

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

An Educational Resource Hub for Pet Adoption

Final Report

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Table of Contents

An Educational Resource Hub for Pet Adoption	3
1.0 Abstract	3
2.0 Introduction	4
3.0 Goals	7
4.0 Methods	8
5.0 Results	15
6.0 Discussion	26
7.0 Conclusion	28
8.0 References	28
Appendices: Supporting Material	30
User Interview Protocols	32
Industry Interview Protocols	35
Affinity Diagram	38
Personas	39
Card Sort Round 2: Standardization Grid	40
Card Sort Round 3: Results Matrix	41
Lo-Fi Prototype	41
Mid-Fi Prototype	43
Click Test Tasks	43
Usability Evaluation Tasks and Post-Task Questions	44
Task Completion Analysis	45

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
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An Educational Resource Hub for Pet Adoption

1.0 Abstract

Pet ownership, while an exciting experience is plagued with abundant challenges for the owner, the newly acquired pet, and others living with them. This is due to two factors:

1. The pet is adjusting to a new environment that may be vastly different than the one they were previously in.
2. Despite any research conducted by the pet owner before acquiring the pet, unexpected challenges around health, behavior, and navigating new relationships often occur.

For our project, we wanted to have a holistic understanding of the three phases pet owners experience: pre-adoption, adoption, and post adoption. Our goals included understanding the needs of new pet owners and barriers within the adoption process, and using that information to build an application with organized information architecture so users do not need to rely on search functions. In addition, questions we explored focused on the best and worst parts of the ownership experience, on understanding pet owner preparedness, on examining the adoption process, and on the strengths and growth areas that pet owners possess. We also decided to explore how COVID-19 impacts pet owners and what factors contribute to animals being relinquished since over 3 million animals are relinquished each year.

To uncover this information, the team conducted user interviews, three rounds of card sorts, a click test, and usability evaluations. A low-fidelity prototype was developed in response to the interviews and card sorts and then tested through the click test. Adjustments were made to that low-fidelity prototype and interactivity was added for the mid-fidelity prototype. The usability evaluations were done to assess the changes made.

Our results showed that although there is an abundance of information currently available for pet owners, oftentimes it can be overwhelming and it still might be hard to find. One other key finding from our results highlighted the importance of building multiple paths that users can take to find a particular topic. Future considerations for this project would include the design of high-fidelity prototypes based on these results, as well as further iterations and testing prior to development of the application.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
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2.0 Introduction

Motivation for project product:

Owning a pet can be a joyous experience, but the initial adjustment period after adoption can be a time of high stress for both the pet owner and new pet. Whether a first time adopter or experienced one, integrating an animal into a new environment comes with a wealth of challenges such as behavioral issues, destruction of home or belongings, in-fighting between pets, aggression toward humans, and unexpected health issues. In fact, the entire journey from research to home integration is one that has a lot of room for improvements as prospective pet owners may have little to no training before committing to owning a pet, may have moved too quickly into becoming a pet parent, or simply have no idea where to even begin seeking information around best practices when adopting a new animal.

In addition, there has been a growing number of new pet owners during the COVID-19 pandemic. With the difficulties of owning a new pet, as well as the world opening up more, this unfortunately has led to an increasing number of pet relinquishments (i.e. surrender or abandonment). The motivation for this product is to help families acclimate with their newly adopted pets by providing them with resources they need to make the adoption process easier, which could help prevent pet relinquishment while reducing the amount of stress that can occur in the first six to twelve months of an adoption.

Questions we hoped to answer for this project:

1. What resources do pet owners seek out?
 - a. What are those resources doing well?
 - b. What are those resources not doing well?
 - c. What are those resources lacking?
2. What is the current pet ownership experience like?
 - a. What is going well for pet owners?
 - b. What are the strengths and growth areas that pet owners possess?
 - c. What pain points do pet owners experience?
 - d. How can those pain points be addressed within the design choices the team makes?

Target demographic for project product:

The target users for this application will be new dog and cat owners, including both first-time pet owners and previous/current owners who are adopting a new pet. This target demographic will be interested in finding resources that will help them through the adoption process.

Context of use of project product (where, when what platform(s)):

This will be a mobile application that new pet owners can reference to help them get acclimated with their new pet. The context of use can essentially be separated into three categories/phases: pre-adoption (while researching about adoptions), during adoption (the adoption commitment phase), and post-adoption (new owners, up to twelve months after

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

the adoption). Since this will be a mobile application, it will be available to users any time, any place.

Project product’s benefits, based on competitive review:

One weakness we identified throughout the sites we reviewed is that information is present, but it tends to be an overwhelming amount of information presented to the user all at once. This can lead to information overload and can lead to users not being able to quickly find the information they’re looking for; because of this, there is also an opportunity for us to consolidate information and present it in an easy-to-read, easy-to-access format. Another weakness we identified is that each site we reviewed had a specific focus. The focus was either on one of two options: education surrounding the pre-adoption phase, such as The Shelter Pet Project (2011) website, or the post-adoption phase, such as The Wildest (2021) website. Therefore, we see our mobile application acting as a bridge for users to access information across all stages of the pet adoption process, similar to the PAWS Chicago (2022) website. However, the PAWS Chicago website does not offer information through a mobile application. As a matter of fact, the websites we reviewed did not offer information through mobile application format. Therefore, we saw this as an additional opportunity to differentiate from existing resources by offering users a comprehensive suite of content in the form of an interactive mobile application that can be available to a user whether they are on-the-go or relaxing at home.

Human factors basis or support for your proposed effort, based on literature review:

Since the proposed project focuses on keeping individuals informed throughout the pre-adoption, adoption, and post-adoption phases, it is important to understand what pet owner motivations, goals, and pain points are. Before talking with users directly, peer-reviewed articles were sourced and analyzed to help provide initial insights. Three key themes emerged in the literature review on this topic: motivational factors for adoption, the impact of the COVID-19 pandemic, and causes for relinquishment.

Pet Owner Adoption Decisions

During the pre-adoption phase, prospective pet owners decide to acquire a pet based on several factors. Holland, et al. (2019) indicated that people choose to adopt dogs based on household structure, accommodation type, ethnic variation, prior dog ownership, and socioeconomic factors. Their research suggests that the decision to adopt a dog is frequently influenced by previous dog ownership. Furthermore, prospective pet owners can be motivated to adopt due to social influence and base their decision on current trends and their social circle.

Prospective pet owners often do not stop seeking out information at the end of the pre-adoption phase. Instead, per Weiss, et al. (2012), pet owners are obtaining and analyzing new information when they are in the midst of selecting a pet. Factors such as animal activeness, appearance, personality, location within the shelter, description of the animal, and terminology all were seen to influence prospective owner decisions. Cited examples included animals at the front of the shelter having higher rates of adoption and

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

seeing the word “stray” in the description for an available animal dissuaded prospective pet owners. In terms of differences when looking at dogs versus cats, those who adopted dogs cited appearance as being important while people who adopted cats referenced behavior although appearance also mattered when looking at kittens. Other factors of importance included behavior with people, animal age, and playfulness (when considering kittens or puppies).

The Impact of COVID-19

The COVID-19 pandemic impacted the pet adoption process and owner/pet relationships. Applebaum, et al. (2020) assessed owner/pet relationships during the pandemic and found that hardships typically fell into three major categories: pet focused, human-focused, and household-focused. These hardships include difficulty meeting the needs of pets, issues working from home, balancing responsibilities, etc. Conversely, the owner/pet relationship can also be positively impacted during the pandemic. Kayabasi, et al (2021) found that the introduction of quarantining with pets during the COVID-19 pandemic increased owner sensitivity to meeting their pets needs and further impacted the social support pets provided their owner. Additionally, animal purchases increased over the duration of the pandemic. One in four new pet owners claimed their purchase was influenced by the pandemic. Understanding the needs and concerns of current and new pet owners during the pandemic can aid in finding solutions to prevent pet relinquishment.

Why Relinquish?

According to Powell, et al. (2021), of the roughly 3.2 million animals adopted every year, somewhere between 7-20% of those adoptions result in the animal being returned. Regardless of whether or not there is a pandemic, this issue is of great concern due the the stark consequences that can occur for these animals such as euthanasia. The most common reasons for animals to be returned are related to behavioral problems, aggression toward humans and animals, owner related reasons (e.g., moving,) and medical needs (Powell, et al., 2021; Hawes, et al., 2020.) Animal age in particular correlated with the reasons for relinquishment where adolescent dogs between the ages of 2-8 and senior aged cats saw higher rates of return over their counterparts. Though a fair number of adoptions result in relinquishment, pet owners say that the relinquishment process is highly stressful to the point where some pet owners choose never to adopt again. Knowing that in a given year roughly 1 in 5 pet adoptions can result in relinquishment, there is an opportunity to try to reduce this experience’s likelihood by making pet owners more informed about what it means to be a pet owner, helping them select the right pet for their family, and building their skills in pet care.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

3.0 Goals

- Goal:** Clearly understand the needs of new pet owners to provide motivation for the new application.

Measure: This was measured by coding and analyzing user responses captured through user and industry interviews. In addition, the competitive review and literature review both provided insights into emerging themes relevant to the pet adoption process. Findings in these latter two methods were refined based on the user and industry interviews.

Revisions/adjustments: There were no major changes made to this goal. The only small change was around how we analyzed the interviews. As part of the coding and analysis, our team decided to create an Affinity Diagram to help organize the information.

Changes explained: The Affinity Diagram allowed us to more easily identify themes and categories across all of the interviews.
- Goal:** Develop a deeper understanding of barriers within the adoption process that could potentially increase pet relinquishment.

Measure: This was measured through themes that emerged from industry interviews and speaking with the professionals about issues that contribute to pet relinquishment.

Revisions/adjustments: There were no major changes made to this goal.

Changes explained: There were no major changes made to this goal.
- Goal:** Organize site categories in a way that best matches user goals and needs.

Measure: This was measured through the three rounds of open and hybrid card sorting. Categories that were most commonly matched together by users in these rounds were integrated into lo-fi and mid-fi prototypes. In addition, the site categories (menus and labels) were tested again during the click test rounds and usability evaluations. In the later tests, task completion rates and ease of navigation measures helped refine the categories established from the card sorts.

Revisions/adjustments: There were no major changes made to this goal.

Changes explained: There were no major changes made to this goal.
- Goal:** Users are able to find educational resources they need for taking care of their new pets without needing to use search functions.

Measure: This was measured with click testing (to track clicks) and usability testing (to measure ratings, number of successes and failures, the total number of steps to complete tasks, etc.)

