

SW Engineering CSC648/848 Spring 2021
“Zooble”
Section 04 Team 2

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Table of Contents

Section I: Executive Summary	3
Section II: Use Cases	5
Section III: List of Main Entities	29
Section IV: Initial List of Functional Requirements	32
Section V: List of Non-Functional Requirements	39
Networks	43
Section VI: Competitive Analysis	44
Competitive Features Table	47
Summary of Competitive Analysis :	48
Section VIII: Team Contributions	52
Section IX: Checklist	54

Section I: Executive Summary

The advent of social media has ushered us into a more interconnected world.

There are a ton of sites online to find services and connect with others that **people** use daily, but our four-legged, feathered, and finned friends have been left behind. Enter Zooble.

The purpose of this site is to create an all-in-one social media and pet services directory platform geared towards pet owners and businesses around the United States. In creating this application, our vision is to bring together convenience and usability by combining features both users and businesses want in one place.

Users will be able to find local dog parks/shelters/businesses, create accounts for their pets, post images, message other users, and more. We want to create a convenient space where animal lovers can interact with one another and showcase their pets.

Business owners will be able to showcase their businesses and post content to attract potential customers or advertise special events/deals. Registered pet owners on the site will, in turn, be allowed to rate and review these businesses, which allows businesses the opportunity to improve their services to grow their customer base, and for other pet owners to find the perfect

provider for the services they need.

Other websites may offer information on different services such as grooming, posting pet pictures, or finding dog parks. Zooble acts as a hub for accessing information on pet service providers and also functions as a social media network for pet owners.

Section II: Use Cases

Actors:

1. Mary (Registered Pet Owner)

- a. Characteristics: Wealthy older lady, already has dogs and various other animals that she loves
- b. Goals: Mary wants to Connect with and socialize with other pet-lovers like her. She wants to share images of her beloved pets with others and find ways to pamper her pets.
- c. Skills: Mary is very personable and sociable. She is also eager to learn about using social media.
- d. Pain Points: Despite being eager to learn about them, she is not so experienced or skilled with social networks or technology in general.

2. Dave (Registered Pet Owner)

- a. Characteristics: Dave is a younger man living in an apartment in a big city, who just adopted a German Shepard after moving to the city a month ago. He is a first-time pet owner.
- b. Goals: Dave wants to find resources related to first-time dog-ownership that would help him house train his German Shepard. He also wants to meet new people in the city.
- c. Skills: Dave is smart, resourceful, and very tech-literate
- d. Pain Points: Dave is very inexperienced with dogs. He is also somewhat introverted and lacks social skills.

3. Sarah (General User)

- a. Characteristics: Sarah is a businesswoman with a dog, and has to travel across the world for work frequently.
- b. Goals: Sarah wants to be able to find pet sitters or kennels on short notice.
- c. Skills: Sarah is very observant, intelligent, and organized.
- d. Pain Points: Sarah is somewhat impatient because of her busy lifestyle and somewhat cautious of online-only businesses/services.

4. John (Admin)

- a. Characteristics: John is the sole administrator of a new website for a startup.
- b. Goals: John wants to keep the website running well. He also wants to facilitate connections between users in a safe manner and grow the user base.

- c. Skills: John is very tech-literate, is a good leader, and is a good problem solver/critical thinker.
- d. Pain Points: John has a full-time job, and can't dedicate too much time to moderating the website.

5. Bob (General User)

- a. Characteristics: Middle-aged man who has lived in his city for a long time. The dog recently passed away.
- b. Goals: Find a new companion.
- c. Skills: Experienced in working with animals. Despite being somewhat older, he is still tech and social media literate.
- d. Pain Points: Bob is stubborn and old-fashioned. Doesn't see the appeal of using a website to find pets and is skeptical of its utility.

6. Susan (General User)

- a. Characteristics: Susan is the middle-aged owner of Paw Spa, a small mom-and-pop pet grooming service that is struggling with the business.
- b. Goals: Increase visibility of her business and find more customers.
- c. Skills: Susan has integrity and kindness that allows her to connect with customers and build relationships.
- d. Pain Points: Susan has never set up any form of social media advertisement or integration before.

7. Ian (General User)

- a. Characteristics: Ian is a senior man and has a 22-year-old cat named Michael. Since Michael is nearing the end of his life, Ian feels like he hasn't taken and uploaded many pictures of his cat.
- b. Goals: Ian wants to create a social media account for his senior cat and post tons of pictures for memories.
- c. Skills: Ian has the ability and willpower to learn new things.
- d. Pain Points: Ian has only used the web to search for things in the search bar and use the default home page of web browsers. He has never made an online account for anything. He will not know how to navigate a social media website instinctively.

8. Cameron (Registered Pet Owner)

- a. Characteristics: Cameron is a photographer and enjoys posting pictures of his pet on Instagram. He enjoys seeing other people's pictures and socializing with them
- b. Goals: In our application, Cameron is able to share pictures and find services for his pet more easily. He is looking for a community of pet lovers who share each other's interests.

- c. Skills: Is a creative photographer and wants to share his pictures with others in a different way
- d. Pain Points: Cameron is a passionate photographer and wants to share his pictures and find services for his pet at the same time.

9. Booming Poodle Grooming (Registered Business)

- a. Characteristics: Booming Poodle Grooming caters to all dogs and cats. They are a family-owned business that has been going strong for about 15 years.
- b. Goals: Booming Poodle Grooming specializes in grooming pets even with the most unruly coats.
- c. Skills: Equipped with the right equipment to safely groom the pets. Offers a variety of services (e.g. bathing/shower, fur trimming, nail trimming, etc.)
- d. Pain Points: Since this is a family-owned business they are not open 7 days a week. They are only open 5 days a week.

10. Burgdale Pet Shelter(Registered Shelter)

- a. Characteristics: Burgdale Pet Shelter is a new pet shelter in the city of Burgdale that has a small population of various pets
- b. Goals: Burgdale Pet Shelter wants to find new ways to boost business using the internet
- c. Skills: Burgdale Pet Shelter has young employees who know how to use social media, and offers high-quality service/care to customers and their population of pets at the shelter.
- d. Pain Points: Burgdale Pet Shelter does not have the resources to do traditional online advertising or hire a specialized social media manager

11. Alex (Registered Pet Owner)

- a. Characteristics: Alex is a 23-year-old woman who has just graduated college. She has a new 5-month-old kitten. She is a first-time pet owner.
- b. Goals: Alex wants to be able to post images of her new furry friend. She also wants to be able to message fellow pet owners to ask them for advice on her pet.
- c. Skills: Being a recent college grad Alex is able to navigate through most sites with ease. She is great at communicating online with others.
- d. Pain Points: Alex uses Instagram and Facebook often, she expects the pet social media website to be set up the same.

12. Tom (Registered Pet Owner)

- a. Characteristics: Tom is a 33-year-old man who is a dog trainer and owns several dogs, including a German Shepard

- b. Goals: He loves helping new dog owners have the healthiest relationships with their pets.
- c. Skills: Tom is confident and outgoing. He is very patient and knowledgeable about dogs.
- d. Pain Points: Tom loves to help dog owners, but sometimes feels like doesn't have an outlet to do so or has a broad reach.

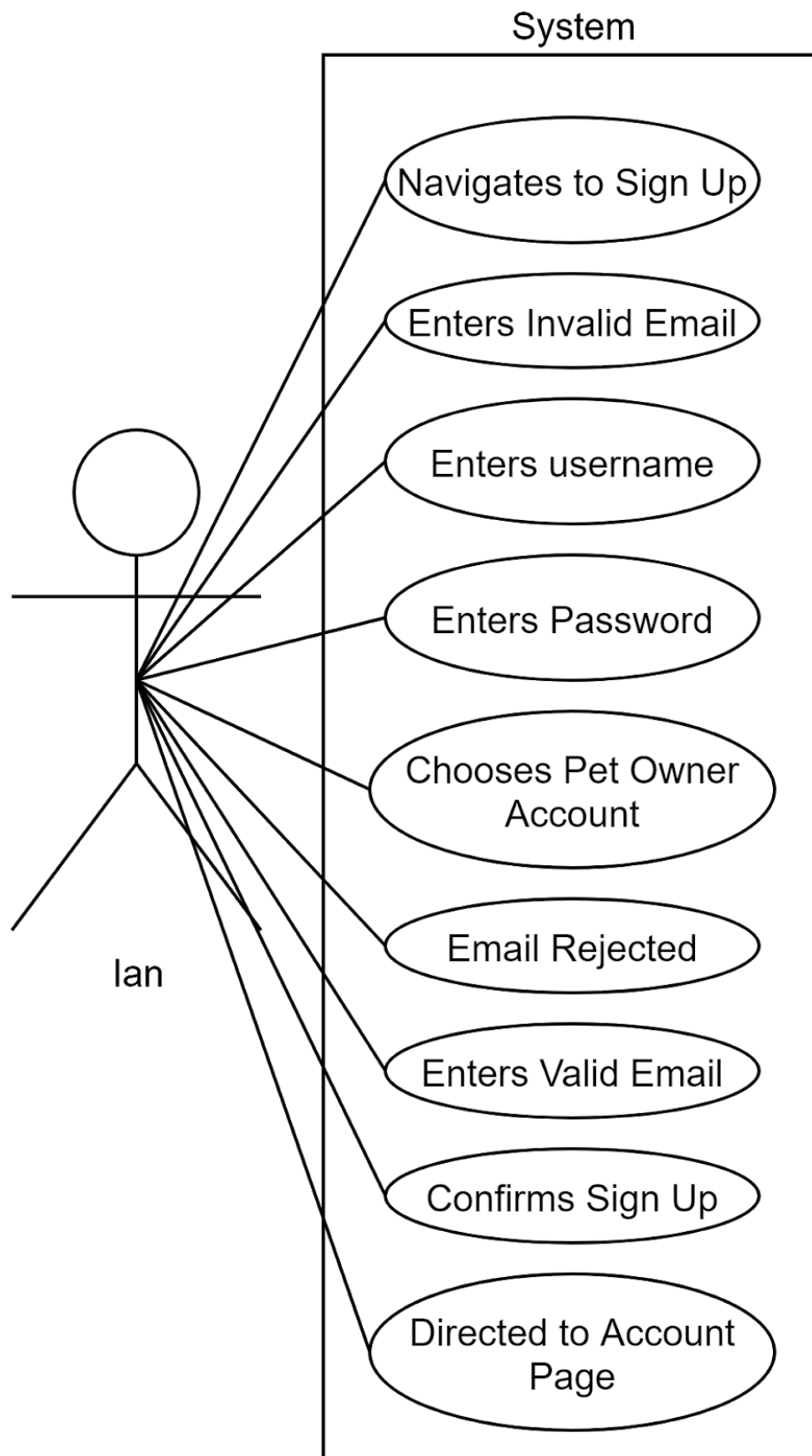
13. Joey (Registered Pet Owner)

- a. Characteristics: Joey is an outgoing 23-year-old man who has had 3 pet cats and a German Shepherd for years.
- b. Goals: Joey wants to post lots of images of his pets. He also loves to chat with new pet owners and is willing to give lots of advice on keeping pets happy and healthy.
- c. Skills: Joey is tech-savvy and can figure out how to navigate different websites in a short amount of time. Joey is a long-time pet owner and is very knowledgeable.
- d. Pain Points: Joey loves to give advice, but ends up giving unwanted advice to many people.

