



KhattTech UI/UX

Arabic Handwritten Recognition Mobile
Application

Sondos Aabed

March.2025 – July.2025

Tools:

Figma, Google Forms, Python, Github, Miro, Whimsical

Project Overview

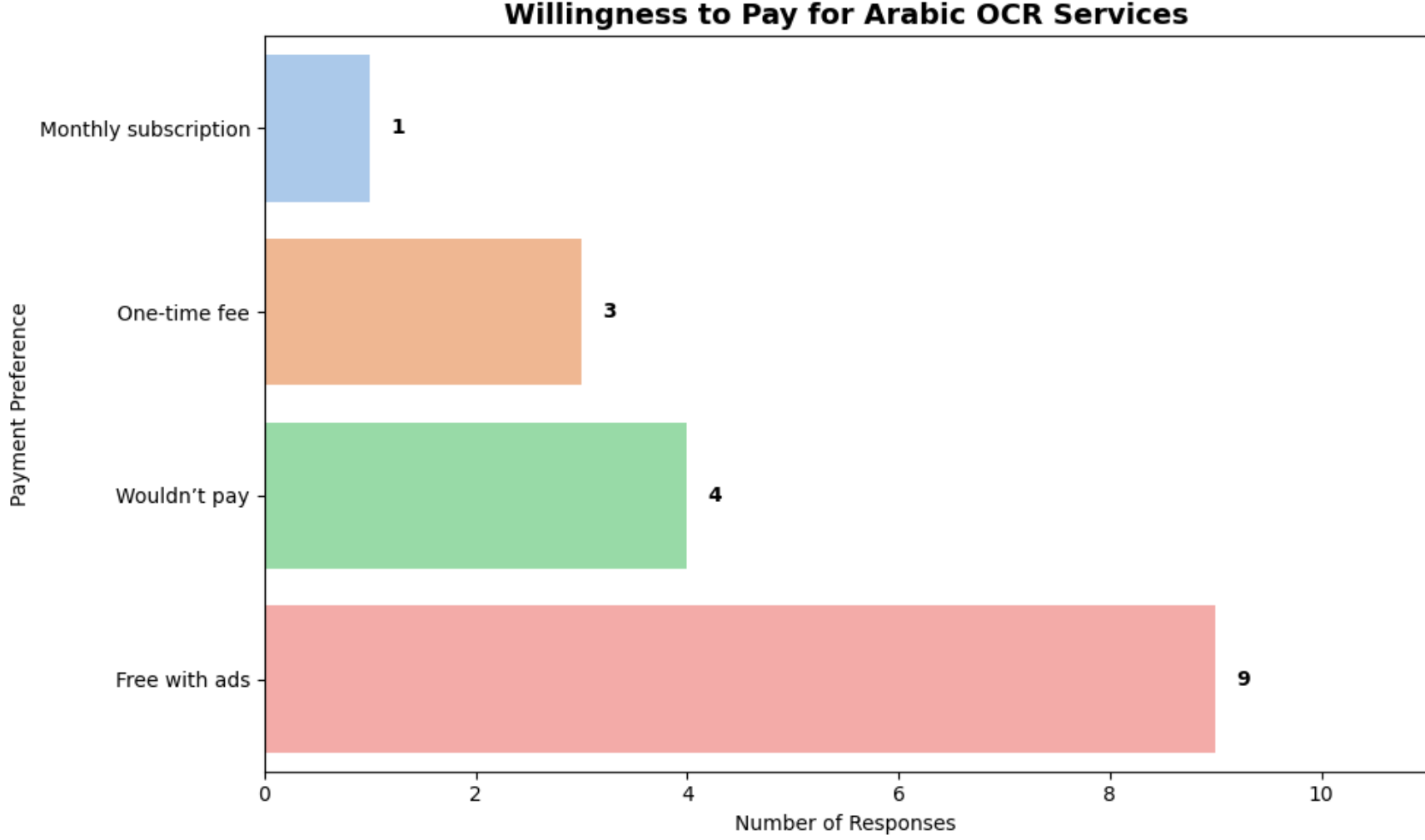
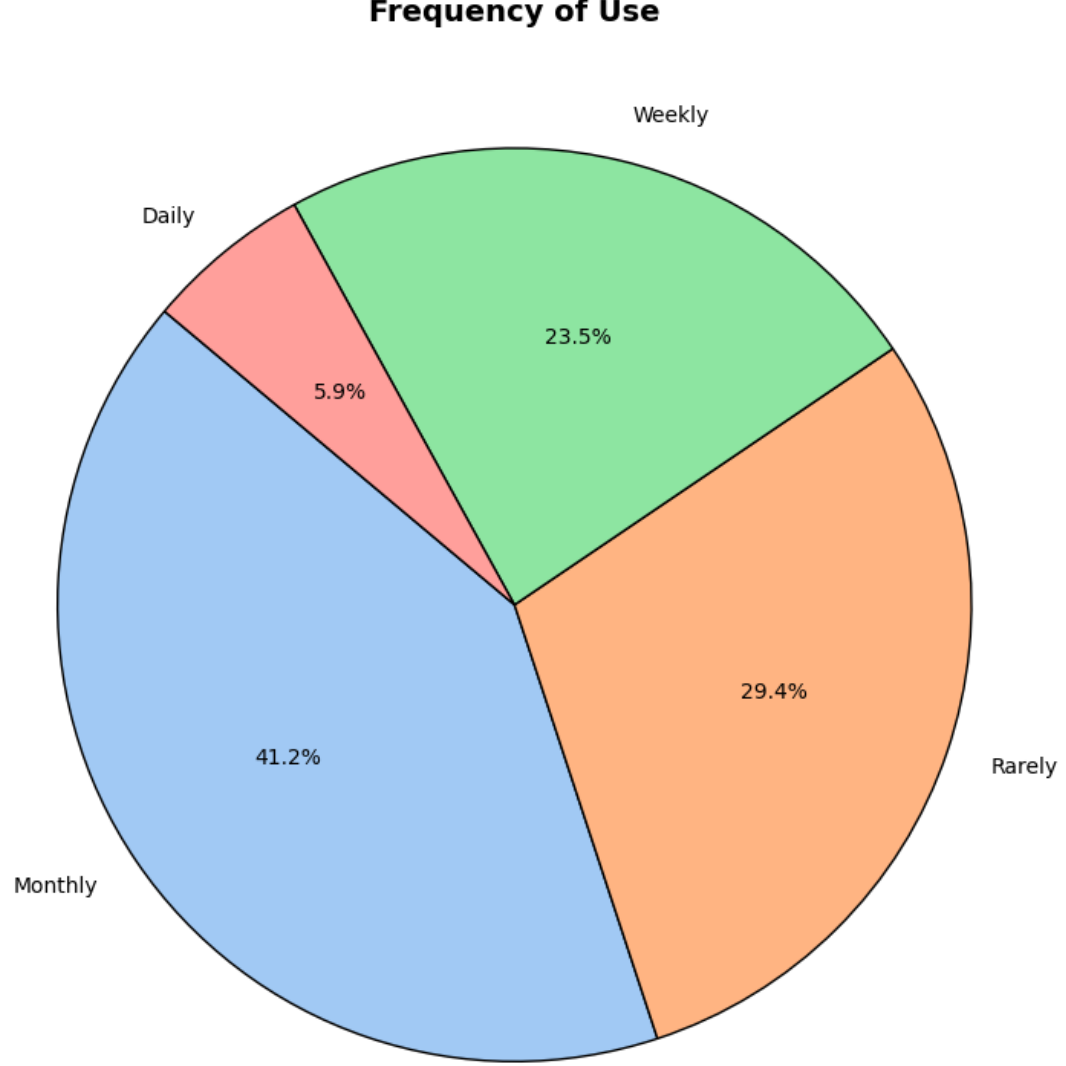
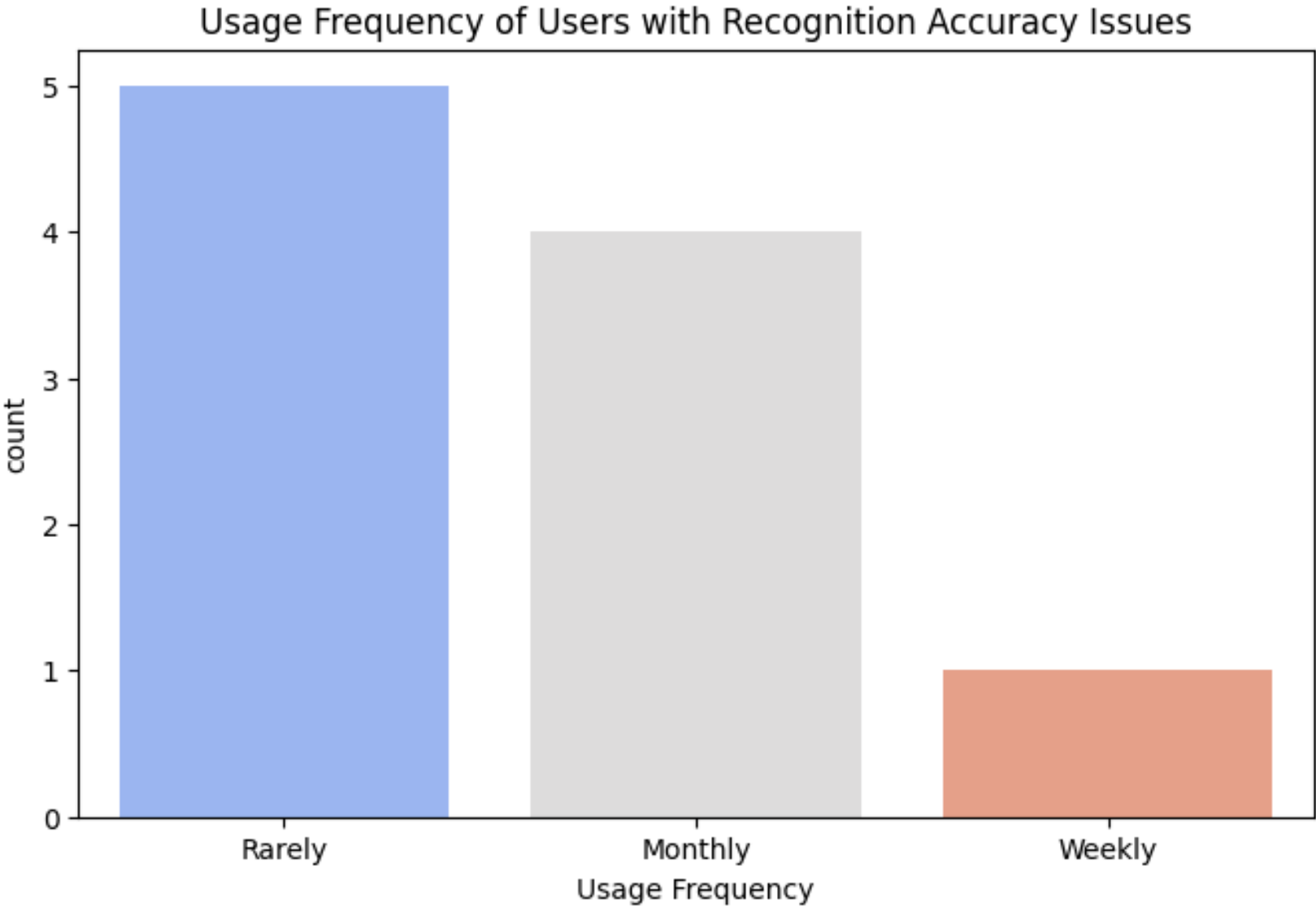
Arabic handwritten recognition holds exciting promise, but current tools are falling short of user expectations.