Revisions/adjustments: There were no major changes made to this goal.

Changes explained: There were no major changes made to this goal.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

4.0 Methods

1. **Method:** Competitive Review

Goal (contribution to project): To provide insights into what solutions currently exist (if any), to see what is currently out there for new pet owners, and to find gaps in the existing solutions that our project could potentially address in terms of the depth of education that is available to current and future pet owners.

Revisions/adjustments: No major adjustments or revisions were made to this method.

Changes explained: No major adjustments or revisions were made to this method.

Detailed description: The team began the competitive review with the goal of pulling together existing digital resources that are currently available to pet owners—such as websites—with our guiding question being, “*are we building the right thing?*” Various digital resources were discovered by the team; each team member made sure to gather a short summary of the website, current features included on the website, any gaps or areas of opportunity for our project, as well as additional comments related to why this resource was relevant and could be used in our review.

In order for a website to have been considered relevant to our project, it had to have been informational and offer helpful insights to pet parents who may be seeking out advice or education on the area of pet adoption and/or pet care. Therefore, the types of resources that were sought out by the team ranged from pet shelter websites, pet shelter websites specific to the Chicagoland area, connector hubs, and education hubs. Once the websites met our criteria and were chosen to analyze, the features we would look at included the strengths and weaknesses of the following areas: the site’s purpose, the content included on the site, and visibility of information through the site’s main navigation. In order to conduct the analysis of these resources, the team put together a Google Doc including all of the necessary information related to each individual resource, as well as a Google Sheet to compare the data across all competitors.

2. **Method:** Literature Review

Goal (contribution to project): To gather research that has already been done related to new pet owners, and to observe which questions have been answered in order to familiarize ourselves with the areas of pet ownership and pet adoption during the COVID-19 pandemic. In addition, to establish common problems and goals pet owners have which can then inform the potential design and solution for the mobile app.

Revisions/adjustments: No major adjustments or revisions were made to this method.

Changes explained: No major adjustments or revisions were made to this method.

Detailed description: Similar to the competitive review, the team began a literature review with the goal of discovering existing research in the areas of pet adoption and pet ownership, with our guiding question being, “*are we building the thing right?*” To

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

conduct research, the team used websites such as the DePaul library and Google Scholar with the goal of finding at least five articles that were published within the last five to ten years. The team ended up discovering six articles, and each team member made sure to gather a short summary of the research article, any gaps or areas of opportunity for our project, as well as additional comments related to why this research was relevant and could be used in our review.

In order for the research articles to be considered relevant to our project, it had to have either explored the motivations (or perhaps even counter incentives) for adopting a pet, discussed the topic of pet relinquishment, or discussed the impact that COVID-19 had on pet owners. Various research articles related to the benefits of pet ownership, owning a pet during COVID-19 pandemic were discovered and analyzed. In order to conduct the analysis of the research, the team put together a document including all of the necessary information related to each individual resource.

3. **Method:** User Interviews

Goal (contribution to project): To help the team gather information from new pet owners to learn more about our target users, their challenges as new pet owners, and what resources they would find most valuable. This contributes towards building the personas and the information architecture of the application.

Revisions/adjustments: Our initial goal was to interview four to five recent pet adopters, but the team was only able to interview two people who have adopted in the past 12 months.

Changes explained: The team recruited three people who have adopted in the past 12 months to interview, but one of the three participants was a no-show. To stay on track with our project milestones, we moved forward with only two interviewees for this method.

Detailed description: Our team conducted two user interviews with recent pet adopters, both female cat owners over the age of 18 years old. Both participants have adopted a pet within the previous 12 months. One participant lived alone with one cat, and the other participant lived with their spouse and three cats. Our team’s recruiting methods included posting on LinkedIn and Facebook as well as messaging personal connections.

These user interviews were conducted remotely via Zoom. Each study included one moderator, and at least one observer when possible. Before beginning, the moderator asked participants for consent to be recorded during the study so the team could return and take notes afterward. During the user interviews, participants were asked warm-up, deep focus, wrap up, and demographic questions. The deep focus questions focused on their pre-adoption, adoption, and post-adoption experiences. To view the full user

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

interview protocols, please visit [Appendix B](#).

During the user interviews, the group took detailed notes of the interviewees’ answers to refer to following the interviews. After the completion of the interviews, we transcribed the interviews using the Otter.ai transcription tool. We analyzed this data by creating an affinity diagram in that week’s team meeting using the Mural app. The affinity diagram can be viewed in [Appendix D](#). The discussions during that session helped us come to conclusions about our personas and ideas for our card sort categories and cards.

4. **Method:** Industry Interviews

Goal (contribution to project): To help the team gather information from the viewpoint of those who work in shelters to learn more about what resources new pet owners often seek. This contributes to the information architecture and what resources are chosen to include in the lo-fi and mid-fi prototypes.

Revisions/adjustments: Our initial goal was to interview four to five recent pet industry professionals, but the team was only able to interview three people who have either worked or volunteered in the pet industry.

Changes explained: The team recruited four people who have either worked or volunteered in the pet industry to interview, but one of the four participants was a no-show. To stay on track with our project milestones, we moved forward with only three interviewees for this method.

Detailed description: Our team conducted industry interviews with three female participants who work or volunteer in the animal adoption industry. The participants were all over the age of 18 years old and included people with an extensive amount of industry experience. One participant had over 10 years of experience, one had four years, and one had experience fostering 40-50 different animals. Our team’s recruiting methods included posting on LinkedIn and Facebook as well as messaging personal connections.

These industry interviews were conducted remotely via Zoom. Each study included one moderator, and at least one observer when possible. Before beginning, the moderator asked participants for consent to be recorded during the study so the team could return and take notes afterward. During the user interviews, participants were asked warm-up, deep focus, wrap up, and demographic questions. The deep focus questions focused on their positive and negative experiences in animal shelters and/or fostering, finding out what potential adopters are informed about and what they need help with, as well as general advice they felt potential adopters should know. To view the full industry interview protocols, please visit [Appendix C](#).

During the industry interviews, the group took detailed notes of the interviewees’

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

answers to refer to following the interviews. After the completion of the interviews, we transcribed the interviews using the Otter.ai transcription tool. We analyzed this data by creating an affinity diagram in that week’s team meeting using the Mural app. The affinity diagram can be viewed in [Appendix D](#). The discussions during that session helped us come to conclusions about our personas and ideas for our card sort categories and cards.

5. **Method:** Personas

Goal (contribution to project): To assist with identifying who the team was designing for and to understand what the various needs and goals are for pet owners.

Revisions/adjustments: The team adjusted this method by including one more persona type than previously planned. Initially, the team aimed to create two persona types based on the interviews we had conducted. However, after analyzing the user interview data, it was clear that there was an additional persona identified that the team could further explore.

Changes explained: The decision to add another persona type was based on the amount of information we gathered through user interviews about various types of pet owners. After analysis of the interviews, the team added a third persona type to build out based on what our pet owner interviewees and industry worker interviewees discussed.

Detailed description: After conducting and analyzing the five interviews with pet adopters and those who work in the industry, three types of personas emerged: the inexperienced adopter, the experienced adopter (generalist), and the experienced adopter (species expert). Once we had identified our three persona types, we drafted out the profile information and decided to focus more on user needs, goals, and pain points in order to understand who we wanted to design for. Therefore, the information for each persona profile included: persona type, name, behaviors, needs, goals, a quote, along with a short persona summary which provided context and background information. Once the necessary information was decided for each persona, then the persona cards were designed on Google Slides for group collaboration. The three persona card designs can be viewed in [Appendix E](#).

6. **Method:** Card Sort

Goal (contribution to project): To find patterns in the content and help organize the information architecture of the application, which will be incorporated into our lo-fi and mid-fi prototypes.

Revisions/adjustments: No major adjustments or revisions were made to this method.

Changes explained: No major adjustments or revisions were made to this method.

Detailed description: The team utilized Optimal Workshop and conducted three rounds of card sorts with 34 cards. The first round consisted of an open sort performed by the team. Here, each member created their own categories and sorted the 34 cards into

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

one of the corresponding categories. After reviewing the first round results, our team discussed and decided on the categories for the hybrid card sort, which included eight participants who were recruited through word of mouth and social media. All participants were over 18 years of age and have adopted a pet in the past. In addition to sorting the cards into the predetermined categories, participants had the option to create new categories and sort cards into “I don’t know” and “do not include” categories. Following the second round, the team evaluated responses, revised the categories, and conducted a closed card sort with seven participants who were recruited by the class discussion board post and Facebook. Participants sorted the 33 cards into predetermined categories or the “I don’t know” and “do not include” categories. The results from the card sort helped us decide how to structure the lo-fi prototypes.

7. **Method:** Lo-fi Prototype

Goal (contribution to project): To implement our learnings from our previous methods to put together a preliminary prototype for testing.

Revisions/adjustments: The team adjusted this method by only creating three initial screens for the lo-fi prototypes, rather than every individual screen of the application. The lo-fi prototype included the home, explore, and menu screens.

Changes explained: The decision to create three simple lo-fi screens was made because of how the team planned to test the prototype in the next method. Since our plan was to complete click tests in the following method, we wanted to solely focus on the information architecture of the main screens of our application. Due to this decision, none of the remaining screens were required for this step in the process.

Detailed description: Our lo-fi prototype screens were created using Figma. The team decided to use this prototyping tool due to its collaboration abilities, which allowed everyone to work simultaneously online. Prior to starting designs on any screens, the team explored similar pet-related applications and online creative platforms (such as Dribbble) to find design inspirations for the new application we were creating for our users. After gathering designs and placing them into our Figma design file, our team discussed the likes and dislikes about features we found in other applications, as well as user input that we had heard from methods we had completed thus far. Following those discussions, the team created lo-fi prototypes for the home, explore, and menu screens which were planned to be tested in the next method. Since this was a lo-fi prototype, the screens included basic layouts and labels, and did not include any images, colors, or linking between the pages. The lo-fi prototypes can be viewed in [Appendix H](#).

8. **Method:** Lo-fi Evaluation - Click Test

Goal (contribution to project): To evaluate where users are seeking information from

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

the lo-fi prototype view of the application by tracking where users are clicking.

Revisions/adjustments: To stay on track with our project milestones, we reduced the rounds of testing from two to one, and decided to focus the click tests on three main screens: home, explore, and menu.

