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2.introduction

The *Emptz* project aims to develop a comprehensive mobile and web application that facilitates the buying and selling of pets in a secure, ethical, and user-friendly environment. With the growing demand for digital solutions in pet adoption and sales, Emptz bridges the gap between pet seekers and pet owners/breeders by providing a centralized platform where users can easily browse, list, and connect.

The core goal of the project is to streamline the pet trade process while promoting responsible pet ownership. Emptz includes features such as verified user profiles, pet health records, filters by breed and location, chat functionality, and secure payment options. By combining technology with animal welfare principles, Emptz seeks to create a trusted and efficient pet marketplace.

2.1 purpose

The primary purpose of the *Emptz* application is to create a reliable and user-friendly platform that facilitates the buying and selling of pets. It aims to simplify the process for individuals who wish to find a new pet or rehome an existing one, while ensuring transparency, safety, and ethical practices.

Emptz serves as a digital marketplace where users can:

- Easily list pets for sale or adoption.
- Search for pets based on breed, age, location, and other preferences.
- Communicate securely with potential buyers or sellers.
- Promote responsible pet ownership through verified listings and health records.

By providing these features, Emptz helps build a community that supports the humane and informed exchange of pets.

2.2 scope

The *Emptz* project encompasses the design, development, and deployment of a mobile and web-based application that enables users to buy and sell pets efficiently and responsibly. The scope includes both technical and functional components that ensure a seamless experience for all stakeholders—buyers, sellers, breeders, and pet adopters.

Key Features within Scope:

- **User Registration & Authentication:** Secure sign-up/login for buyers and sellers.
- **Pet Listings:** Ability to add, view, edit, and manage pet profiles with images, breed details, age, price, location, and health information.
- **Search & Filters:** Advanced filtering options to help users find pets by type, breed, location, price range, etc.

- **Chat Functionality:** In-app messaging for safe and direct communication between buyers and sellers.
- **Verification System:** User and listing verification to promote trust and reduce fraud.
- **Favorites & Alerts:** Save listings and get notified when preferred pets become available.
- **Admin Panel:** Backend management for user control, listing moderation, and report handling.

Out of Scope (for initial version):

- Integration with veterinary services or live health tracking.
- International pet trade support (initial focus is on local/national markets).
- In-app payment processing (may be added in future versions).

This scope ensures that *Emptz* will be a functional, scalable, and user-friendly application that meets the core needs of its intended users while allowing room for future growth and enhancements.

2.3 objective

The main objective of the *Emptz* project is to develop a secure, efficient, and easy-to-use platform for buying and selling pets. It aims to bridge the gap between pet seekers and pet owners while promoting responsible pet ownership and ensuring ethical practices.

Specific Objectives:

- 1. To create a user-friendly mobile and web application** that allows users to easily list and browse pets for sale or adoption.
- 2. To facilitate safe and transparent communication** between pet buyers and sellers through secure messaging features.

3. **To implement a verified listing system** that helps ensure the authenticity of users and the well-being of pets.
4. **To provide filtering and search tools** for users to find pets based on specific preferences like breed, age, location, and price.
5. **To develop an admin dashboard** for effective management of listings, user activity, and reports.
6. **To promote responsible and ethical pet trading practices** through educational content and policy enforcement.

By achieving these objectives, *Emptz* aims to become a trusted digital marketplace for pet transactions while supporting animal welfare and user satisfaction.

3. Functional Requirements

The *Emptz* system should support the following core functions to meet user needs:

1. User Management

- Users must be able to register and log in using email, phone, or social media.
- Users must be able to update their profiles (name, location, contact info, etc.).
- Admins must be able to manage user accounts (block, verify, delete).

2. Pet Listings

- Users (sellers) must be able to create new pet listings with:
 - Pet name, type (dog, cat, etc.), breed, age, gender, location, price.
 - Photos and optional health/vaccination documents.
- Users must be able to edit or delete their own listings.

- Buyers must be able to browse all available listings.
-

3. Search and Filters

- Users must be able to search for pets by:
 - Type, breed, age, gender, location, and price range.
 - Results should update dynamically based on selected filters.
-

4. Messaging System

- Users must be able to send and receive messages within the app.
 - Notifications must be sent for new messages.
-

5. Favorites and Alerts

- Users must be able to save pet listings as favorites.

- Users can opt-in for alerts when new listings match their saved search criteria.

6. Admin Dashboard

- Admins must be able to view and moderate:
 - All listings and user profiles.
 - Reported content or users.
 - Admins can approve, suspend, or remove listings.
-

7. Pet Status Management

- Sellers can mark a pet as “Available,” “Sold,” or “Adopted.”
 - Listings should reflect current status.
-

8. Reviews and Ratings (Optional/Future Scope)

- Buyers can rate and review sellers after a transaction.

