

Mobile Software

Design and Development

2021/2022

PetHub

DESIGN DOCUMENTATION

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GitHub: <https://github.com/msd-d/PetHub>

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Strategy

Product Objectives

In order to ensure that the application to be developed will be viable, different goals are set, the competitors are analysed, and the user needs are established. This is also key information for stakeholders interested in the development of PetHub.

Financial goals

The cost of maintaining the application will be covered by ads and the profits will be generated by users paying to promote their animals. The home page will favor promoted animals over regular animals. This will be done to make it possible for users to pay money to have their animal post be shown to a wider audience.

Business goals

The goal of the business is to provide an extensive platform for individuals and shelters to list their pets or other animals for adoption. The platform's primary goal is to make animal adoption easy and reliable for your everyday person, regardless if they're interacting with a private person or a business dealing with animal shelters.

Product Overview

The app will be a platform for adopting animals. It will function as a sort of bulletin board, where animal shelters and individuals can put up animals for adoption, by creating posts for others to read. The app will not include communication, rather, posts will include information on how to contact the owner of the pet, such as a phone number or an email.

Competitors

The primary competitors are existing mobile apps providing their users with an adoption service through their mobile devices. The competitors in Denmark are almost non-existent right now because none of them have any mobile apps, the competitors do have websites where you can browse pets. Websites as of right now are not seen as a direct competitor.

The Danish competitors are Dyrenes beskyttelse, Dyreværnet and Internat-dyr. If PetHub is going to expand its market to the United States, the competitor would be Petfinder. Petfinder has one more feature than Pethub. The feature is a matching system. The Matching system is able to match new pets after your criteria you have specified earlier and you would get a notification about a new pet matching your criteria on your phone when the pet is put up for adoption on Petfinder. Pethub, as of this moment, would not have this matching feature. Pethub does have a saved search feature. The saved search feature can almost compete with their matching system, you would just have to manually open the app and press on the saved search, to see if there are any new pets. Pethub has another feature that Petfinder does not have. The feature is that a private person can put a pet up for adoption.

User Needs

To create a streamlined flow through the application, research is done on how users will be interacting with the app. It is therefore important to establish a target audience for the application. Personas will be set up to create scenarios for reference points for design decisions as well as isolate specific user needs such as accessibility.

Needs & goals

PetHub aims to fulfil the need of wanting to adopt a pet, by making all animals up for adoption readily available through one platform. It could be a family wanting to adopt a puppy, an elderly wanting to adopt a cat or anyone else who would want to adopt a pet. It also aims to make it easier to put an animal up for adoption, e.g. if you are moving and your new place does not allow pets, or it could be a shelter wanting to be more visible for people and not wanting to keep its website updated.

Through the platform, it should be possible to search for animals up for adoption in specific areas, by race and breed, or by known shelters or people giving up their animal for adoption. PetHub should make it easier to adopt an animal, by providing all the necessary information about a specific animal and how to get in contact with the existing owner. A user should be able to use advanced filters, to make their search for their new furry friend even less troublesome.

User Research

Two different kinds of users will be using the PetHub platform; private persons and shelters. The private persons can be split into two groups; those who wish to adopt an animal, and those who wish to put their animal up for adoption. This means the platform will be used in two different ways; to adopt an animal and to put an animal up for adoption.

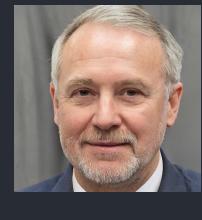
A person wanting to adopt an animal might not want to comb through all available adoption or shelter websites to find the perfect match, which is why it should be possible for this kind of user to make highly customisable search queries, to filter away all the unnecessary information.

A person wanting to put up their animal for adoption might not want to give their pet to a shelter, or a shelter might not want to keep a website to have information about animals they house. These kinds of users should be able, with ease, to put an animal up for adoption with all necessary information for people looking to adopt an animal, e.g. age, race, and health.

