

Happy Tails



ITCS424 Wireless and Mobile Computing



MEMBERS

Miss Russarin Eaimrittikrai	6488021
Miss Supithcha Jongphoemwatthanaphon	6488045
Miss Kanita Karunkittikun	6488049
Miss Nisakorn Ngaosri	6488226

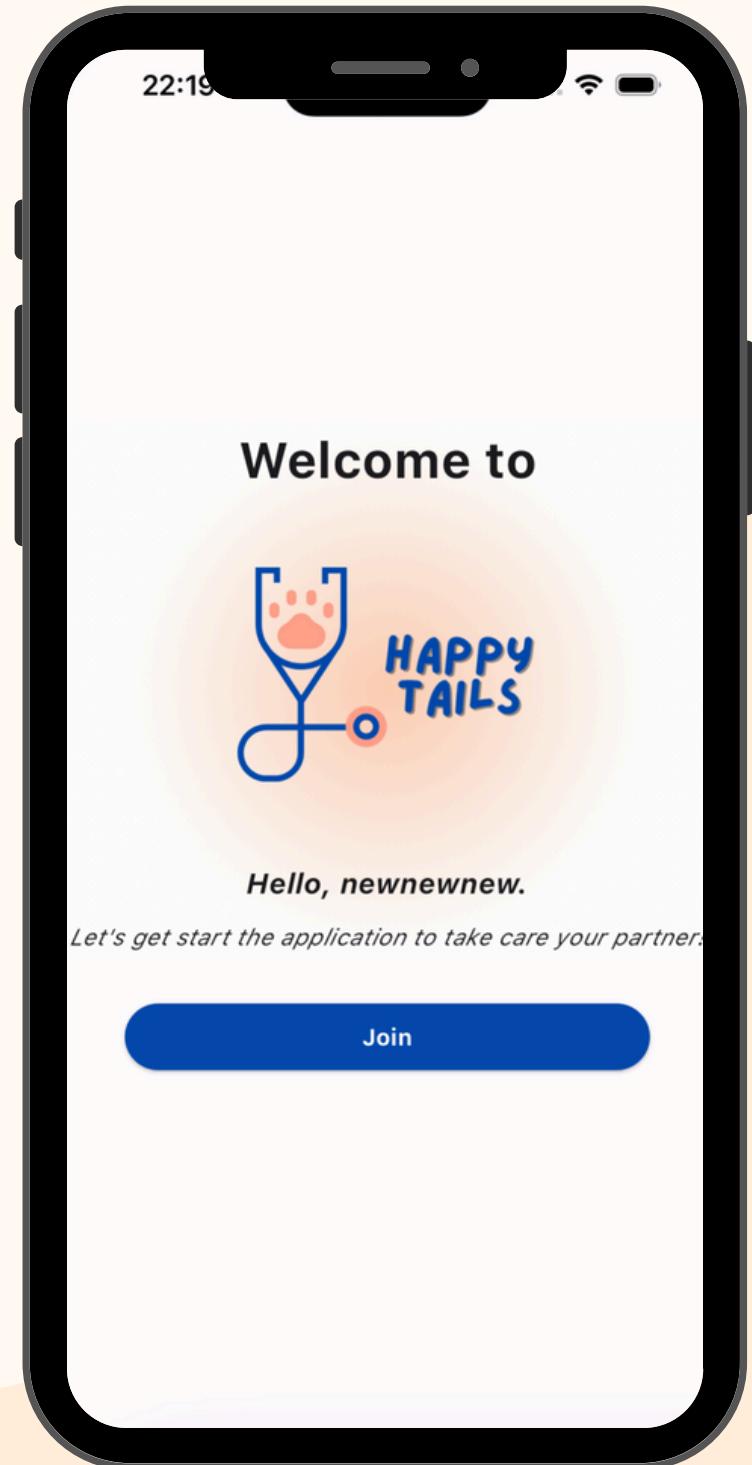
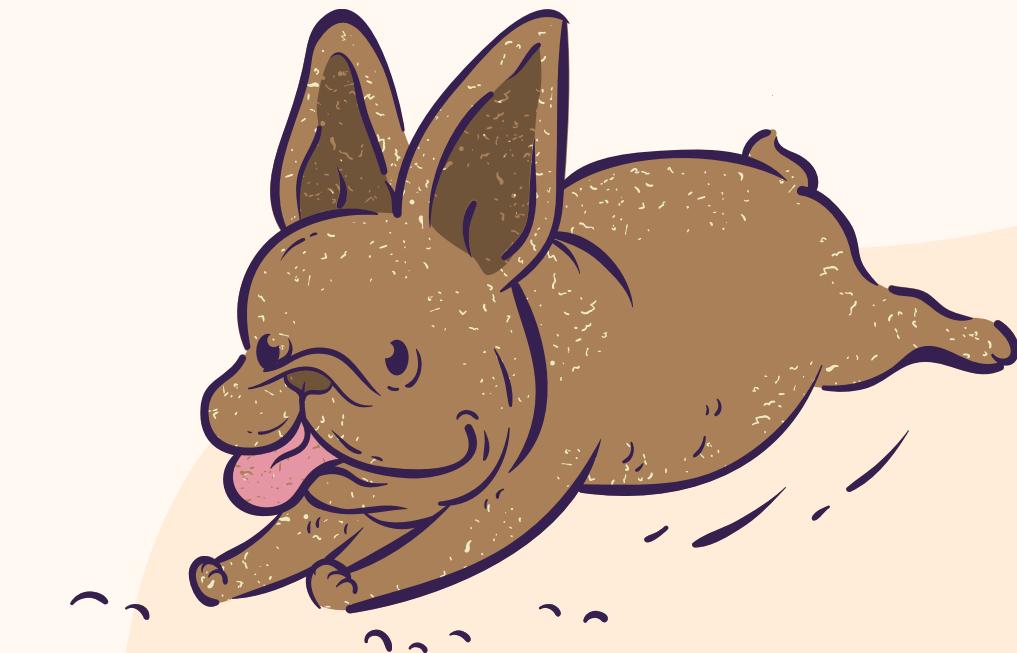


TABLE OF CONTENTS

01 Introduction

02 Analysis and Design

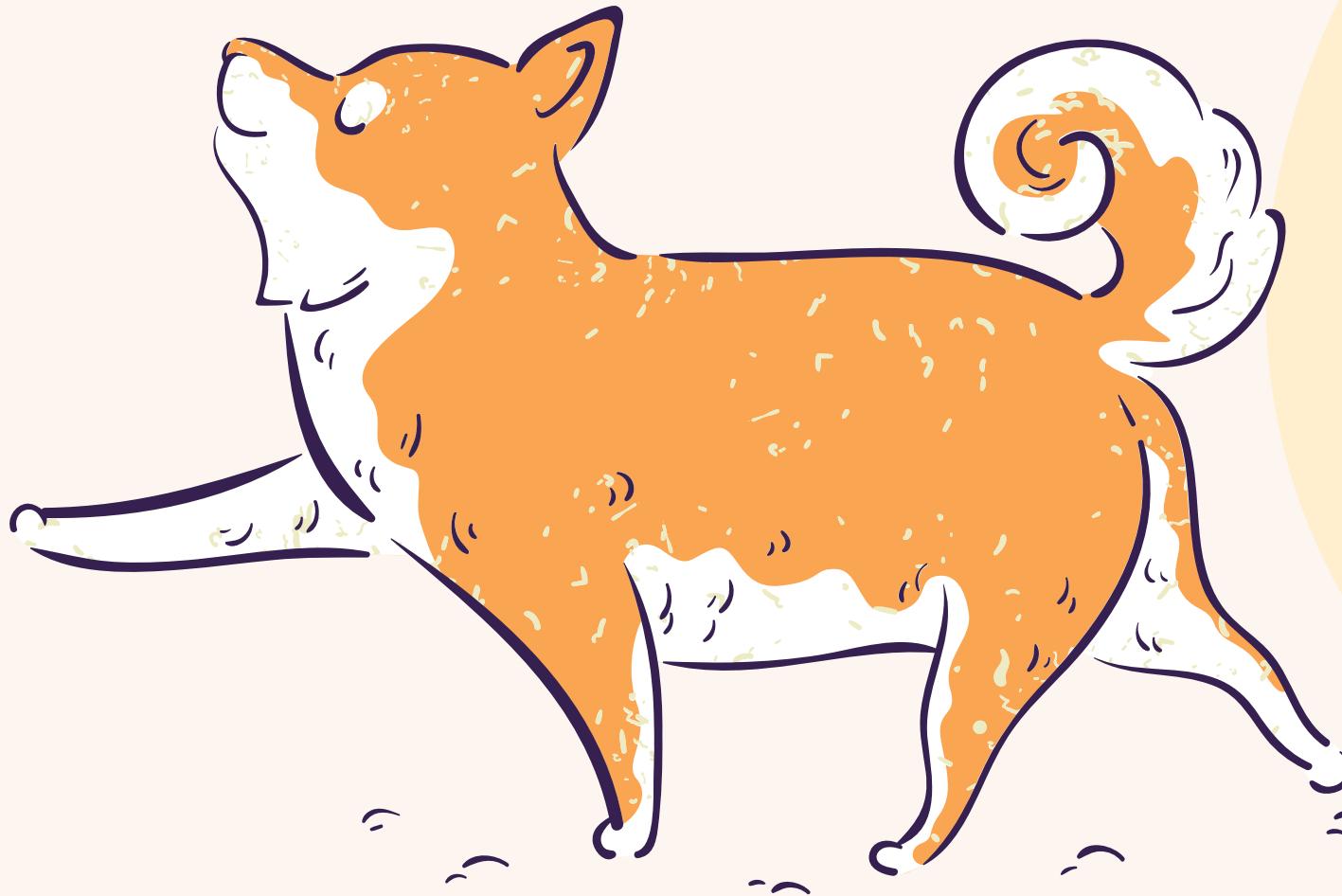
03 Implementation

04 Testing and Evaluation

05 Conclusions

INTRODUCTION



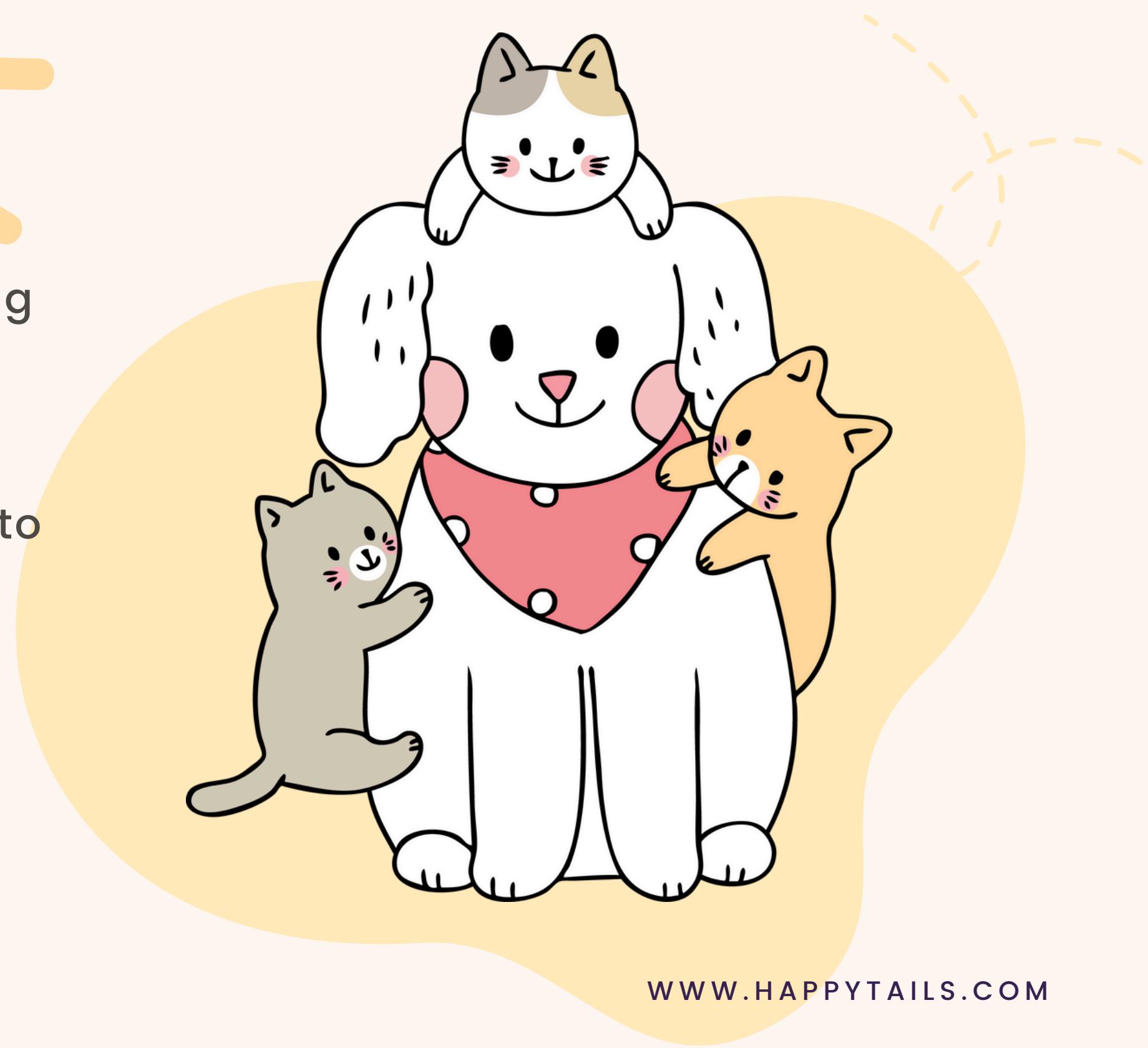


MOTIVATION

Pets are family members that require care similar to humans. However, **pet owners often struggle to track their pets' health records, vaccinations, and appointments, leading to potential issues for their pets.**

OBJECTIVE

- To facilitate the pet owners in managing and monitoring their pets' health.
- To provide useful guides for new pet owners who may need supervision due to their lack of experience.
- To raise awareness of pet owners to be mindful of their pets' health.
- To improve the pet owners' experience.





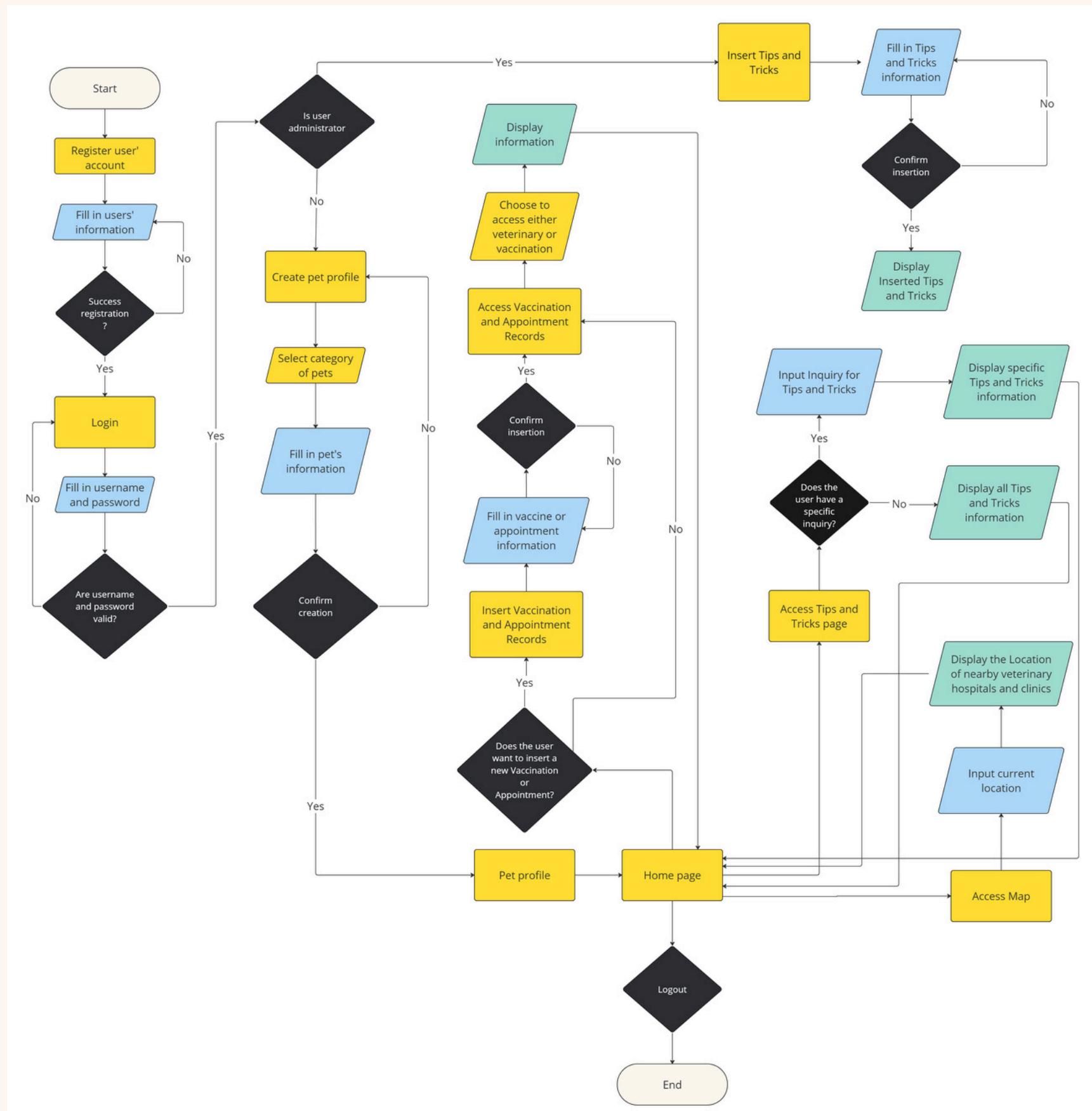
SCOPE OF PROJECT

Practical mobile application for pet owners to manage and monitor their pets' health and also provides useful guides for new pet owners to have more information and assistance in taking care of their pets.

