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TailMates- A Pet Adoption Website

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***Abstract*—Pet adoption information is often distributed across different platforms, making it difficult for users to find suitable pets, manage adoption activities, and communicate with pet listers. TailMates is a centralized web-based pet adoption platform that allows users to browse pet listings, view pet details, save pets, register pets for adoption, and submit adoption applications. The platform incorporates PawMate AI, an AI-powered matching system that recommends suitable pets based on adopter preferences, lifestyle, home environment, and pet experience. TailMates also includes an AI chatbot that provides assistance related to pet adoption, breeds, pet care, shelters, and platform services. A private communication interface enables interaction between adopters and pet listers during the adoption process. By integrating pet discovery, adoption management, AI-assisted matching, and communication into a single platform, TailMates aims to make pet adoption more organized, accessible, and user-friendly while supporting responsible adoption.**

***Index Terms*—Pet Adoption, AI-Based Pet Matching, PawMate AI, Pet Registration, Adoption Applications, Private Messaging, Pet Management, Animal Welfare, Web Application, Personalized Recommendations.**

I. Introduction

Pet adoption involves several stages, including identifying suitable animals, understanding their characteristics and care requirements, communicating with pet listers, and completing the adoption process. The information about adoptable animals is usually distributed across shelters, organizations, social media platforms, and individual listings, so this makes it difficult for potential adopters to compare available pets and identify animals that are appropriate for their circumstances.

TailMates is proposed as a centralized web-based platform that brings major pet-adoption activities together within a single system. The platform allows users to browse available pets, examine pet information, register animals for adoption, save pets for later consideration, submit adoption applications, and communicate with pet listers. User profiles are provided to help organize adoption-related activities and information.

A key component of TailMates is PawMate AI, which provides personalized pet recommendations using information supplied by adopters and characteristics associated with available pets. The matching process considers factors such as lifestyle, home environment, personality preferences, working schedule, and previous pet experience. The purpose of PawMate is to assist users in identifying potentially suitable pets rather than replacing the user's final adoption decision.

TailMates also incorporates TailBot, an AI-based conversational assistant intended to provide information related to pet adoption, breeds, pet care, shelters, and platform functionality. In addition, the system provides private communication between adopters and pet listers to support discussions during the adoption process.

By integrating pet discovery, adoption management, AI-assisted matching, conversational assistance, and communication within one platform, TailMates provides a unified digital environment for managing different stages of pet adoption. The system is intended to improve accessibility and organization while supporting more informed and responsible interactions between potential adopters and pet listers.

A. Background Information

Pet adoption requires potential adopters to consider several characteristics before selecting an animal. Factors such as age, breed, temperament, care requirements, compatibility with children or other animals, and the adopter's living conditions can influence whether a particular pet is appropriate for their house environment. Research on pet-selection decisions has also examined the importance of behavioral and personal characteristics in adoption decisions [5], [6].

Despite the availability of online adoption resources, pet information may remain distributed among different organizations and listing platforms. So as a result, users may need to search across multiple sources to compare animals, obtain relevant information, communicate with listers, and manage applications. These activities can become difficult when there is no single system connecting the different stages of the adoption process.

TailMates addresses this requirement through a centralized web application. The platform provides pet listings and detailed pet information while also supporting registration, saved pets, applications, user profiles, and private communication. These functions are designed to organize the interaction between people interested in adoption and individuals or organizations listing animals.

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The platform further incorporates PawMate AI to support pet discovery through personalized recommendations. Instead of relying only on manual browsing, users can provide information about their preferences and circumstances, which can then be considered alongside available pet characteristics. TailMates therefore combines conventional adoption-management functions with AI-assisted recommendations within the same platform.

B. Motivation

The development of TailMates was motivated by the need for a more organized approach to online pet adoption. Potential adopters may encounter difficulties when pet information, communication channels, and adoption-related activities are distributed across different sources. At the same time, pet listers require effective ways to present animal information and communicate with people interested in adoption.

