners can also share detailed instructions such as preferred walking routes, behavioural notes, feeding schedule and special care requirements, allowing pet minders to deliver personalised and accurate care. Research comparing dog walking apps found that although many platforms verify the walker's identity, they do not frequently assess and track the walker's skill or care quality. [3] This reinforces the importance of detailed instructions and tracking features.

Additionally, the app provides real time pet tracking, which enables minders to record walks and gives owners full visibility and peace of mind during their pet's activities. The built-in booking and communication tools allow both parties to manage appointments and maintain a clear record of expectations and services. By combining these capabilities, the software delivers a detailed and trustworthy solution that enhances safety, improves communication and strengthens confidence between pet owners and pet minders.

2. Customers and users

Our petminder app aims to help pet owners find minders for their pet, and pet minders to find clients to pet sit for. This targets pet owners who may have irregular working hours or commitments that require commuting or frequent relocation, or perhaps the occasional situation where they need a one-off pet sitter. This also targets pet sitters who may be working freelance, or individuals looking for a part-time side hustle, whether that be students or experienced professionals.

There are two main types of users: pet minders and pet owners. Both types of users should be able to perform certain actions, such as posting listings (though the format shall differ depending on the user type), posting reviews, viewing the opposing user type's profile, viewing a dashboard, and so on. Both minders and owners may add different pets or pet categories to their profile: while a pet minder could simply add animal tags they are comfortable minding to their profile, or filtering based on pet types, owners would have different sections on their dashboard for each pet they own/add to the system.

Pet owners may also add certain requirements or key considerations surrounding their pet to their profile, and pet minders should be given the option to attach any relevant experience or certifications. Pet owner users are also encouraged to add any medical documents and vaccination records to their pets' profile. These can be verified or done by a veterinary clinic/professional, who shall be considered third-party users. In the most optimal case, veterinarians shall not have access to any pet owner accounts, but rather simply be responsible for adding records for the pet in question - for security reasons, we could consider this only happening upon the pet owner requesting a certain document being added.

Upon a pet owner choosing a pet minder who has applied to or placed a listing to look after a pet, both users are able to chat to the other. Once both parties have agreed on a time and location, this is added to the pet minder's calendar - note that only the pet minder has a calendar, as it is expected that they may take on multiple listings at once. During the minder session, the pet owner should have access to the GPS location of their pet.

To ensure smooth operation of the system, there should also be an admin team to provide support for both pet owners and minders. They should be free to contact

through a chat feature, or contacted via email or telephone number. The admin team's primary responsibility is to sort out any technical issues or queries users may have. They shall not have a dashboard like pet minders or owners, but rather be able to see tickets to be resolved in two categories: pet minder and pet owner tickets. Admins could potentially be able to see tickets in order of priority. Once a ticket is closed, the chat should be closed between the admin and the specified user.

Overall, there are two users who are the target customers: pet owners and pet minders. Veterinary professionals enter the domain through courtesy of the pet owner - this is done by adding vaccination and health records of the pet upon the request of the pet owner. We consider pet minder users to be independent sitters, like with pet owners, as our app should be used as a bridge to allow both parties to connect. Thus, pet minders and pet owners are essentially equals in our domain.

3. The environment

We are going to make a mobile app available for both iOS and Android platforms. The mobile environment is the standard for real-time, location-dependent services. Most of the existing pet-minder apps today take full advantage of what smartphones can offer – GPS tracking, instant messaging, photo/video sharing, push notifications, processes that can run in the background, etc. In general, similar services offered via the web are only secondary, and they are mostly used to manage accounts, changing profiles, or displaying service listings rather than providing the complete operational experience.

Both systems – iOS and Android – have solid support for the kinds of features our app needs. Although their internal functionality varies (e.g. iOS employs a more constrained background execution model, whereas Android allows more freedom with background services [4]), both platforms offer more dependable methods for timely reminders and continuous tracking than any web browser environment. Web apps rely on browser-based geolocation, which only works reliably as long as the browser tab is active. Most browsers suspend background tabs to save battery and protect privacy, meaning location updates may stop after a few minutes – making web-based tracking unsuitable for pet-monitoring needs.