Use Cases:**Use Case #1**

Title:	Account Creation
Actors:	Ian (General User)
Description:	<p>Ian wants to be able to post images of his cat named Michael on the website. To be able to post images Ian has to be a registered user.</p> <p>On the registration page, it requires Ian to put in some data (e.g. email, username, password) in order to create the account. Ian enters the data and chooses to sign up as a pet owner, but the system informs the user that the email entered is invalid and not the correct format. It will prompt Ian to re-enter the email again. Ian must have fat-fingered a key entering his email. Ian re-enters the email and the system re-validates it. The account was successfully created for Ian and his new account is ready to use! He is directed to their "blank" account page where he can add a pet account for his dear pet Michael.</p>

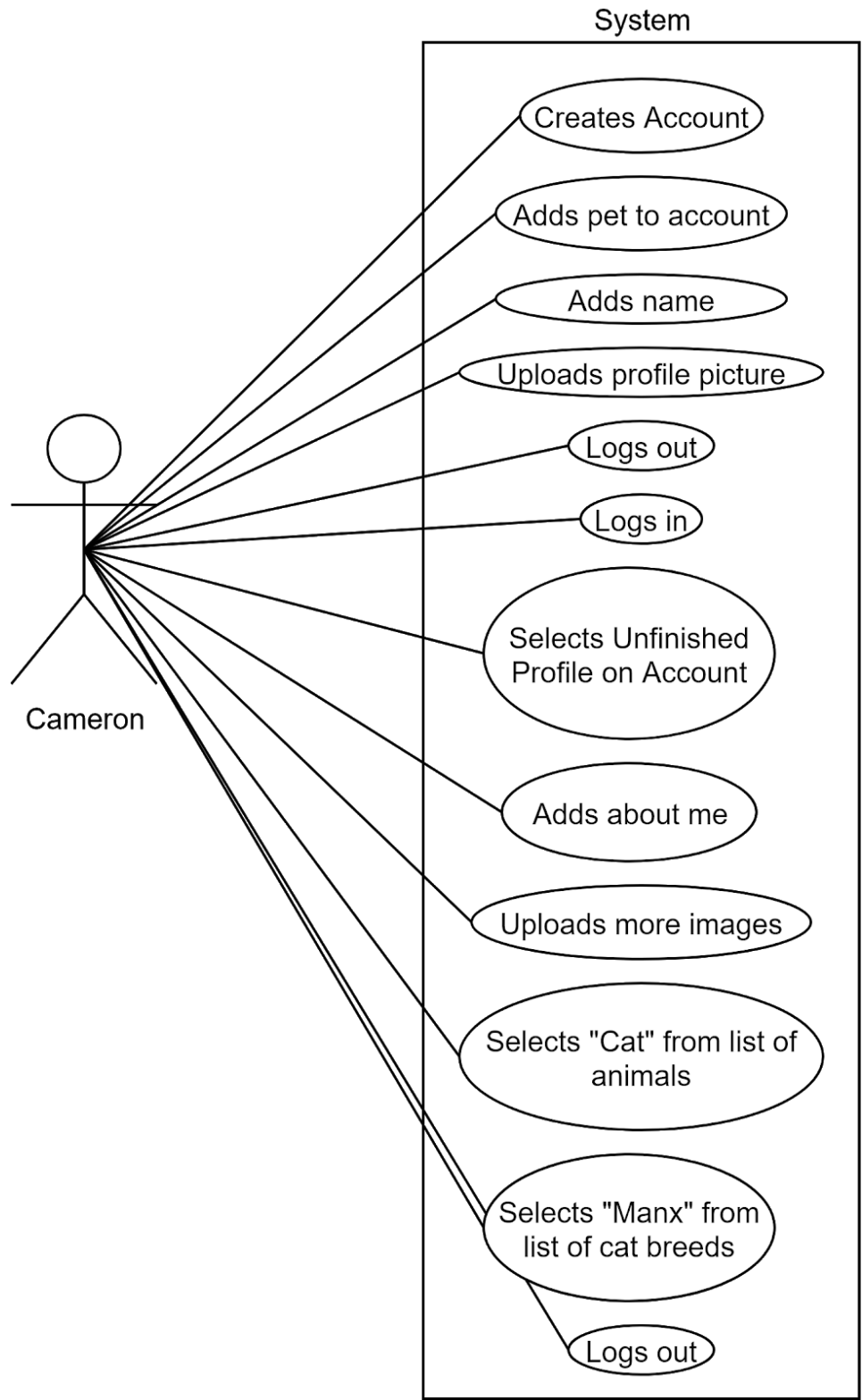
Diagram #1:



Use Case #2

Title:	Pet Profile Creation
Actors:	Cameron (Registered Pet Owner)
Description:	<p>Cameron is huge on photography and takes tons of pictures of his cat. He had just created his account on the website. He wants to be able to add pictures of his dear cat named Yoshi.</p> <p>Cameron is able to add a new pet to his account. He enters the name Yoshi and adds a profile picture. It is late at night so he decides to resume the process tomorrow. The next day, he logs in and navigates to the unfinished profile of Yoshi on his account to add content to the about me, and adds several images. He also selects "Cat" for a type of pet and then is able to select "Manx" for the breed.</p>

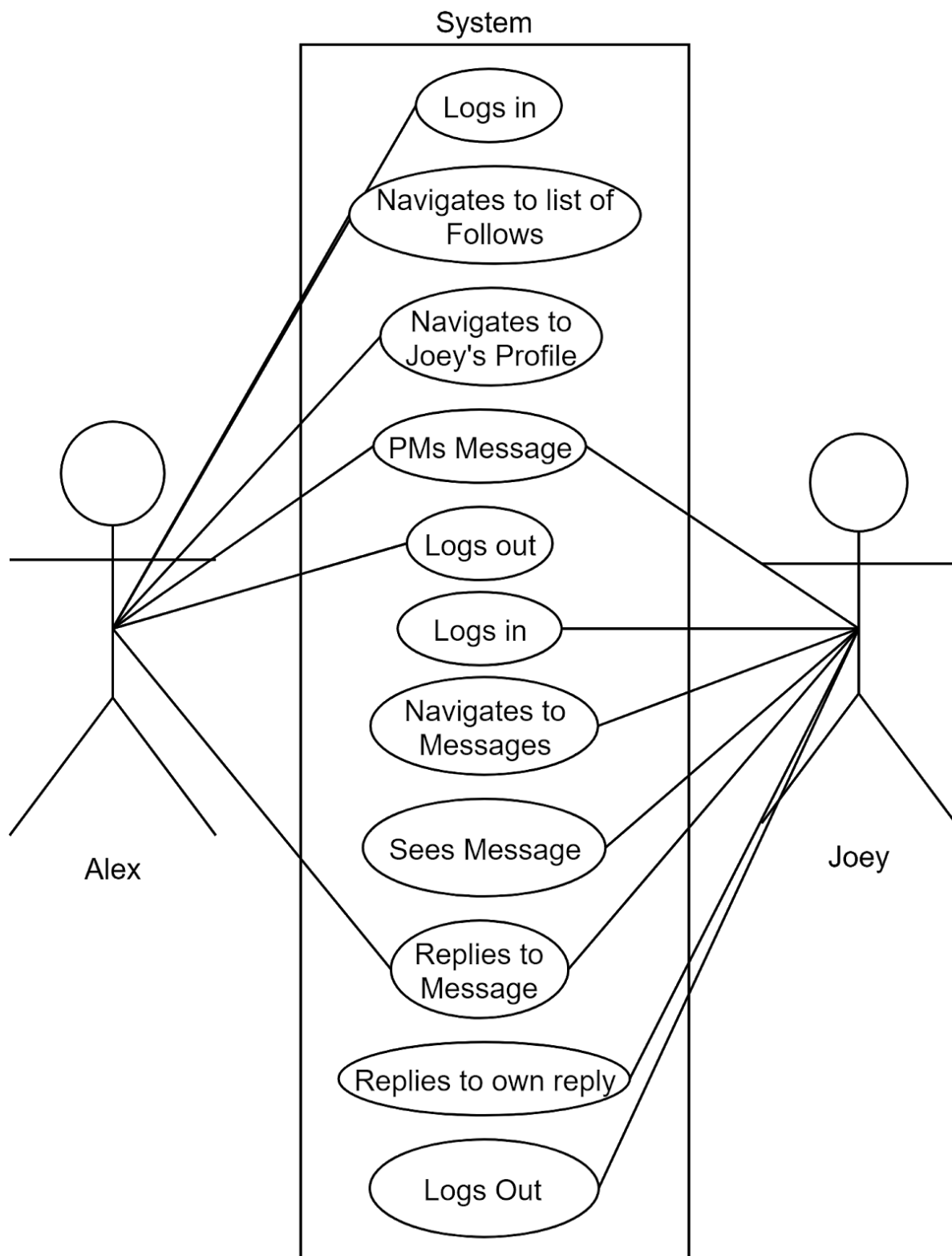
Diagram #2:



Use Case #3

Title:	Send Private Messages
Actors:	Alex (Registered Pet Owner), Joey (Registered Pet Owner)
Description:	<p>Alex is a registered user and has all her pet profiles set up on her account. She wants to quickly message her online friend Joey and set up a playday at a local park nearby. She also wants to ask Joey for advice on her new kitten.</p> <p>Alex navigates to Joey's Profile through her list of followed users. On Joey's profile page, she decides to message him. She writes a message with the subject line "Let's make a playdate?" and sends it to Joey.</p> <p>Joey receives the message on his account. He is able to send messages back giving her a confirmation on the playdate and also more advice on her new kitten. Joey decides to reply to his own reply through the message thread stored in his messages since he cannot fit all of his advice in that one moment.</p>