A further motivation is the difficulty of determining which available pet may be appropriate for an individual adopter. Pet selection can involve multiple factors, including lifestyle, living environment, personality, experience with animals, and the care requirements associated with a particular pet. A system that considers these factors can provide additional assistance during the initial pet-discovery stage.

TailMates was therefore developed to combine pet listings, pet registration, saved pets, adoption applications, user profiles, private messaging, and AI-assisted recommendations within one web-based platform. PawMate AI provides an additional mechanism for exploring potential matches based on information supplied by the user and the characteristics of available pets.

The overall motivation is to create a platform that supports the adoption process without treating an automated recommendation as the final decision. The system is intended to provide information and assistance while allowing users to evaluate pets and make their own adoption decisions.

C. Problem Statement

The existing pet adoption process is often fragmented across different shelters, social media platforms, websites, and individual listings. This creates difficulties for both potential adopters and pet listers. The major problems identified are:

- Scattered pet information: Adoptable pet information is distributed across multiple sources, making suitable pets difficult to discover efficiently.
- Difficulty in finding compatible pets: Existing platforms primarily allow users to browse listings but provide limited personalized assistance for identifying pets that match their lifestyle and living conditions.
- Limited communication: Adopters and pet listers may need to depend on external communication platforms, resulting in a less organized adoption experience.
- Difficulty managing adoption activities: Users require a structured way to manage saved pets, adoption applications, registered pets, and profile information.
- Lack of intelligent assistance: Existing adoption platforms generally lack AI based guidance for adoption-related questions and personalized pet recommendations.
- Limited integration of adoption services: Pet discovery, registration, communication, applications, AI assistance, and location-related functionality are often not available together within a single platform.

To address these issues, TailMates proposes a centralized web based pet adoption platform that integrates pet discovery, pet registration, adoption application management, private communication, AI-based pet matching, conversational assistance, and location-based functionality within a single system. The objective is to provide a more organized and personalized adoption experience for both adopters and pet listers.

D. Objectives

- To develop an AI-powered online pet adoption platform that connects potential adopters with rescued and abandoned animals through a centralized digital platform.
- To implement user authentication and account management for providing users with personalized profiles and access to adoption-related activities.
- To provide AI based pet matching through PawMate AI by analyzing adopter preferences, lifestyle, home environment, personality, and pet-care requirements to recommend potentially suitable companions.
- To develop TailBot AI, an AI-powered chatbot assistant that provides information and guidance related to pet adoption, pet care, breeds, shelters, and platform services.
- To provide pet registration and centralized pet information management, including breed, age, weight, gender, location, care requirements, temperament, compatibility with children and other pets, photographs, and contact details.
- To facilitate adoption management through adoption applications and interaction between adopters and pet providers.
- To provide private messaging between adopters and pet listers for adoption-related communication.
- To provide digital scheduling and location related functionality for coordinating adoption-related meetings or visits.
- To provide user-oriented sections such as Saved Pets, My Applications, My Registered Pets, and My Profile for structured management of adoption activities.
- To promote responsible pet adoption and contribute to the welfare and rehoming of stray and abandoned animals.

II. Review of Literature

Minnis and Davis proposed a conceptual framework describing pet adoption as a process involving search, visitation, interaction, and decision-making. The study highlights the importance of pet characteristics, adopter perceptions, and emotional connection in adoption decisions. [1]

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Relevance to TailMates: This supports PawMate AI's use of multiple adopter and pet characteristics for personalized recommendations.

PawConnect presented a digital platform for organizing animal rescue and pet adoption activities. The work demonstrates how technology can support and simplify the adoption process. [2]

Relevance to TailMates:TailMates extends this concept by integrating AI-based matching, profiles, applications, messaging, and conversational assistance.

Kamaruzaman and Mat Rejab developed a PetCare Management System to improve traditional adoption and animal-rescue processes through centralized digital services. The system includes user registration, adoption tracking, rescue reporting, and location-based services. [3]

Relevance to TailMates: This supports the centralization of adoption activities, which TailMates further extends with PawMate AI, TailBot, and adopter–pet owner communication.

