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CEN 302 – Software Engineering

PetStoreAndClinic Requirements Specification

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PetStoreAndClinic
Requirements Specification
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1. Executive Summary

1.1 *Project Overview*

Pets are a significant part of people's lives. They are generally regarded as family members and give us company, love, and affection. The demand for pet-related services, such as pet stores and veterinary clinics, is rising along with the number of people owning pets.

Combining pet shops and veterinarian offices has been more popular recently, creating a one-stop shop for all things pertaining to pets. These veterinary clinics and pet stores offer a range of services, such as pet adoption, grooming, training, and medical attention. With this mix of services, pet owners can take care of their animals' requirements without having to go to many sites.

We recognize the value of having access to high-quality goods and services that can ensure the happiness and health of our four-legged friends. For this reason, we're dedicated to providing a broad selection of pet supplies, from food and toys to grooming products and accessories, all at reasonable costs. We're thrilled to provide veterinarian services in our on-site clinic in addition to our pet store. Routine examinations, immunizations, and treatments for typical pet health problems will be offered by our skilled and caring staff of veterinarians.

The goal of this project is to create a pet shop and clinic that serves as a convenient and dependable one-stop shop for all of the needs of pet owners. While the clinic will offer veterinarian services like regular check-ups, vaccinations, and treatments, the store will sell a variety of pet products like food, toys, and accessories.

The management system for the pet store and clinic will make it possible for its clients to access timely and dependable services. The technology will enhance the management of veterinary services, patient data, scheduling of appointments, and inventory. In the project, modern web technologies will be used to make sure the system is scalable and reliable.

This project will outline the purpose, scope, and product/service description for the pet store and clinic, providing a clear understanding of what the business will offer and how it will operate.

1.2 *Purpose and Scope of this Specification*

The goal of this project is to develop an all-inclusive, user-friendly method for pet owners to take care of their animals' requirements in a single location.

This specification's objectives include defining the project's parameters and outlining the features and functionalities of the pet shop and clinic. The pet shop and clinic's design, development, and implementation, as well as the system's ongoing maintenance and support, are all included in the scope of this specification.

Pet owners can save time and effort by having all of their needs for their animals taken care of in one

place by combining a pet store and clinic.

By the end of the project, we want to have reached the following goals:

- To give a complete management system to the pet shop and clinic.
- To make it possible to manage inventory, appointments, and patient data effectively.
- To increase client happiness and service by offering a convenient and trustworthy service
- To boost sales by streamlining the clinic and shop operations
- To offer a user-friendly interface that both staff and clients can utilize

This project will have the following components.

- A store that sells a variety of pet goods, such as food, accessories, and toys.
- A facility that will offer veterinarian care solutions, including as checkups, shots, and medical care.
- Services offered for pet grooming, including bathing and combing.
- Services for finding homes for animals.

2. Product/Service Description

The store enables owners of pets to be able to choose from a wide range of goods and services at the pet clinic and store. Many pet products, including food, toys, accessories, and grooming items, will be available in the store. The facility will provide veterinarian services like examinations, shots, and operations. The clinic will also offer boarding services for animals whose owners are away from home.

Introducing our innovative Pets Store and Clinic software, the all-in-one answer for pet owners who experience lack of management in seeking services in different places.

You will have access to a variety of features and functions with the pet's shop and clinic software that will make your life as a pet owner simpler and more convenient. You'll be able to book veterinarian clinic appointments, get pet food and supplies, keep track of your pet's medical history, and get reminders for immunizations and other appointments.

Our product is really well thought out and meticulously planned, making it simple to use and navigate. You can easily access all of the app's features and operations thanks to its user-friendly layout.

Therefore, this is the ideal answer for you whether you're a pet owner trying to better care for your furry companion or a pet care provider searching for a platform to interact with pet owners.

2.1 Product Context

The platform for the pet's store and clinic is a complete system created for both pet owners and pet care specialists. The app has an intuitive user interface and a host of features and functionalities that are designed to meet the demands of both pets and their owners.

The system enables pet owners to easily browse and buy a variety of pet products and supplies from the comfort of their own homes. Additionally, the platform gives pet owners a way to schedule appointments with veterinarians and communicate with them. The system's integrated messaging feature makes it simple for pet owners and veterinary staff to communicate, ensuring that animals get the best care possible.

The software gives veterinary practitioners a set of tools to simplify their work and raise the standard of care they give to their patients. Veterinarians can conveniently track patient health records, manage their schedules, and connect with pet owners thanks to the app. To assist veterinarians in making knowledgeable choices regarding the health of their patients, the app also includes a complete database of pet care resources, including medicines, treatments, and diagnostic equipment.

Overall, the Pets Store and Clinic Software is a strong and user-friendly platform that connects pet owners with veterinary specialists to make sure that animals get the finest treatment possible.

2.2 User Characteristics

There are five types of users that will interact with the system:

Administrator:

Has access to all functions and settings in the software program

Responsible for managing user accounts, permissions, and data backups

Needs strong technical skills and familiarity with software systems

May also be responsible for financial reporting and analysis

Manager:

Oversees the day-to-day operations of the pet shop

Uses the software program to monitor inventory levels, track sales, and generate reports

Needs strong organizational and leadership skills

May also be responsible for employee scheduling and training

Doctor:

Provides medical care to animals in the pet shop's care

Uses the software program to manage patient records, track treatments and medications, and communicate with other staff members

Needs strong veterinary skills and familiarity with medical terminology

May also be responsible for ordering and tracking medical supplies and equipment

Receptionist:

Greets customers, answers phones, and schedules appointments

Uses the software program to manage customer information, track appointments and payments, and generate invoices

Needs strong communication and customer service skills

May also be responsible for maintaining the cleanliness and organization of the reception area

Client:

Visits the pet shop to purchase supplies or seek medical care for their pets

Uses the software program to schedule appointments, make purchases, and view their pet's medical records

Needs basic computer skills and familiarity with online systems

May also provide feedback to the pet shop regarding their experience and satisfaction with the services provided.

2.3 Assumptions

Administrator:

Assumes that the administrator has access to sensitive data, and therefore requires high levels of trust and security measures to prevent unauthorized access or data breaches.

Assumes that the administrator has sufficient technical knowledge to troubleshoot and resolve technical issues in the software program.

Assumes that the administrator is responsible for creating and managing user roles, and therefore requires strong organizational and communication skills.

Manager:

Assumes that the manager has a high level of authority and decision-making power in the pet shop, and therefore requires strong leadership and strategic planning skills.

Assumes that the manager has a good understanding of the pet industry and customer needs, and therefore requires good customer service and marketing skills to attract and retain clients.

Assumes that the manager may be responsible for managing budgets and finances, and therefore requires some financial literacy.

Doctor:

Assumes that the doctor has a good understanding of animal behavior, anatomy, and diseases, and therefore requires strong veterinary skills and knowledge.

Assumes that the doctor may need to work long hours and be available for emergency situations, and therefore requires flexibility and adaptability.

Assumes that the doctor may need to communicate with other veterinary professionals or specialists, and therefore requires good communication and collaboration skills.

Receptionist:

Assumes that the receptionist is the first point of contact for clients, and therefore requires good communication and customer service skills.

Assumes that the receptionist may need to handle difficult or upset clients, and therefore requires some conflict resolution and problem-solving skills.

Assumes that the receptionist may need to multitask and handle multiple requests or tasks at once, and therefore requires good time management and organizational skills.

Client:

Assumes that the client is interested in finding quality pet products or services, and therefore requires a user-friendly and informative interface in the software program.

Assumes that the client may not be familiar with the software program or technology, and therefore requires clear instructions and guidance.

Assumes that the client may have specific preferences or needs for their pets, and therefore requires some customization or personalization options in the software program.

2.4 Constraints

Hardware Constraints:

The software program may need to run on specific hardware platforms, such as desktop computers or mobile devices, which could limit the features or functionality of the program.

The pet shop may have limited or outdated hardware resources, which could affect the performance or speed of the software program.

Time Constraints:

The development of the software program may need to be completed within a specific timeframe, such as before the opening of a new pet shop location, which could limit the scope or complexity of the program.

The software program may need to be updated or modified frequently to keep up with changing pet industry trends, which could require ongoing time and resources.

Budget Constraints:

The pet shop may have limited financial resources to allocate towards the development of the software program, which could affect the features or quality of the program.

The cost of acquiring or integrating with other software programs or systems may be prohibitively

expensive, which could limit the functionality or compatibility of the software program.

Regulatory Constraints:

The pet shop may be subject to regulations or guidelines governing the use of personal or medical data, which could affect the privacy or security of the software program.

The pet shop may need to comply with specific standards or certifications, such as those required for medical or veterinary software, which could affect the development or deployment of the software program.

User Constraints:

The users of the software program, such as the receptionists or clients, may have different levels of technical knowledge or experience, which could affect the usability or accessibility of the program.

The users of the software program may have specific needs or preferences, such as language or cultural differences, which could require customization or localization of the program.

2.5. Dependencies

Database Dependencies:

- The software program may need to rely on a database or data management system to store and retrieve information, which could affect the performance or scalability of the program.
- The structure and format of the database may need to be designed to meet the specific needs of the pet shop, which could require careful planning and coordination between developers and stakeholders.

API Dependencies:

- The software program may need to integrate with other third-party software programs or services, such as payment processing or shipping providers, which could affect the functionality or compatibility of the program.
- The API specifications and requirements of these third-party providers may need to be considered during the design and development of the software program.

User Interface Dependencies:

- The software program may need to provide a user interface that is consistent and intuitive across different devices and platforms, which could require careful design and testing.
- The user interface may need to be designed to meet the needs and preferences of different types of users, such as receptionists or clients, which could require customization or personalization options.

Hardware Dependencies:

- The software program may need to run on specific hardware platforms or devices, such as desktop computers or mobile devices, which could affect the performance or functionality of the program.

- The hardware specifications and requirements of these devices may need to be taken into account during the design and development of the software program.

Code Dependencies:

- The software program may be composed of different modules or components that rely on each other to function properly, which could require careful management and coordination between developers.
- The code dependencies between these modules or components may need to be well-documented and tested to ensure that any changes or updates to the program do not break existing functionality.

3. Requirements

3.1 Functional Requirements

Req#	Requirements	Comments	Priority	Date	Approved
FR_01	The software should provide the ability to manage the store's inventory, including tracking stock levels, placing orders with suppliers, and receiving and restocking merchandise. The system should also provide real-time inventory updates and alerts for low inventory levels.	The ability to manage inventory is critical for any retail business, including pet stores. A software system that provides real-time inventory updates and alerts can help administrators make informed decisions about when to order more products, reducing the risk of stockouts and lost sales.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_02	The software should provide the ability to manage the store's employees, including hiring, training, scheduling, and performance evaluations. The system should also provide access to employee information, such as contact information and job responsibilities.	Managing employees is another key responsibility of pet store administrators. A software system that provides tools for scheduling, tracking time and attendance, and managing employee information can help streamline these tasks and ensure that the right people are working at the right times.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_03	The software should provide the ability to manage the store's financial operations, including tracking sales, managing expenses, and creating budgets. The system should also provide financial reports, such as income	Financial management is essential for any business, and pet stores are no exception. A software system that provides financial reports and the ability to generate invoices and process payments can help administrators keep track of	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	statements and balance sheets, and the ability to generate invoices and process payments.	sales and expenses and make informed decisions about how to allocate resources.			
FR_04	The software should provide the ability to manage the store's customer relationships, including maintaining customer records, tracking customer interactions, and managing customer feedback. The system should also provide tools for analyzing customer data to improve marketing and customer service.	Pet stores rely on repeat business and positive word-of-mouth to succeed, so building and maintaining strong customer relationships is critical. A software system that provides tools for managing customer records, tracking interactions, and analyzing customer data can help administrators improve customer service and retention.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_05	The software should provide the ability to generate reports and perform analytics on store data, such as sales trends, inventory levels, and employee performance. The system should also provide customizable dashboards and visualizations to help administrators quickly understand store performance and identify areas for improvement.	Finally, a software system that provides reporting and analytics tools can help pet store administrators make data-driven decisions. Customizable dashboards and visualizations can provide quick and easy access to key performance indicators, helping administrators identify trends, track progress, and make adjustments as needed.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_06	The software should provide the ability to manage sales and inventory, including tracking stock levels, placing orders with suppliers, and analyzing sales data. This information can help managers make informed decisions about what products to stock, how to price them, and how to optimize sales.	Effective sales and inventory management is crucial for a pet store manager. A software system that integrates sales and inventory data can provide real-time insights, enabling managers to make data-driven decisions about purchasing, pricing, and stock management, ultimately improving profitability and customer satisfaction.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_07	The software should provide the ability to schedule and manage employee shifts and track employee time and	Managing employee schedules and tracking attendance can be a complex task for a pet store manager. A software system	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	attendance. This information can help managers ensure that the store is staffed properly and that employees are paid accurately.	that automates scheduling and timekeeping processes can save time, reduce scheduling conflicts, and ensure accurate payroll management, allowing managers to focus on other critical aspects of store operations.			
FR_08	The software should provide the ability to manage customer relationships, including tracking customer interactions and analyzing customer data. This information can help managers identify trends, improve customer service, and increase customer retention.	Building strong customer relationships is vital for a pet store's success. A software system that facilitates customer relationship management can help managers track customer interactions, preferences, and purchase history, enabling personalized service and targeted marketing strategies to enhance customer satisfaction and loyalty.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_09	The software should provide the ability to generate reports and perform analytics on store data, such as sales trends, inventory levels, and employee performance. This information can help managers identify areas for improvement, track progress over time, and make data-driven decisions.	Access to comprehensive reporting and analytics is essential for effective decision-making by pet store managers. A software system that provides customizable reports and analytical tools empowers managers to gain valuable insights into sales performance, inventory trends, employee productivity, and customer behavior, enabling them to identify opportunities for improvement and drive business growth.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_10	The software should provide the ability to manage marketing and promotion activities, including creating and managing campaigns, analyzing campaign data, and optimizing marketing spend. This information can help managers increase store traffic, drive sales, and	Effective marketing and promotion strategies are key to attracting new customers and retaining existing ones. A software system that streamlines marketing and promotion management can assist managers in planning, executing, and evaluating marketing campaigns,	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	improve brand awareness.	optimizing budget allocation, and measuring the return on investment, resulting in increased brand visibility and customer engagement.			
FR_11	The software should provide the ability to create, manage, and access electronic medical records for the pets visiting the store. This includes capturing detailed patient information, medical history, diagnostic tests, treatment plans, and medication records.	Having a software system that enables the management of electronic medical records is essential for a doctor at a pet store. It allows for accurate and organized documentation of patient information, ensuring easy access to medical history, facilitating diagnosis and treatment decisions, and promoting efficient and coordinated care.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_12	The software should enable efficient appointment scheduling for pet owners and provide automated reminders to both the doctor and the pet owners. This helps in managing the doctor's schedule and ensures timely and organized patient visits.	Efficient appointment scheduling and reminders are crucial for maintaining a well-organized veterinary practice. A software system that automates these processes helps the doctor manage their schedule effectively, minimizes no-shows, and ensures that pet owners and their pets receive timely care.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_13	The software should integrate with diagnostic equipment and laboratory systems, allowing the doctor to easily access and interpret test results, such as blood tests, X-rays, or ultrasounds. It should also provide tools for documenting and tracking the results within the patient's medical record.	Integration with diagnostic equipment and laboratory systems streamlines the workflow for doctors. Having access to test results within the software system allows for quick and accurate interpretation, better diagnosis, and informed treatment decisions. It also aids in maintaining a comprehensive record of diagnostic procedures for each patient.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_14	The software should support the prescription and management of medications	Effective prescription and medication management are critical for providing proper	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	for pets. This includes electronic prescription generation, tracking medication dosages and refills, and providing alerts for potential drug interactions or allergies.	healthcare to pets. A software system that supports prescription generation, tracking of medications, and alerts for potential drug interactions helps the doctor prescribe the right medications, monitor dosages, and ensure the safety and well-being of the pets under their care.			
FR_15	The software should facilitate communication and collaboration between the doctor and other team members, such as receptionists or technicians. It should provide secure messaging, task assignment, and sharing of medical records, ensuring effective coordination and streamlined patient care.	Communication and collaboration tools are essential for a doctor working in a pet store environment. A software system that facilitates secure messaging, task assignment, and sharing of medical records promotes effective teamwork among the doctor and other staff members. This improves overall efficiency, coordination of care, and ensures that all team members are on the same page when it comes to patient management.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_16	The software should provide the ability to schedule appointments for pet owners, including capturing necessary details such as pet information, reason for visit, and preferred time slots. It should also allow for efficient rescheduling and cancellations, and provide reminders to both the receptionist and the pet owners.	Efficient appointment scheduling is crucial for a receptionist at a pet store. A software system that enables easy scheduling, rescheduling, and cancellations, while also providing reminders, helps the receptionist effectively manage the appointment calendar and ensures a smooth flow of customers.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_17	The software should enable the receptionist to manage customer and pet information effectively. This includes capturing and updating contact details, pet profiles,	Accurate and up-to-date customer and pet information is vital for providing personalized service. A software system that centralizes and organizes	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	medical history, vaccination records, and any specific instructions or preferences from the pet owners.	customer and pet data allows the receptionist to access important details quickly, improving customer interactions, and ensuring that the pet store can deliver tailored care based on individual pet needs.			
FR_18	The software should facilitate a streamlined check-in and check-out process for pet owners visiting the store. This includes capturing arrival and departure times, updating appointment statuses, handling necessary paperwork, and processing payments efficiently.	A streamlined check-in and check-out process is essential for maintaining efficient operations and a positive customer experience. A software system that simplifies these processes, capturing necessary information, updating appointment statuses, and facilitating smooth payment transactions, enables the receptionist to manage customer flow effectively.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_19	The software should support billing and invoicing functions for the pet store. It should generate accurate invoices based on services provided, track payments, manage discounts or promotions, and provide receipts to pet owners. Integration with financial systems may also be necessary for seamless accounting processes.	Accurate billing and invoicing are critical for the financial management of a pet store. A software system that automates billing processes, generates invoices based on services provided, tracks payments, and ensures accurate record-keeping helps the receptionist streamline financial transactions and maintain financial integrity.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_20	The software should provide communication tools for the receptionist to interact with pet owners. This can include features like appointment reminders, sending notifications or updates, and maintaining a log of communications for reference. Integration with other communication channels, such as email or	Effective communication with pet owners is essential for providing exceptional customer service. A software system that facilitates communication tools, such as appointment reminders and notifications, allows the receptionist to keep pet owners informed and engaged. Maintaining a log of communications also helps in reference and documentation	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	SMS, can also be beneficial.	purposes.			
FR_21	The software should provide an easy-to-use interface for clients to search and browse the available products at the pet store. This includes the ability to filter products by category, brand, price range, and other relevant attributes, enabling clients to find the specific items they are looking for.	A user-friendly software system that allows clients to search and browse products easily enhances their shopping experience. By providing robust search functionality and intuitive navigation, clients can quickly find the desired pet products, saving time and ensuring they have access to a wide range of options.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_22	The software should allow clients to place orders online for products they wish to purchase. This includes a seamless checkout process, secure payment options, and the ability to track the status of their orders. It should also provide order history for reference and easy reordering.	Enabling clients to place orders online simplifies the purchasing process and offers convenience. A software system that supports seamless online ordering, secure payment options, and order tracking enhances client satisfaction and provides a hassle-free shopping experience.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_23	If the pet store offers services such as grooming, training, or veterinary appointments, the software should enable clients to book these services online. It should provide a clear overview of available time slots, pricing, and any specific requirements, allowing clients to easily schedule appointments for their pets.	If the pet store offers additional services, such as grooming or veterinary appointments, a software system that facilitates online bookings makes it easier for clients to schedule appointments for their pets. This functionality streamlines the process, allowing clients to choose convenient time slots and access necessary information, ultimately enhancing their overall experience.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_24	If the pet store has a loyalty program in place, the software should integrate with it to provide clients with benefits and rewards. This includes the ability for clients to view and track their loyalty points, redeem rewards, and receive	Integrating a loyalty program into the software system encourages client engagement and rewards their loyalty. By allowing clients to track their loyalty points, redeem rewards, and receive personalized offers, the	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	personalized offers or discounts based on their loyalty status.	software enhances client satisfaction and fosters a sense of loyalty and appreciation.			
FR_25	The software should provide channels for clients to seek customer support and provide feedback. This can include access to FAQs, live chat support, or a ticketing system for submitting inquiries or issues. It should also offer a mechanism for clients to provide feedback on their shopping experience or suggest improvements.	Providing channels for clients to seek support and provide feedback is crucial for maintaining excellent customer service. A software system that offers accessible customer support, such as live chat or ticketing systems, and encourages feedback submission ensures that clients feel valued and can easily address any concerns or inquiries they may have.	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_26	The website should feature a comprehensive product catalog, allowing visitors to browse and search for pet products. It should include categories, filters, and a search functionality to help users find specific items easily.	A comprehensive product catalog and search functionality on the website make it easy for visitors to find the pet products they need. By providing clear categories, filters, and an intuitive search feature, the website enhances user experience and helps customers quickly locate and explore the desired products.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_27	The website should enable visitors to add products to a shopping cart, proceed to checkout, and make secure online payments. It should provide a streamlined and intuitive shopping experience, including order tracking and confirmation emails.	Enabling online shopping and a seamless checkout process on the website allows visitors to make purchases conveniently. By providing a user-friendly interface, secure payment options, and order tracking capabilities, the website enhances customer satisfaction and encourages repeat purchases.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_28	If the pet store offers services such as grooming, training, or veterinary care, the website should provide detailed information about these services. It should also allow visitors to book appointments or request services online,	Providing detailed information about pet services and allowing visitors to book appointments online enhances convenience for pet owners. By offering accessible information on services offered, pricing, and available time slots, the	1	07/04/2023	Mauricio Spaho/Kleo Kocaqi

	providing available time slots and capturing necessary information.	website helps customers make informed decisions and schedule services for their pets effortlessly.			
FR_29	If the pet store is involved in pet adoption or rescue, the website should feature information about available pets for adoption. It should provide profiles, photos, and adoption procedures, allowing potential adopters to express interest or submit applications.	Featuring information about pet adoption and rescue initiatives on the website highlights the pet store's commitment to animal welfare. By providing profiles and adoption procedures, the website helps potential adopters understand the process and find their perfect furry companion, contributing to successful adoptions and promoting responsible pet ownership.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi
FR_30	The website should offer educational resources and a blog section with informative articles about pet care, training tips, health advice, and other relevant topics. This helps establish the pet store as a knowledgeable resource and provides value to visitors.	Offering educational resources and a blog section on the website demonstrates the pet store's expertise and commitment to pet care. By sharing valuable content such as training tips, health advice, and relevant articles, the website not only educates visitors but also establishes the store as a reliable source of information, building trust and fostering engagement with the pet-loving community.	2	07/04/2023	Mauricio Spaho/Kleo Kocaqi

Table 1. Functional Requirements

3.2 Non-Functional Requirements

3.2.1 Product Requirements

3.2.1.1 User Interface Requirements

The user interface for the web applications should be compatible with any browser for the user to access it from a Desktop or Mobile. In addition to the functions required, we are going to describe the characteristics of each interface which are supported by the sketches attached in Appendix D.