Through this research, I discovered that frequent users, ranging from students to professionals, are frustrated by poor accuracy, limited support for diverse handwriting styles, and lack of flexible export options. Over half of respondents reported dissatisfaction, making it clear that usability gaps are getting in the way of real-world adoption.

At the same time, there's strong interest in mobile solutions, especially free, ad-supported apps. These insights uncovered not just pain points, but a valuable opportunity to innovate, enhance accessibility, and create a product that truly aligns with users' needs and behaviors.



Discovery: Research & Analysis



Discovery Process

To understand how users experience Arabic handwritten recognition tools, I used a mixed-methods approach combining both **qualitative and quantitative data**.

I conducted 1-on-1 interviews with **5 participants** from Palestine, representing a range of backgrounds and genders:

- 1 Educator (Teacher/Professor)
- 2 Students
- 1 Documentation & Archiving Professional
- 1 General User

In parallel, I distributed surveys to **17 participants** to gather broader insights across different backgrounds based on Palestine mainly. Where I utilized LinkedIn platform is used for reach different audiences backgrounds.

This approach allowed me to look into personal experiences while also **validating patterns** at scale.



Data Analysis, Python

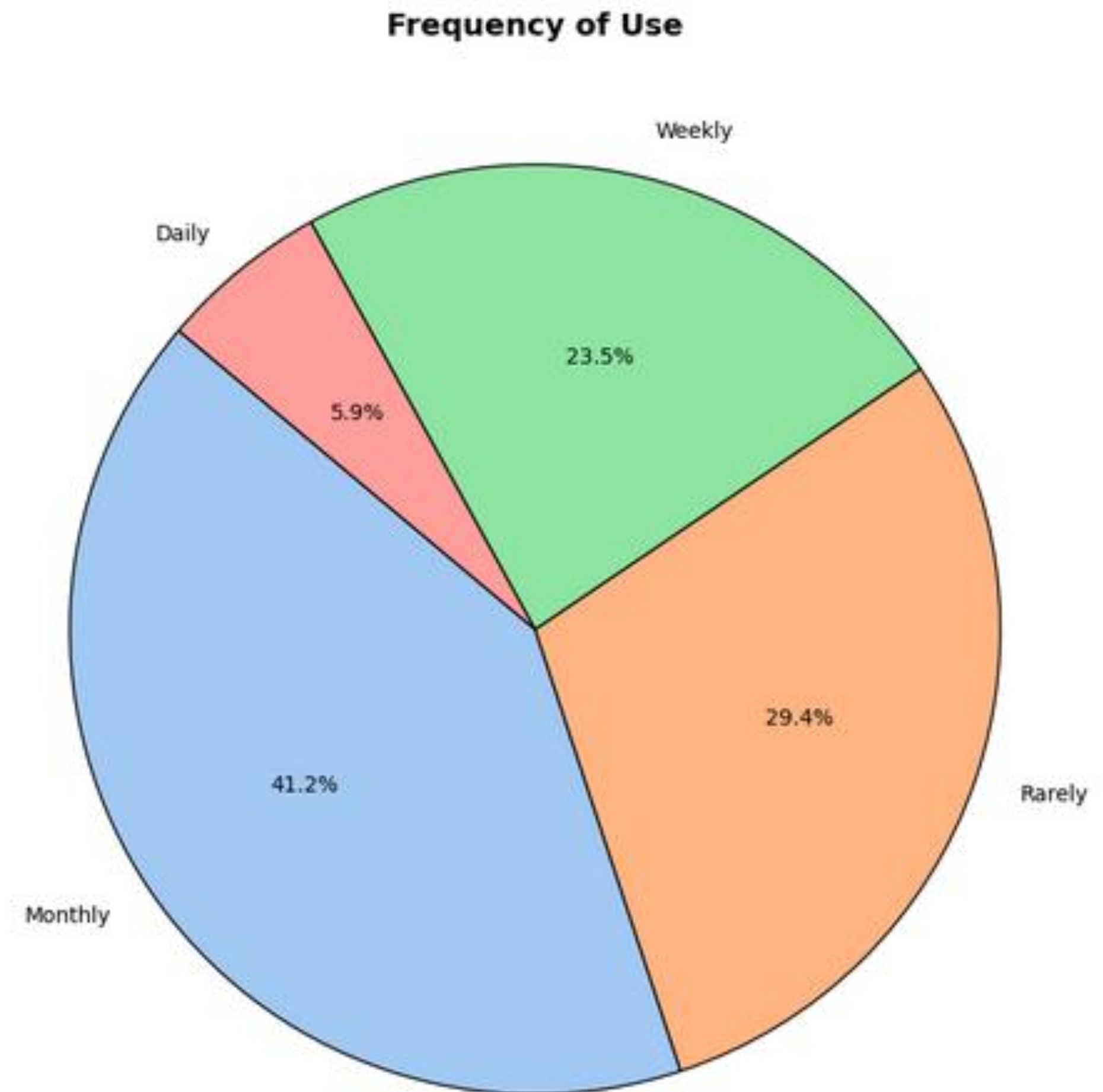
To analyze the survey data, I utilized Python for cleaning, exploring, and visualizing the responses. Using libraries like Pandas, Matplotlib, and Seaborn, I generated visual insights and answered key research questions that informed the overall UX direction.