Personas

Persona #1	
Name	Peter Hansen
Age	32
Quote	"Our website never gets updated. I want it to be easier to find homes for the animals."
Occupation	Animal shelter employee
Interests	He is interested in making it easier to find homes for their animals, to ensure better flow in the shelter.
Family	A wife, 2 daughters, and a dog
Technical profile	He uses Facebook and checks his mail daily. He feels comfortable with technology and often downloads new apps for general purposes.

Persona #2



Name	Henrik Sørensen
Age	67
Quote	"I want to find an old dog since I don't have the energy to train a puppy"
Occupation	Retired
Interests	He is interested in finding an old dog that needs a new home, as a new puppy would be too much work for him.
Family	4 kids, and 6 grandkids
Technical profile	He can barely use his iPhone. He regularly gets help from the grandkids. He isn't comfortable with technology in general.

Persona #3



Name	Lone Karen Stenstrup
Age	71
Quote	"My kids moved out a while ago and my husband and I are starting to feel lonely in our big house"
Occupation	Retired
Interests	She likes to work in her garden and takes good care of the wildlife that visits it.
Family	A husband, 2 kids, 3 grandkids
Technical profile	She plays Candy Crush daily on her iPhone. Love to facetime her grandkids.

Scope

In order to use the same code base for both Android, IOS, and possibly web, it was chosen to use the React Native Framework and Expo to develop the application.

Features

The features for this app will be divided into two categories, functional and non-functional requirements. The functional requirements cover requirements regarding the functionality of the app, such as features and ways to use the app. The non-functional requirements cover requirements like usability, performance and the like.

Functional requirements

The main features of the app include:

- **Search** for animals using words, tags and filters. The app will give feedback, suggestions or autocorrects for the user's typing
 - **Advanced** and **Simple filters** will be available to help the user search
 - **Save a filter** with the current search and filter options
- **Post** advert of an animal
- Access **Settings** to manage user account, saved filters and general settings
- **Browse** the content feed of animals
- **View animal profile** to see further information about the animal
- **View user profile** to see further information about the user who posted the animal

Non-Functional requirements

These requirements do not affect how the app is used, but they affect the way the app should function. This includes:

- **A database** for storing information
- **An API** for communication between the app and the database
- **Cooperate with existing shelters through the app**, their branding could be used to attract users
- **Few views** and easily navigable

- It should take **3 steps** at most to do everything
- **User credentials are only asked for when necessary**
- **Avoid the use of keyboard** as much as possible
- At least **30 fps** while running the app

Scenarios

Based on personas, scenarios can be set up to create real life examples, showing how the application can be useful for different kinds of people.

Scenario 1:



During lunch, Peter is having a discussion with his colleagues about how the animal shelter has not had any traffic lately. He thinks it is partially because of how advertisement of the shelter is still done through newspapers, the yellow pages and not entirely digitized.

At an Animal Welfare Conference, he encounters another shelter, which has had the same experience. One of their employees tells him about PetHub and how it helped them get on people's radar.

Shortly after Peter created a profile and posted about a few of the dogs in the shelter. And within a few days, he experienced more traffic at the shelter through mails, visits, and phone calls.

Scenario 2:



A couple of times a month Henrik meets with his children to talk about life and have a nice dinner or lunch. At one dinner with his daughter, Laura, and her husband, Henrik brings up the topic of wanting to adopt an older dog, so it won't be alone as he is.

Laura is touched and smiles at her father for wanting to adopt and she'll gladly help him find the right pet. After dinner, Henrik gets help looking through the App store on his phone, as he is not so tech-savvy.

Shortly after he finds PetHub, an app with easy options for browsing dogs looking to be adopted. With the help of his daughter, he's able to filter the listings for older dogs needing a new home.

Scenario 3:



As their last child moved out 5 years ago, Lone and her husband have been feeling lonely in their big house lately.

Lone's husband suggested that they should adopt a dog to keep them company, and with their large garden, it has plenty of open space to play freely.