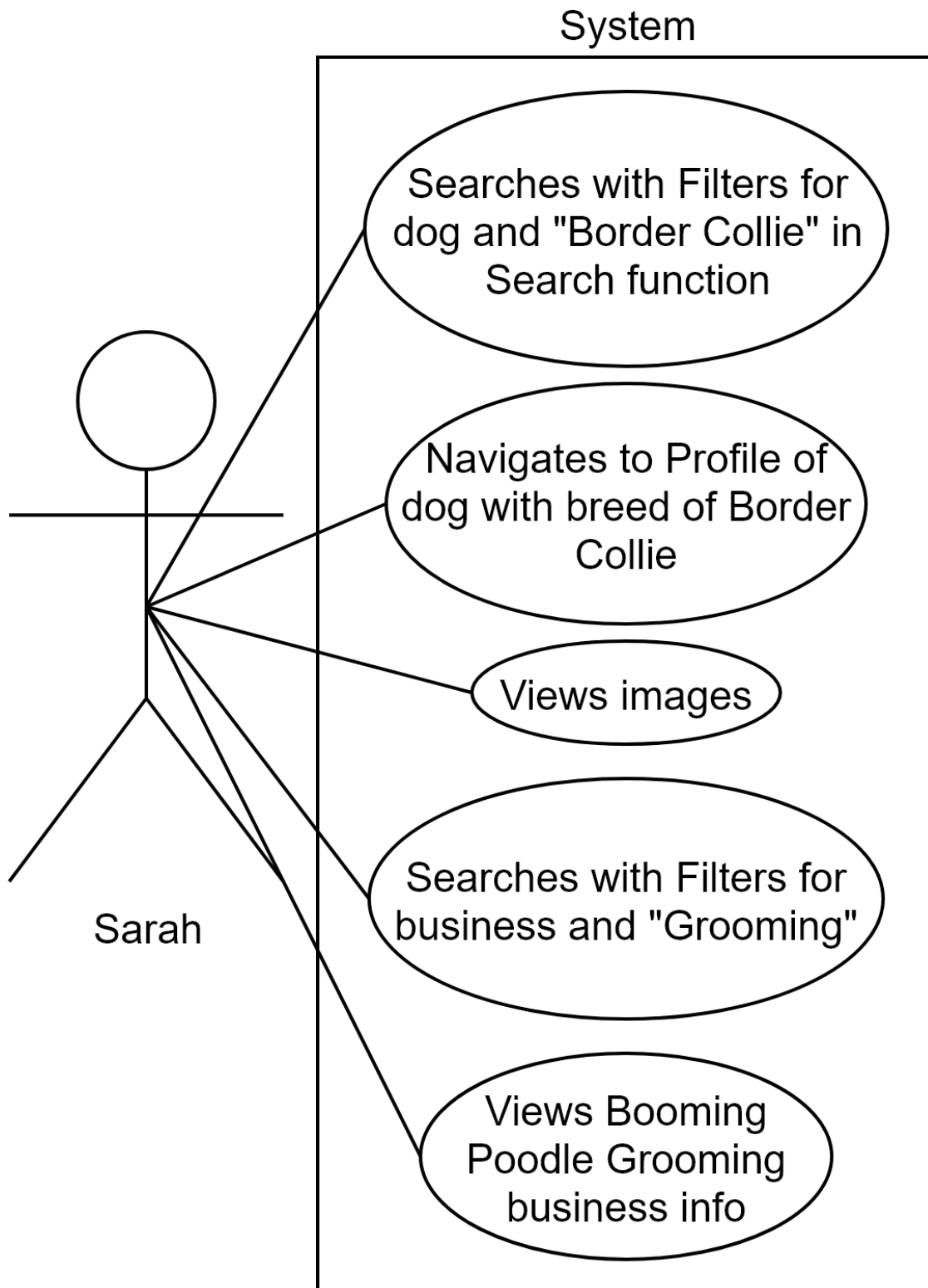
Diagram #3:



Use Case #4

Title:	Exploring the Application without Account
Actors:	Sarah (General User), Booming Poodle Grooming (Registered Business)
Description:	<p>Sarah is a pet owner and has heard about a new social media geared towards pets. She wants to explore the app but doesn't necessarily know it well enough to be driven to create an account.</p> <p>Sarah is a recent big fan of the Border Collie breed and wants to look at some cute pictures. She uses the search function to find dogs with the breed of "Border Collie". She sees the profile picture of an especially cute dog named Sasha. She views her profile that has tons of beautiful images.</p> <p>After that, Sarah decides it is time to look for a groomer for her Samoyed Lyla. She searches for "grooming" with the search function, indicating that she is looking for businesses. She looks through the list of registered businesses matching the query and finds the business named Booming Poodle Grooming. She views the business page to find out their opening hours. She notices they are not open on Sunday. She makes plans to visit them on Monday.</p>

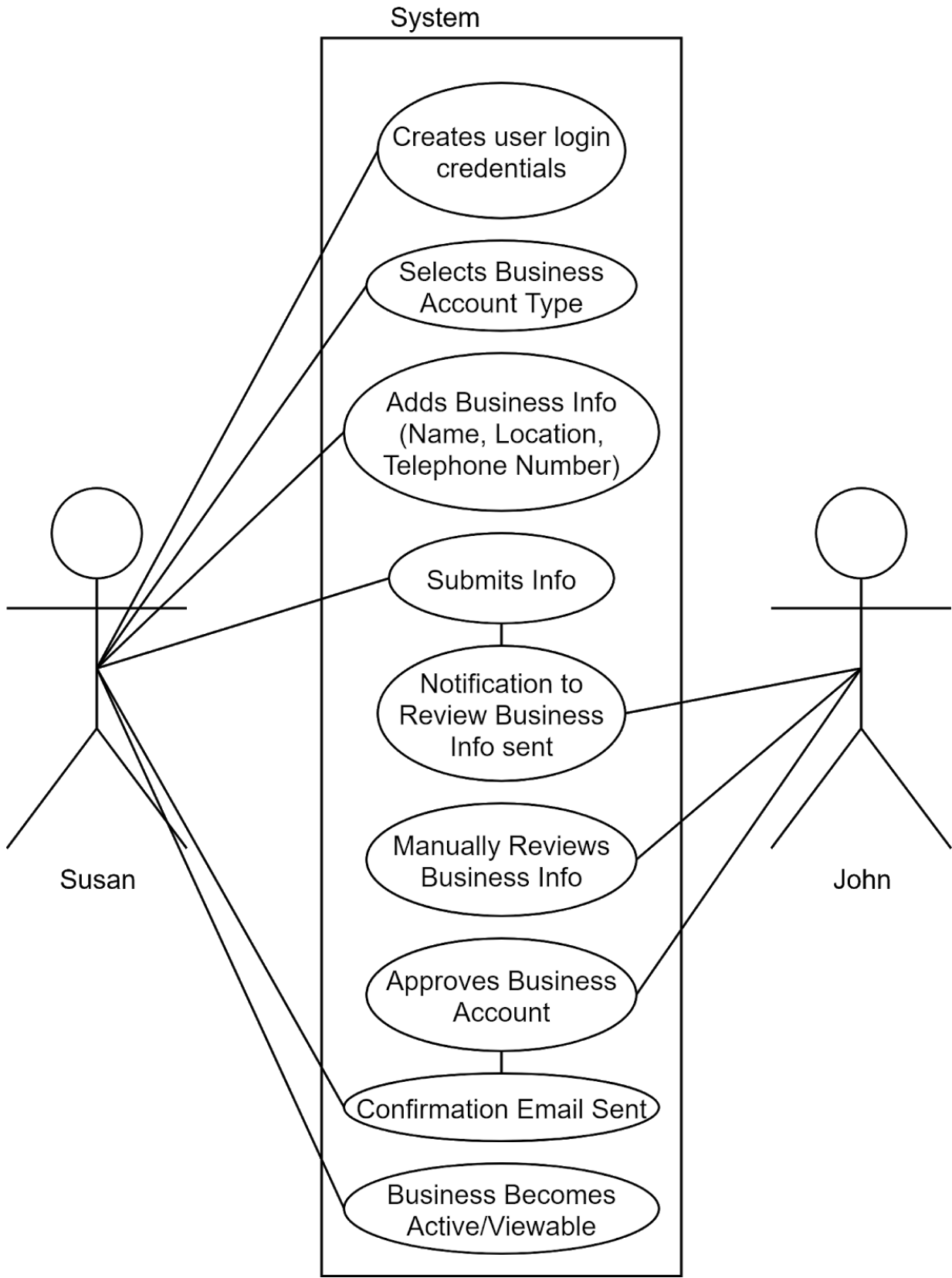
Diagram #4:



Use Case #5

Title:	Adding a Business Account
Actors:	Susan (General User), Paw Spa (Business), John(Admin)
Description:	<p>Susan is a business owner looking to expand her business's reach by adding her business information and pictures onto Zooble.</p> <p>Susan goes to the registration page and chooses what account type she would like to make. Susan selects a Business Account and creates user login credentials(username, and password). She then is required to add her business information to her account. She inputs a business name, category, address, telephone number, hours, pictures, and about section. After adding this required information and content, a notification is sent by the system to John, an admin. He reviews the information, verifying that the information is accurate and that the business actually exists. After approving the business, an automated email is sent to Susan by the system and her business profile is now viewable on the website for all users.</p>

