SMARTBRIDE EXTERNSHIP PROGRAM

ANDROID APPLICATION DEVELOPMENT WITH KOTLIN

PROJECT DOCUMENT

OwnYourPet : PET APP

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1. Introduction

1.1. Overview

Our project aims to develop an Android application that facilitates the process of buying and selling pets. Users can sign up and create ads to sell their pets, while also being able to browse through ads posted by others. The app provides a chat feature that allows buyers and sellers to communicate and negotiate directly within the platform. Additionally, we have integrated an interactive chatbot powered by OpenAI to address user queries related to pet feeds and other relevant topics. The application also includes a dedicated page for purchasing pet products, which is administratively controlled to ensure a reliable and secure shopping experience.

1.2. Purpose

The purpose of our project is to develop an Android application that serves as a platform for buying and selling pets. The app aims to simplify the process for the customers by providing a user-friendly interface with various features. Here are the key purposes of the project:

1. Facilitate pet transactions: The primary objective of the app is to provide a convenient platform for users to buy and sell pets. By creating an account and posting ads, sellers can reach a larger audience, while buyers can browse through available pets and connect with sellers.

2. Enable direct communication: The app includes a chat feature that allows buyers and sellers to communicate and negotiate directly within the platform. This feature promotes interaction and helps both parties in making informed decisions about the pet transaction.

3. Provide pet-related information: The integrated chatbot powered by OpenAI can assist users with their queries related to pet feeds and other relevant topics. It serves as an interactive resource for users seeking information about pet care, feeding guidelines, training tips and more.

4. Offer a reliable shopping experience: The page for purchasing pet products ensures that users can find and purchase pet supplies conveniently within the app hence offering an added feature for customers

Overall, our project aims to create an inclusive platform that brings together pet owners, potential buyers, and pet enthusiasts, simplifying the process of buying, selling, and caring for pets while providing a reliable source of information and pet products.

2. Literature Survey

Paper Name	Year	Existing Problem	Proposed Solution
Research on Pet Business Strategy and Service Design in Internet Economy: Taking an APP Platform Development Project as an Example.	2021	The need to enhance the service quality and competitiveness of the pet industry in the context of the Internet economy. The authors aim to improve customer satisfaction and user experience in online pet transactions.	Developing a pet app and establishing a network platform that combines online and offline elements to provide comprehensive services to pet owners.
AN ONLINE PET STORE	2018	Traditional pet purchasing methods include the inconvenience and time-consuming nature of searching for suitable pet stores in real life, limited options due to space constraints, geographical limitations that restrict access to local pet stores, and a lack of comprehensive information about available pets	Addresses these issues by providing a centralised platform where customers can conveniently browse and search for a wide variety of pets, regardless of their location. The website offers detailed information about each pet empowering customers to make informed decisions. Online transactions through a secure payment gateway further streamline the purchasing process, enhancing convenience and eliminating the need for physical visits to pet stores.
Review of Case Study of E-Commerce Mobile App Development	2022	The lack of time for individuals to engage in traditional shopping methods. People find it challenging to visit physical stores and browse through various options to make purchases. This inconvenience hinders the satisfaction of their needs and preferences when it comes to buying products.	Provide a user-friendly interface where customers can search for products, view detailed descriptions, and place orders easily. By leveraging the power of web technologies, the proposed solution aims to make shopping a fun and enjoyable experience for users, eliminating the limitations imposed by physical stores. The app will incorporate a feedback mechanism to allow users to report any problems encountered and contribute to continuous improvement.