Jokar, Abdous, and Rahmanian examined the use of AI chatbots in pet healthcare and highlighted their potential for providing accessible information and decision support. They also emphasized that AI should support rather than replace professional expertise. [4]

Relevance to TailMates:This supports the use of TailBot as an informational assistant for pet care, breeds, adoption, and platform guidance.

Minnis, Davis, and Loftis studied the factors considered by potential dog adopters during shelter visits, contributing to an understanding of how adopters evaluate animals during the adoption process. [5]

Relevance to TailMates: The findings support PawMate AI's use of adopter preferences and pet characteristics for personalized recommendations.

Weiss, Miller, Mohan-Gibbons, and Vela examined pet-selection preferences among adopters across five animal shelters. The study shows that adoption decisions involve multiple pet characteristics and adopter preferences. [6]

Relevance to TailMates: This supports providing detailed pet information and considering multiple characteristics in PawMate's matching process.

Philpotts, Dillon, and Rooney examined the role of owner education in improving companion-dog welfare and emphasized the importance of appropriate knowledge about pet care and behaviour. [7]

Relevance to TailMates: This supports PawMate's consideration of care requirements, activity level, grooming, personality, and commitment when recommending pets.

Park et al. examined the need for an AI-based personalized pet adoption matching service. The study investigated adopter preferences and the importance of matching adopter and pet characteristics, highlighting factors such as health, personality, activity level, care burden, and financial considerations. [8]

Relevance to TailMates: This directly supports PawMate AI's approach of comparing adopter preferences with pet characteristics to generate personalized compatibility-based recommendations.

Dinwoodie et al. examined the factors that influence owner satisfaction following pet dog adoption. The study highlights the importance of considering adopter preferences and pet characteristics when making adoption decisions. [9]

Relevance to TailMates: This supports PawMate AI's approach of matching adopter preferences with relevant pet characteristics to provide personalized adoption recommendations.

Wei, Wang, and Zheng evaluated the efficiency and usability of existing pet adoption websites using task-based evaluation, SUS, AttrakDiff, NPS, and interviews. The study highlights the importance of usability and user experience in pet adoption platforms. [10]

Relevance to TailMates: This provides a basis for evaluating the usability and user experience of the TailMates website.

Overall, the reviewed studies support the key components of TailMates, including personalized pet discovery, centralized adoption services, AI-assisted information, and communication. TailMates combines these aspects with PawMate AI and TailBot in a single platform.

III. Literature Gap

The existing research covers several important aspects of pet adoption, including pet search and adoption decision-making, digital adoption platforms, pet and adoption management, adopter preferences, pet selection, and AI-based assistance. However, these areas are addressed separately across different studies. This creates a need for a more integrated platform that combines pet discovery, adoption management, personalized pet matching, AI-based assistance, and communication between adopters and pet listers. TailMates aims to address this gap by bringing these functions together within a single web-based platform.

IV. Methodology

The Methodology chapter describes the systematic approach used to design and develop TailMates, a web-based pet adoption platform. Describes the methods used for requirement analysis, website development, database integration, user interaction, pet management, private communication, and AI-based pet matching through PawMate.

A. Context

This section provides an overview of the TailMates platform and explains its significance in simplifying and organizing the pet adoption process. The project addresses the difficulties faced by adopters and pet listers in finding suitable pets, managing adoption information, and communicating with each other. TailMates seeks to overcome these barriers by offering a centralized web-based platform that combines pet discovery, registration, adoption applications, private messaging, and AI-assisted pet matching through PawMate.

B. Research Design

Analytical Design Analyze existing pet adoption platforms and identify problems faced by adopters and pet listers. Identify requirements for pet discovery, registration, applications, communication, and personalized recommendations.

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Design and Development Approach Design and develop TailMates as a centralized web-based pet adoption platform. Integrate modules such as user profiles, pet listings, saved pets, applications, private messaging, and PawMate AI.

Prototype and Testing Develop and integrate individual modules before combining them into the complete system. Test navigation, user interactions, database operations, adoption workflows, messaging, and AI-based recommendations.