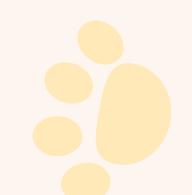
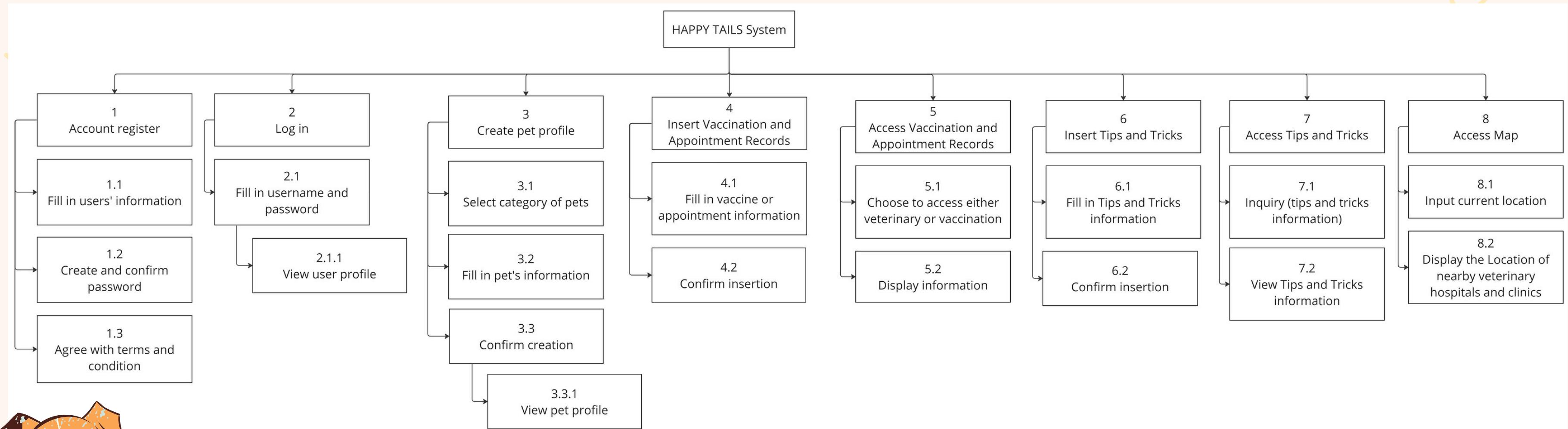
ANALYSIS AND DESIGN



