

B.Tech Project in Entrepreneurship: Petopia

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BTP Track: Entrepreneurship

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Student Declaration

I hereby declare that the work presented in the report entitled **B.Tech Project in Entrepreneurship: Petopia** submitted by me for the partial fulfilment of the requirements for the degree of *B.Tech. in Electronics & Communications Engineering* at Indraprastha Institute of Information Technology, Delhi, is an authentic record of my work carried out under the guidance of **Prof. Ganesh Bagler**. Due acknowledgements have been given in the report for all material used. This work has not been submitted elsewhere for the reward of any other degree.

Akanksh Semar

Place & Date: April 23, 2025

Certificate

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Prof. Ganesh Bagler

Place & Date: April 23, 2025

Abstract

This project addresses the growing need for accessible, trusted, and holistic pet care solutions through a unified platform called Petopia. Originally envisioned as a simple service portal, Petopia has evolved into a comprehensive ecosystem that caters to pet owners' diverse needs — from health and wellness to training and community engagement. The platform offers essential services such as trainer appointments, veterinary consultations, caretaker and grooming bookings, while also providing educational guides to promote responsible pet ownership. Additionally, Petopia supports NGO registration to drive volunteerism and community awareness around animal welfare. With future expansions planned for pet product marketplaces and adoption networks, Petopia aims to become a one-stop destination for pet lovers, combining convenience with the betterment of society. By leveraging modern web technologies and user-centric design, Petopia aspires to enhance the lives of pets and their owners through seamless connection, care, and community building.

Keywords: Web Application, Responsive Design, Mobile-Friendly Interface, Dark Mode, User Authentication, API Integration, Database Management, CRUD Operations, Payment Gateway Integration, Booking System, Appointment Scheduling, Real-time Notifications, User Profiles, Admin Dashboard (Analytics & Reporting), Data Analytics, Search and Filter Functionality, Cloud Hosting (CI/CD Deployment), CI/CD Pipelines, Version Control (Git), Continuous Deployment, Mobile Optimization, Scalability, Frontend Development, Backend Development, AI Integration, Performance Monitoring, Bug Tracking (Issue Management).

Acknowledgment

I sincerely thank Prof. Prof. Ganesh Baglerfor giving me the opportunity to work on this project. His constant support and guidance were instrumental in its success. His encouragement allowed us to explore the field of entrepreneurship and turn this idea into a valuable learning experience.

Work Distribution

The project was developed through collective efforts where each member contributed to different key areas.

Aditya Kumar contributed significantly to feature expansion by proposing modules for pet breed education, grooming, and daycare services. He conducted user research to identify challenges central to our problem statement. On the frontend, he implemented key pages including the Home, Trainer, Groomer, Daycare, Dashboard, Profile, Guide, Footer, and Pet Services Appointment sections, ensuring a cohesive and intuitive user experience.

Akash Kumar laid the foundational framework for Petopia, defining core workflows for veterinary and training services. He developed the entire backend infrastructure—including database design, API development, and third-party integrations. On the frontend, he implemented the NGO registration page, Navbar, and Profile section, while enhancing UX with animations and loaders. Akash also conducted market and business plan analysis to guide feature development and managed the production deployment of the frontend.

Akanksh Semar played a central role in building and optimizing several key modules of the Petopia platform. He developed the Veterinary Appointments and News sections, contributed essential components to the NGO and Volunteer pages, and implemented the User Dashboard and Navbar—ensuring full responsiveness across all device types. To support AI-based features, he integrated a Gemini wrapper for intelligent recommendations. Akanksh managed the complete deployment process, hosting the frontend on Vercel and backend on Render, while configuring CI/CD pipelines and performance monitoring tools. He also maintained the Git repository, handled issue tracking, and resolved bugs across both frontend and backend. In addition, he conducted an in-depth market analysis that helped shape the platform's strategic direction.

Contents

Student Declaration	i
Abstract	ii
Acknowledgment	iii
Table of Contents	v
1 Introduction	1
1.1 Motivation	1
1.2 Context	1
1.3 Goal	2
2 User Challenges and Problems in the Online Domain for Pet Owners	3
2.1 Introduction	3
2.2 Challenges Faced by Pet Owners	3
2.2.1 Inadequate Online Support During Emergencies	3
2.2.2 Trust Issues with Pet Service Providers During Travel	3
2.2.3 Quality and Reliability of Online Pet Health Information	4
2.2.4 High Veterinary Costs and Lack of Pricing Transparency	4
2.2.5 Lack of Centralized, Reliable Community Spaces	4
2.2.6 Difficulty in Finding Certified Service Providers	4
2.2.7 Fragmented Booking Experience Across Services	4
2.2.8 Limited Awareness about Pet Wellness and Preventive Care	4
3 Proposed Solution: Petopia	5
3.1 Introduction	5
3.2 Core Features of Petopia	5
3.2.1 Veterinary Support and Appointment Booking	5
3.2.2 Verified Service Provider Marketplace	5
3.2.3 Comprehensive Pet Health Records and Cost Transparency	6

3.2.4	Reliable Knowledge Center	6
3.2.5	Integrated Service Booking	6
3.2.6	Wellness Tracking and Preventive Care Reminders	6
3.2.7	Community Spaces and Support Groups	6
3.2.8	NGO Collaboration for Adoptions and Volunteering	6
3.3	How Petopia Addresses Identified Challenges	7
4	Product Development	8
4.1	Introduction	8
4.2	UI/UX Design Phase	8
4.2.1	Color Theme Consistency	8
4.3	Frontend Development	10
4.3.1	Core Pages Developed	10
4.4	Development Workflow	10
4.5	Backend Development	10
4.5.1	Authentication Functionality	11
4.5.2	User-Specific Functionality	11
4.5.3	File Upload Functionality	12
4.5.4	Service Provider Management	12
4.5.5	News Article	13
4.5.6	Pet Data Management	14
4.6	Database	14
4.7	Deployment	16
5	Market Analysis	19
5.1	Market Overview	19
5.2	Market Segmentation	20
5.3	Growth Drivers	22
5.4	Future Outlook	28
5.5	Implications for Petopia	29
6	Business Plan	30
	Business Plan for Petopia	30
	Bibliography	33

Chapter 1

Introduction

1.1 Motivation

Pet ownership in India has been rising steadily over the past few years, with pets becoming an integral part of many households. However, managing a pet's health, training, grooming, and daily care remains a fragmented and often overwhelming experience for many owners.

The idea for Petopia originated during the first semester as part of the Human-Computer Interaction (HCI) course, where a preliminary skeleton design was developed by Akash Kumar and Akanksh Semar. The project was envisioned as a meaningful and valuable platform to streamline pet care services, but was initially paused due to limitations in web development skills at the time.

The personal motivation behind the platform is deeply rooted in Akash Kumar's experience. Having lost a pet due to inadequate veterinary guidance and the absence of a structured care system, the need for a centralized, trustworthy platform became evident. Petopia was thus re-envisioned not just as a technical project, but as a mission to simplify pet parenting by aggregating essential services and providing reliable, personalized guidance—making pet care more informed, accessible, and holistic.

1.2 Context

The Indian pet care market is witnessing rapid growth, with spending expected to increase from \$3.6 billion in 2024 to nearly \$7 billion by 2028. This surge is driven by changing attitudes, where pets are seen more as family members rather than just animals. Along with higher awareness, younger pet owners, especially Gen Z, are leading the demand for better services like grooming, training, insurance, and daycare.

Figure ?? shows the steady rise in India's pet care sector, highlighting the huge opportunity for organized digital platforms. While most pet services are still accessed offline, online platforms are

quickly gaining traction, especially in urban areas. **Petopia** aims to tap into this growth by offering a user-friendly platform tailored specifically for Indian pet parents.