The User interface could be grouped into 6 main interfaces:

1. Log-In Interface

Which will contain:

- The header bar containing the PETSTOREANDCLINIC logo, “PetStoreAndClinic” and a telephone number.
- In the body, three icons will be shown, one for each user: receptionist, doctor, and manager. These icons will serve as buttons to log in to the system. When the button is pressed the log-in form is displayed.
- The login form contains fields <Username> and <Password>, a reCAPTCHA to make sure the user is not a robot, and a button <Log In>. When that button is pressed the information is validated and the respective interface is shown to the user (client/doctor/receptionist/manager/administrator) or an error notification indicating a wrong username or password will be shown.

2. Receptionist Interface

Which will contain:

- The header bar containing the PETSTOREANDCLINIC logo and “Receptionist <Name> <Surname>”, a “Home” button, and a “Log out” button.
- The main view (“Home”) contains six buttons: “My profile”, “Pet’s list”, “Add a new pet”, and “Change password”.
- “My Profile” will allow the receptionist to see all his personal information.
- “Pet’s List” will show a full list of the pets of that clinic. For each pet, the receptionist can view his full profile, can update his information, can delete his profile, can export his medical file, or can allow the doctor to create a visit for that pet. When he clicks “View profile”, he can see the full details and the examinations of that pet. He can also download that information in a PDF file. When he clicks “Update profile”, he can change the personal information of that pet. When he clicks “Delete” a pop-up window will appear to ensure that the receptionist wants to delete that pet. When he clicks “Export”, an XML file will be created and it can be sent to other clinics or hospitals. When he/she clicks “Create visit”, it allows the doctor to add a new examination record for that pet.
- “Add a New Pet” allows the receptionist to create a new user, and type pet. He will be responsible for filling all the obligatory fields with valid information provided by the patient. If there already exists an XML file of that patient, he can import that file.
- “Change Password” will display a simple form that contains fields <Current Password>, <New Password>, <Confirm New Password>, and a button <Save Changes>. When that button is pressed the system checks if the current password matches, then check if the new password

is the same in both fields and validates the password format (for example only alphanumeric characters at least one number, and one uppercase). If all the validations are correct it displays a message that says “Password was changed successfully!” otherwise displays a message with the respective error.

- The “Log out” will terminate the current session and will resent the user to the main page.

3. Doctor Interface

Which will contain:

- The header bar contains the PETSTOREANDCLINIC logo, “Doctor <Name> <Surname>” and a menu icon, which when pressed shows all available menus.
- The “Home” menu directs the doctor to a page, where he can see the personal information on the left side of the screen and a table with all the pets waiting to be examined by him at the center. For these pets, the doctor can choose to view their profiles or to write the examination. If he chooses “Create Visit” a form with all the necessary fields of an examination will be shown. If he chooses “View Profile” for a specific pet, he will be directed to a page where the personal information and the medical records are shown. From there, he can view and download his medical visits.
- The “My Pets” menu will display a table with all the pets of that specific doctor. For each pet, he can view the full profile: personal information, and all the medical examinations. He can also download a PDF file of this information. Above the table of the pets, there is a search box that can be used to find a specific pet.
- The “Change Password” menu will display a simple form that contains fields <Current Password>, <New Password>, <Confirm New Password>, and a button <Save Changes>. When submit button is pressed the system checks if the current password matches, then check if the new password is the same in both fields and validates the password format (for example only alphanumeric characters at least one number, and one uppercase). If all the validations are correct it displays a message that says “Password was changed successfully!” otherwise displays a message with the respective error.
- The “Log out” will terminate the current session and will resent the user to the main page.

4. Manager Interface

Will contain:

- The manager interface of the pet shop and clinic should also include a login page for the manager to access their account. The login page should be secure and require a unique username and password to prevent unauthorized access.
- Once the manager has logged in, they should be taken to the dashboard where they can view all important information. Dashboard: A central location where the manager can view

all important information, such as appointments, inventory, and financials. The dashboard should be customizable so that the manager can choose what information they want to see at a glance.

- **Inventory Management:** A way to manage the inventory of the pet shop, including adding and removing products, tracking stock levels, and generating reports on inventory usage and sales.
- **Financial Management:** A way to manage the finances of the pet shop, including generating invoices, recording payments, tracking expenses, and generating reports on financial performance.
- **Staff Management:** A way to manage staff members, including adding and removing staff, managing schedules, and tracking employee performance.

5. Administrator pages Interface

Will contain:

- **Navigation Menu:** The navigation menu should be located on the left-hand side of the screen and should provide easy access to different sections of the PETSTOREANDCLINIC, such as user management, database management, appointment management, inventory management, financial management, reporting, security, and system settings.
- **Dashboard:** The dashboard should provide a quick overview of the pet shop and clinic's performance, such as financial performance, inventory levels, appointment schedules, and staff performance. The data should be presented clearly and concisely, allowing the administrator to quickly view and analyze the information.
- **Data Tables:** The data tables should allow the administrator to view and manage different aspects of the PETSTOREANDCLINIC, such as pets, clients, staff members, appointments, inventory items, and financial transactions. The data tables should be easily sortable and filterable, allowing the administrator to quickly find the information they need.
- **Forms:** The forms should allow the administrator to add, edit, and delete different types of data within the PETSTOREANDCLINIC, such as pets, clients, staff members, appointments, inventory items, and financial transactions. The forms should be user-friendly and intuitive, guiding the administrator through the necessary steps to complete the operation.
- **Reports:** The reports should provide the administrator with insights into different aspects, such as financial performance, inventory usage, appointment management, and staff performance. The reports should be easy to generate and export, allowing the administrator to share the information with other stakeholders.
- **Settings:** The settings section should allow the administrator to customize different aspects, such as business hours, appointment types, payment methods, and other critical configurations. The settings should be easy to understand and change, allowing the

administrator to adapt the page to the pet shop and clinic's specific needs.

- **Help and Support:** The help and support section should provide the administrator with access to training and documentation resources, such as user manuals, video tutorials, and FAQs. The section should also allow the administrator to contact technical support for assistance with any issues they may encounter.

6. Client Interface

Will Contain:

- Navigation Menu in order to access their profile and their pets.
- In their profile interface they can view all their information and have to availability to change some information such as username and password.
- In their pets interface they can view a list of all their pets and have the availability to select one of them.
- For each pet they can view their pet's general and medical information, and all the transactions that they have placed for the pets.

3.2.1.2 Learnability

- Clinic staff and veterinarians should be able to master using the system within a few hours.
- Pet owners will not need a specific training since the system will be intuitive.
- This documentation can serve as a user guide to the clinic staff, pet owners, and veterinarians.
- In case of an error, a specific and detailed message will be shown to the user in order for them to understand what went wrong.
- The user is responsible for their own actions.

3.2.1.3 Accessibility

- Each user is provided with their username and password at the time they register with the system.
- Clinic staff, pet owners, and veterinarians can access the system.
- The registered users can access the system at any time and from any place.

3.2.1.4 Efficiency

- Each operation will be fast and in real time.
- Once the users have learned the system they will be able to perform each operation within

minutes.

3.2.1.5 Memorability

- The system is intuitive hence, it is not a problem if you 'vaguely remember' how to use it.
- If the users return to the design after a period of not using it they will be able to re-establish proficiency within the first hour.
- The user interfaces are designed to be easy understandable by the user (pictures, icons, buttons, descriptions etc.)

3.2.1.6 Errors

- The error rate is lower than the current error rate.
- Each time sensitive data is entered in the system double check procedure is applied where the user confirms the entered data.
- If an error occurs it can be edited and corrected immediately.

3.2.1.7 Satisfaction

- The system is user-friendly and it is very easy to use.

3.2.1.8 Capacity

This application will be developed to cover all the necessities of one pet store clinic. The application will work at the same time for the pet owners, veterinarians, and clinic staff. It will work in real-time, so every change made will be reflected immediately to the other users (based on their clearance).

Every user will use the same database, therefore if multiple requests are made to the server, the requests will form a query slightly delaying the process. To increase the capacity and to lower the number of times this happens, the user will make the changes storing them in their computer, then they will be sent to the database. This way, even if there is a delay, it will allow them to continue their job.

The application will be stored on a web server. The application itself is not large, and the database that we are going to use does not occupy a large space either.

3.2.2 Organizational Requirements

3.2.2.1 Availability

- The application will be available 24 hours per day, every day.
- The application will be available to everyone who owns a PC or mobile device connected to the Internet, therefore any user can access their data anywhere.

- The application will be developed such that it will not be forced to encounter downtime since the data used

3.2.2.2 Latency

The latency of the web application will depend on:

- Internet connection strength.
- The size of the database.
- The efficiency of the algorithms used to fetch data from the database.
- The number of concurrent users accessing the system.

To ensure acceptable latency, the following requirements must be met:

- The system must be able to handle at least 50 concurrent users without significant latency issues.
- The system must be able to load customer and pet information within 3 seconds of a request.
- The system must be able to complete transactions within 5 seconds of a request.

3.2.2.3 Monitoring

To ensure the system is running smoothly and efficiently, the following monitoring requirements must be met:

- The system must log all user actions, errors, and transactions for auditing purposes.
- The system administrator must be able to monitor system performance in real-time and receive alerts when performance thresholds are exceeded.
- The system must have automated monitoring of the system's database, server, and network to detect any issues.
- The system must have automated backups of all data in the event of a system failure.
- The system must be able to recover from a system failure within 1 hour of the failure.
- Periodic reports shall be generated by the system maintenance group. These reports shall be used not only to detect problems but also to find possible ways to improve the system.

3.2.2.4 Maintenance

- The system will be developed using MySQL for the database and APACHE server. Therefore, these two platforms will be used to maintain the application.
- In case of system malfunction, a system restart should help. If that does not help, then maybe the server is down, so the maintenance department should be contacted.
- In case of any software update or bug correction, the users will be informed.
- The software will have a mechanism to automatically backup data at regular intervals to prevent data loss in case of hardware failure or other issues.

- The software should be designed with modular architecture to facilitate easy maintenance and updates.
- The software will be designed to provide useful error messages to help administrators and developers quickly troubleshoot and fix issues.

3.2.2.5 Operations

Some of the operations that will be provided to the users are:

- The clients can log in and access their and their pet's personal information anytime.
- The information entered into the system is accessed only by the people who really need access.
- Create, Read, Update, and Delete Managers (Done by Administrator).
- Create, Read, Update, and Delete Receptionists (Done by managers).
- Create, Read, Update, and Delete Doctors (Done by managers or the administrator).
- Doctors can view the personal information and medical records of the client's pet.
- Download a PDF with the medical examinations of a specific patient(pet).
- Export the medical file of a specific patient and use it to send it to another hospital.
- Allow the doctors to edit only the medical records of patients.
- Leave feedback for the service.
- Allow the receptionist to edit only non-medical records of patients.

The application will be available 24/7, although the busiest time frames shall be 8 AM to 11 AM and from 4 PM to 7 PM. These time frames are based on the flux of the people requesting visits, thus it is not fixed and it varies from day to day.

The information entered to the system is considered to be sensitive, that is why it is secured with hashed passwords.

3.2.2.6 Standards Compliance

Our application is a new system developed to digitalize the filing system in polyclinics. Although the system is a new concept, it is bounded by some existing standards. Despite the view, the personal information of the user must have all the fields that are present in the current file format of the pet store and clinic. The same obligation is valid for the examination page. Also, the user ID and other information will continue to follow the standards created by the Ministry of Health of Albania. Everything will be in

accordance with the law and the Ministry of Health.

3.2.2.7 Portability

- The system will be web-based; therefore, it will operate the same regardless of the operating system.
- All you need is a computer or mobile phone and an Internet connection.
- The software should be designed to be easily portable to different platforms or environments.

3.2.3 External Requirements

3.2.3.1 Security

The software should be designed with strong encryption mechanisms to protect sensitive data such as medical records and payment information. The software should have features to prevent unauthorized access to the system, such as multi-factor authentication and role-based access control.

3.2.3.2 Protection

- To protect the system from malicious or accidental access, modification, disclosure, destruction, or misuse we will take the following precautions:
- Encrypt the most sensitive information such as passwords using the hashing method to protect privacy.
- We will keep track of the activity of each user, such that in case of a problem the user will be held responsible.
- The receptionist is responsible for the personal data authenticity of the user he/she enters; hence the system is not responsible.
- The system will validate each data for special characters and other specific conditions before inserting or updating in the database.
- To make sure that some action is intentional and not accidental, most of the actions of the users are protected by a pop-up window to confirm that action.
- Each client will see only the information related to his/her pet.
- Each doctor will only see the data of his/her patients.
- The software should have features to prevent data loss due to hardware failures, such as regular backups and redundancy measures.

3.2.3.3 Authorization and Authentication

The Authorization and Authentication factors:

- The user authentication will be using username, password and reCAPTCHA.
- Authorization will be based on the user type. Each user will access only the respective information.
- Using sessions for the currently logged user.
- If the user tries to log in with the wrong credentials a message will be shown to him/her.

3.3 Domain requirements

This Web Application operates in the field of Medicine, more specifically in the Animal Medical Service section. The main purpose is to digitalize pets' medical information, in order to make data retrieval easier and more efficient. However, the most important thing in this Web Application is data security. Since it will hold sensitive information (e.g., Pet Owners' ids), it should be accessible only to users that have an account on this platform. This software is supposed to be used in a specific veterinarian business with a public network (in order to be accessible by pet owners from anywhere) and it does not have to communicate with any other system.

4 Software Design / Diagrams

4.1 Requirements Analysis

4.1.1 User Scenarios

4.1.1.1 User Scenarios List

<i>Nr</i>	<i>Name</i>	<i>Description</i>
US_01	User logs in	The user (client, receptionist, doctor, manager, or administrator) logs into the system to access the service by having a unique username and password
US_02	User views their profile	This is the procedure of each of the users viewing their profile. The user could be a manager/doctor/receptionist/client or administrator.
US_03	User edits their information	The Client, Receptionist, Doctor, Manager, and Administrator need to update their information.
US_04	Create a new user	To create a new user, we must have this status: receptionists can create clients; managers can create clients, receptionists, and doctors; admin can create any of them.
US_05	Search for a user	To search for a special user, we must have the right status to do this. (EX: receptionists can search only for users; managers can search for clients, receptionists, and doctors; admins can search for anybody, clients can search for doctors)

US_06	Edit a searched user	To edit a searched user profile, we must have the respective status as we mention above.
US_07	Fire an employee	The administrator can fire any employee. The Manager can fire only the receptionist and doctors. Both should log in from their specific user to fire an employee.
US_08	Add a new pet	The receptionist/Manager/Administrator can add a new pet
US_09	Search for a pet	Receptionist/Doctor/Administrator/Manager search for a specific pet
US_10	Edit a searched pet's information	Administrator / Manager / Receptionist can make changes to various fields relating to pets.
US_11	Add products to a client/pet	Administrator / Manager / Receptionist adds shop's products to client/pet's account.
US_12	Generate a bill for a client/pet	The administrator / Manager / Receptionist generates a bill when clients buy or receive a service.
US_13	Add medical products to a pet	The doctor creates an examination report for the pets that are allowed to do so.
US_14	Transfer an employee	As an administrator of a pet store and clinic, an employee needs to be transferred to another location due to a change in staffing needs.
US_15	Client leaves feedback	A client wants to leave feedback about their recent experience with the pet store and clinic.
US_16	Client books an appointment	The client can book an appointment. The "Doctors" button shows all the doctors who work for this business and their locations and contacts. A client can search for a doctor by typing parts of their name or surname. For the searched and selected doctor, the client can view when the doctor is available and can book an appointment.
US_17	View feedback left by the client	The manager can view the feedback left by clients for their own shop/location. The administrator can view all the feedback left by the clients. Both should log in from their specific user to view respective feedback.
US_18	User logs out	The user logs out of the software and cannot perform any more operations unless logged in again with valid credentials.

4.1.1.2 User Scenarios Extended

1. US_01 – User logs in

1. The user must choose the user type: client/doctor/receptionist/manager/administrator.
2. The user is redirected to the login page
3. The user enters the username and password
4. The user checks the reCAPTCHA 'I am not a robot'.

5. The user clicks the sign-in button.
6. If the data is correct the user is redirected to the user profile page.
7. If the data is not correct an error message will be shown and the user repeats the process.

2. US_02 – User views their profile

1. The user goes to the website and logs in.
2. The user goes to the "My Profile" area.
3. The website loads the user's profile page, which includes a picture, name, and position description.
4. The user has access to and can change contact details such as their address, phone number, and email address.
5. An overview of the administrator's ongoing activities and projects and information on their status and completion dates are available.
6. In addition to any feedback or assessments, they have gotten, the administrator, manager, or doctor can check their performance indicators, which include attendance and productivity.
7. Additionally, the administrator, manager, or doctor has access to their educational background, prior employment history, and any certificates or honors they may have.
8. In order to provide further information, the user can update their profile photo, as well as add links or attachments.

3. US_03 – User edits their information

1. The customer logs into their account on the pet store website following the steps in US_01.
2. They navigate to their account settings.
3. They select the option "Edit".
4. They can edit their name, email address, phone number, and mailing address as needed.
5. Alert: Are you sure you want to continue? YES/ NO
6. If NO, do nothing, we stay on the same page
7. If YES, the system validates data according to the specified requirements
8. If validation is passed successfully, the data is saved in the. An informative
9. message "Information updated successfully!" will be shown and the client is
10. redirected to his/her home page.
11. If validation is not passed successfully, informative messages will show where
12. the problem is, so the client can fix it and continue again
13. After editing their information, they save their changes.

4. US_04 – Create a new user

1. The user logs into their account on the healthcare provider's website.

2. The user navigates to “User” that they want to add on add section of the website based on their status.
3. The user clicks on the "Add New ..." button.
4. The website prompts the user to enter new User information, such as their name, specialty, and contact details.
5. The user enters the required information and clicks "Save" or "Submit".
6. The website displays a confirmation message that the new User has been added successfully.
7. The user can then view the new User's profile page, which includes their contact information, education and training, professional experience, and any specialties or areas of focus.

5. US_05 – Search for a user

1. The user opens the company's website and logs into their account.
2. They navigate to the search bar at the top of the screen.
3. The user selects the User name or profile picture.
4. The website loads the User profile page, displaying their name, job title, and photo.
5. The user enters the other User name or any other identifying information they may have, such as their department or job title.
6. The system returns a list of search results matching the user’s criteria and status.
7. The user selects the correct User from the list.
8. The user views the colleague's profile or contact information, which typically includes their name, job title, department, email address, and phone number.
9. The user can then navigate back to the main website or continue browsing other profiles as needed.

6. US_06 – Edit a searched user

1. The user logs into the company's intranet or directory system.
2. They navigate to the search bar at the top of the screen.
3. The user enters the team member's name or any other identifying information they may have, such as their department or job title.
4. The system returns a list of search results matching the user’s criteria and status.
5. The user selects the worker from the list.
6. The user clicks on the "Edit" button next to the team member's contact information.
7. The system displays a form with the current contact information for the team member.
8. The user updates the team member's contact information, such as their phone number or email address.

9. The user verifies that all the updated information is correct.
10. The user clicks on the "Save" button to save the updated contact information.
- 7. US_07 – Fire an employee**
 1. User logs in as administrator or manager.
 2. Logged-in user searches for an employee.
 3. Logged-in user clicks the button "Fire" for that specific employee.
 4. Alert: Are you sure you want to continue? YES/ NO
 5. If NO, do nothing, we stay on the same page.
 6. If YES, the information for that employee is deleted from the database since he is no longer employed. The message "Employee fired successfully!" will be shown and the user is redirected to his/her home page.
- 8. US_08 – Add a new pet**
 1. User logs in following the steps US_01 as Receptionist/Manager/Administrator
 2. The user clicks on the "Add a New Pet" button
 3. A user form is shown on the screen
 4. The user fills all the empty fields
 5. The user double-checks, if the data entered, is correct
 6. The user clicks the button "Add Pet"
 7. Alert: Are you sure you want to continue? YES/ NO
 8. If NO, do nothing, we stay on the same page
 9. If YES, the system validates data according to the specified requirements
 10. If validation is passed successfully, the data is saved in the database and the account is created. An informative message "Pet added successfully!" will be shown and the user is redirected to his/her home page.
 11. If validation is not passed successfully, informative messages will show where the problem is, so the user can fix it and continue again from step d.
- 9. US_09 – Search for a pet**
 1. User logs in following the steps in US_01 as Receptionist/Doctor/Manager/Administrator
 2. The user clicks on "Pet's list"
 3. A table with all the pets will be shown and a search box above it
 4. The user fills in the registered name of the pet or owner's name and surname
 5. If results were found, they will be shown in Table
 6. If no result was found, the table will be shown as empty
- 10. US_10 – Edit a searched pet's information**
 1. Administrator / Manager / Receptionist logs in following the steps in US_01.
 2. Administrator / Manager / Receptionist clicks on the "Profile" button that is located on the home page.
 3. The administrator / Manager / Receptionist then clicks on the "Edit" button.
 4. The system will redirect to a form with all the data that are editable.

5. To edit the pet's information, the administrator/manager/receptionist can navigate to the pet's profile page and click on the "Edit" button.
6. The system opens a form where users can make changes to various fields, such as the pet's name, age, breed, weight, and medical history.
7. Once the authorized user has made all the necessary changes, can save the updated information by clicking the "confirm" button.
8. Alert: Display a confirmation message that the changes have been applied successfully.
9. If, NO do nothing, stay on the same page.

11. US_11 – Add products to a client/pet

1. Administrator / Manager / Receptionist logs in following the steps in US_01.
2. Administrator / Manager / Receptionist after being directed to its homepage clicks "Clients".
3. Administrator / Manager / Receptionist searches for specific clients following the steps in US_09 and selects the client's profile.
4. The system opens the inventory where all non-medical items are shown.
5. Administrator / Manager / Receptionist clicks on the "Add Product" button and searches the inventory for the items that the Client has requested.
6. Once the authorized user has added all wanted products, can save the updated information by clicking the "confirm" button.
7. Alert: Display a confirmation message that the products have been added successfully.
8. If, NO do nothing, stay on the same page.
9. OR
10. Administrator / Manager / Receptionist after being directed to its homepage clicks "Pets".
11. Administrator / Manager / Receptionist searches for a specific pet following the steps in US_09 and selects the pet's profile.
12. And do the same steps as for the client's page.