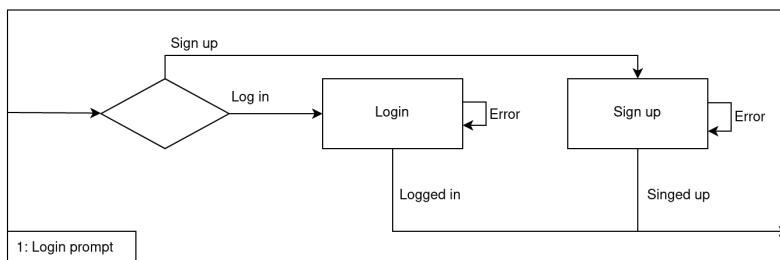
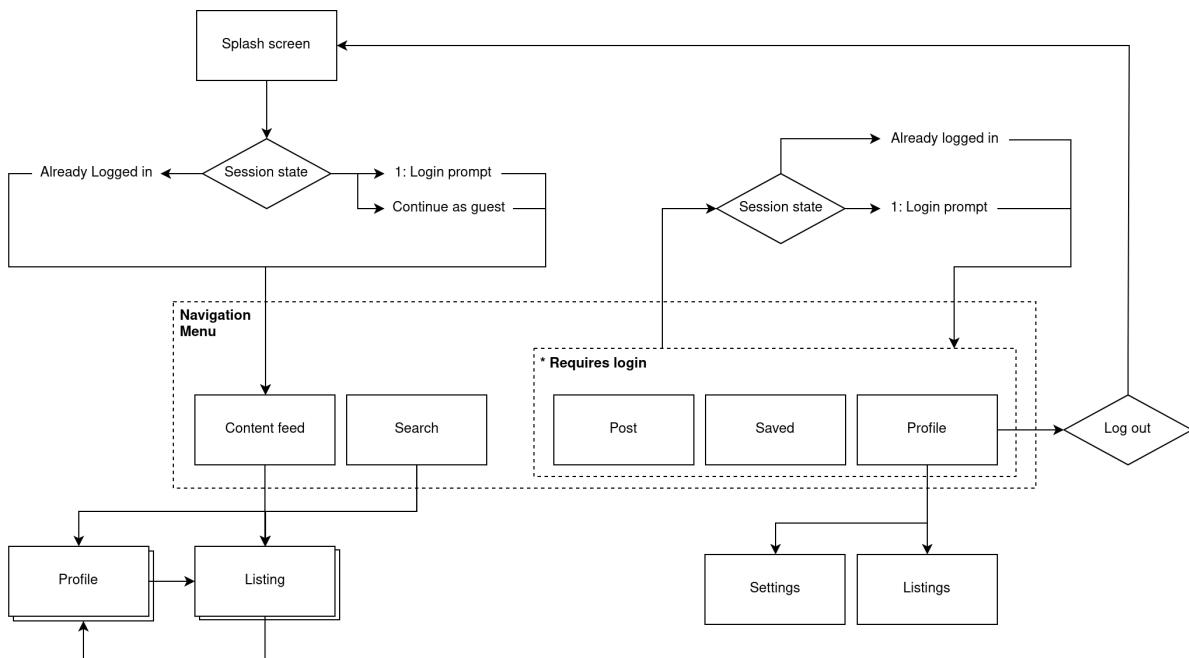
Since Lone is familiar with using her smartphone, she's been tasked with finding an option for a shelter she and her husband can visit. She decides to check the play store to see if there is something that can help her and her husband find a shelter with a dog that would fit them.

After finding and installing PetHub, Lone and her husband browse the app until they find a dog they both like. Through the app, they're quickly able to contact the shelter and go on with the adoption process.

Structure

Navigation model

The navigation model highlights the flow through the application as well as some of the conditions for accessing different pages. The application flow begins from the splash screen and ends with the desired feature page.