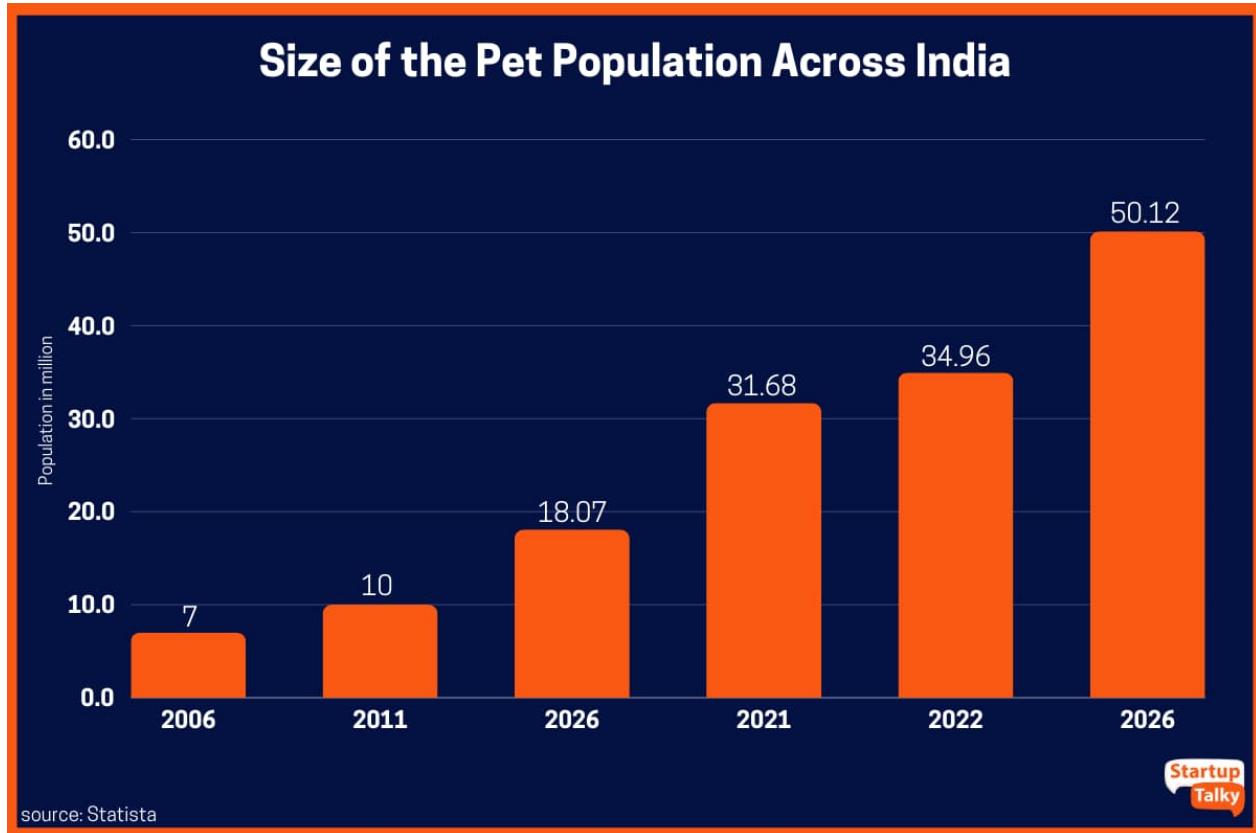


Figure 1.1: Size of the Pet Population Across India From 2006 to 2021, With Estimates Until 2026.

1.3 Goal

The main goal of **Petopia** is to serve as a one-stop solution for pet owners in India — covering services such as veterinary appointments, training, grooming, daycare, breed guides, and NGO support for adoptions. By providing trusted information, easy service bookings, and community resources, Petopia seeks to help owners provide better care, foster stronger bonds with their pets, and contribute to the growing pet ecosystem in India.

Chapter 2

User Challenges and Problems in the Online Domain for Pet Owners

2.1 Introduction

The rise of online platforms, apps, and services for pet owners has created new opportunities but also exposed key gaps. Pet owners frequently encounter frustrations when seeking reliable care, support, and services digitally.

2.2 Challenges Faced by Pet Owners

2.2.1 Inadequate Online Support During Emergencies

Many pet owners have voiced frustrations about the lack of effective online support during emergencies.

"I recently experienced the devastating and unnecessary loss of my beloved dog, which could have been prevented if the multiple vets we visited had been more proactive and thorough in their diagnostic care."

A Reddit user shared a personal experience [28].

2.2.2 Trust Issues with Pet Service Providers During Travel

While traveling, pet owners often rely on online services for boarding and sitting but encounter broken promises.

Users on TripAdvisor reported service providers failing to deliver promised services, with little recourse for owners [37].

Verified service providers, transparent reviews, and secure compensation systems are greatly needed.

2.2.3 Quality and Reliability of Online Pet Health Information

Online information supplements pet owners' knowledge but can sometimes mislead them or strain veterinarian relationships.

Study Findings: Research shows pet owners frequently seek online information but ultimately place more trust in veterinarians, highlighting a gap in online resource quality [17].

2.2.4 High Veterinary Costs and Lack of Pricing Transparency

The financial burden of veterinary care is increasing, with little visibility into pricing structures.

Investigation Findings: Reports show corporate ownership of vet clinics contributes to rising costs and reduced competition [36].

There is growing demand for upfront pricing information and affordable alternatives.

2.2.5 Lack of Centralized, Reliable Community Spaces

Pet owners currently navigate scattered forums, often requiring multiple memberships to access diverse information.

Observation: While platforms like *Paw Talk* [22] and *Dog Forum* [9] offer discussions, there is no single authoritative platform providing holistic support.

2.2.6 Difficulty in Finding Certified Service Providers

Identifying trusted, certified professionals like veterinarians, groomers, and trainers remains a major challenge. Without verification systems, pet owners risk choosing unqualified providers.

2.2.7 Fragmented Booking Experience Across Services

Pet owners often juggle multiple apps for veterinary consultations, grooming, and daycare. This fragmented experience creates confusion and inefficiency.

2.2.8 Limited Awareness about Pet Wellness and Preventive Care

Preventive healthcare — vaccinations, dental hygiene, and weight management — is often neglected due to lack of accessible wellness reminders or structured guides.

A study by the American Pet Products Association (APP) emphasizes that proactive care extends pet lifespans, yet many owners miss check-ups or vaccinations without timely reminders [2].

Chapter 3

Proposed Solution: Petopia

3.1 Introduction

To address the diverse challenges faced by pet owners in the online domain, we propose **Petopia** — a unified, trustworthy platform specifically designed for the Indian market. Petopia aims to streamline pet care by integrating services, community support, verified providers, and educational resources into a single, easy-to-use application.

3.2 Core Features of Petopia

3.2.1 Veterinary Support and Appointment Booking

Petopia will provide instant access to veterinary services through partnerships with verified clinics and telehealth providers.

3.2.2 Verified Service Provider Marketplace

To address trust issues, Petopia will maintain a curated marketplace of certified veterinarians, groomers, trainers, and boarding facilities. Each provider's profile will include:

- Certification badges
- Transparent user reviews
- Service guarantees

This will ensure that pet owners can book services with confidence.

3.2.3 Comprehensive Pet Health Records and Cost Transparency

Petopia will allow owners to maintain digital health records for their pets, including vaccination schedules, medication history, and vet visit summaries. Additionally, estimated pricing for veterinary services, grooming packages, and training programs will be clearly displayed upfront to foster transparency and affordability.

3.2.4 Reliable Knowledge Center

The platform will feature a vetted library of articles, and guides. This will empower users with credible information, minimizing reliance on unverified sources and promoting better pet health practices.

3.2.5 Integrated Service Booking

Instead of using multiple apps, Petopia users can book a wide variety of services — veterinary consultations, grooming sessions, training classes, daycare appointments — all within a single, cohesive interface. This seamless booking experience reduces fragmentation and saves time.

3.2.6 Wellness Tracking and Preventive Care Reminders

Petopia will proactively assist pet owners with reminders for:

- Vaccinations
- Deworming schedules
- Dental checkups
- Weight management

This focus on preventive care will help increase pet lifespans and decrease emergency incidents.

3.2.7 Community Spaces and Support Groups

An in-app community forum will connect pet owners with each other for advice, local recommendations, event participation, and peer support. Moderated discussions and verified expert Q&A sessions will maintain the quality of interactions, offering a centralized, reliable community platform.

3.2.8 NGO Collaboration for Adoptions and Volunteering

Petopia will partner with animal welfare organizations to feature adoptable pets and volunteering opportunities. This supports ethical pet ownership, encourages community involvement, and enhances the platform's social responsibility.