12. US_12 – Generate a bill for a client/pet

1. Administrator / Manager / Receptionist logs in following the steps in US_01.
2. Administrator / Manager / Receptionist navigates to the client/pet's profile that previously received a prescription from the doctor.
3. Check that the doctor has added the prescribed medication to the client/pet's profile along with the details of the check-up.
4. Click on the "Generate Bill" button to create a bill for client/pet.
5. The system automatically includes the cost of the check-up and the medication.
6. The administrator / Manager / Receptionist prints out the bill and gives it to the client OR receives payment through the page's online system.

7. Alert: The system updates the client/pet's profile accordingly, ensuring that the veterinarian and other staff members are aware and displays a confirmation message that the payment has been made successfully.
8. If, NO generate the bill but don't update the profile.

13. US_13 – Add medical products to a pet

1. The doctor logs in to the page that the manager/administrator has given access to.
2. The doctor navigates to the pet's profile page.
3. Selects the "medical records" tab.
4. Selects the "Add record" button.
5. The doctor edits the relevant medical information, such as diagnoses, medications, and procedures performed.
6. The doctor saves the record by clicking the "Save" button.
7. The system will update the pet's medical record with the new information.
8. Alert: Display a confirmation message to the user that the pet's medical record has been successfully updated with the new information.
9. If, NO stay on the same page.

14. US_14 – Transfer an employee

1. The administrator logs into their account on the pet store website following the steps in US_01.
2. The administrator selects the employee they want to transfer from the employee management section.
3. The administrator selects the "Transfer" option.
4. The administrator enters the name or location of the destination shop/location.
5. The system displays a confirmation message with the details of the transfer.
6. The administrator confirms the transfer.
7. The system updates the employee's information to reflect their new location.
8. The employee is notified of the transfer and their new work location.

15. US_15 – User leaves feedback

1. The client logs into their account on the pet store website following the steps in US_01.
2. The client visits the pet store and clinic Website and navigates to the feedback section.
3. The client selects the "Leave Feedback" option and is directed to a feedback form.
4. The client fills out the form, including their name, contact information, and feedback details.
5. The client rates their overall experience on a scale of 1 to 5.
6. The client submits their feedback by clicking the "Submit" button.

7. The system displays a confirmation message thanking the client for their feedback.
8. The administrator of the pet store and clinic receives an email notification about the feedback.
9. The administrator reviews the feedback and takes any necessary actions to address the client's concerns.
10. The administrator contacts the client to follow up on their feedback and resolve any issues.

16. US_16 – Client books an appointment

1. Client logs in following the steps in “Scenario - User logs in”
2. The client clicks on the “Doctors” button, which shows all the doctors who work for this business and their locations and contacts.
3. Clients can search for a doctor by typing parts of their name or surname.
4. The client selects a doctor to view their availability.
5. If the doctor is available on a preferred day/hour, the client selects the doctor on said day/hour.
6. The client clicks “Book appointment”.

17. US_17 – View feedback left by the clients

1. User logs in following the steps in “Scenario - User logs in” as manager or admin.
2. The user clicks the “View Feedback” button.
3. The manager is directed to a page containing feedback left by the clients for their own shop/location.

18. US_18 – User logs out

1. User logs in following the steps in “Scenario - User logs in”
2. The user follows some of the scenarios listed above.
3. The logged-in user clicks the “Log out” button.
4. The user is logged out, redirected to the login page, and the session is cleared. To log in again the user should provide the credentials.

4.1.2 User Cases

UC_01 – US_01 – User logs in

Name	User logs in
Summary	To access his account, the user must provide personal information. This is the procedure of entering a unique username and password to get access to the online service.
Actor	Client/ Doctor/ Receptionist/ Manager/ Administrator

Description	The user logs into his account after properly entering his username and password. This procedure is used to verify the user's identity, restrict access to confidential data, or stop unauthorized users from using the system.
Precondition	As a requirement, before signing in, the user must have an active account. The user must select one of the options: client, receptionist, doctor, manager, or administrator.
Alternatives	A user can only have one role (client, receptionist, doctor, manager, or administrator), and they can only access one account at a time. However, a doctor or a receptionist can have two accounts because they can also be patients.
Post Condition	The user has signed into his account.

UC_02 – US_02 – User views their profile

Name	User views their profile
Summary	The user visits the relevant page to view his/her profile. A user can access their profile using the "view profile" option. The process usually entails entering the website, choosing the appropriate section, and clicking the "Profile" button. The user can access their contact information, job title, department, and any active projects once the profile page has loaded. They might also be able to see the educational background, professional qualifications, and honors(administrator/doctor/manager). When necessary, the administrator can return to the home page of the website or keep looking through further profiles. Monitoring performance indicators and managing staff data are both facilitated by this function.
Actor	Client/ Doctor/ Receptionist/ Manager/ Administrator
Description	The user can see their profile according to the type of user they are logged in as (client, administrator, manager, doctor, or receptionist). The user logs into the website. Goes to the "Profile" button. Then, the user is redirected to their profile page with their personal information, work experience, or clients (according to the type of user they registered as).
Precondition	The user must have a valid account with permission to access the website. The manager or employee whose profile is being viewed furthermore has to have an active profile that is reachable via the website. The employee or management must have given permission for their information to be shared inside the firm, and the profile information must be current and accurate.
Alternatives	The "View Profile" button should be clicked by the user if they want to view their profile. They must select the "Edit Profile" button if they want to make any changes. The user should click "YES" to continue if they are certain they wish to access their profile. Should they disagree, they should click "NO" to return to the previous page. The administrator is permitted to make the required changes in the event that any information in the profile is inaccurate.

Postcondition	The information in the client, doctor, or manager's profile has been successfully viewed by the administrator. The profile page's information should be accurate and current, giving the administrator the knowledge, they need to carry out their duties successfully. The administrator might have also changed the details of their own profile, added links, or uploaded files to their profile page, as appropriate. Assigning assignments or giving feedback are only two examples of actions that should be recorded and tracked for future use based on profile information. To maintain the safety of the profile data and prevent unwanted access, the administrator must lastly log out of their account.
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UC_03 – US_03 – User edits their information

Name	User Edits Their Information
Summary	The client, Receptionist, Doctor, Manager, and administrator need to update their information.
Actor	Client/ Receptionist/Doctor/ Manager/Administrator
Description	The client, Receptionist, Doctor, Manager, and administrator logs in and can make the changes. After that, he/she clicks the “Update” button for that specific information. Then he/she can change any of the personal information and depending on the respective roles. At the end clicks the “Update” button.
Precondition	You should be logged in as a receptionist to make the changes for clients. Doctors can change the information for pets. Managers can make changes for receptionists, clients, and doctors. The administrator can make the changes for all.
Alternatives	If the user is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the administrator is allowed to make the necessary changes.
Post Condition	The user’s information has been updated.

UC_04 – US_04 – Create a new user

Name	Create a new user
Summary	The worker can add a new user based on their status
Actor	worker
Description	The employee clicks on the “Add user” menu, fills in the information for the new User, and then clicks the “Add User” button.
Precondition	To access this list, you should be logged in as an employee with a higher status than the user that he is going to add. If he wants to add a user with a higher status access is denied.
Alternatives	The employee should be logged in and add users but this access can be denied if they don’t have the right status
Post Condition	A new user is added to the database.

UC_05 – US_05 – Search for a user

Name	Search for a user
Summary	To search for a user profile, you must log in and have the respective status to search for it
Actor	Pet shop workers
Description	The user should log in and goes to the search bar which is at the top of the website and he can
Precondition	The user should log in
Alternatives	Users can watch a list of workers and click on their names to open their profiles.
Post	Users can view the respective worker's job

UC_06 – US_06 – Edit a searched user

Name	Edit a searched user
Summary	Search for a user in the list of workers and edit their data.
Actor	Logged User
Description	The logged user should go to the top of the website to search for the user to whom he wants to change data. Users should open their profiles and press the edit button to edit relevant data.
Precondition	The user should be logged in as a worker of the company and search for the profile he wants to edit.
Alternatives	Users can press any name in the search bar. If there is no worker found with this name, an informative message will be shown.
Post Condition	The data of the workers are changed by the user.

UC_07 – US_07 – Fire an employee

Name	Fire an employee
Summary	The administrator/Manager can fire an existing employee of the clinic
Actor	Administrator/Manager
Description	Administrator logs in and searches for an employee. After that, he/she clicks the "Fire" button for that specific employee, so his/her account will be deleted since he is no longer employed. A pop-up window will be used to confirm that this is what the administrator wants to do. The manager logs in from his/her user and searches for an employee. After that, he/she clicks the "Fire" button for that specific employee, so his/her account will be deleted since he is no longer employed. A pop-up window will be used to confirm that this is what the manager wants to do.
Precondition	You should be logged in as an administrator or manager. Employees will not have this right. Also, the employees should exist in the database to delete his/her account
Alternatives	If the administrator is sure he/she should press YES to delete that employee, if not then he/she should press NO and go back to the previous page If the manager is sure he/she should press YES to delete that employee, if not then he/she

	should press NO and go back to the previous page
Post Conditions	The employee is deleted from the database

UC_08 – US_08 – Add a new pet

Name	Add a new pet
Summary	The receptionist, manager, and administrator can add a new pet
Actor	Receptionist/Manager /Manager
Description	<p>The receptionist clicks on the “Add Pet” menu, fills in the information for the new pet, and then clicks the “Add Pet” button.</p> <p>The manager clicks on the “Add Pet” menu, fills in the information for the new pet, and then clicks the “Add Pet” button.</p> <p>The administrator clicks on the “Add Pet” menu, fills in the information for the new pet, and then clicks the “Add Pet” button.</p>
Precondition	<p>The receptionist should be logged in and the pet must possess the necessary documents to be registered in the clinic. The new pet’s unique information should not match with any other pet in the database, so one pet cannot have two accounts.</p> <p>The manager should be logged in and the pet must possess the necessary documents to be registered in the clinic. The new pet’s unique information should not match with any other pet in the database, so one pet cannot have two accounts.</p> <p>The administrator should be logged in and the pet must possess the necessary documents to be registered in the clinic. The new pet’s unique information should not match with any other pet in the database, so one pet cannot have two accounts.</p>
Alternatives	<p>If the receptionist is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the receptionist is allowed to make the necessary changes</p> <p>If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the receptionist is allowed to make the necessary changes</p> <p>If the administrator is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the receptionist is allowed to make the necessary changes</p>
Post Conditions	A new pet is added to the database

UC_09 – US_09 – Search for a pet

Name	Search for a pet
Summary	Search for a specific pet in the list
Actor	Receptionist/Doctor/Manager/Administrator

Description	In the receptionist's version, he/she logs in and then clicks on "Registered Pet's list", to access the list of pets. At the search box, he/she enters the name of the pet he/she is looking for In the doctor's version, he/she logs in and clicks on "My Pets", to access the list of his/her pets. At the search box, he/she enters the name of the pet he/she is looking for In the manager's version, he/she logs in and then clicks on "My Clients Pet's list", to access the list of pets. At the search box, he/she enters the name of the pet he/she is looking for In the administrator's version, he/she logs in and then clicks on "My Clinic Pet's list", to access the list of pets. At the search box, he/she enters the name of the pet he/she is looking for
Precondition	You should be logged in as a receptionist/doctor/manager/administrator.
Alternatives	The receptionist/doctor/manager/administrator can either type the name of the pet or the owner's name and surname. If there is no pet found, an informative message will be shown If results were found, a table with all the results will be shown.
Post Conditions	The searched pet info will be shown

UC_10 – US_10 – Edit a searched pet's information

Name	Edit a searched pet's information.
Summary	Administrator / Manager / Receptionist search for a pet's information that wants to edit.
Actor	Administrator / Manager / Receptionist
Description	Administrator / Manager / Receptionist logs in and search for a specific pet by typing parts of its name or parts of its owner's name, surname, or email. Authorized users can select to view a pet's profile and are able to change their data. The list displays various fields, such as the pet's name, age, breed, weight, and medical history.
Precondition	You should be logged in as a receptionist, administrator, or manager. Clients and doctors will not have this right. Also, pets should exist in the database.
Alternatives	The actor can either edit medications prescribed which are previously confirmed by the owner, email, phone number, and other information. If there were no changes made, an informative message will be shown.
Post Condition	If changes were made successfully, the list with new changes will be shown.

UC_11 – US_11 – Add products to a client/pet

Name	Add products to a client/pet
Summary	The administrator / Manager / Receptionist adds a product that the client/ pet requests.
Actor	Administrator / Manager / Receptionist
Description	Administrator / Manager / Receptionist logs in and search for client/pet account that requests

	non-medical product/s. Authorized users can add the products from the shop's inventory. The inventory where clients/pets can request products includes non-medical products such as collars, toys or food.
Precondition	The authorized user should be logged in, also clients and doctors can't add products.
Alternatives	If the product being added is not currently in stock, the system will prompt the user with an alert indicating that the item is out of stock. The user can then choose to either backorder the item or remove it from the pet's profile.
Post Condition	The system will generate a notification to the store associates alerting them of the new addition to the pet's profile so that they can provide personalized service to the customer during their next visit to the store.

UC_12 – US_12 – Generate a bill for a client/pet

Name	Generate a bill for a client/pet.
Summary	The administrator / Manager / Receptionist generates a bill for the client/pet that received service.
Actor	Administrator / Manager / Receptionist
Description	Administrator / Manager / Receptionist logs in and redirects to the client/pet's profile which the doctor has edited his medical reports and prescription. The authorized user creates the bill while the system automatically includes the costs of the services. The bill can be printed or paid through the clinic's online system.
Precondition	Clients and doctors will not have this right. The service/ product that is being generated a bill for should exist in the database.
Alternatives	If the medication/ product is currently out of stock, the system will prompt the user with an alert that the selection is out of stock. The client can either choose to wait until is in stock or buy it from another clinic.
Post Condition	If changes were made successfully, the bill will be printed and a notification will be shown.

UC_13 – US_13 – Add medical products to a pet

Name	Add medical products to a pet
Summary	Apply/edit the relevant medical information.
Actor	Doctor
Description	The doctor logs in and navigates to the relevant pet profile page and selects the "Add record" button to the medical records tab. The doctor edits the relevant medical information, such as diagnoses, medications, and procedures performed.
Precondition	You should be logged in as a doctor. Clients and receptionists will not have this right. Also, the

	pet should exist in the database in order to apply medical information for him/her.
Alternatives	If the doctor is sure he/she should press YES to apply updates, if not then he/she should press NO and go back to the previous page.
Post Condition	Display a confirmation message to the user that the pet's medical record has been successfully updated with the new information.

UC_14 – US_14 – Transfer an employee

Name	Transfer an employee
Summary	As an administrator of a pet store and clinic, an employee needs to be transferred to another location due to a change in staffing needs.
Actor	Administrator
Description	The administrator logs into their account on the pet store website and selects the employee they want to transfer from the employee management section. The administrator enters the name or location of the destination shop/location and confirms the transfer. The system updates the employee's information to reflect their new location.
Precondition	You should be logged in as an administrator. Manager, receptionist and doctors will not have this right.
Alternatives	The system updates the employee's information to reflect their new location. Also, the employee is notified of the transfer and their new work location.
Post Condition	The employee has been successfully transferred to the new shop/location.

UC_15 – US_15 – Client leaves feedback

Name	Client leaves feedback
Summary	A client wants to leave feedback about their recent experience with the pet store and clinic.
Actor	Client
Description	The client visits the pet store and clinic website and navigates to the feedback section. The client fills out a feedback form, including their name, contact information, and feedback details. The client submits the feedback form, and the system displays a confirmation message thanking the client for their feedback. The administrator of the pet store and clinic receives an email notification about the feedback, reviews the feedback, and takes any necessary actions to address the client's concerns. The administrator contacts the client to follow up on their feedback and resolve any issues.
Precondition	The client should have visited the pet store and clinic.
Alternatives	If the client faces any issues while filling out the feedback form, they can contact the pet store and clinic customer support team for assistance.

Post Condition	The feedback provided by the client is recorded and reviewed by the pet store and clinic administrator, who takes appropriate actions to address the feedback and provide a satisfactory customer experience.
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UC_16 – US_16 – Client books an appointment

Name	Client books an appointment
Summary	Client searches for a preferred doctor and books an appointment
Action	Client
Description	After logging in client clicks on the “Doctors” button, which shows all the doctors who work for this business and their locations and contacts. Clients can search for a doctor by typing parts of their name or surname. The client selects a doctor to view their availability. If the doctor is available on a preferred day/hour, the client selects the doctor on said day/hour. The client clicks “Book appointment”.
Precondition	The client must be logged in and the doctor must be free on the preferred day/hour.
Alternatives	Client books an appointment with another doctor who is free at the time/day they are interested in.
Post Condition	The appointment is booked. The doctor will wait for the client to come on at the specified day/hour.

UC_17 – US_17 – View feedback left by clients

Name	View feedback left by the client
Summary	Administrator/Manager can view feedback left by clients
Action	Administrator/Manager
Description	The user must log in as a manager or administrator. Then they are faced with their homepage. The user clicks the “View Feedback” button. In the case of the manager a list, containing comments and customer names, left by clients of their shop, will be displayed. In the instance of an administrator, on the screen, a list, containing comments, client name, and shop location will be displayed as this type of user can view feedback from many shops/locations.
Precondition	The user must be logged in as an administrator or manager.
Alternatives	The administrator/Manager reads feedback and contacts certain clients.
Post Condition	The feedback is used to improve the service provided at all shops/locations.

UC_18 – US_18 – User logs out

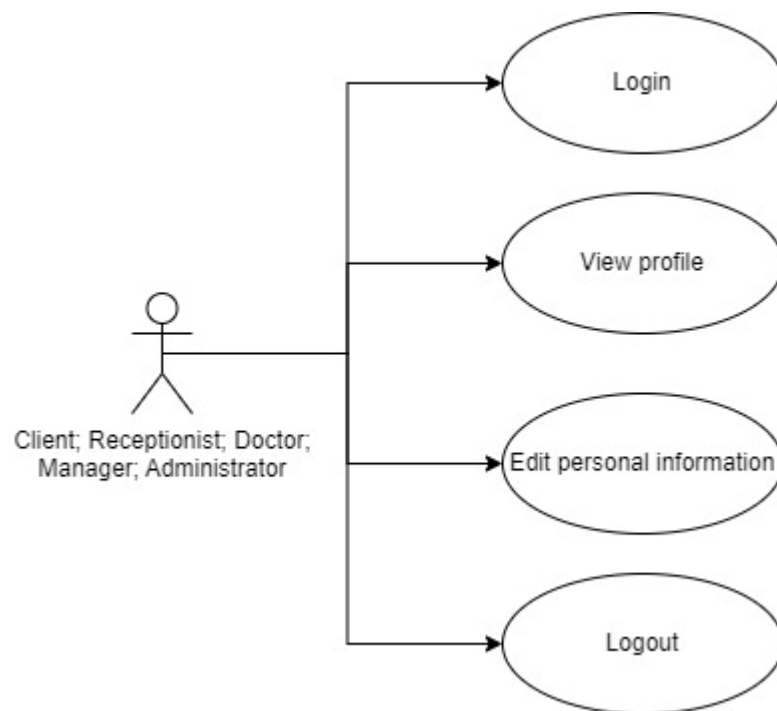
Name	User logs out
Summary	The user has finished his/her activity.
Action	Administrator/Manager/Doctor/Receptionist/Client
Description	First, the user logs in. Then he/she interacts with the web application and when he/she

	finishes, he/she clicks the “Log Out” button.
Precondition	The user must first be logged in.
Alternatives	The user can log out at any time.
Post Condition	The user has logged out and is no longer using his/her account.

