



Inspiring Excellence

## **CSE370 : Database Systems**

### **Project Report**

**Project Title : Project Bhapa**

Group No : 10, CSE370 Lab Section : 01, Summer 2025		
ID	Name	Contribution
23301605	Muhtasim Saad Shameem	Front End, Back End
22299533	Afsana Meherin Amisha	Database setup
24141120	Farhan Labib	Front End, Back End

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## Introduction

[Briefly describe the idea of your project]

**Project Bhapa** is a PHP and MySQL–based web application designed to create a complete ecosystem for pet owners, adopters, and animal enthusiasts. The platform not only manages essential pet care tasks but also builds a social and supportive community around pets. Core features include **user and pet profiles, adoption management, veterinary service booking, vaccination and medication reminders, breed information, and a marketplace to buy, sell, or adopt pets**. To make the experience more engaging, the project also offers unique additions such as, **pet photography portfolios, and an interactive feed system**. Altogether, Project Bhapa aims to bridge the gap between pet care and social interaction, making pet ownership more convenient, informed, and enjoyable.

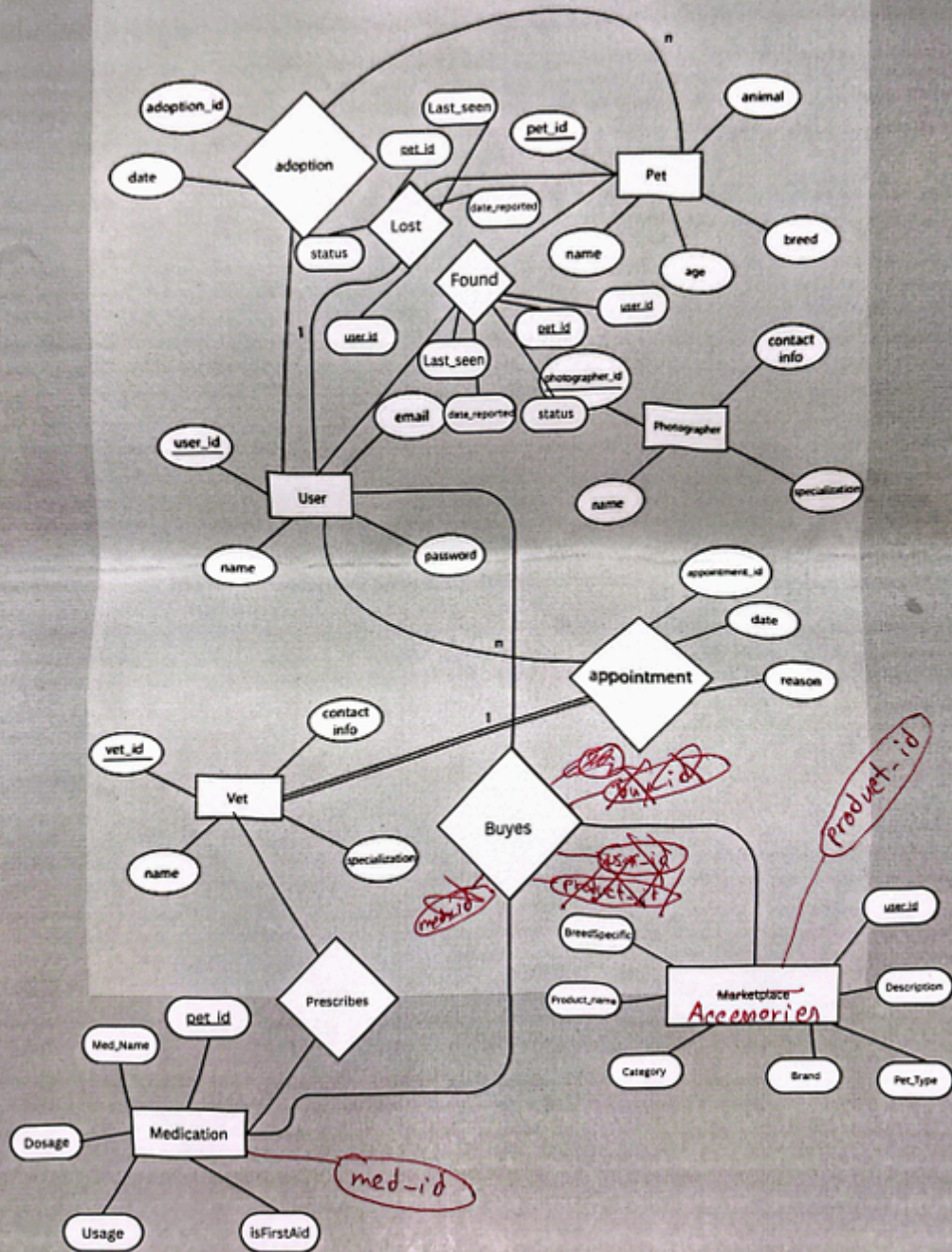
## Project Features

ID, Name	Features [3 per member]	
23301605 Muhtasim Saad Shameem	Ft 1	Blogs, My Pets
	Ft 2	Medication Tracking, Medication Blog
	Ft 3	Photography

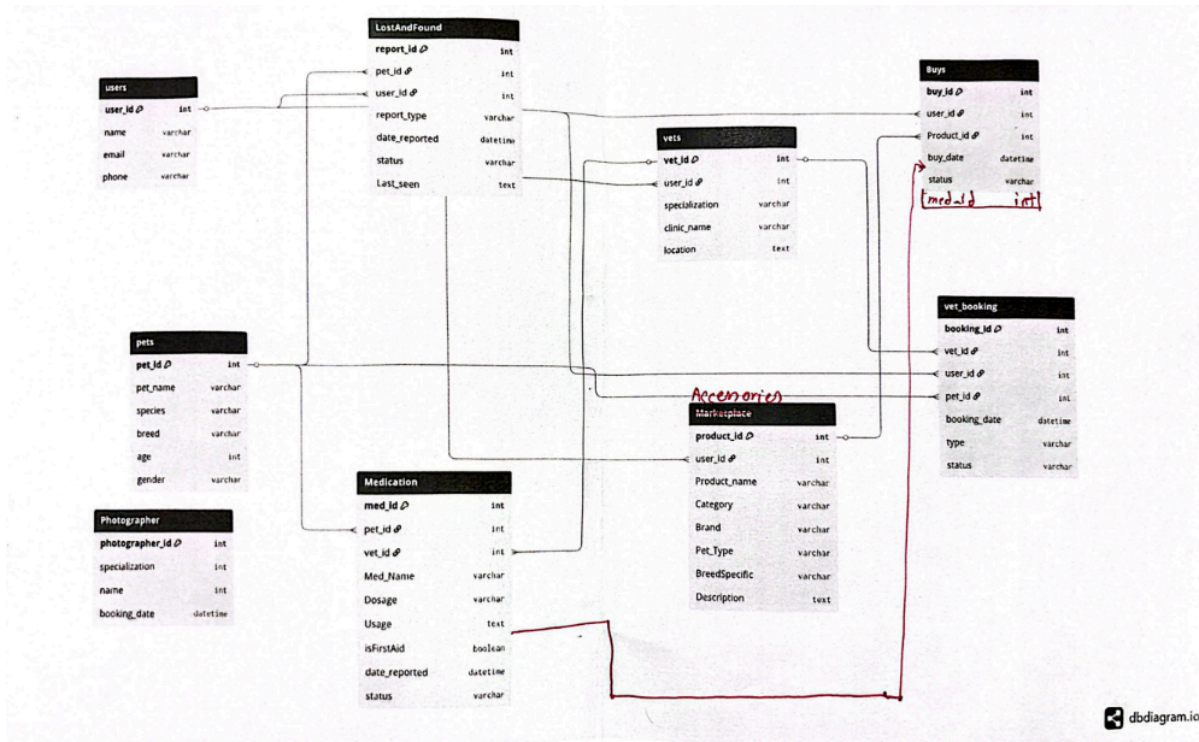
<b>24141120, Farhan Labib</b>	Ft 1	Lost & Found
	Ft 2	Marketplace
	Ft 3	Login, SignUp, User Profile
<b>22299533, Afsana Meherin Amisha</b>	Ft 1	Home
	Ft 2	About,
	Ft 3	Contact, Vets