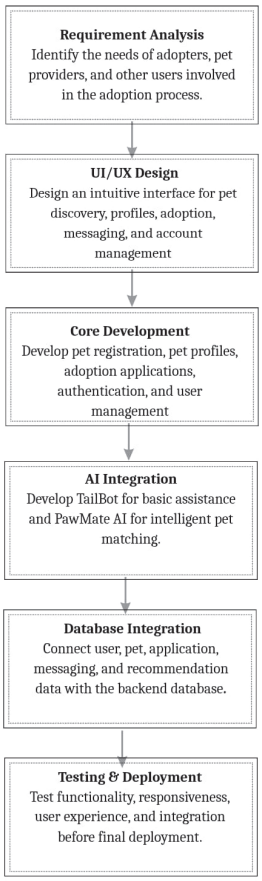

Fig. 1. Methodology

C. Research Ethics

Ethical Considerations: Ethical considerations were taken into account during the design and development of TailMates to ensure responsible handling of user and pet-related information. User privacy is respected and personal information is intended to be used only for the functions provided by the platform. The system is designed to avoid unnecessary disclosure of user information, particularly during private communication between adopters and pet listers.

Data Privacy and Security: User accounts, pet information, adoption-related data, and communication data are handled through the platform's database and authentication mechanisms. Access to user-specific information is restricted according to the functionality of the system.

Responsible AI Use: The PawMate AI feature is intended to help users discover potentially suitable pets based on available preferences and information. Its recommendations are treated as assistance rather than as a final decision, allowing users to make their own adoption choices.

- Privacy: Protect user and pet-related information from unnecessary disclosure.
- Confidentiality: Maintain privacy in adopter–lister communication.
- Data Integrity: Maintain accurate and consistent information from pet and user.
- Responsible AI Usage: Use PawMate recommendations as help rather than automated adoption decisions.
- User Consent: Ensure that users provide information voluntarily while using platform features.
- Transparency: Clearly communicate the purpose of the major features of the platform and AI recommendations.

D. Limitations and Assumptions

a) Limitation

The following limitations were identified during the development of the TailMates platform:

- The precision of pet recommendations depends on the quality and completeness of the available pet and user information.
- AI-based recommendations may not always represent the actual compatibility between an adopter and a pet.
- The effectiveness of the platform depends on the availability of sufficient and accurate pet listings.
- Some features of the platform may require further integration and testing of the database.
- Private messaging functionality may depend on successful backend integration and database connectivity.
- The performance of the platform may vary depending on the internet connectivity and the user's device.
- The current system is limited by the scope and features implemented within the project development period.
- The platform does not replace direct interaction, verification, or responsible decision-making during the actual adoption process.

b) Assumption

The following assumptions were considered during the development of TailMates:

- Users provide accurate and relevant information when creating profiles and submitting details related to pets.
- Pet listers provide genuine and updated information about their listed pets.
- Users have access to a compatible device and an internet connection to use the web platform.
- The database stores and retrieves user and pet information correctly.
- Users understand that PawMate provides recommendations and not guaranteed adoption matches.
- The information provided by the users is sufficient to generate relevant pet recommendations.

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- Users follow responsible practices when communicating and proceeding with pet adoption.

E. Validation and Reliability

a) System Validation: The TailMates platform is validated by testing its main functional components, including user navigation, authentication, pet discovery, pet registration, saved pets, adoption applications, private messaging, database operations, and PawMate recommendations.

b) Reliability: Reliability is evaluated through repeated testing of individual modules and their integrated operation. Functional testing is performed to identify navigation errors, incorrect data handling, integration problems, and unexpected system behavior.

F. Timeline and Schedule

Project Timeline: TailMates development was carried out in multiple stages, beginning with requirement analysis and interface design, followed by frontend development, database integration, feature implementation, AI integration, testing and final documentation.

G. System Architecture

The TailMates platform follows a modular layered architecture in which different functional components work together to provide a complete pet adoption experience. The architecture separates user interaction, authentication, pet management, adoption management, communication, artificial intelligence, and database operations into distinct layers.