FLOWCHART OF THE SYSTEM

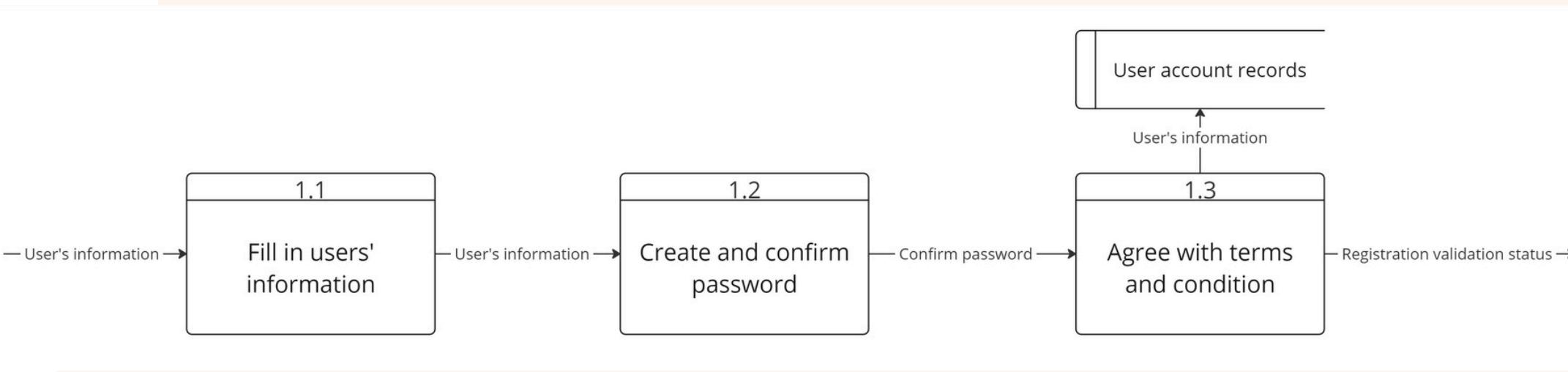


SYSTEM STRUCTURE CHART

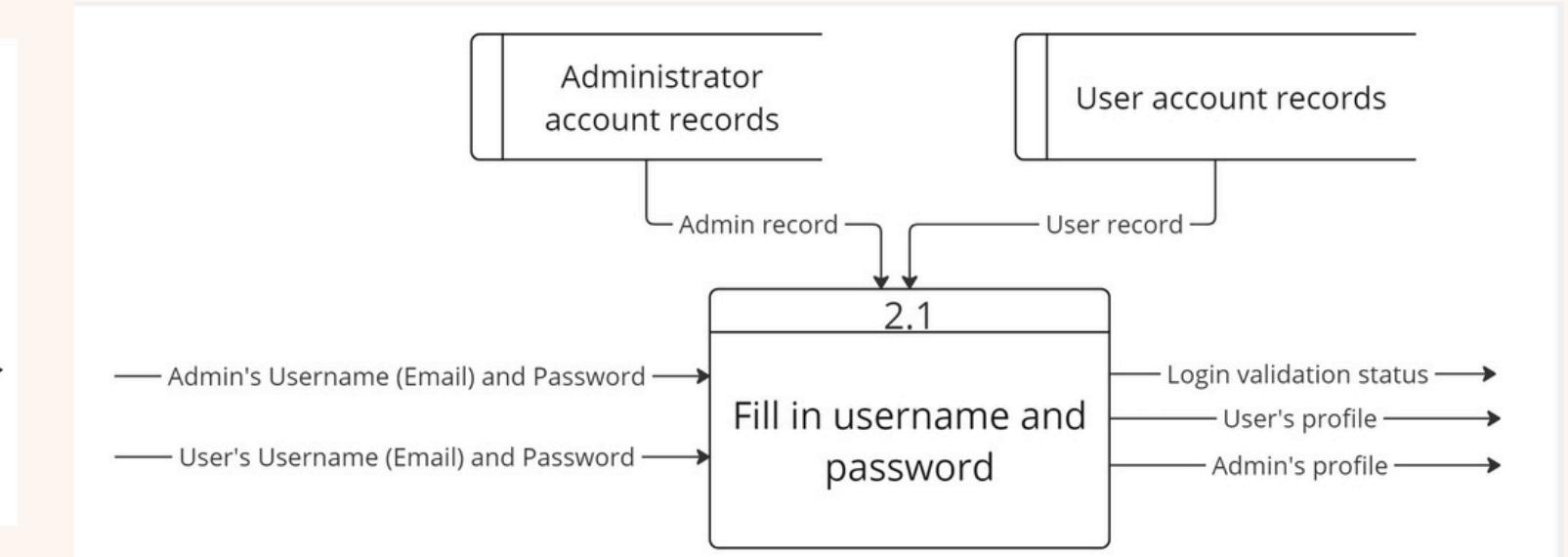


DATA FLOW DIAGRAM

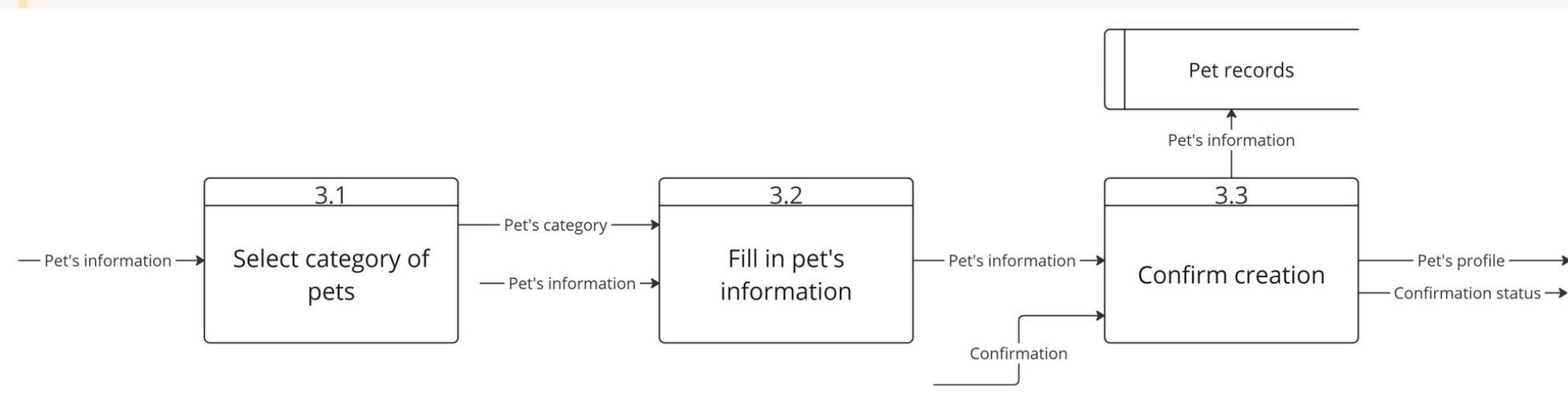
REGISTER



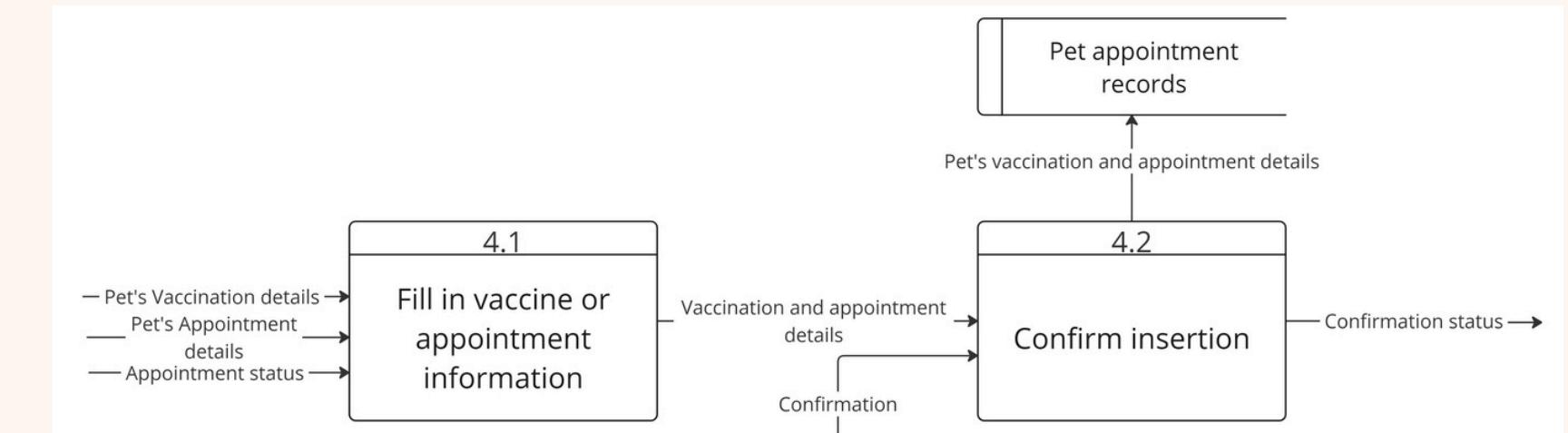
LOGIN



LOGIN

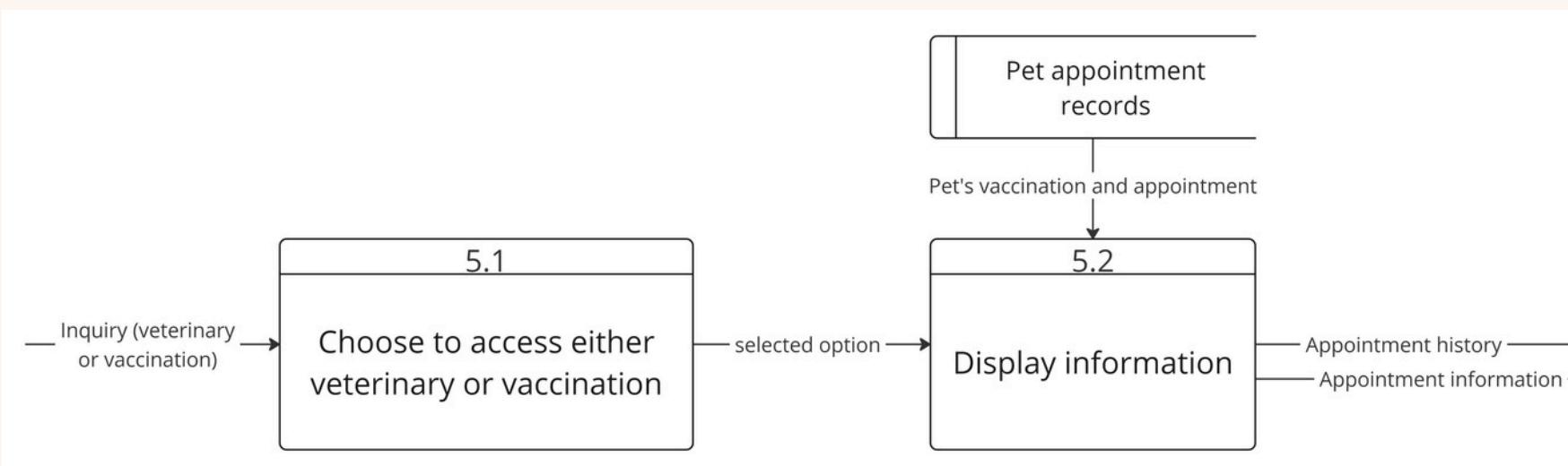


INSERT VACCINATION AND APPOINTMENT RECORDS

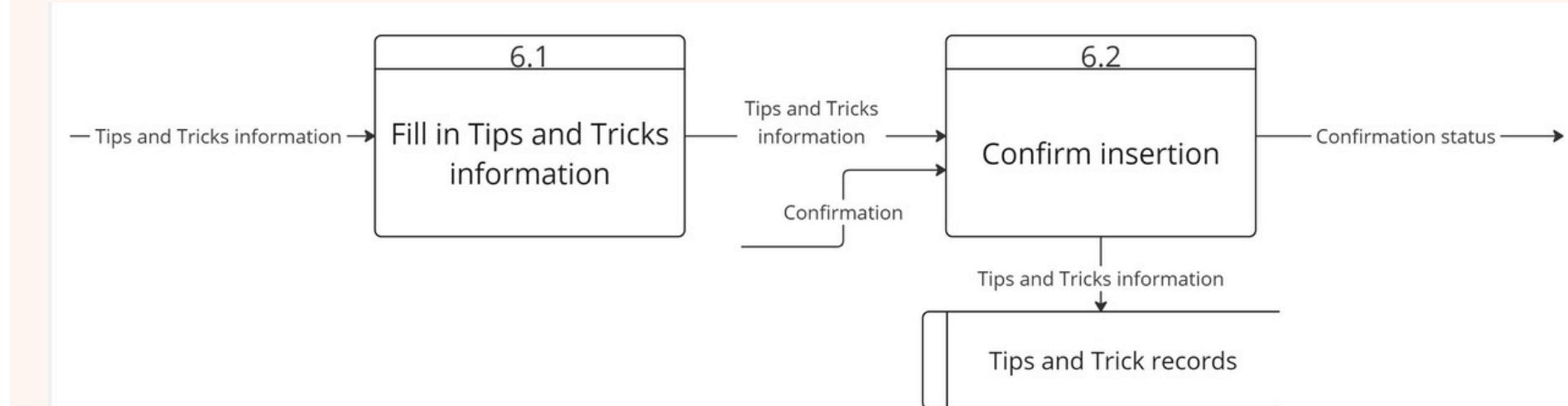


DATA FLOW DIAGRAM

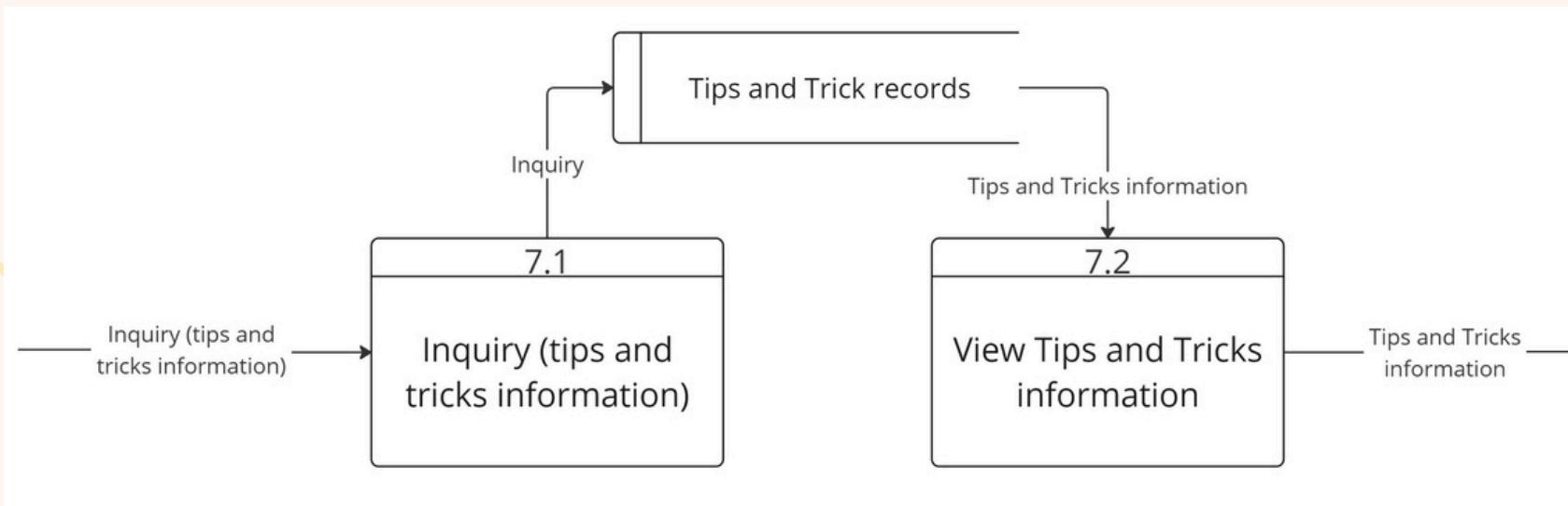
ACCESS VACCINATION AND APPOINTMENT RECORDS



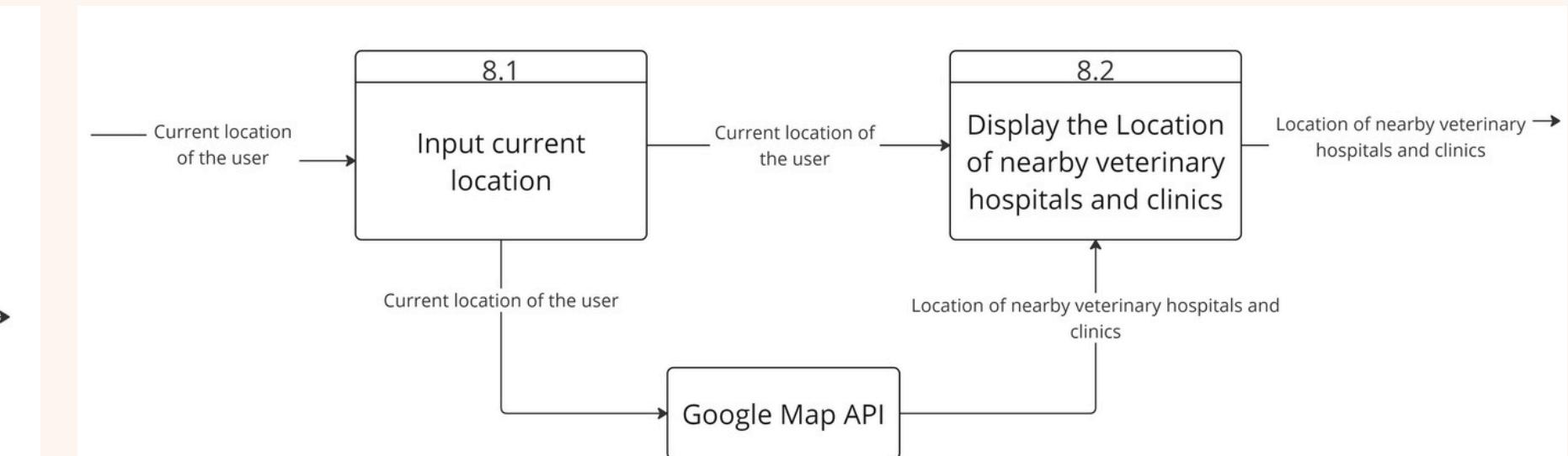
INSERT TIPS AND TRICKS



ACCESS TIPS AND TRICKS



ACCESS MAP



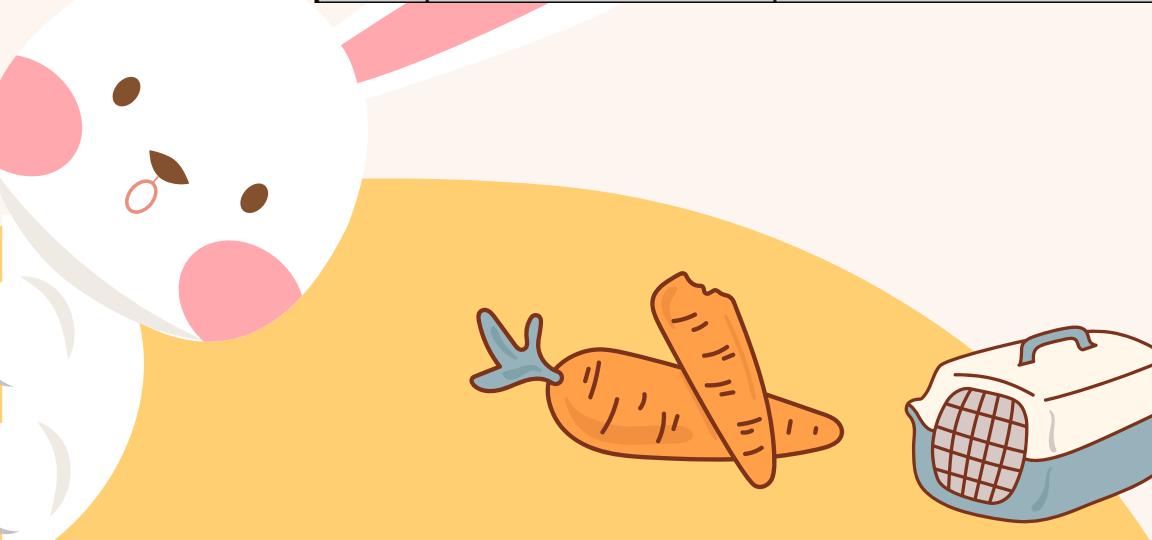
DATA STORES AND DATA ELEMENTS

Data Stores

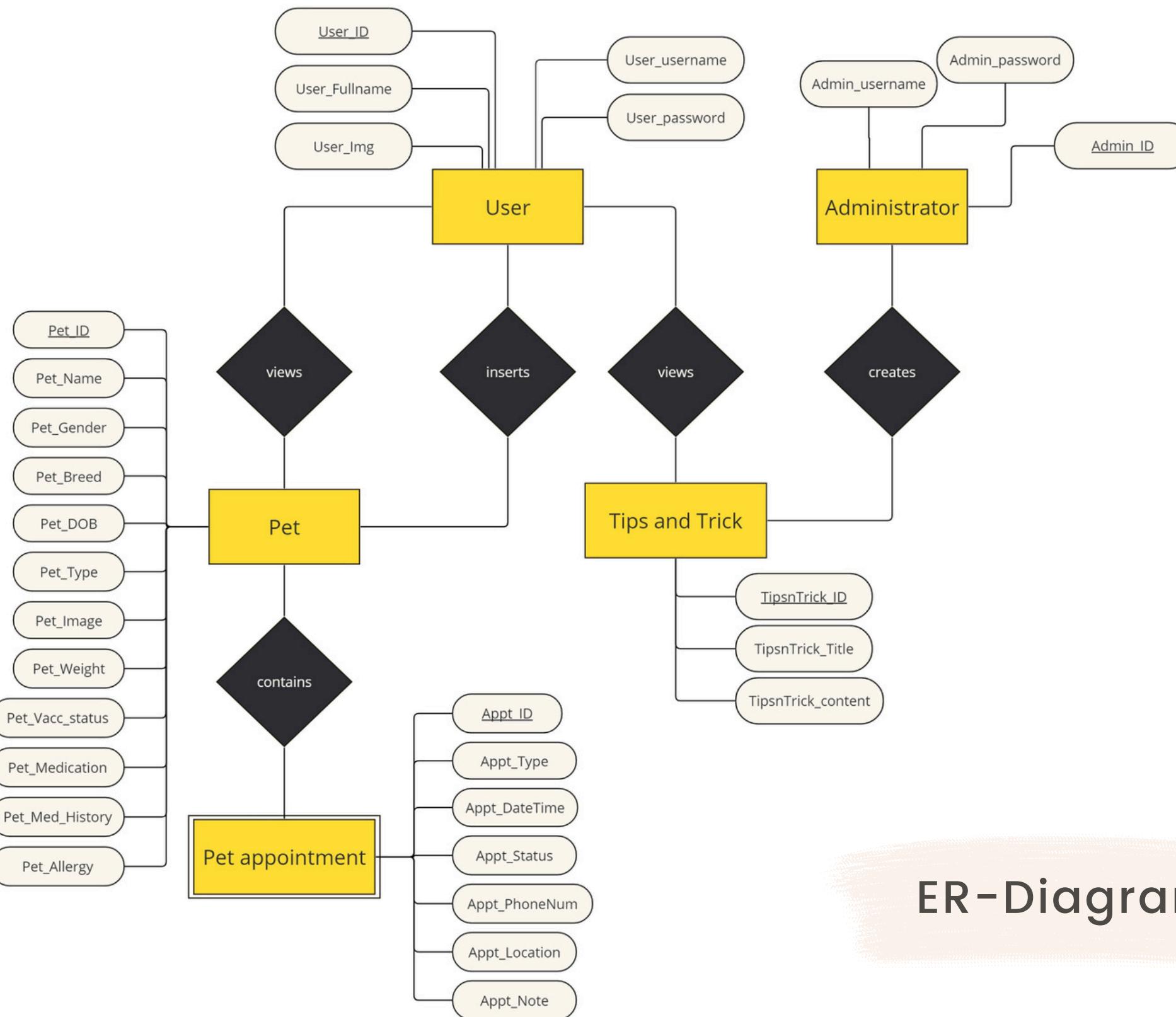
No.	Data Store	Name	Description
1	User account records	User account Database	Collect information of user account including users' information and username and password
2	Administrator account records	Administrator account Database	Collect admins' username and password.
3	Pet Records	Pet Information Database	Collect pets' information.
4	Tips and Trick records	Tips and Trick Database	Collect Tips and Trick information.
5	Pet appointment records	Pet Appointment Database	Collect Appointment (Vaccination and Veterinary) appointment

Data Elements

SEQ	Data Element Name	From Process/Source/Data Store	To Process/Source/Data Store
1	Users' username	User	Registration / Login
2	Users' password	User	Registration / Login
3	User's information	User	Registration
4	Admins' username	Administrator	Login
5	Admins' password	Administrator	Login
6	Pet's information	User	Pet records
7	Pet's vaccination and appointment details	User	Pet records
8	Inquiry	User	Tips and Tricks records
9	Tips and Tricks information	Administrator	Tips and Tricks records
10	Pet's vaccination and appointment details	User	Pet appointment records



DATABASE ANALYSIS AND DESIGN



ER-Diagram

RELATIONAL SCHEMA

★ Relational Schema of Master File Tables

- User, Administrator

★ Base File Tables

- Pet, Tips_and_Trick

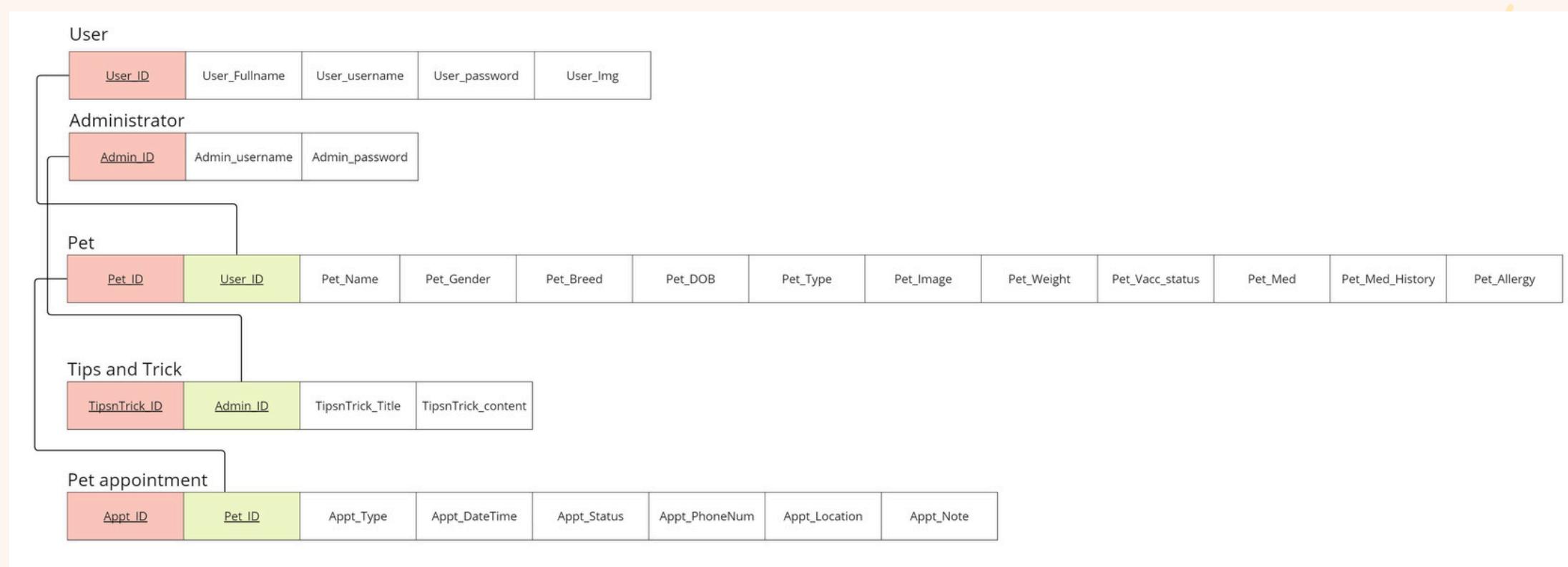
Relational Schema of

★ Transaction File Tables

- Pet_Appointment

List of all Tables in the System Database

Table#	Table Name	Table Type	Description
1	User	Master	Stores user's information
2	Administrator	Master	Stores Administrator's information
3	Pet	Base	Stores pet's information
4	Pet_Appointment	Transaction	Stores pet appointment's information
5	Tips_and_Trick	Base	Store tips and tricks information



INTERFACE DESIGN

Home

Login ...

Login

Register

Join

Start ...

Options

Pet pr...

Pet Pr...

Normal...

Start ...

Appoi...

Appoi...

Appoi...

Tips a...

Tips a...

Maps i...

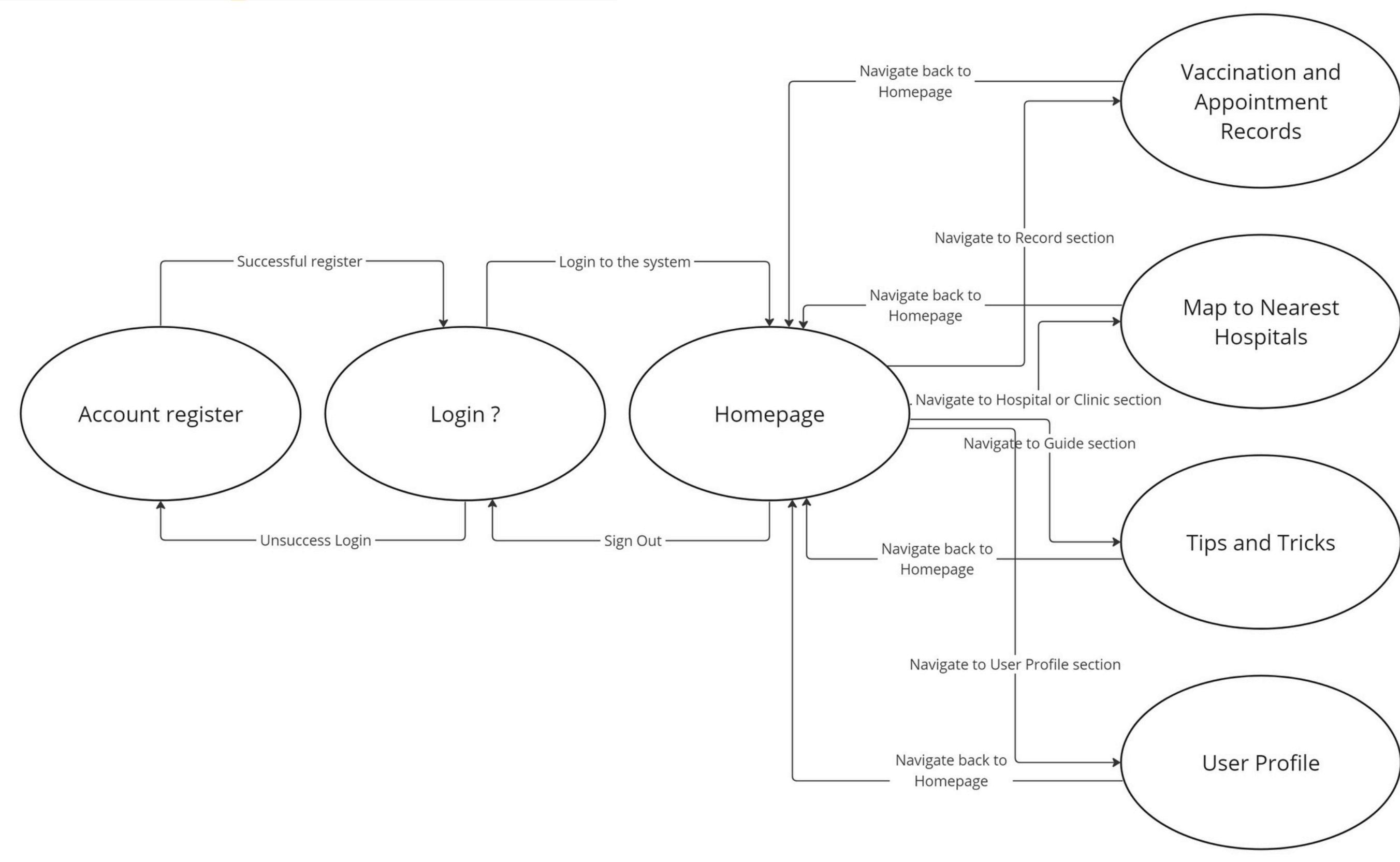
locatio...

Normal...

User P...

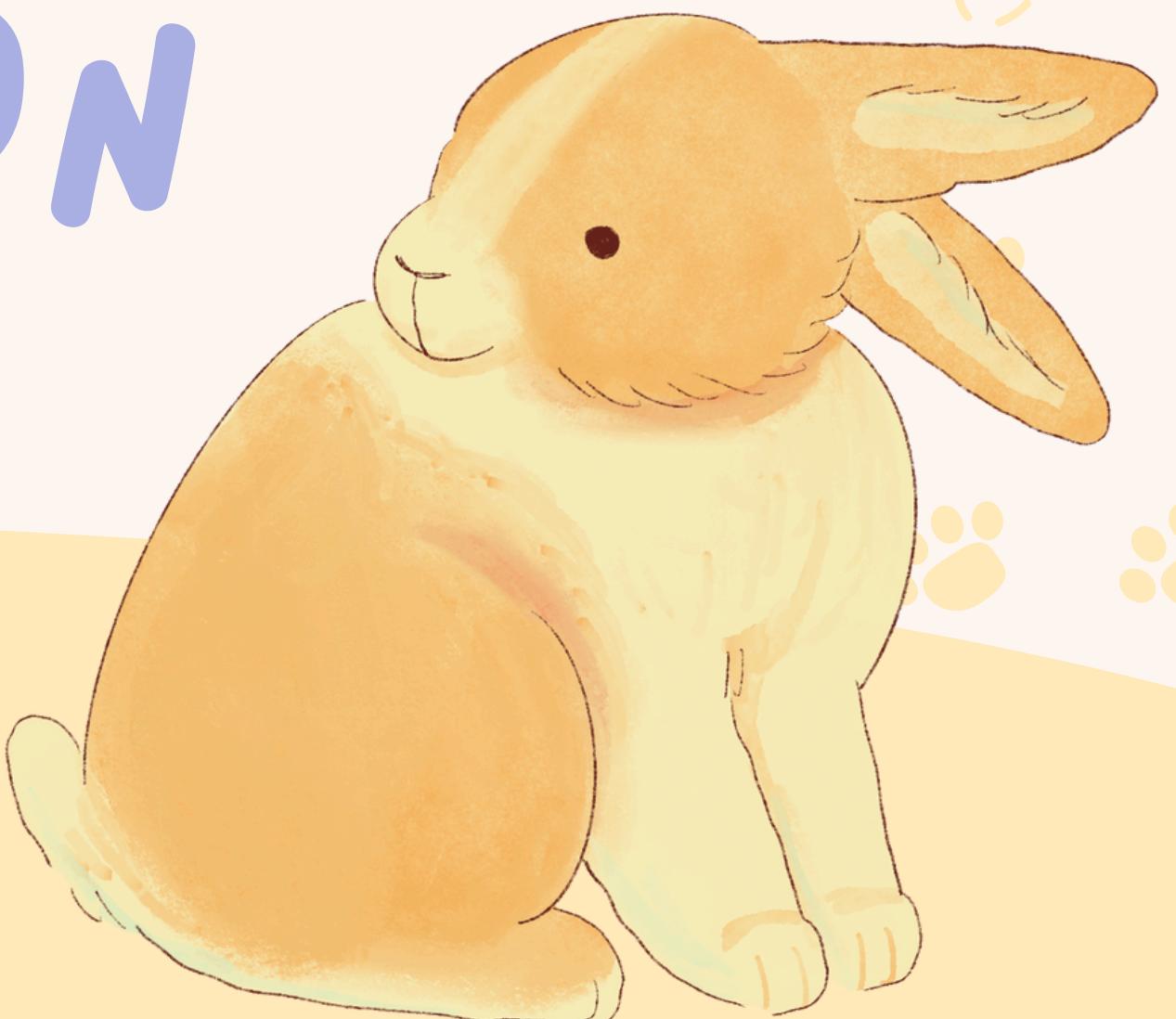
User P...