3.3 How Petopia Addresses Identified Challenges

- **Inadequate Support:** Many pet owners experience panic and helplessness during pet emergencies due to a lack of immediate online support. Petopia addresses this challenge by offering direct access to veterinary services. Users can instantly connect with available professionals to seek urgent advice, minimizing delays that could risk a pet's life.
- **Trust Issues with Service Providers:** Trust remains a major barrier when booking pet services online. To resolve this, Petopia ensures all service provider profiles are thoroughly verified through background checks and credential verification. We highlight transparent user reviews and introduce service guarantees, reassuring pet owners that their companions are in safe hands. Verified badges and user ratings help users make more confident choices.
- **Low-Quality Online Health Information:** Petopia has built a comprehensive Knowledge Center featuring a wide range of Articles, News updates, Blogs, Guides, and Educational resources. Covering topics such as health, nutrition, behavior, and first aid, this curated content empowers pet owners with practical knowledge and encourages proactive care, ultimately promoting healthier and longer lives for their pets.
- **High Veterinary Costs:** Rising veterinary costs pose a major burden for many pet owners, often without clear price breakdowns. Petopia promotes price transparency by allowing clinics to list service costs upfront. We also feature affordable care options, package deals, and emphasize preventive healthcare to help users avoid expensive emergency treatments. Our platform encourages early intervention with routine check-ups and vaccinations.
- **Fragmented Booking Experience:** Today, pet owners often juggle multiple apps to book grooming, daycare, veterinary services, or training sessions, leading to confusion and inefficiency. Petopia streamlines this experience by offering a unified booking system across a wide range of pet care services. Through a single dashboard, users can browse, schedule, and manage all their pet's needs, saving time and enhancing convenience.
- **Lack of Community Spaces:** Petopia fosters a meaningful community connection by partnering with NGOs focused on animal welfare. Users can join these NGOs, participate in volunteer initiatives, and collaborate with like-minded pet lovers. This structure not only nurtures real-world relationships but also promotes responsible pet ownership and active involvement in broader animal welfare causes.
- **Difficulty Finding Certified Providers:** Finding qualified veterinarians, trainers, and groomers online can be risky without proper vetting. Petopia addresses this gap by offering certification badges for professionals who meet rigorous standards.
- **Limited Preventive Care Awareness:** Petopia integrates a reminder into the platform that sends timely reminders for vaccinations, dental check-ups, deworming schedules, and general health screenings.

Chapter 4

Product Development

4.1 Introduction

The development of Petopia was a structured, iterative process involving careful design, testing, and refinement of the user interface and user experience (UI/UX), followed by frontend implementation using modern web technologies. Our approach was user-centered, ensuring that the platform remained intuitive, visually appealing, and functionally seamless.

4.2 UI/UX Design Phase

Before diving into coding, we began by creating detailed UI/UX designs using **Figma**. Multiple draft versions of the designs were created, reviewed, and refined based on usability principles, peer feedback, and inspirations from existing pet care platforms.

Key aspects of the UI/UX process:

- Referenced multiple existing websites and apps for best practices in design and flow.
- Prioritized user journey mapping to make navigation simple and logical.
- Iteratively improved design drafts with a strong focus on minimizing user friction.
- Ensured mobile responsiveness and accessibility considerations from early stages.

4.2.1 Color Theme Consistency

To ensure visual coherence and branding identity, we adopted a consistent color palette throughout the platform:

- **Background:** #1A120B
- **Primary Text:** #E5E5CB

- **Secondary Elements:** #3C2A21

- **Accent Elements:** #D5CEA3

These colors gave Petopia a warm, friendly, and sophisticated appearance, aligning with the emotional connection between pet owners and their animals.

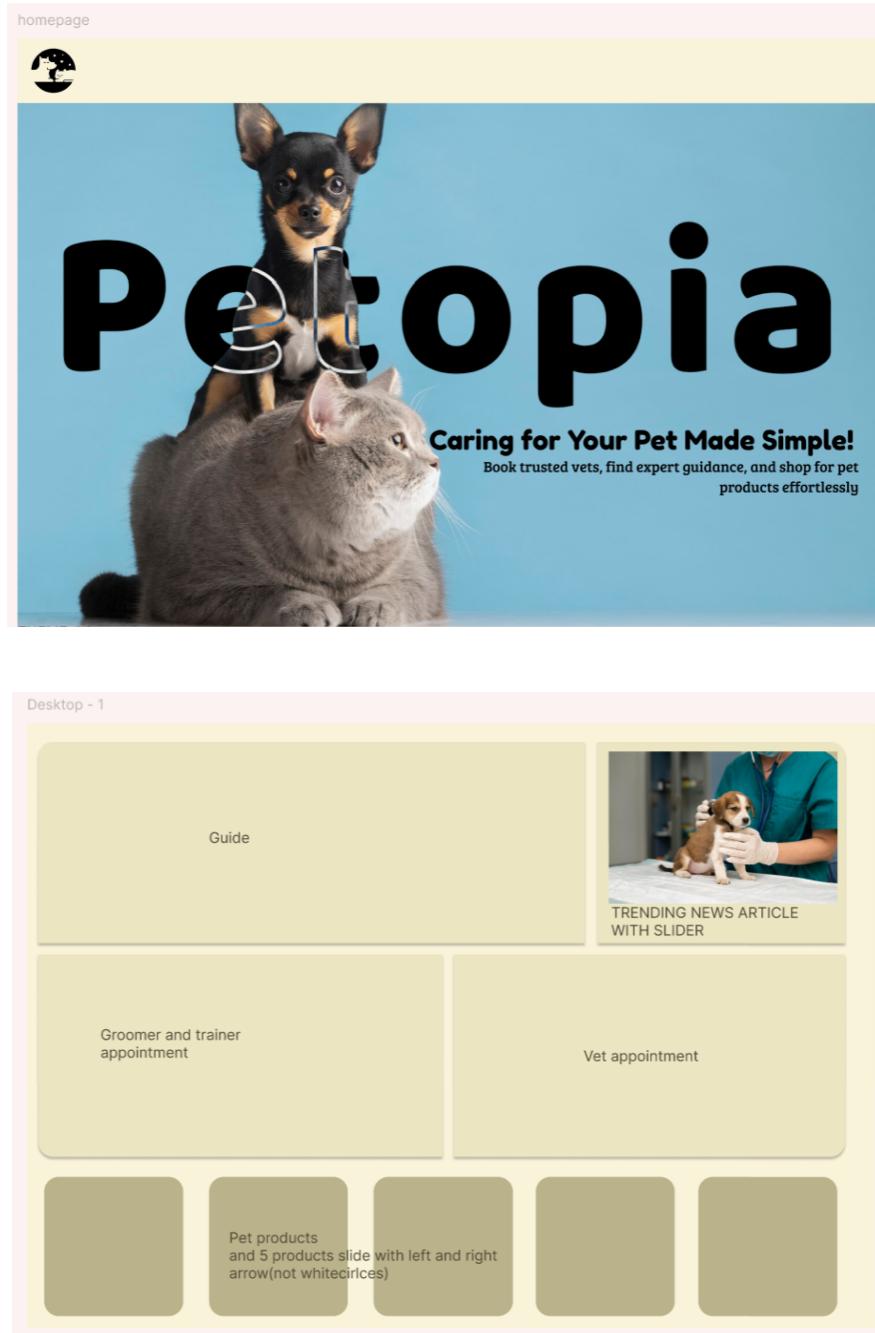


Figure 4.1: Final Home Page Design

4.3 Frontend Development

Once the Figma designs were finalized, we transitioned to frontend development using **React.js**, part of the MERN (MongoDB, Express.js, React.js, Node.js) stack.

4.3.1 Core Pages Developed

We built several core pages and modules to deliver a full user experience:

- **Home Page:** Landing page highlighting Petopia's mission, features, and call-to-actions.
- **Vet Services Page:** Quick access to veterinary help and appointment.
- **Guides Page:** Step-by-step guides for new pet owners covering training, nutrition, grooming, etc.
- **Service Provider Marketplace:** Listings of verified vets, groomers, trainers, and boarding facilities.
- **Pet Health Record Dashboard:** Allowing users to track vaccinations, treatments, and preventive care schedules.
- **Knowledge Center:** Articles, Info Paeg, and educational resources curated for pet wellness.
- **Booking System:** Interface for scheduling services including vet visits, grooming, and training.
- **Adoption and Volunteering Portal:** Collaborations with NGOs to showcase adoptable pets.

4.4 Development Workflow

- Developed reusable React components for common UI elements (buttons, cards, modals).
- Followed tailwind structure, ensuring scalability and maintainability.
- Integrated animations and transitions thoughtfully to create a dynamic yet non-intrusive user experience.
- Used Git for version control to manage iterative changes and collaboration.

4.5 Backend Development

The backend of Petopia was developed to support the functionalities outlined in the frontend, ensuring robust, secure, and efficient data handling. Here's an overview of the key backend functionalities:

4.5.1 Authentication Functionality

Endpoint: /api/auth

- **Signup Route:** /api/auth/signup - POST method for new user registration, validated by SignUpValidation, controlled by signupControl.
- **Login Route:** /api/auth/login - POST method for user login, validated by LoginValidation, handled by loginControl.
- **Generic Login Route:** /api/auth/gen-login - POST method for generic login, validated by GenLoginValidation, managed by GenLoginControl.
- **Generic Signup Route:** /api/auth/gen-signup - POST method for generic signup, validated by GenSignUpValidation, processed by GenSignupControl.
- **Google Login Route:** /api/auth/google-login - POST method for Google OAuth login, controlled by GoogleControl.
- **Facebook Login Route:** /api/auth/facebook-login - POST method for Facebook OAuth login, managed by FacebookControl.