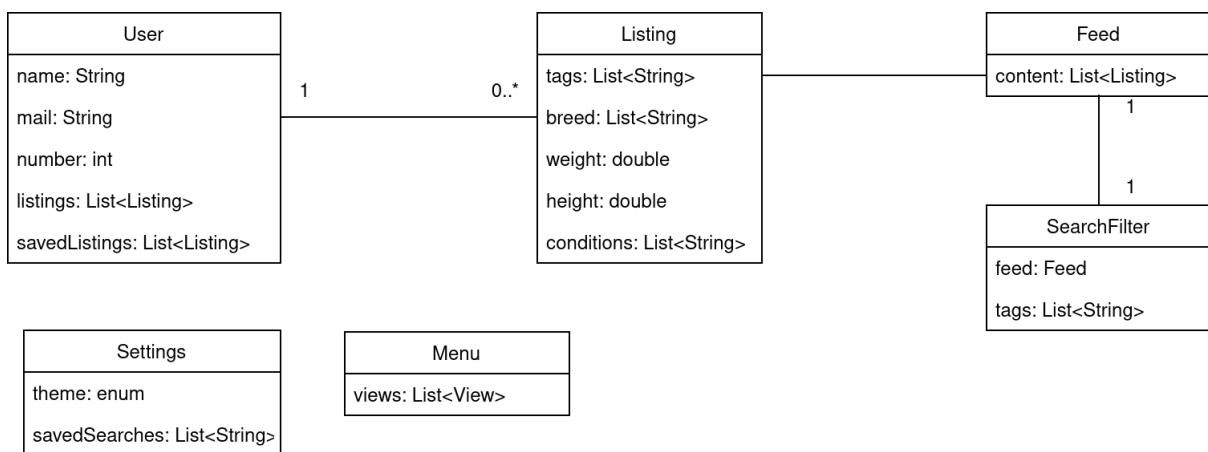


View	Description	Likely data
Splash screen	When the app is launched the logo of the app is displayed	Splash screen image.
Login prompt	A pop-up box prompting the user to log in, create an account, or continue as a guest.	Relevant form data for the user's profile.

Content feed	A feed of animal listings. Possibly curated after preferences.	Array of listings. Call to API.
Search	In this view, the user can filter the listings using a search filter. The filter can consist of base or advanced filters depending on user needs.	Different filter options for the listing data or how the listings are to be sorted based on the data.
Listing	The listing view consists of details about the animal, poster, and how the poster would like the adoption process to go.	The listing will include data about the animal being sold or given up for adoption as well as the poster.
Profile	In this view, the user's profile is displayed if the user is logged in. The profile displays Name, Picture, Mail, Phone number(if chosen to be public), and their listings. An option for signing out will be available from this view.	A user that contains Name, Picture, Mail, Phone number, and listings.
Navigation Menu	The menu is used for selecting different views.	An internal list of available views for the user to navigate or visit.
Settings	This view is used to handle Account information, general settings, and delete saved searches.	Account data, Session data(?), Theme, Saved searches.
Post	In this view, you can post an animal for adoption. You need to be signed in to access this view.	From user: Name, Picture, Mail, Phone number. Image(s), name of animal, description, location, gender, date of birth, breed(s), condition(s), measurements: weight, height, length.
Saved	If the user is signed in, they have the opportunity to save listings. In this view, the user will be able to see all their saved listings and remove unwanted listings.	Listings
Log in	Here the user can sign in. An input for username and password will be shown, as well as a "forgot password" function.	Email and password

Sign up	In this view, the user will be able to sign up. There will be input for email, password, first name and last name
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Data model



If the data was to be shared between each view in the transition model, the data model would have had more entities and relations. However, the core idea is for the application to function through one view mainly and have the other views as menus on the main view. Having the application function that way results in less data distribution since each view doesn't need specific data.

Entity	Description
User	This entity represents the users. It contains basic information and a list of their listings as well as a list of their saved listings.
Listing	This entity represents a listing of an animal. It contains a list of tags to categorize the animal. A breed based on a list of tags as strings. Weight, height and a list of conditions if any.
Feed	This entity represents the content feed. It contains a list of listings that are modified by the searchFilter.
SearchFilter	This entity represents the search filter function. It has a reference to the feed and a list of tags that it modifies/sorts the content feed based on.

Settings This entity represents the settings view of the application. It contains a selection of themes and a list of searches saved for later.

Menu This entity represents the navigational tabs of the different views.

Skeleton

* Text is represented by thin horizontal lines

Image of the different views and navigation.