Changes explained: The number of rounds was reduced to make sure we could meet our deadlines for this project and the class. Meanwhile, the decision to focus the click tests on three main screens was made to confirm the results from our card sort. As discussed in the previous method, the team wanted to focus on the home, explore, and menu screens so we could continue improving the information architecture of the app.

Detailed description: The click tests were run in Optimal Workshop. There were a total of 18 participants in the study, all of which were current pet owners who were 18 years and older. Two-thirds (12/18) of the participants adopted at least one animal themselves in their lifetime. The team recruited participants by posting on the class activity discussion board, the CDM participant pool, Facebook, and reaching out to personal connections.

The click tests included six tasks, including two testing the home screen, three on the explore screen, and one on the menu screen. Each task was carefully written to prevent influencing user decisions on where to click. These tasks asked participants where they would click first to find more information on pet-related subjects, such as pet sleeping habits, adopting to city-life, budgeting, and more. Therefore, all six tasks were testing labels, headings, and information architecture, rather than specific features of the application. To read through the full scenarios for the six tasks, please visit [Appendix I](#).

Following the click tests, the group analyzed data through Optimal Workshop by viewing the Results tab. The team downloaded and discussed our findings, which helped us prepare for changes that needed to be made to the prototype as we moved forward to our next method, the mid-fi prototype.

9. **Method:** Mid-fi Prototype

Goal (contribution to project): To use the results from the lo-fi evaluation and make necessary changes to the lo-fi prototype. In addition, to update the prototype to include interactivity while also featuring refined details in the design.

Revisions/adjustments: The adjustment needed for the mid-fi prototype was designing the remaining application screens that weren’t designed during the lo-fi stages. Although, the team still made the compromise to not design every screen within the application, such as the maps feature.

Changes explained: Due to the team determining only three screens were necessary for the lo-fi prototype, more effort was required by the team to design the remaining pages for the mid-fi prototype. Due to this larger effort, the team needed to make the compromise to not design or test the maps feature, as it became out of scope for the

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

main goals we were focusing on for the project.

Detailed description: Our team designed the mid-fi prototype in the same Figma file as the lo-fi prototype by using a different page to store the screens. The team also created a third page within the project to hold all of our global components used throughout the prototypes. Making use of these universal components allowed us to make changes to the prototype quickly without the need to update the same items on multiple different screens. Since this was a mid-fi prototype, the team did not add colors and images to the application, but instead focused on the linking between all of the screens. The functioning mid-fi prototype can be viewed in [Appendix I](#).

As explained above, the team decided to eliminate prototyping screens that were not necessary to complete the tasks. Since our main focus was to test the information architecture, the team did not design the maps screen. Due to constraints in Figma, the team was also unable to provide a working search function throughout the application. This was determined to be okay by the team since the goal of the following usability evaluations was to test users’ ability to navigate through the application without needing to use any search functionality.

10. **Method:** Mid-fi Evaluation - Usability Evaluation

Goal (contribution to project): To learn about any pain points in the application through testing by asking users to complete a series of tasks, to which we can take as feedback towards future steps in the project.

Revisions/adjustments: As explained in the previous method, our team made the compromise of not designing or testing the maps tab/feature in order to focus more on finalizing the information architecture of the pet resource articles. We also reduced the number of rounds for testing from two to one.

Changes explained: This compromise was made due to the results from our click tests. The team found that there was still some confusion on where to click first, so the mid-fi evaluations focused solely on finding the appropriate pet resources and profile areas of the application. Similarly to the click test, we cut one round of testing to keep the team on track for our final deadlines.

Detailed description: Within our usability evaluations, there were a total of nine recruited participants with seven (six female and one male, all over the age of 18 years old) completing the usability evaluation. Each participant either had a current pet or had adopted a pet within their lifetime. Similar to our other methods, the team recruited participants through the CDM participant pool, Facebook, and reaching out to personal connections.

The usability evaluations were conducted remotely via Zoom. Each study included one moderator, and at least one observer when possible. All participants gave consent to be recorded through the study so the team could return and take notes afterward.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

Participants were asked to complete four tasks during the tests while thinking aloud. These tasks included editing profile details, finding information on deciding which pet best fit a city lifestyle, pet sleep habits, and budgeting for your pet. These tasks were chosen based on the lowest-scoring results from our click tests. To read through the full scenarios for the four tasks, please visit [Appendix K](#).

During the usability evaluations, the group took detailed notes to analyze specific data points and comments made by each participant. The group measured pass/fail, number of steps, steps taken, if assistance was needed, as well as participants’ rating of each task from 1-10 (10 being the most difficult). After the completion of the usability tests, the team transcribed the recorded sessions using the Otter.ai transcription tool. The team analyzed the final data through an excel spreadsheet and discussions, which helped us come to conclusions about what next steps were necessary to improve the application.

5.0 Results

1. **Method:** Competitive Review

Detailed Results Description for this Method: Based on our competitive review, a few benefits of our mobile application are that it would act as an educational hub for: current pet owners looking to adopt a new pet, those who are curious about adoption, and also those who are in the process of adopting a pet. The education provided through the application would help pet owners and their pets acclimate effectively to one another during the first year of adoption. One of the main weaknesses we discovered throughout the sites we reviewed is how information is presented to users. The information is present, but the way in which it is presented tends to be overwhelming to the user. This could lead to information overload, which could cause users to either take longer than necessary to find the information they are seeking, or not find the pertinent information at all. Therefore, we hope to create a somewhat interactive and engaging experience for users. Furthermore, because there has been a growing number of people adopting pets during COVID-19 closures, our project also hopes to address and provide additional information & resources related to acclimating a pet to a home during COVID-19. In addition, like mentioned above, our project product would be a mobile application that would benefit a wide range of people by allowing them to access necessary information anytime, anywhere.

Each of the sites we reviewed had a specific purpose and focus on the pet adoption process. There was either a sole focus on getting pets adopted, such as with The Shelter Pet Project (2011); a sole focus on providing current “pet parents” educational resources about pet care such as with The Wildest (2021); but at times it was rare to find a site like PAWS Chicago (2022) that focuses on both. Thus, we envision our project idea being a “one stop shop” of sorts for information related to adopting a pet and caring for the newly adopted pet. We hope to do this in order to make the adoption

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

process easier for all pet owners, especially those looking to adopt a new pet. Another difference between our mobile application and the existing sites and resources is that not only would we aim to provide users with information across all stages of adopting a pet, but we would hope to present users with information in a clear, organized way that does not overwhelm them.

When looking at the PAWS Chicago site, a great strength is that this website offers an extensive amount of information, which can at times be overwhelming to the reader when navigating through the website. PAWS Chicago also does not offer this information in mobile app form, which could be an opportunity to set our new application apart from PAWS. The Adopt-A-Pet (2000) website has a similar issue. When navigating through the resources, the information provided to users is either in the form of various links on a page with an image or two to break up the blocks of text, which can possibly still be overwhelming for users and can make it hard to find specific information quickly.

However, while most of the sites we reviewed tend to overload users with information, one site we reviewed, The Wildest (2021), included interactive features in order to educate the pet owners who visit their site. With tools such as an “Ask a Vet” chat feature or a “To-Do List” creator tool, pet owners are able to learn more about pet care through an engaging design. Therefore, our mobile application would take inspiration from this website and focus on offering users a comprehensive suite of content through a range of resource types (e.g. text-based resources, video and audio-based resources, etc.).

2. **Method:** Literature Review

Detailed Results Description for this Method: As mentioned in the introduction, the Literature Review revealed three common themes that all pet owners face in 2022: criteria for choosing pets during the pre-adoption and adoption phases, the impact of COVID-19, and reasons for relinquishing pets. Per Holland, et al. (2019) and Weiss, et al. (2012), social influences, household structure, accommodations, prior pet ownership experience, animal activeness, animal demeanor, animal personality, location within the shelter, and description of the animal all play a role in how pet owners decide what animal to choose. While pet owners consider a multitude of criteria to help them select a pet, the short turnaround time that occurs in selecting a pet can lead to unexpected challenges. For example, per Applebaum, et al. (2020), explored the challenges that the COVID-19 pandemic have brought upon a number of pet owners. They found that hardships included difficulty meeting the needs of pets, issues working from home, and struggles with balancing responsibilities. These challenges can sometimes lead to relinquishment. Beyond COVID-19, other reasons for relinquishment include behavioral problems, aggression towards humans and animals, medical needs, and other owner related reasons (Powell, et al., 2021; Hawes, et al., 2020). Despite these hardships, it has not all gone wrong. Per Kayabasi, et al. (2021), the pandemic has also increased owner attentiveness to pet needs while also finding great comfort in the social support that their pets provide.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

By the end of the Literature Review, it became clear to the team that there are significant challenges that pet owners must overcome at all stages of their pet ownership journey. During the pre-adoption phase, there is the challenge of understanding what is involved in pet ownership and how to select the best animal for their home and circumstances. During the adoption phase, there is the challenge of properly assessing individual animal fit for their home and household. Finally, during the post-adoption phase, pet owners must figure out ways to help animals acclimate well to their new homes while also navigating unexpected challenges around animal behaviors, animal and/or owner health, safety, and finances. While many find great joy in pet ownership, it is also riddled with great stress. These findings lead the team to ask a few questions for our later methods:

A. What is going well for new pet owners and the organizations they adopt animals from?

B. Of the challenges identified, what are the challenges that cause the most stress and concern for pet owners?

C. How can we help pet owners to be more prepared while also preventing future relinquishments?

3. **Method:** User Interviews

Detailed Results Description for this Method: We spoke with two cat owners in our user interviews. One had owned several cats in her lifetime, often owning three to four at a time, while the other was adopting their very first cat. The two user interviews confirmed the findings about pet selection and COVID-19 impact we discovered during the Literature Review. In terms of pet selection, MK chose to adopt a pet after moving out of her parents’ house while JR wanted to find a companion for the younger of her other two cats. MK expressed a secondary reason for adopting her cat was to find a new companion after her family dog passed. It was incredibly important for her to not replace the dog with another dog. JR tends to prefer a specific type of cat: the “big dumb boy cat” and finds that is important these cats are past the kitten age and that they have an easy going demeanor.