4.5.2 User-Specific Functionality

Endpoint: /api/user

Generic User Routes

- **Contact Us Route:** /api/user/contact-us - Allows any user to submit inquiries via POST, validated by ContactValidation and processed by ContactControl.

Authenticated User Routes

Profile Management

- **Get Profile Information:** /api/user/profile-info - GET method to retrieve authenticated user's profile details, handled by getProfileControl.
- **Update Profile Information:** /api/user/profile-info - POST method for authenticated users to update their profile, managed by updateProfileControl.
- **Update Password:** /api/user/profile-pass - PUT method for password changes, secured by UserValidation and executed by updatePasswordControl.

Appointment Management

- **Create Appointment:** `/api/user/appointment_create` - POST method for creating appointments, with `UserValidation` and `AppointmentMiddleware`, controlled by `createAppointmentControl`.
- **Update Appointment:** `/api/user/appointment_update` - PUT method to modify appointments, using `UserValidation` and `AppointmentMiddleware`, handled by `updateAppointmentControl`.
- **Get All Appointments:** `/api/user/appointment_get` - GET method to fetch all user appointments, validated by `UserValidation`, processed by `getAllAppointmentControl`.
- **Delete Appointment:** `/api/user/appointment_delete` - DELETE method to remove appointments, secured by `UserValidation`, managed by `deleteAppointmentControl`.

4.5.3 File Upload Functionality

Endpoint: `/api/upload`

- **Upload Image Route:** `/api/upload/upload_image` - POST method for uploading a single profile image, handled by `uploadProfileImage`.
- **Upload Images Route:** `/api/upload/upload_images` - POST method for uploading multiple profile images, managed by `uploadProfileImages`.
- **Upload File Route:** `/api/upload/upload_file` - POST method for uploading a general file, processed by `uploadFile`.

4.5.4 Service Provider Management

The backend routes for managing various service providers including veterinarians, groomers, trainers, and day care services. These providers share a common set of CRUD operations, which are detailed below:

Common Endpoints and Operations

- **Endpoint:** `/api/{serviceProvider}`
 - **Service Providers:** vet, groomer, trainer, daycare
- **Get All Providers Route:** `/api/{serviceProvider}/all-data`
 - **Method:** GET
 - **Description:** Retrieves data of all service providers of the specified type.
 - **Controllers:** `getAllVets`, `getAllGroomers`, `getAllTrainers`, `getAllDayCareServices`
- **Get Provider by ID Route:** `/api/{serviceProvider}/data/:id`
 - **Method:** GET

- **Description:** Fetches data of a specific service provider by their unique ID.
 - **Controllers:** getVet, getGroomer, getTrainer, getDayCareService
- **Get Provider by Email Route:** /api/{serviceProvider}/data-email/:email
 - **Method:** GET
 - **Description:** Finds a service provider by their email address, requires user authentication.
 - **Middleware:** UserValidation
 - **Controllers:** getVetByEmail, getGroomerByEmail, getTrainerByEmail, getDayCareServiceByEmail
- **Create Provider Route:** /api/{serviceProvider}/create-{serviceProvider}
 - **Method:** POST
 - **Description:** Adds a new service provider to the system.
 - **Middleware:** {}ServiceTypeValidation (e.g., VetValidation, GroomerValidation)
 - **Controllers:** createVet, createGroomer, createTrainer, createDayCareService
- **Update Provider Route:** /api/{serviceProvider}/update-{serviceProvider}/:id
 - **Method:** PUT
 - **Description:** Updates an existing service provider's information by their ID, ensuring data integrity through validation.
 - **Middleware:** {}ServiceTypeValidation
 - **Controllers:** updateVet, updateGroomer, updateTrainer, updateDayCareService
 - **Details:** This route allows for modifications to provider details like name, contact information, qualifications, services offered, pricing, availability, training methods, certifications, session schedules, capacity, hours of operation, or special programs, ensuring the respective databases remain current and accurate.

4.5.5 News Article

Endpoint: /api/news

- **Create News Article Route:** /api/news/create – POST method for creating a new news article, requires admin authentication via Admin, controlled by createNewsArticle.
- **Get All News Articles Route:** /api/news/get-all – GET method to retrieve all news articles, does not require authentication, handled by getAllNewsArticles.
- **Get Single News Article Route:** /api/news/get/:id – GET method to fetch a specific news article by ID, does not require authentication, processed by getNewsArticle.

- **Update News Article Route:** /api/news/update/:id – PUT method to update an existing news article by ID, requires admin authentication via Admin, managed by updateNewsArticle.
- **Delete News Article Route:** /api/news/delete/:id – DELETE method to remove a specific news article by ID, requires admin authentication via Admin, handled by deleteNewsArticle.

4.5.6 Pet Data Management

Endpoint: /api/pet

- **Add Pet Route:** /api/pet/add - POST method for adding a new pet, requires user authentication via UserValidation and pet data validation through ValidatePet, controlled by createPet.
- **Get All Pets Route:** /api/pet/get - GET method to retrieve data of all pets, requires user authentication via UserValidation, handled by getAllPets.
- **Update Pet Route:** /api/pet/update - PUT method to update an existing pet's information, requires user authentication via UserValidation and pet data validation through ValidatePet, managed by updatePet.
- **Delete Pet Route:** /api/pet/delete/:id - DELETE method to remove a specific pet by ID, requires user authentication via UserValidation, processed by deletePet.

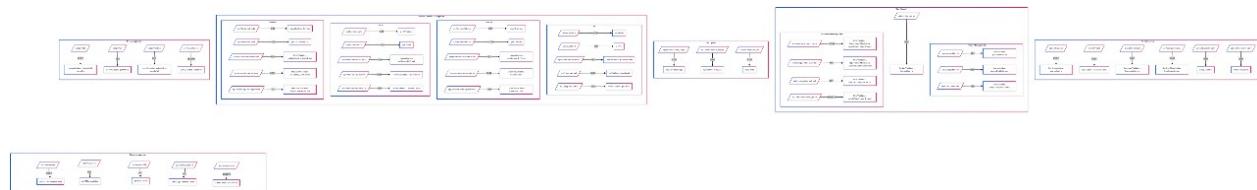


Figure 4.2: Backend Diagram

4.6 Database

The database architecture for the Petopia platform is meticulously designed to support a comprehensive pet care ecosystem, integrating various entities crucial for the operation of a pet services application.

User Model: This model encapsulates user information, including personal details like name, email, phone number, and preferences such as profile and name colors. It also references the pets owned by the user through petID, which is an array of ObjectIDs linking to the Pet model. This structure allows for personalized user experiences tailored to their pet ownership.

Pet Model: Designed to store fundamental pet data, the Pet model includes attributes like name, age, category (e.g., dog, cat), and breed. This model is referenced by both the User and Appointment models, ensuring that pet-specific services can be accurately managed and tracked.

Service Provider Models: Petopia categorizes service providers into four distinct models: Vet, Groomer, Trainer, and DayCare. Each model shares a common schema that includes provider's name, contact details, a default rating, location information, operational timings, specialization, and verification status. This design facilitates a uniform approach to managing different types of pet care services while allowing for specific customizations per service type.

Appointment Model: Central to service coordination, this model records appointments by linking users, pets, and service providers. It captures appointment details such as date, time, service type, cost, and status, providing a structured way to manage bookings and service delivery.

Review Model: Associated with appointments, the Review model collects user feedback, including ratings and textual reviews. Initially set to a 'pending' status, reviews undergo moderation before being made public or visible to service providers, ensuring quality control over user-generated content.

News Model: Central to content dissemination and information sharing, this model stores details of news articles created by administrators. It includes essential fields such as title, content, summary, slug, and publication status, along with optional fields like image URL and author reference. The model supports timestamps and publication dates, enabling structured management of article visibility, SEO optimization, and editorial history. It ensures scalability and clarity in presenting up-to-date announcements, updates, or blog content within the platform.

Contact Model: This model handles user inquiries or feedback, storing the submitter's name, email, the category of the inquiry, and the message content. It serves as a direct communication channel between users and the platform's support or service team.

This database design adheres to relational integrity through the use of ObjectId references, facilitating a cohesive integration of user activities with pet care services. It supports scalability, allowing for future enhancements or the addition of new service types, ensuring Petopia can evolve with the pet care industry's needs. The structure promotes efficient data management, user interaction, and service provider operations, all while maintaining high standards of data organization and accessibility.