TRANSITION DIAGRAM



03

IMPLEMENTATION





OPERATING SYSTEM AND UTILITIES APPLICATIONS

Hardware

- macOs Sonoma Version 14.2.1
- MSI 13th Gen Intel(R) Core(TM)
- HP Laptop 15s-eq2xxx Ryzen 7

Software

- Operation system: Windows 11 Pro version 23H2, macOS
- Visual Studio, Google Chrome, Safari, Firebase, Flutter

WEB SERVER SOFTWARE

Google Cloud, Firebase

DATABASE MANAGEMENT SYSTEM (DBMS)

Firebase Firestore database, Firebase cloud storage

PROGRAMMING AND SCRIPTING TOOLS

Dart Programming language, Visual Studio



DATABASE MANAGEMENT SYSTEM (DBMS)

Firebase Firestore database

User

User > 914AwxOpuFxD..		More in Google Cloud	
(default)	User	914AwxOpuFxDcEcMbnjb	⋮
+ Start collection	+ Add document	+ Start collection	
Admin	14wh1APgDOCq4FKuDpbL	+ Add field	
Pet	914AwxOpuFxDcEcMbnjb	User_Fullname: "Danny Meyer"	
Tips and Trick	E0ko9E8s05H5KEAjMsdm	User_ID: 1	
User	YWb4LJAizhR0Jihvgt0j	User_Img: "	
	zA0xDJvuyoocmb308dDA	User_password: "dmeyer123"	
		User_username: "danny_m"	

Admin

Admin > ZJCRmVqUDjn9.		More in Google Cloud	
(default)	Admin	ZJCRmVqUDjn9qWYn8rF0	⋮
+ Start collection	+ Add document	+ Start collection	
Admin	QtqyrVnBx7RfZ0kinav	+ Add field	
Pet	ZJCRmVqUDjn9qWYn8rF0	Admin_ID: 1	
Tips and Trick		Admin_password: "Adminpw1"	
User		Admin_username: "Admin01"	



DATABASE MANAGEMENT SYSTEM (DBMS)

Firebase Cloud Firestore

Pet

Am5rp167cBuM2qw8BxpO	⋮
+ Start collection	
+ Add field	
Pet_Allergy: ""	
Pet_Breed: "Golden Retriever"	
Pet_DOB: "2023-04-01"	
Pet_Gender: "Male"	
Pet_ID: "62bc4069-b1b8-48d8-bb61-d41bf376a6dd"	
Pet_Image: "https://firebasestorage.googleapis.com/v0/b/happy-tails-5b4c1.appspot.com/o/pet_image%2F1712498859?alt=media&token=d277efb2-d021-4463-93c2-e7032d6815cc"	
Pet_Med_History: "The Golden Retriever is a Scottish breed of retriever dog of medium size. It is characterised by a gentle and affectionate nature and a striking golden coat. It is commonly kept as a pet and is among the most frequently"	

Tips and Tricks

xhbpBk11568rLJqKv5gS	⋮
+ Start collection	
+ Add field	
TipsnTrick_ID: "1"	
TipsnTrick_Title: "Factor to consider when interpreting your dog's behaviour"	
TipsnTrick_content: "Whilst looking out for the behaviors above will help you understand what your dog is feeling, here are some factors to bear in mind: It's essential to consider the specific situation and what's normal for your dog when reading their body language. What might be relaxed behavior in a home environment can mean something different in a public setting. Puppies and older dogs will behave very differently due to their stage of development and age-related changes. Puppies are likely to be more energetic and playful, while older dogs tend to be calmer. Just like people, dogs have their own personalities that influence their behavior. Some dogs may be more outgoing than others, and this can vary depending on their individual temperament and life experiences."	

Pet appointment

yDmfo8C7j3Hfh82RkyT6	⋮
+ Start collection	
+ Add field	
Appt_Date: "2024-04-10"	
Appt_ID: "5f6049cb-759b-4174-94cb-21c1b14dde9d"	
Appt_Location: "iVET Pet"	
Appt_Note: "From iVET Pet Hospital West Center Branch"	
Appt_Pet: "BooBoo"	
Appt_Time: "11:00"	
Appt_Type: "Veterinary"	
Pet_ID: "62bc4069-b1b8-48d8-bb61-d41bf376a6dd"	
User_ID: 559	

IMPLEMENTATION GUIDE AND TECHNIQUES

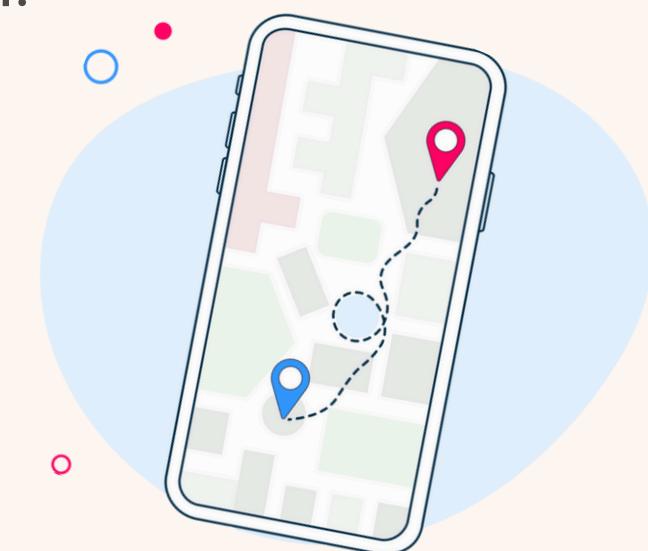
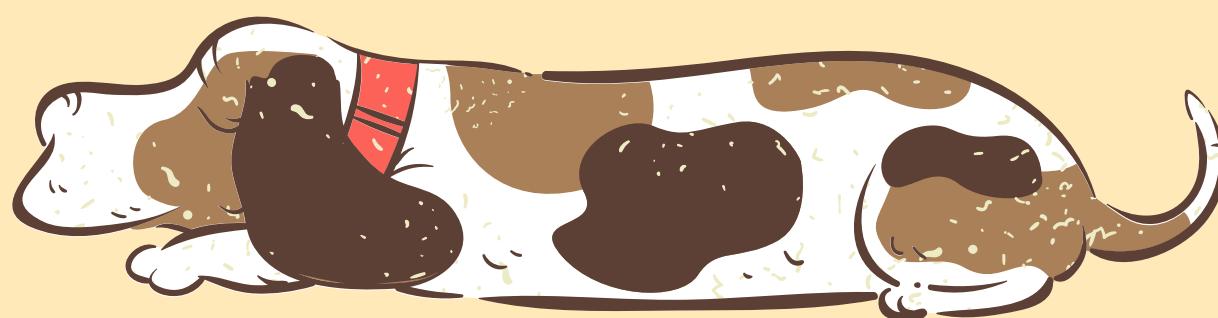
CONNECTING GUIDE

To integrate Firebase with a Flutter project, you need to add the **firebase_core** plugin using `flutter pub add firebase_core`. This plugin allows connection to Firebase apps. Then execute `flutterfire configure` to ensure the Firebase configuration is updated for cross-platform compatibility.

TECHNIQUES

To utilize Google Maps API, obtain an API key, add the Google Maps plugin with `flutter pub add google_maps_flutter`, and install the location plugin using `flutter pub add location`.

Moreover, integrate image selection using the 'Image Picker plugin'. '`package:image_picker/image_picker.dart`' in the Dart file enables users to pick images from their gallery for input into the application.



04

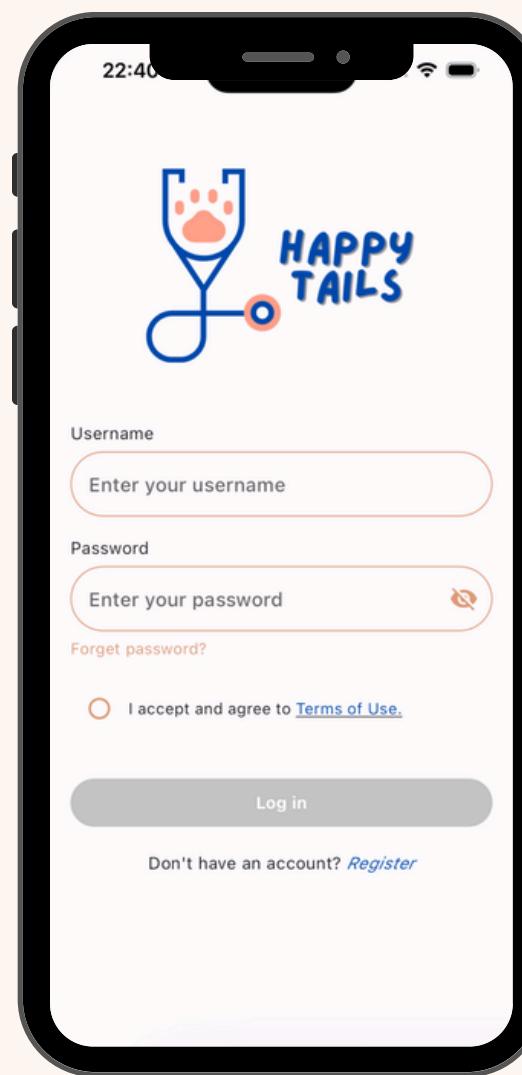


TESTING AND EVALUATION

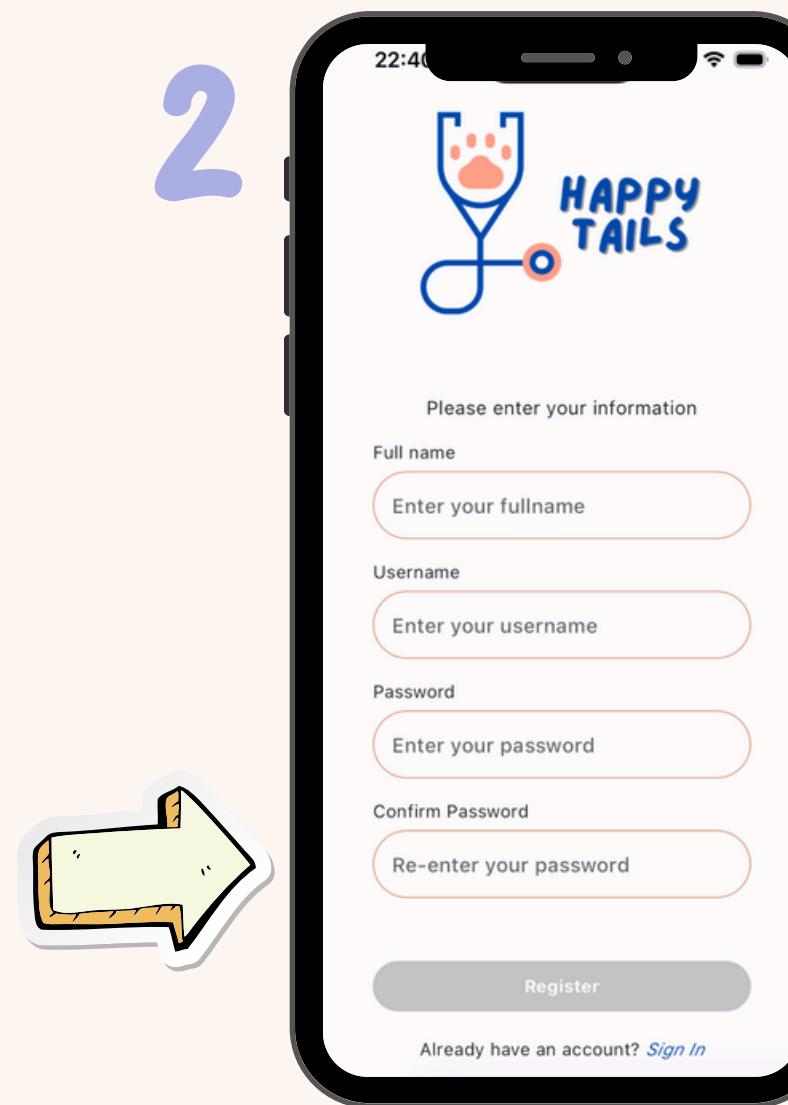


REGISTER

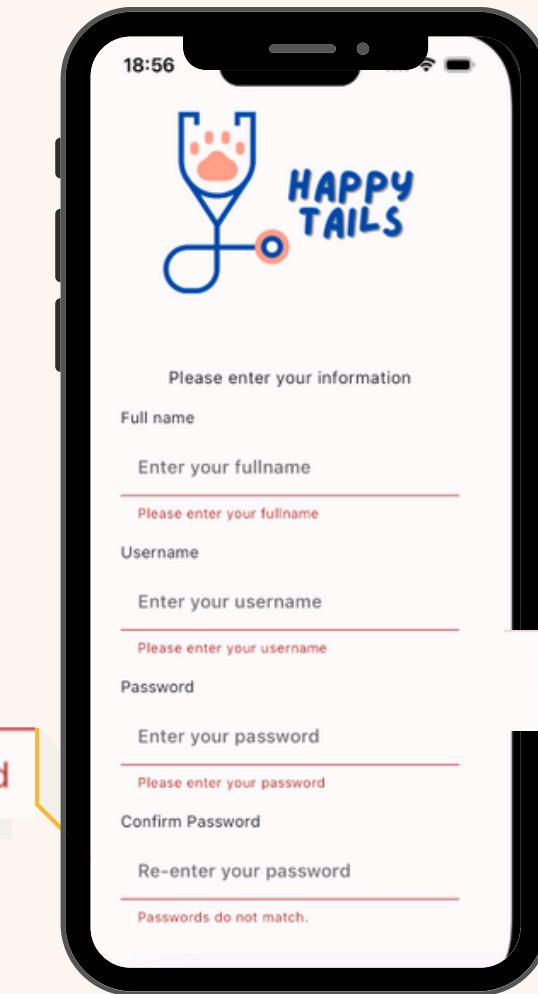
1



2



3



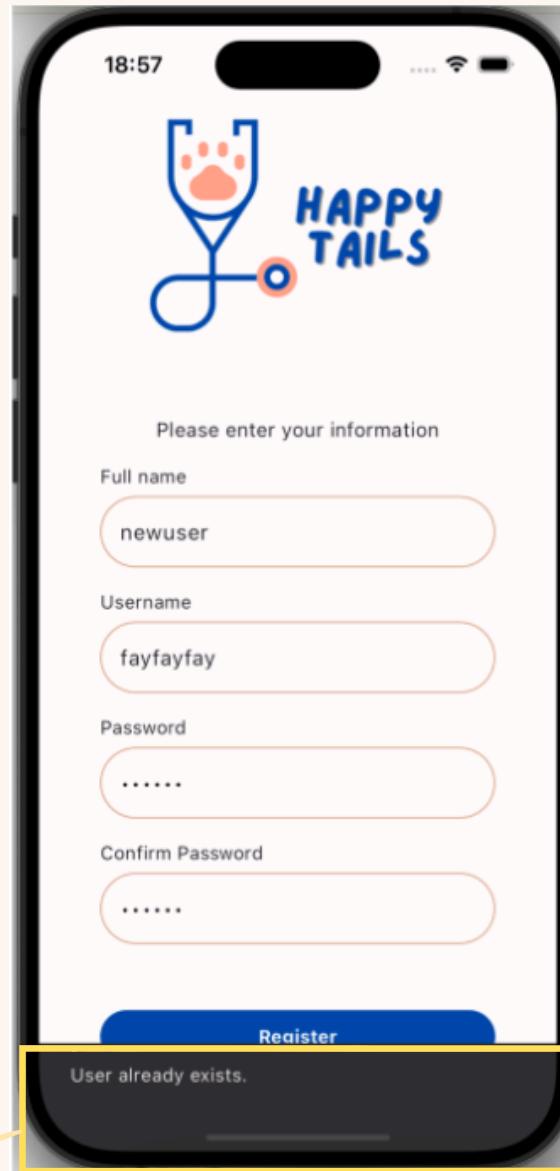
After the user clicks Register, it will navigate the user to the register page, to fill in **Full name, Username, Password, and Confirm Password.**

If the user clicks "Register" without entering any information, a **warning notice** will display beneath each input field.

REGISTER

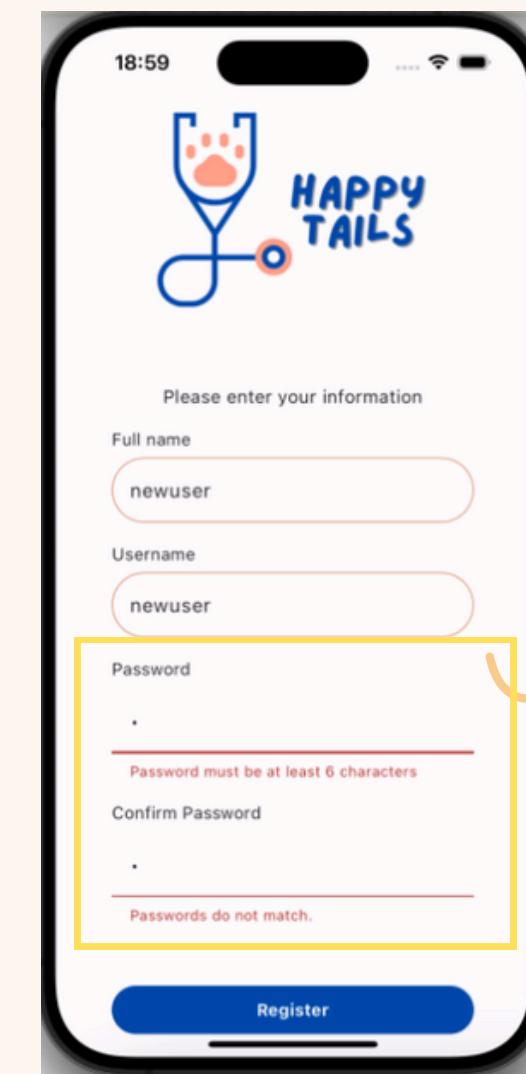
Register

4



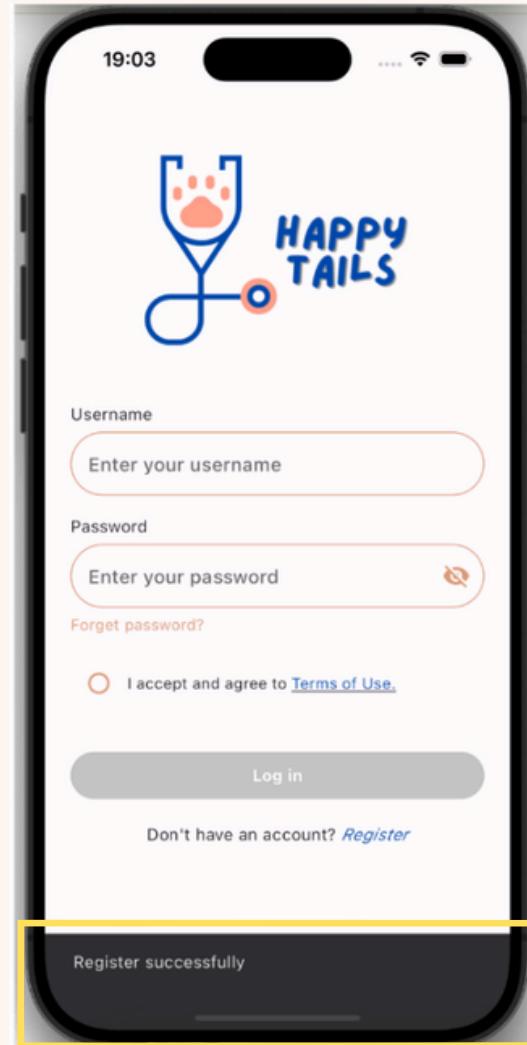
User already exists.

5



If the user submits a **username** that **already exists** in the system, a warning notice will display below the screen.

6



If the user submits all **appropriate information**, a notice will appear at the end of the screen **"Register successfully"** and **redirect** the user to the Login page.