For these reasons, developing our app as a mobile one is the most reliable and practical choice. It ensures consistent tracking performance, direct access to necessary hardware features, and an overall experience that meets user expectations for pet-care apps. Due to browser restrictions, a web application alone would not meet these requirements.

We have chosen React Native as our development framework. It lets us write code once and release it to both iOS and Android, instead of managing two different codebases.

4. Tasks and procedures currently performed

This section outlines the main activities carried out by different users in the pet-minding domain. Understanding these tasks helps identify which processes can be improved or automated by the proposed system.

Pet Owner Tasks

Searching for a Pet Minder

Pet owners currently search through social media, word of mouth, or existing apps. They manually compare availability, experience, pet preferences, and location, which can be slow and unreliable. The system will allow owners to search and filter minders by location, animal type, experience, ratings, and availability.

Filtering Suitable Minders

Owners often have specific requirements, such as sitters comfortable with certain animals or pets with medical needs. Some also want to avoid unsuitable environments (e.g. allergies or fear of large dogs). Currently, this is handled through direct messaging. The app will support filtering through profile tags and preferences.

Viewing Minder Profiles

Owners usually request references or check social profiles to build trust. This is inconsistent and unverified. In the system, each minder will have a structured profile showing experience, certifications, reviews, and preferred pet types.

Booking a Sitter

Bookings are normally arranged via calls or messages. Dates, times, and house-sitting details are agreed manually. The app will allow booking requests to be sent and confirmed within the system, automatically updating the minder's calendar.

Communicating with the Minder

Owners currently use external messaging platforms to share pet routines and house instructions, which can become disorganised. The app will include in-app chat so communication remains centralised and linked to each booking.

Monitoring the Pet During Sitting

Owners usually rely on occasional texts or photos for updates. There is no reliable way to track pets during walks. The system introduces GPS tracking with background location sharing and a visual map for real-time monitoring.

Leaving Reviews

Feedback is often informal or not recorded. The app will allow structured ratings and reviews after each session to help future users make decisions.

Pet Minder Tasks

Creating and Managing a Profile

Sitters currently advertise through social media or third-party platforms, where information may be incomplete. The app allows minders to create detailed profiles, including experience, certifications, pet preferences, and availability.

Managing Availability (Calendar)

Sitters usually manage bookings using personal calendars, which can lead to double bookings. The system calendar will automatically update when bookings are confirmed.

Applying for or Accepting Jobs

Minders currently respond to messages or advertisements from owners. In the app, they can browse owner requests and apply, or accept booking invitations directly.

Communicating with Pet Owners

Sitters need clear information about pet routines and house rules, often shared across multiple platforms. The in-app chat keeps all communication organised within each booking.

Providing Location Updates

Some owners request manual updates during walks. The app will automate this through GPS tracking, reducing the need for constant messaging.

Completing the Sitting Session

At the end of a session, sitters inform owners and may send photos. In the system, session completion can be logged, enabling reviews and record keeping.

Veterinary Professional Tasks

Adding Medical Records

Owners currently store vaccination or medical documents separately and share them manually. In the system, vets can upload verified medical records to a pet's profile when authorised by the owner.

System Administrator Tasks

Maintaining the System

Administrators ensure the app runs smoothly by fixing bugs, updating features, and maintaining servers.

Managing User Accounts

Admins handle reported users, remove inappropriate content, and verify professional accounts where necessary.

Monitoring GPS and Data Services

Since the system includes real-time tracking, administrators ensure GPS services and data storage operate securely and reliably.

Providing Customer Support

System administrators will handle user support by responding to queries, resolving booking or communication issues, assisting with technical problems, and managing user reports. This provides a structured and reliable support system that is often missing in informal pet-sitting arrangements.

Summary

Pet-sitting tasks are currently handled through scattered communication channels and manual arrangements, leading to inefficiency and limited trust verification. The proposed system centralises these processes through structured profiles, booking management, in-app communication, GPS tracking, and review features, improving reliability and convenience for all users.

5. Competing software (Alaur and Tahrima)

As we are creating a pet-minding mobile app that offers cross-compatibility on both iOS and Android, we looked at the most popular Apple Store and Android apps, as that will be the most direct competition.