In regards to the pandemic, the biggest change was around the adoption experience. Both interviewees mentioned the requirement to make an appointment to be able to see animals as shelters were not allowing walk-ins at the time they inquired about adopting their cats. Otherwise, there have not been any significant issues caused by the pandemic during the post adoption experience. JR noted that her cats seem more clingy since she returned to the office, but otherwise she is really enjoying the entertainment the cats bring to her life. For MK, the pandemic did not seem to impact her pet ownership experience. However, prior to moving out on her own, it did negatively impact her family’s wishes on how to help the family dog pass since the vet was unable to conduct a home visit.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

In terms of other challenges, neither had experience relinquishing pets so we could not gain any insights into personal accounts around that topic. However, JR did have to deal with unexpected health, behavior, and hygiene challenges with a couple of her cats. For one cat, it had a lot of behavioral issues. A second cat ended up having diabetes while her recently adopted cat had some potty-related issues. In all of these cases, JR never considered relinquishment because she was deeply committed to each cat. Meanwhile, the main concern that MK felt was around pet safety when the cat is home alone. This concern came to fruition because of an earlier incident where a string toy got caught around the cat’s neck. Like JR though, MK was also concerned about hygiene, however in MK’s case it was about keeping the cat’s nails trimmed. She also was dealing with her cat’s picky eating habits.

For seeking information, as an experienced pet owner, JR said she did not have a go-to website to get answers. Instead, she uses Google to help her find answers related to her cats’ health and hygiene needs. MK used petfinder.com to help her adopt her cat. She also found that Chewy.com was a helpful resource for food and health related topics.

4. **Method:** Industry Interviews

Detailed Results Description for this Method: The three industry interviews reinforced the findings in both the Literature Review and the User interviews. They were especially helpful with improving the team’s understanding around relinquishment. Across the three interviews, there were varied opinions. CR cited that she saw at least one to two relinquishments happen every day. Reasons for the relinquishments were many: people losing their jobs due to COVID, family members becoming sick or passing away, allergies, challenges with children and pets, challenges with caring for kittens and puppies, or an animal being deemed “not a good fit.” Meanwhile, VC also saw relinquishment happen due to people losing their jobs. However, she felt that the occurrence of relinquishment during the pandemic had not increased significantly compared to pre-pandemic numbers. Finally, LU said that sometimes those who relinquished pets had difficulty affording the costs associated with their pet or returned an animal because they lost their home due to fire. Regardless of the reason, CR expressed that one of the biggest issues shelters face with relinquishment is how adopters are generally unaware of the correct protocols.

In terms of the COVID-19 pandemic, along with the impact of people’s livelihoods, the shelters themselves underwent a series of changes. First, VK noted that there has been a dip in adoptions over the past two years, but that the numbers seem to be rebounding. However, some of the changes were for the better: LU and CR both acknowledged that the change to by appointment-only gives prospective adopters more one-on-one time with the animals in the shelter. This also leads to less competition between potential adopters since the pace of the process has slowed down some. With the slower pace, this also means more dedicated time to direct care for the animals in the centers. However, LU pointed out that the appointment-only

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

approach could lead to animals waiting longer to be adopted. CR meanwhile expanded on some other challenges that happened due to COVID-19. Her shelter lost about half of the caregivers due to the pandemic and also has a volunteer shortage. These losses have led to challenges with providing consistent information to prospective adopters, but at the same time bring new life into the shelter as new employees and volunteers come onboard.

The industry interviews also provided insight into the overall adoption experience and resource usage. In terms of strengths, CR said that adopters do a good job at using the programs the shelter provides. In particular, they do a good job taking advantage of the incentives that relate to pet training. However, there was a desire for adopters to be more informed through research and other means. She also wished that shelters did a better job at promoting their long term animals and older animals as those animals are less likely to be adopted. Finally, LU wished that there were more volunteers available at the shelters so that adopters could spend more time with them.

5. **Method:** Personas

Detailed Results Description for this Method: By using the affinity diagram analysis of our user and industry interviews, the team was able to create three persona types that captured who the audience of the mobile application would potentially be. The three persona types that emerged throughout analysis were the following: the inexperienced adopter, the experienced adopter (generalist), and the experienced adopter (species expert). The three persona card designs can be viewed in [Appendix E](#).

Our first persona type was the inexperienced adopter. When analyzing our interview data, the team noted that all five of our interviewees mentioned challenges either as a first-time pet adopter or with first-time pet adopters. A main challenge was that first-time pet adopters are not very informed about their pets and the pet needs. One of our interviewees who was a first-time pet adopter, MK, had recently adopted a cat for the first time. When discussing the challenges she faced throughout the adoption process, a main challenge was not knowing how to budget. She said, “I remember one [adoption] application asked me how much money I had budgeted per month to spend on my cat... I don't know, you know. I was like, I don't know. I don't know what food she's gonna like yet or what litter she's gonna like.” The interviewees who work in the industry reiterated this idea that first-time adopters seem to not be very informed about the animals they want to adopt. Oftentimes, as industry professional CR discussed, some prospective adopters even ignore the advice and insights that shelters give them.

The second and third persona types are both Experienced Adopters; however, one type of experienced adopter is a generalist, meaning they've owned various types of animals throughout their lives, while the other experienced adopter is a specialist, meaning they've only owned and are very knowledgeable about one specific type of animal. Both pet adopters and industry professionals acknowledged that socializing a pet is an important subject for experienced pet adopters. However, two industry professionals, VC and LU, mentioned that families mainly inquire about how to choose a pet that is

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

right for their family. Meanwhile, our interviewee who was an experienced cat adopter, JR, mainly inquired about finding the right companions for her other cats.

6. **Method:** Card Sort

Detailed Results Description for this Method: There were three rounds of card sorting conducted with a total of 19 people participating. The goal of these rounds was to inform the organization of our mobile app’s menus for our low-fidelity and mid-fidelity prototypes.

Round 1: Open Card Sort

For the first card sort, the participants were the four members of our team. The goal of this sort was to establish the categories and potential list of cards we would use for later rounds. Before the sort, the team put together a list of 33 potential cards we thought would relate to the pet ownership experience. These cards were created based on the interviews conducted, Literature Review, and Competitive Analysis. During the sort, each team member used the list of cards presented to create their own groupings and categories. Once everyone was done, the team analyzed the categories created by each member in the initial open card sort and found common themes among the responses. Each team member created an average of eight categories and through our investigation we found these categories overlapped in similarities. For example, Training, Adoption Process, and Health and Wellness. The team discussed the common themes and determined a set of nine categories that reflected the overlapping responses. We further investigated how the team grouped the card by analyzing the dendrograms, Participant Centric Analysis, and similarity matrix generated by OptimalSort. According to the responses, the team agreed on one robust group of cards at 100% agreement with cards consisting of The First Week, The First Month, The First 90 Days, The First 6 Months, The First Year. Additionally, the team grouped three cards with an agreement of 50% followed by two groups with a team agreement of 75%. One card, Renting and Pet Ownership had 0% agreement. The remaining card groups varied from 25%-75% agreement with a few cards placed in other groups. The team investigated the similarity matrix and discussed the card placements to determine the similarities in grouping and found the cards were closely clustered.

Round 2: Hybrid Card Sort

For the second card sort, the participants were a combination of people recruited by word of mouth, as well as social media. Because the goal of this card sort was to observe any patterns in content organization from potential users, the participants were able to sort 30 different cards into seven categories, two of which included “I don’t know” and “Do not include.” The categories determined for this round of card sorting included: Pet Health, Pet Training, Challenges, Adoption Process, Rehoming Pets, Relationships, Pet Ownership Basics, I don't know, and Do not include. Users were also free to add any additional categories they deemed necessary since it was a hybrid card sort; although, zero out of eight participants added any categories. The group of cards included various pet related topics, ranging from Bedding and Budgeting to Rehoming and Relinquishing Pets. This round of card sorting also included pre and post-activity

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

surveys in order to gather insights from participants, as well as collect demographics.

When analyzing the results from this round, the team observed that 15 out of the 30 cards had over 50% agreement among the participants on which category they could be sorted into; such cards included Medication, Nutrition, and Pet Wellness all being sorted into Pet Health. However, the rest of the cards had varying opinions on which categories to be sorted into. Such cards included Leaving Pets Home Alone, Introducing Pets, and Home and Pet Ownership being sorted into four or more different categories across all participants. Based on the post-task questionnaire, two out of eight participants had difficulty sorting the cards due to vague labels. Also, three out of eight participants mentioned multiple cards being able to be sorted into various categories. Therefore, the team regrouped and discussed whether or not 1) additional cards had to be added to the last round of card sorting, and 2) certain cards could be renamed or taken out completely in the third round. To view the Full Standardization Grid results, which includes a full list of the cards used, see [Appendix F](#).

In this round, one issue that arose for the team came from the post-task questionnaire. One of our demographic questions asked users, “Who lives in your household with you?” The options we provided included: Spouse/Significant other, Child(ren), Parent(s), Other relatives, and Roommate(s). From these options, participants could select multiple. One of our participants alerted us of a missing option: None, or No one. A similar issue came up for the post-task question that asked participants, “What animal(s) do you currently own?” We did not catch this until we had begun our third and final round of card sorting. Therefore, it is important to note that there was a discrepancy within our demographic data.

Round 3: Closed Card Sort

A third card sort was needed due to lack of agreement from our previous round’s participants. We had seven participants who were a combination of peers recruited by our class discussion post on D2L, as well as social media. For this round, we decided to make it a closed card sort to help solidify the final choices for our menu in our low-fidelity prototype. In terms of the categories, we decided to remove Rehoming Pets as it was established as more of a sub-category for Challenges. We also renamed Pet Health to Pet Care and removed “Pet” from the Ownership Basics category. The categories of “I Don’t Know” and “Do not include” were left in to capture cards that users had difficulty sorting or that they felt should not be included in our menu options. In the end, the categories users could sort cards into were the following: Pet Care, Training, Challenges, Adoption Process, Relationships, Ownership Basics, I don’t know, and Do not include. Users were asked to sort 33 cards across these eight categories. For the cards, we tried to make sure the choices were not immediately obvious or leading so that the results of the sort reflected the authentic thought process of each user.

When analyzing the results from this round, the team observed that 27 of the cards had at least three or more participants agree on which category they should be sorted into,

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

while 18 of those had higher than 50% participant agreement. In terms of the categories, there were cards that had clear groupings. These were the following:

Category	Cards with High Agreement	Agreement Percentage
Pet Care	Grooming Medications Pet Illness	71%
Pet Care	Bedding Nutrition Pet Wellness	57%
Training	Changing Behaviors Potty Training Understanding Behaviors	57%
Challenges	Remote Work and Pets Traveling with Your Pet	57%
Adoption Process	Finding Adoption Centers	86%
Adoption Process	Complete Adoption Applications	71%
Relationships	Children and Pets Pet Companionship	71%
Ownership Basics	Home and Pet Ownership Welcoming Your New Pet	71%
Ownership Basics	Household Safety	57%

In addition to cards with high agreement, there were a couple cards that were evenly split across our participants. For example, three of the participants placed Socialization under Training while another three placed it under Relationships. A similar occurrence happened with the Relinquishing Pets card. Three participants placed that card under Challenges while another three placed it under Adoption Process. This split agreement showed that users have different ways they view these topics. This split was not concerning to the team though as we recognized that many problems related to pet ownership have more than one potential solution. To see the full results matrix, consult [Appendix G](#).