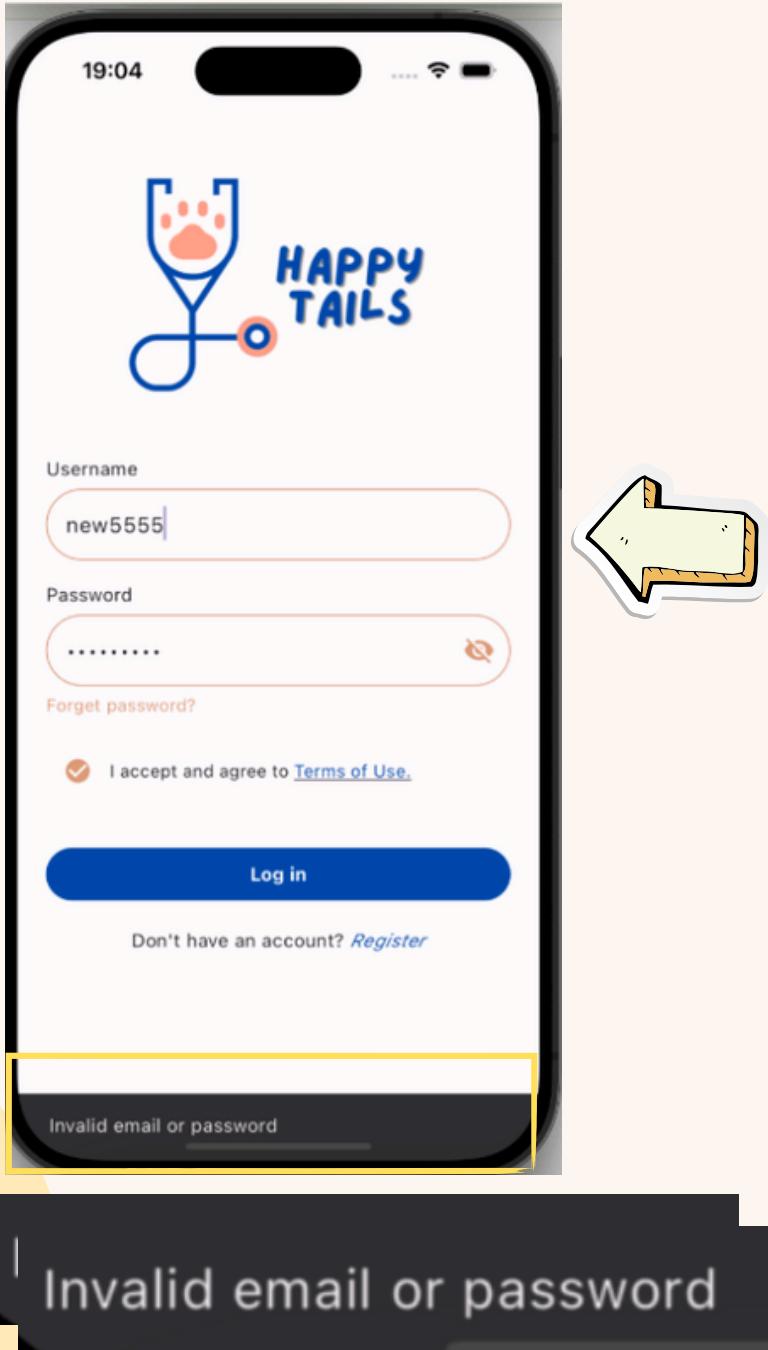
Register successfully

If the user submits a **password of less than 6 characters** or submits a confirmed password that does **not match**, a warning notice will display under the password field.



LOGIN

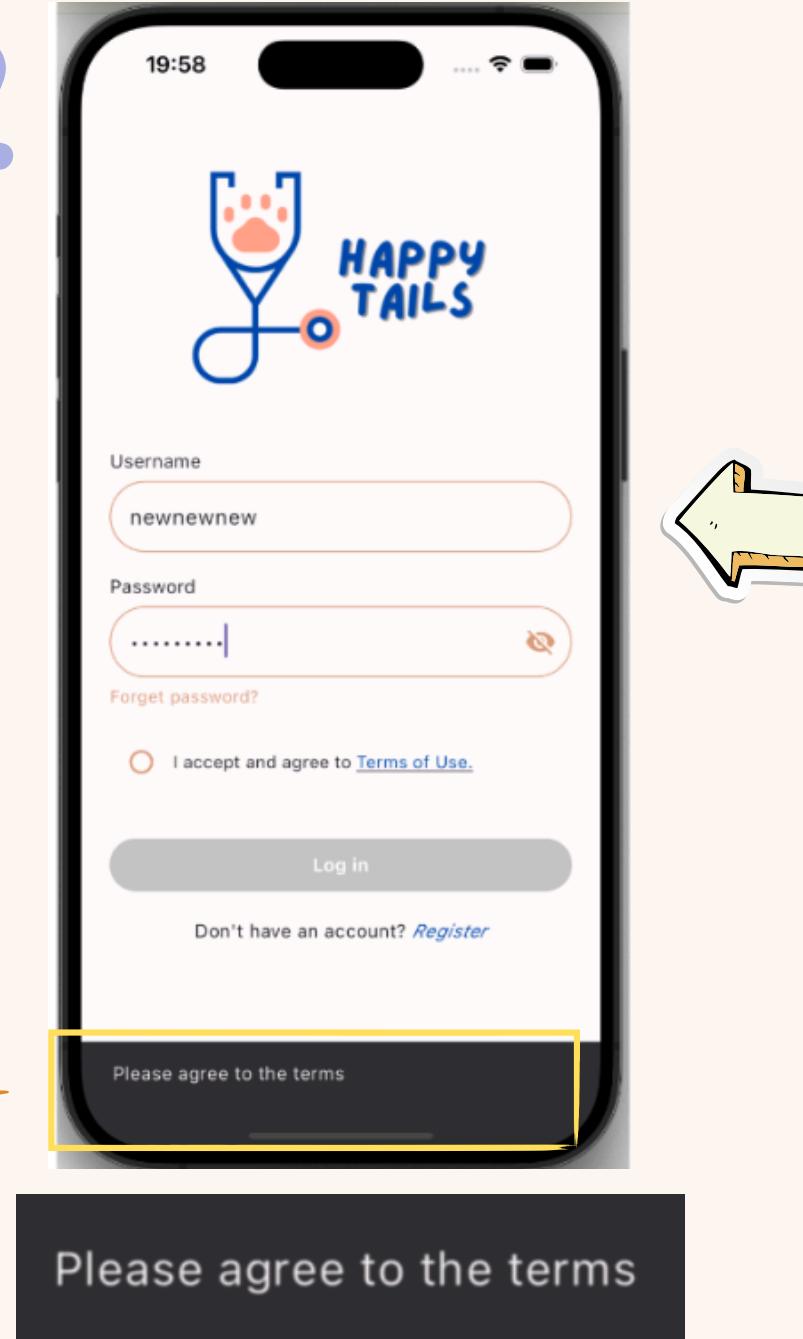
1



Invalid email or password

2

If the user submits a **username or password** that does **not match any record** in the system, a warning notice will display below the screen.

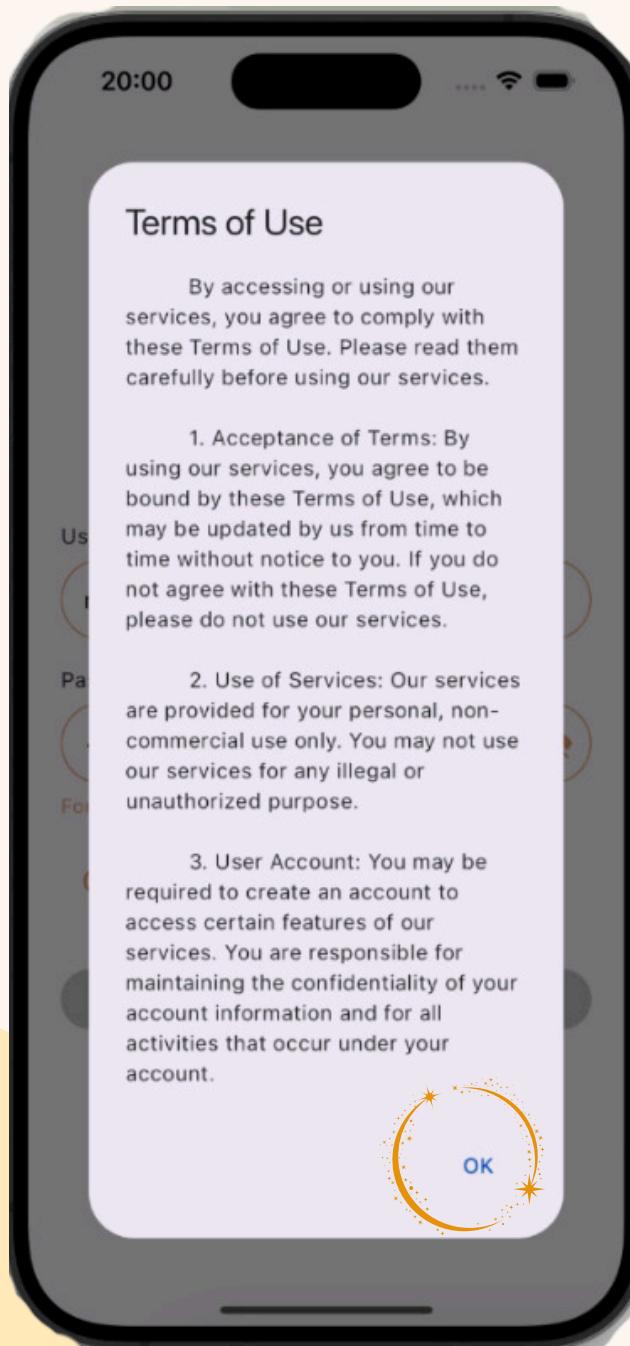


If the user does **not agree to the terms of use**, a warning notice will display below the screen.

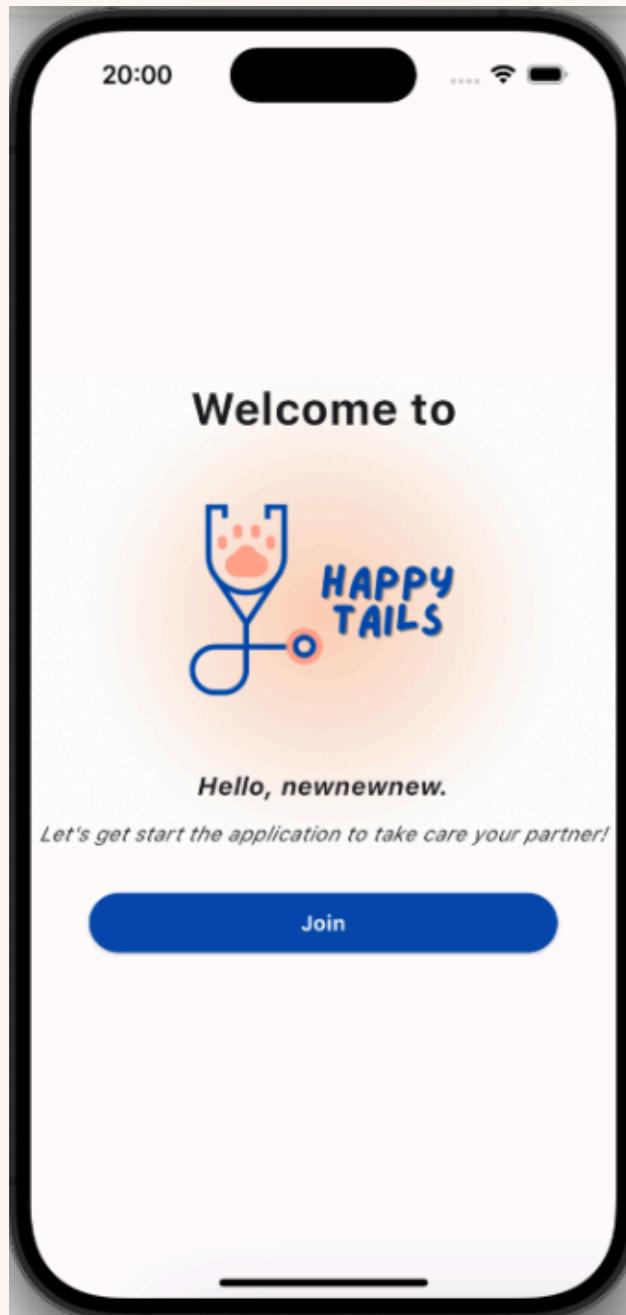


LOGIN

3



4



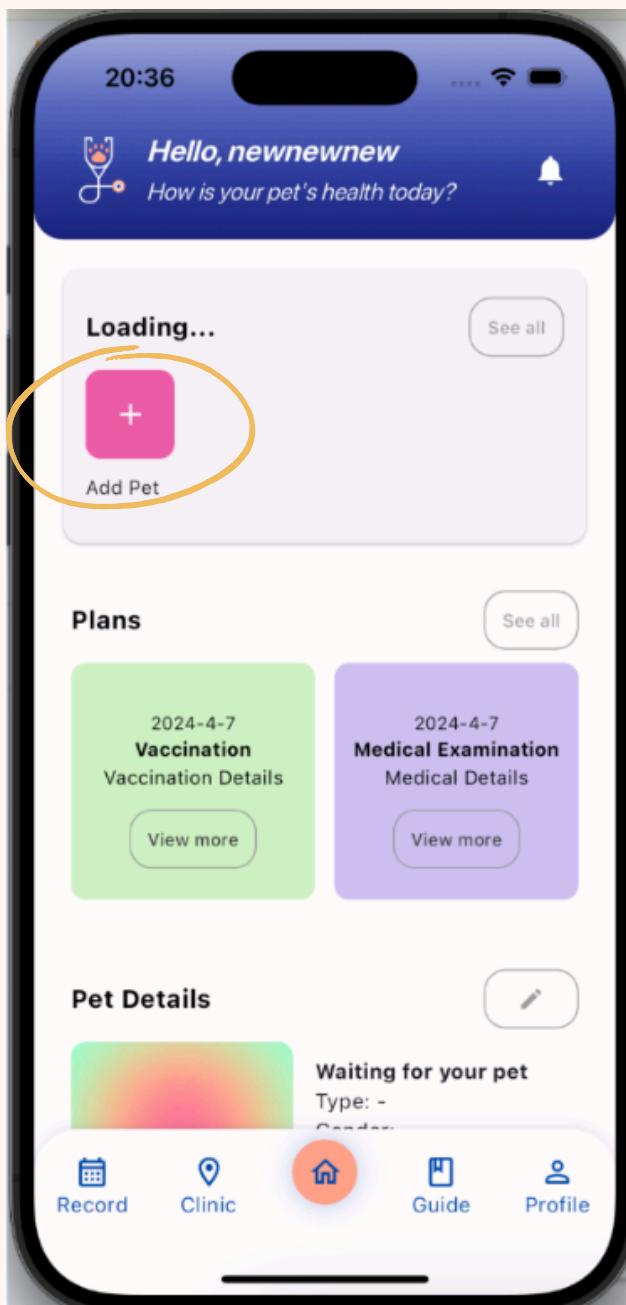
If the user clicks on **Terms of Use**, the system will present a Terms of Use of the application.

Once the user completes reading the terms of use, the user can click the "**OK**" button to close this popup.

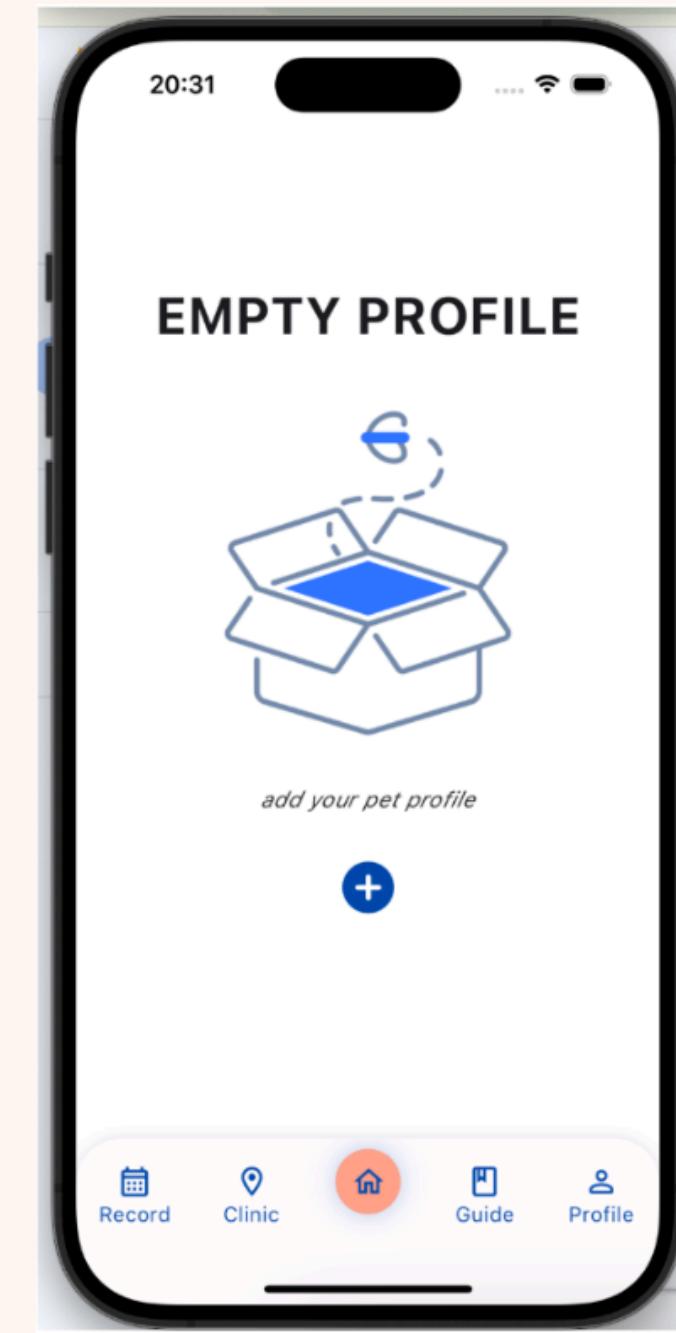
If the user **submits all appropriate login** information to the system, the system will redirect the user to the Welcome page.

CREATE A PET PROFILE

1



2

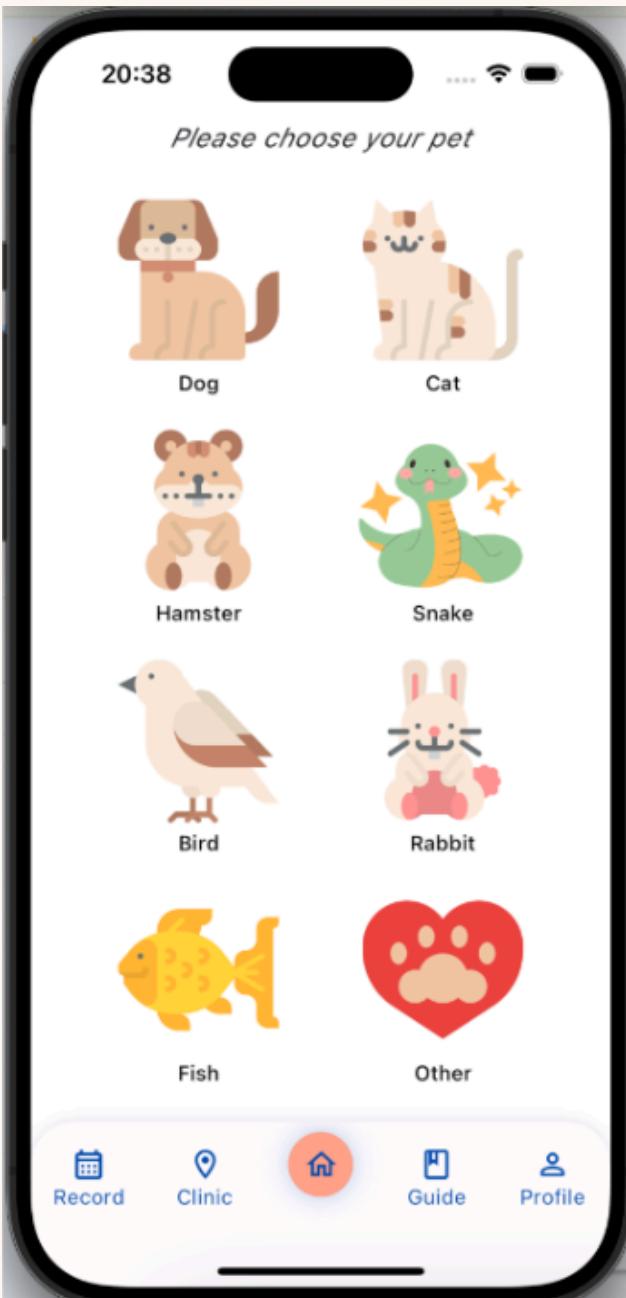


If the user has **not created any pet profile**, the first section that shows a list of pets will be empty with a **button to add a pet**.

After clicking **Add a Pet** on the homepage, the system will **navigate** the user to an **Empty Pet profile page** showing an **Add Pet profile button**.