Menu bar

At the bottom of every view is a menu bar that shows which part of the application you are currently on by highlighting the appropriate icon. Each icon in the menu bar can be clicked in order to navigate to either of the five main views, from which other views can be reached.

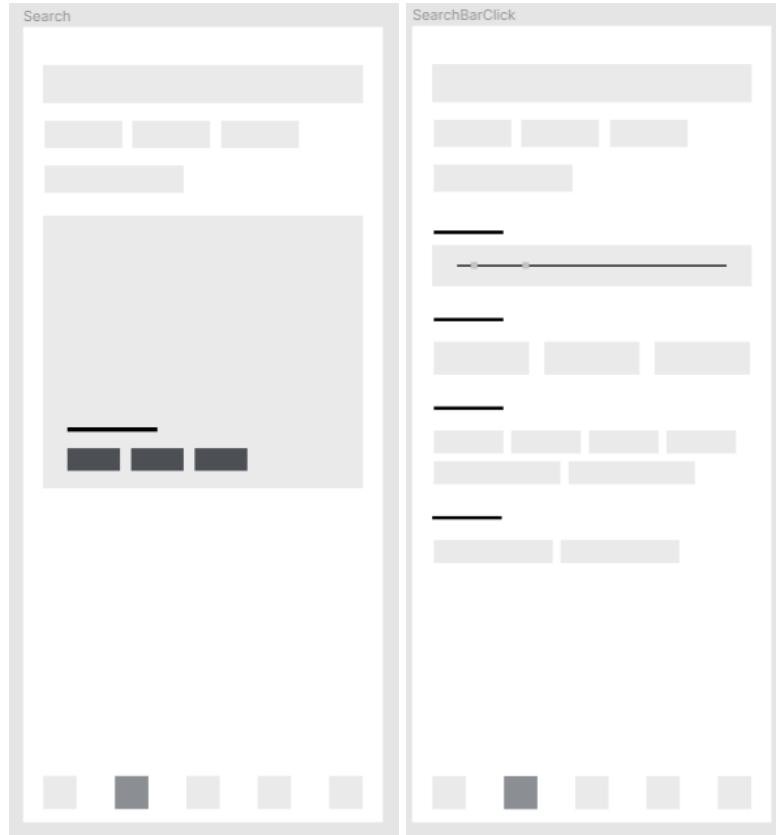
For this, multiple design principles were used. The principle of *Balance* is used by making all icons the same size. One icon is highlighted to put *emphasis* on which page you are currently on. In between the icons is *white space* to separate the elements and to give a simple overview. All pages in the menu bar are ordered from which pages are used more frequently.



Feed

The first page in the menu bar and the first shown in the app is the feed. The feed lets you browse through listings that displays a picture, the name, breed and essential information of the animal. The breed and other essential information is displayed as tags under the name. From the feed, you can click on listings in order to show them in more detail.

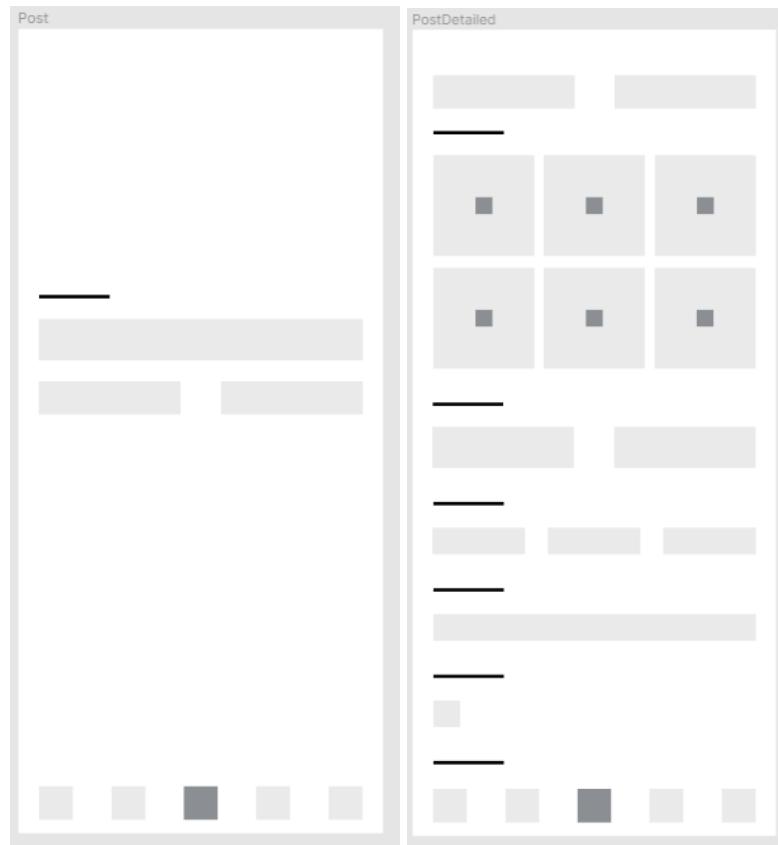
The design principles used for this page includes the principle of *balance*, by making all pictures the same size. The feed uses the *infinite axis* principle, where the user can scroll through the feed seemingly for an unlimited time. On the detailed post (picture to the right), one tag at the bottom is darker than the rest, to emphasise that it is an important piece of information about any illnesses the animal may have. Gestalt's principle on *Common region* is used to group together elements inside the picture.