In this final round, the team had come across two obstacles. The first is in regard to a participant who had sorted 31 of the 33 cards into the “I don’t know” category. This participant did not go into depth in the post-task questions about struggles they experienced with the card sort, so the team was not clear on why these cards were sorted this way or what the point of confusion could have been for the participant. The second obstacle was the same issue raised in round two of card sorting. As mentioned in the round two results, we were not aware of this until we had begun our third and final round of card sorting. While we could not go back into Optimal Workshop and edit the question options, we did make sure to adjust the demographic data in our analysis

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

report. However, it is still important to note that there was a discrepancy within our demographic data because of this.

7. Method: Lo-Fi Prototype

Detailed Results Description for this Method: Our team analyzed the results from our previous methods and used that to drive the information architecture for the lo-fi prototypes. Using our results from the card sorts, we narrowed down the main navigation to six categories: Adoption Process, Challenges, Ownership Basics, Pet Care, Relationships, and Training. These categories can be found on the home page, explore page, and menu screens.

As far as the designs for the lo-fi prototypes, we kept our fourth goal in mind (finding pet resources without using search functions). Our team researched similar pet-related applications on creative platforms, such as Dribbble, to inspire our designs based on similar pet-related applications. We often noticed the use of large entry points into specific categories, so we implemented this idea throughout the Home and Explore screens in our lo-fi designs. An example of these large entry points can be viewed in the screenshot in the lo-fi evaluation section below. As discussed in the methods, the lo-fi prototypes consisted of only three screens (Home, Explore, and Menu) in order to solidify the information architecture of the application. These lo-fi prototype screens can be viewed in [Appendix H](#). Once these three main screens were designed and tested, the plan was to move forward designing and testing the remaining screens during the mid-fi prototype evaluations.

8. Method: Lo-Fi Prototype Evaluation - Click Test

Detailed Results Description for these Methods:

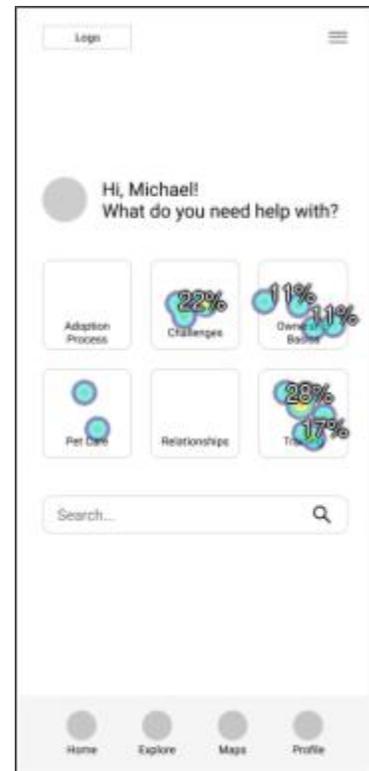
As previously stated in our methods section, our lo-fi prototypes were tested in Optimal Workshop with a total of 18 participants. The average time spent on the click tests was 9 minutes and 54 seconds, with a range from 4:01 minutes to 31:54 minutes. Four of the six tasks had a success rate of 72% (13/18) or better. Those tasks included finding more information about budgeting for your pet, finding post-COVID tips, finding the best pet accessories, and finding information on introducing pets. Remarkably, the task related to finding budgeting information in the app had a 89% (16/18) success rate.

Task	Screen Being Tested	Success Rate	Average Time Taken (seconds)	Average Confidence Rating (1 being not confident, 10 being very confident)
Finding the Right Pet for You	Home	9/18 (50%)	13.42	6.83
Sleeping Habits	Home	4/18 (22%)	10.96	7.44
Budgeting for Your	Explore	16/18 (89%)	9.58	9.39

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

Pet				
Post-COVID Tips	Explore	13/18 (72%)	12.75	6.83
Pet Accessories	Explore	14/18 (78%)	11.63	8.61
Introducing Pets	Menu	13/18 (72%)	9.77	7.06

Two of our six tasks did not perform well in the click test. Interestingly, they were the only two tasks that we tested using the home screen. The task regarding finding the right pet for you performed at a 50% (9/18) success rate. While we marked the correct path as clicking on the “Adoption Process” section, many of the participants clicked on “Pet Care,” “Challenges,” and “Ownership Basics.” The second task that didn’t perform well was the task regarding finding information on pets’ sleeping habits (shown right). This task had an alarming 22% (4/18) success rate. While our team marked the correct path as clicking on the “Challenges” section, based on our card sorts, most of the participants’ clicks were in the “Training” and “Ownership Basics” sections.



Screenshot from task 2 of click test: Find more information on sleeping habits

9. **Method:** Mid-Fi Prototype

Detailed Results Description for this Method: After reviewing the results from our click tests from the previous method, we made a few changes to the information architecture when building the mid-fi prototypes. One of those changes was in regards to the task about finding the best sleeping habits. While designing the mid-fi prototype, the team decided to move pet sleeping habits information to the training section since 45% (8/18) clicked on that area for the previous click test. While that number still isn’t particularly high, it showed us the importance of building multiple paths users can take to find a particular topic. As the team built out the remainder of the mid-fi prototypes, we prepared screens and flows for the tasks that failed in our last round of testing so we could re-test similar tasks during our usability tests. The screens created for the mid-fi prototype included the Home screen, Explore screen, our main category screens (Adoption Process, Challenges, Ownership Basics, Pet Care, Relationships, and Training), three article screens for testing (Finding the Right Pet for You, Budgeting, Sleeping Habits), profile/edit profile screens, and the menu screen. Each of these pages were specifically chosen so we had a wide range of tasks for testing in the usability evaluation. The functioning mid-fi prototype can be viewed in [Appendix I](#).

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

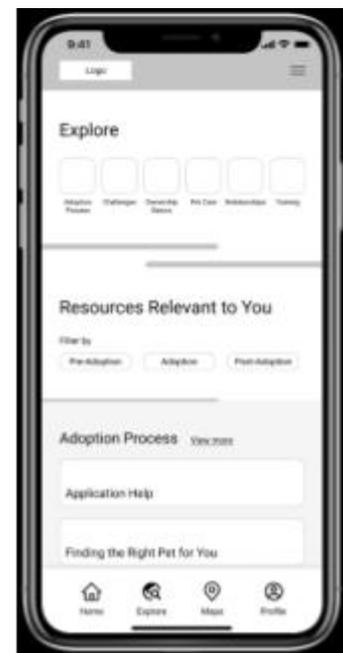
10. **Method:** Mid-Fi Prototype Evaluation - Usability Evaluation

Detailed Results Description for these Methods: As previously mentioned in the Methods section, our team conducted usability evaluations via Zoom. We tested four tasks on the mid-fi prototype. These tasks included editing your profile details, finding information on the right pet for you, sleeping habits, and budgeting for your pet. Details of the tracked measures are shown in the table below.

Task	Success Rate	Average # of Steps	Average Rating (1 being easy, 10 being difficult)
Edit Profile Details	6/7 (86%)	4.43	2.00
Finding the Right Pet for You	5/7 (71%)	4.43	2.57
Sleeping Habits	6/7 (86%)	6.00	2.71
Budgeting for Your Pet	5/7 (71%)	4.14	1.71

When asking the participants to rate the tasks from 1-10 (10 being most difficult), the average ratings for each task ranged from 1.71 to 2.71, which shows a tremendous satisfaction rate despite the fact there were some task failures. The highest average rating for a task (meaning the most difficult) was the task about finding information on pet sleeping habits at 2.71. Coincidentally, that was the task with the highest average amount of steps at 6.0. There was one participant that took 13 steps to complete the sleeping habits task and gave that task a 6 for difficulty, which was the highest rating for any task out of all participants. In total, the ranges for average number of steps per task ranged from 4.14 to 6.0. This was particularly interesting since each task was designed to be completed in three steps. Fortunately, only one participant required assistance in completing any of the tasks. However, it can be noted that they required assistance for every task except editing their profile information. Full details about these measures can be found in [Appendix L](#).

During the usability evaluations, the team received both positive and negative feedback regarding the mid-fi prototype. One piece of repeating positive feedback that was brought up in our post-task and post-study questions was the layout of the explore page, especially the six categories listed at the top of that page for users to navigate to those sections quickly (shown right). Although, one participant claimed those labels at the top of the screen were too small to read, perhaps due to testing on a laptop rather than an actual phone. Another piece of feedback multiple participants shared was the absence of a search



Screenshot of Explore tab in the mid-fi prototype

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

bar on the explore page, especially since it already appears on the home and menu screens.

There were a few other points of feedback given about the prototype throughout our usability evaluations. On the home screen (shown right), there were multiple participants who expected the avatar icon to link to the profile screen when it was not linked within the prototype. On the Finding the Right Pet for You resource (shown right), one participant expected this page to be an interactive quiz to help potential adopters find the right pet, rather than an article summary.



Screenshots of Home page (left) and Finding the Right Pet for You page (right) in the mid-fidelity prototype

Also, in three of the usability tests, users did not navigate towards the Explore page at all and completed all of the tasks through exploration of the categories shown in the Home screen. Some users expressed their expectation to find information in multiple places, as opposed to one location in the mobile application. This reinforces our discovery of the importance of building multiple paths users can take to find a particular topic.

6.0 Discussion

Looking back at our main project goals, the team aimed to:

- Clearly understand the needs of new pet owners to provide motivation for the new application;
- Develop a deeper understanding of barriers within the adoption process that could potentially increase pet relinquishment;
- Organize site categories in a way that best matches user goals and needs; and
- Provide users with an efficient way to find educational resources they need for taking care of their new pets without needing to use search functions.

Because our early research uncovered significant challenges that pet owners experience while owning a pet during the COVID-19 pandemic, the team’s initial focus for the project was on pet ownership and pet adoption during the pandemic. However, during our user interviews, the pet owners we talked to didn't mention too much about COVID in regards to

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

pet ownership unless specifically asked by the team, nor did they experience the relinquishment of a pet. At least one interviewee discussed the challenges of returning back to work after being remote in the pandemic; she mentioned not feeling comfortable leaving her pet at home alone due to not knowing too much about pet safety when she isn't home to watch her pet. Otherwise, only our industry interviews yielded insights into COVID's impact.