3. Theoretical Analysis

3.1. Block Diagram
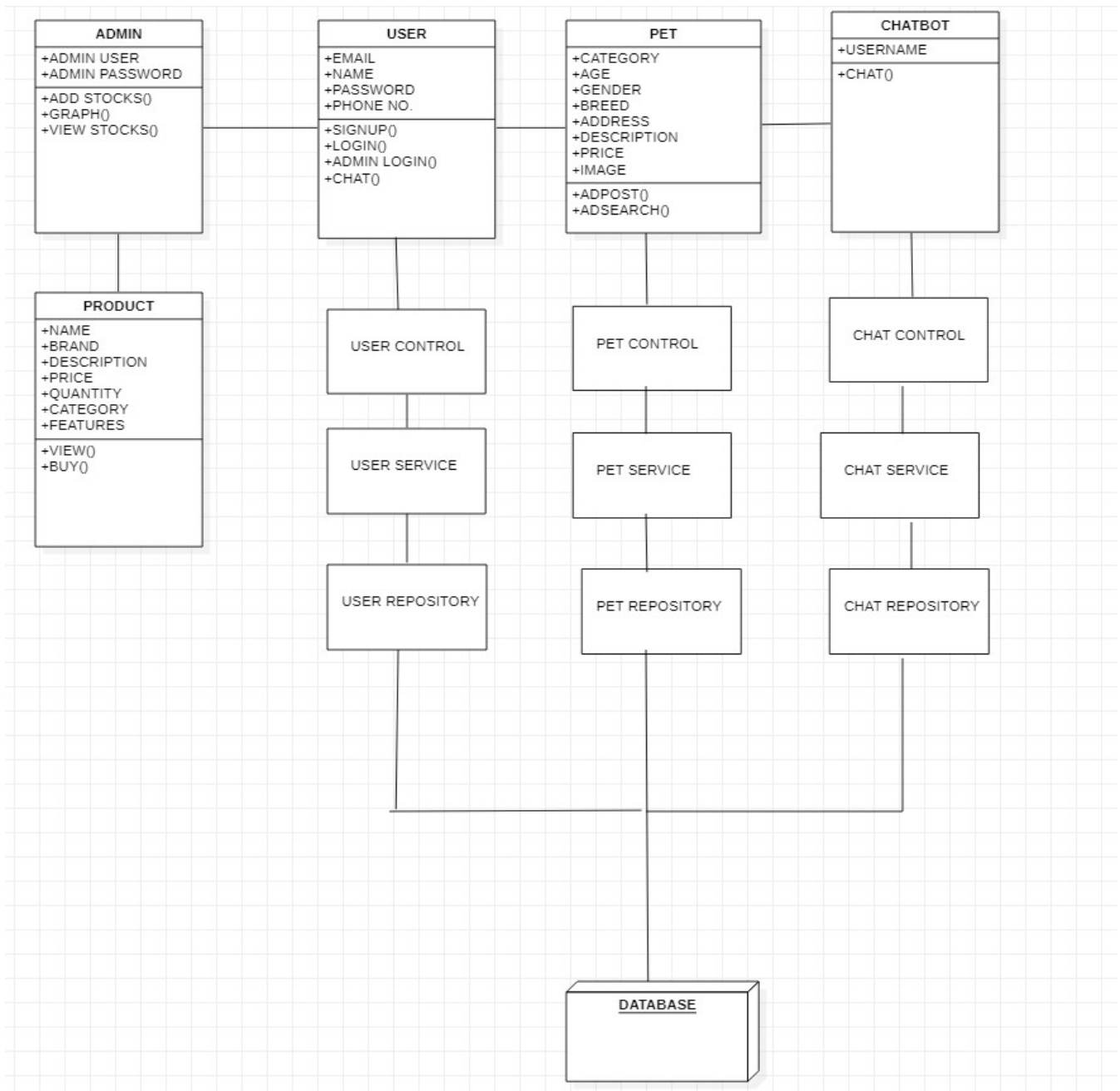
3.2. Hardware / Software designing

- Desktop PC
- **Operating System:** Windows 10, macOS, or Linux
- **Processor:** Intel i5 or AMD Ryzen 5 or higher
- **RAM:** Minimum 8GB (16GB recommended)
- **Storage:** Minimum 4GB of free disk space
- **Display**: Minimum screen resolution of 1280x800 pixels
- **Peripherals :** Mouse, Keyboard
- Smartphone with Android 7.0 (Nougat) or above

- Android Studio
- Kotlin
- Jetpack Compose
- Android Virtual Device (AVD) Manager
- Git
- Android SDK
- OpenAI API

4. Experimental Investigation

By conducting the following experimental investigations, we ensured that our application meets user expectations, performs well, secure, and delivers a satisfactory experience for both buyers and sellers of the pets.

- **Usability Testing:**

Conduct usability tests with a group of users to evaluate the user interface and experience of our application. This investigation helps identify areas for improvement and ensures that the app is intuitive for users.

- **Performance Testing:**

 Evaluate the performance of your application under various scenarios, such as different network conditions or device specifications. Test the app's responsiveness, loading times, and resource usage to ensure it performs well across different devices.