- Visualizing user satisfaction levels and tool preferences
- Identifying top challenges like recognition accuracy
- Exploring trends in format preferences and monetization models

🔍 Want to dive into the analysis? [Github Link](#)

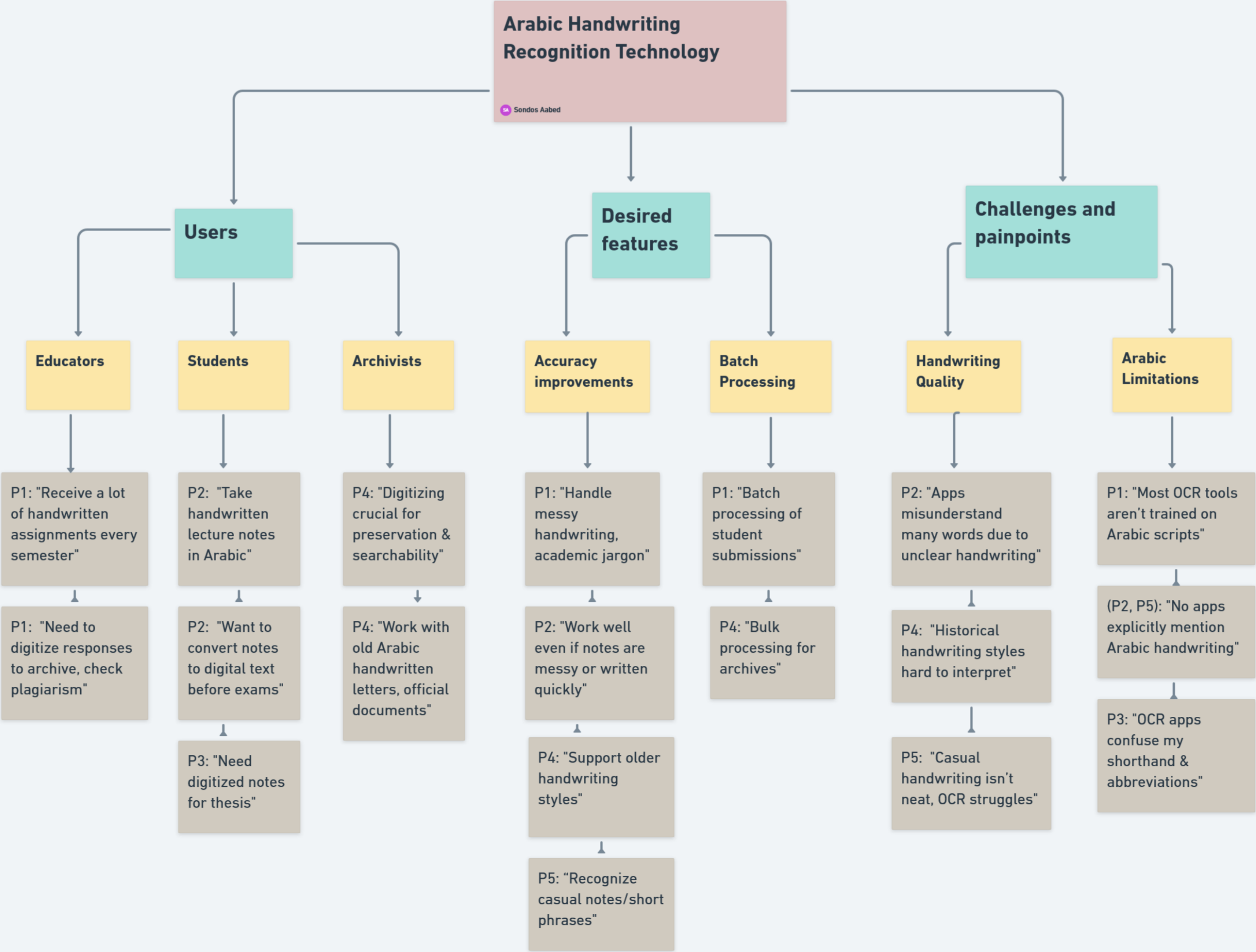
```
In [63]: # Get value counts
freq_counts = df["Usage Frequency"].value_counts()
colors = sns.color_palette('pastel')[0:len(freq_counts)]

# Plot
plt.figure(figsize=(8, 8))
plt.pie(freq_counts, labels=freq_counts.index, colors=colors, autopct='%1.1f%%', startangle=148, wedgeprops={'edgecolor': 'black'})
plt.title('Frequency of Use', fontsize=14, fontweight='bold')
plt.tight_layout()
plt.show()
```