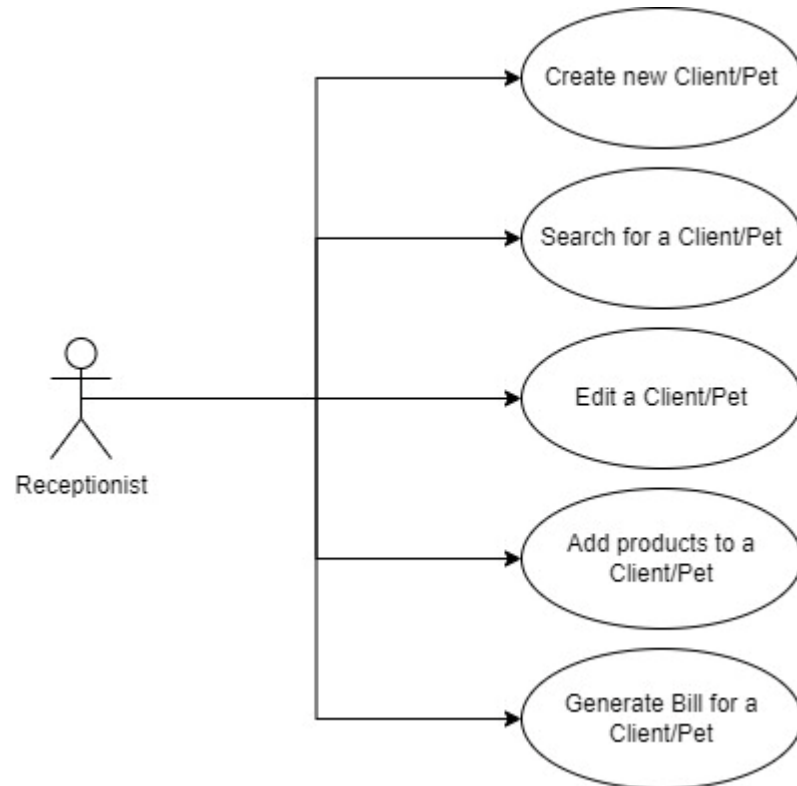
4.2 Behavioral Diagrams

4.2.1 Use Case Diagrams

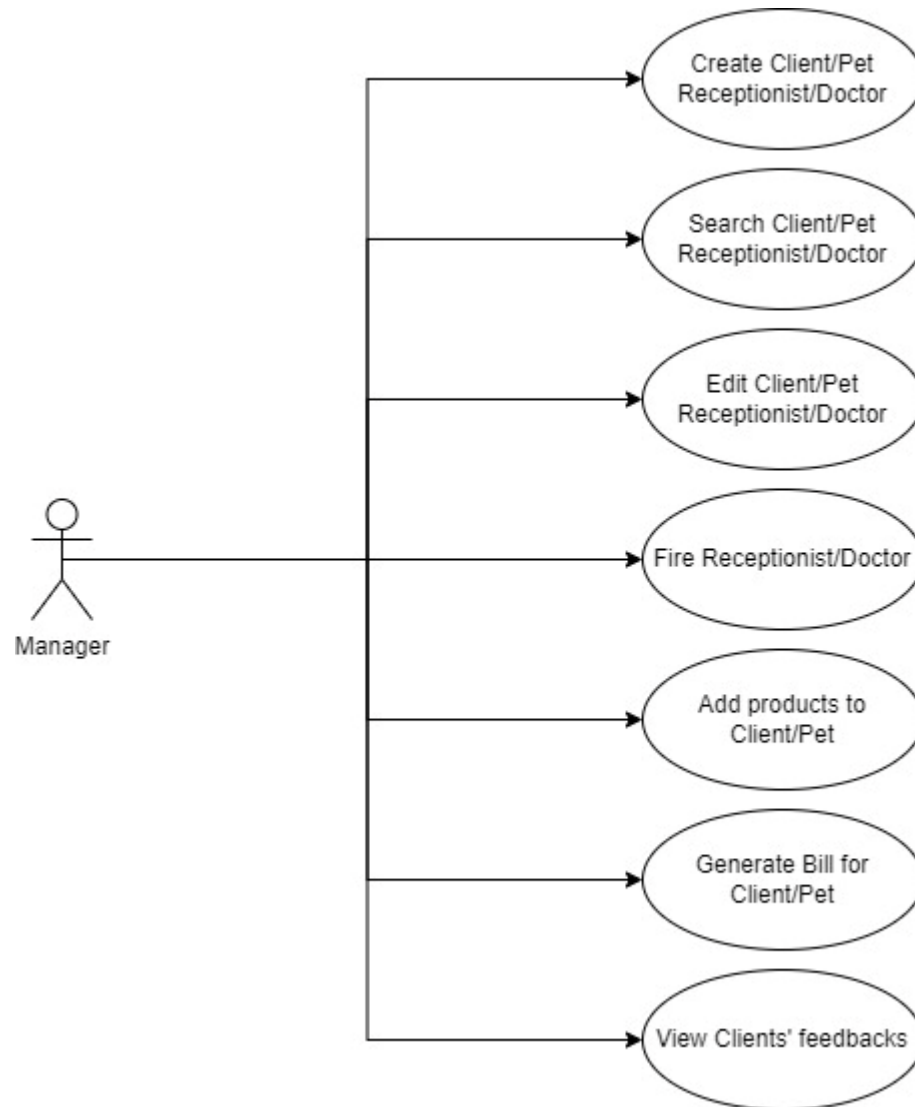
UCD_01 – Basic Operations (US_01, US_02, US_03, US_18)



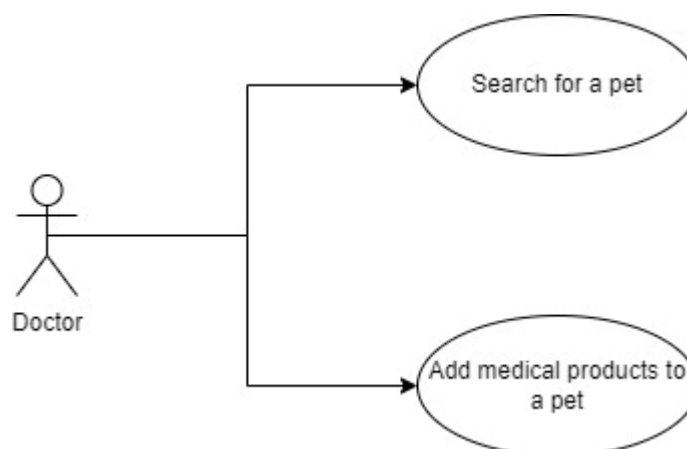
UCD_02 – Receptionist’s functionalities (US_04, US_05, US_06, US_08, US_09, US_10, US_11, US_12)



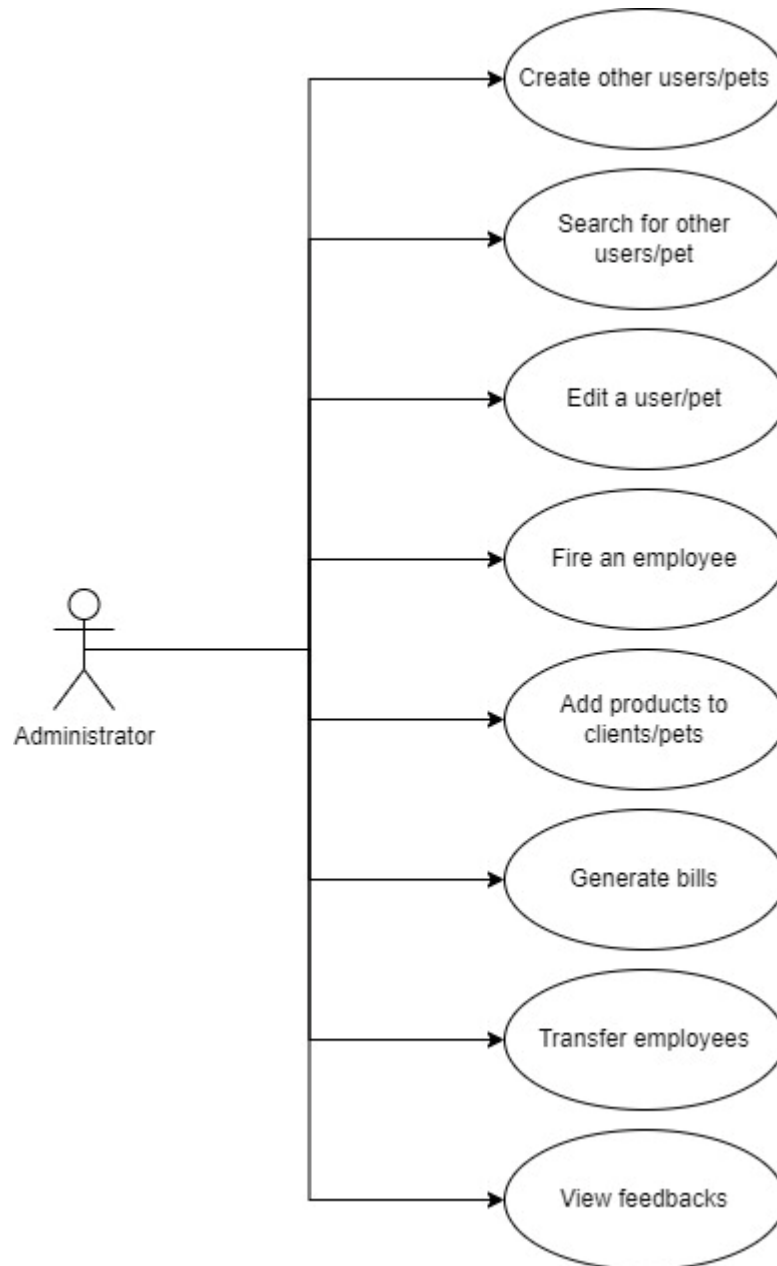
UCD_03 – Manager’s functionalities (US_04, US_05, US_06, US_07, US_08, US_09, US_10, US_11, US_12, US_15)



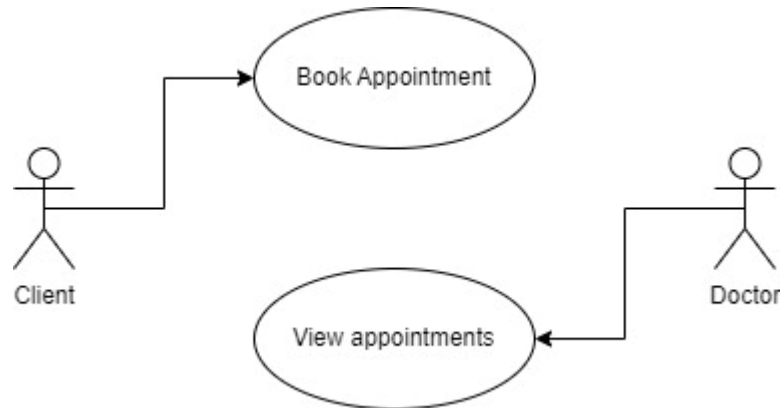
UCD_04 – Doctor’s functionalities (US_09, US_13)



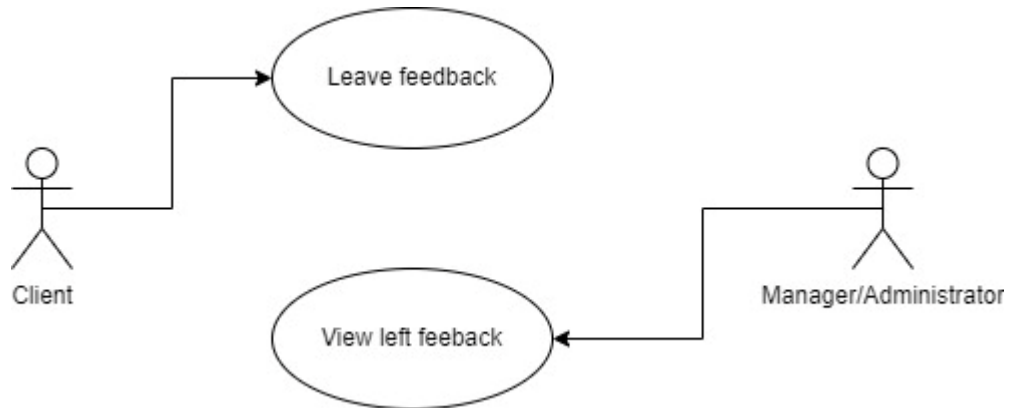
UCD_05 – Administrator’s functionalities (US_04, US_05, US_06, US_07, US_08, US_09, US_10, US_11, US_12, US_14, US_17)



UCD_06 – Book an appointment (US_16)

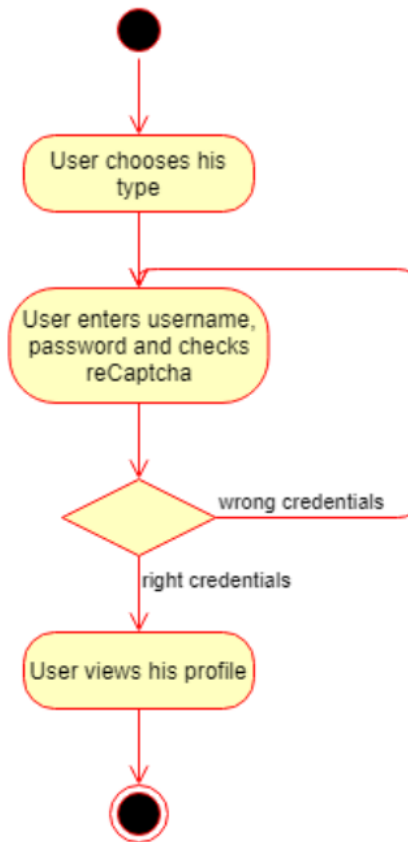


UCD_07 – Leave feedback (US_15, US_17)

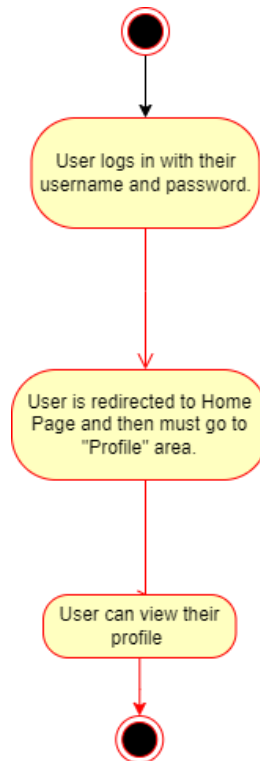


4.2.2 Activity Diagrams

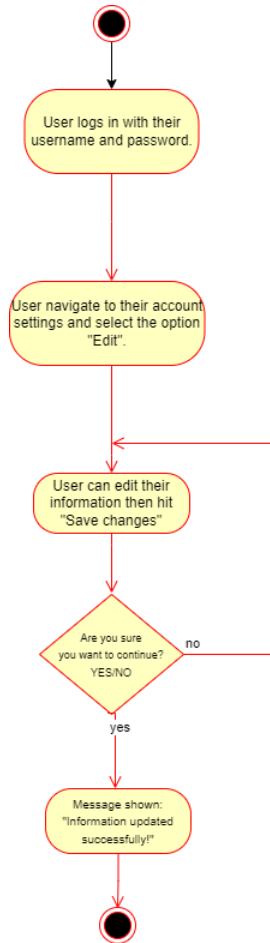
AD_01 – US_01 – User logs in



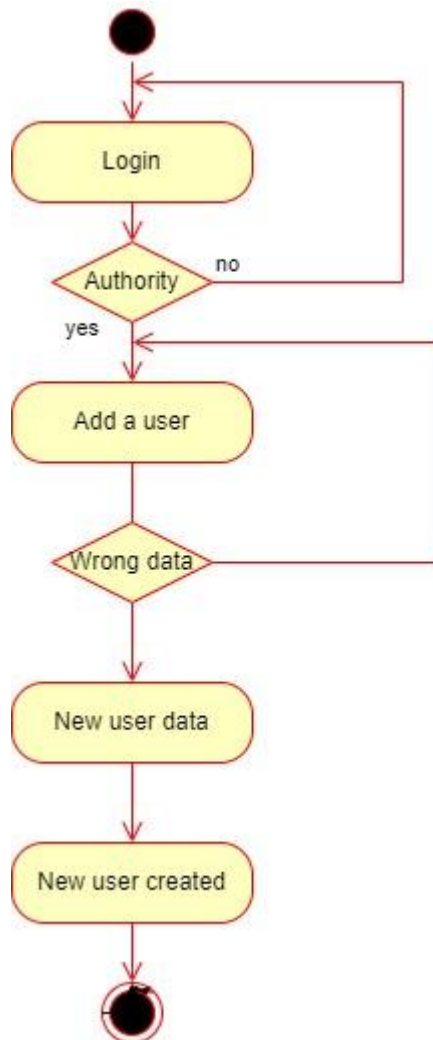
AD_02 – US_02 – User views their profile



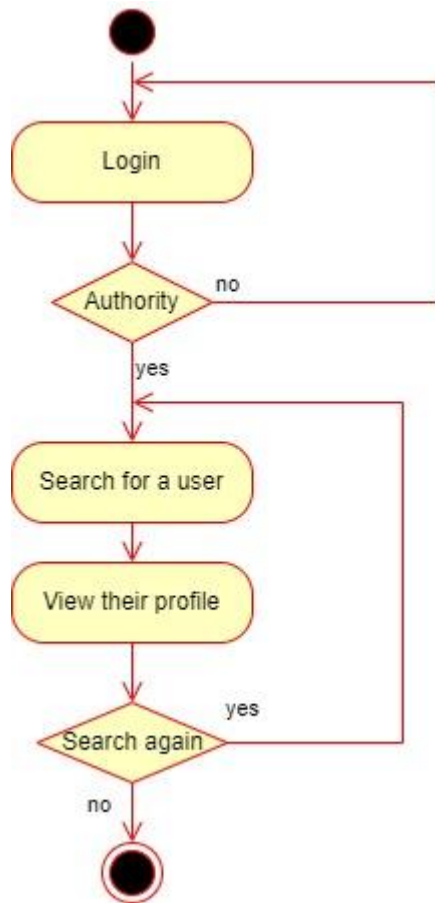
AD_03 – US_03 – User edits their information