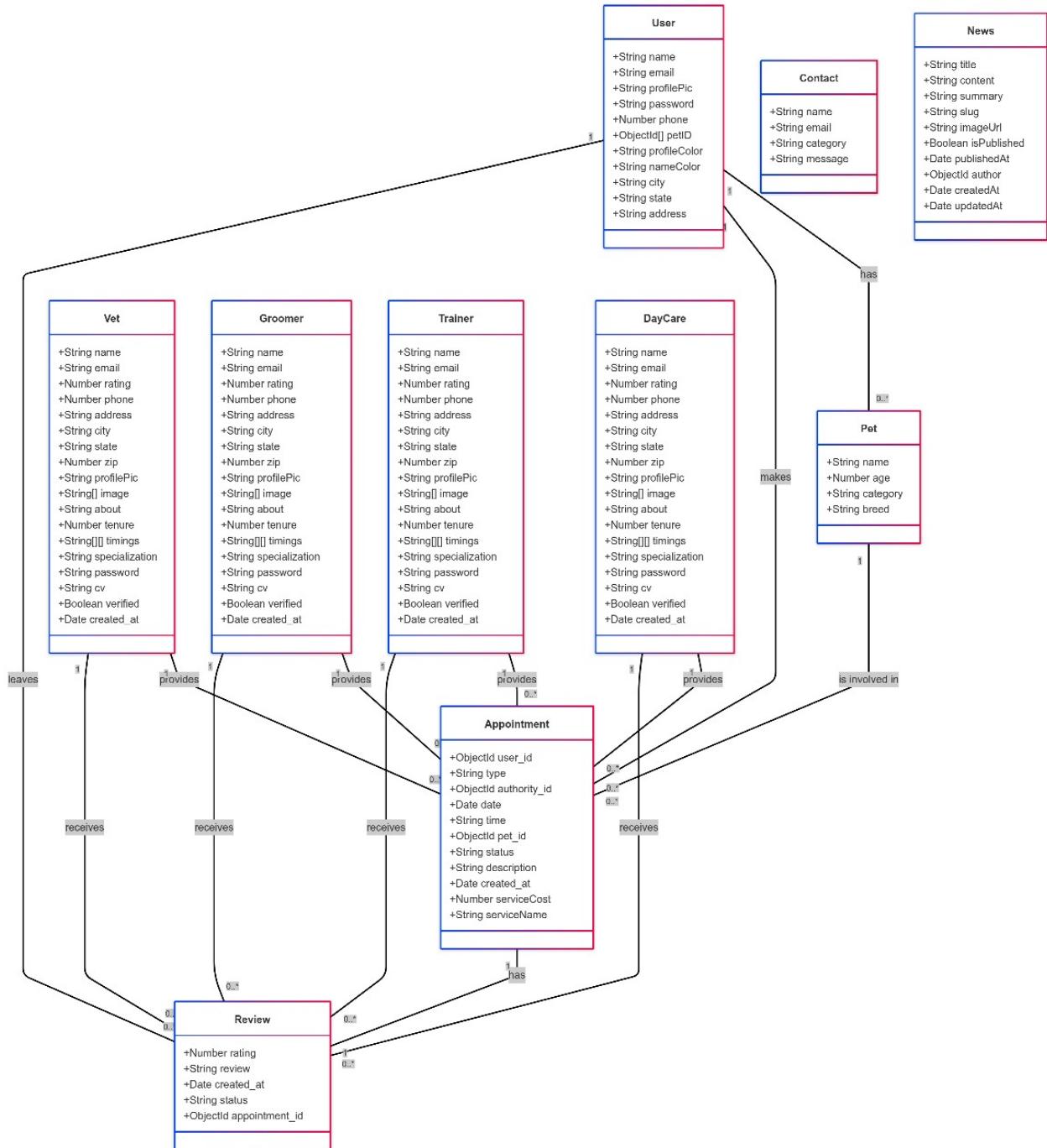


Figure 4.3: Database Diagram

4.7 Deployment

- Frontend of the application is deployed on [VERCEL](#), utilizing its global CDN infrastructure to ensure fast and scalable content delivery across geographies.
- Backend services are hosted on [RENDER](#), providing auto-scaling infrastructure, environment management, and secure deployment.

- CI/CD pipelines are configured to automatically trigger deployments from GitHub upon code commits to the main branch, enabling rapid iteration and continuous integration.
- SSL/TLS certificates are managed by both platforms to ensure secure HTTPS access without manual intervention.
- Deployment dashboards from Vercel and Render are used for real-time performance monitoring, error logging, and diagnostics.

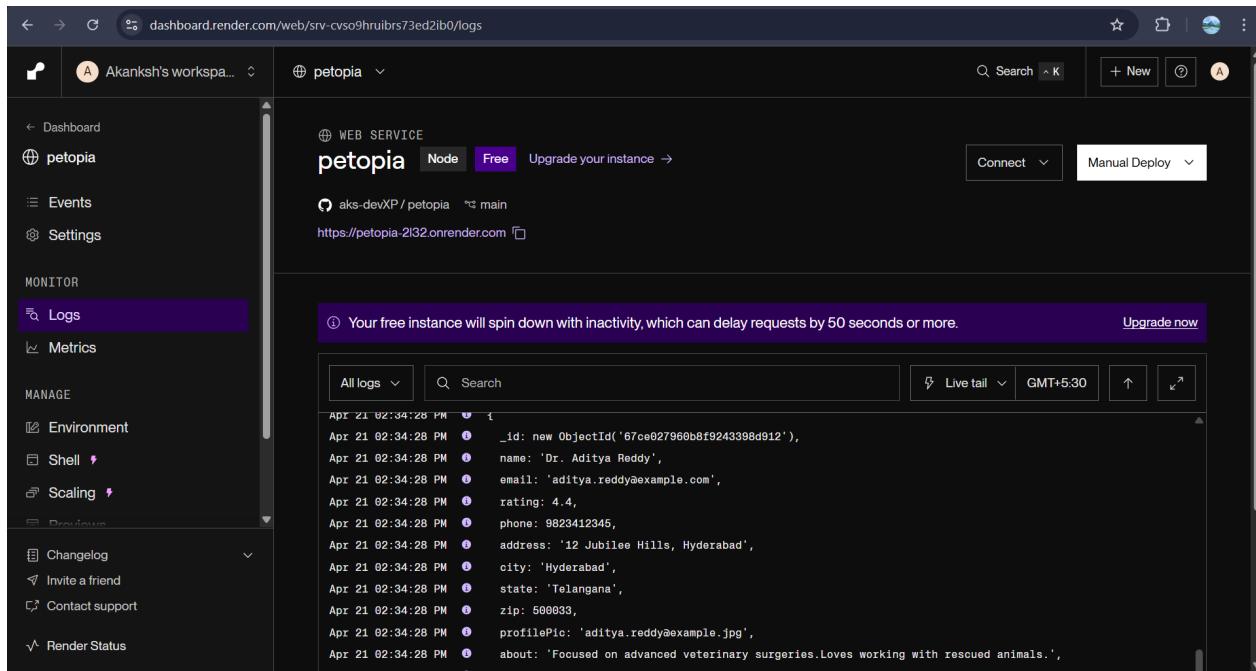


Figure 4.4: Backend Dashboard on Render

The screenshot shows the Vercel Frontend Dashboard for the project "Petopia". The top navigation bar includes links for "Feedback", "Changelog", "Help", "Docs", and user profile icons. Below the navigation, there are tabs for "Deployment", "Logs", "Functions", "Source", and "Open Graph".

The main section is titled "Deployment Details" and displays the following information:

- Created:** aks-devXP Just now
- Status:** Ready Latest
- Duration:** 21s Just now
- Environment:** Production

Under "Domains", it lists:

- petopia-inky.vercel.app +1
- petopia-git-main-aks-devxps-petopia.vercel.app
- o petopia-ho9iOn8b3-aks-devxps-petopia.vercel.app

Under "Source", it shows:

- main
 - a16a675 fixed package-lock

At the bottom, there are sections for "Deployment Configuration", "Build Logs", and "Deployment Summary". The "Deployment Summary" section shows a status of "19s" with a checkmark.

Figure 4.5: Frontend Dashboard on Vercel

Chapter 5

Market Analysis

5.1 Market Overview

- The Indian pet care market, encompassing both product and service verticals, was valued at approximately USD 10.5 billion in the financial year 2024. According to Markets and Data, the market is anticipated to witness a CAGR of 5.65% during the forecast period and is estimated to reach USD 16.2 billion by FY2032 [18]. This expansion is primarily driven by increased demand for boarding, grooming, and pet sitting services.