Search

The second page available from the menu bar is the search view. The search view lets you filter the listings you see. Just like the feed, listings will be displayed as pictures, with name and essential information shown as tags. The listings can be clicked to show a more detailed view. The base search view displays a few essential search options, but more settings can be shown by clicking the search bar at the top. This view allows you to select breed, age, search for words, etc.

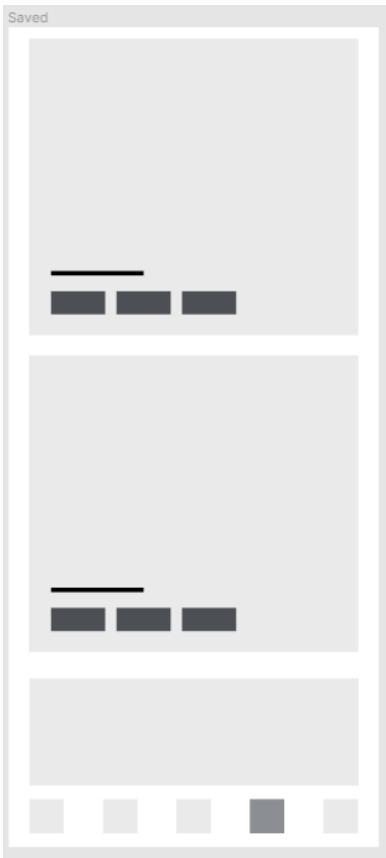
The principle of white space is used to separate the different elements. Gestalt's principle on Common region is used to group together elements inside the picture, and finally, Gestalt's design principle on Proximity is used by positioning the tags closely together to show that they are grouped together.



Post

The post view can be reached by tapping the middle icon in the menu bar. From here, you can post a new listing. The initial view displayed lets you fill in what species the listing is about (cat, dog, etc.), after which you will be redirected to the detailed post view. From here, you can upload pictures, choose gender, date of birth, name, breed and so on. You can also add tags to describe any condition/sickness the animal may have.

The design principles used for these pages include Balance, by having related elements the same size, white space to separate the different elements. Gestalt's principle on closure is used, which can be seen on the detailed post page. The pictures to upload form the shape of a simple rectangle.