Affinity Diagram

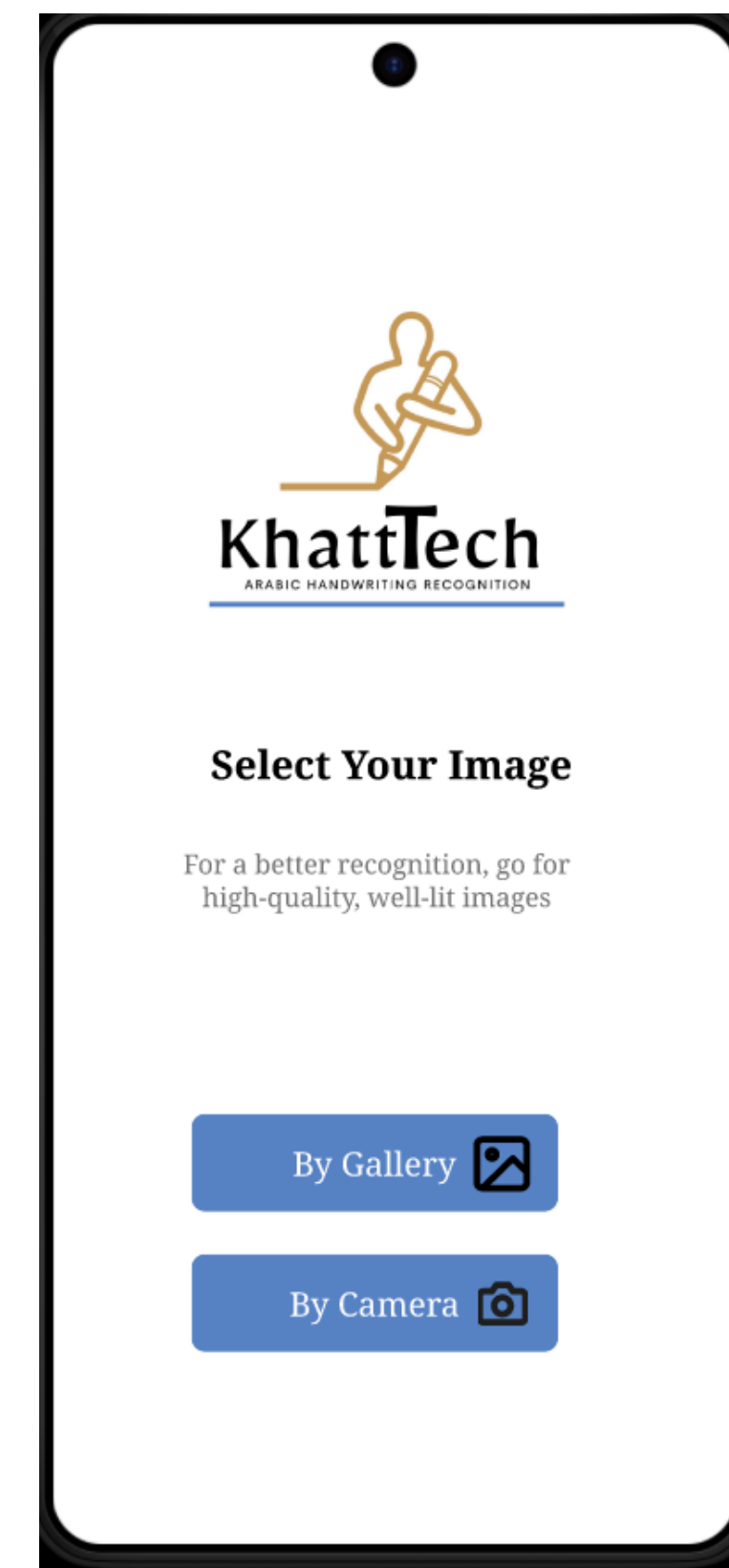
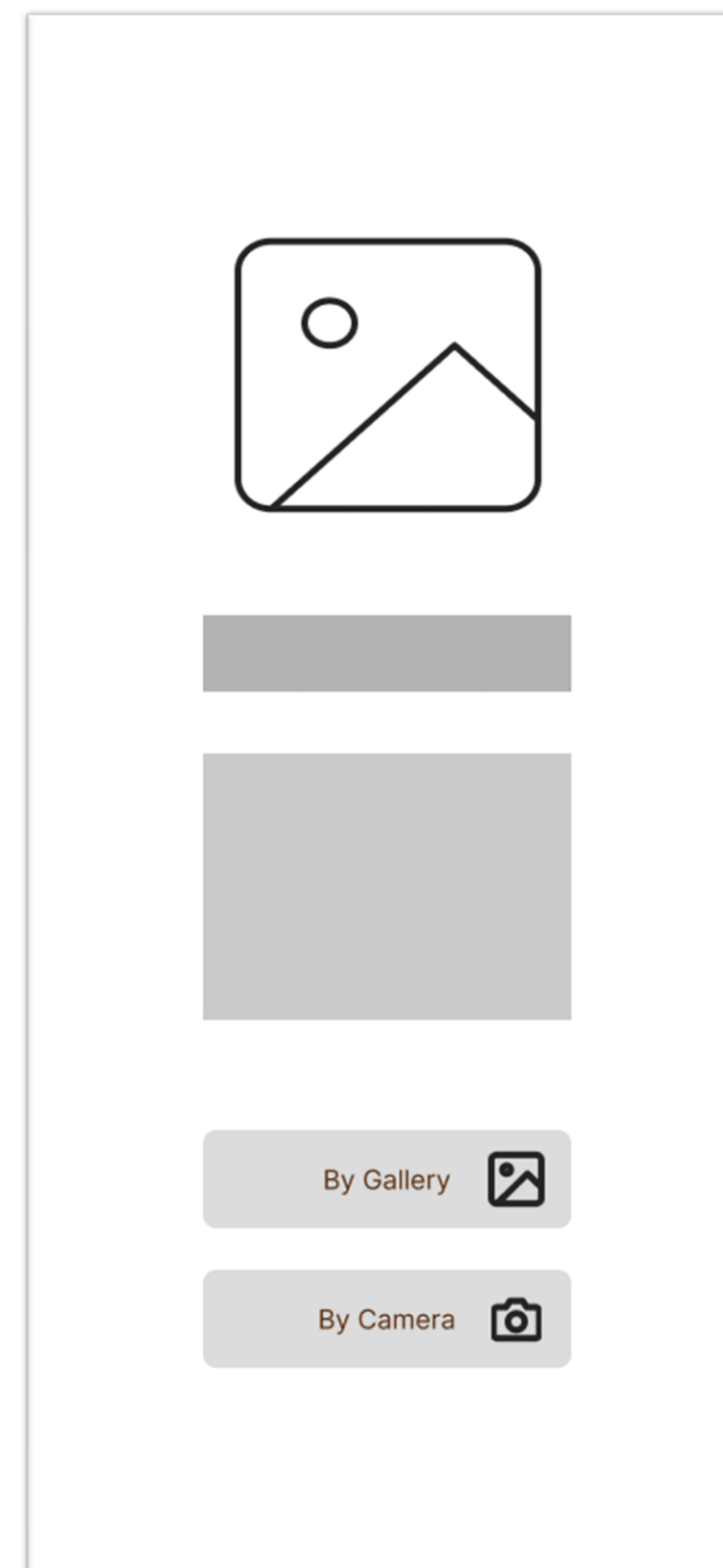
This is all the qualitative data collected in form of affinity diagram where I group data based on themes in common.



💡 Key Findings

- **82%** of users are open to using a **mobile app**, while only **12%** prefer **web-based tools**.
- The top challenge is **poor recognition accuracy**, with **53%** expressing dissatisfaction.
- Users want:
 - **Higher recognition accuracy**
 - **Editable extracted text**
 - **Multi-format export options**
- Most prefer a **free version with ads**, though a small segment is open to a **monthly subscription**.
- While privacy concerns were not dominant, they did influence how users prefer to **pay or subscribe**.

Design: Concepts & Sketching



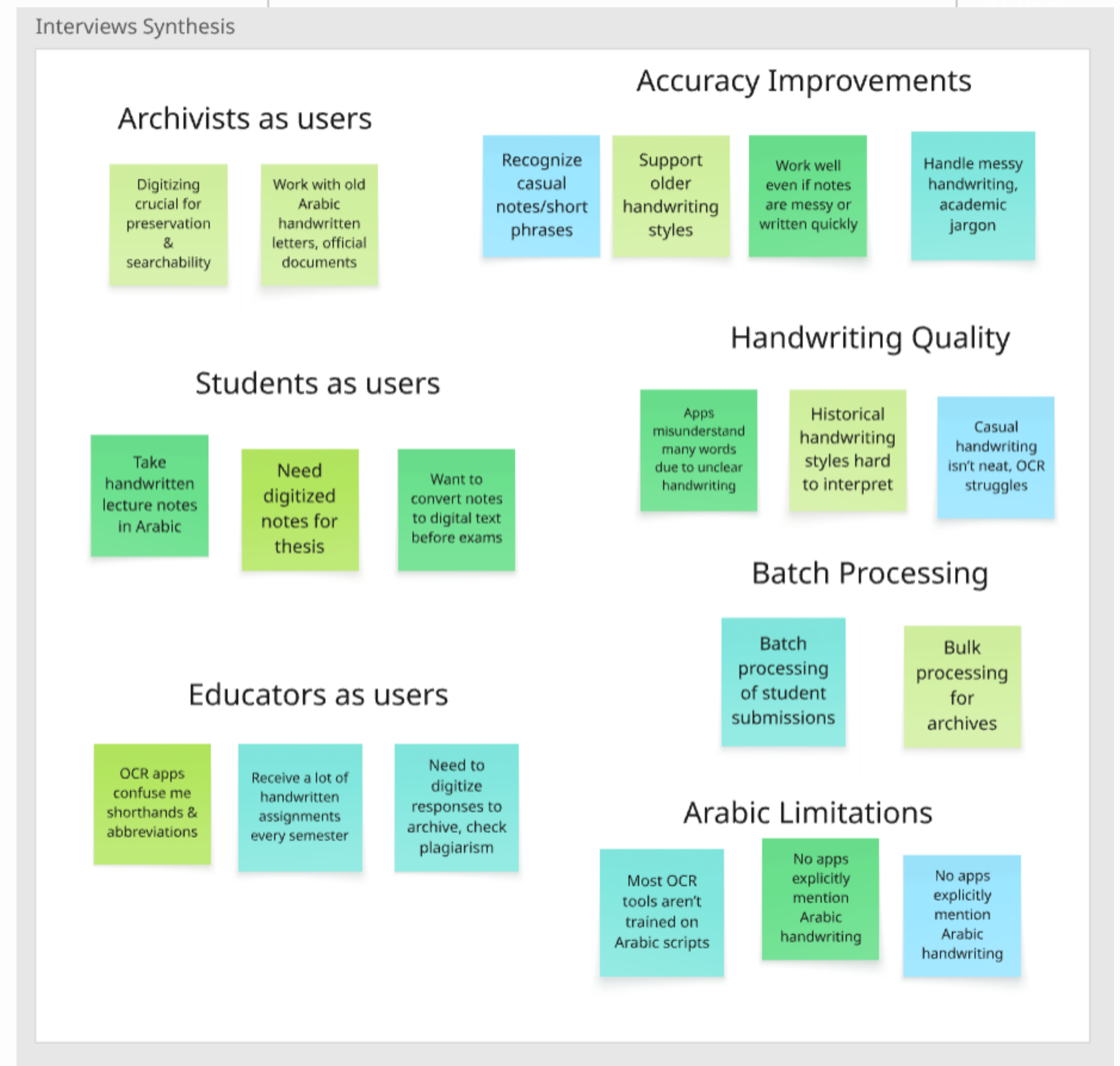
✓ Interviews Synthesis

To synthesize insights from the interviews, I mapped out all collected notes in a digital space (using Miro) to visually organize and group similar comments, behaviors, and needs across participants.