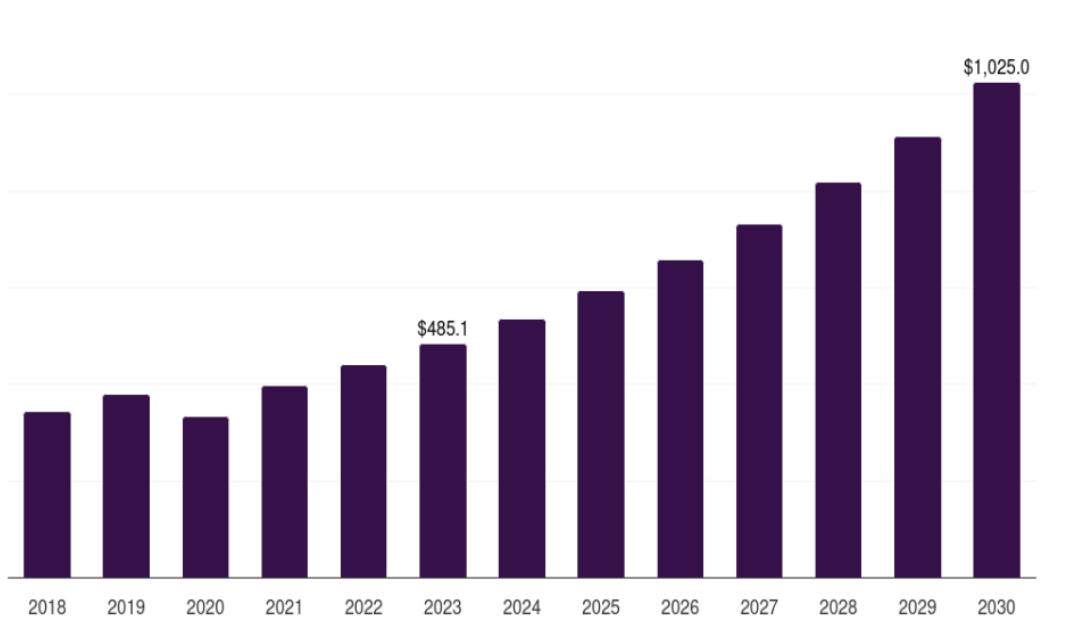


Figure 5.1: Indian Pet Services Market

- In parallel, the pet care products market was valued at USD 8.13 billion in 2024 and is expected to grow at a CAGR of 5.41%, reaching USD 13.05 billion by 2033. This growth is attributed to rising consumer preference for premium and organic products, coupled with

increased adoption of e-commerce platforms [12].

- Within this domain, the pet food segment represents a rapidly expanding category. Industry forecasts project that the Indian pet food market will grow from USD 843.9 million in 2024 to USD 1.98 billion by 2030, reflecting a CAGR of 15.4%. This surge is indicative of heightened consumer awareness regarding pet nutrition and health-focused dietary solutions [29].

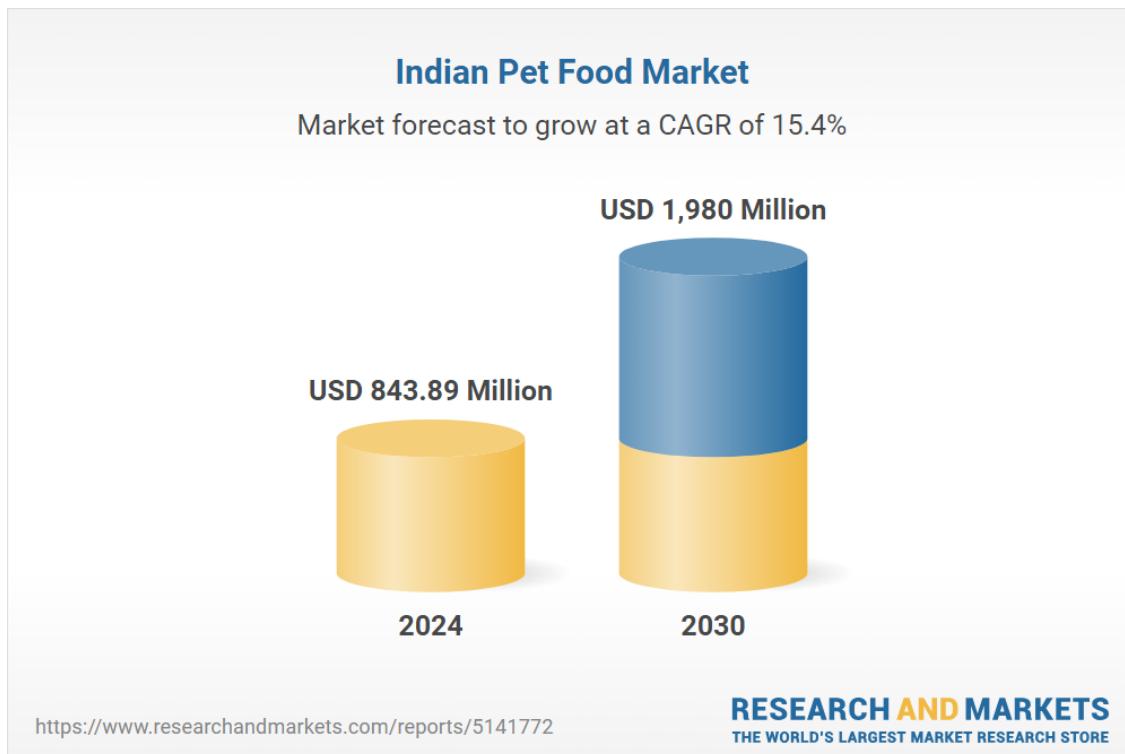


Figure 5.2: Indian Pet Food Market

- Additionally, aggregated industry data indicates that overall pet-related expenditure in India reached approximately USD 3.6 billion in 2024. Of this, 48% was spent on products and 52% on services. The market is further expected to surpass USD 7 billion by 2028, underscoring the sustained growth and evolving dynamics of the Indian pet care ecosystem [31].

5.2 Market Segmentation

The Indian pet care industry demonstrates diverse segmentation across products and services, pet types, and distribution channels. Understanding these segments provides valuable insights into consumer behavior, emerging trends, and business opportunities.

A. Products vs. Services

- In 2024, approximately 48% of total spending was allocated to products, which include pet food, grooming supplies, accessories, toys, healthcare items, and consultancy products, while

52% was directed towards services such as veterinary care, boarding, grooming, training, walking, and sitting [7].

- Notably, grooming services alone generated USD 246.9 million in 2024, highlighting the growing demand for lifestyle-oriented pet services [8].