- Ratings visible to other users for trust and transparency.

3.1 primary actors of the system

1. Buyer (Pet Seeker)

- **Role:** Users looking to purchase or adopt pets.
- **Key Responsibilities:**
 - Register/Login to the app.
 - Search and filter pet listings.
 - View pet profiles and details.
 - Communicate with sellers.
 - Mark favorites and receive alerts.
 - Optionally rate or review sellers (if feature available).

2. Seller (Pet Owner/Breeder)

- **Role:** Users who want to sell or rehome pets.

- **Key Responsibilities:**
 - Register/Login to the app.
 - Create and manage pet listings.
 - Upload pet details, images, and documents.
 - Respond to buyer inquiries via chat.
 - Mark pets as sold or adopted.
-

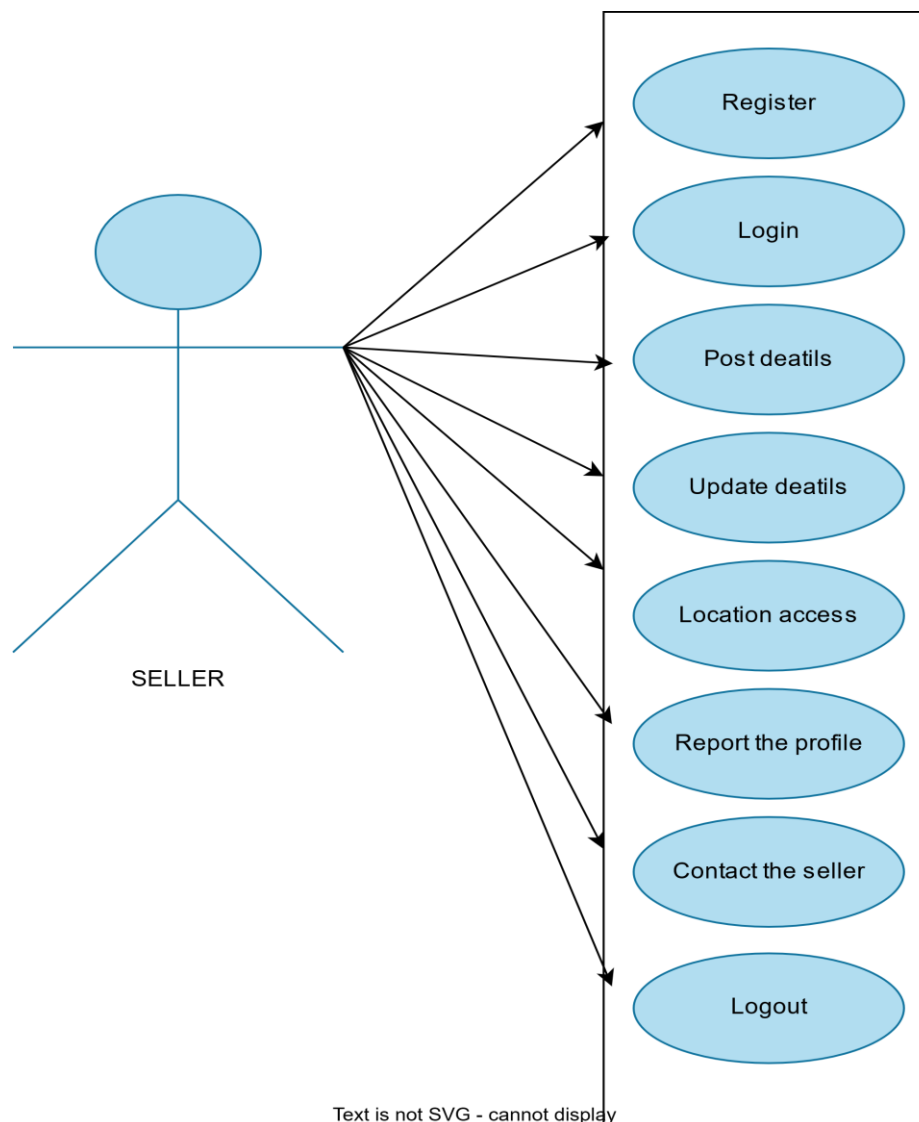
3.Administrator (Admin)

- **Role:** System administrator responsible for maintaining the platform.
- **Key Responsibilities:**
 - Manage and verify user accounts and listings.
 - Monitor reported users or content.
 - Approve, suspend, or delete listings.
 - Ensure smooth operation of the platform and enforce policies.