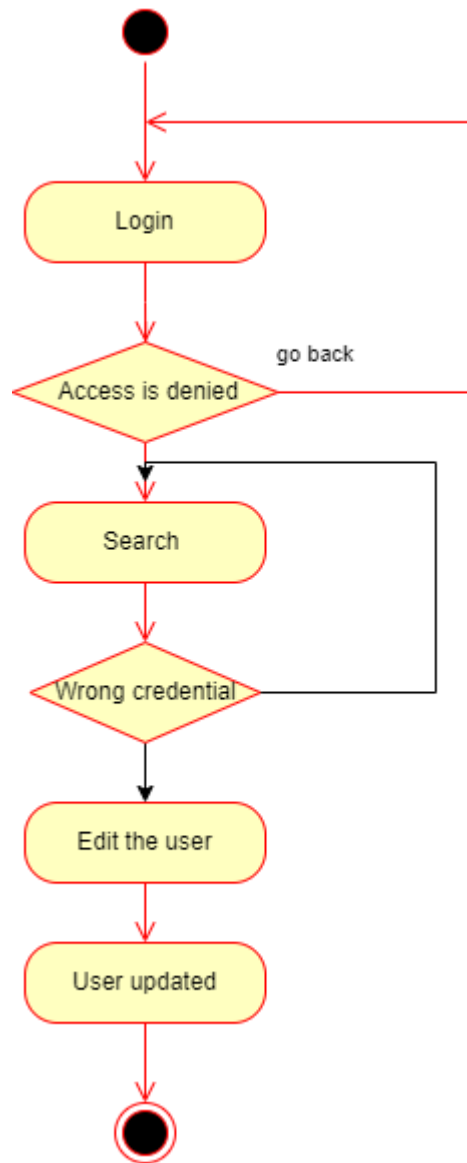
AD_04 – US_04 – Create a new user



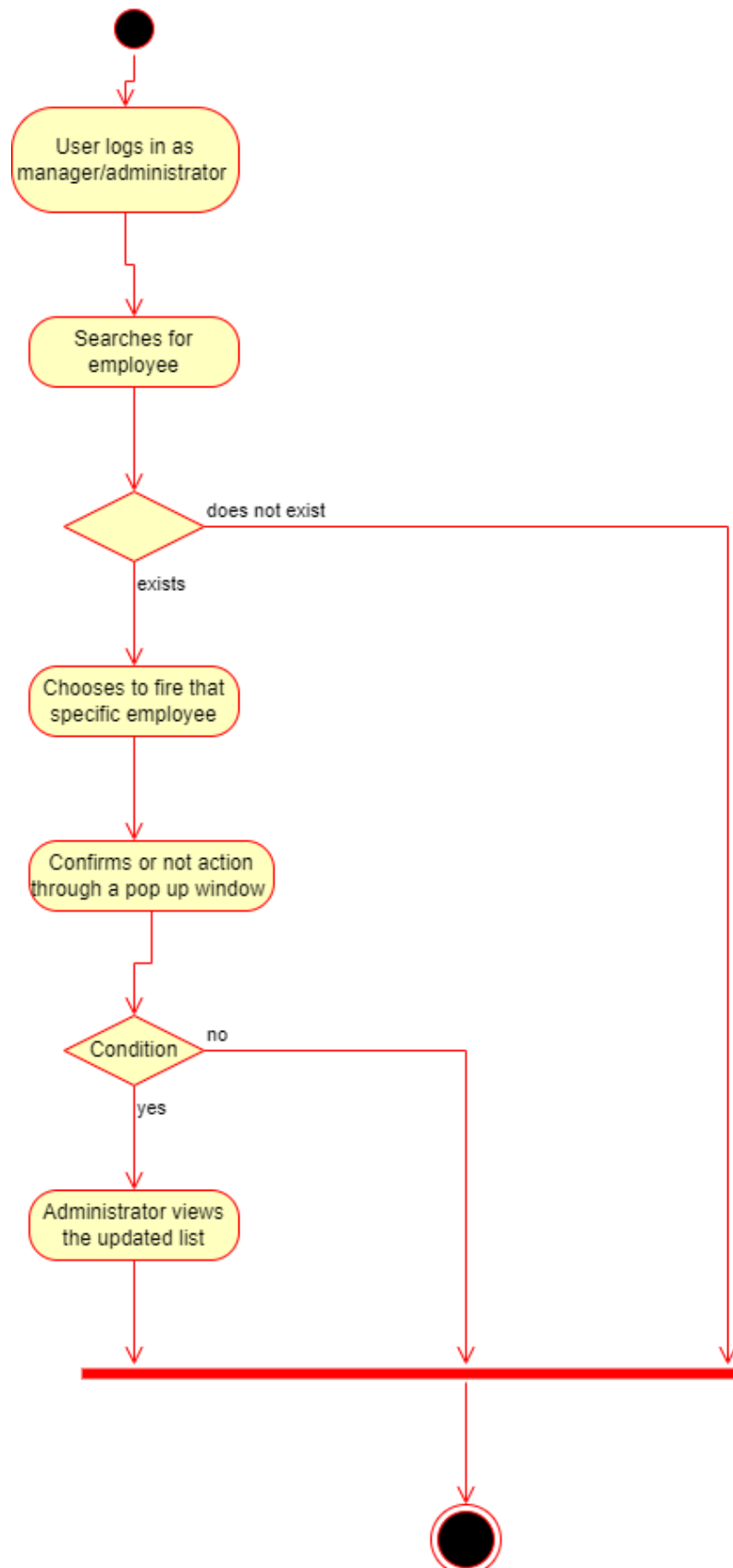
AD_05 – US_05 – Search for a user



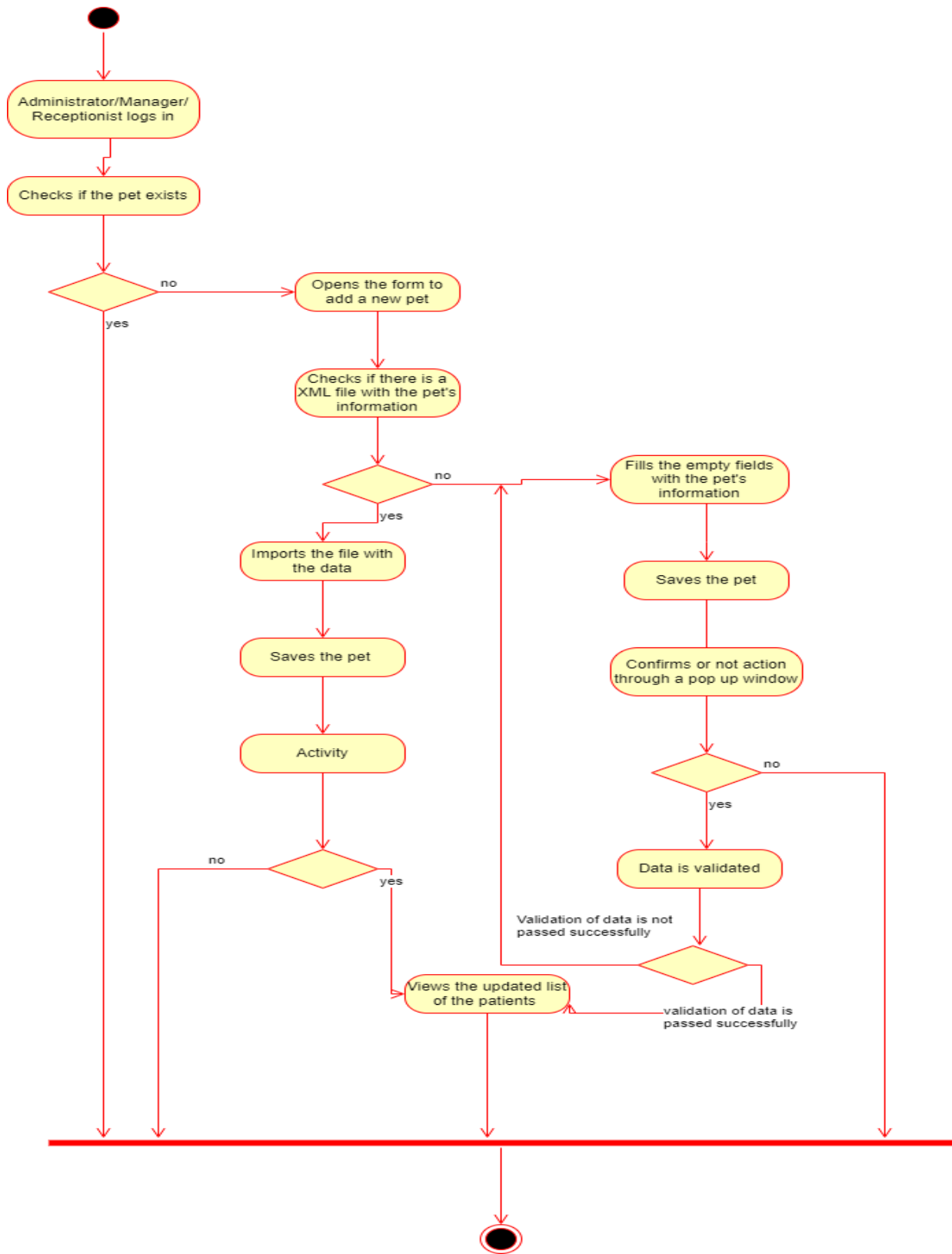
AD_06 – US_06 – Edit a searched user



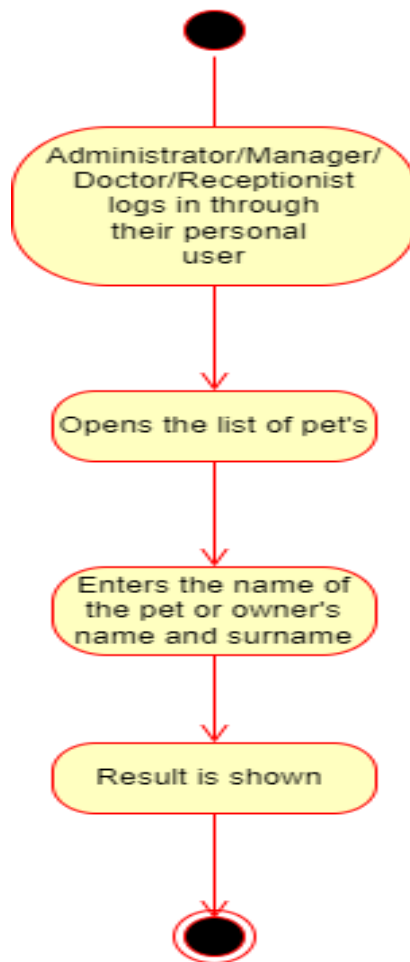
AD_07 – US_07 – Fire and employee



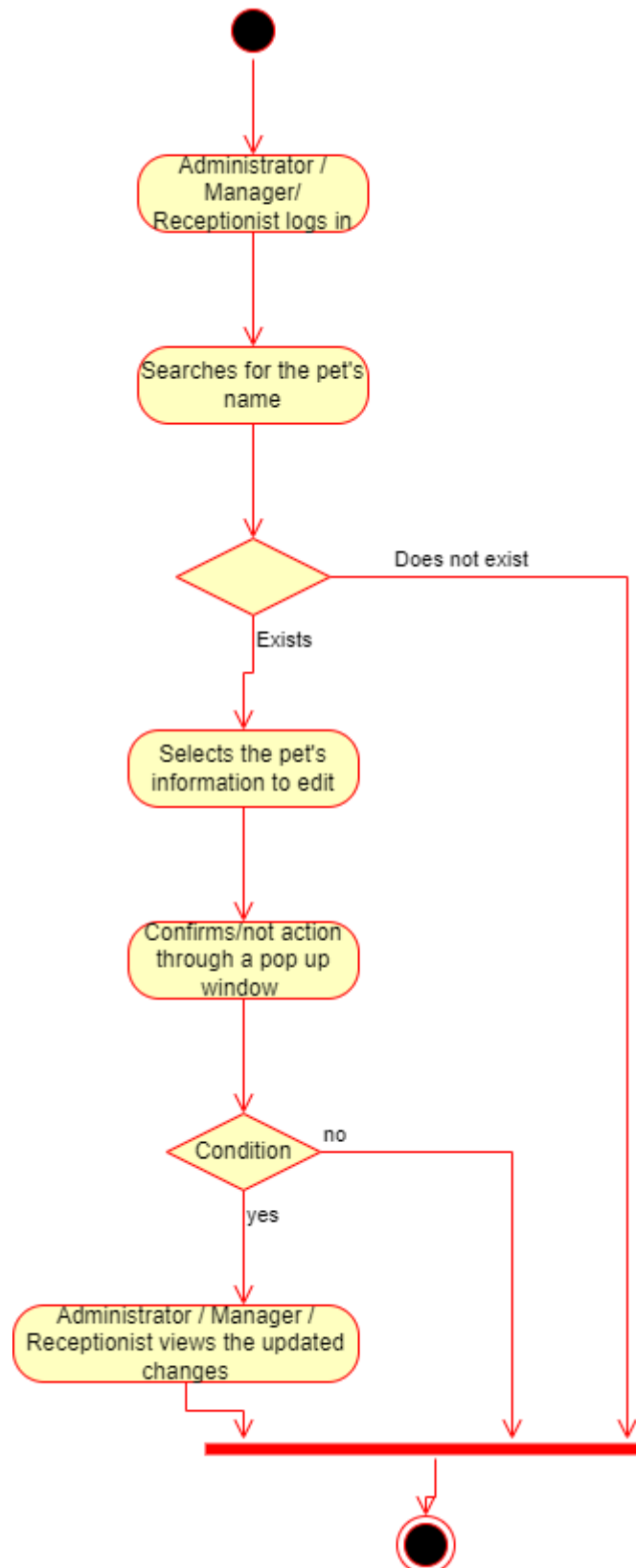
AD_08 – US_08 – Add a new pet



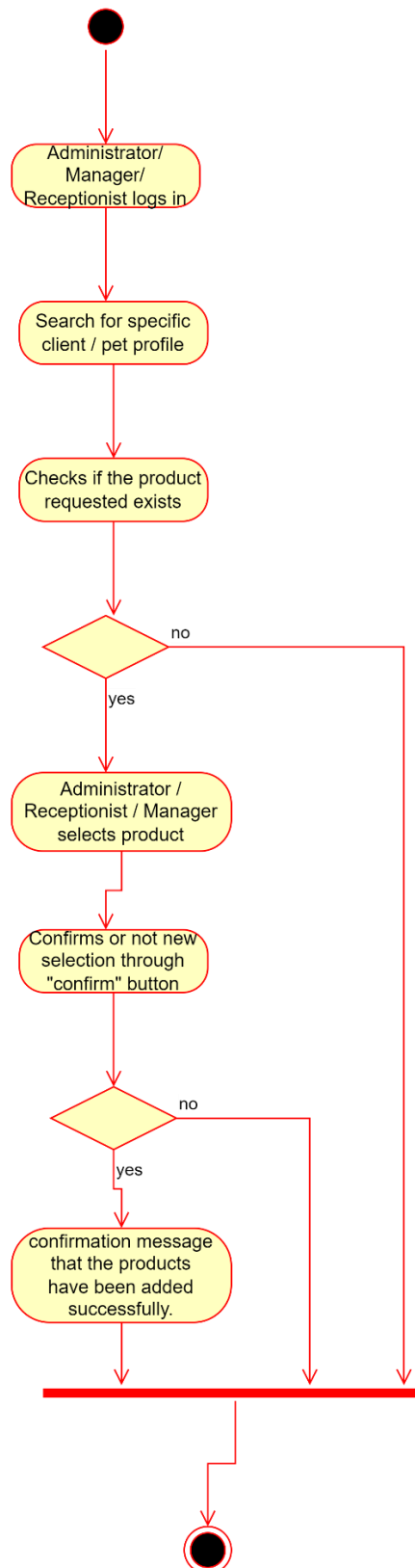
AD_09 – US_09 – Search for a pet



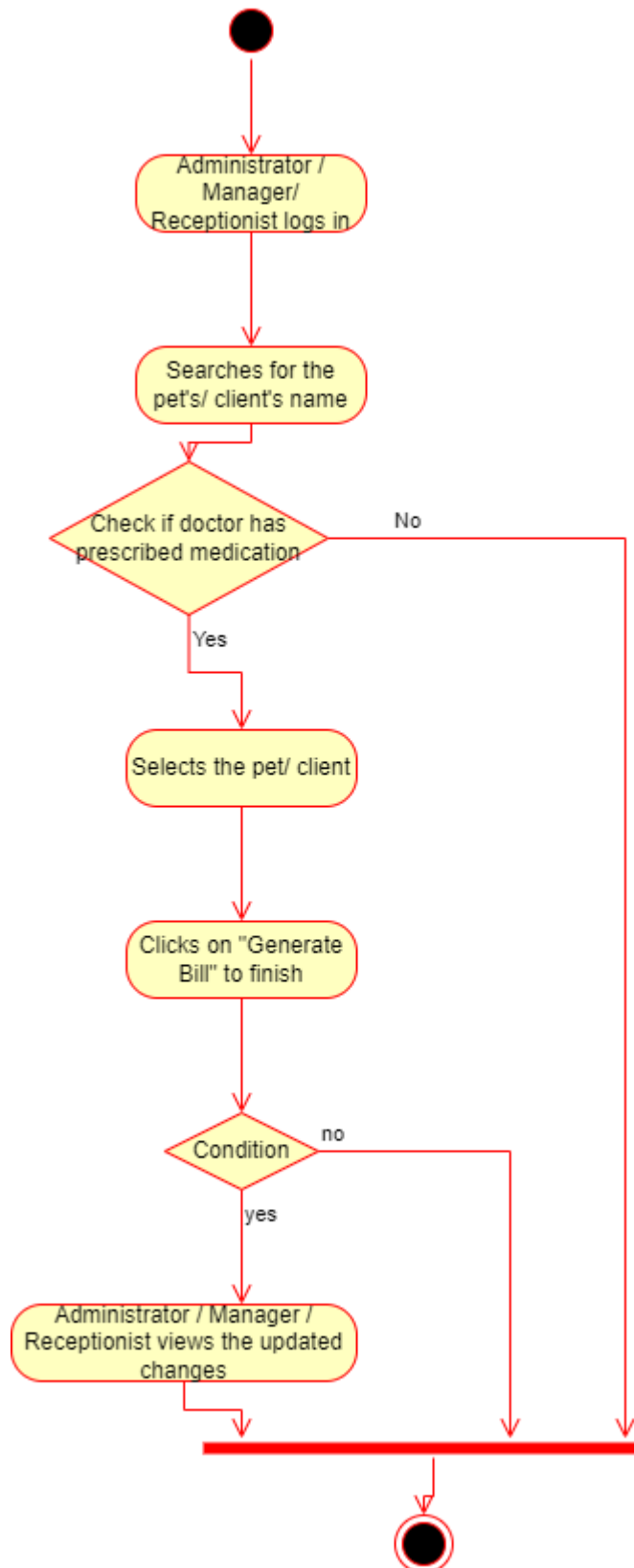
AD_10 – US_10 – Edit a searched pet's information



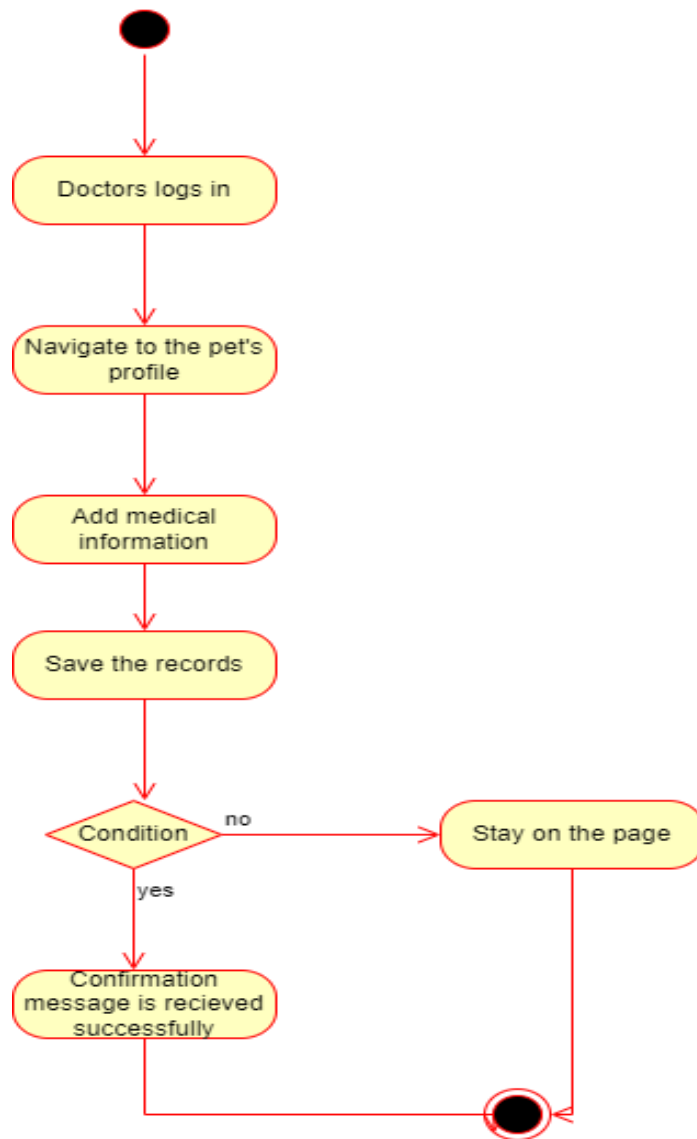
AD_11 – US_11 – Add products to a client/pet



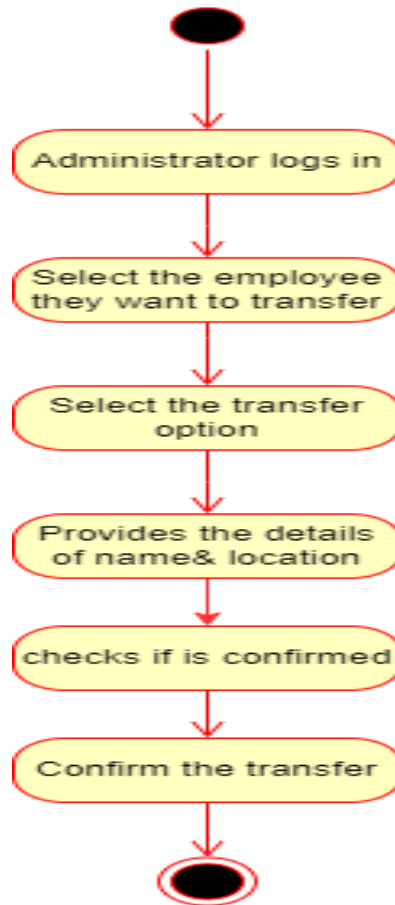
AD_12 – US_12 – Generate a bill for a client/pet



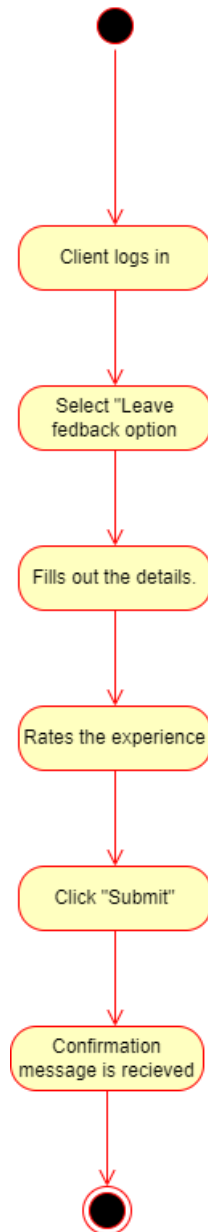
AD_13 – US_13 – Add medical products to a pet



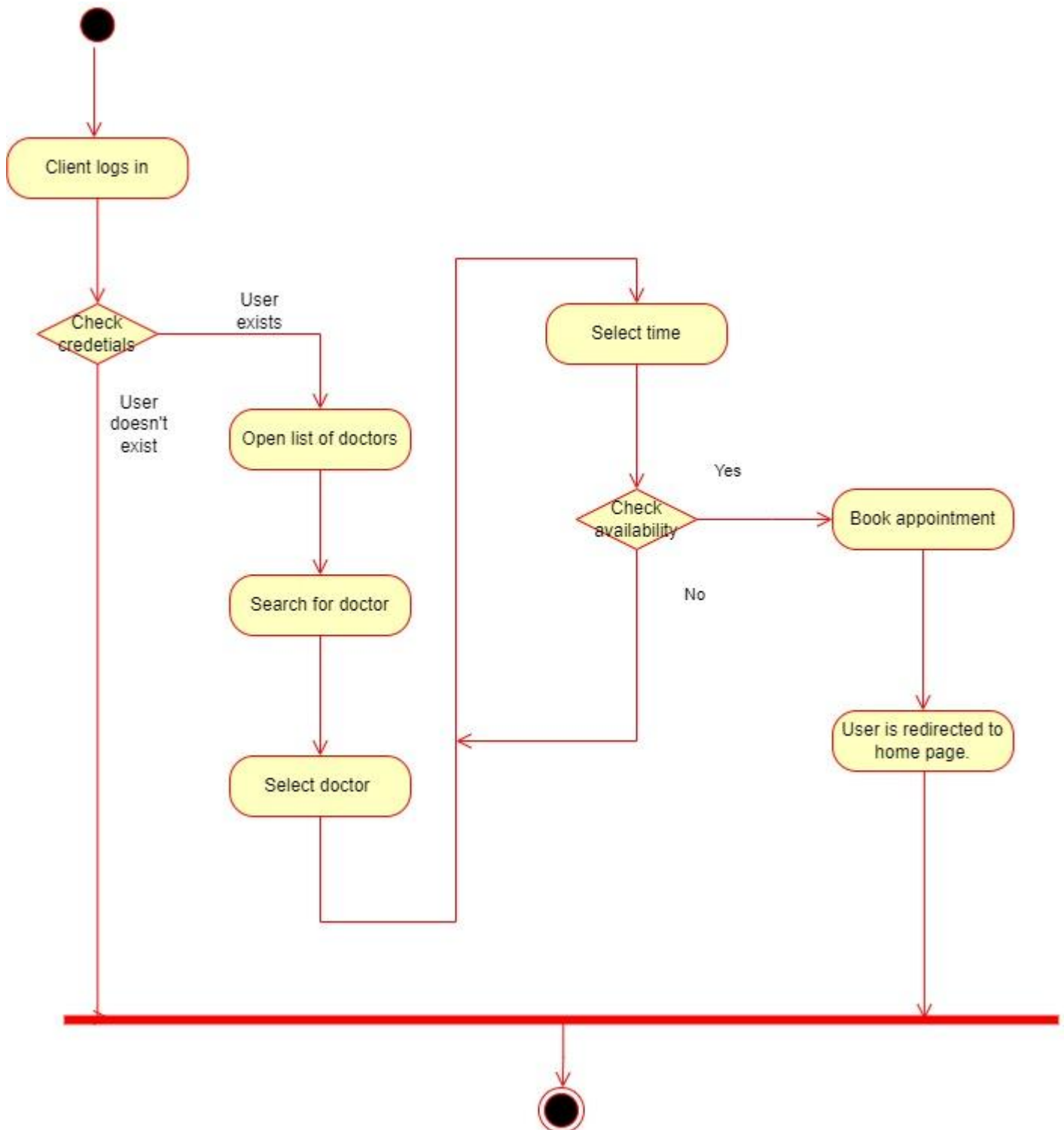
AD_14 – US_14 – Transfer an employee



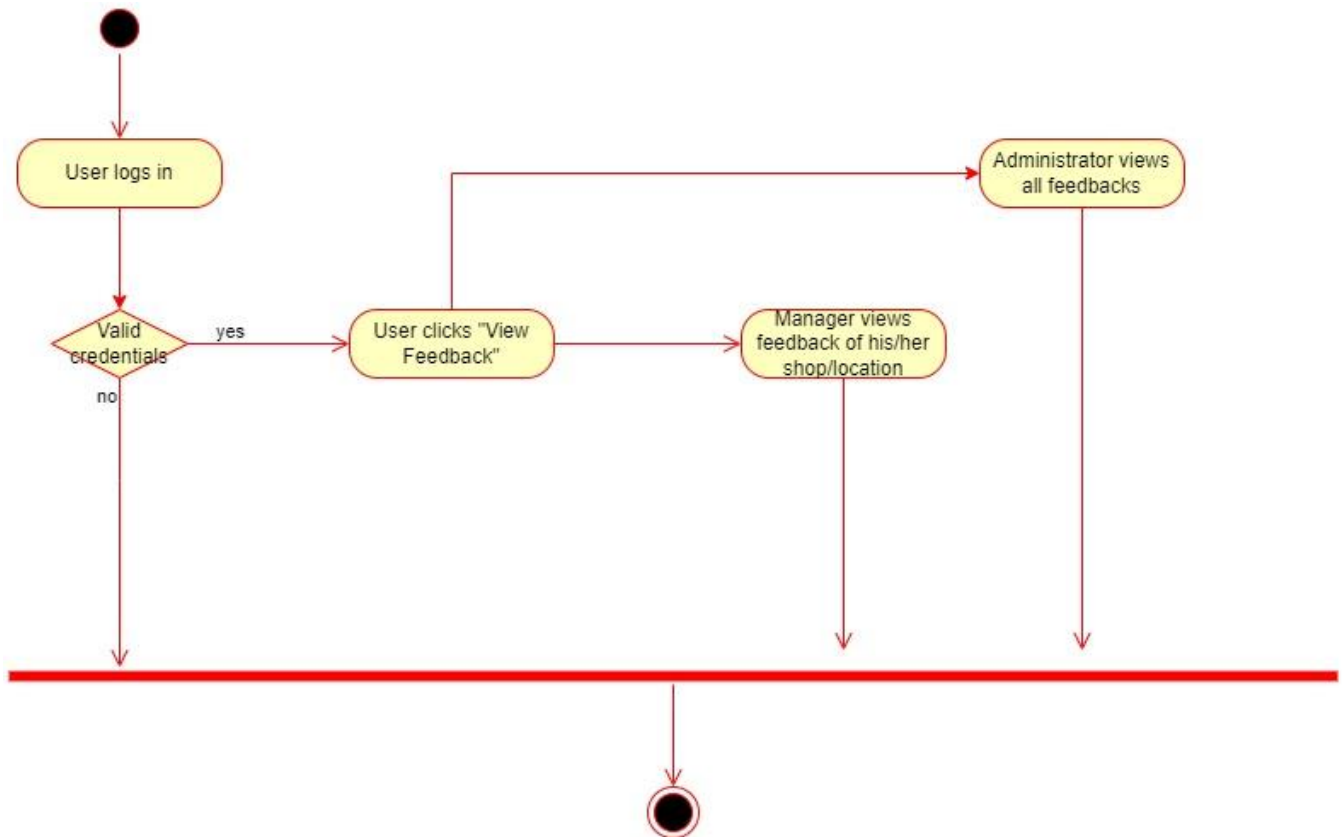
AD_15 – US_15 – Client leaves feedback



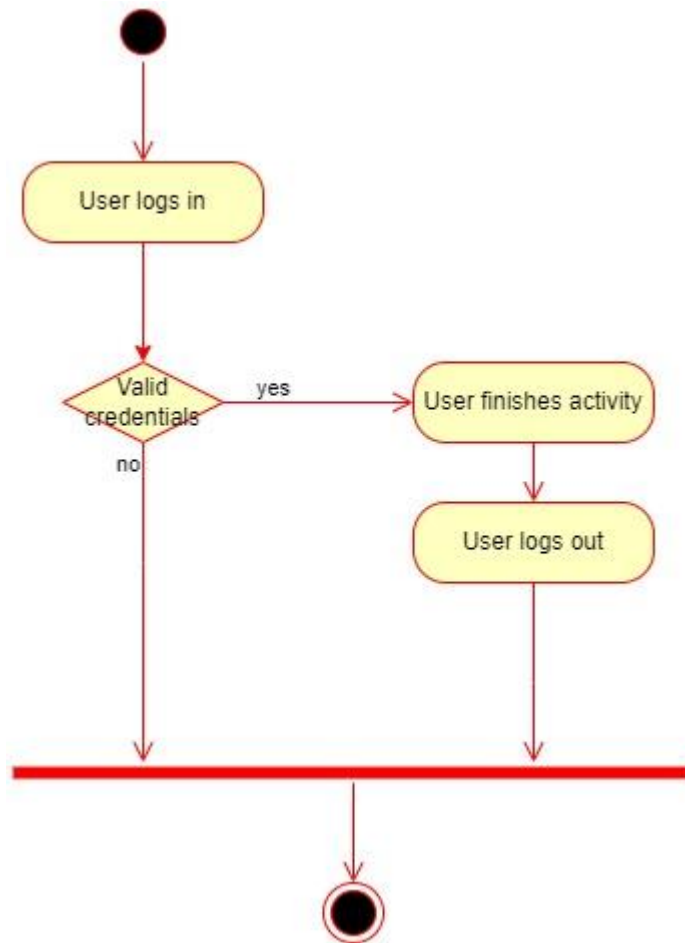
AD_16 – US_16 – Client books an appointment