### ER/EER Diagram

# ER DIAGRAM



### Schema Diagram





## Normalization

- a. Explain if your converted Schema is in 1NF or not. If not, decompose it to 1NF.
- b. Explain if your converted Schema is in 2NF or not. If not, decompose it to 2NF. Can there be any partial functional dependencies in your relational schema?
- c. Explain if your converted Schema is in 3NF or not. If not, decompose it to 3NF. Can there be any transitive dependencies in your relational schema?

a. 1NF:

Yes, the schema is in 1NF because there are no multivalued attributes ,composite attributes and there are no nested relations.

b. 2NF:

It is also in 2NF. Since 2NF's main concern is eliminating partial dependencies. Here there are no partial dependencies and every single table uses a single-column primary key. Since there are no composite keys, partial dependencies are impossible. Therefore, the schema is in 2NF.

c. The schema is NOT in 3NF due to transitive dependencies. vets Table: The clinic's location depends on the clinic's name, not directly on the vet.

Dependency Chain:  $\text{vet\_id} \rightarrow \text{clinic\_name} \rightarrow \text{location}$ . This is a transitive dependency that violates 3NF.

Dependency Chain:  $\text{pet\_id} \rightarrow \text{breed} \rightarrow \text{species}$ .



SNF

Vets	
<u>Vet_id</u>	<u>user_id</u>   specialization   clinic_id

Clinics		Breeds
<u>clinic_id</u>   clinic_name   location		<u>breed_id</u>   breed_name   species

Pets	
<u>pet_id</u>	pet_name   age   gender   breed_id

Rest of the tables remains unchanged.

CS Scanned with CamScanner

## Frontend Development

Briefly discuss about Frontend Development and add relevant Screenshots (if required) by mentioning Individual Contributions

**Contribution of ID : 23301605, Name : Muhtasim Saad Shameem**

- **For the Photography page**, The frontend of this is built with HTML, CSS, and JavaScript to create an engaging and responsive user interface. It uses a modern, clean design with custom styles, animations, and responsive grids to showcase photographers in an attractive card layout. A modal booking form is implemented for user interactions, providing a smooth experience without navigating away from the page. JavaScript enhances usability by handling modal actions, animations on scroll,

and setting dynamic restrictions like the minimum booking date. Overall, the frontend focuses on user experience, responsiveness, and interactivity, making it easy and appealing for users to book photographers.

- **For MyPets Page**, The frontend of this is built with HTML, CSS, and JavaScript, creating a clean and responsive interface for managing pets. The design uses a modern card-based layout, custom styles, and animations to make the experience engaging. CSS variables and grid layouts ensure consistency, flexibility, and responsiveness across devices. Interactive elements such as forms, confirmation dialogs, and scroll-triggered animations enhance usability. Overall, the frontend focuses on user experience, accessibility, and smooth interactivity, making it easy for users to add, view, and manage their pets.

- **For Blogs Page**, The frontend of this is designed using HTML, CSS, and JavaScript, providing a clean and modern layout. It uses grid-based blog cards, animated transitions, and responsive design to ensure a smooth user experience across devices. Interactive features like form toggling, character counters, and scroll-based animations make the interface more engaging. Overall, the frontend focuses on usability, aesthetics, and interactivity, making it easy for users to read, filter, and contribute blogs.