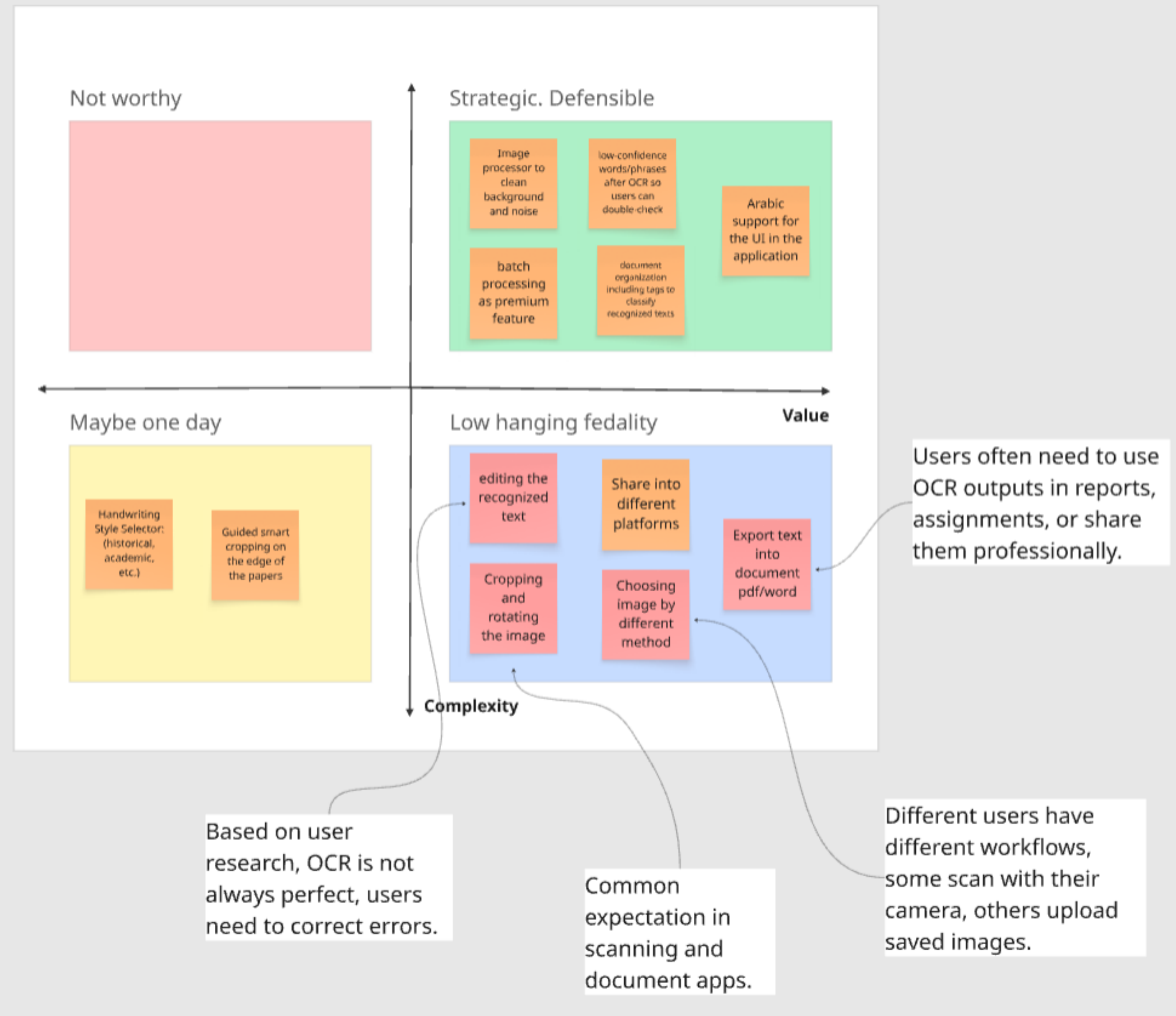
This helped me identify patterns in how users interact with handwritten recognition tools, what they struggle with, and what they expect.

Where this served as directions for solution-building.

🔍 Want to dive into the synthesis? [Miro Link](#)



Features Prioritization



Features Prioritization

After synthesizing the interview data, I then produced features that I prioritized based on how frequently they appeared across participants, the urgency expressed around them, and their potential to improve user experience.



Want to dive into the prioritization? [Miro Link](#)

Sketches

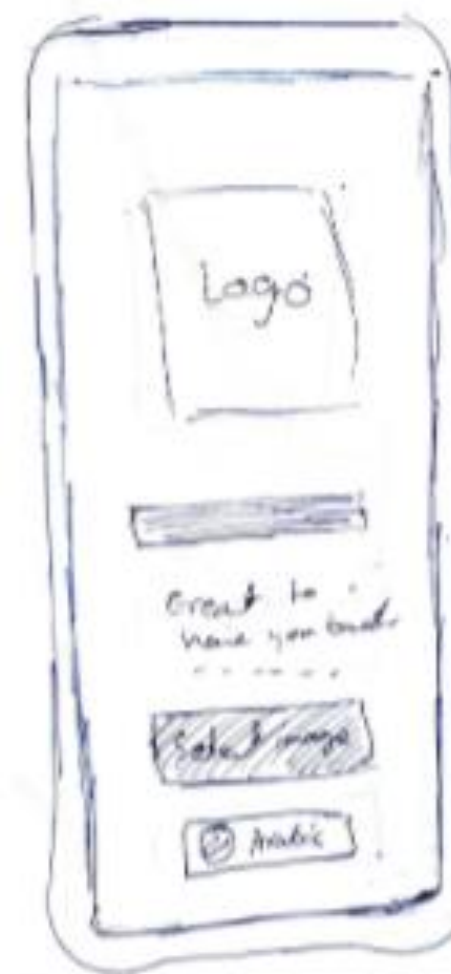
To begin exploring solutions, I sketched the prioritized features using pen and paper.

These shown low-fidelity sketches helped visualize how the features could function and appear within a real interface.

The sketches were directly informed by the insights gathered during research and organized through a prioritization matrix.

 Want to dive into the Sketched? [Miro Link](#)

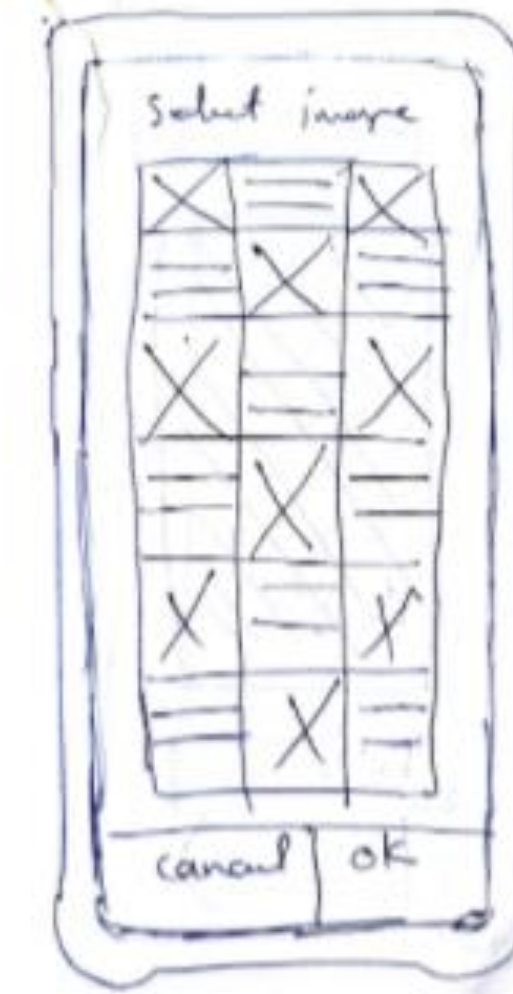
This is the main page, welcomes the user and asks them to chose the Image



Tells the user to ensure good quality and light of the image, also give them choice (Gallery, Camera)