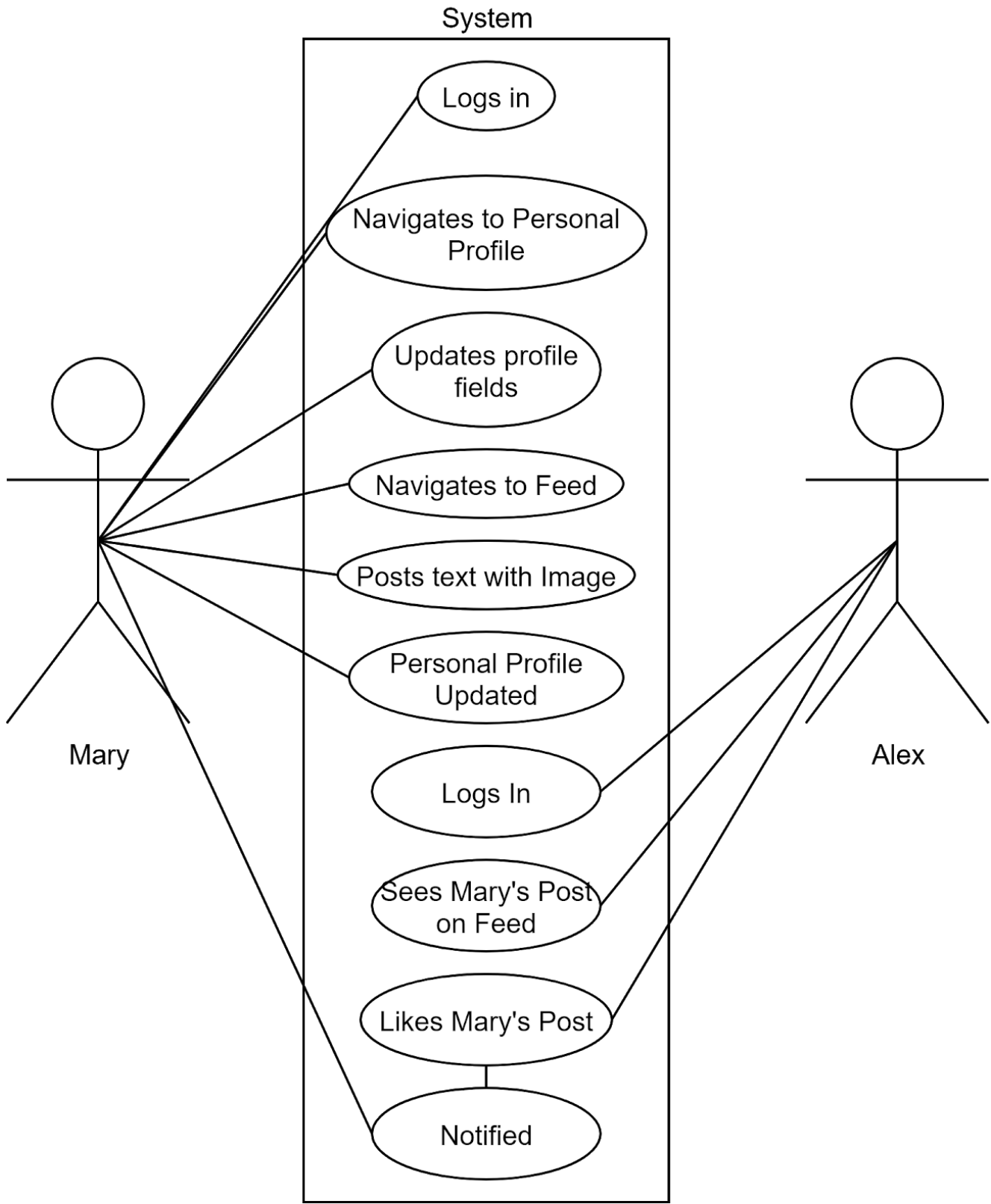
Diagram #5:



Use Case #6

Use Case Title	Editing Profile
Actors	Mary (Registered Pet Owner), Alex (Registered Pet Owner)
Description	<p>Mary is a registered user who wants to update her personal profile and add more information to it after creating an account as a result of getting a new puppy a few weeks ago.</p> <p>She navigates to her own profile page and is able to access and update each field. She adds a longer about me and updates her profile picture.</p> <p>She then navigates to her feed and makes a post giving a quick update on what's going on in her life for her and her dog to several followers, with a picture of her with her now a much bigger puppy. She navigates to her profile before logging out and sees that the post is now visible and linked on her profile. She also receives a notification that Alex has liked her post.</p>

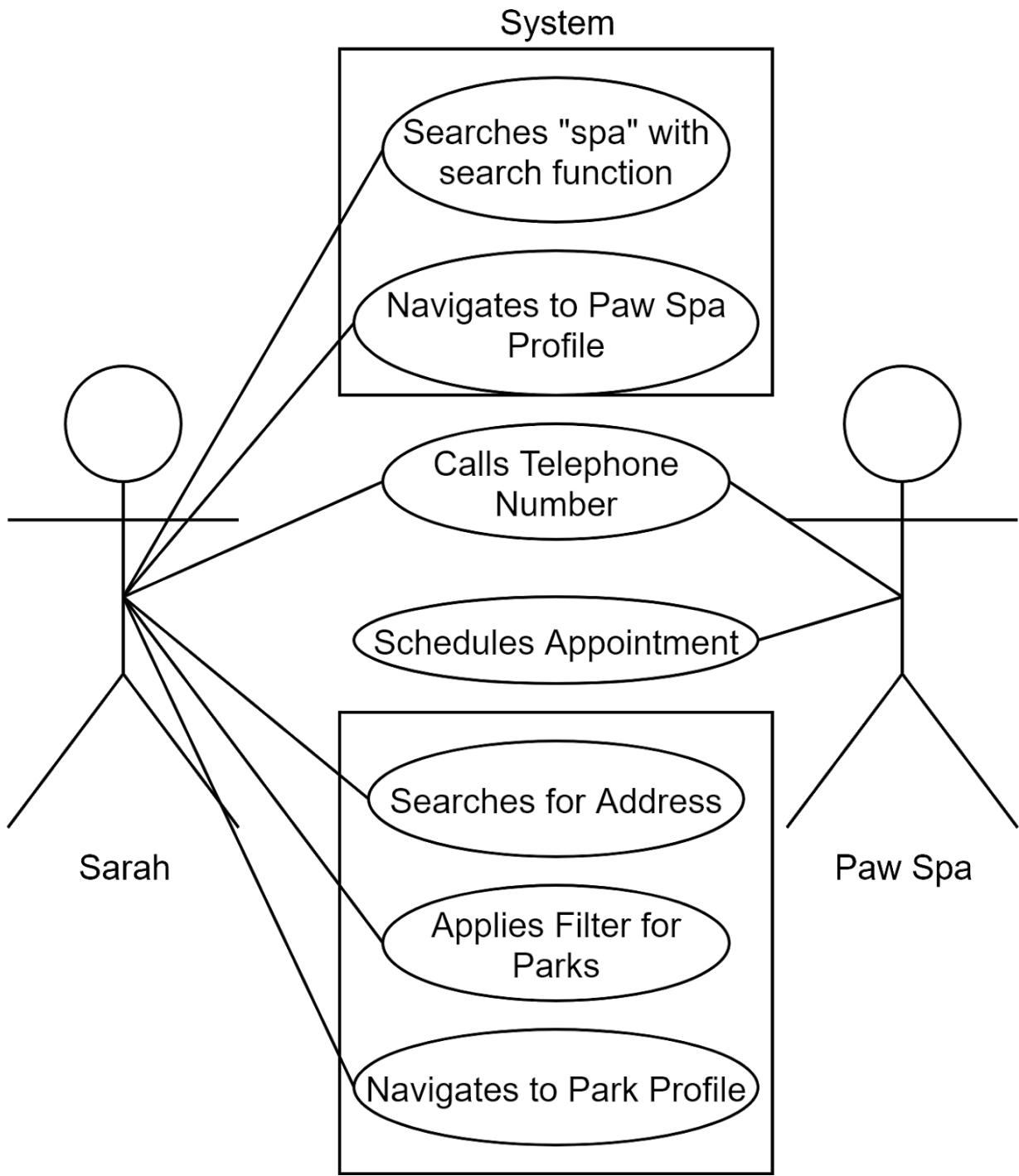
Diagram #6:



Use Case #7

Use Case Title	General User looking for Business/Park
Actors	Sarah (General User), Paw Spa (Registered Business)
Description	<p>Sarah is visiting family this weekend, but she desperately needs to find someone to groom and bathe her dirty and unruly Samoyed, Lyla.</p> <p>She goes to the website and on the homepage, she sees the search tool. She searches for the word “spa” and the Paw Spa business profile shows up. Sarah calls the business phone number on the profile to make an appointment and uses the address to make plans to visit their business.</p> <p>She also needs to find a dog park to walk her dog in the area that she is visiting. She uses the same search functionality to search for parks, but this time manually enters the address of her parent’s house and then filters for parks only. She sees a park that a user in that area added and makes plans to visit it that weekend.</p>

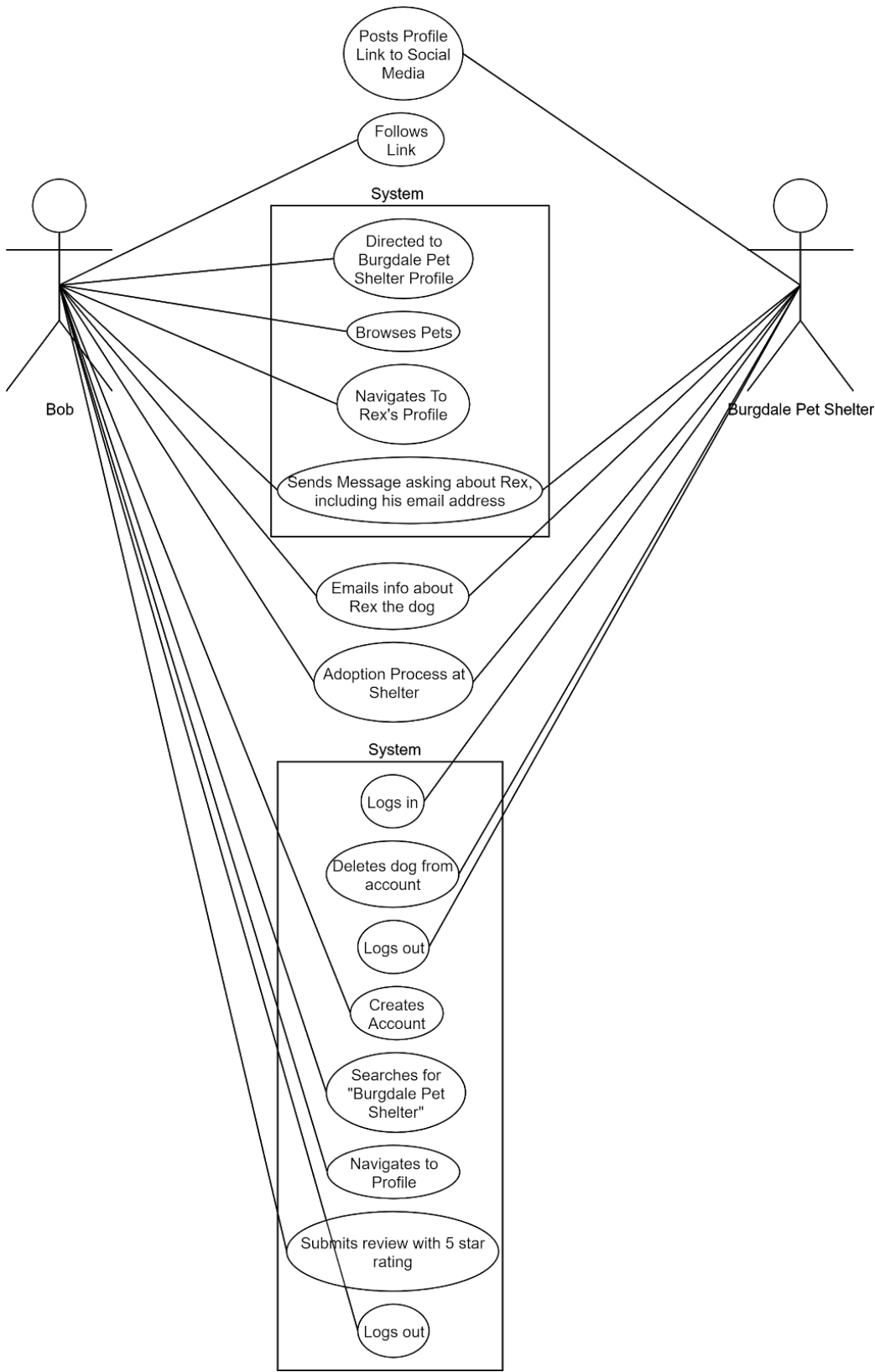
Diagram #7:



Use Case #8

Use Case Title	Guest adopts new dog from shelter
Actors	Bob (General User), Burgdale Pet Shelter(Registered Business)
Description	<p>Bob is looking for a new dog. Bob was recommended to Burgdale pet shelter by his friend. Burgdale shelter's social media linked their profile on their Twitter. Tyler follows the link and is able to see their about page, pictures from the shelter, and browse/inquire about specific animals at the shelter. Bob sends a PM to the shelter about a dog named Rex. The shelter provides more info about the animals to Tyler via email. When Tyler eventually chooses a new companion and arranges to adopt Rex at Burgdale Pet Shelter, the pet shelter deletes Rex's profile from their account. Tyler is so happy with the experience he creates an account to write a 5-star review for Burgdale Pet Shelter.</p>

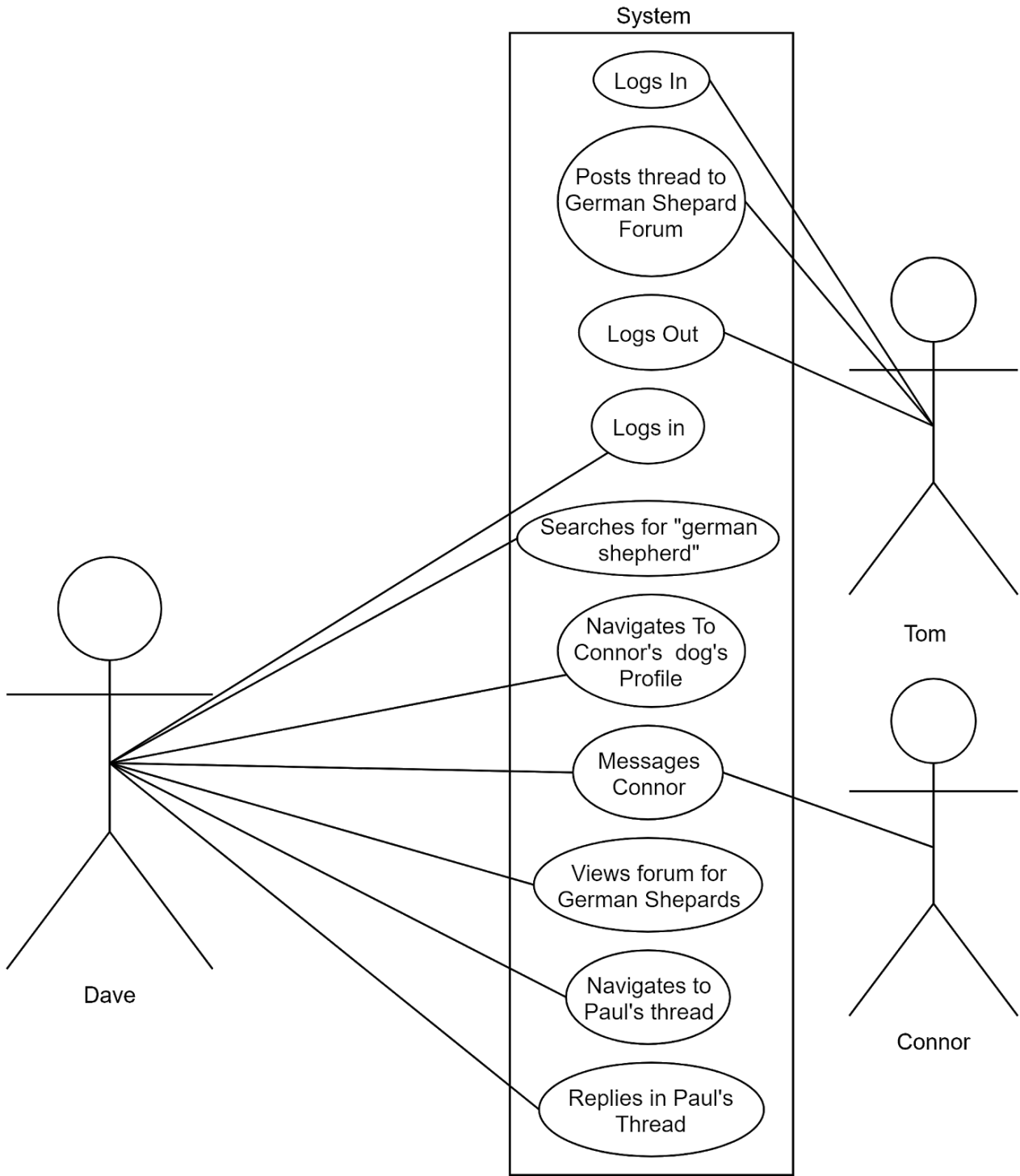
Diagram #8:



Use Case #9

Use Case Title	New Pet Owner Seeks Advice
Actors	Dave (Registered Pet Owner), Joey (Registered Pet Owner), Tom (Registered Pet Owner)
Description	<p>Dave is an excited pet owner who recently got his first dog, a rambunctious german shepherd. Dave sets up a new profile for his new dog. During the next few weeks, Dave is having trouble training the dog and getting him to behave. Dave logs back on to the website and searches for other German Shepherds. He messages one named Joey after seeing his dog's profile in the search results and who appears to be online. Unfortunately, Joey doesn't respond. He also sees the link to breed-specific forums available through Connor's dog's profile. He is able to be taken directly to the German Shepherd forum. Luckily an experienced German Shepherd owner named Tom had just made a thread with helpful tips for new German Shepherd owners. After reading through the posts in the thread and trying his advice, he thanks Paul in a post to that thread.</p>

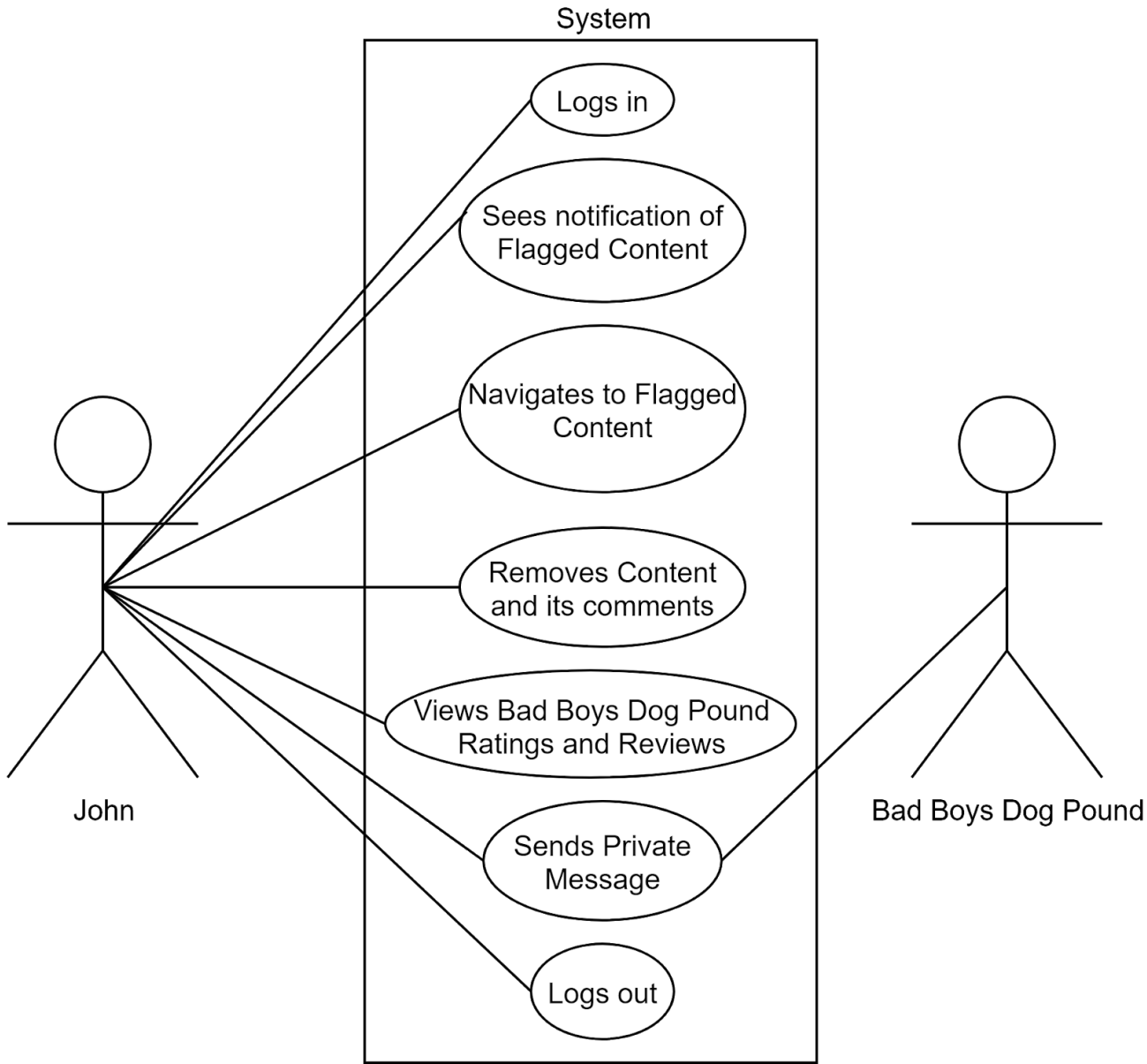
Diagram #9:



Use Case #10

Use Case Title	Administrator Removing Inappropriate Content
Actors	John (Admin), Bad Boys Dog Pound (Registered Business)
Description	<p>John logs on with his administrator credentials. He sees a notification that a post by a registered business by the name of Bad Boys Dog Pound has been flagged by other users of the website. John navigates directly to the post through the notification. John reviews the post, deeming it harmful, and removing the post, which removes all its associated comments as well. After also seeing their average rating by users is very low and reviews are mostly negative. John sends a private message to the business informing them of the reason for the removal and warning of a possible ban of the account.</p>

Diagram #10:



Section III: List of Main Entities

1. General User

- a. A general user is any user browsing the website, whether registered or unregistered.

2. Account

- a. An account is an entity that will be created by the system on user sign-up and will contain user information.

3. Registered User

- a. A registered user is a general user that has created an account and can be a pet owner, pet business, pet shelter, or admin.

4. Admin

- a. An admin is a registered user who moderates the site with elevated privileges, reviewing flagged content, removing content not compliant with site terms and conditions, and messaging or banning problematic users.