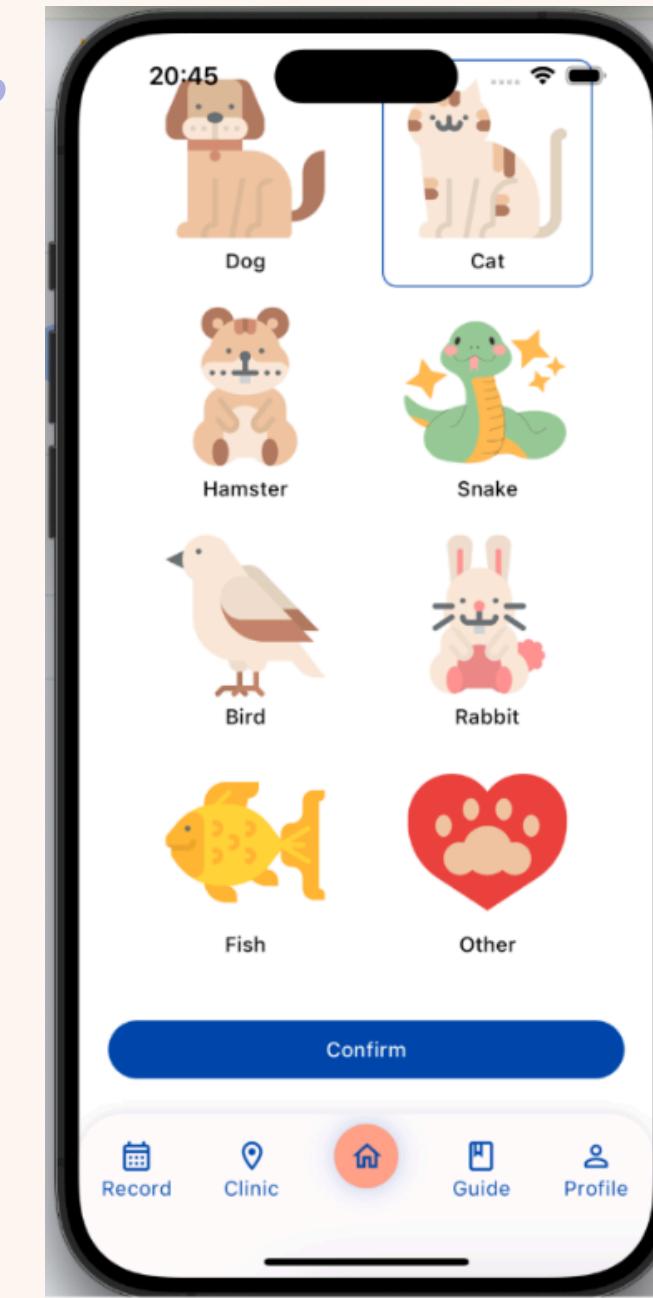
CREATE A PET PROFILE

3



After clicking the **Add button**, the user will be redirected to the **option pet page** where the user can select the pet type from this page.

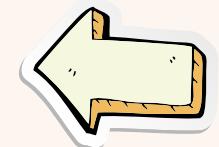
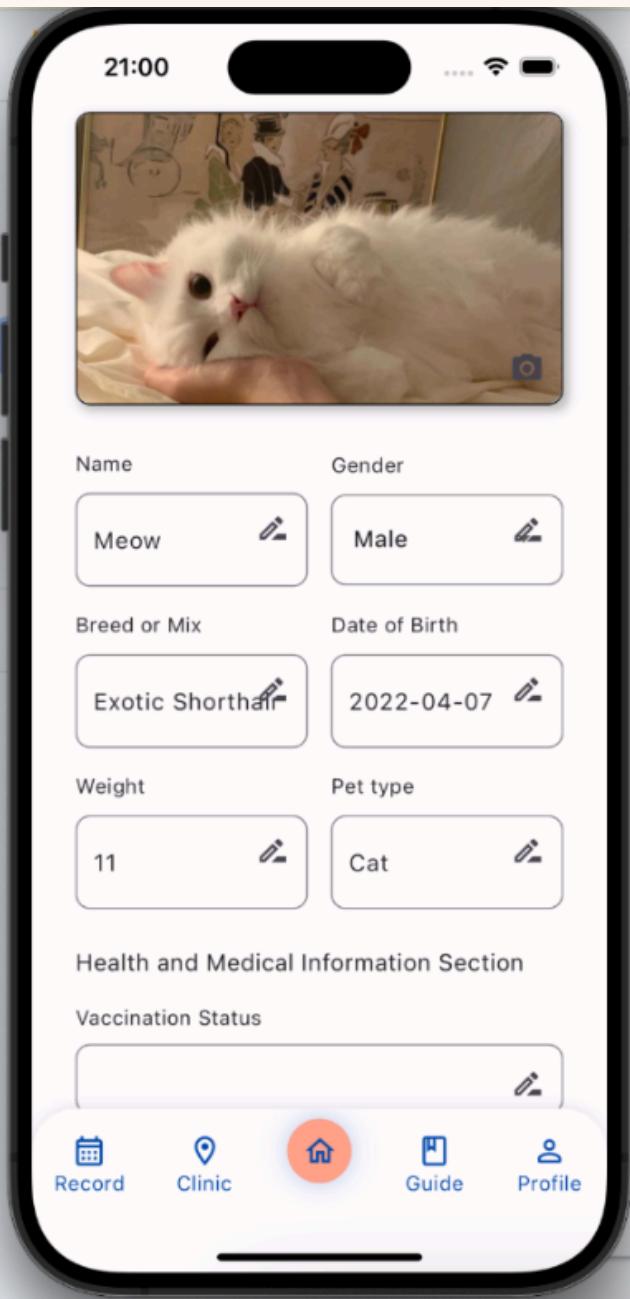
4



Once the user has **selected a type of pet** to create a profile, the user can click on the "**Confirm**" button to navigate to the next page.

CREATE A PET PROFILE

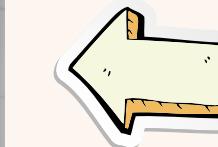
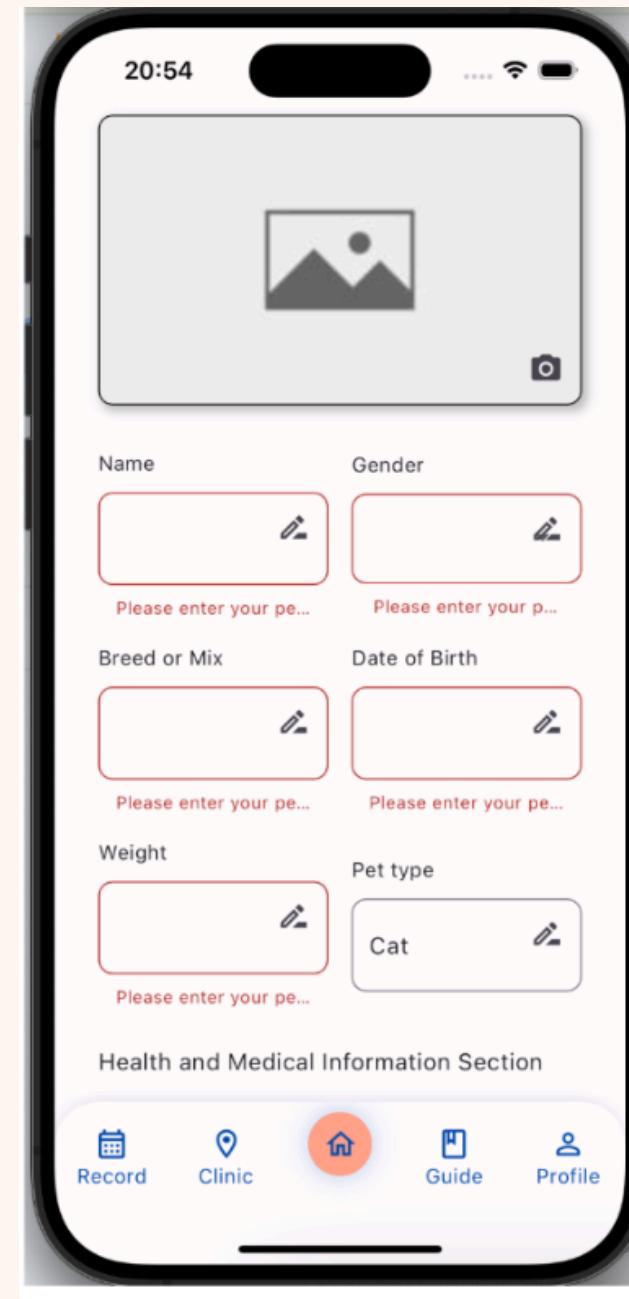
5



The Create Pet Profile page contains **10 input fields** including

- Pet's image
- Name
- Gender
- Breed or mix
- Date of Birth
- Weight
- Vaccination status
- Medical history
- Allergies
- Medication

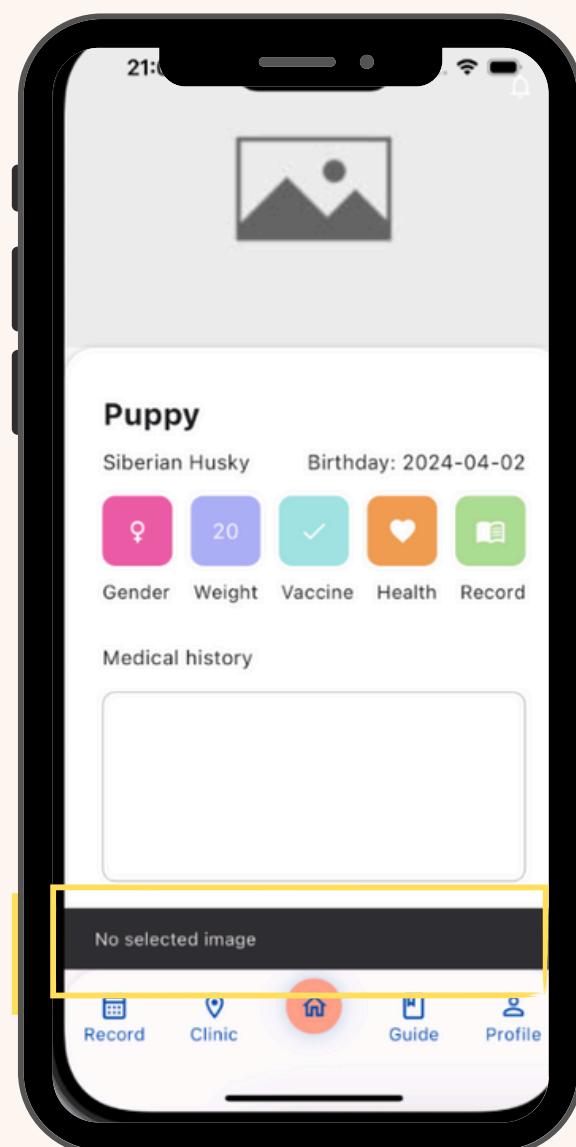
6



If the user **does not input name, gender, breed or mix, date of birth, or weight**, a warning notice will display under the field that does not have input.

CREATE A PET PROFILE

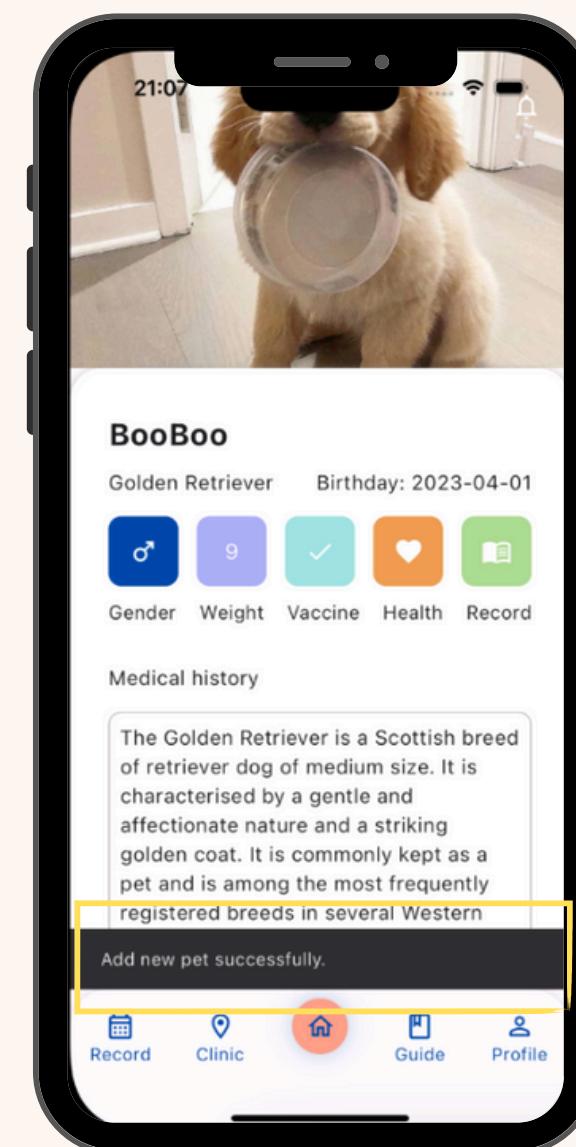
6



If the user clicks the '**Confirm**' button without selecting a pet image, a warning notice will display below the screen.

No selected image

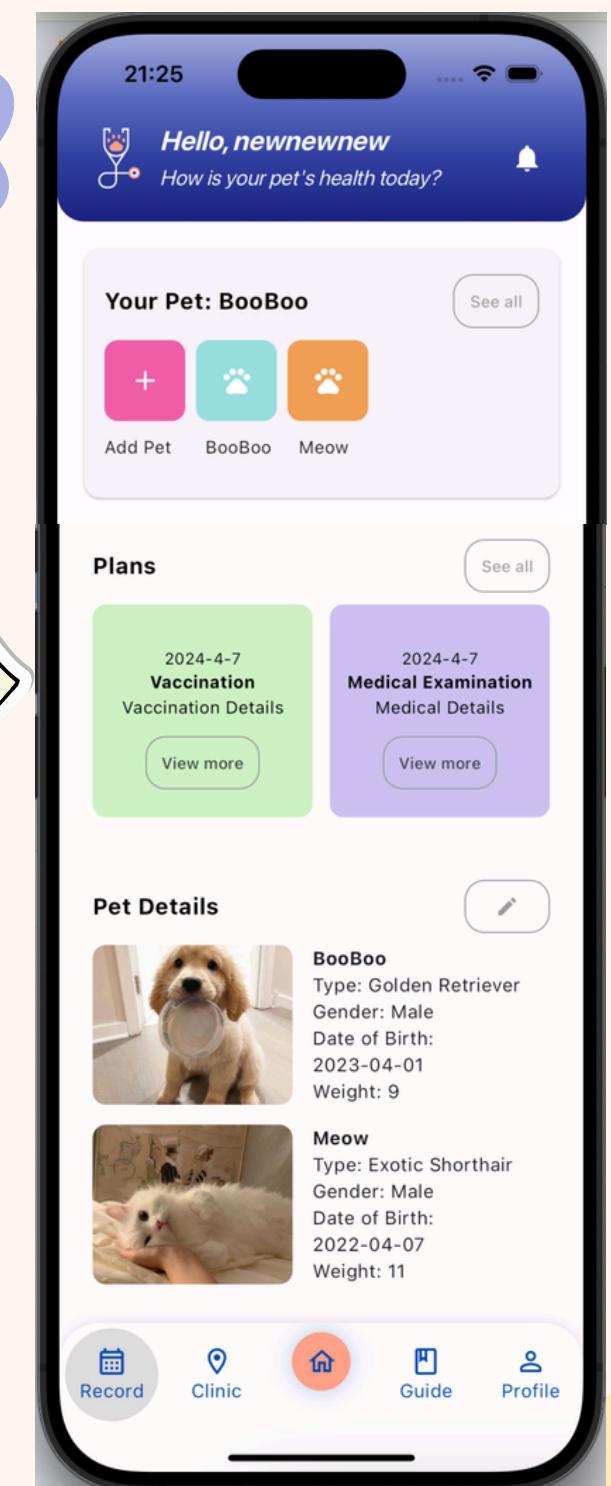
7



After successfully creating a pet, the user will see a pet that the user **added to the homepagee**.

Add new pet successfully.

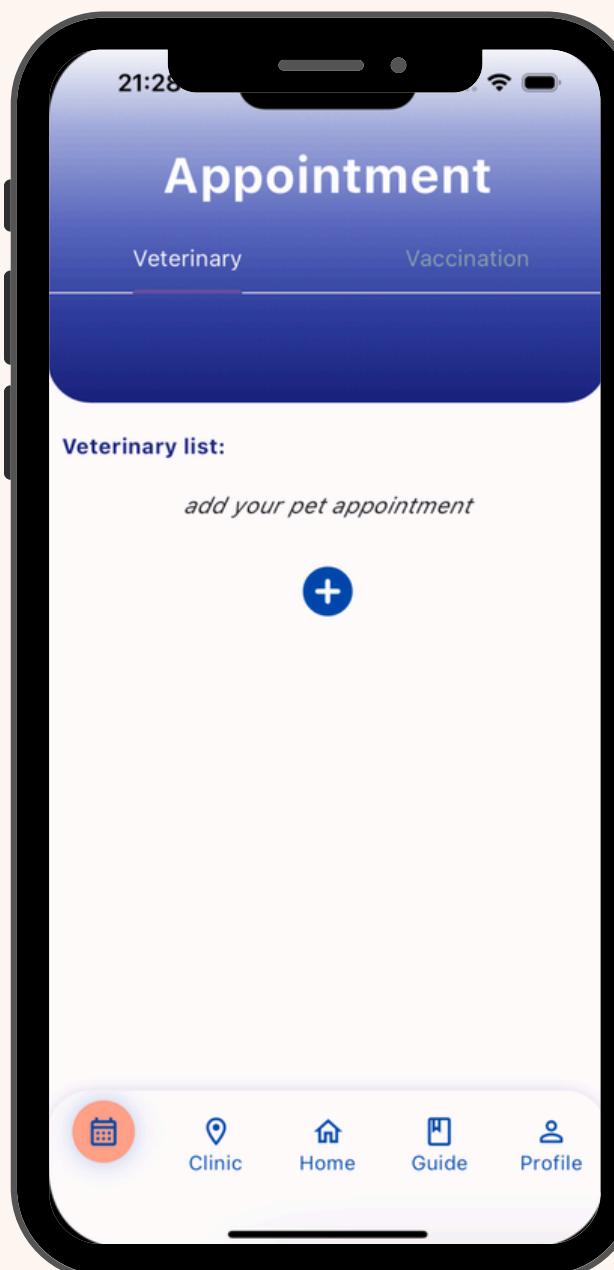
8



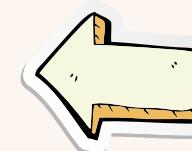
If the user completely fills out the pet information and clicks '**Confirm**', the system redirects the user to the pet profile page and shows a notice below the screen indicating "**Add new pet successfully.**"