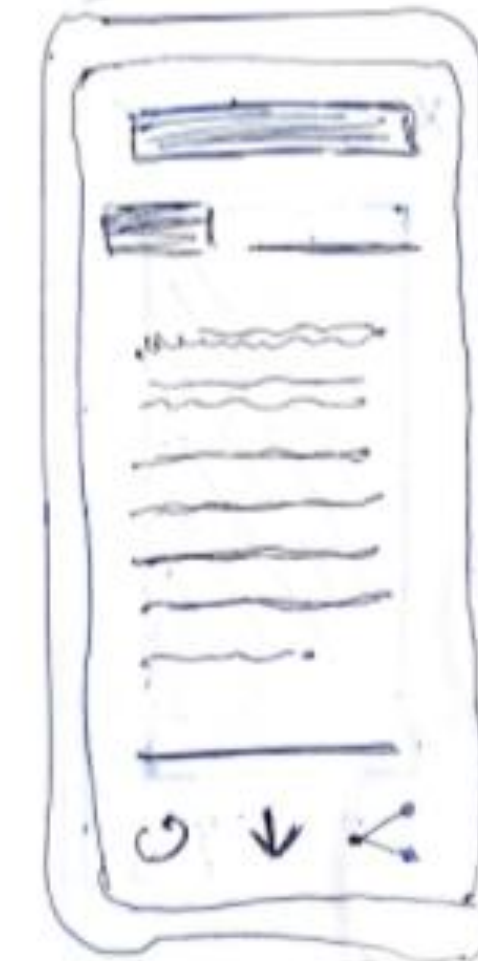
Shows the user their gallery and let them get back to chose from Camera



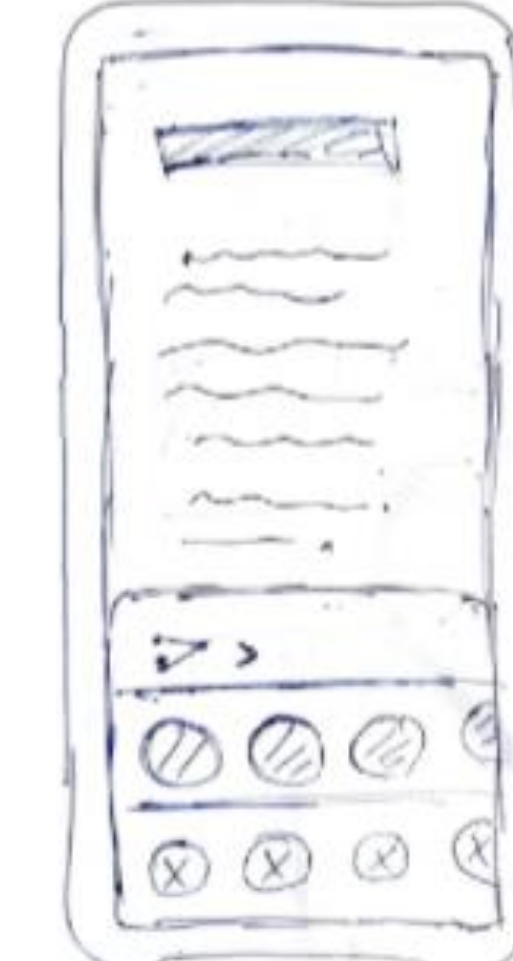
Shows the user their Selected Image and let them proceed or edit the selected image



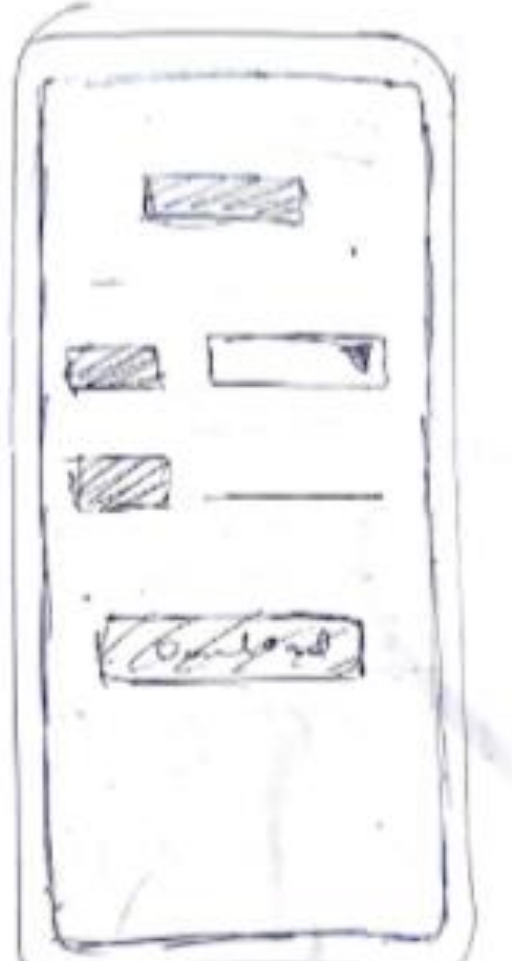
The user is able to edit The selected image, whether by rotating or by resizing the image



Shows the user the recognized text, with options to share, download, rety



The user is able to share the text into diffrent platforms



The user is able to download the text as document with various extensions, or they could go back to main

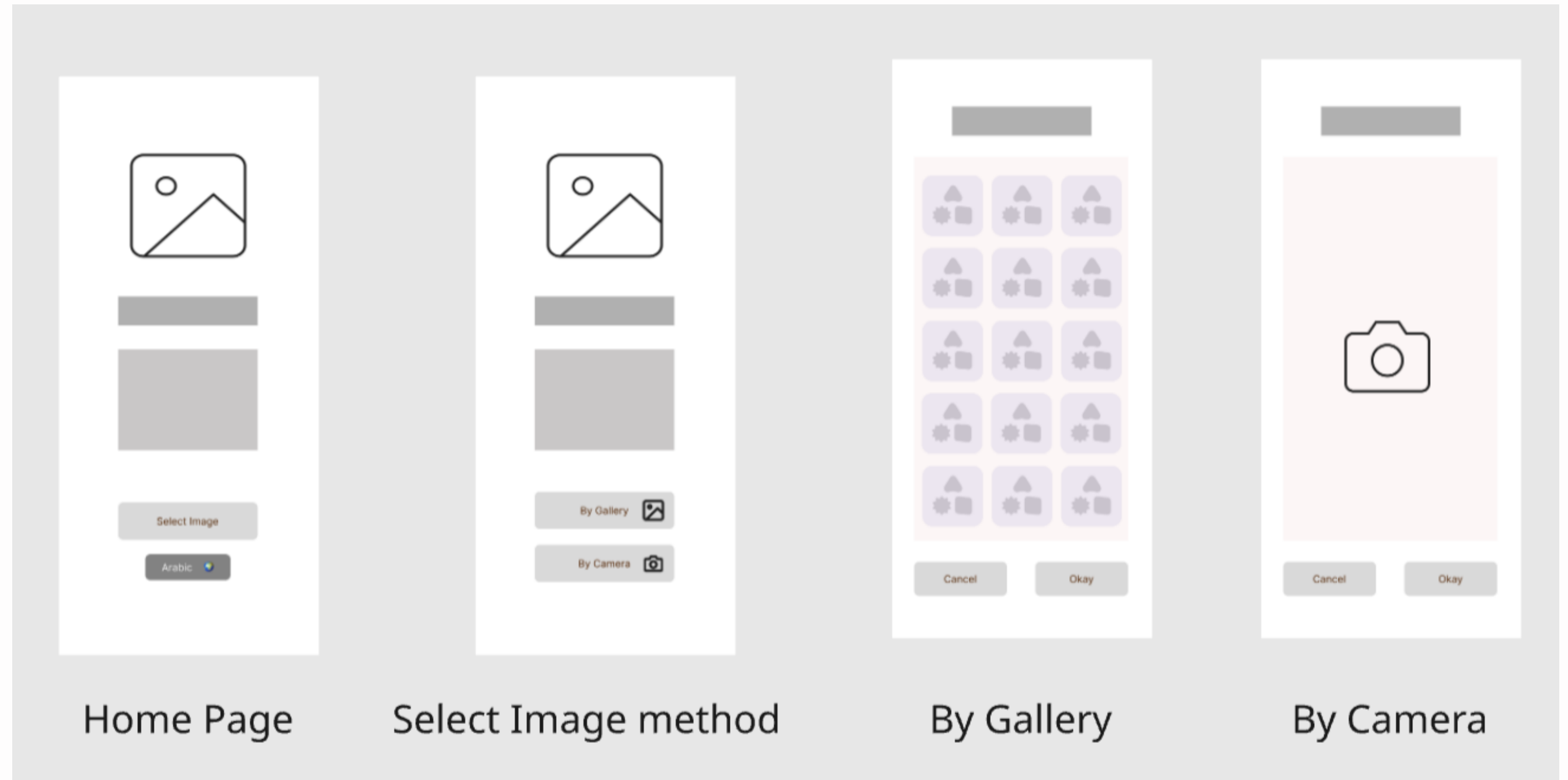
Low Fidelity Design – Iteration 1

This first iteration translates prioritized features into low-fidelity screens designed in Figma.