Similarly, one of the team's goals was to develop a deeper understanding of barriers within the adoption process that could potentially increase pet relinquishment given that our early research also uncovered that relinquishment can be a significant problem during the post-adoption stage of the adoption process. The topic of relinquishment was not a common topic among our pet adopter interviewees; none of our pet adopter interviewees had relinquished their pet, so they could not speak to this topic. Only our industry interviews yielded insights into the topic of relinquishment. However, the team did gain insights from these interviews into the challenges or gaps that exist within the adoption process that could lead to a pet being relinquished. For example, all three of our industry professional interviewees discussed various reasons that people might relinquish: financial reasons, challenges between pets and children, losing jobs due to COVID, or the animal not being the right fit.

In terms of our project deliverables, we did experience an issue with the protocol for two of our card sorting rounds. During the second and third rounds of testing, one of our participants pointed out that they were not able to accurately complete the activity. Because a requirement was to be a current pet owner or have adopted a pet in the past, our pre-study survey asked participants which animals they currently own. This question was missing a “None” option. Similarly, one of our demographic questions that asked participants the amount of people they live with was also missing a “None” option. If we were to do this project differently, we would make sure to address this limitation and include all relevant options in our pre and post-survey questionnaires so as not to exclude a possible participant.

A common point of feedback provided during our card sort, click test, and usability evaluation was that there were different ways the application could be organized. Participants brought to light multiple entry points and flows that could be taken in order to complete our tasks. Using the task about finding more information on sleeping habits as an example, our tests showed that common entry points included navigating through the Pet Care, Challenges, and Training categories. While these are all viable options, the only correct path was navigating through the Training category in the mid-fi prototype. One way to fix this issue was an idea that came from one of our participants. They mentioned the use of personalization strategies to determine which topics and categories were shown to users throughout the application. Personalization techniques that could be implemented include user options (such as filters) or AI technology to provide recommendations to the user based on their profile and interactions. Similarly, a common theme that came from our usability evaluation was the idea to combine the home and explore tabs, or even creating a toggle to show and hide content based on user preferences.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

A final thing to discuss is where the team would go with next steps on this project. The team would aim to make relevant changes to the mid-fi prototype based on what was discussed in the usability evaluation results section above. After making those changes to our mid-fi prototype and building out the remainder of the screens, the team would conduct another round of usability evaluations. Following the analysis of those tests, the team would implement any necessary updates as they build out the hi-fi prototype and development of the application.

7.0 Conclusion

While working through the human-centered design process, we were able to successfully explore the area of pet ownership and pet adoption with the goal of uncovering the main challenges and pain points that past, current, and future pet owners experience in their daily lives. While utilizing methods such as competitive and literature reviews, user interviews, usability testing, and more, the team was able to learn about existing gaps and challenges in the area of pet adoption in order to design and provide pet owners with a solution that could address those problems: a comprehensive suite of content in the form of an interactive mobile application that can be available to people anytime, anyplace. Our results showed that although there is an abundance of information currently out there for pet owners, oftentimes it can be overwhelming and it still might be hard to find. However, one other key finding from our results highlighted the importance of building multiple paths that users can take to find a particular topic. Therefore, future work should explore various ways of providing people with information, perhaps by allowing for more customization by the user.

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HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

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HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

Appendices: Supporting Material

A. Informed Consent

ADULT CONSENT TO PARTICIPATE IN RESEARCH

An Educational Resource Hub for Pet Adoption

Principal Investigators: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan (graduate students)

Institution: DePaul University, Chicago, Illinois, USA

Department, School, College: College of Computing and Digital Media

Faculty Advisor: Hank Streeter, College of Computing and Digital Media, DePaul University

Key Information:

What is the purpose of this research?

We are asking you to be in a research study because we are trying to learn more about the animal adoption process. This study is being conducted by Marianella Osorio, Kaleena “Rheeya”, Narwani, Timothy Lattimer, Sara Lenahan, graduate students at DePaul University, as a requirement to obtain their master’s degrees. This research is being supervised by their faculty advisor, Hank Streeter.

We hope to include about 8 people in the research.

Why are you being asked to be in the research?

You are invited to participate in this study because you are someone who’s _____. You must be 18 or older to be in this study. This study is not approved for the enrollment of people under the age of 18.

What is involved in being in the research study?

If you agree to be in this study, being in the research involves being asked a list of interview questions about your experience with _____. The interview will be audio recorded and transcribed into written notes later in order to get an accurate record of what you said.

Are there any risks involved in participating in this study?

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

Being in this study does not involve any risks other than what you would encounter in daily life. You may feel uncomfortable or embarrassed about answering certain questions. You do not have to answer any questions you do not want to.

Are there any benefits to participating in this study?

You will not personally benefit from being in this study.

How much time will this take?

This study will take about 30 minutes of your time. The warm-up, deep focus, and wrap-up questions will take about 10 minutes each to complete.

Other Important Information about Research Participation:

Can you decide not to participate?

Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences, penalties, or loss of benefits if you decide not to participate or change your mind later and withdraw from the research after you begin participating.

Who will see my study information and how will the confidentiality of the information collected for the research be protected?

The research records will be kept and stored securely. Your information will be combined with information from other people taking part in the study. When we write about the study or publish a paper to share the research with other researchers, we will write about the combined information we have gathered. We will not include your name or any information that will directly identify you. Some people might review or copy our records that may identify you in order to make sure we are following the required rules, laws, and regulations. For example, the DePaul University Institutional Review Board may review your information. If they look at our records, they will keep your information confidential.

The audio recordings will be kept until accurate written notes have been made, then they will be destroyed.

Who should be contacted for more information about the research?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study or you want to get additional information or provide input about this research, you can contact the researchers at the following email addresses:

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena “Rheeya” Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

Marianella Osorio: mosorio6@depaul.edu

Kaleena “Rheeya” Narwani: kaleena.narwani@gmail.com

Timothy Lattimer: tim.lattimer@alumni.depaul.edu

Sara Lenahan: saraelenahan@gmail.com

You can also contact the faculty advisor:

Hank Streeter: HSTREETE@depaul.edu

This research has been reviewed and approved by the DePaul Institutional Review Board (IRB). If you have questions about your rights as a research subject, you may contact Susan Loess-Perez, DePaul University’s Director of Research Compliance, in the Office of Research Services at 312-362-7593 or by email at sloesspe@depaul.edu.

You may also contact DePaul’s Office of Research Services if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.

You will be given a copy [can print a copy] of this information to keep for your records.

Statement of Consent from the Subject:

I have read the above information. I have had all my questions and concerns answered. By signing below, I indicate my consent to be in the research.

Signature: _____

Printed name: _____

Date: _____

B. User Interview Protocols

Introduction

Hello, my name is [____], and I am a graduate student at DePaul University. Thank you for agreeing to participate in this interview. For my capstone project, I am working in a group to learn more about the animal adoption process. I would like to know more about _____.

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

We're hoping to include about 8 people in our interviews, and you were selected because you have either adopted in the past 12 months or work in the industry. There are no right or wrong answers, and your answers will be kept confidential. Today's interview session should take approximately 30 minutes. I saw you sent back the informed consent form, so thank you for reading and signing that prior to this call. Do you have any questions before we begin?

Do I have your permission to record this interview?

[Receive Verbal Consent and Start Recording]

Interview Questions

STEP 1: SCREENERS AND WARM-UP

- Are you 18 years of age and older?
- When was the last time you adopted an animal?
 - What type of animal(s) did you adopt?
 - Do you still own the animal?
- What is your favorite animal and why?
- What pets, if any, did you own growing up?
- What was (childhood pet) like?
- How many pets do you currently own?
- When did you bring your pet(s) home?
- How did you find your pet? Where were they adopted from?
- Was this your first pet adoption/purchase? If not, how many pets have you adopted and when did you have those pets?

STEP 2: DEEP FOCUS

Pre-Adoption Phase

- Thinking about the last time you adopted a pet, what steps did you take to find your new pet?
- What made you decide you wanted to adopt a pet?
 - How did you decide which type of pet to adopt?
- Did you do any research prior to adopting your pet? Why or why not?
 - If so,
 - What kind of resources or information did you seek out?
 - Which resources did you use?
 - Did these resources make a difference to whether you chose to adopt?

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

- If not,
 - Is there something you wish you knew more about prior to adopting?

Adoption Phase

- Describe your overall experience with the adoption process.
 - How long did it take?
 - What, if anything, was easy about the process?
 - What, if anything, was difficult about the process?
 - (if it's their first time going through the process) Would you do anything differently in the future?
- (if *not* their first time through the process) How consistent or different was this experience compared to past experiences?

Post-Adoption Phase

- What were you most worried about when becoming a new pet owner?
 - Have you overcome those concerns?
- What's been the most difficult part about being a new pet owner?
 - How do you deal with this?
- What's been the easiest part about being a new pet owner?
- If you could offer one piece of advice or one resource to new pet owners, what would it be?
- If there was an application made to support pet owners in the adoption process, what features are must haves?

COVID-19 Impact

- What impact, if any, has COVID-19 had on your recent adoption and homing experience?
 - If previously adopted or owned a pet, how has that compared with your other experience?

Relinquishment

- Have you ever had to relinquish a pet? If yes and you feel comfortable talking about it, what was that experience like?

STEP 3: WRAP-UP

Overall Experience

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

- Is there anything you wish all potential adopters considered prior to adopting a pet?
- Is there anything else you would like to share with our team about being a new pet owner?

Demographics

- What is the size of your household (including yourself)?
- Do you rent or own your home?
- What gender do you identify with?
- What is your highest level of education completed?
- What is your employment status?
 - Remote at home
 - Away from home
 - Blend of both

STEP 4: THANK PARTICIPANTS

Thank you for your time to be a participant in our group case study at DePaul University. Do you have any questions for us?

If you have any additional questions or concerns, please do not hesitate to contact us after this interview. Our emails are located in the consent form. Thanks again for your time!

C. Industry Interview Protocols

Hello, my name is [____], and I am a graduate student at DePaul University. Thank you for agreeing to participate in this interview. For my capstone project, I am working in a group to learn more about the animal adoption process. I would like to know more about _____.

We're hoping to include about 8 people in our interviews, and you were selected because you have either adopted in the past 12 months or work in the industry. There are no right or wrong answers, and your answers will be kept confidential. Today's interview session should take approximately 30 minutes. I saw you sent back the informed consent form, so thank you for reading and signing that prior to this call. Do you have any questions before we begin?