- User Interface Layer: This layer provides the frontend interfaces through which users interact with the TailMates platform. It includes pet browsing, pet registration, user profiles, saved pets, adoption applications, private messaging, and access to AI-based features.
- Authentication Layer: This layer manages user registration, login, and account access. Ensures that users can access personalized features and that platform functionality is available according to their authenticated account.
- Pet Management Layer: This layer handles pet-related information such as pet profiles, breed, age, gender, location, photographs, care requirements, and other adoption details. It supports the registration and management of pets available for adoption.
- Adoption Management Layer: This layer manages adoption-related activities, including applications submitted by adopters and interactions between adopters and pet listers. It helps organize the process of expressing interest in and managing adoption requests.
- Communication Layer: This layer provides private messaging between adopters and pet listers. It allows users to communicate directly about pets, adoption queries, and other relevant information.
- AI Layer: This layer contains the AI-based features of TailMates. PawMate is designed to analyze user preferences and pet-related information to recommend potentially suitable pets. TailBot provides basic assistance related to pet adoption and platform-related queries.
- Database Layer: This layer is responsible for storing and managing platform data, including user information, pet details, adoption applications, saved pets, and other system-related information. Firebase is used as the backend platform for database and authentication-related functionality.

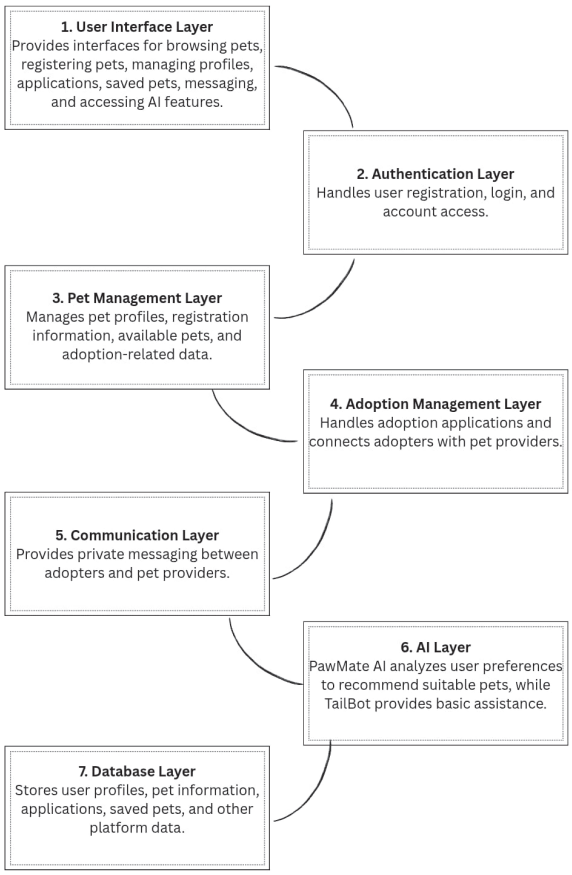

Fig. 2. TailMates System Architecture

V. Software Requirements

This chapter outlines the software requirements for the TailMates – A Pet Adoption Website, covering the core development technologies, database services, AI components, and libraries used to implement the platform.

A. System and Languages

- Operating System: The system is designed to run on modern desktop and mobile operating systems using a web browser.
- Frontend Technologies: HTML5, CSS3, and JavaScript are used to develop the website structure, responsive interface, styling, and interactive features.
- Database & Backend: Firebase is used for authentication, database management, and storage services.

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B. APIs and Libraries

- Firebase Authentication: Used for user registration, login, and authentication.
- Firebase Firestore: Used to store user, pet, adoption, and platform-related data.
- Firebase Storage: Used for storing pet and user-uploaded images.
- PawMate AI: Provides AI-based pet matching by analyzing user preferences and pet characteristics to suggest compatible pets.
- TailBot AI: Provides conversational assistance for pet adoption, pet care, breeds, and general TailMates-related questions.
- Leaflet.js: Used to provide map and location-based functionality within the website.