INSERT VACCINATION AND APPOINTMENT RECORDS

1

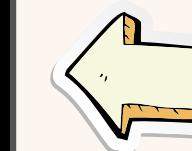
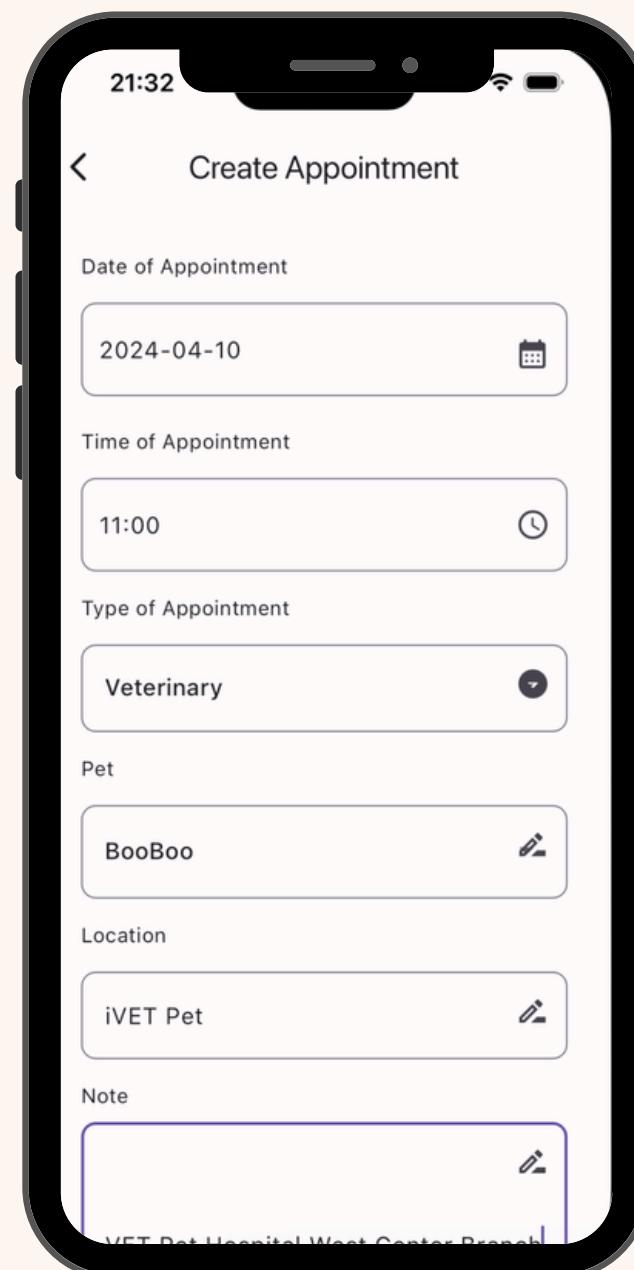


The phase starts on the **Appointments page**



The user can **click on the App bar** at the top to **select the type** of appointment to view

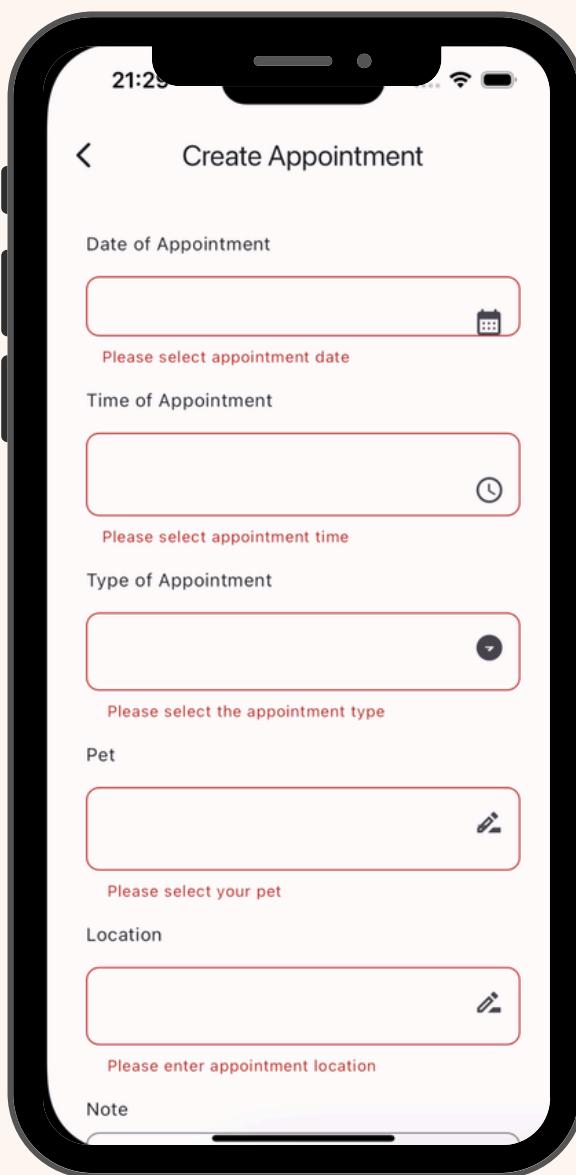
2



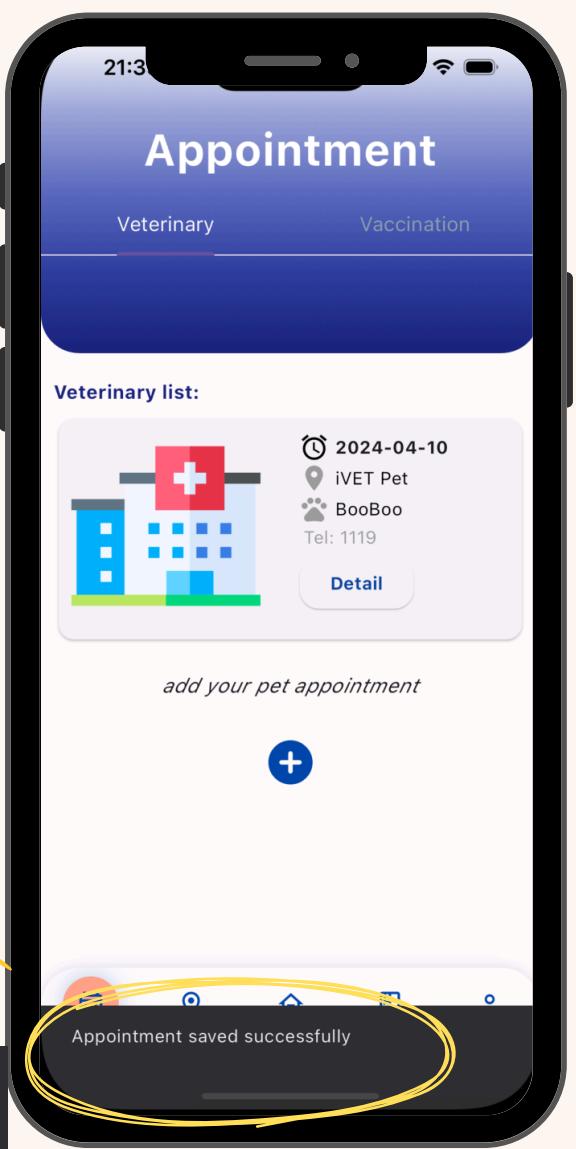
After the user **clicks the add button**, the system navigates the user to the **Create Appointment page** which contains 6 input fields

- **Date of Appointment**
- **Time of Appointment**
- **Type of Appointment**
- **Pet**
- **Location**
- **Note (optional)**

INSERT VACCINATION AND APPOINTMENT RECORDS

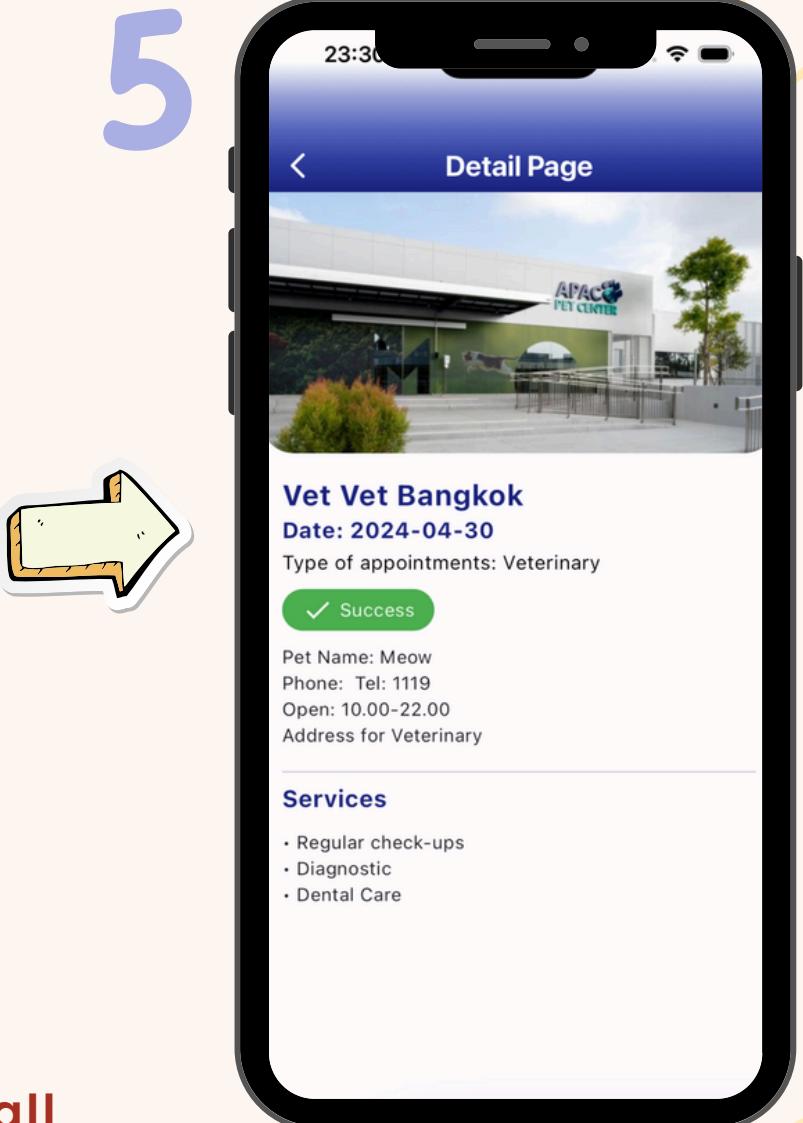


If the user does **not enter any information**, the system displays a warning message under every input field except the Note field



Appointment saved successfully

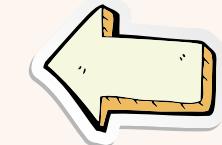
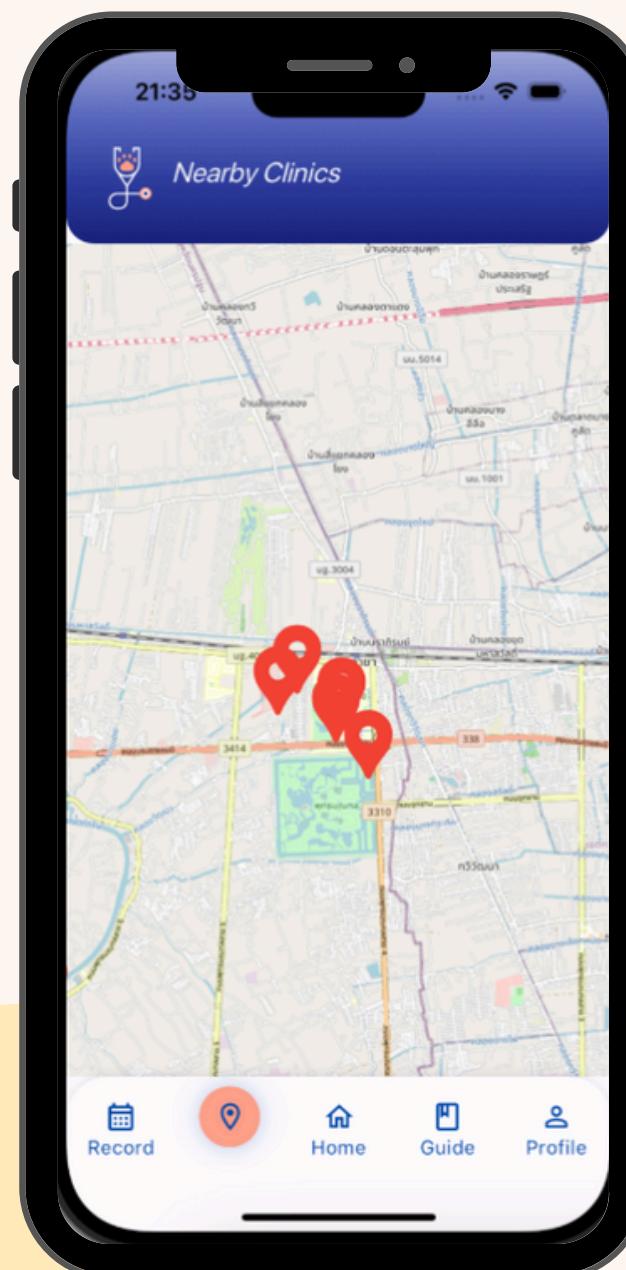
If the user **clicks 'Detail'** on the Appointment List page, the system will navigate to the **Detail Appointment Page**



If the user **submits all appropriate information** to the system, the result will be displayed on the **Appointment List page**.

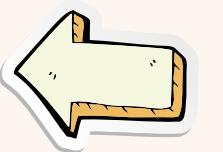
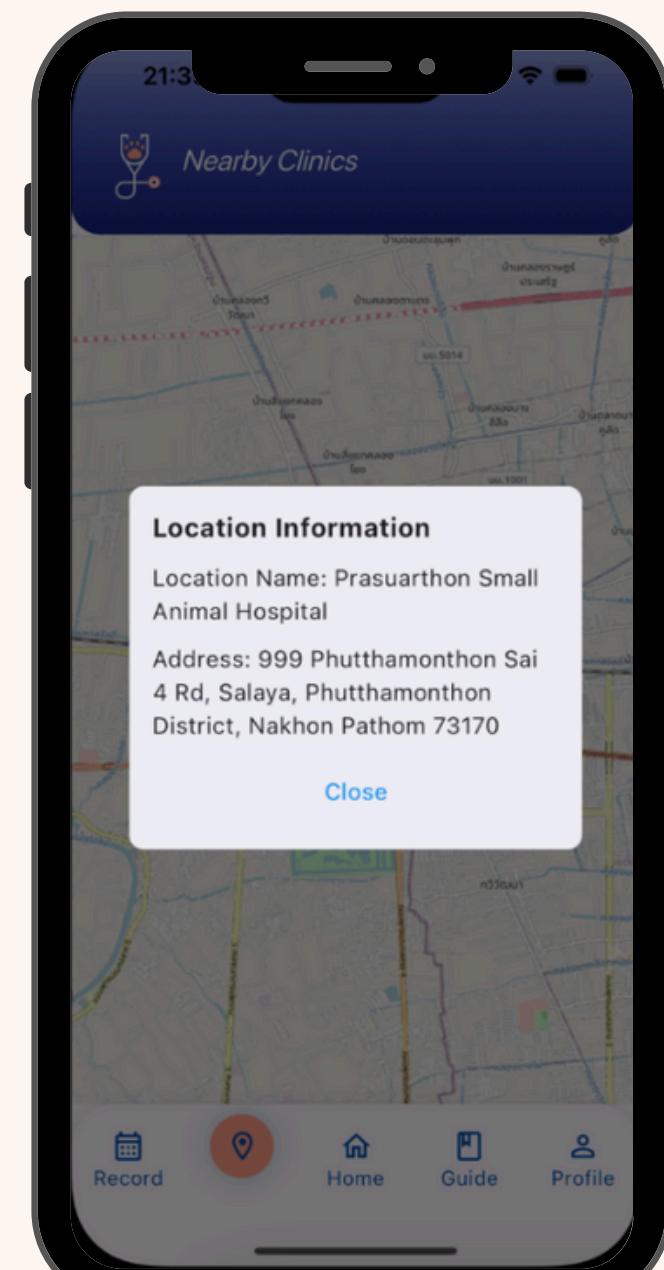
ACCESS MAP

1



The user can access the **Nearby Clinic page** by clicking the **"Clinic"** button on the navigate bar.

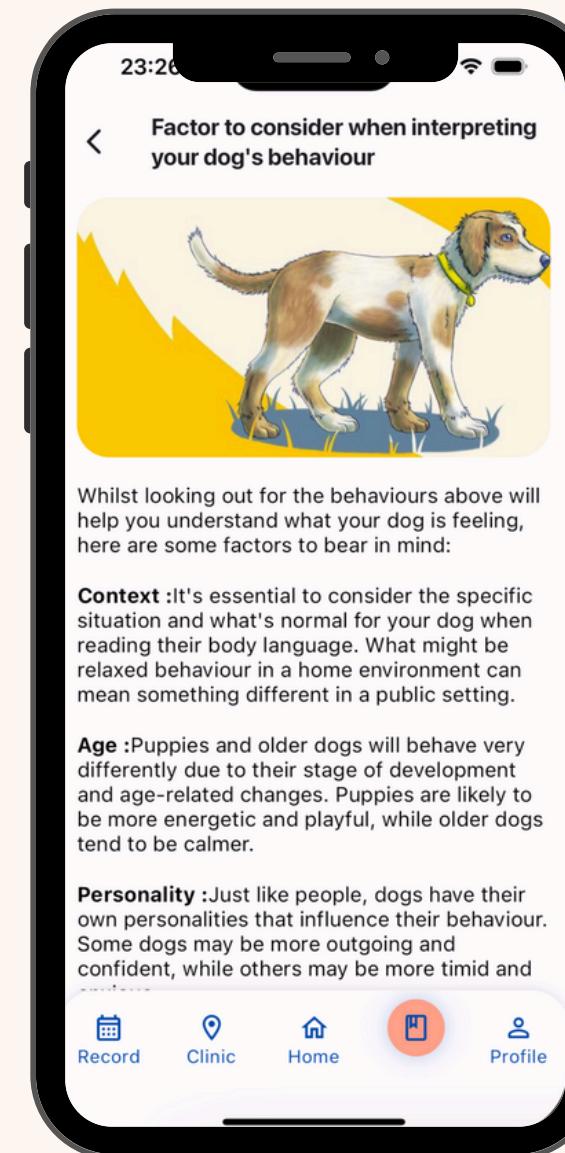
2



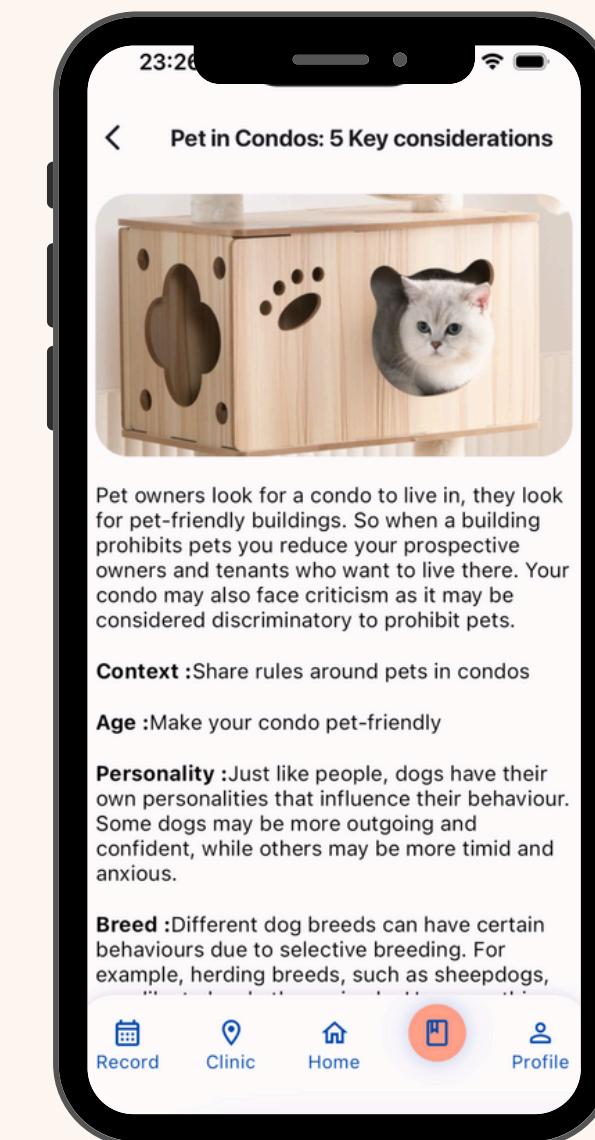
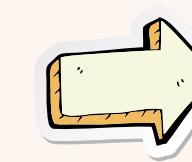
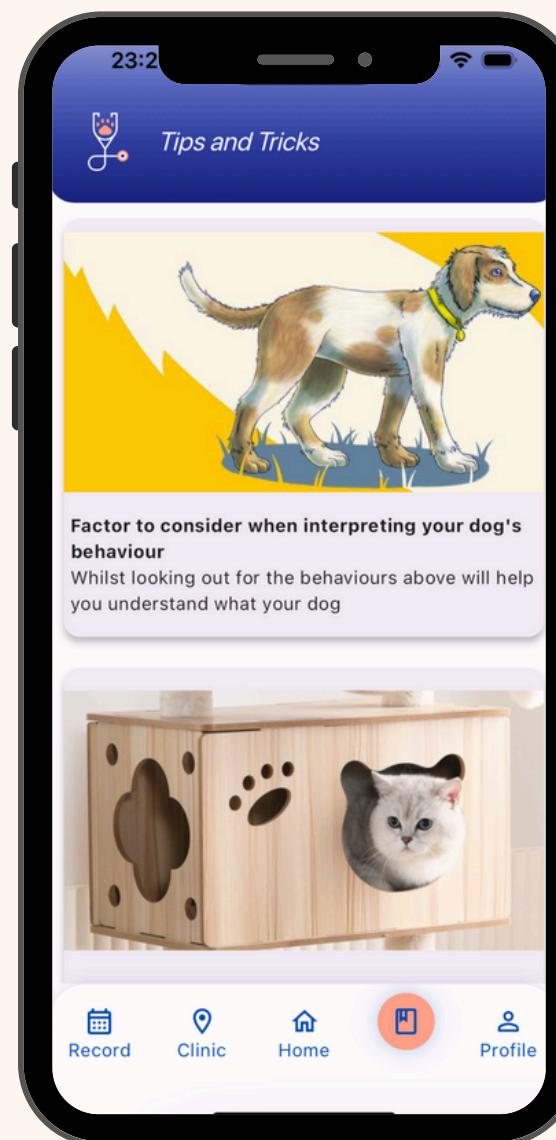
The user can **click on each pin** to view the information about the clinic including **clinic name and clinic location**.