The wireframes explore layout and core interactions, bringing research insights into an early visual form.

 Want to have a look ?

[Figma Prototype Link](#)

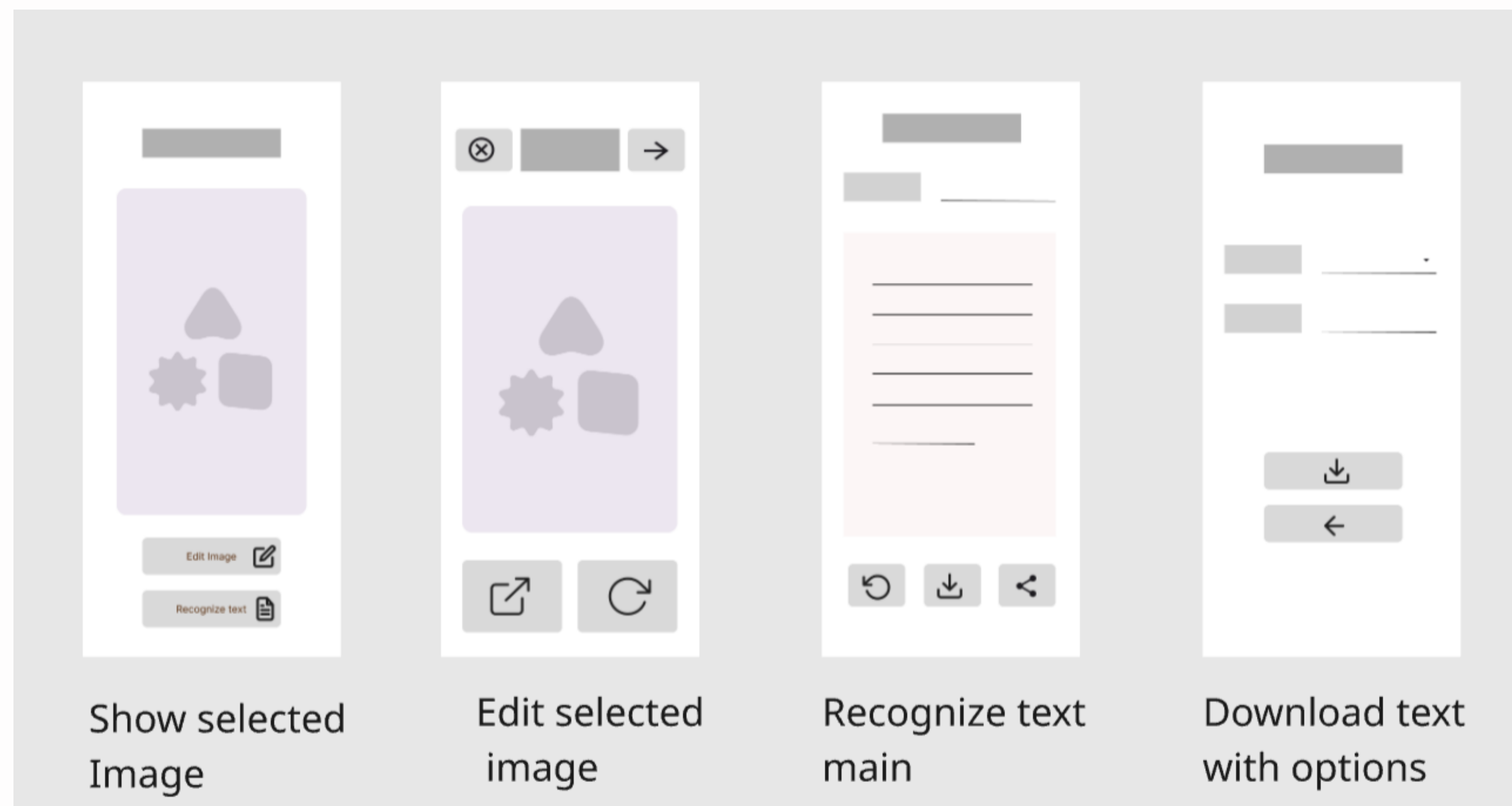


Low Fidelity Design – Iteration 1, Cont.

These additional screens complete the user flow, capturing key tasks and interactions aligned with user needs from the research phase.

 Want to have a look?

[Figma Prototype Link](#)



Usability moderated session

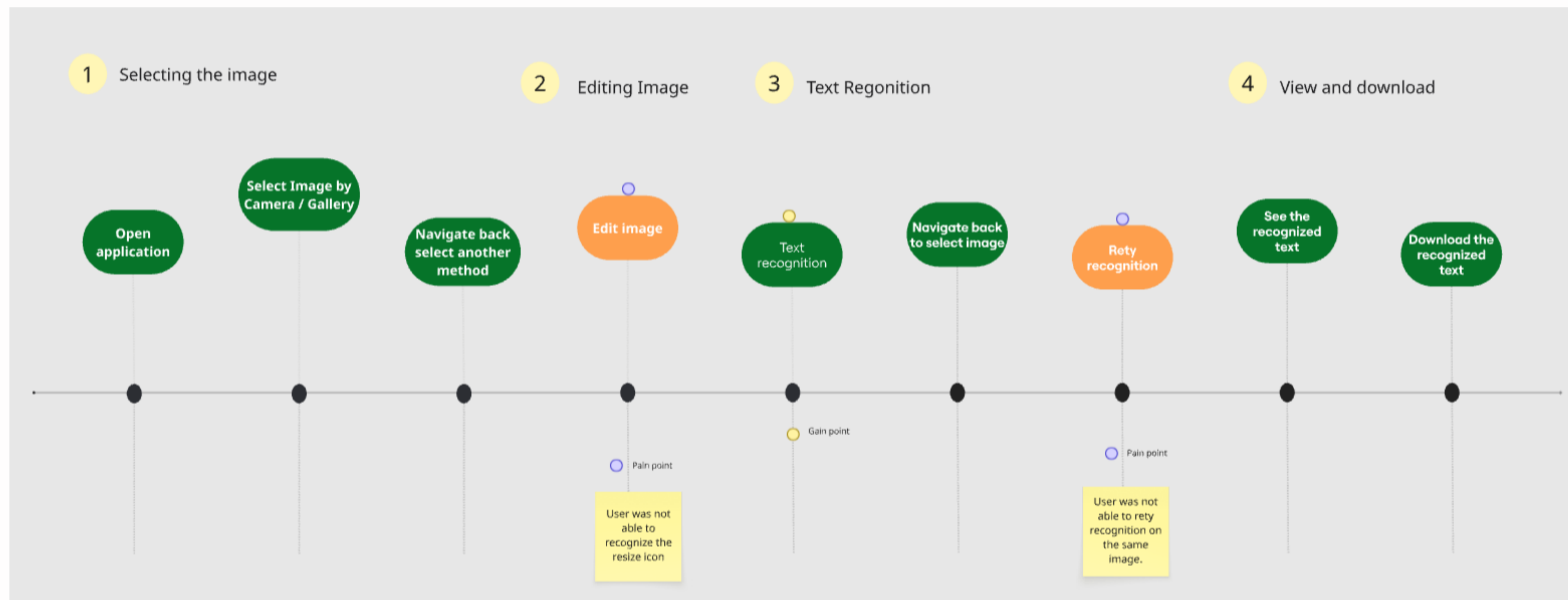
To evaluate the first iteration, I conducted a moderated usability session with a student matching one of our target personas.

The user was asked to complete key tasks using the Figma prototype.