Do I have your permission to record this interview?

[Receive Verbal Consent and Start Recording]

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

Interview Questions

STEP 1: SCREENERS AND WARM-UP

- Are you 18 years of age and older?
- Do you currently work or volunteer at an animal shelter or similar setting?
 - If no, have you previously worked or volunteered at an animal shelter? (if no industry experience past or present, disqualify)
- How long have you worked/volunteered in the pet industry?
- Where do you work/volunteer? (if not known)
- What is your favorite animal?
- Do you have any pets yourself? What are they like?
- What's your favorite part about being involved with the animals?
- What drew you to working in this industry?
- Is there an adoption story that has stuck with you? What happened?

STEP 2: DEEP FOCUS

Adoption Experience

- Think about the last adoption interaction you helped with. Walk me through what that experience was like.
 - What was the potential adopter looking for?
 - Did the potential adoption adopt an animal?
 - What questions, if any, did the potential adopter ask?
 - How knowledgeable did the potential adopter seem to be about the adoption process?
 - How knowledgeable did the potential adopter seem to be about the animal(s) they want to adopt?
 - Is there anything else about this last experience that you'd like to share?
- How does this last experience compare with other experiences you've had volunteering/working?
 - How was it different?
 - How was it similar?
- What aspects of the animal adoption experience are going well?
- What aspects of the animal adoption experience could be improved?
- What are some of the most common questions asked by potential adopters?

Resources Shared with Adopters

- What resources on the PAWS website (or wherever they work) do you consider to be the most important? Why?

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

- Other than the PAWS website (or wherever they work), what external sources would you suggest for new pet owners to help them through the adoption process?

Relinquishment

- How frequently do you see adopted animals get returned?
- Would you consider there to be a change in the number of pet relinquishments as COVID restrictions are lifted?
 - What are the reasons for this you often hear about?
- What are some of the other most common reasons for pet relinquishment?

Adopter Preparedness and Barriers

- What do you see as common barriers for potential new pet owners when deciding to adopt? (i.e. Is there anything they're worried about in terms of pet behavior, household issues, etc?)
- Thinking about potential adopters, on average how prepared are they when they initially come in to make an adoption selection?
- What types of topics do you feel potential adopters are generally well informed about?
- What types of topics do you feel potential adopters need more education on?
- What can institutions like yours do to help potential adopters be more prepared? What are they already doing?

STEP 3: WRAP-UP

Overall Experience

- Is there anything you wish all potential adopters considered prior to adopting a pet?
- Is there anything else you would like to share with our team about working with potential adopters?

Demographics

- What type of role do you have where you work/volunteer?
- How many hours per week do you work/volunteer?
- What types of animals does your shelter/organization have?
- What city do you currently work/volunteer in?

STEP 4: THANK PARTICIPANTS

E. Personas

IZZIE ADAMS
Inexperienced Adopter



“ I remember one [adoption] application asked me how much money I had budgeted per month to spend on my cat... I don't know, you know. I was like, I don't know. I don't know what food she's gonna like yet or what litter she's gonna like. ”

ABOUT

Izzie Adams is a 24 year old teacher who adopted a kitten a few months ago to keep her company in her new apartment. Growing up, she had a childhood dog so she has experience caring for a pet, but she has never adopted a cat so she is nervous about the new responsibilities she has when caring for her kitten. Although Izzie was very excited to own a kitten, she did not do too much research prior to submitting her application. Therefore, she is wanting to find more information regarding being a first-time cat owner and discovering the good, the bad, and the ugly surrounding being a cat owner.

<p>BEHAVIORS</p> <ul style="list-style-type: none"> Has never adopted a pet on her own before Lives alone so she decides to adopt a kitten in order to keep her company at home Searches for shelters recommended by family and friends Does not do too much research about owning a cat prior to submitting an adoption application for a kitten 	<p>NEEDS</p> <ul style="list-style-type: none"> Find out information about being a first-time cat owner Know about the challenges of owning a cat for the first time Does not know how much to budget for her future pet's expenses Find out background information about type of cat she owns and it's specific needs
--	---

GOALS

- Prepare for caring for her first cat
- Gain more general cat knowledge (behaviors, health, which food to give, etc.)
- Find resources about pet safety and acclimation to ones home
- Find advice about leaving her cat home alone after having to return to work in-person



NICK STEWART
Experienced Adopter, Species Expert



“ Lots of times, I will just google something after the vet and try to see if there's a consistent through line of information through several sites and see if I can find a lot of websites that say the same thing and go from there. ”

ABOUT

Nick Stewart is a 30 year old accountant who's adopted several cats throughout his young adult life. He currently has two cats (one older and one younger). With one of them being on the older end, he wanted to add a younger cat so the young ones could become best friends throughout their lifetime. Nick is very experienced with searching for new cats, but he will need help finding resources for budgeting since he has never owned three cats at once. He also hopes to find resources on socializing younger and older cats. Additionally, since he has a cat on the older end of the spectrum, he hopes to find valuable resources for keeping his cats healthy and information on curing any illnesses that may arise later in their lifetimes.

<p>BEHAVIORS</p> <ul style="list-style-type: none"> Adopted several cats throughout his lifetime Has 2 other cats and decided to add another cat to the family Searches online for cats during the adoption process Uses online information about cats 	<p>NEEDS</p> <ul style="list-style-type: none"> Learn more about budgeting for a cat Learn about local laws and regulations about pet registration Reliable information about cat illnesses
---	---

GOALS

- Find resources on socializing new cats
- Find information about cat health and wellness
- Find material about budgeting for a cat
- Find information about vaccine and registration regulations
- Determine expectations of owning a pet



THE JONES FAMILY
Experienced Adopter, Generalist



“ I worry about how my current pets will react to a new animal addition. ”

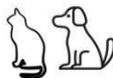
ABOUT

The Jones family consists of a married couple and two children (boy and girl). The family lives in a large farm house with four acres of land. They have always loved animals and are seeking to add another pet to the family. While the Jones' are leaning toward getting another dog, they want to make sure this would be best for their family dynamic of one dog and two cats. They hope to find a new family member that will be a great fit for years to come. The Jones' are looking for resources regarding local animal shelters so they can interact with some pets and start learning more about who would be the best addition to their family.

<p>BEHAVIORS</p> <ul style="list-style-type: none"> Has 2 cats and a dog in the family Visits animal shelters during the adoption process Decided to add another companion for the family 	<p>NEEDS</p> <ul style="list-style-type: none"> Learn how to introduce children and pets Learn how to acclimate new pet to current pet
---	---

GOALS

- Find resources about local animal shelters
- Find information about introducing pets to family members and other pets
- Determine which type of pet is best for the family and current pet dynamic



HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

F. Card Sort Round 2: Standardization Grid

Standardization grid ⓘ

Total participants 0  7

[Download](#) ▾

Name	Adoption...	Challenges	Do not In...	I don't kn...	Pet Health	Pet Own...	Pet Traini...	Rehomin...	Relations...	Not standardized
Bedding					2	6				
Budgeting		2				6				
Changing Behaviors		3			2		2		1	
Children and pets						1			7	
Choosing the Right Accessori	1			1		4	2			
Completing Adoption Applica	7	1								
Finding Adoption Centers	7	1								
Finding the best pet for you	5					1			2	
Grooming					3	5				
Home and Pet Ownership	1	1		2		3		1		
Household set-up	2					5				
Introducing Pets		2				1	1	1	3	
Leaving pets home alone		4	1			1	1		1	
Medications		1			7					
Nutrition					6	2				
Pet Companionship					1	2			5	
Pet Wellness					7	1				
Pet Illness		1			7					
Pet safety					3	4	1			
Post-COVID tips		1	1	2	2	1			1	
Potty training		1					7			
Rehoming pets	1							7		
Relinquishing pets			2					6		
Remote Work and Pets		3		1		1			3	
Renting and Pet Ownership	1	2		3		2				
Returning to Work		3		1					4	
Sleeping Habits					3	3	1		1	
Socialization		1			1	2	2		2	
Stress Reduction				1	3		2		2	
Travel	1	4				2		1		

G. Card Sort Round 3: Results Matrix

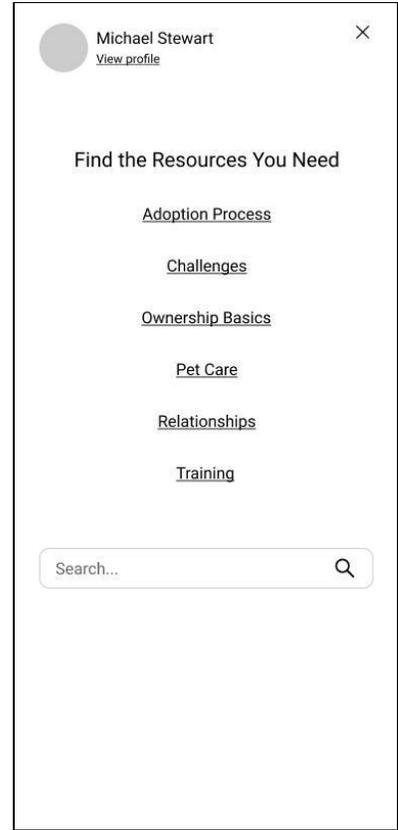
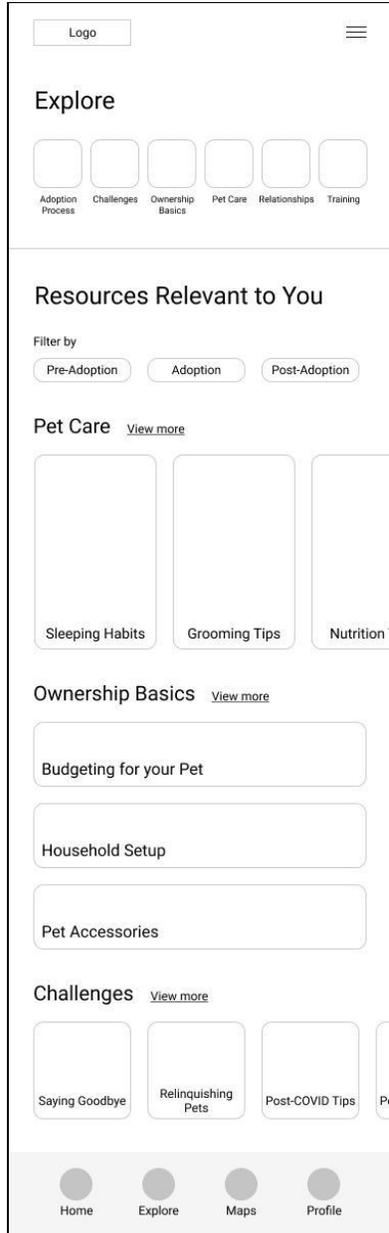
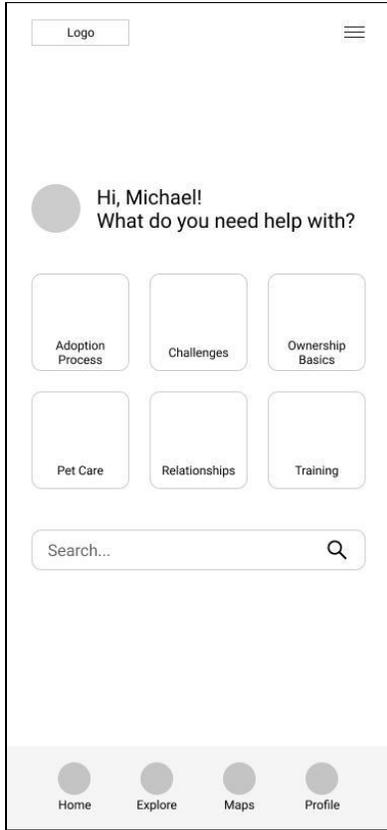
The results matrix 