Total spends on petcare products and services

In USD billions, FY19-28P

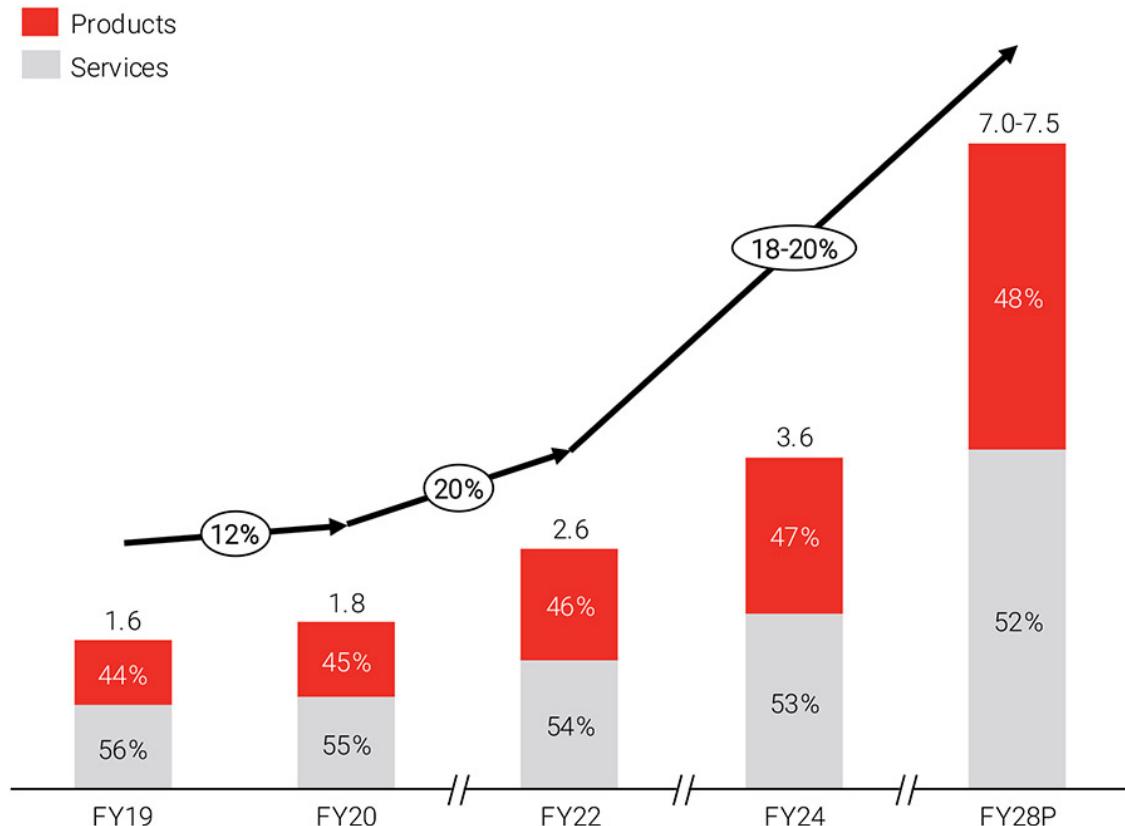


Figure 5.3: Indian Pet Care Market Growth

B. Segmentation by Pet Type

- Dogs remain the predominant pet type in India, accounting for nearly 92% of pet product sales and services utilization. Dog food sales alone were valued at USD 562.7 million in 2022 and are forecast to grow significantly, reaching USD 1,760 million by 2029. This growth is fueled by increasing awareness about canine nutrition and premium food formulations [34].
- Cats, while comprising a smaller market share (approximately 9%), have experienced accelerated adoption in recent years, particularly in urban areas post-pandemic. The total pet cat population is projected to reach 4.89 million by 2026, indicating untapped potential in both product and service segments for felines [35].

- Other pets—including birds, fish, and small mammals—constitute a niche yet stable segment of the Indian pet ecosystem. As of 2023, this category included approximately 188,100 birds, 923,600 fish, and 78,600 small mammals and reptiles. Though smaller in volume, this segment presents emerging opportunities in specialty products and habitats [32].

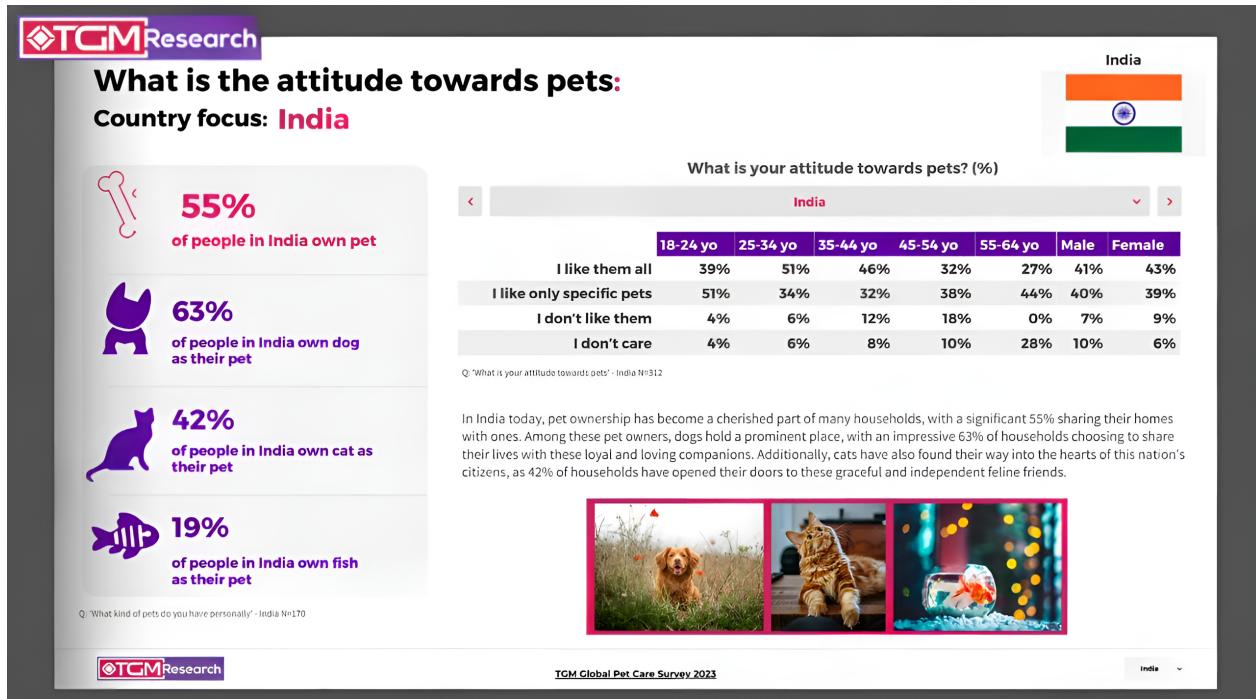


Figure 5.4: Indian Pet Ownership Stats

5.3 Growth Drivers

- **Rising Disposable Incomes & Urbanization:** The increase in double-income households, particularly in urban areas, has contributed to higher spending on premium pet care services and products.
- **Humanization & Premiumization:** Pets are increasingly perceived as family members, fueling the demand for organic, niche, and boutique offerings that go beyond basic pet care.
- **Digital Adoption:** The emergence of CI/CD-enabled Direct-to-Consumer (D2C) platforms and mobile-based service booking applications has significantly enhanced convenience and trust among consumers.
- **Health & Wellness Focus:** There is a growing awareness about preventive healthcare, leading to increased demand for veterinary services and specialized dietary products aimed at improving pet longevity and quality of life.

Competitive Landscape in Indian Pet Care Market

The Indian pet care ecosystem is witnessing rapid growth, fostering competition across multiple segments. Major players operate in verticals such as pet food, grooming and wellness, veterinary services, e-commerce platforms, and NGO-driven welfare. The landscape is primarily segmented as follows:

A. Pet Food Brands

- **Pedigree (Mars Petcare):** As of 2022, Mars Incorporated held over 51% of India's dog food retail market, with Pedigree being one of its flagship brands [33]. Pedigree offers both dry and wet food options and is positioned as a trusted legacy brand with widespread offline and online presence [24].
- **Royal Canin:** Also under Mars Petcare, Royal Canin is renowned for breed-specific nutrition and dominates the premium pet food category, especially among veterinarians and urban pet parents [8]. Their tailored nutrition plans cater to various pet sizes, ages, and breeds [5].
- **Drools (IB Group):** An Indian-origin brand experiencing rapid growth, Drools offers affordable and locally tailored nutrition. In 2022, the Indian Broiler Group, which owns Drools, ranked second in India's dog food retail market with a 14.7% share [33]. Drools provides specialized nutrition for dogs and cats of all breeds and life stages [10].
- **Farmina, Orijen, and Acana:** These niche and ultra-premium pet food brands cater to the urban elite and health-conscious pet owners, often retailed through specialty pet stores and online platforms. Farmina offers nutrition systems for carnivores, designed to be naturally appropriate to the metabolism and palatability of dogs and cats [11]. Orijen and Acana, produced by Champion Petfoods, provide biologically appropriate diets rich in animal ingredients [21, 1].



Figure 5.5: Indian Pet Food Brands

B. Pet E-commerce Platforms

- **Heads Up For Tails (HUFT)**: Founded in 2008, HUFT offers a wide range of pet food, treats, toys, accessories, grooming supplies, and personalized items. The brand emphasizes a strong identity with a premium positioning focused on pet wellness. HUFT provides an omnichannel shopping experience with both online and physical retail outlets. As of 2025, HUFT operates over 80 stores across 15 cities in India and is expanding its presence on quick commerce platforms like Blinkit, Zepto, and Swiggy Instamart [4, 3].



Figure 5.6: Heads Up for Tails Store

- **Supertails:** Launched in 2021, Supertails is a comprehensive pet care platform offering a wide range of pet food, health and wellness products, treats, and accessories. Unique features include combining product sales with access to veterinary consultation services. The platform provides end-to-end solutions aimed at both first-time and experienced pet parents [6].
- **Zigly:** Zigly offers a variety of pet products, including food, accessories, toys, pet beds, and grooming essentials. The platform emphasizes the integration of physical and online services, providing vet consultations, grooming services, and a dedicated pet pharmacy [27].
- **PawsIndia:** PawsIndia specializes in curated products for dogs and cats, including toys, clothing, and grooming supplies. The platform focuses on personalized items like customized name tags and unique accessories, catering to niche offerings in the pet care market [23].