5. Registered Business

- a. A registered business is a registered user who indicates that they're representing a business upon sign up.
- b. A registered business shall have business information viewable/searchable by general users.

6. Registered Shelter

- a. A registered shelter is a registered user who indicates that they're representing a shelter upon sign up.
- b. A registered shelter shall have pets and pet profiles, as well as business information viewable/searchable by general users.

7. Registered Pet Owner

- a. A registered pet owner is a registered user who indicates that they're representing a pet owner upon sign up.
- b. A registered pet owner shall have pets and pet profiles

8. Pet

- a. A pet is created when a registered pet owner or registered pet shelter chooses to add a pet to their account.
- b. A pet will have identifying attributes about them assigned by their owner, which are displayed in their profile and filterable when a general user searches through pets

9. Profile

- a. A profile is created when a general user creates an account.
- b. Profiles will display user images and information and will act as a conduit for users to interact with one another through private messages and post/image interaction.

10. Pet Profile

- a. Pet Profiles are entities that display the information/images associated with a pet entity by the registered pet owner or pet shelter owner acting as its owner.

11. Registered Pet Owner Profile

- a. Registered Pet Owner Profiles are entities that display the owner information/images associated with a registered pet owner and links to pets owned by a registered pet owner

12. Registered Business Profile

- a. Registered Business Profiles are entities that display the business information/images associated with a registered business

13. Registered Shelter Profile

- a. Registered Shelter Profiles are entities that display the business information/images associated with a registered shelter, and links to pets sheltered at a registered shelter

14. Posts

- a. Posts are entities created by registered users which are viewable by registered users, which contain text and/or photos.

15. Comment

- a. Comments are texts created by registered users that are posted as responses/replies to posts created by registered users.

16. Photo

- a. Photos are images uploaded by registered users and submitted as posts or used as profile pictures.

17. Review

- a. Reviews are entities submitted by registered pet owners to record their experiences at/with pet shelters, businesses, and with registered users choosing to be pet sitters, whether online or in-person, which will be visible through those entity's profiles.
- b. Reviews are accompanied by a rating.

18. Rating

- a. Ratings are entities submitted by registered pet owners to quickly record their satisfaction with experiences at/with pet shelters, businesses, and pet sitters, whether online or in-person, which will be visible on those entity's profiles.

19. Message

- a. A message will have subject and body text and will be sent from registered users of any type to registered users of any type.

20. Likes

- a. Likes are entities used by registered users to demonstrate a reaction to a registered user's posts or comments.

21. Follows

- a. Following a user indicates that the user who followed will be able to see posts from the followed user on their feed.

22. Feed

- a. This entity allows a user to view/interact with all the recent posts of the accounts they are following.

23. Park

- a. Parks are entities that are created by registered pet owners to represent a real-world park at a given location.

24. Park Profile

- a. Park Profiles are entities that display the park information/images that are edited/uploaded by registered pet owners.

25. Forum

- a. Forums are a collection of posts by registered users separated by topic, and into Forum Threads

26. Forum Thread

- a. Forum threads are created by any user, and are continuous sequences of posts and replies located in an encompassing forum.

Section IV: Initial List of Functional Requirements

1. General User

- a. General Users shall be able to browse registered businesses
- b. General Users shall be able to browse registered shelters
- c. General Users shall be able to browse the pet profiles of registered users.
- d. General Users shall be able to send a private message to registered businesses
- e. General Users shall be able to send a private message to registered shelters
- f. General Users shall be able to receive correspondence at an email address provided by them
- g. General Users shall be able to search for and browse registered businesses
- h. General Users shall be able to search for and browse pets
- i. General Users shall be able to search for and browse registered shelters
- j. General Users shall be able to use search filtering
- k. General Users can choose to share their location
- l. General Users shall be able to create an account

2. Account:

- a. An account shall have a unique account id
- b. An account shall be linked and belong to a registered user
- c. An account shall have a unique email
- d. An account shall have a unique username
- e. An account shall have a password
- f. An account shall have a created date
- g. An account shall have a user date of birth
- h. An account shall have a user age
- i. An account shall have a display name

3. Registered User:

- a. Registered Users shall be able to log in to the website
- b. Registered Users shall be able to log out of the website
- c. Registered Users shall have a profile
- d. Registered Users shall have a profile picture
- e. Registered Users shall be able to edit their profile picture
- f. Registered Users shall have an about me
- g. Registered Users shall be able to edit their about-me
- h. Registered Users shall be able to post text posts
- i. Registered Users shall be able to edit their text posts
- j. Registered Users shall be able to post photos

- k. Registered Users shall be able to post under their own display name
- l. Registered Users shall be able to private message other registered users
- m. Registered Users shall be able to follow other registered users
- n. Registered Users shall be able to be followed by other registered users
- o. Registered Users shall receive notification(s) when they receive a private message(s)
- p. Registered Users shall be able to search for registered user's profiles
- q. Registered Users shall be able to browse registered user's profiles
- r. Registered Users shall be able to search for registered businesses
- s. Registered users shall be able to browse registered businesses
- t. Registered Users shall be able to search for pets
- u. Registered users shall be able to browse pets
- v. Registered Users shall be able to search for registered shelters
- w. Registered Users shall be able to browse registered shelters
- x. Registered Users shall be able to use search filtering
- y. Registered Users can choose to share their location
- z. Registered Users shall have an online status
- aa. Registered Users shall have a banned status
- bb. Registered Users shall be filterable by their attributes

4. Admin

- a. Admin shall be a registered user
- b. Admin shall be able to ban registered users
- c. Admin shall be able to remove photos posted by registered users
- d. Admin shall be able to browse registered user profiles
- e. Admin shall be able to delete posts
- f. Admin shall be able to delete comments from posts
- g. Admin shall be able to remove registered users
- h. Admin shall be able to reactivate banned users
- i. Admin shall be able to message registered users
- j. Admin shall be able to approve Registered Businesses for use of the site
- k. Admin shall be able to approve Registered Shelters for use of the site

5. Registered Business

- a. Registered Businesses are registered users
- b. Registered Businesses shall have business address(es)
- c. Registered Businesses shall have business hours
- d. Registered Businesses shall have an average rating
- e. Registered Businesses shall have a business category
- f. Registered Businesses shall have reviews submitted by registered pet owners

- g. Registered Businesses shall have ratings submitted by registered pet owners

6. Registered Shelter

- a. Registered Shelters are registered users
- b. Registered Shelters shall have pets
- c. Registered Shelters shall be able to add pets to their account.
- d. Registered Shelters shall be able to delete pets from their account
- e. Registered Shelters shall be able to edit the profiles of their pet(s)
- f. Registered Shelters shall be able to post under the name of their pets
- g. Registered Shelters shall have business address(es)
- h. Registered Shelters shall have business hours
- i. Registered Shelters shall have an average rating
- j. Registered Shelters shall have reviews submitted by registered pet owners
- k. Registered Shelters shall have ratings submitted by registered pet owners

7. Registered Pet Owner

- a. Registered Pet Owners are registered users
- b. Registered Pet Owners shall have pets
- c. Registered Pet Owners shall be able to add pets to their account
- d. Registered Pet Owners shall be able to delete pets from their account
- e. Registered Pet Owners shall be able to edit the profiles of their pet(s)
- f. Registered Pet Owners shall be able to post under the name of their pets
- g. Registered Pet Owners shall be able to register as available to pet sit
- h. Registered Pet Owners shall be able to write reviews for registered Businesses/Shelters
- i. Registered Pet Owners shall be able to give ratings to registered Businesses/Shelters

8. Pet

- a. Pets shall have a profile picture
- b. Pets shall have names
- c. Pet's profile pictures shall be able to be edited.
- d. Pets shall have a unique id number associated with them
- e. Pets shall an animal type associated with them
- f. Pets shall optionally have a breed/species associated with them
- g. Pets shall have an adoption status (Adopted or Seeking Adoption)
- h. Pets shall be able to be marked as missing pets by their owners
- i. Pets shall have to be able to have a place of adoption associated with them
- j. Pets shall have an online status that is the same as their owner's online status

- k. Pets shall be filterable by their attributes

9. Profile

- a. Profiles shall contain a profile picture
- b. Profiles shall contain photos posted by the registered user it belongs to
- c. Profiles shall display an about me
- d. Profiles shall provide a way for the browsing registered user to initiate private message conversations with the profile's affiliated, registered user
- e. Profiles shall contain recent Posts

10. Pet Profile

- a. Pet Profiles are profiles
- b. Pet Profiles shall provide a link to the registered pet owner or pet shelter that owns the pet
- c. Pet Profiles shall display adoption status
- d. Pet Profiles shall display if the pet is missing
- e. Pet Profiles shall display siblings(adopted) or housemates(seeking adoption) dependent on the adoption status
- f. Pet Profiles shall be searchable by all users
- g. Pet Profiles shall be viewable by all users
- h. Pet Profiles of pets adopted from registered pet shelters can link to that pet shelter on the profile

11. Registered Pet Owner Profile

- a. Registered Pet Owner profiles are profiles
- b. Registered Pet Owner profiles shall indicate pet sitting availability
- c. Registered Pet Owner profiles shall provide links to pet profiles of pets owned by the registered pet owner

12. Registered Business Profile

- a. Registered Business Profiles are profiles
- b. Registered Business Profiles shall have contact details
- c. Registered Business Profiles shall provide a way for registered pet owners to access Registered Business reviews
- d. Registered Business Profiles shall provide a way for registered pet owners to access Registered Business ratings
- e. Registered Business Profiles shall be searchable by general users
- f. Registered Business Profiles shall be searchable by registered users
- g. Registered Business Profiles shall be viewable by general users
- h. Registered Business Profiles shall be viewable by registered users

13. Registered Shelter Profile

- a. Registered Shelter Profiles are profiles
- b. Registered Shelter Profiles shall have contact details
- c. Registered Shelter Profiles shall provide a way for registered pet owners to view reviews
- d. Registered Shelter Profiles shall provide a way for registered pet owners to view ratings
- e. Registered Shelter Profiles shall be searchable by general users
- f. Registered Shelter Profiles shall be viewable by general users
- g. Registered Shelter Profiles shall be searchable by registered users
- h. Registered Shelter Profiles shall be viewable by registered users
- i. Registered Shelter profiles shall provide links to pet profiles of pets housed by the registered shelter

14. Posts

- a. Posts shall be able to be edited by the registered users who created them
- b. Posts shall be able to be liked by registered users
- c. Posts shall be able to be shared by registered users
- d. Posts shall be able to have comments
- e. Posts shall have a post creation date
- f. Posts shall be able to be saved by registered users
- g. Posts shall be able to be deleted by the registered user who created them
- h. Posts shall have a consistent font
- i. Posts shall have consistent font size