	Pet Care	Training	Challenges	Adoption Process	Relationships	Ownership Basics	I don't know	Do not include
Household set-up				2		4	1	
Finding the best pet for you				2	2	1	1	1
Post-COVID tips			2			1	2	2
Introducing Pets		1	1	1	2	1	1	
Bedding	4	1				1	1	
Nutrition	4			1		1	1	
Grooming	5	1					1	
Changing Behaviors		4	2				1	
Medications	5	1					1	
Potty Training		4				2	1	
Pet Wellness	4	1					1	1
Sleeping Habits	2	1	1			1	1	1
Traveling with your pet			4		1	1	1	
Choosing the Right Accessories	1	2				2	1	1
Children and pets				1	5		1	
Rehoming pets			2	3	1		1	
Relinquishing pets			3	3			1	
Stress Reduction	2		1		2	1	1	
Safety		2			1	3	1	
Leaving pets home alone		1	3			2	1	
Renting and Pet Ownership			1	3		2	1	
Home and Pet Ownership				1		5	1	
Remote Work and Pets			4	1			1	1
Returning to Work		1	3		1		1	1
Pet Companionship					5		1	1
Socialization		3			3		1	
Finding Adoption Centers				6			1	
Completing Adoption Applications				5			1	1
Budgeting			2			2	2	1
Pet illness	5		1	1				
Boarding	1		3	1			2	
Understanding behaviors		4	1		1	1		
Welcoming your new pet		1				5	1	

H. Lo-Fi Prototype

Figma Link:

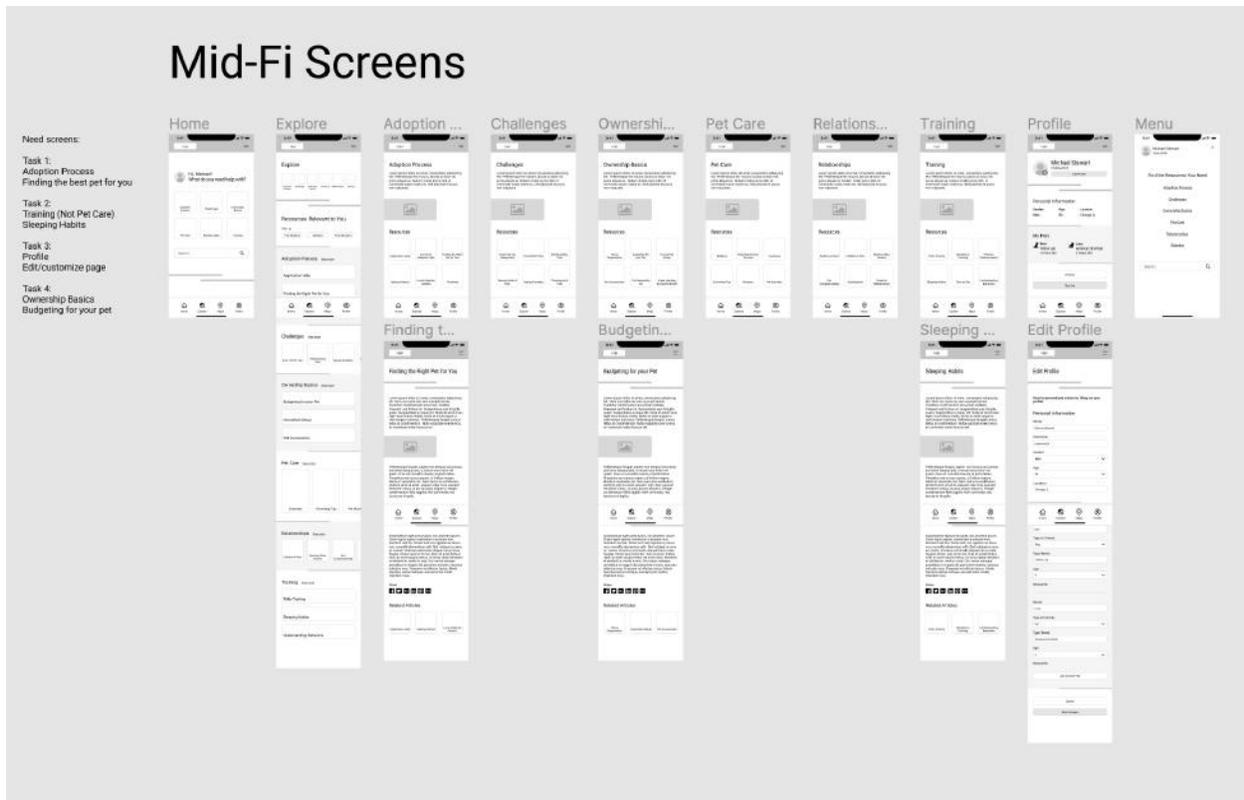
<https://www.figma.com/file/N59IXjOdTAqjpTE2FPzABN/Pet-Adoption-App-Prototypes?node-id=0%3A1>



I. Mid-Fi Prototype

Figma Link:

<https://www.figma.com/proto/N59IXjOdTAqjpTE2FPzABN/Pet-Adoption-App-Prototype?s?page-id=3%3A2&node-id=49%3A91&viewport=241%2C48%2C0.19&scaling=scale-down&starting-point-node-id=49%3A91>



J. Click Test Tasks

Home Screen

- You and your spouse live in a downtown high-rise condo and are searching for a new pet that could fit in well with the city lifestyle. Where would you first click to find more information on adopting the best pet for your family?
- Your newly adopted puppy is full of energy and has been keeping you up all night, so you want to find out how to help him rest after long days. Where would you click to find out more information about this?

HCI 594 Project Final Report	Team 1: Marianella Osorio, Kaleena "Rheeya" Narwani, Timothy Lattimer, Sara Lenahan
	Date: March 7, 2022

Explore Screen

- You've never owned a cat before and you were interested in finding more information about budgeting for this new family member. Where would you click first to find this information?
- You just found out you have to go back to work in person after being able to work virtually for the past 2 years due to the pandemic, and now you're worried about leaving your pet home alone for too long. Where would you click to find out more information about this adjustment?
- You recently adopted a cat and have been searching for a new and comfortable collar to buy her. Where would you go to find information on the best collars for cats?

Menu Screen

- You're thinking of adopting a new puppy, but you're concerned with how this puppy will interact with your 4-year-old cat. Where would you click first to find more information on introducing them to one another?

Post-Task Questions

- On a scale of 1-10, rate how confident you felt about where you clicked on the image. (1 being not at all confident, 10 being extremely confident)
- Why did you choose that confidence rating?
- Did you encounter any difficulties as you performed the tasks?
- What do you think about how the information is laid out?

K. Usability Evaluation Tasks and Post-Task Questions

- Task 1: You have just joined the app and are interested in setting up the rest of your details about yourself and your pet(s). Please walk me through how you would go about completing this task within the app.
- Task 2: You and your spouse live in a downtown high-rise condo and are searching for a new pet that could fit in well with the city lifestyle. Walk me through where you would go to find more information on adopting the best pet for your family.
- Task 3: Your newly adopted puppy is full of energy and has been keeping you up all night, so you want to find out how to help him rest after long days. Walk me through where you would go to find out more information about this.
- Task 4: You are about to adopt a new puppy, but you are not too informed about how much it will cost to care for the puppy. You want to find more information

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about how to start creating a budget for your new pet. Can you walk me through how you would go about finding this information?

Post Task Questions

- On a scale of 1-10, how difficult was it to complete this task using the mobile application? (1 being extremely easy, 10 being extremely difficult)
- Why did you choose that rating?
- In what ways did the prototype meet your expectations for this task?
- In what ways did it not meet your expectations for this task?
- Anything else you would like to share?

L. Task Completion Analysis

Participant	Demographics	Edit Profile Details				Finding the Right Pet for You				Sleeping Habits				Budgeting for Your Pet			
	Gender	P/F	# of Steps	Assistance	Rating	P/F	# of Steps	Assistance	Rating	P/F	# of Steps	Assistance	Rating	P/F	# of Steps	Assistance	Rating
BT	F	Pass	4	No	1	Pass	8	No	3	Pass	4	No	1	Pass	2	No	1
CC	F	Failed at first, but passed during post-task questions	5	No	1	Pass	4	No	3	Pass	3	No	1	Fail, went to Pet Care and then challenges during post-task questions	4	No	3
DV	F	Pass	3	No	2	Pass	3	No	5	Pass	4	No	6	Pass	2	No	1
GO	F	Pass	5	No	4	Pass	2	No	2	Pass (failed at first, but talked herself through)	7	No	3	Pass (failed at first, but talked herself through)	6	No	3
LR	M	Pass	7	No	1	Fail	3	No	2	Pass	4	No	1	Fail, went to Challenges	4	No	2
SO	F	Pass	4	No	1	Fail	4	Yes	1	Fail	7	Yes	1	Pass	7	Yes	1
TD	F	Pass	3	No	4	Pass	7	No	2	Pass, some struggle	13	No	6	Pass	4	No	1
Averages			4.428571429		2		4.428571429		2.571428571		6		2.714285714		4.142857143		1.714285714