- **For Medication ( Tracking and Blog )**, The front-end development for medication tracking focuses on creating a clean, user-friendly interface with HTML, CSS, and a bit of JavaScript. It uses a pet-themed color scheme, styled forms, responsive layouts, status badges, and interactive elements like confirmation dialogs to enhance usability. The design ensures that medication data is presented clearly with cards, tables, and visual feedback for user actions. Also, the front-end development for medication blog creates a responsive, pet-themed blog layout using HTML, CSS, and JavaScript, with features like category filtering, search, and a featured article section. It emphasizes clean design, readability, and user-friendly interactions to enhance browsing pet health content.

**Contribution of ID : 24141120, Name : Farhan Labib**

The frontend development in this code focuses on creating a clean and user-friendly interface for reporting and viewing lost and found pets. It uses HTML for structure, CSS for styling, and some JavaScript for animations. The design follows a modern look with responsive layouts, card components, and smooth hover/scroll effects to improve user experience. Features like sticky headers, hero sections, and status badges (Lost/Found) make navigation intuitive and information easy to understand. Overall, the frontend combines aesthetics with functionality to ensure visitors can quickly browse or interact with pet reports.

This PHP script implements a pet marketplace with product listings, cart functionality, and a modern frontend design. It uses sessions to manage the shopping cart, allowing users to add items and track quantities. The frontend includes a filter section, animated product cards, and a dropdown cart preview, enhancing usability and interactivity. Overall, it combines server-side cart management with a clean, responsive UI/UX for a functional e-commerce experience.

This PHP profile page serves as a personalized dashboard for pet owners, combining backend data handling with a clean, modern frontend. It retrieves user details, pets, vet appointments, and bookings from the database and presents them in organized, animated sections. The design emphasizes usability with interactive cards, responsive layouts, and smooth transitions, ensuring users can easily track their pets and related services. Overall, it creates a functional yet visually engaging hub for managing pet care.

### **Contribution of ID : 22299533, Name : Afsana Meherin Amisha**

This frontend code creates a modern veterinary service booking system with a clean, responsive design. It uses tabs to organize content into three sections: booking consultations, browsing nearby veterinarians, and managing appointments, making navigation simple and intuitive. The UI emphasizes usability through cards, grids, tables, and status badges with clear visual feedback for actions like booking or canceling appointments. Smooth animations and transitions (fade-ins, hover effects, intersection observer) enhance interactivity and give a polished feel. Overall, it blends aesthetic appeal with functionality, ensuring pet owners can manage veterinary care efficiently across devices.

This frontend code builds a modern contact page for PetCareHub with a clean, pet-themed design. It includes a hero section with a welcoming message, a contact section split into company information and a styled contact form, and a map integration showing the office location. The form highlights invalid fields with red borders, displays dynamic success/error messages, and ensures usability with smooth focus handling. A FAQ accordion adds interactivity, letting users expand and collapse answers for common questions. Overall, the design is responsive, user-friendly, and professional, combining aesthetics with practical features to improve user experience.

This About Us frontend page is designed with a modern, responsive layout that combines clean typography, pet-themed colors, and interactive elements. It features a hero section, mission statement with values, feature highlights, team member profiles, and animated statistics for engagement. The use of grids, cards, icons, and hover effects ensures information is well-organized and visually appealing across devices. Smooth transitions and number animations enhance the user experience, making the page both informative and interactive.



## Backend Development

Briefly discuss about Backend Development and add relevant Screenshots (if required) by mentioning Individual Contributions

**Contribution of ID : 23301605, Name : Muhtasim Saad Shameem**

**For the Photography page,** The backend of this is built with PHP and MySQL, where PHP handles form submissions, session management, and dynamic content rendering, while MySQL stores and retrieves data such as photographers and bookings. Secure database interactions are managed using prepared statements, and session-based authentication ensures only logged-in users can make bookings. This backend setup enables smooth communication between the frontend UI and the database, making the application dynamic and user-specific.

**For MyPets Page,** This backend is developed in PHP with MySQL, where PHP manages user sessions, form handling, and CRUD operations for pets. It ensures secure data storage and retrieval using queries while linking pets to specific users through session-based authentication. Overall, it provides dynamic interaction between the frontend interface and the database.