Saved

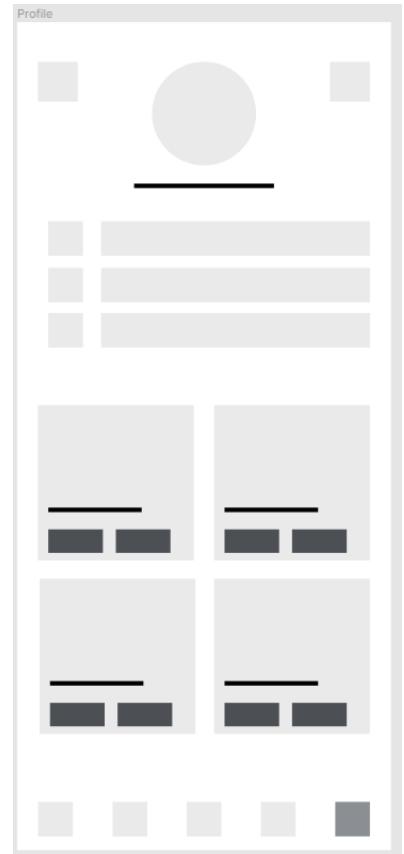
The fourth icon available in the menu bar redirects you to the saved page, from where you can find listings you have previously saved. The listings are displayed as a picture, name and essential information as tags. You can click the listings to be redirected to the full listing (from the feed view).

For the saved page, the design principles of balance and white space are used. Gestalt's principle on common region is used to group elements together, and Gestalt's principle on proximity is used to make the elements seem like they are related.

Profile

The final main page is the profile page. From the profile page, you can find your own profile, the settings, your information as well as listings you have posted.

The design principles used for the profile page include balance and white space. The elements inside the pictures are grouped together using Gestalt's principle on common region. Gestalt's principle on proximity shows that the information under the profile picture is related to each other.



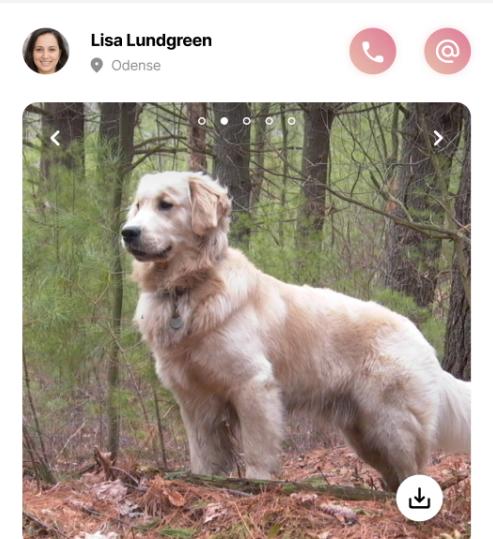
Surface

The two Hi-Fi wireframes seen below show the design style for the layout of the application. The following subsections will go somewhat in-depth with the different choices made throughout the project.

[1] is a detailed page about an animal, essentially showing everything about the animal along with the contact information for the poster.

[2] is a search page with multi-search functionality, enabling the user to search for different kinds of tags with one search bar.

[1] Detailed information about an animal
[2] Searching for tags.



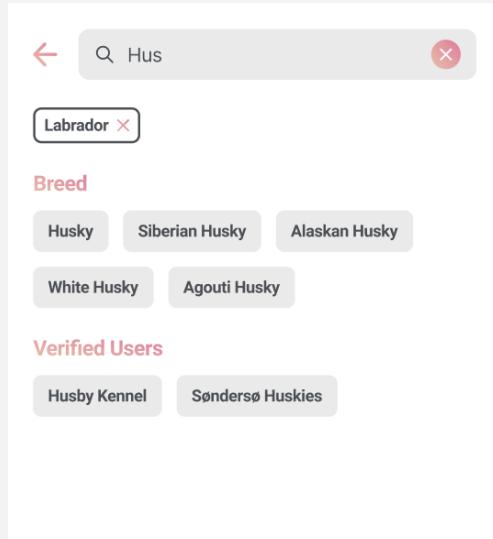
Daisy

Mixed Female 5 years old

Daisy loves people and cuddles. She loves to play and will always try to make you happy when you're feeling down. She can't wait to get a new forever home. She has hip cancer, but lives to her fullest. She loves short walks on the beach.