- **Security Assessment:**

Perform security assessments to identify potential vulnerabilities in your application. This investigation helps ensure the reliability and security of user information and transactions within the app.
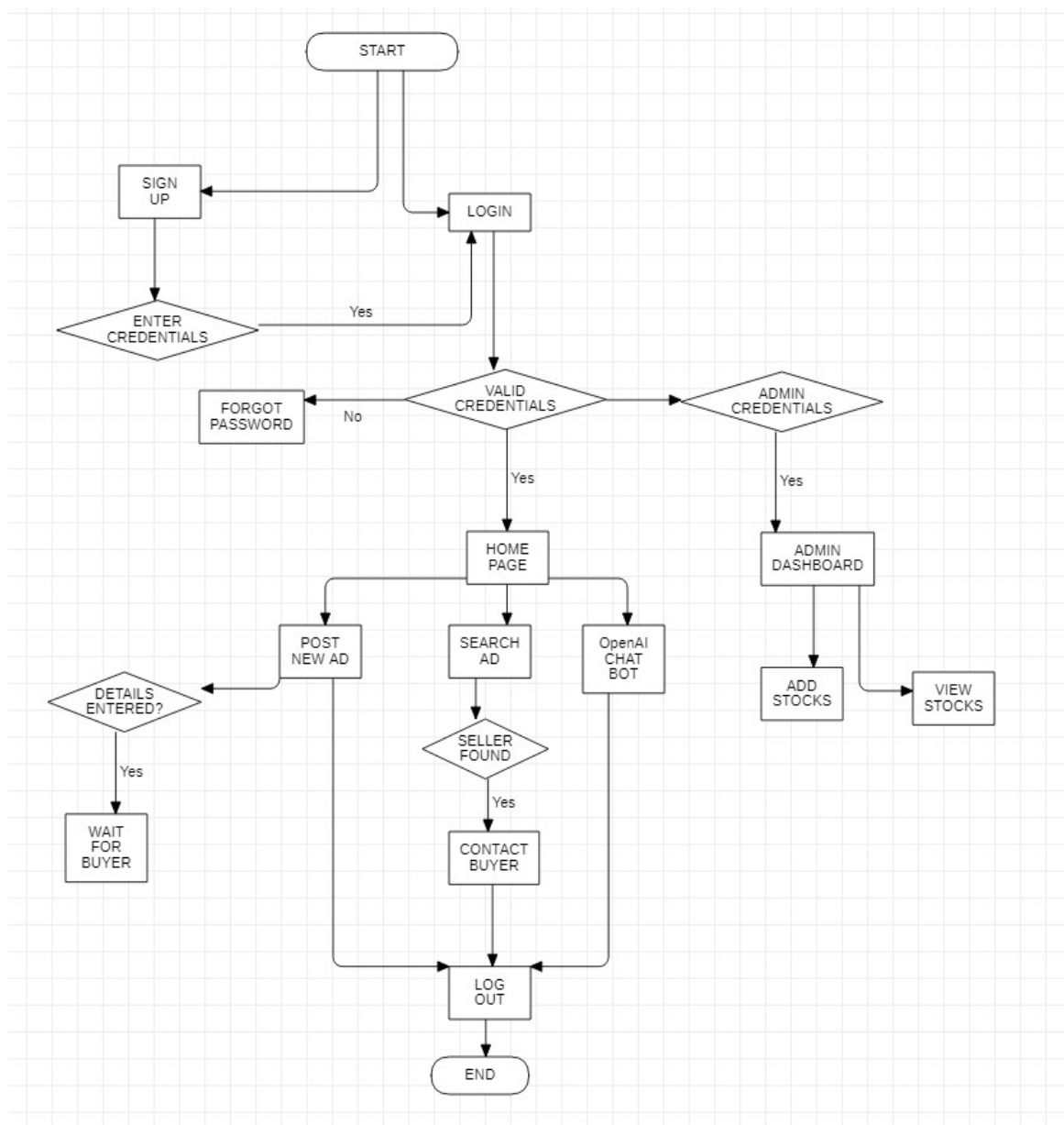
- **Chatbot Effectiveness:**

Analyze the performance and effectiveness of the integrated chatbot powered by OpenAI. Monitor user interactions and evaluate the accuracy of the chatbot's responses to user queries. Adjust and fine-tune the chatbot's responses based on user feedback and performance metrics.