15. Comments

- a. Comments shall be able to be posted as replies to posts, by registered users
- b. Comments shall be able to be liked
- c. Comments shall be able to be replied to
- d. Comments shall be able to be deleted by the user who posted it/them
- e. Comments shall be able to be edited
- f. Comments shall have a creation date

16. Photos

- a. Photos shall have a default/predetermined max frame size
- b. Photos shall be cropped to fit the website dimensions
- c. Photos shall be viewable at full size
- d. Photos shall have a photo type (e.g. jpg, png)

17. Reviews

- a. Reviews shall require ratings
- b. Reviews shall have a title
- c. Reviews shall have a body
- d. Reviews shall be viewed by users (registered, general)
- e. Reviews shall be able to be edited after submission by their author
- f. Reviews shall have a creation and last edited date
- g. Reviews shall have an author (the display name of the registered pet owner who wrote them)
- h. Reviews shall only be given to businesses/shelters once per registered pet owner

18. Ratings

- a. Ratings shall be represented on a 1-5 star scale
- b. Ratings shall be able to be edited by the registered user who gave the rating
- c. Ratings shall only be given to businesses/shelters once per registered pet owner

19. Messages

- a. Messages shall be sent from registered user to registered user
- b. Messages shall be viewable by the registered user it was sent to
- c. Messages shall be viewable by the registered user it was sent by
- d. Messages can be sent from general users to registered shelters with their replies being sent to the general user's given email address.
- e. Messages can be sent from general users to registered businesses with their replies being sent to the general user's given email address.
- f. Messages can be replied to
- g. Messages shall have a sent time associated with them.
- h. Messages will have the display name of the user associated with them
- i. Messages will have a subject section
- j. Messages will have a body section
- k. Messages shall have a consistent font
- l. Messages shall have a consistent font size

20. Likes

- a. Likes shall be saved
- b. Likes shall have timestamps
- c. Likes shall be assigned to a post
- d. Likes can be given to posts once per registered user
- e. Liked posts shall be able to be viewed by the registered users who liked them

21. Follows

- a. Registered Users can follow registered users
- b. Registered Users can unfollow registered users
- c. Registered Users can view their follows
- d. Registered Users can view their followers
- e. Posts from followed users will show up on a registered users feed

22. Feed

- a. Feed shall have posts
- b. Feed shall prioritize the most liked posts of the current day

23. Park

- a. Parks shall have reviews submitted by registered pet owners
- b. Parks shall have ratings submitted by registered pet owners
- c. Parks shall have an average rating
- d. Parks shall be created by users
- e. Parks shall be edited by user(s)
- f. Parks shall be filterable by their attributes

24. Park Profile

- a. Park Profiles shall have photos
- b. Park Profiles shall have an address
- c. Park Profiles shall have hours
- d. Park Profiles shall have an about section
- e. Park Profiles shall provide a way for registered pet owners to view reviews
- f. Park Profiles shall provide a way for registered pet owners to view ratings
- g. Park Profiles shall be searchable by general users
- h. Park Profiles shall be searchable by registered users
- i. Park Profiles shall be viewable by general users
- j. Park Profiles shall be viewable by registered users

25. Forum

- a. Forums shall have a pet type or breed associated with them
- b. Forums shall have forum threads
- c. Forums shall have posts
- d. Forums shall be viewable and searchable by general users

26. Forum Thread

- a. Forum Threads shall have a title
- b. Forum Threads shall have a creator
- c. Forum Threads shall have posts

Section V: List of Non-Functional Requirements

1. Performance Requirements (speed, accuracy, latency, delay....):

- a. Page load times for user visible content on all pages shall be kept under 4 seconds on desktop and mobile browsers
- b. Time to first byte for all website pages shall be kept under 1.5 seconds on desktop and mobile browsers
- c. All website pages shall make less than 75 requests on desktop and mobile browsers
- d. Web page size for all pages shall be kept under 1.5 MB

2. Security Requirements:

- a. User credentials are checked against the database when a user tries to login
- b. Token in local storage authenticates if a user is logged in order to post, comment, delete, and send messages, or access protected routes
- c. Token in local storage authenticates what type of user is logged in to dictate the appearance/functionality of profiles and other sections of the site
- d. Passwords are encrypted when stored in the DB and decrypted when necessary, such as to check against login credentials
- e. External communications between the database and clients shall be encrypted and decrypted when necessary
- f. All passwords shall be at least 8 characters
- g. All passwords shall be a mix of upper and lower-case letters and numbers.
- h. Fault tolerance shall be achieved by hosting the website and database instances in multiple isolated data centers across multiple availability zones in the western United States
- i. The website database shall be hosted on a private network in Amazon Web Services, and only accessible by the website server

3. Storage:

- a. An account page description will have a limit of 280 CHAR
- b. An account username will have a limit of 15 CHAR
- c. A display name will have a limit of 50 characters
- d. A post by a user will have a limit of 280 CHAR
- e. Comments by users will have a limit of 280 CHAR
- f. Photos shall be compressed for storage purposes.
- g. User uploaded image content shall be uploaded to a secure Amazon S3 storage bucket

- h. User uploaded image content shall be downloaded from a secure Amazon S3 storage bucket

4. Privacy (What's collected, how it's used)

- a. The site shall disclose what privacy information it collects from users
- b. The site shall disclose how users' information is utilized
- c. The site shall display a Privacy Policy during account creation that outlines the collection and utilization of user data
- d. A pet owner can choose to share their location with the website to access certain functionality
- e. A pet owner's location data is not visible/shared to any other user
- f. A registered business must provide a business address on sign up but this information is not shared with any parties outside of the site
- g. A registered shelter must provide a business address on sign up but this information is not shared with any parties outside of the site
- h. Moderators can remove any content from display on the website that is deemed in violation of other user's privacy or safety.
- i. All users shall be able to delete their account, deleting all linked information from the database

5. Legal Requirements (Licensing):

- a. Privacy information and intellectual property rights shall be audited
- b. When users post content to the site, it remains their intellectual property
- c. A licensing agreement regarding the use and redistribution of the website shall be readily available
- d. The content of the site shall be protected by copyright that prohibits commercial use without permission. Noncommercial use is acceptable

6. Scalability

- a. The website shall work as intended under the stress of 1, 100, 1,000, and 10,000 users with negligible differences in performance
- b. The website shall be able to keep pace with an expanding user base, and will maintain storage space and rapid processing speeds
- c. The website shall be able to keep the time between failures to a minimum under the stress of 1, 100, 1,000, and 10,000 users
- d. The complexity of database queries shall keep pace with an increasing number of visitors/users

7. Capability

- a. The website shall work as intended under the stress of up to 10,000 users using the site at once

8. Media Content

- a. The website shall support upload of image files of the .png, .jpeg, .jpg image formats

- b. The website shall support display of user uploaded image files of the .png, .jpeg, and .jpg image formats

9. Usability

- a. The website shall retain full functionality on mobile, tablet, and laptop/desktop screen sizes.
- b. The website shall be verified to have easily readable text and usable interface elements at mobile screen resolutions from 540 x 960 to 1644 x 3840
- c. The website shall be verified to have easily readable text and usable interface elements at desktop screen resolutions from 1024 x 768 to 3840 x 2160
- d. The website shall use a simple user interface to reduce user confusion and promote ease of use
- e. The website shall have an onboarding process that will guide users through the process of creating user profile when they first sign up
- f. The website shall have an onboarding process for each page that a user navigates to for the first time
- g. The website shall draw inspiration in interface layout from popular social media platforms like Facebook, Instagram and Twitter to accelerate user onboarding
- h. The website shall have a logical page flow so user navigation is intuitive
- i. The website shall assist user's productivity on the site by maximizing information displayed on screen
- j. The website shall allow users to modify and delete information on their account
- k. When icons are used in the site's interface, they will be chosen or designed to be simple for users to understand

10. Monetization

- a. Registered Users shall be able to create accounts and have a profile displayed on the website for free
- b. Registered Shelters shall be able to create an account and have a profile displayed on the website for free
- c. Registered Businesses shall be able to create an account and have a profile displayed on the website for free
- d. Registered Businesses shall be able to subscribe to the premium business plan
- e. Registered Businesses with the Premium Business plan shall be featured prominently on user searches (map search and standard search) for businesses in the same category, and on user feeds even when users do not follow them.

- f. Featured Businesses shall be featured in feeds and searches(map search and standard search), as stated above, based on proximity to the user's location

11. Coding Standards

- a. Team members shall be required to provide meaningful comments for each non-trivial line of code
- b. Each code file shall have a heading section giving a short description of the file's functionality, and the main author(s) of the file, and indicate any missing or inconsistent functionality
- c. Any code with limited or inconsistent functionality during the course of the development process shall also be noted as such in explanatory comments besides the code
- d. Any code that adversely affects the functionality of other code shall be commented out until a resolution can be reached
- e. All code shall be logically separated by functionality within files
- f. All code shall be logically separated by functionality across files

12. Repository Standards

- a. The project Github repository will have three primary branches: master, development, and testing
- b. Incremental code commits will be made regularly and large infrequent code commits shall be avoided
- c. Commit messages will be required to be descriptive in nature
- d. Dependency lists shall be kept up to date when pushing to any branch of the repository
- e. .gitignore files shall be kept up to date when pushing to any branch of the repository
- f. Frontend code pushed to the testing branch shall be reviewed and tested by the frontend lead when committing and pushing to the master branch
- g. Backend code pushed to the testing branch shall be reviewed and tested by the backend lead when committing and pushing to the master branch
- h. Frontend code pushed to the testing branch shall be tested and verified to be fully functioning on all browsers listed in Section 7 of this document before committing to the master branch.
- i. Backend code pushed to the testing branch shall be tested and verified to be fully functioning on all browsers listed in Section 7 of this document before committing to the master branch.
- j. The frontend lead retains the right to reject code not up to these coding standards at any point during the review process, but will provide meaningful reasoning when this action is taken

- k. The backend lead retains the right to reject code not up to these coding standards at any point during the review process, but will provide meaningful reasoning when this action is taken

13. Project and Documentation Standards

- a. Trello will be used as the collaboration tool to keep the project's tasks and team members organized
- b. Documentation shall be written to be comprehensible by people with non-technical backgrounds when possible
- c. Documentation shall be free from any typos or grammatical errors
- d. Project Members shall each read and review each milestone fully before submission
- e. Project Members shall unanimously agree that each milestone reaches the standards set by the group before submission.
- f. Project Members contributions to documentation shall be tracked through Google Docs

14. Coding Environment

- a. The browser preferred to test the website during our development is Google Chrome
- b. Project members shall maintain an Ubuntu 20.04 operating system image via virtual machine or native install to develop and test code.