Breed	Golden Retriever	Labrador
Weight	28 Kg	
Height	90 cm	
Conditions	Bad hips	

[Home](#) [Search](#) [Post](#) [Saved](#) [Profile](#)



Labrador

Breed

Husky Siberian Husky Alaskan Husky
White Husky Agouti Husky

Verified Users

Husby Kennel Søndersø Huskies

[Home](#) [Search](#) [Post](#) [Saved](#) [Profile](#)

Colors

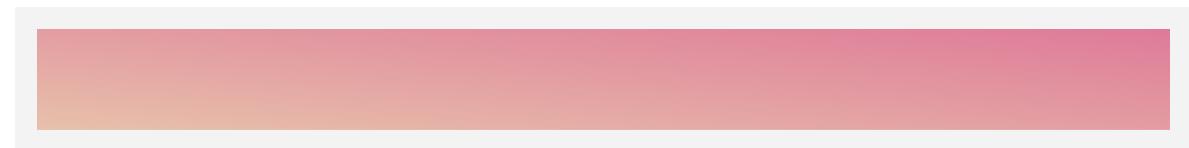
The color scheme is based on the black and white spectrum, with a gradient accent color to navigate the user through the app as well as to create a color association with the brand.

The reason for using a gradient color instead of a regular solid color is the modern, soft and friendly appeal of a gradient. The color of the gradient is supposed to be warm, family-friendly, and professional as well as be easily readable on both black and white backgrounds.

The choice of color will therefore be within the red/orange pastel spectrum.



To make the gradient appear more smooth, the linear interpolation (Lerp) starts from the bottom corner of the left side and ends at the top corner of the right side.



The scheme will make it relatively easy to create a dark theme variant, as dark themes are becoming exponentially more popular.

Font

As the text is to be displayed on a screen, a sans serif font will be chosen to make the font more clear and readable in smaller sizes. There is a wide variety of fonts that will fit the vision for a modern, clean, and family-friendly interface. The choice was between [Roboto](#) and [Inter](#), which are both dynamic variable fonts distributed by Google under licenses¹ that make them free to use commercially.

The Inter font is chosen, as it is used less commercially than Roboto, thereby making it appear more 'original'.

The application will make use of the bold and regular variant of the font in combination with font size and color to make it easier to differentiate between the layout elements.

¹ [Inter](#) is licensed under the [Open Font License](#) and [Roboto](#) is licensed under the [Apache License, Version 2.0](#).

Icons

The general idea for the icons is to have some light, soft, and outlined icons with a modern and minimal look. After doing research, the icon pack candidates are: Material.io, ionicons, and Akar icons. The choice between the different icon packs is tough as they all have their own qualities. They're all free for commercial use and contain the icons the applications need.

The icons from Google's [material.io](#) have a wide selection of icons in different styles: Outlined, Filled, Rounded, Sharp, and Two tone. 'Rounded' is the one that looks the most promising, as it is soft and friendly while still keeping the professional look. The 'Rounded' style will also fit nicely with circles and curves in general, which will be necessary for the layout.

[**Akar icons**](#) have the ideal aesthetic look that fits the application's theme perfectly. It is a small one-man project and therefore contains fewer icons but more original icons.

[**Ionicons**](#) comes in-box with expo and is therefore very easy to set up and looks decent.

We will be using ionicons for the applications, as akar icons does not have an easy implementation for react native components.

Layout

A lot of reference interfaces are used to create a familiar, yet new and fresh user experience. The most relevant of these were: TikTok, Instagram, Tinder, Snapchat, and Brave.

The design for the menu is heavily inspired by TikTok and Instagram, as they both are made for viewing and posting content. The tab placement was recreated based on the references to make the menu more intuitive for new users to navigate. The accent color is used to show the currently selected tab.

The layout uses a lot of whitespace and precise margins to create a professional and organized look. The different elements are structured so that the ones next to each other have a similar purpose.

To convey the family-friendly, soft, and modern look, the layout style will use a lot of curves for its elements. Curves make elements clearer and more readable, as the human eye is more conditioned to round objects rather than square ones².

It is, however, important that the curves stay consistent throughout the design. Having a fully curved button displayed in the accent color is a great idea to signal to the user that the element is clickable. But having a fully curved search bar displayed in the accent color is not a great idea, as the user might interpret the text field as a button. This can lead to an unusable app which the design aims to avoid.

² <https://uxmovement.com/thinking/why-rounded-corners-are-easier-on-the-eyes/>