C. Backend and Data Management

- Firebase: Serves as the primary backend for authentication, database storage, and management of user and pet information.
- Cloud Firestore: Provides structured and centralized storage for adoption records, pet listings, user profiles, and application-related information.
- Firebase Storage: Manages uploaded images associated with pets and user profiles.

D. Functionality

- AI-Based Pet Matching: PawMate AI analyzes pet characteristics and adopter preferences to provide personalized adoption recommendations.
- Conversational AI Assistance: TailBot AI helps users with adoption-related questions, pet care information, breed information, and website assistance.
- Pet Adoption Management: The platform allows users to browse pets, view detailed pet profiles, submit adoption applications, and register pets for adoption.
- Private Messaging: Provides a communication interface for adopters and pet listers to communicate regarding adoption.
- User Profile Management: Provides sections for saved pets, adoption applications, registered pets, profile information, and account settings.
- Location-Based Services: The map functionality helps display and manage location-related information associated with pets and adoption listings.
- Responsive Web Interface: The website is designed to provide a consistent and accessible experience on desktop and mobile devices.

E. Hardware Requirements

- Computer/Laptop: A computer or laptop is required for developing, running, testing, and managing the TailMates website.
- Mobile Device: A smartphone or tablet can be used to access and test the responsive web interface across different screen sizes.
- Internet Connection: A stable internet connection is required to access the website, Firebase services, AI features, maps, and other online functionalities.
- Web Browser: A modern web browser such as Google Chrome, Microsoft Edge, or Mozilla Firefox is required to access and use the TailMates platform.

VI. Implementation

The TailMates platform is implemented as a web-based pet adoption system designed to connect prospective pet adopters with animals available for adoption. The system integrates a responsive frontend, Firebase-based backend services, pet registration and adoption management, image storage, user authentication, and AI-assisted services including PawMate AI and TailBot.

The implementation is divided into several components including user authentication, pet registration, pet discovery, adoption interaction, backend data management, AI-assisted assistance, communication, and user profile management.

A. User Authentication and Profile Management

Firebase Authentication is implemented for managing user accounts and login activities. Users can create accounts, log in to the platform, and access their profile information. Authentication allows user-specific activities such as pet registration and adoption-related operations to be associated with the respective account.

The user profile component provides access to user information, registered pets, and adoption-related details. This provides a centralized interface for managing activities associated with an individual user account.

B. Pet Registration and Database Management

The pet registration component allows users to add animals to the adoption platform. The registration form collects information including pet name, species, breed, age, gender, location, description, owner information, adoption status, and pet image. The submitted information is stored in Firebase and can be retrieved dynamically for display on the adoption interface.

C. Pet Discovery and Adoption Interaction

The pet discovery component retrieves available pet records from Firebase and generates pet listings dynamically. The Adopt section displays information such as pet name, species, breed, age, location, description, and image. Users can browse the available pets, view their details, and initiate adoption-related activities. Newly registered pets can also be displayed without manually modifying the frontend source code.

D. Image Storage

Firebase Storage is used for storing pet images submitted during registration. After an image is uploaded, its corresponding URL is associated with the respective pet record. The stored image can then be retrieved and displayed together with the pet information in the adoption interface.

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E. PawMate AI

PawMate AI implements a personalized pet-matching mechanism in which adopter preferences are compared with the characteristics of available pets. The questionnaire considers factors such as preferred species, compatibility with children and other pets, care requirements, monthly budget, activity level, grooming requirements, preferred pet size, personality traits, and commitment duration. The selected preferences are compared with the corresponding characteristics of pet records retrieved from the Firebase database.

For each pet P_i and matching factor j, a matching value m_{ij} is defined as:

$$m_{ij} = \begin{cases} 1, & \text{if the adopter preference matches the pets} \\ 0, & \text{otherwise} \end{cases}$$

Each matching factor is assigned a weight w_j representing its relative importance. The weighted compatibility score for pet P_i is calculated as:

$$S_i = \frac{\sum_{j=1}^{n} w_j m_{ij}}{\sum_{j=1}^{n} w_j}$$

where S_i is the normalized compatibility score, w_j is the weight assigned to matching factor j, m_{ij} is the matching value between the adopter and pet P_i, and n is the total number of matching factors.