Rover – Dog Sitters & Walkers:

With 26,000 reviews with an average of 4.9 stars on the Apple app store, and 44,000 4.5-star average on Google play, the Rover app appears to be the most popular and trusted pet sitting and dog walking app. Founded in 2011, the founders believe communities should be empowered to run their own pet care services and be backed by their tools and security [5]. It is used across the globe, with more than 200,000 pet minders and more than 6 million pet owners in 17 countries.

TrustedHousesitters

With 4.8 stars on the App Store and 3.9 stars on Google Play, TrustedHousesitters is the second-highest rated pet-minding app on the App Store. Founded by Andy Heck in 2010, he was inspired by his special dog, Dave, to kickstart this company with two other founders. Has over 100,000 experienced sitters worldwide, including countries that Rover has and Africa, Pakistan, and Asia. It continues to grow in size, with companies like MayFair investing in 2023, [6].

Pawshake – Dog & Cat Sitter

With 4.8 stars on the google play store and Trustpilot, and 4.7 stars on the app store from a total of 26,000 reviews, Pawshake seems to be the perfect app for pet minders and pet owners. Pawshake was chosen as a comparison as it allows pet owners to find local pet minders, and it provides many services, not just dog walking.

Pros and Cons Table:

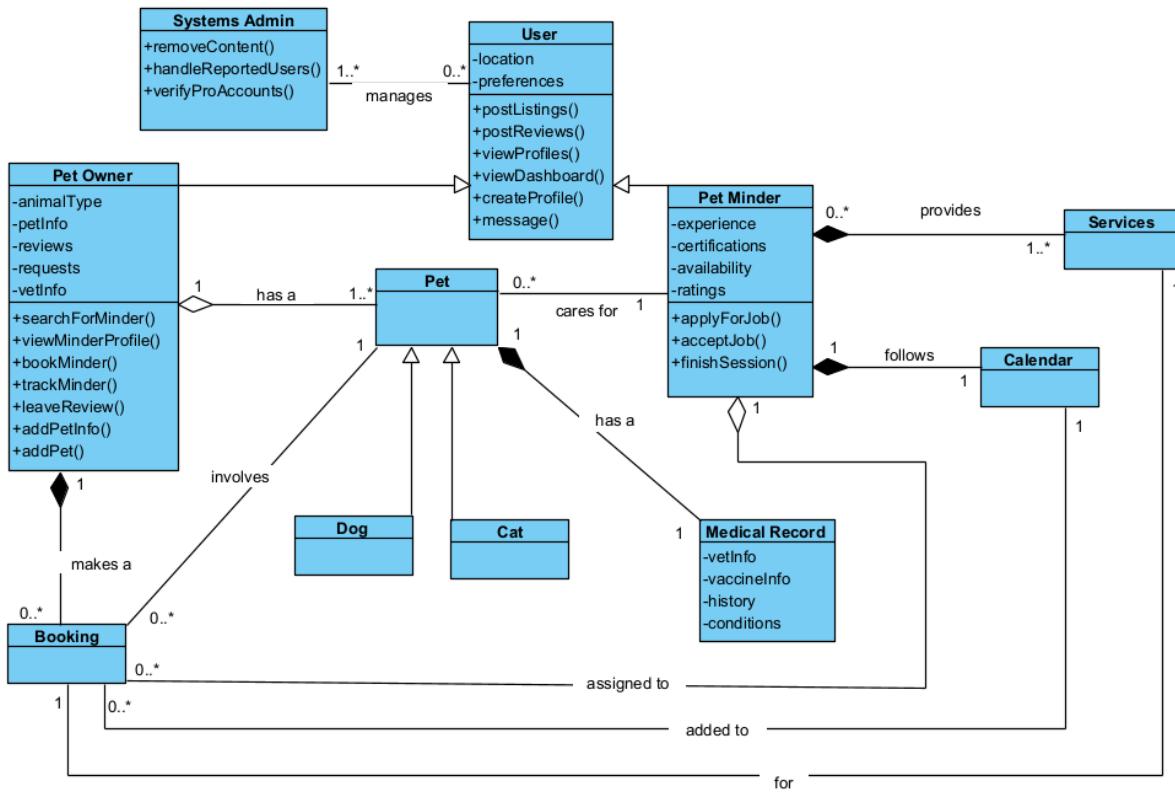
	Rover	TrustedHousesitters	Pawshake
Key Functionality	<p>Search sitters - filtering out minders who don't suit their pet's needs.</p> <p>Provides profiles with key information such as reviews and preferences.</p> <p>Provides dog walking, house sitting, drop-ins, and doggy day care</p> <p>Chat system between the minder and sitter</p> <p>GPS functionality for walks, which constantly updates in real time</p> <p>Vet care insurance of up to £25,000, with 24/7 support during emergencies.</p>	<p>Has a favourites section for sit and sitters</p> <p>A map feature which shows local sit and sitters.</p> <p>Has an insurance plan, but it was not mentioned</p> <p>Needs membership to unlock core features.</p> <p>Provides reviews of each sitter</p>	<p>Allows pet owners to search locally for vetted pet minders with filters suited to their needs</p> <p>Each pet minder has a profile that displays key information, such as booking fee, reviews, preferences, and scheduling.</p> <p>Provides Dog Boarding, Doggy day care, dog walking, home visits and home sitting.</p> <p>Chat system between owner and sitter, allowing daily updates from the pet sitter.</p> <p>Sitters and owners are encouraged to meet in person before confirming a booking.</p>
Pros	<p>A simple design with one colour – easy to use UI.</p> <p>Each function is developed and has relevant options with it:</p> <p>Owners can search for minders suiting their price range, experience, and reviews.</p> <p>Chat system provides pictures – making it more secure.</p> <p>Walks have descriptive features; i.e. how many times a dog has done a bathroom break along the way.</p> <p>Payments are secured – thinking of security and encryption of user's data.</p> <p>Has cross compatibility with most OS systems –</p>	<p>Service is easy to use and is very straightforward.</p> <p>The app is said to be intuitive to use [7].</p> <p>Does not have as many features as Rover, which may be easier to use.</p> <p>Unlimited access to in-home pet care</p> <p>Claim compensation if sitters cancel at the last minute</p> <p>Money-back promise if the user cannot find a sitter</p> <p>External benefits – such as airport lounge passes.</p> <p>Searches can be saved</p> <p>More than just dogs and cats, software includes other pets like chickens.</p> <p>Has a 24/7 support team and Vet Advice Line</p>	<p>Users find the system easy to use, access and navigate, which is great for user experience. Users have a lot of filters to choose from when looking for a pet sitter, such as simple filters like location, dates available, price range, how many pets and even the size of dogs, to advanced filters, like whether the sitter has pets, children etc.</p> <p>The pet sitters' profiles are very detailed, displaying a lot of useful information like repeat customers, booking fees, preferences, experience, scheduling and detailed reviews from past customers.</p> <p>This helps owners find reliable pet owners near them, and because of the free meet and greet system, owners can</p>