AD_17 – US_17 – View feedback left by the clients

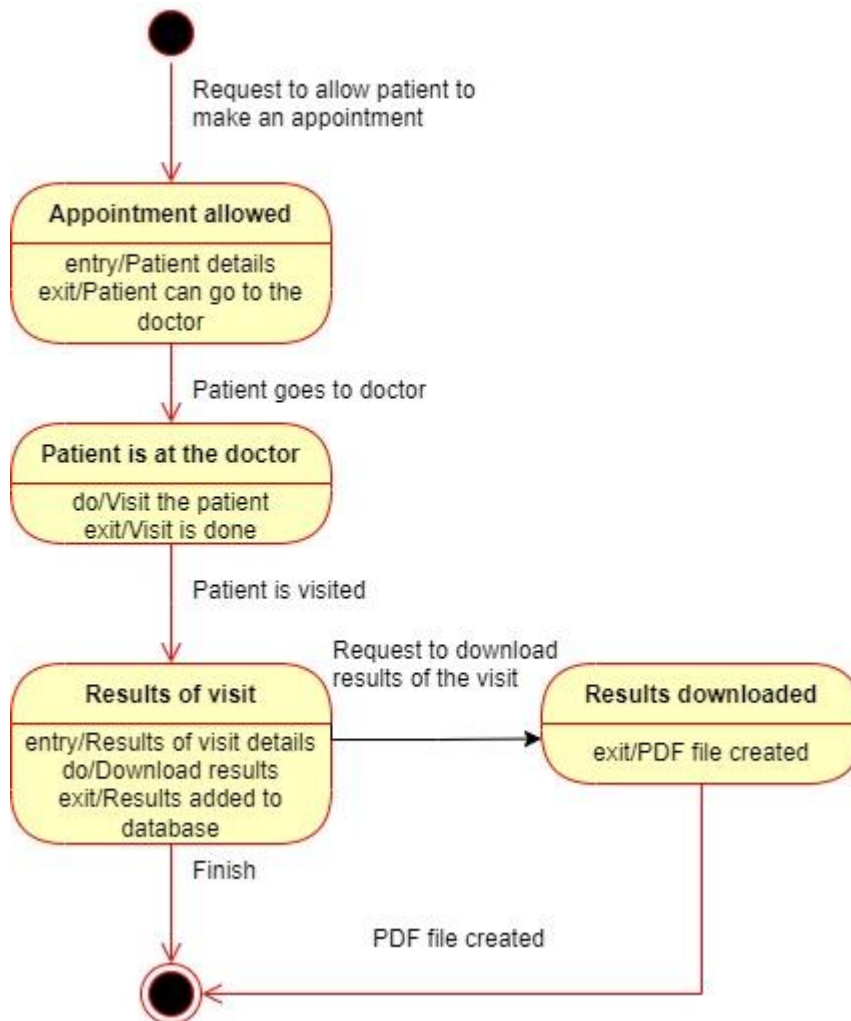


AD_18 – US_18 – User logs out

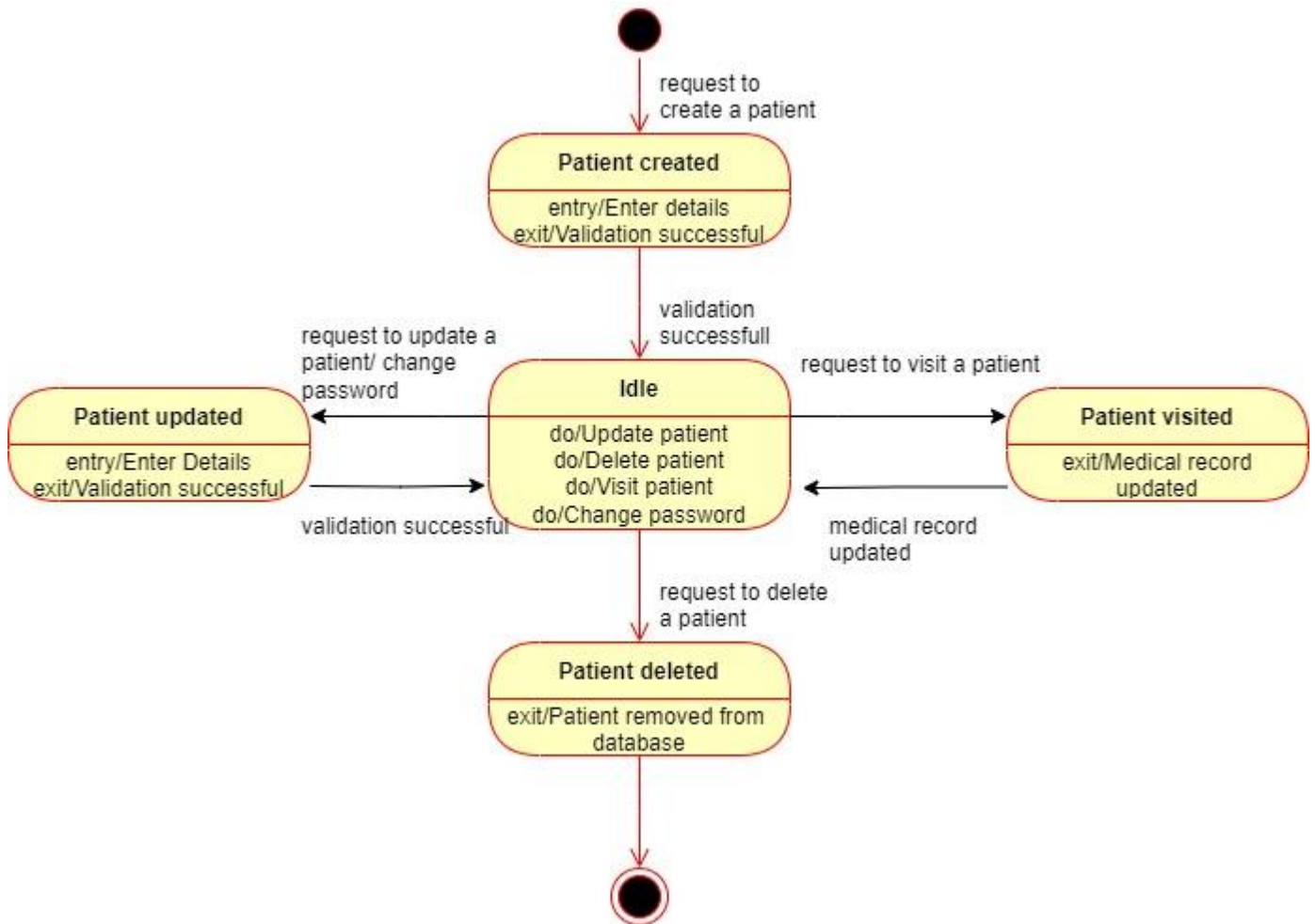


4.2.3 State Diagrams

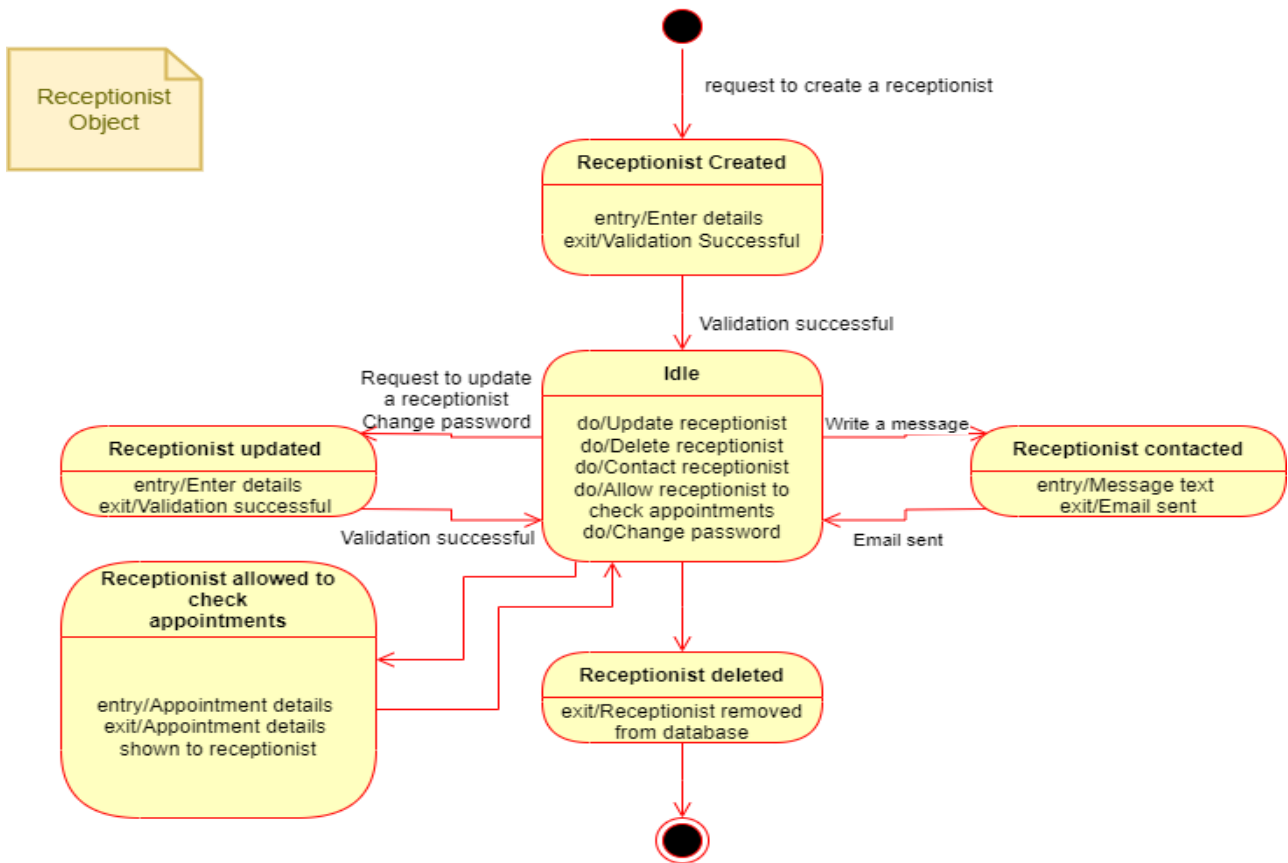
SD01 – Appointment



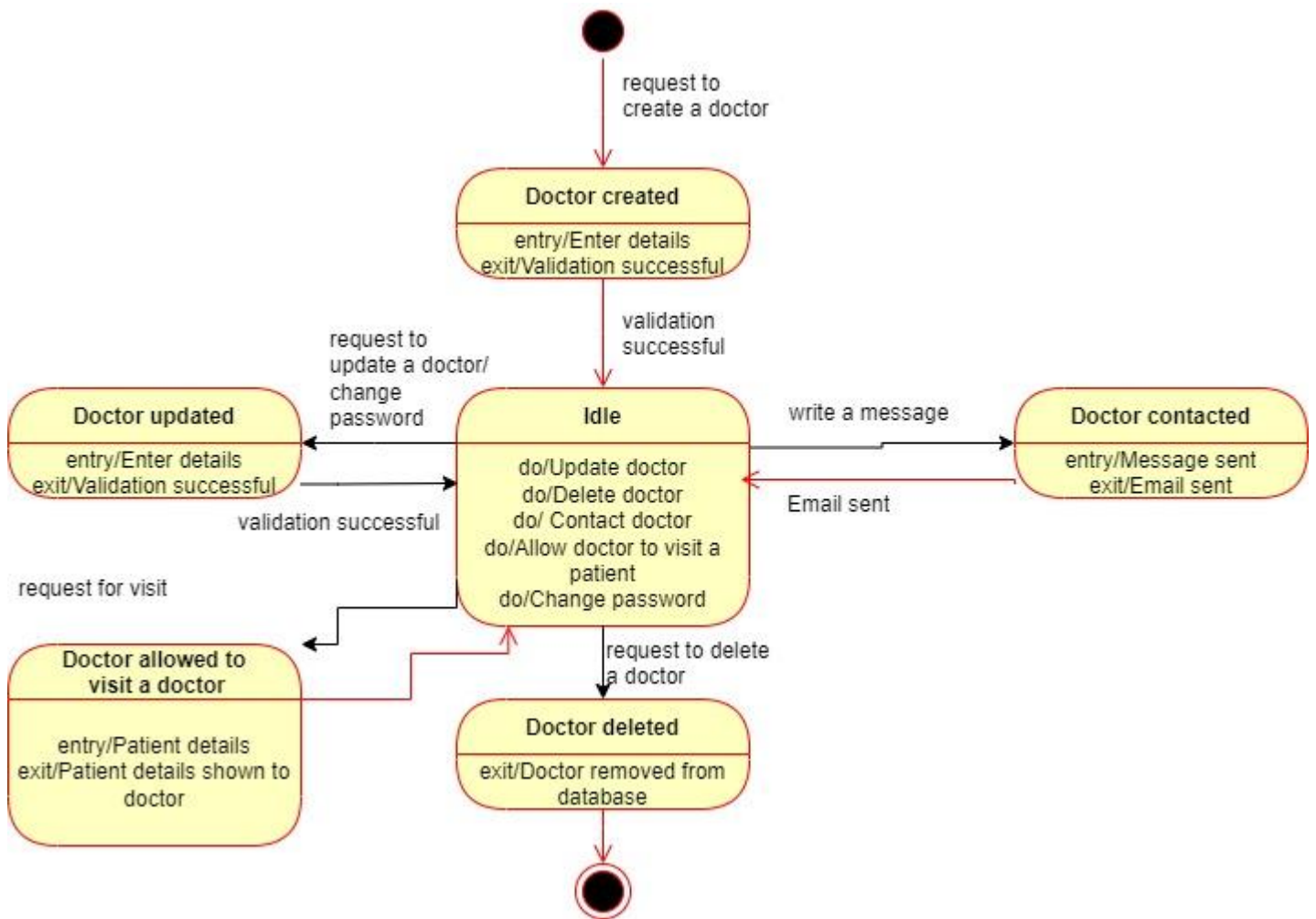
SD02 – Client



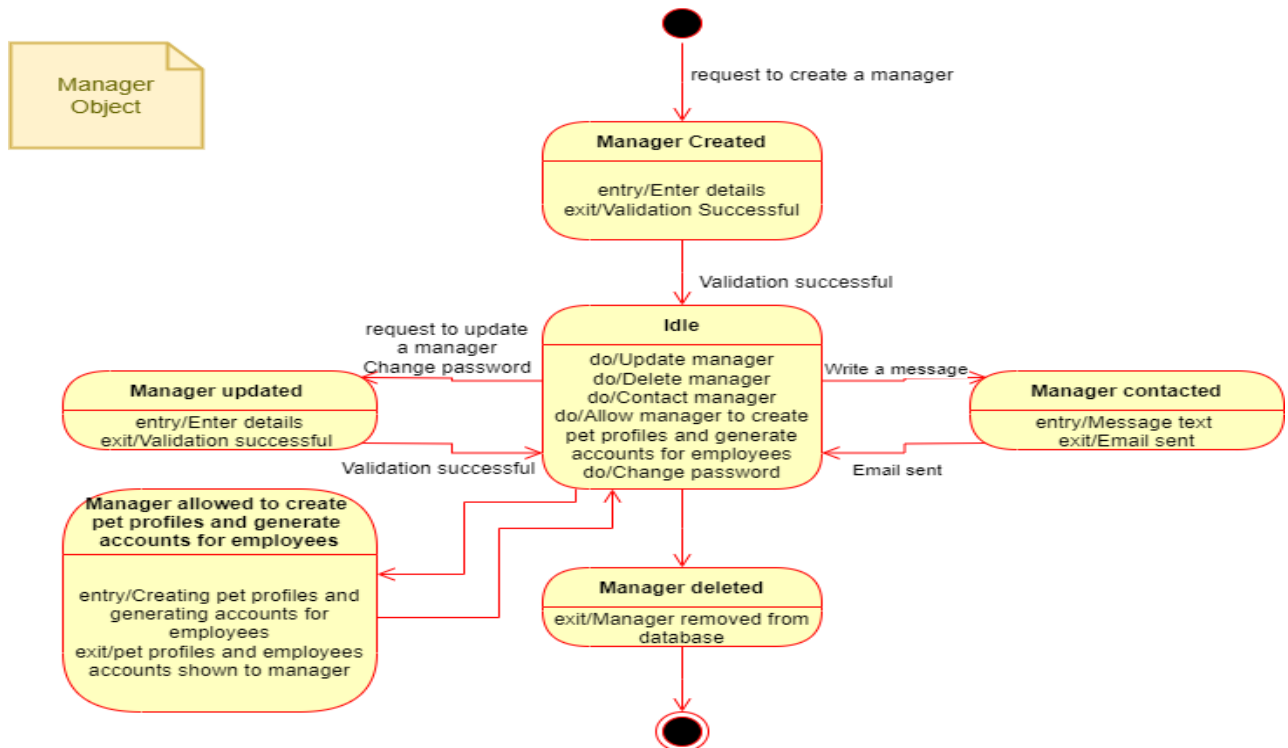
SD03 – Receptionist



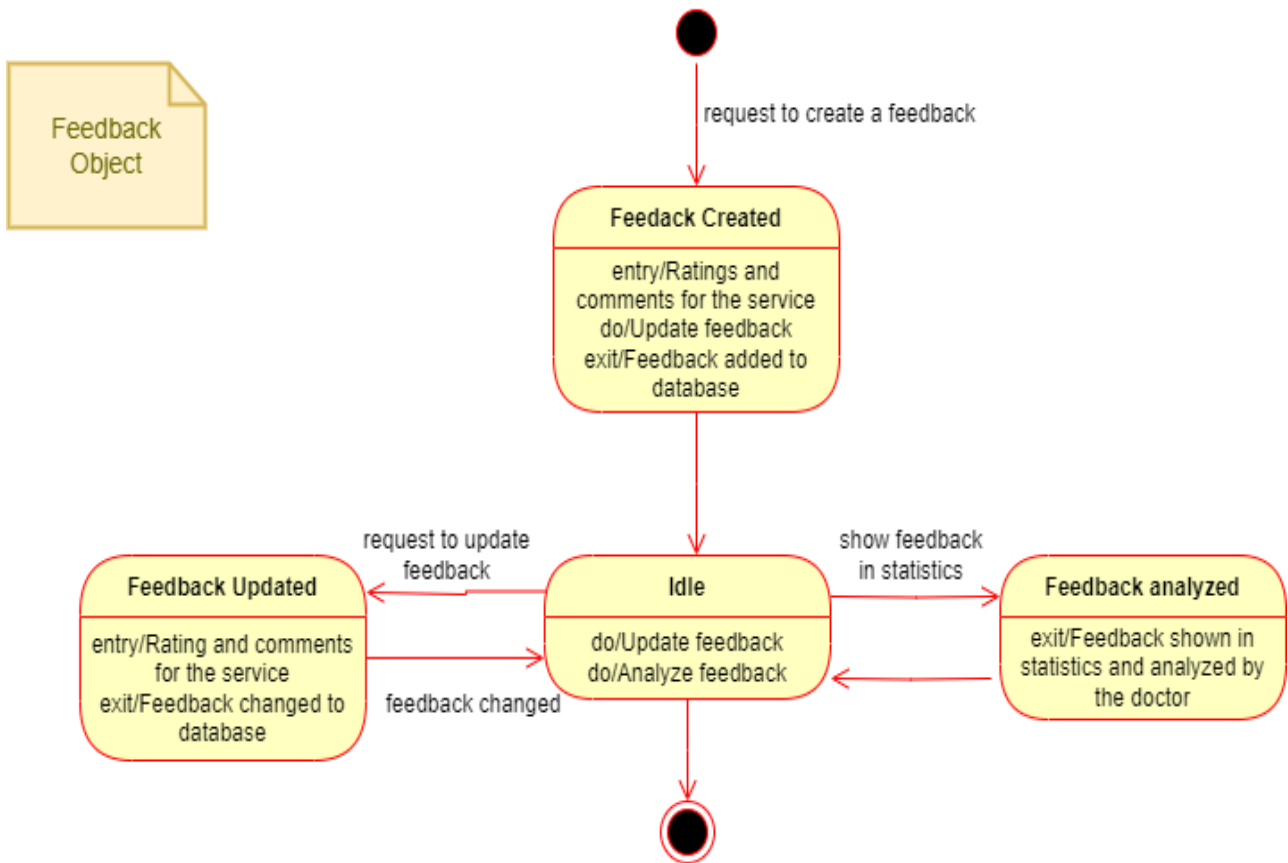
SD04 – Doctor



SD05 – Manager



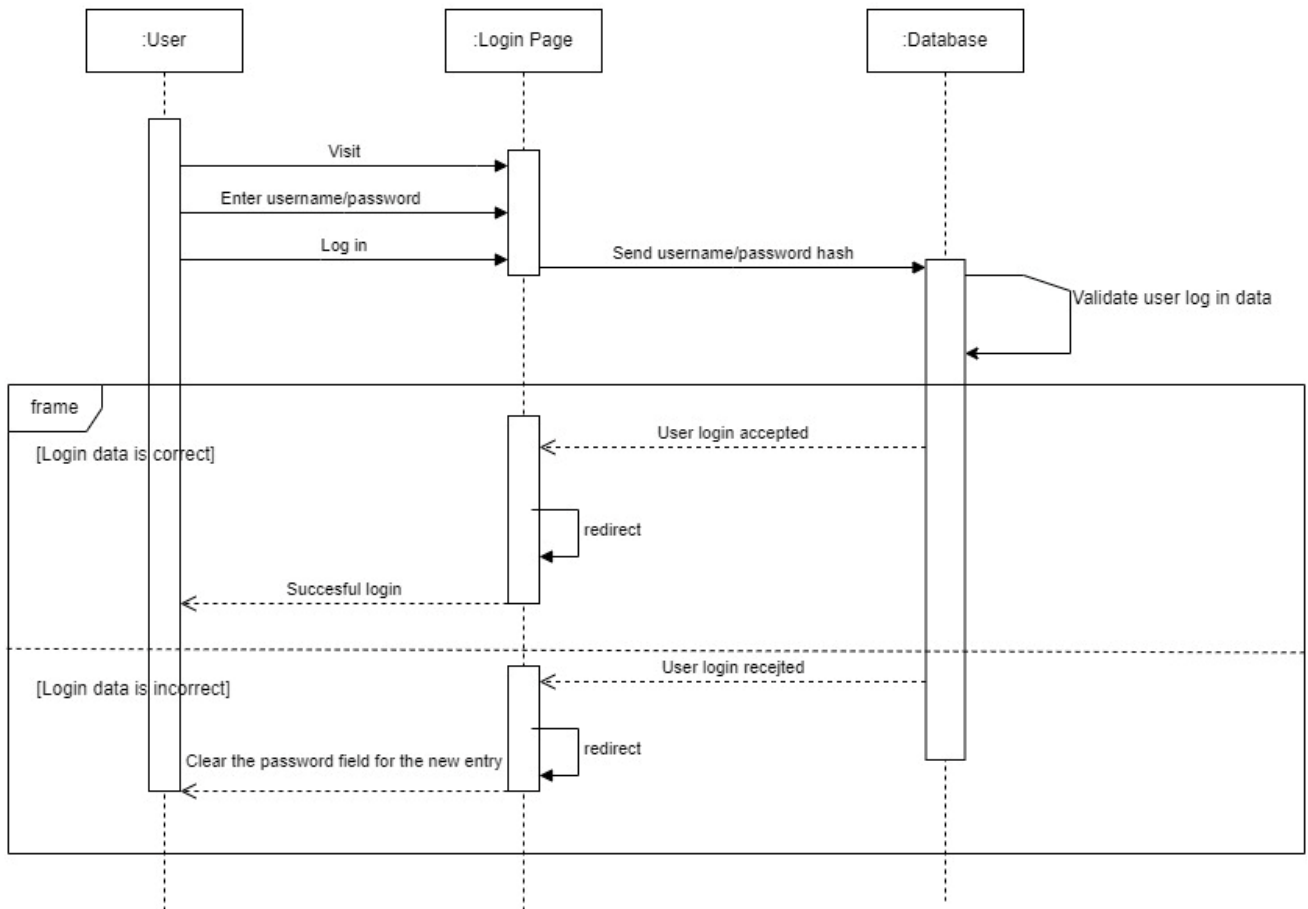
SD06 – Feedback



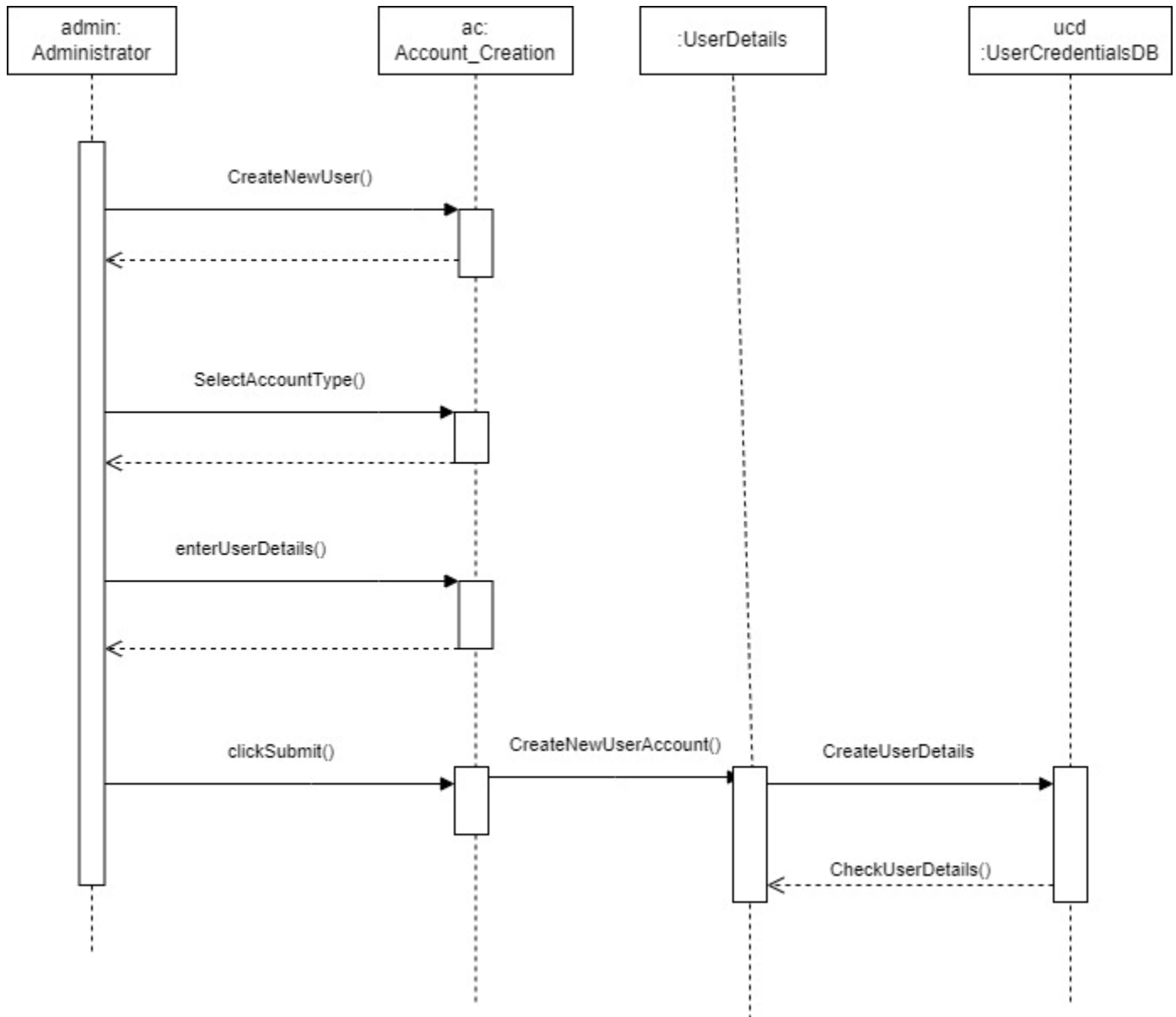
4.2.4 Sequence Diagrams

Sequence01 – Login

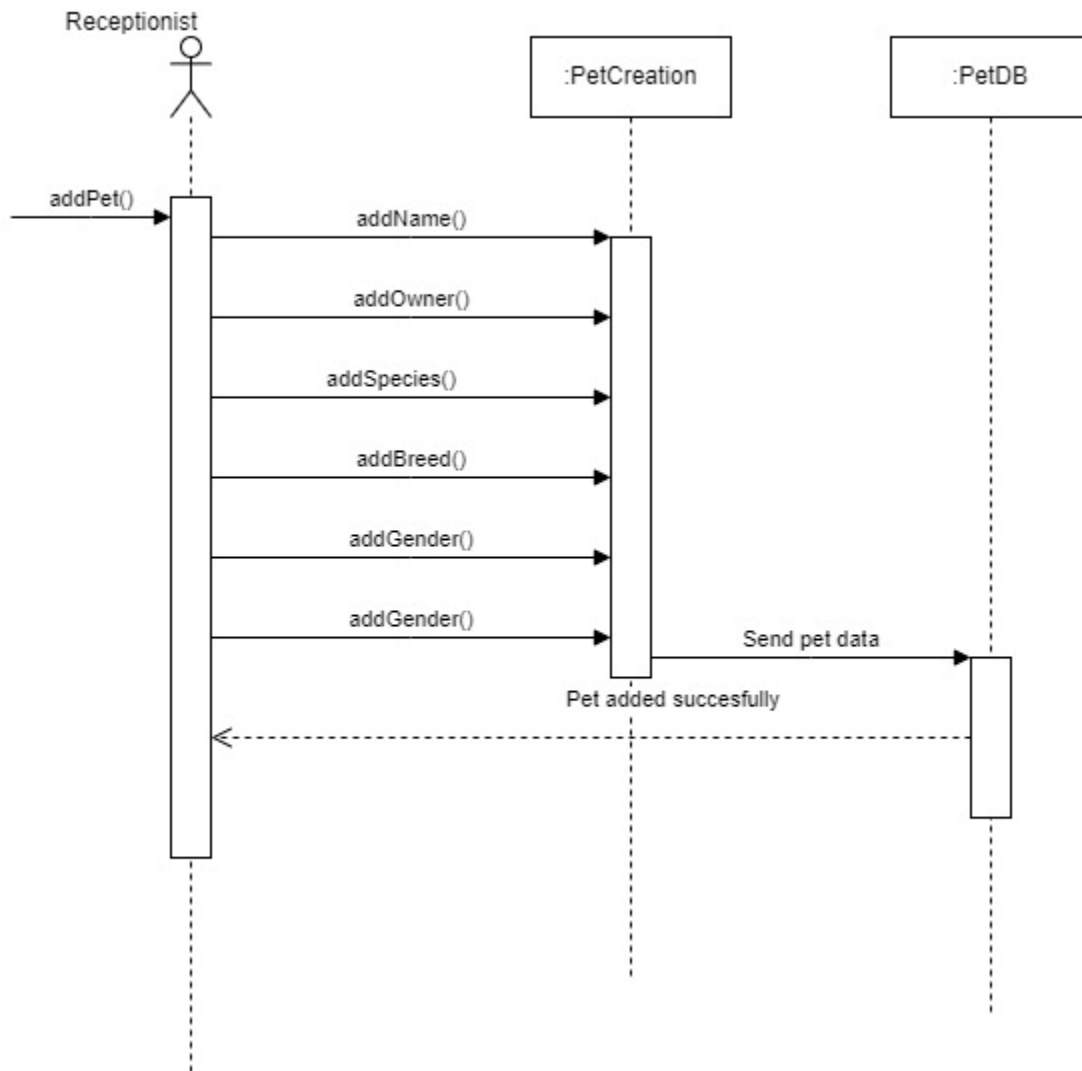
Log in seq
diag



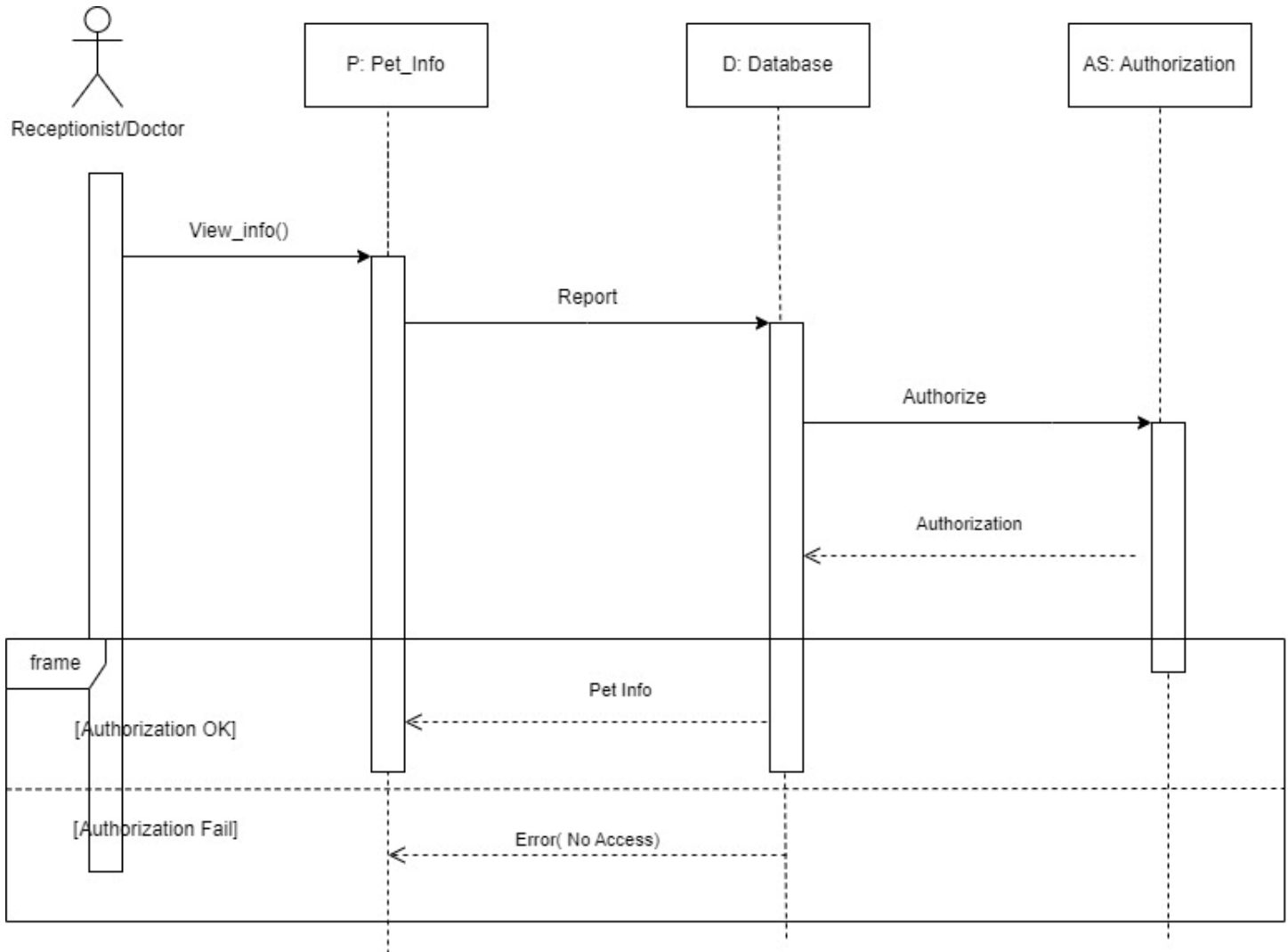
Sequence02 – Create User