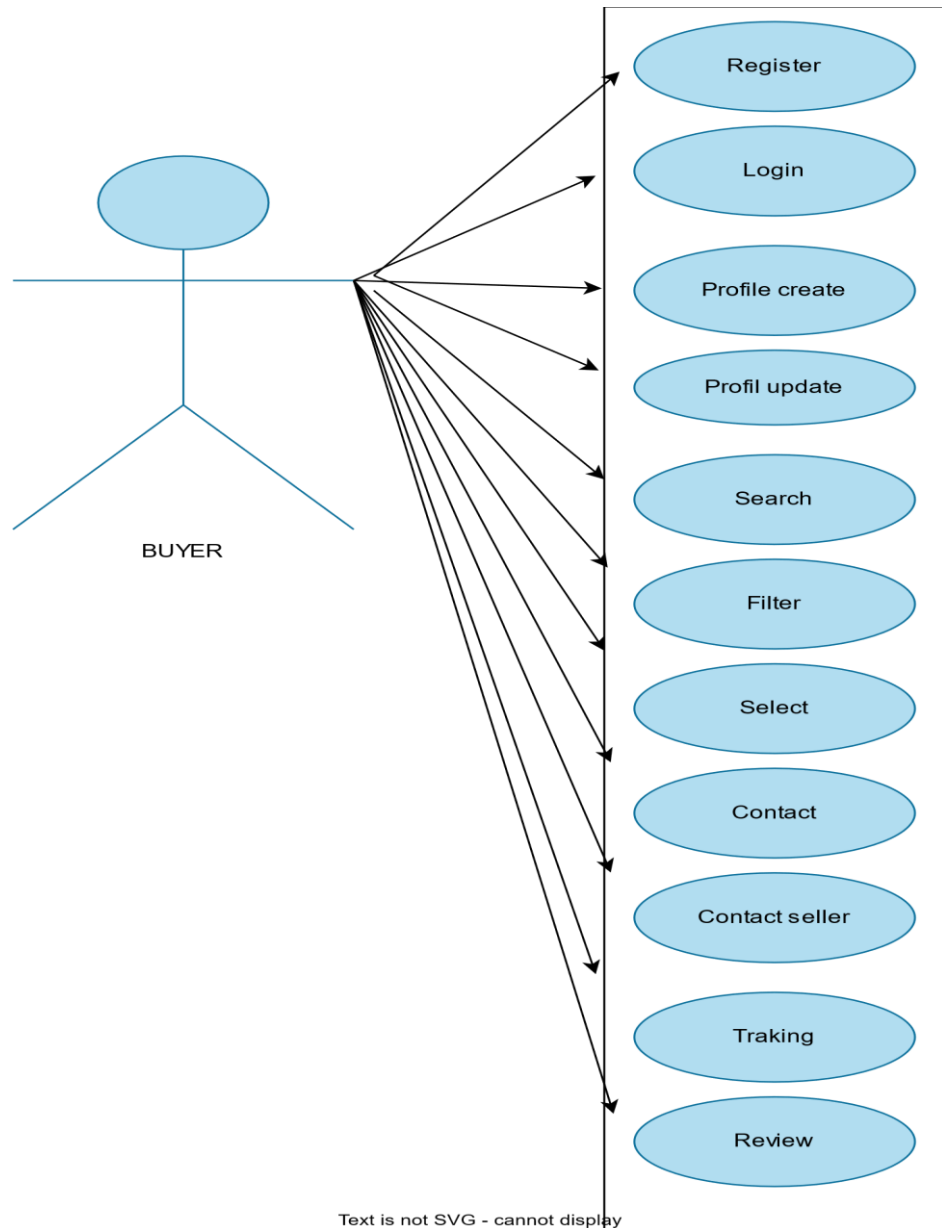
3.2 Use case diagram

A use case diagram is a visual representation that shows the interactions between the users (actors) and the system (your app). It illustrates what actions or functions users can perform in the system.