	iOS android and even webpage.		make the decision to confirm the booking after seeing them in person.
Cons	While reviews of some minders are good, some users state that minders are a hit or miss (due to misinformation or inadequate service) [8]. Even when pet owners report minders for extremely bad or abusive service, Rover does not offer support or remove said minder [9]. Rover fees are reportedly stated as high by people on internet forums.	The company has introduced a sit fee – charging sitters. If sitters are inactive for 3 month – account will be removed, including reviews and profile. Users report that the app is clunky in both operating systems, which directly affects functionality (keypad covering page, not being able to scroll up). Trouble with the message system not loading. [10] FAQ's page does not help in case of problem, and neither does the bot chat service. App glitches sometimes Customer service during a bad incident has not been satisfactory. The company does not provide enough support when there is a liability, and when the insurance does cover it, it protects the owner more than the minder. [11]	Pawshake takes a commission from pet minders, reportedly 20%. Pet minders can view this negatively as they are earning less, and in turn increase booking fees, which are naturally inconvenient for pet owners. Many users have problems with customer service from Pawshake, and users have even had their accounts suspended for invalid reasons. Some sitters report the wait for receiving payments is very long, reportedly more than a week, due to Pawshakes payment system.

The Conclusion:

From the competing software, we have concluded that there needs to be an effective support system in place when there are issues between pet minders and sitters. There should be proper customer support teams that solve any issues, and our website should have no functional or technical issues that affect the usability and accessibility of our users. We also need to thoroughly confirm background checks and have clear financial subscriptions and policies for all parties.

6. Domain Model (William)



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