**For Blogs Page,** The backend of this blog system is built with PHP and MySQL, where PHP handles session management, form submissions, input validation, file uploads, and CRUD operations for blogs, while MySQL stores user, blog, and category data. Secure queries and pagination ensure efficient data retrieval, and session-based authentication restricts blog submission to logged-in users. This setup creates a smooth and dynamic connection between the frontend interface and the database.

**For Medication ( Tracking and Blog ) Page,** The backend is developed using PHP and MySQL, where PHP manages form handling, session control, and CRUD operations for medications, while MySQL stores medication details like dosage, frequency, and status. Prepared statements are used for secure database interaction, and backend logic supports adding, updating, and deleting medications dynamically for each pet. Also, for medication blog, The backend uses PHP and MySQL to fetch medication-related articles from the database, ordering them by creation date, and dynamically generates the HTML content for both featured and regular articles. It also calculates category counts and passes all necessary data to the frontend for filtering and display.

**Contribution of ID : 24141120, Name : Farhan Labib**

This backend script is built with PHP and MySQL, handling CRUD operations for lost and found pets. It securely deletes entries from the lost\_pets and found tables using prepared statements, preventing SQL injection. The backend also queries recent reports, organizes them into arrays, and passes the data to the frontend for display. Overall, it's a lightweight backend structure that supports reporting, viewing, and managing pet status updates in the application.

This backend is built in PHP with session-based cart management, meaning products added to the cart are stored in the user's session instead of a database. It defines a static product list in an array, simulating items from a real database. The script dynamically calculates cart totals, quantities, and product details by matching session cart entries with the product array. Overall, it provides the foundation for a pet marketplace, but would need a real database and user authentication to scale beyond demo usage.

This backend is a PHP-based login system connected to a MySQL database. It uses prepared statements with password\_verify() for secure authentication, protecting against SQL injection and weak password storage. User sessions (\$\_SESSION) are initialized upon successful login, storing the user's ID, email, and name for later access control. The script also integrates error handling, showing styled error messages dynamically on the frontend with JavaScript.

**Contribution of ID : 22299533, Name : Afsana Meherin Amisha**

This backend development script manages a veterinary appointment booking system using PHP and MySQL. It handles user authentication, retrieves pets, vets, and appointments from the database, and processes new bookings or cancellations. The system uses SQL queries to insert and update appointment records, ensuring users can manage their consultations dynamically. Overall, it demonstrates integration of backend logic with a frontend UI for a smooth, interactive pet care platform.

This backend development handles the contact form processing for PetCareHub. It uses PHP with MySQLi prepared statements to securely insert form data (fullname, email, subject, and message) into the contacts table, preventing SQL injection. The script also performs basic validation, checking for empty fields and ensuring a valid email format before saving. Additionally, it provides user feedback by displaying success or error messages and highlighting invalid fields, improving both security and user experience.

The backend development in this About Us page is minimal but functional. It mainly uses PHP includes (navbar.php and footer.php) to modularize the layout, ensuring reusability and easier maintenance across multiple pages. This approach allows consistent navigation and footer elements without duplicating code. While the page itself is mostly frontend-driven, the backend structure ensures scalability, making it easy to extend with dynamic content in the future (e.g., fetching team members or stats from a database).





## **Source Code Repository**

<https://github.com/FarhaanLabib/Project-Bhapa.git>

## **Conclusion**

This project successfully demonstrates the development of a functional prototype for an all-in-one pet companion platform using a core web technology stack. The effective use of HTML for structure, CSS for styling, and PHP for server-side functionality has resulted in a dynamic and user-centric application that integrates key features like user profiles, pet records, and service booking and what not.

The platform provides a solid foundation for managing pet care needs in a single, cohesive environment. Future work would focus on expanding features, enhancing security, and scaling the infrastructure to support a larger user base. This project confirms the viability of using these fundamental technologies to create a comprehensive solution that simplifies and enhances the pet ownership experience.

## **References**