The normalized score is converted into a compatibility percentage using:

$$\boxed{C_i = \frac{\sum_{j=1}^{n} w_j m_{ij}}{\sum_{j=1}^{n} w_j} \times 100}$$

where C_i represents the compatibility percentage of pet P_i. PawMate calculates this compatibility value for the available pet records and arranges the pets according to their calculated scores.

The pets are ranked in descending order of compatibility:

$$C_{(1)} \geq C_{(2)} \geq C_{(3)} \geq \cdots \geq C_{(N)}$$

where N represents the total number of available pets. The five highest-ranked pets are then selected as the recommended matches:

$$\boxed{M = \{P_{(1)}, P_{(2)}, P_{(3)}, P_{(4)}, P_{(5)}\}}$$

Thus, the mathematical model represents the process of comparing adopter preferences with pet characteristics, calculating a weighted compatibility percentage, ranking the available pets, and presenting the five highest-scoring pets as personalized recommendations. This corresponds to the implementation described in the PawMate AI component of TailMates.

F. TailBot AI

TailBot is implemented as an AI-assisted conversational component of the TailMates platform. Users can enter questions related to pet adoption, breeds, pet care, pet requirements, shelters, and TailMates services. The submitted query is processed through the AI service and a response is generated through the chatbot interface. TailBot provides general informational assistance to users during the pet adoption process.

G. Communication and Adoption Support

The communication component provides a direct interaction channel between prospective adopters and pet owners. Users can initiate conversations regarding available pets through the messaging functionality. Location-related functionality is also provided to support coordination between users during the adoption process.

H. Backend and Security

Firebase services provide the backend infrastructure for authentication, database operations, and image storage. Security rules are used to control access to stored information and authenticated operations. The frontend communicates with Firebase services to store and retrieve user and pet information, allowing the platform to maintain the required data across user sessions.

VII. User Experience

To evaluate the user experience of TailMates, the website was demonstrated and provided for use to a small group of friends and animal owners. The participants explored the major features of the platform, including pet browsing, pet registration, PawMate AI, TailBot, and the adoption interface. After interacting with the website, feedback was collected regarding its usability, appearance, navigation, and overall usefulness.

The users responded positively to the centralized pet adoption experience, as pet information and adoption-related features were available within a single platform. The pet listing interface allowed users to easily browse available animals and view relevant information such as breed, age, location, description, and images. This supported the objective of providing organized pet information through a unified platform.

Participants also showed positive interest in PawMate AI, particularly its ability to provide personalized pet recommendations based on preferences such as activity level, pet size, personality, care requirements, and compatibility. Users found the compatibility percentage and matching factors helpful for understanding why particular pets were recommended.

The TailBot AI assistant was also well received as an interactive feature for obtaining quick information about pet adoption, breeds, pet care, shelters, and platform-related queries.

Overall, the feedback from the participants indicated that TailMates provided a user-friendly, engaging, and convenient

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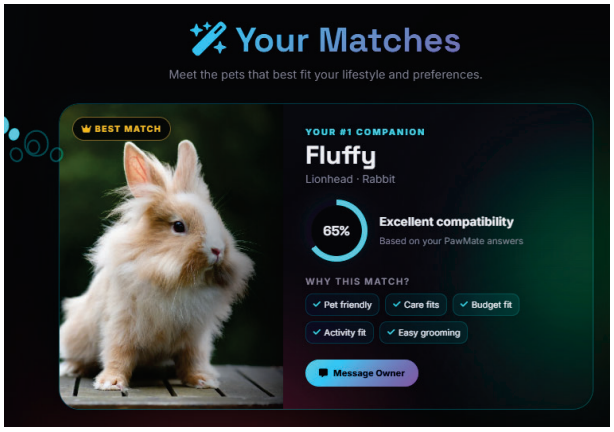