15. Databases

- a. The preferred cloud database provider for the website shall be Amazon RDS
- b. The preferred RDBMS for the website shall be MySQL
- c. Database storage shall not exceed 20 GB in size per AWS Free Tier Limits
- d. The website database shall be designed to use this allocated storage efficiently as possible
- e. Automatic Database backups shall occur every 7 days

16. Networks

- a. Network connections shall use ISO network standards
- b. Users from across the United States shall be able to connect to and access the site
- c. The network routers shall be able to forward messages to anyone in the United States
- d. Low network latency shall be achieved by hosting the website instance in multiple isolated data centers across multiple availability zones in the western United States

Section VI: Competitive Analysis

Competitors	Strengths	Weaknesses	Additional/Unique Features
Petfinder.com	<p>Very extensive filtering options in pet search queries</p> <ul style="list-style-type: none"> - By shelter - Proximity - Breed - Etc... <p>Very defined/standardized color scheme</p> <p>Mobile Responsive</p> <p>Ability to search for any kind of pet</p> <p>Ability to ask about pets as a guest or registered user</p>	<p>Somewhat complicated/cluttered interface</p> <p>Illogical placement of some links/elements</p> <ul style="list-style-type: none"> - Some redundant links <p>Intrusive positioning of ads including Petfinder ads</p> <p>Finding/Browsing a specific shelter is difficult</p> <ul style="list-style-type: none"> - Hidden behind menus - UI is much more basic than pet finder <p>No ability to find businesses other than shelters and rescues</p>	<p>Dog/cat breed finder with easy to understand graphics on characteristics</p> <ul style="list-style-type: none"> - Also links to dogs of that breed nearby - Ability to filter/find by characteristics or name <p>Links to sponsor pets on pet profiles</p> <p>Favoriting pet profiles to keep track of them for later</p> <p>Confirm adoption to receive curated tips and content from Petfinder</p>
Facebook.com	<p>Simple home and wall page interface</p> <p>Easy to network with others</p> <p>Simple storage and access of photos</p> <p>Many different types of post options</p>	<p>Navigating from one page to another requires effort to find and access correct links</p> <p>Scrolling back to see old posts is rendered difficult because of infinite scroll</p> <p>The search bar is hard to use</p> <p>-Filtering is unintuitive</p>	<p>Face recognition software to tag friends/family</p> <p>Group pages that many users can be added to - can be public or private</p>
Hashcat	Simple and	No website, only app	Facebook connect to

	<p>professional design</p> <p>Easy to use and navigate</p> <p>Has a leader board that creates a fun element for competition</p>	<p>When the search icon is clicked, it takes approximately 10 seconds to load.</p> <p>Not able to switch to dark mode</p> <p>No Apple support</p>	<p>link accounts</p> <p>Uses badges to give users achievements</p> <p>Able to use unique notifications that are cat sounds</p>
Patchpets	<p>Simple, Inoffensive Interface</p> <p>User Submitted Dog Parks + Dog Park Search</p> <p>The ability for businesses to create profiles + Business Directory Search</p> <p>Simple to add dogs to account</p>	<p>No website, only app</p> <p>Confusing distinction between actions that concern human user profile vs your dogs' profiles</p> <p>Can tag users in image posts, but not dogs therefore</p> <p>No way to find images of specific pets you own</p> <p>Dog's profiles are very threadbare in terms of content (only age, breed, name, etc.)</p> <p>Some confusing and inconvenient links/buttons:</p> <ul style="list-style-type: none"> - Clicking profile image directs the user to explore tab - Starting chat directs user to explore tab - view profile button is very small <p>No onboarding Process whatsoever</p>	<p>Apple Maps API Integration</p> <p>Ability to Create Events and share publicly or privately</p>
Petzbe	<p>Show the most liked posts</p>	<p>Only for mobile users</p>	<p>Ability to share posts with others</p>

	<p>Ability to search any topics of posts</p> <p>A section to show the users with the most followers</p> <p>A forum where people can share their ideas/thoughts</p>	<p>Unable to click the 'All Breeds' button (greyed out)</p> <p>Cannot find shelters or businesses</p> <p>Font size is too small</p>	<p>Sniffing (following) someone can keep track of their posts</p>
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Competitive Features Table

Competitor	Petfinder	Hashcat	Patchpets	Facebook	Petzbe	Zooble
Search Function	++	+	+	+	+	++
Find Shelters	+	-	-	+	-	++
Message Users	-	+	+	++	+	+
Message Shelters	++	-	-	+	-	++
Find Businesses	-	-	+	+	-	++
Find Parks	-	-	+	-	-	++
Find Petsitters	-	-	-	-	-	+
Image Posting	+	+	+	++	+	+
Text Posts	+	-	+	+	+	+
User "Reactions"	-	+	+	++	+	+
User Profiles	-	-	+	+	-	+
Pet Profiles	+	+	+	-	+	++
Forums	-	-	-	-	+	++
Maps/Location Integration	-	-	+	+	-	++

Summary of Competitive Analysis :

We envision Zooble as a website as an amalgamation of many of the features of websites/apps we researched. The first is to use the best features of a pet search tool like Petfinder but extend its functionality. The second is to provide a fully-featured social networking experience like Facebook, but with a focus on our pets. Finally, we intend to focus on pet owners and potential owners just as much as the actual pets, unlike some direct competitors like Petzbe or Patchpets.

We found that the Petfinder search tool was very robust with good filtering options, but only allowed the display of animals up for adoption. Our search tool will allow users to search for businesses, pet sitters, parks, and shelters in addition to animals up for adoption. It will also allow users to search for owned pets in their area to arrange playdates with their owners, or available pet sitters to watch their pets when they are out of town.

Facebook is generally considered the gold standard of social networking in terms of feature set. In general, we want to match the features that we find most relevant to our vision for our app. This includes users being able to post text posts, photos, make comments, browse profiles, and rate businesses. However we will also have a location map that will show locations of businesses and shelters on a map, and not just pages.

The pet-specific social networks we looked at, like Petzbe and Patchpets. We believe that because their focus is centered on pets only, this makes these apps attractive only as novelties in our opinion. Our website intends to foster a community of pet owners with the inclusion of pet owner profiles, and allowing owners to communicate with each other directly through forum threads, posts and messages facilitates the sharing of pet ownership tips or experiences. However, the website will also be designed so current pet ownership is not strictly necessary for users to enjoy and find use of the site, unlike these other pet social networks. The search tool will allow general users to browse shelter profiles as well as the pets at those shelters.

We believe our unique feature is our built in interactive map search functionality that allows users to find businesses, parks, and shelters on a large map provided by the Google Maps API. A map of the desired area requested by the user through the search functionality will be fetched and displayed using the Google Maps API, and then overlays of data from our own database will be displayed. The result will be akin to Google Places, but with more curated and pet focused content that will have more granular and relevant filtering options made possible by the data stored on entities like pets and businesses. For example, a user looking for a Corgi dog to adopt will be able to use the search function to find all Corgis available for adoption in their area in a

visually pleasing and intuitive way. And a user looking for a pet sitter could quickly search for users available to pet sit in their area. Users will also be able to view a condensed version of the important info listed on profiles within this map search functionality. This integration lends real-world dimension to the networking element of our website, and is intended to provide an engaging and more convenient experience to users.

We believe that our unique integration of social media aspects with pet services and resources across the site mesh well, as it connects pet owners and pet businesses/shelters with each other in a more personal manner, which ultimately can facilitate the exchange of services and information, or the adoption processes.

Section VII: High-level system architecture and technologies used

Web Server: Nginx

Backend:

Javascript

- ExpressJS

Database Service:

Amazon Web Services RDS - MySQL

User Storage:

Amazon S3

Frontend:

Languages:

- Javascript
 - ReactJS Library
 - CSS

Additional Libraries

- Redux (state container)
- JSONWebToken(authentication)
- Axios(make http requests)
- Sequelize (object relational mapper)
- Font-Awesome(Icons)
- Toastify(Notifications)

Supported Browsers:

Mobile:

- iOS
 - Chrome : 87.x.x.x, 86.x.x.x
 - Safari: 14.x.x, 13.x.x, 12.x.x
- Android
 - Chrome: 89.x.x.x, 88.x.x.x
 - Samsung Internet: 13.x.x.x, 12.x.x.x

Desktop:

- Windows, Mac, Linux
 - Chrome: 89.x.x.x, 88.x.x.x
 - Safari: 14.x.x.x, 13.x.x.x

- Firefox: 86.x, 85.x

Section VIII: Team Contributions

We all pulled together to contribute to milestone 1, starting with our frontend lead Cameron Harte who began with contributing important non-functional/functional requirements. In the non functional requirements, Cameron contributed to the financial Outlook. These were primarily 10c and 10d. In use cases and use case diagrams Cameron worked on the entity 2 and 10 and other entities as well. Overall, Cameron brought his ideas and thoughts to data items/entities, and to our competitive analysis. Our Backend lead Em Powers not only started brainstorming backend architecture in functional requirement sections, but was also the primary author of our Executive Summary, and helped with use case diagram number 5,6,7,11 and the graphics for 8. Em also worked on the competitive analysis, and data items/entities. Our Github administrator and frontend team member Daniel Simpson wrote Section 3 and section 7. He also led the development of use cases, writing actor descriptions 1-6 and 10-12, and use cases 5-10. Daniel also wrote non functional requirements 11-15 and functional requirements 1,5-13, 16-19, and 23-26. He also contributed to the competitive analysis with Em, Wenjie, and Cameron, covering the research of Petfinder.com and the Patchpets app while also writing the competitive analysis summary. He contributed to the executive summary as well. Finally, he read through the document before submission, rewriting/editing most of the sections for clarity and consistency. Sabrina Dang, who is currently working on the frontend team also contributed to the template for milestone 1, getting us started on Section 3 and Section 4. Sabrina also helped with use cases and their diagrams. Wenjie Ye who is also working on the frontend contributed to our use cases, data items/entities, and competitive analysis. Wameedh who is currently

assigned to the backend team, contributed to our functional requirements and main entities. He most notably brought good ideas about how some of our features should be entities, despite being a latecomer to the group after switching teams. As for myself (Edgar), I contributed to the use cases and functional/non functional requirements. This included brainstorming the potential users with different characteristics that may use our application.

Section IX: Checklist

- ✓ Created use cases
- ✓ Created use case diagrams
- ✓ Team found a time slot to meet outside of the class
- ✓ Github master chosen
- ✓ Team decided and agreed together on using the listed SW tools and deployment server
- ✓ Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing
- ✓ Team lead ensured that all team members read the final M1 and agree/understand it before submission
- ✓ Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)
- ✓ Competitive features
- ✓ Summary of Competitive Analysis
- ✓ Functional/Non Functional Requirements
- ✓ List of Main Entities