Sequence03 – Add Pet



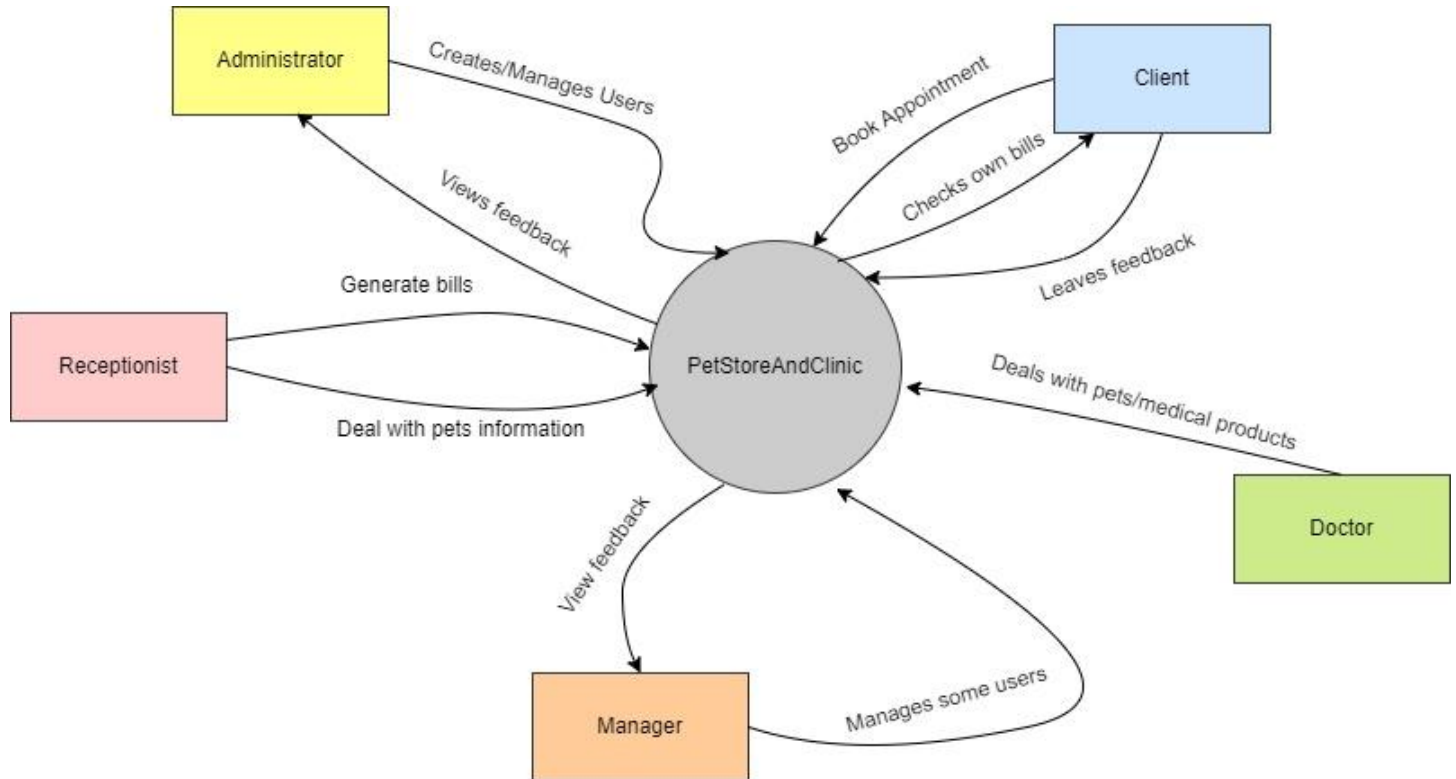
Sequence04 – View Pet Info



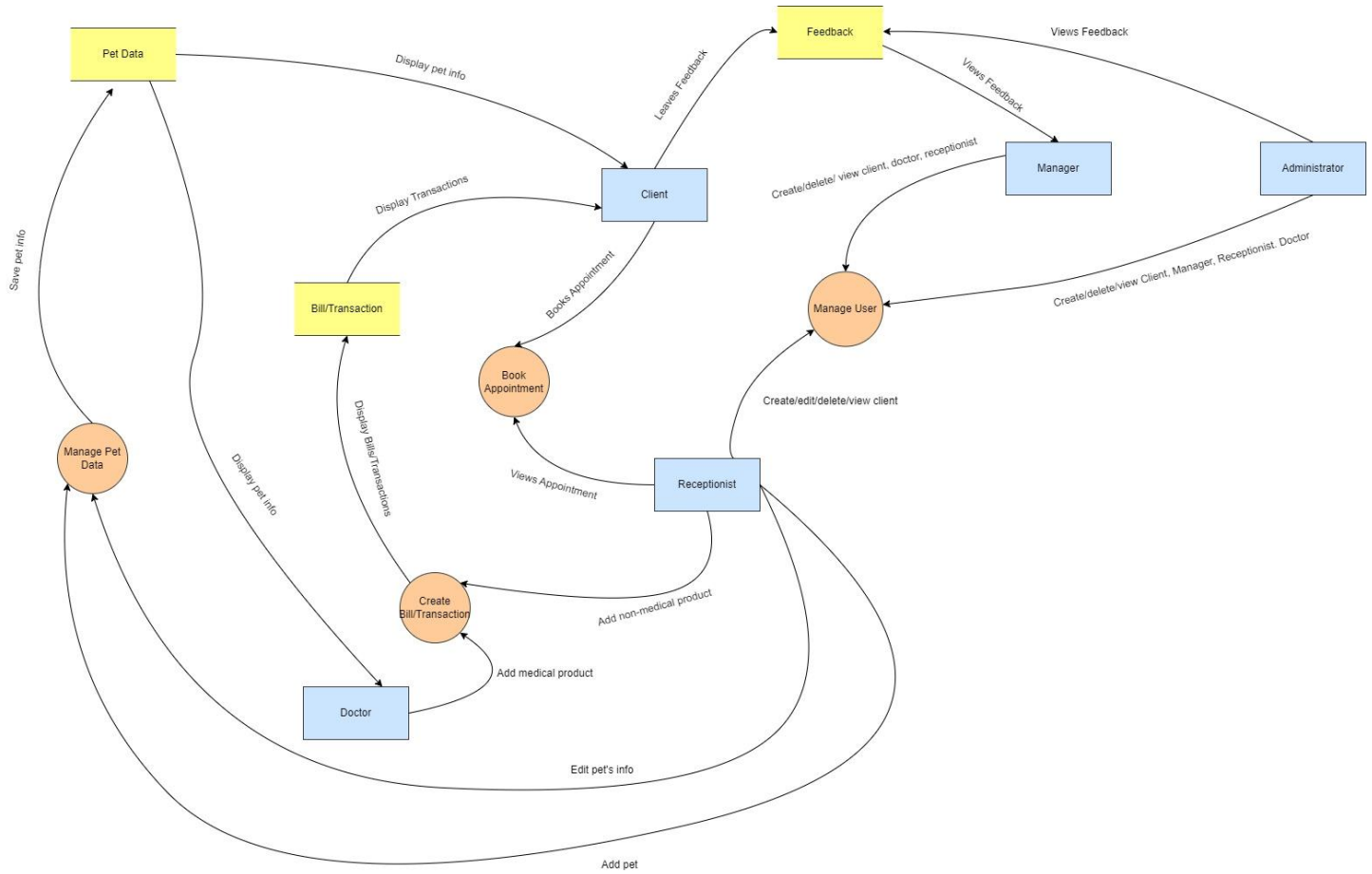
4.2.5 Collaboration Diagrams

4.3 Data Flow Diagrams

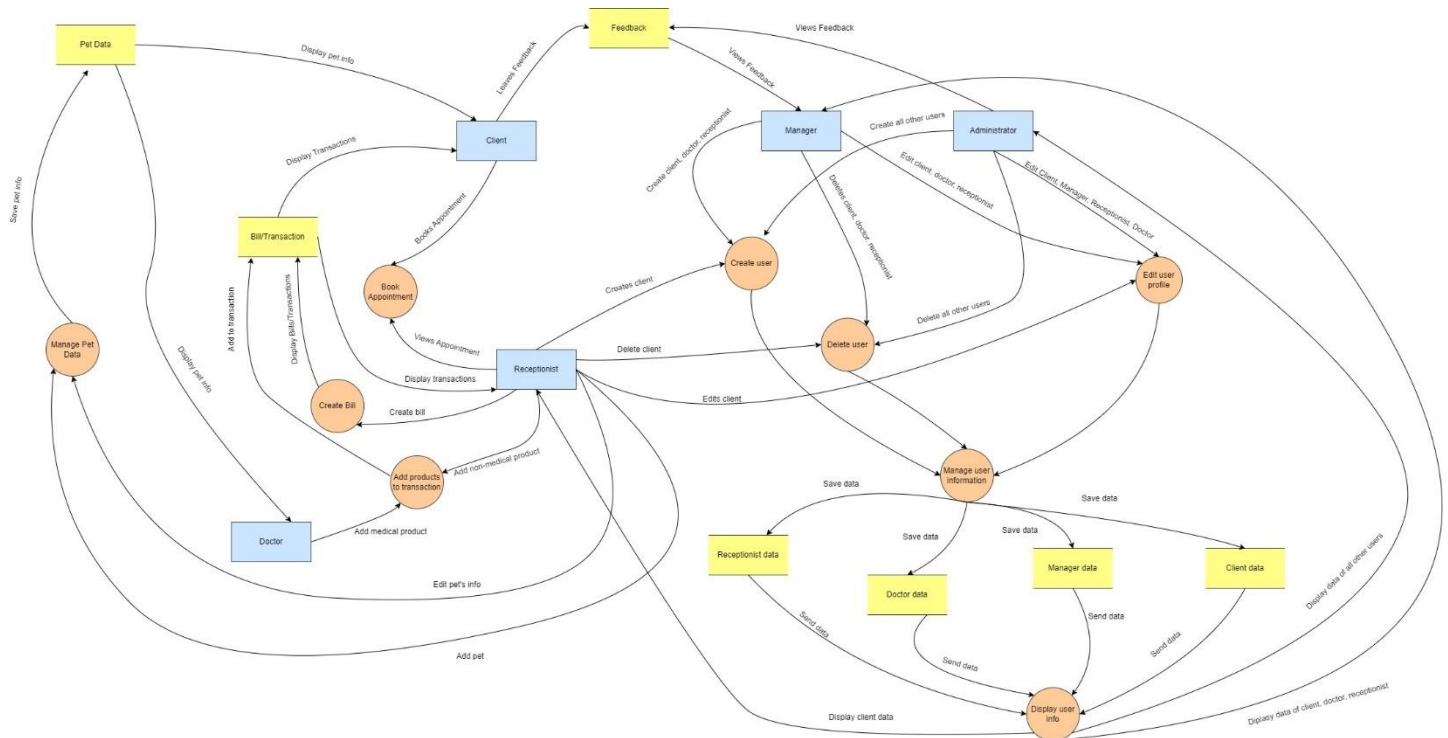
DFD – Level 0



DFD – Level 1

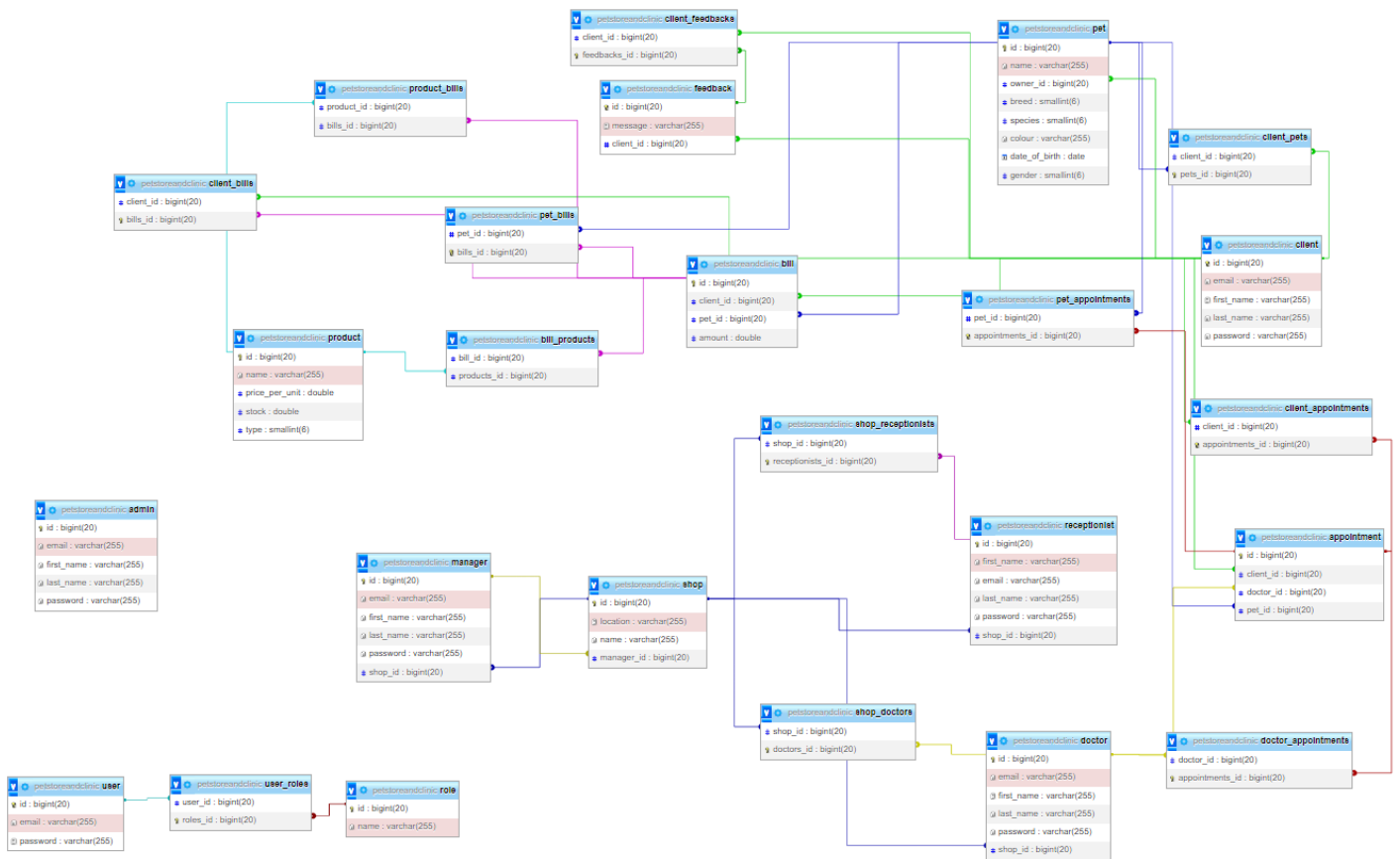


DFD – Level 2

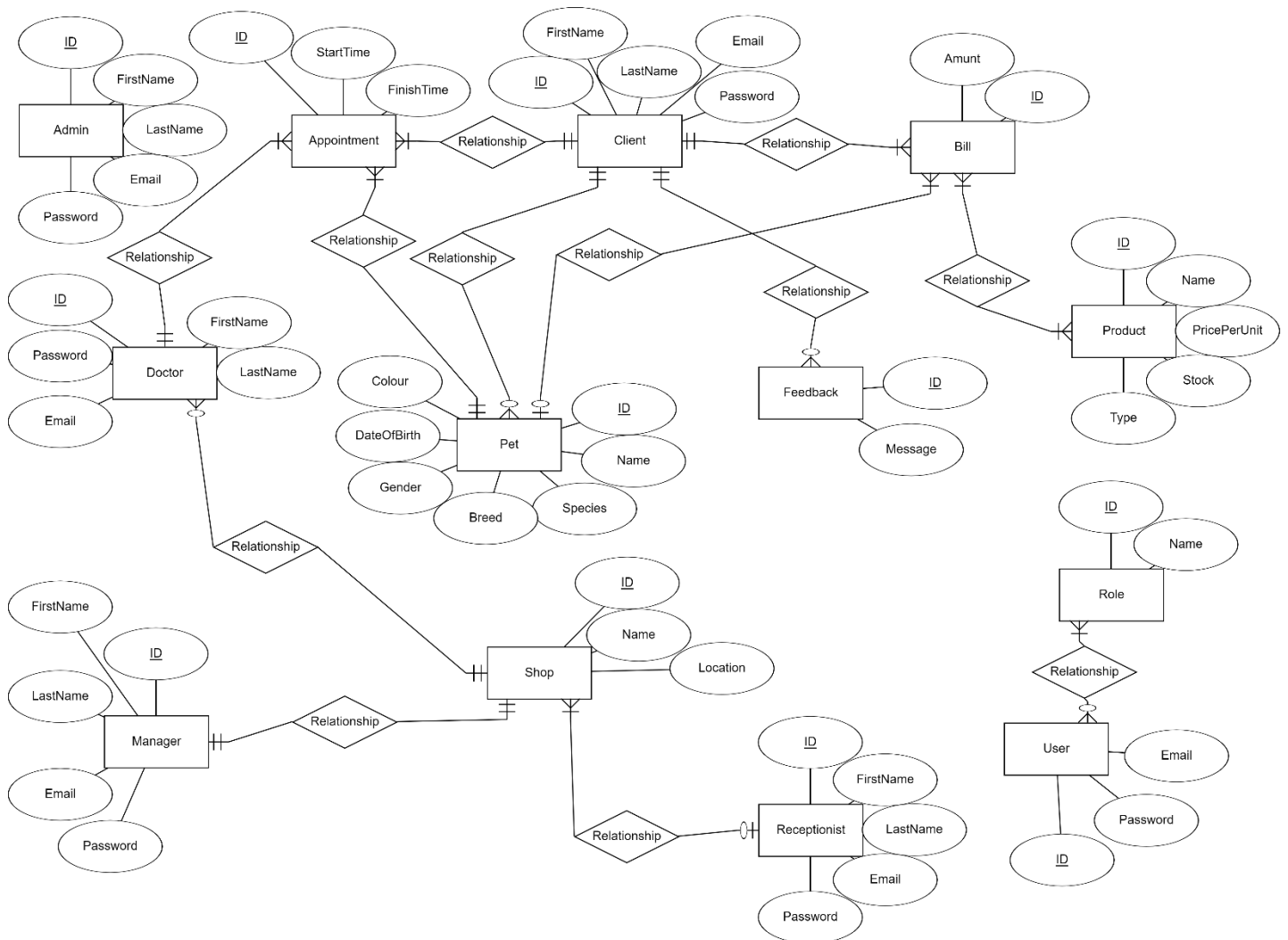


4.4 Entry Relation

4.4.1 Database Schema Design



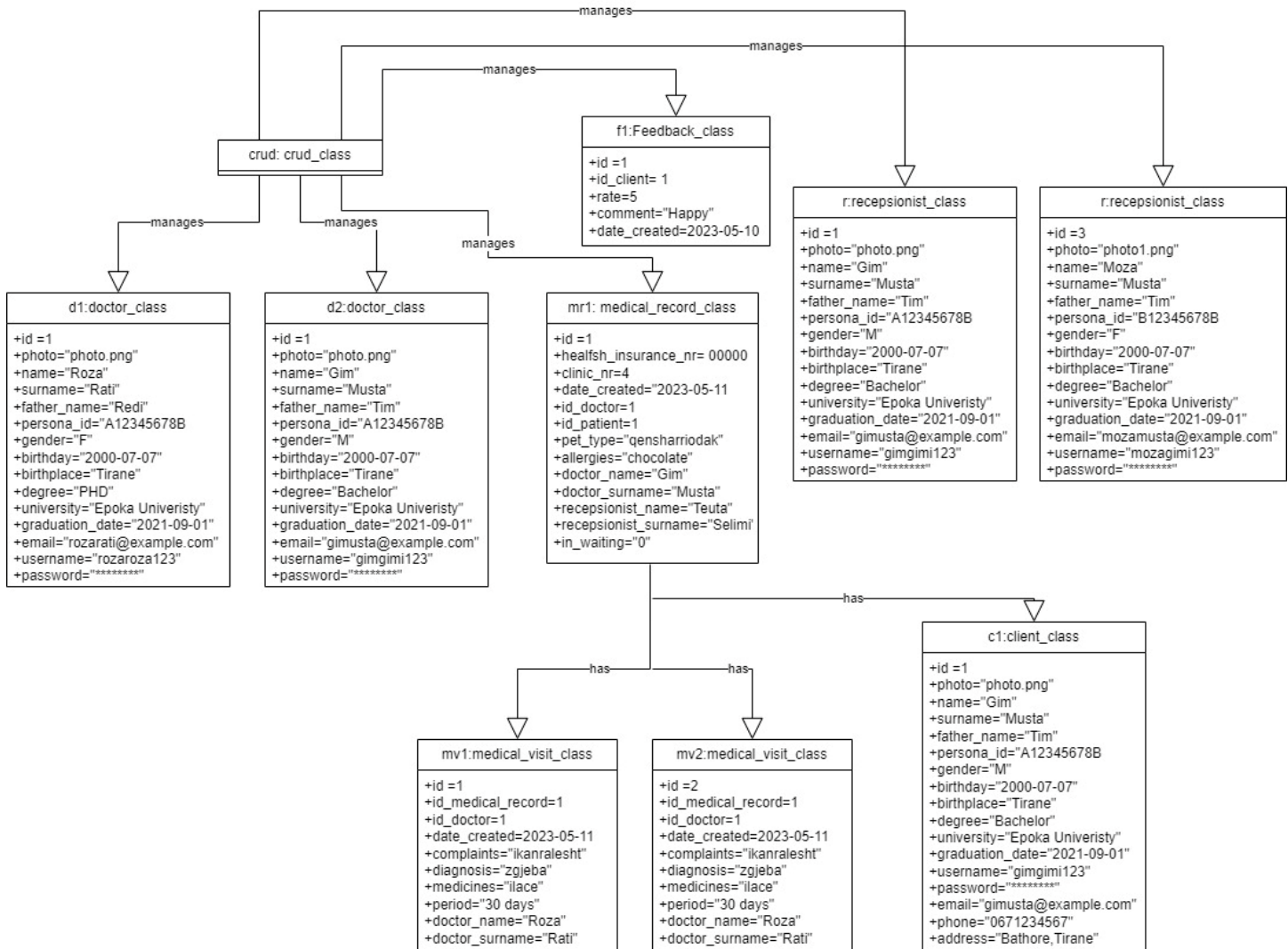
4.4.2 Entity Relation Diagram



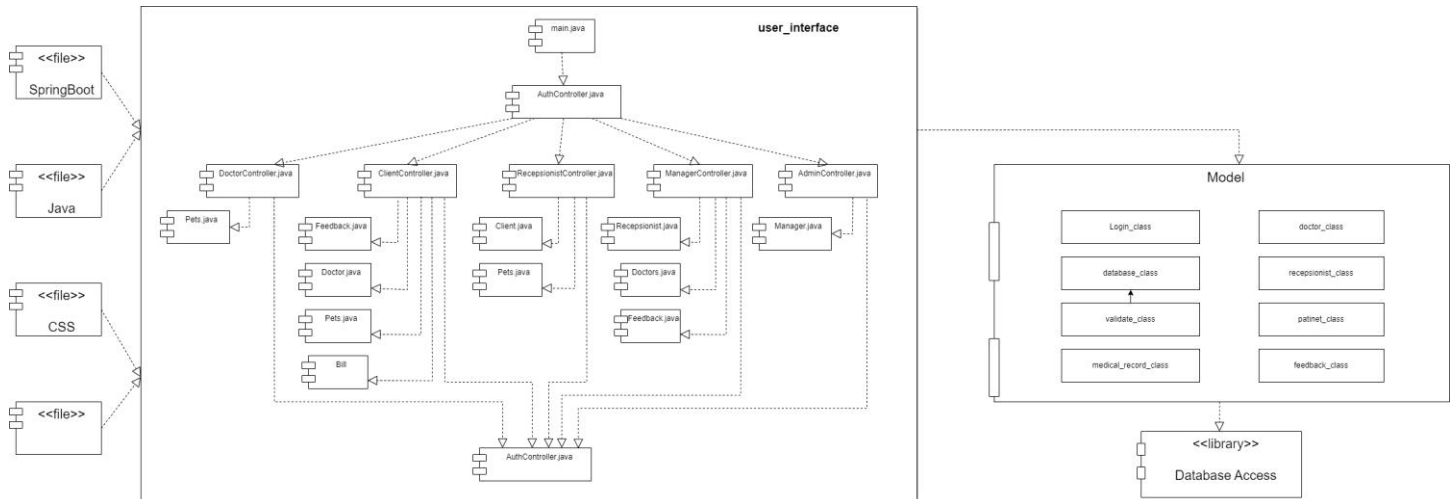
4.5 Structural Diagrams

4.5.1 Class Diagrams

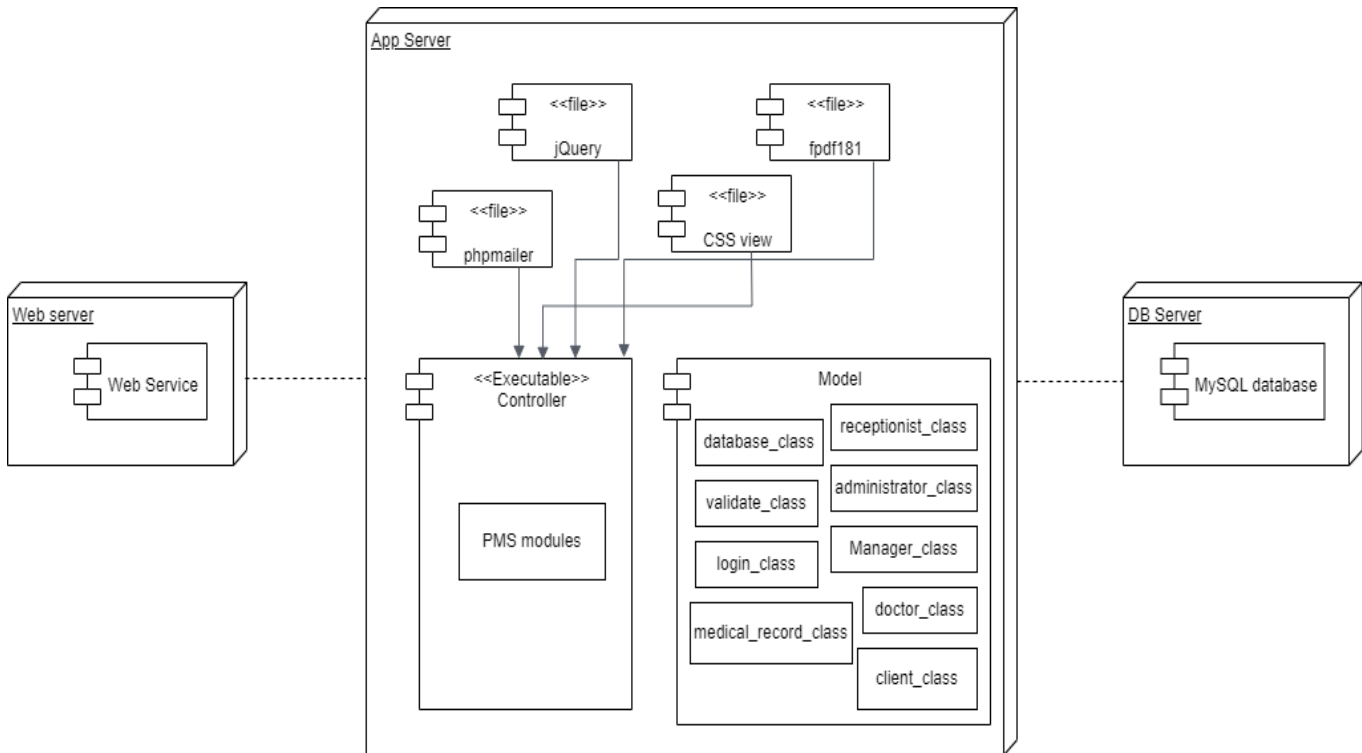
4.5.2 Object Diagram



4.5.3 Component Diagram



4.5.4 Deployment Diagram



5 Implementation Technology

PetStoreAndClinic is a dynamic Web Application. It provides communication between the client and the business online. The back end of the project is provided in Java (Spring Boot framework), while the front end is provided in JavaScript (React Framework). For the database, we have used MySQL.

This project is published on GitHub, where you can find the step-by-step procedure for the creation of this project (<https://github.com/kocaqi/PetStoreAndClinic>).

Below are some screenshots of the finalized product:

6 Project Planning

7 Appendix

7.1 Appendix A- Definitions, Acronyms, and Abbreviations

7.2 Appendix B- References

7.3 Appendix C- File Format

7.4 Appendix D- Sketches

Part 1:

Part 2:

7.5 Appendix E- Detailed Designs