- **Continuous Improvement:**

Regularly monitor app analytics identify areas that require improvement or new features that can enhance the overall user experience

5. Flowchart

6. Result:

Sign-Up and Login

Our application offers a seamless user experience with a signup page connected to a real-time database. Users can create profiles upon signup, securely storing their information for easy access and updates. Our login page utilizes the Firebase authentication system, ensuring the privacy and security of user accounts. In the event of a forgotten password, our "Forget Password" page enables users to receive a password reset link via email, allowing them to securely regain access to their accounts. With these features, our app prioritizes user convenience, data security, and streamlined account management.

Home
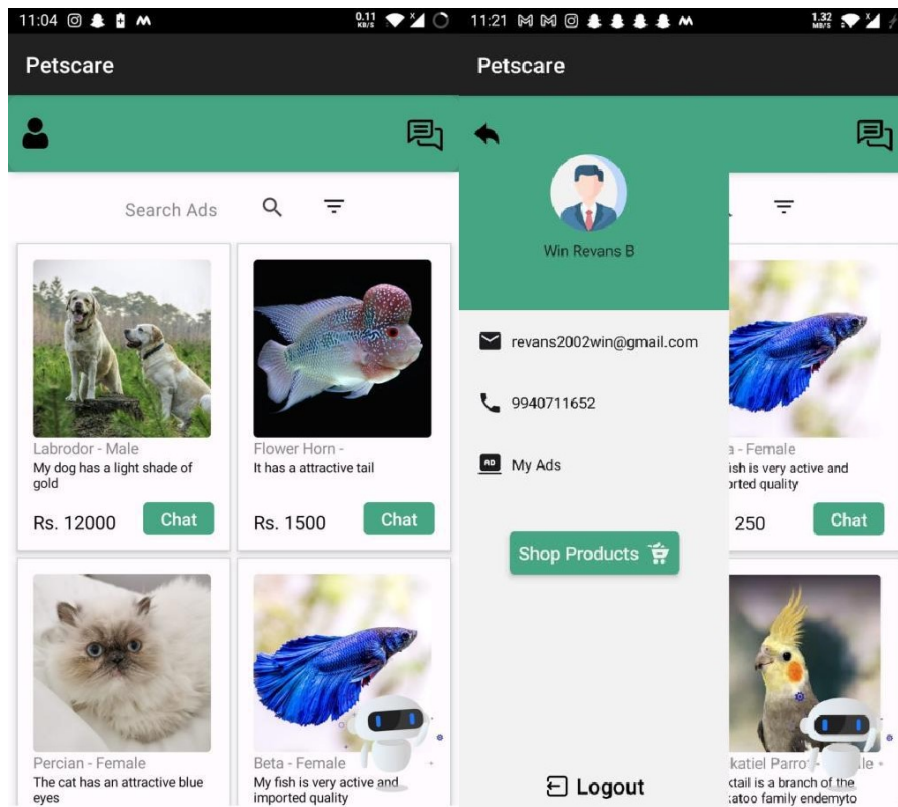
The home screen of our application serves as a central hub where users can explore a wide range of pet ads created by others. With a search and filter option, users can easily refine their search criteria to find specific types of pets or desired characteristics. The attractive bot animation catches users' attention, providing a seamless transition to the chat feature where they can communicate with sellers or navigate to the AI bot for assistance.

The navigation bar, conveniently located at the bottom of the screen, includes an icon button to access the user's profile. Tapping on this button brings up the user's details, allowing them to view and edit their information as needed. Additionally, the navigation bar provides a button to access the user's own ads, providing a quick and direct way to manage and monitor their own pet listings.