Fig. 3. PawMate AI

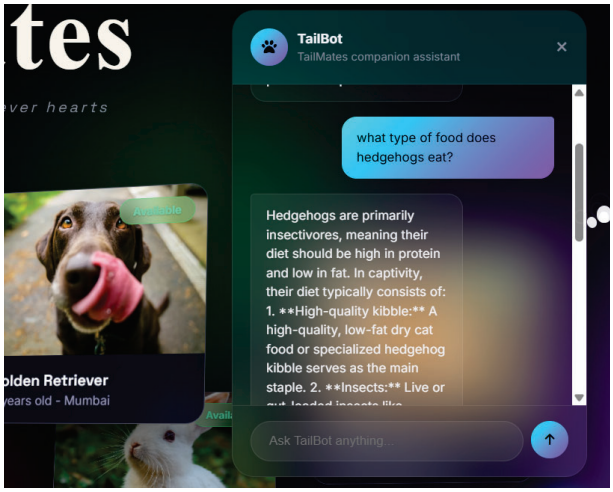

Fig. 4. Tailbot AI

experience by bringing pet discovery, personalized matching, AI assistance, and adoption-related activities together within a single platform. The user evaluation supported the practical usability of the implemented system and provided additional validation of its user-oriented design.

VIII. Results and Discussion

The completed TailMates platform provides an integrated environment for carrying out the major activities involved in pet adoption. The implemented system allows users to create accounts, access their profiles, register pets, browse available animals, and perform adoption-related activities through a single platform.

The pet registration and database components allow pet information to be stored and retrieved dynamically. Registered pet details are displayed through the adoption interface, including basic information and images. This enables the adoption listings to reflect the information available in the database rather than depending on manually maintained pet records.

The pet discovery component provides users with a structured way to explore available animals. Users can view pet characteristics and information before proceeding with adoption-related interaction. The integration of database-driven listings also allows the adoption section to accommodate newly registered pets.

PawMate AI provides personalized pet recommendations based on the preferences entered by the user. The system generates compatibility percentages for available pets and displays the highest-scoring matches. The results also indicate factors contributing to the matching process, such as pet compatibility, care requirements, budget, activity level, grooming, and other selected preferences. This provides users with a preference-based approach to discovering potentially suitable pets. (Fig.3.)

TailBot provides conversational assistance for questions related to pet adoption, breeds, pet care, shelters, and TailMates services. The chatbot adds an interactive information-support component to the platform and allows users to obtain relevant guidance while using the website. (Fig.4.)

The communication component enables prospective adopters to interact with pet owners regarding available animals. Messaging and location-related features support communication and coordination between users during the adoption process.

Overall, the results show that TailMates brings together pet registration, pet discovery, adoption activities, user management, AI-assisted matching through PawMate, chatbot assistance through TailBot, and adopter-owner communication within a single web-based platform. The integration of these components provides a centralized system for supporting the different stages of the pet adoption process.

IX. Conclusion and Future Work

A. Conclusion

TailMates presents a web-based approach to organizing the pet adoption process through a combination of pet discovery, registration, adoption management, communication, and AI-assisted services. The platform provides users with access to pet information and supporting functions such as saved pets, adoption applications, user profiles, and private communication. PawMate AI extends the platform by considering adopter preferences and pet characteristics to generate potentially suitable pet recommendations. TailBot provides an additional conversational interface for adoption-related and pet-care queries.

The integration of these functions within a single platform provides a structured environment for interactions between adopters and pet listers. The system also incorporates location-related functionality and communication features to support activities associated with the adoption process. The effectiveness of the platform depends on the accuracy and completeness of the pet and user information. Overall, TailMates demonstrates how web technologies and AI-assisted functionality can be combined to support different stages of pet adoption process.

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B. Future Work

In the future, TailMates can be expanded from its current regional focus in Mumbai to other cities and states across India and eventually to a global platform. The platform can also support more categories of pets, allowing users to find a wider variety of animals for adoption. Additionally, TailMates can collaborate with pet grooming providers to advertise their services on the website, with the possibility of including other pet-related services such as veterinary care and pet training. These expansions can help TailMates grow into a broader platform for pet adoption and pet-care services.

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