ACCESS TIPS AND TRICKS

2



1



2

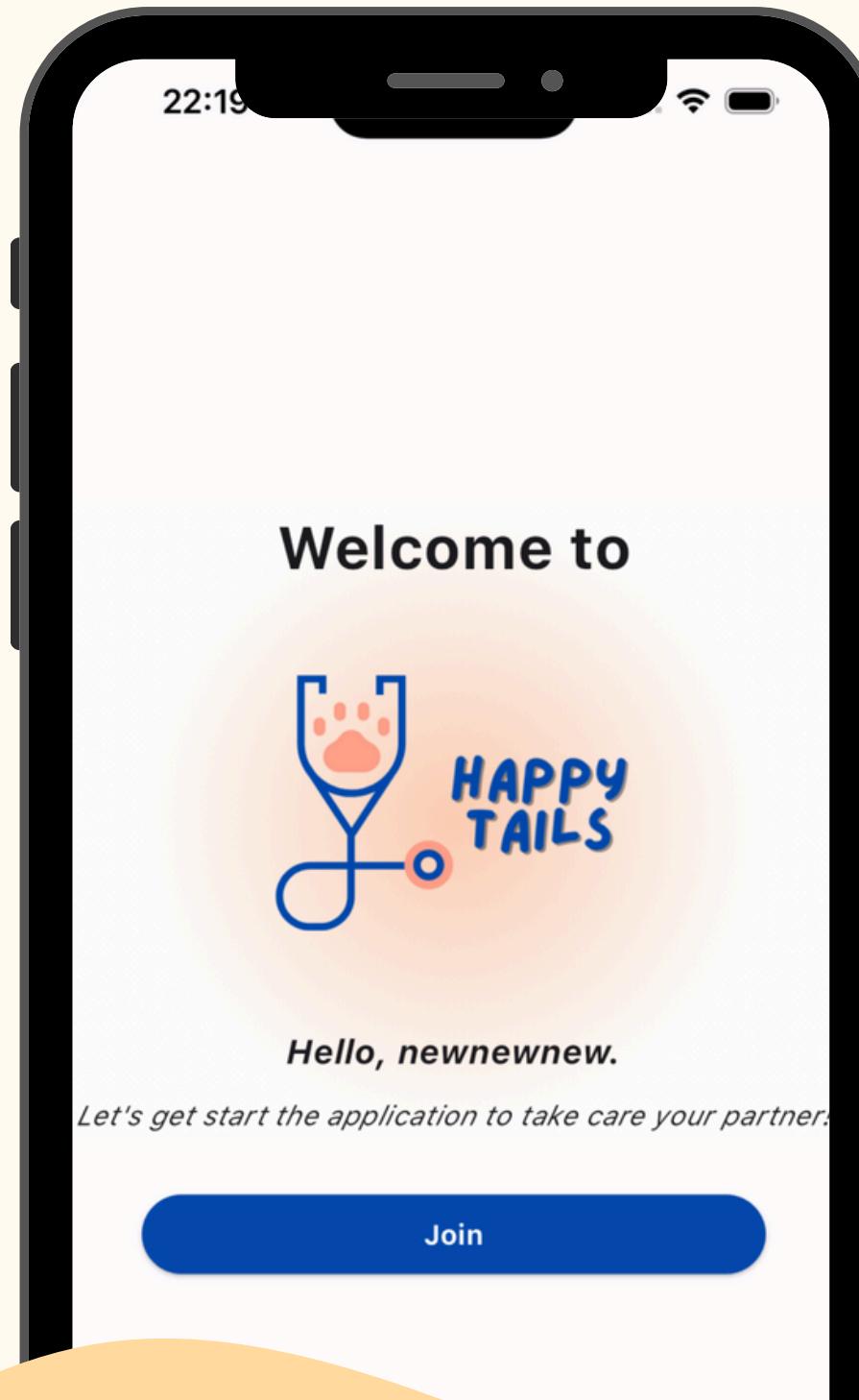
The user can access the **Tips and Tricks** page by clicking the “**Guild**” button on the navigate bar

After clicking on the **card of trips and tricks**, the user can access complete information

05

CONCLUSIONS



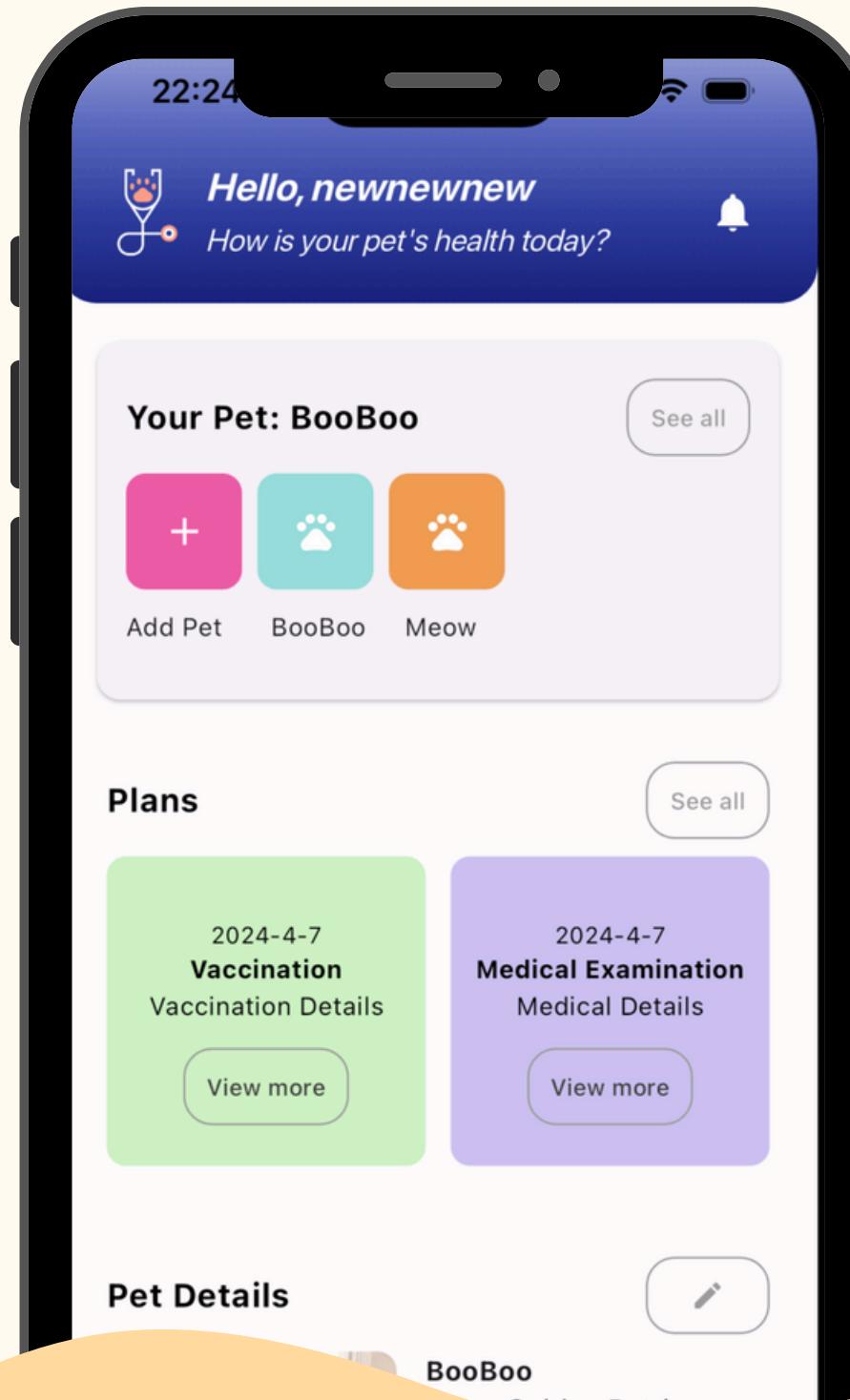


BENEFITS

Project Developers

- Opportunity to **improve programming skills** and expand knowledge.
- **Gain additional knowledge** in implementing external resources.
- A **valuable addition to portfolios**, showcasing proficiency in developing real-world applications.
- **Teamwork and collaboration skills.**





BENEFITS

Users

- Allows users to **easily manage their pets' information and appointments.**
- Providing pet owners with a **more convenient method to monitor their pets' health.**
- **Decrease the likelihood of mistakes** in animal care and **enhance new pet owners' comprehension** of how to take care of their pets.
- Access to a map for information on nearby clinics.

PROBLEMS AND LIMITATIONS



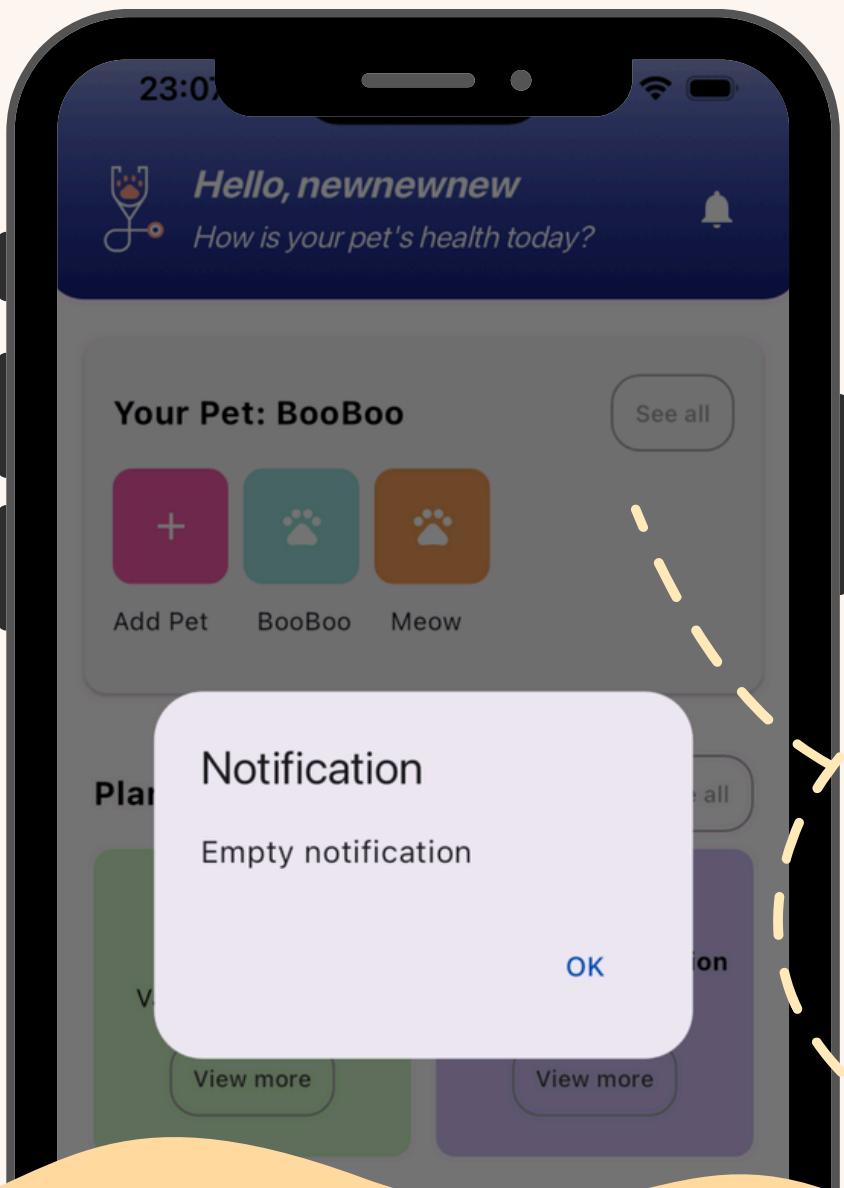
Importation of images into the Firebase database and retrieving data in Firebase through flutter code can be bothersome since Cloud Firestore does not have a data type to record an image.



Limitation on Google Map API free quotas: Google Maps offers a limitation on free usage, with additional usage subject to a monthly fee.



Testing on the real phone: The testing process on real phones or simulators can be time-consuming.



FUTURE WORK



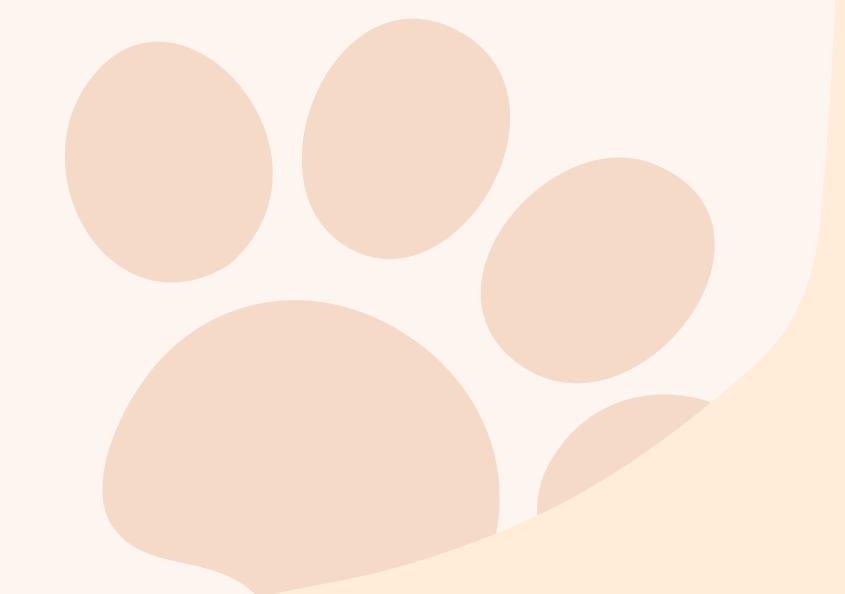
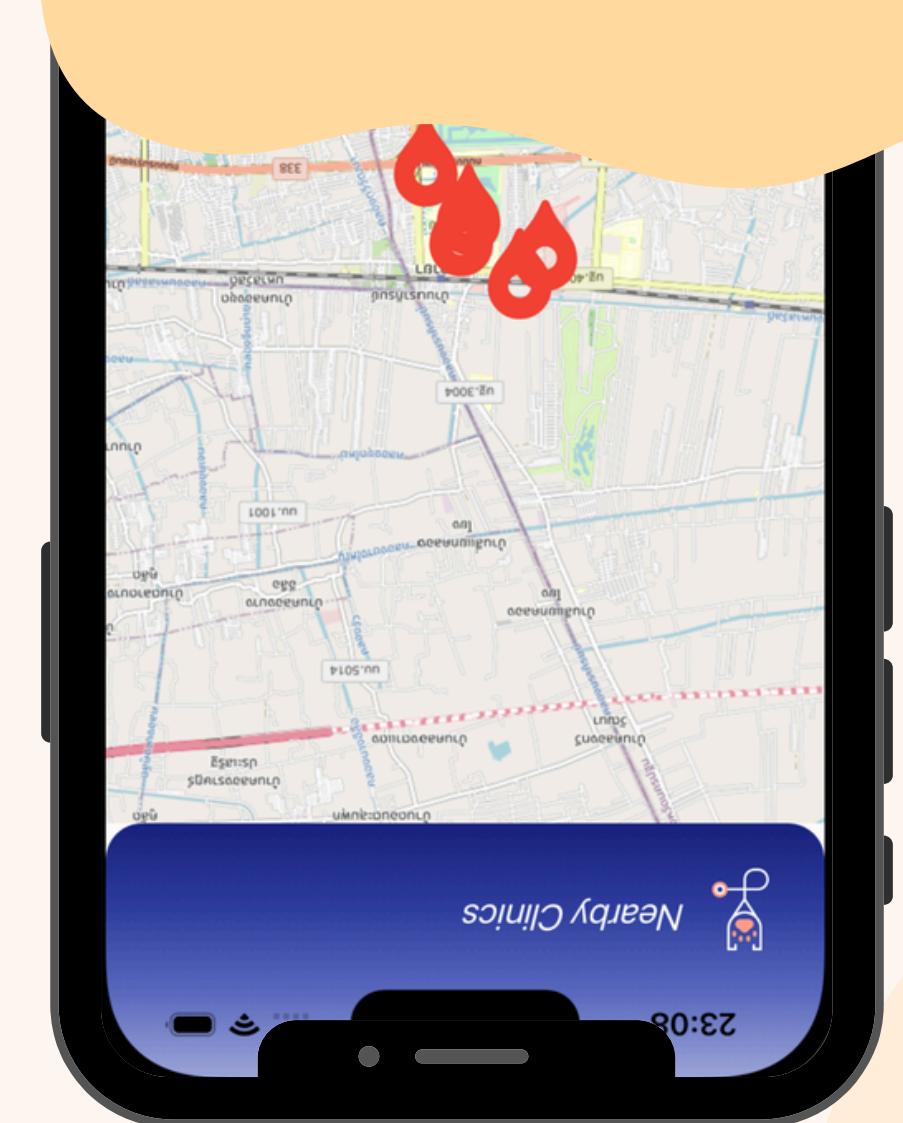
The notification system: this function will **notify the user when approaching the pet appointment schedules.**



The admin interface: the interface allows staff to access and manage users' information.



The map interface: improving the nearby clinic page to be more precise and practical.





THANK YOU

ITCS424 WIRELESS AND MOBILE COMPUTING