Chats
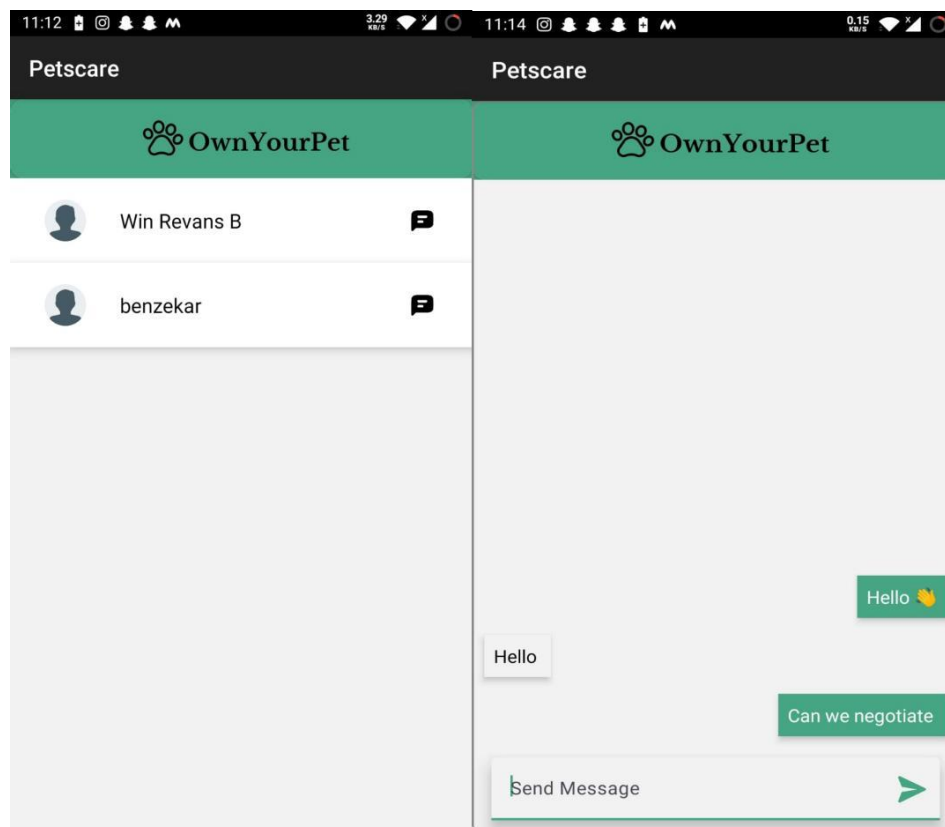
In our application, we have a dedicated chat users screen where users can conveniently access all their ongoing conversations with other users. This screen provides a comprehensive view of all chat threads, allowing users to easily navigate and stay updated on their conversations.When users enter a specific chat, they are greeted with a well-designed chat page featuring a user-friendly and visually appealing user interface (UI). The chat page is seamlessly connected to Firebase, ensuring real-time and efficient message transfers. This enables users to experience fast and reliable communication, allowing for smooth and uninterrupted conversations.With an emphasis on effective communication, our chat pages are designed to provide an intuitive and engaging experience. Users can easily send and receive messages, view conversation history, and even share media files if desired.

Manage Ads

Our application includes a dedicated "My Ads" page that allows users to conveniently access and manage the ads they have posted. On this page, users can view the status of each ad, providing them with information on whether the ad is active, pending, or expired. This feature helps users keep track of their listings and make any necessary updates or changes.Additionally, we have incorporated an "Add New Ad" button, which users can tap to access a form. This form collects the necessary details for the new ad, such as pet type, breed, age, price, and any additional information. Once the user fills out the form, they can submit it, and the ad will be posted on the platform under their account.By including a dedicated "My Ads" page and an intuitive form for posting new ads, our application streamlines the process of managing and creating pet listings. Users have easy access to their ads' statuses and can efficiently post new ads to reach potential buyers, ensuring a seamless experience for sellers within the app.

Chat Bot
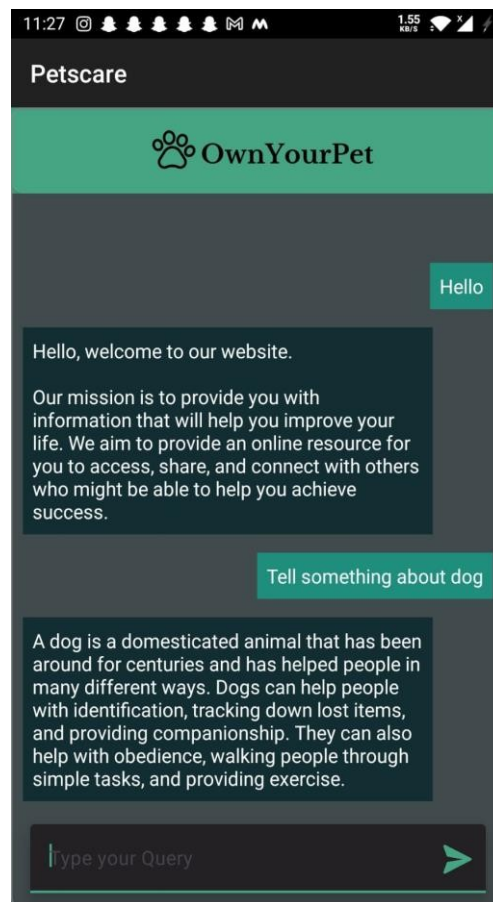
As a key component of our application, we have integrated a chatbot powered by the OpenAI API. Our chatbot utilizes the Ada model, which has been trained to fetch and answer a wide range of user queries related to pets and other relevant topics. With its advanced natural language processing capabilities, the chatbot can effectively understand user input and provide accurate and informative responses.Users can interact with the chatbot through a chat interface, where they can ask questions, seek advice, or request information regarding pet care, pet breeds, feeding guidelines, training tips, and more. The chatbot leverages its training to offer comprehensive and helpful answers, ensuring that users receive valuable assistance and guidance.By incorporating the chatbot into our application, we aim to enhance the user experience by providing immediate and intelligent support.