3.2.1 seller



3.2.2 buyer



3.3 User stories

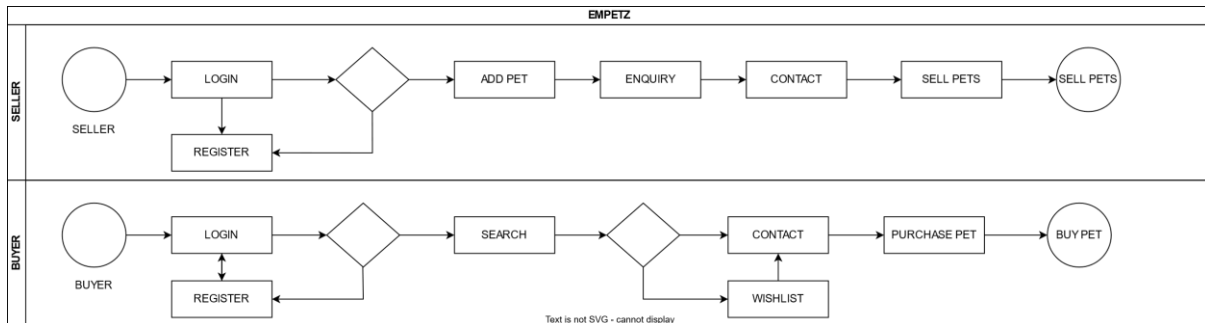
3.3.1 Buyer

AS A [TYPE OF USER]	I NEED TO [DO SOME WORK]	SO THAT I CAN [GET SOME RESULT]
Pet buyer	Register into the application by entering details	Register in to application
Pet buyer	Login to the application by entering details	Able to use the application
Pet buyer	Search pets	Get various pet details
Pet buyer	Filter pets	Get details the pets i want
Pet buyer	Select the pet and breed	Get the detailed information about the selected pet
Pet buyer	Contact the seller	Contact the seller and make price negotiation and confirm order
Pet buyer	Tracking	Track the location of the order I placed
Pet buyer	Review option	Post a review about the order for better experience

3.3.2 Seller

AS A [TYPE OF USER]	I NEED TO [DO SOME WORK]	SO THAT I CAN [GET SOME RESULT]
Pet seller	Register into the application	I can able to use the application
Pet seller	Login into the application	the app recognizes and gives access to registered account
pet seller	post the details of pet for selling	buyer can view the pet details
Pet seller	Update the details of pet	Update the vaccination,dispatch details of dog
pet seller	add location to the application	so buyer can easily got the location
Pet seller	Report the profile	Any spam account detected
Pet seller	Contact the buyer	For communication
Pet seller	Logout from application	Logout from all the accounts
Pet seller	Register into the application	I can able to use the application
Pet seller	Login into the application	the app recognizes and gives access to registered account

3.4 Business process diagram



4. Non functional Requirement

These requirements focus on the performance, security, reliability, usability and other aspects that define overall experience of using the application.

List of non functional requirements:

1. Performance requirements

.The application shall load pet listings and search result within 3-5 seconds

The app shall be capable of handling **multiple users simultaneously without crashing.**

2. Security Requirements

. The application shall provide **secure user authentication** for login and registration.

- User data and personal information shall be **stored securely and protected against unauthorized access.**
- Only registered users shall be able to **add, edit, or delete pet listings and chat with other users.**

3. Usability Requirements

- The application shall have a **simple, clean, and intuitive user interface** that is easy to navigate for all age groups.
- The app shall provide **clear instructions, labels, and icons** to guide users through various actions.
- The application shall be **compatible with both Android and iOS devices.**

4. Availability Requirements

- The application shall be available for use **24/7 without interruptions**, except during planned maintenance
 - The system shall notify users in advance about **scheduled maintenance periods.**

5. Reliability Requirements

- The application shall **maintain data consistency** even in the event of unexpected shutdowns.
- The app shall recover gracefully from minor system failures without losing critical data.

6. Scalability Requirements

- The application shall be designed to handle an **increasing number of users and pet listings** without performance degradation.
- The system architecture should allow for the **future integration of additional services** like veterinary appointments, pet grooming, and pet accessories sales.

7. Maintainability Requirements

- The application code shall be **well-documented and modular** to allow easy updates, bug fixes, and feature additions.
- Future enhancements should be implementable with **minimal changes to the existing system**.

8. Notification Requirements

- The system shall send **timely push notifications** for new messages, pet listing approvals, adoption requests, and important updates.

5. TECHNICAL REQUIREMENTS

Processor	AMD Ryzen 5 5600H with Radeon Graphic
Installed RAM	8.00 GB
System Type	64-bit operating system, x64-based processor
OS	Windows 11
Front end	Flutter SDK
Backend	Visual studio with ASP.NET
Database	Microsoft SQL server
Testing	Android Studio

6. CONCLUSION

The **Empetz mobile application** was developed to address the growing need for a dedicated, userfriendly, and reliable platform for **buying, selling, and adopting pets**. In a

generation where digital platforms have transformed everyday transactions, Empetz offers pet lovers and pet owners a convenient way to connect, communicate, and engage in pet-related transactions from anywhere, at any time.

The application successfully integrates essential features such as **user registration, pet listing management, search and filter options, adoption services, direct messaging, and location-based listings** within a simple, clean, and intuitive interface. By providing a dedicated **adoption section**, Empetz also contributes to **animal welfare** by helping homeless pets find loving homes.

The project demonstrates how modern mobile technology can be leveraged to create solutions that are not only commercially useful but also socially responsible. With future expansions like veterinary services, pet accessories sales, and grooming bookings, Empetz holds potential to grow into a comprehensive pet care platform.

In conclusion, **Empetz** serves as an effective and practical tool for pet owners, buyers, and animal welfare organizations, making the process of pet transactions seamless, safe, and accessible in the digital age.