C. Veterinary & Wellness Services

1. Multi-Specialty Veterinary Hospital Chains

- **Vetic Clinics**
 - **Presence:** Multiple cities including Noida.
 - **Services:** Grooming, consultations, diagnostics, in-patient care, pharmacy, surgery, physiotherapy, intensive care.
 - **Unique Features:** 24/7 emergency care at select locations, state-of-the-art clinics with modern infrastructure. [39]



Figure 5.7: Vetic Store

- **Crown Vet**

- **Presence:** Mumbai, Pune, Delhi, Bengaluru, Hyderabad.
- **Services:** Consultations, surgeries, inpatient care, diagnostics (X-ray, ultrasound), dental care, dermatology, nutrition, grooming, pharmacy.
- **Unique Features:** 24/7 emergency services, in-house pathology labs, preventative health plans. [38]

- **MaxPetZ (formerly Max Vets)**

- **Presence:** Delhi NCR, Mumbai, Goa, Lucknow.
- **Services:** Consultations, vaccinations, diagnostics, surgeries, medicines, grooming, emergency care, accessories.
- **Unique Features:** 24/7 emergency services at select locations, rehabilitation services. [20]

- **DCC Animal Hospital**

- **Presence:** Delhi NCR, Jaipur.
- **Services:** Surgery, dermatology, dentistry, grooming, physiotherapy, telehealth consultations.
- **Unique Features:** Focus on multi-specialty care with both on-ground and online consultation options. [14]

- **Cessna Lifeline Veterinary Hospital**

- **Presence:** Bengaluru, Gurugram, Navi Mumbai.

- **Services:** Avian and exotic pet care, cardiology, dentistry, dermatology, oncology, ophthalmology, physiotherapy, grooming, telehealth.
- **Unique Features:** 24/7 emergency services at some branches, wide variety of specialty services. [13]

D. Grooming, Boarding, and Training Services

- **Pawspace (Bengaluru):**

- **Services:** Offers comprehensive pet care including grooming, cage-free boarding, training, walking, and daycare.
- **Unique Feature:** Provides doorstep services with certified professionals, ensuring personalized care in the pet's familiar environment.
- **Training Programs:** Offers both in-home and boarding training packages, utilizing positive reinforcement techniques tailored to individual pet needs.
- **Website:** <https://pawspace.in/>

- **Petfolk (Hyderabad):**

- **Services:** Specializes in mobile grooming services through custom-designed vans, along with physical grooming centers in select cities.
- **Convenience:** Offers at-door grooming services, reducing stress for pets and providing flexibility for pet owners.
- **Website:** <https://petfolk.in/>

- **Anvis Inc. (Bengaluru):**

- **Services:** Offers dog training services as part of their pet services portfolio.
- **Approach:** Focuses on positive reinforcement techniques to address behavioral issues and enhance pet obedience.
- **Website:** <https://anvisinc.com/>

- **Independent Operators:**

- **Market Presence:** A significant portion of the market is serviced by unorganized, freelance groomers and sitters with hyperlocal reach.
- **Services:** Offer personalized care, often building strong relationships with clients in their local communities.



Figure 5.8: Top Grooming, Boarding & Training Services

E. NGOs & Adoption Networks

- **People For Animals (PFA), Friendicoes, Blue Cross India:** Major NGOs working across metros in rescue, treatment, and adoption facilitation [25, 30, 16].
- **AdoptAPet, Woof Yums NGO:** Online platforms connecting shelters with adopters, promoting awareness through social media outreach and influencer collaborations [15, 40].

5.4 Future Outlook

- **Market Expansion and Consolidation:** The Indian pet care market is projected to reach **USD 16.2 billion by FY2032**, growing at a CAGR of **5.65%**, driven by increased pet ownership, urbanization, and rising disposable incomes. Notably, the services segment—including veterinary care, grooming, and boarding—is expected to double by 2030, reflecting a shift towards comprehensive pet wellness solutions [19].
- **Digital Transformation:** The sector is witnessing a significant digital shift with the adoption of app-based bookings, tele-veterinary consultations, and IoT-enabled health monitoring devices. These advancements are enhancing accessibility and convenience for pet owners, thereby accelerating online adoption and engagement.
- **Regulatory Evolution:** The enactment of the **Digital Personal Data Protection Act, 2023** underscores the growing emphasis on data privacy and standardized quality in the pet care industry. As the sector matures, adherence to such regulations will be critical in building consumer trust and ensuring sustainable growth [26].

5.5 Implications for Petopia

- **Unified User Experience:** Develop an integrated platform that consolidates veterinary services, training, grooming, e-commerce, and NGO collaborations, providing a seamless experience for pet owners.
- **Data-Driven Personalization:** Utilize AI and machine learning algorithms in future to analyze user and pet profiles, enabling tailored recommendations for services and products, thereby enhancing user engagement and satisfaction.
- **Strategic Partnerships:** Collaborate with established service providers such as Heads Up For Tails (HUF), Vetic, DogSpot, and Supertails to integrate their inventory and booking systems, expanding service offerings and market reach.
- **Scalable Architecture:** Implement a modular, cloud-native microservices architecture that supports rapid feature deployment and facilitates regional expansion, ensuring the platform remains adaptable to evolving market demands.

Chapter 6

Business Plan

1. Executive Summary

Petopia is a one-stop digital platform that simplifies and enhances pet ownership through verified services, health tracking, community features, and collaboration with NGOs. The goal is to make trusted pet care accessible across urban India, starting with veterinary, grooming, training, and daycare services—followed by pet adoptions and product commerce.

2. Problem & Opportunity

India's pet care ecosystem is highly fragmented, with pet owners often juggling multiple apps for different needs. Petopia addresses this gap with a unified, trustworthy solution. With the Indian pet care market expected to grow from USD 3.6 billion in 2024 to over USD 7 billion by 2028, there's significant untapped opportunity, especially in digital-first services.

3. Target Market

- **Primary Users:** Urban pet owners aged 24–40
- **Geography:** Tier-1 cities to begin with — Delhi NCR, Mumbai, Bengaluru
- **Pet Types:** Focus on dogs and cats (90%+ of Indian pet ownership)
- **Secondary Users:** NGOs, pet service providers, veterinary clinics

4. Products & Services

Service Category	Description
Veterinary Support	Bookings for in-clinic or tele-consultation with certified vets
Grooming & Daycare	Appointments with verified groomers and pet care facilities
Training	Personalized sessions via platform-certified trainers
Knowledge Center	Credible guides and wellness checklists
Pet Health Tracker	Maintain pet records with reminders for vaccines, deworming, etc.
NGO Collaboration	Adoption listings, volunteering opportunities, and donations
E-commerce (Phase 2)	Organic food, toys, supplements, and accessories

5. Revenue Model

Source	Details
Commissions	10–20% per booking from groomers/trainers/vets
Subscriptions	199/month or 999/year for premium plans
Sponsored Listings	Promoted service providers on the platform
E-commerce	Commission-based pet product sales
B2B SaaS Tools	CRM & dashboards for clinics, NGOs, grooming centers

6. Go-to-Market Strategy

Acquisition Channels:

- Social media marketing (Instagram reels, influencer collabs)
- Google Ads for geo-targeted service ads
- Referral rewards and loyalty programs
- NGO-led adoption events and offline campaigns

Expansion Roadmap:

- Year 1 – Launch in NCR, build provider network, validate services
- Year 2 – Expand to Tier-1 cities, add product marketplace
- Year 3 – Launch mobile app, roll out B2B tools
- Year 4–5 – Expand to Tier-2 cities, integrate pet insurance, explore international markets

7. Financial Plan & Unit Economics

Metric	Value
Starting Users	1,000
Average Revenue Per User (ARPU)	150/month
Gross Margin	60%
Customer Acquisition Cost (CAC)	100
Fixed Costs	2.5L/month
Monthly Growth	15%

Based on current burn and scale projections, break-even is expected around Month 13–14.

8. Competitive Advantage

Edge	Differentiator
Trust	Verified service provider profiles, reviews, and badges
All-in-One Platform	Covers grooming, vet, training, adoption services in one place
Technology First	Scalable React/MERN architecture and cloud-native stack
Social Responsibility	Integrated NGO support and ethical pet adoption
Data-Driven Features	Predictive wellness via AI (future roadmap)

9. Risks & Mitigation

Risk	Mitigation Strategy
High CAC	Use referrals, NGO outreach, and vet tie-ups for low-cost growth
Platform Saturation	Focus on hyperlocal success, build community stickiness
Regulatory Risk	Full compliance with the Digital Personal Data Protection Act, 2023
Fragmented Supply	Incentivized onboarding of certified freelancers and SMEs

10. Conclusion

Petopia aims to redefine pet care in India by creating a platform that is not just functional, but trusted and community-first. With a scalable architecture, diverse revenue channels, and growing market demand, Petopia is well-positioned to become India's leading digital pet care ecosystem.

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