Products
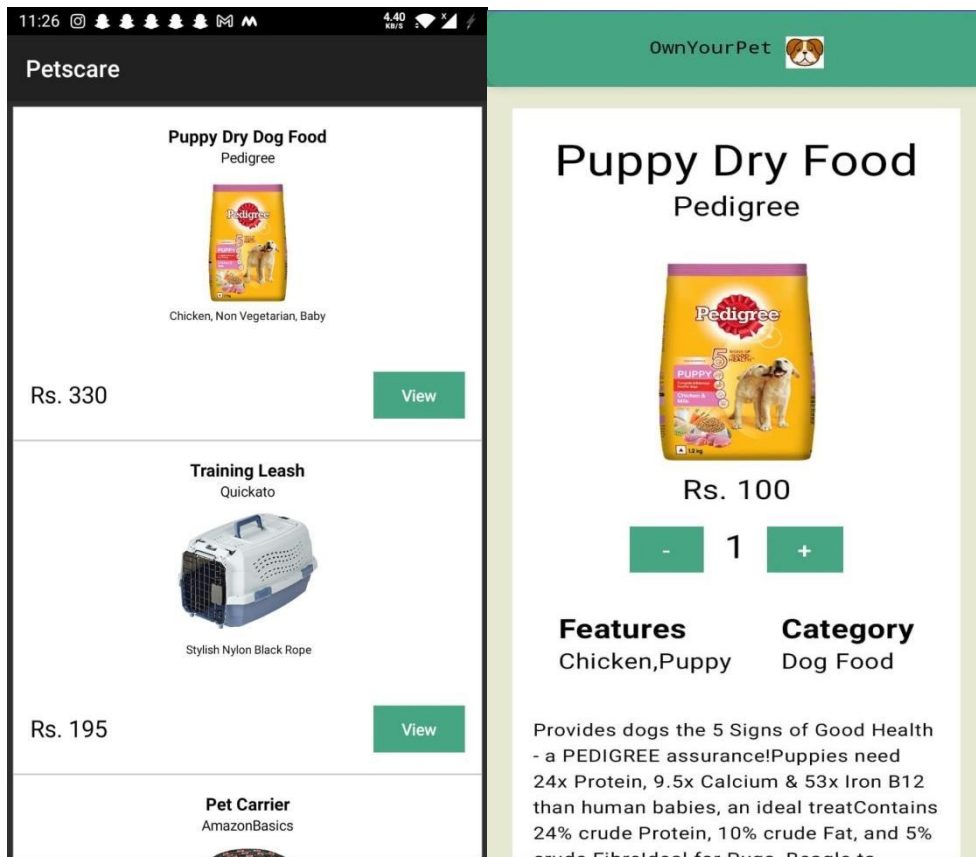
In our application, we have implemented a dedicated product page where users can access a comprehensive list of available pet products. This page serves as a virtual marketplace, offering a wide range of items such as pet food, accessories, toys, grooming supplies, and more.Users can browse through the product listings, which include detailed descriptions, images, pricing, and other relevant information. This allows them to make informed decisions and choose products that meet their specific pet needs.To facilitate the ordering process, we have integrated an ordering system within the application. Users can select the desired products, add them to their cart, and proceed to checkout. The ordering system ensures a secure and reliable shopping experience, enabling users to provide necessary details such as shipping address and payment information.

Admin
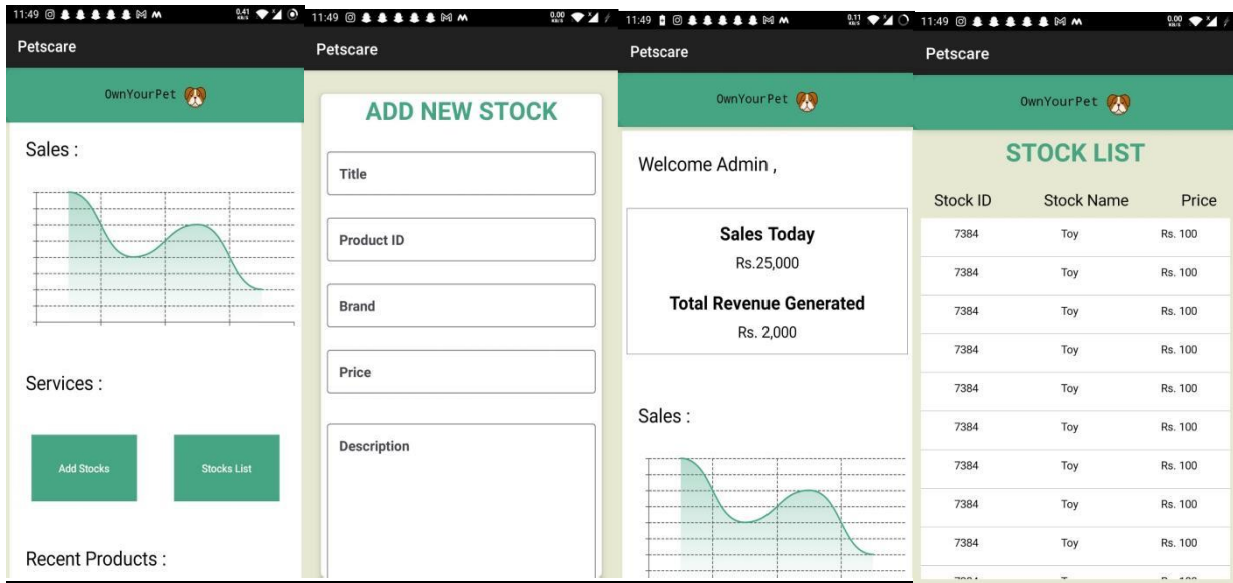
In our application, we have incorporated an admin login feature that provides access to administrative functionalities. The admin login allows authorized personnel to access specific features and data related to sales and product management.Upon logging in as an admin, users are presented with a dashboard that displays daily sales information. This includes details such as the total number of sales, revenue generated, and other relevant metrics. The dashboard may also feature graphical representations, such as charts or graphs, to visualize the sales data over time, helping admins gain insights into sales trends and performance.Additionally, we have implemented a form specifically designed for admins to add new stocks of products. This form enables admins to enter the necessary details of the new stock, including product information, quantities, pricing, and other relevant data. This ensures that the inventory is up to date and reflects the availability of products accurately.Furthermore, the admin login provides access to an existing list of products. Admins can view and manage the product listings, including editing product details, updating stock quantities, and removing products if necessary.

7. Advantages and Disadvantages

Advantages:

1. **Convenience**: The app provides a convenient platform for users to buy and sell pets. They can browse through ads and communicate with sellers directly within the app, making the process more streamlined and accessible.

2. **Increased Reach:** With the app, sellers can reach a wider audience of potential buyers. Users can search for pets based on their preferences, location, and other criteria, expanding the market reach for sellers.

3. **Secure Communication:** The integrated chat feature allows buyers and sellers to communicate and negotiate within the app, ensuring privacy and security. This eliminates the need for sharing personal contact information until both parties are comfortable.

4. **Interactive Chatbot:** The chatbot powered by OpenAI can provide valuable information and answer user queries related to pet feeds and other relevant topics. It enhances the user experience by offering immediate assistance and guidance.

5. **Dedicated Pet Product Page:** The inclusion of a dedicated page for purchasing pet products provides added value to users. They can conveniently access a variety of pet products and ensure a reliable and secure shopping experience.

Disadvantages:

1. **Trust and Safety Concerns**: The app's success relies heavily on the trustworthiness of the users. There might be risks associated with fraud, misrepresentation of pets, or unsafe transactions. Implementing user verification and rating systems can help mitigate these concerns.

2. **Legal Considerations:** The sale and purchase of pets might be subject to local laws and regulations. Ensuring compliance with these regulations can be challenging and may require continuous monitoring and updates to the app.

3. **Quality Control**: As a platform for buying and selling pets, it's crucial to ensure the quality of listings. Some sellers may provide inaccurate or incomplete information about the pets they are selling. Implementing guidelines and a moderation system can help maintain the quality of listings.

4. **User Engagement:** Encouraging user engagement and active participation can be a challenge. It's important to continuously provide new and interesting features to keep users interested in the app and ensure a steady flow of listings.

5. **Competition**: The pet market is quite competitive, both offline and online. Your app will likely face competition from existing platforms or even other pet-related apps. Differentiating your app and attracting users may require effective marketing strategies and unique features.

8. Applications

1. **Pet Adoption:** The app can serve as a platform for pet adoption, allowing animal shelters and rescue organizations to post ads and connect with potential adopters. It can help facilitate the adoption process and find loving homes for abandoned or rescued pets.

2. **Pet Breeding:** Breeders can utilize the app to showcase their available litters and connect with interested buyers. It can help streamline the process of finding responsible and reputable breeders, ensuring healthy and well-cared-for pets.

3. **Pet Sales**: Individuals who want to sell their pets, such as puppies or kittens from their own pets, can use the app to create ads and reach out to potential buyers. It can provide a centralized marketplace for pet sales, making it easier for sellers to find interested buyers.

4. **Pet Products** Marketplace: The dedicated page for purchasing pet products can be utilized by pet supply stores, retailers, or e-commerce platforms to showcase and sell their products. Users can browse through a wide range of pet products and make secure purchases directly within the app.

5. **Pet Services:** The app can also extend its functionality to include pet services such as grooming, training, pet sitting, or veterinary services. Service providers can create ads or listings to promote their services, and users can easily find and connect with reliable service providers

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6. **Instant Assistance:** The chatbot powered by OpenAI can provide immediate responses to user queries related to pet feeds, pet care, training tips, and other relevant topics. It offers real-time assistance, enhancing the user experience and helping them find answers to their questions quickly.

7. **Extensive Product Selection**: The dedicated pet products page can offer a wide range of pet-related items, including food, accessories, toys, grooming supplies, and more. Users can easily explore and choose from a diverse selection of products, catering to different pet types and needs.

9. Conclusion

Our project aimed to develop an Android application that simplifies the process of buying and selling pets. The application offers several key features to enhance the user experience and provide a comprehensive platform for pet-related activities. Firstly, users can sign up and create ads to sell their pets, allowing them to reach a wide audience of potential buyers. Simultaneously, users can browse through ads posted by others, making it convenient to find the perfect pet to adopt. The chat feature enables direct communication and negotiation between buyers and sellers within the platform. This promotes transparency and facilitates successful transactions by allowing users to address any concerns or questions in real-time. To assist users with pet-related queries, we integrated an interactive chatbot powered by OpenAI. The chatbot provides instant responses and guidance on topics such as pet feeds and general pet care, enhancing user engagement and satisfaction. Additionally, the application includes a dedicated page for purchasing pet products. This page is administratively controlled to ensure a reliable and secure shopping experience. Users can confidently browse and purchase pet accessories, food, and supplies, knowing that the platform maintains quality standards. Throughout the project, we have conducted extensive analysis and investigation to address challenges, improve functionality, and enhance the overall user experience.

10. Future Scope

In Future, the proposed app will be developed by implementing the below features:

1. **Geolocation Integration:** Incorporate geolocation features to enable users to search for pets and pet products in their vicinity. This would provide localised results and facilitate local transactions, increasing the convenience for both buyers and sellers.

2. **In-App Payment Integration:** Integrate secure and convenient in-app payment options to streamline the buying and selling process. By offering a seamless payment experience within the application, users can complete transactions without the need for external payment gateways, improving user convenience and trust.

3. **Social Sharing and Integration:** Enable users to share their pet listings or favourite pet products on social media platforms. This would expand the reach of the application, attract more users, and create a sense of community among pet enthusiasts.

4. **Personalised Recommendations:** Utilise machine learning algorithms to analyse user preferences and behaviour, and provide personalised pet recommendations based on their interests and previous interactions within the application.

5. **Multi-language Support:** Expand the application's language support to cater to a broader user base, considering translations or localization for different regions and languages.

These enhancements can help further optimise the application, improve user engagement, and provide additional value to users in their pet-related activities.

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12. Appendix

https://github.com/revans2002/OwnYourPet