Observations and feedback from the session highlighted usability issues and improvement areas.

 Want to have a look? [Figma Link](#)

See below usability flow map and the green highlight successful, while the orange highlight challenge with solution.



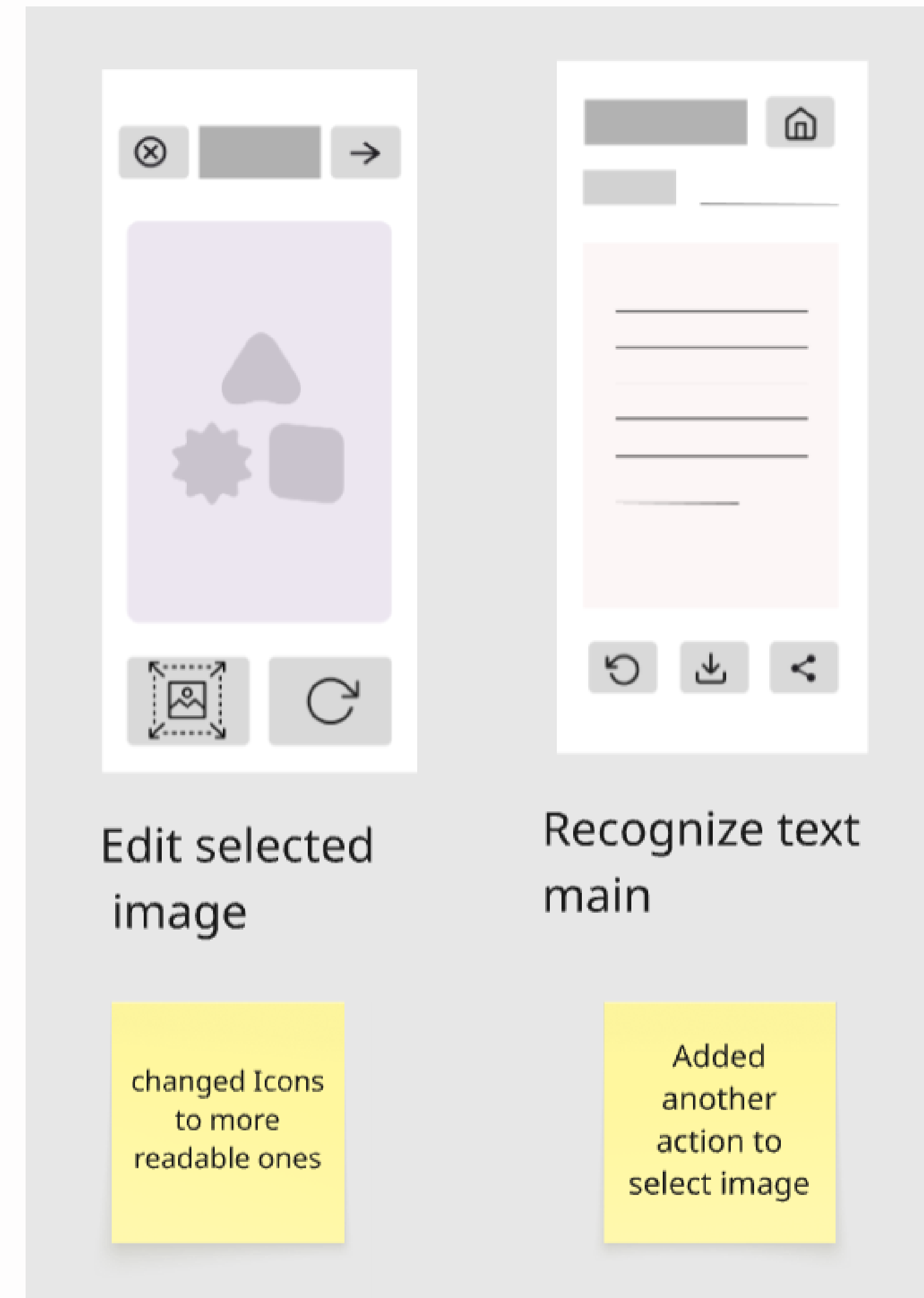
☀ Low Fidelity Design – Iteration 2

This iteration builds on insights from the usability session. Key changes were made to address pain points identified in the initial prototype

Adjustments aimed to improve overall clarity, navigation, and task completion.

The other screens are kept the same.

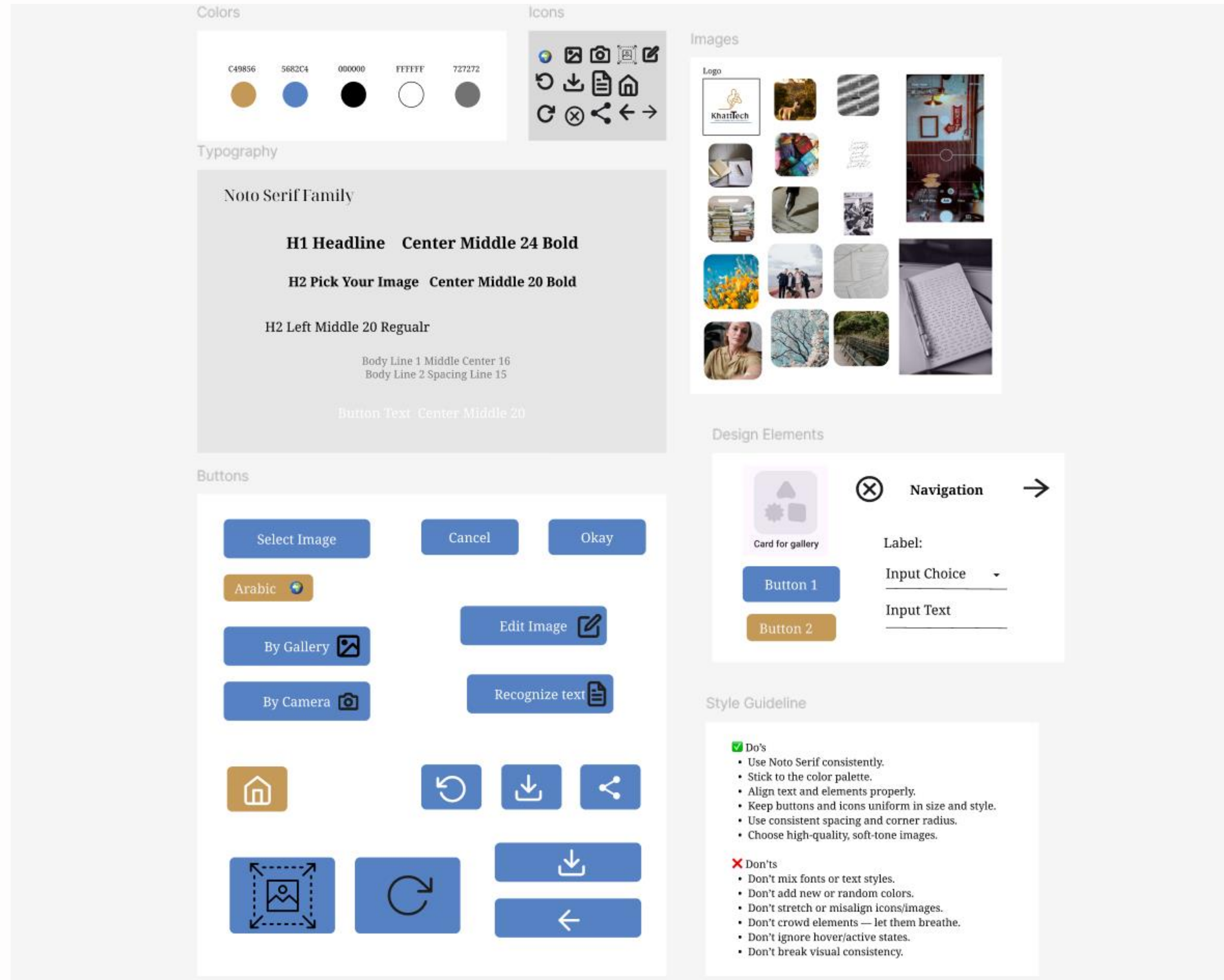
🔍 Want to have a look? [Figma Design Link Iteration 2](#)



✔ Style guide & library pattern

Now a style guide and library pattern were used to develop a high-fidelity design.

🔍 Want to have a look ? [Figma Design Link](#)

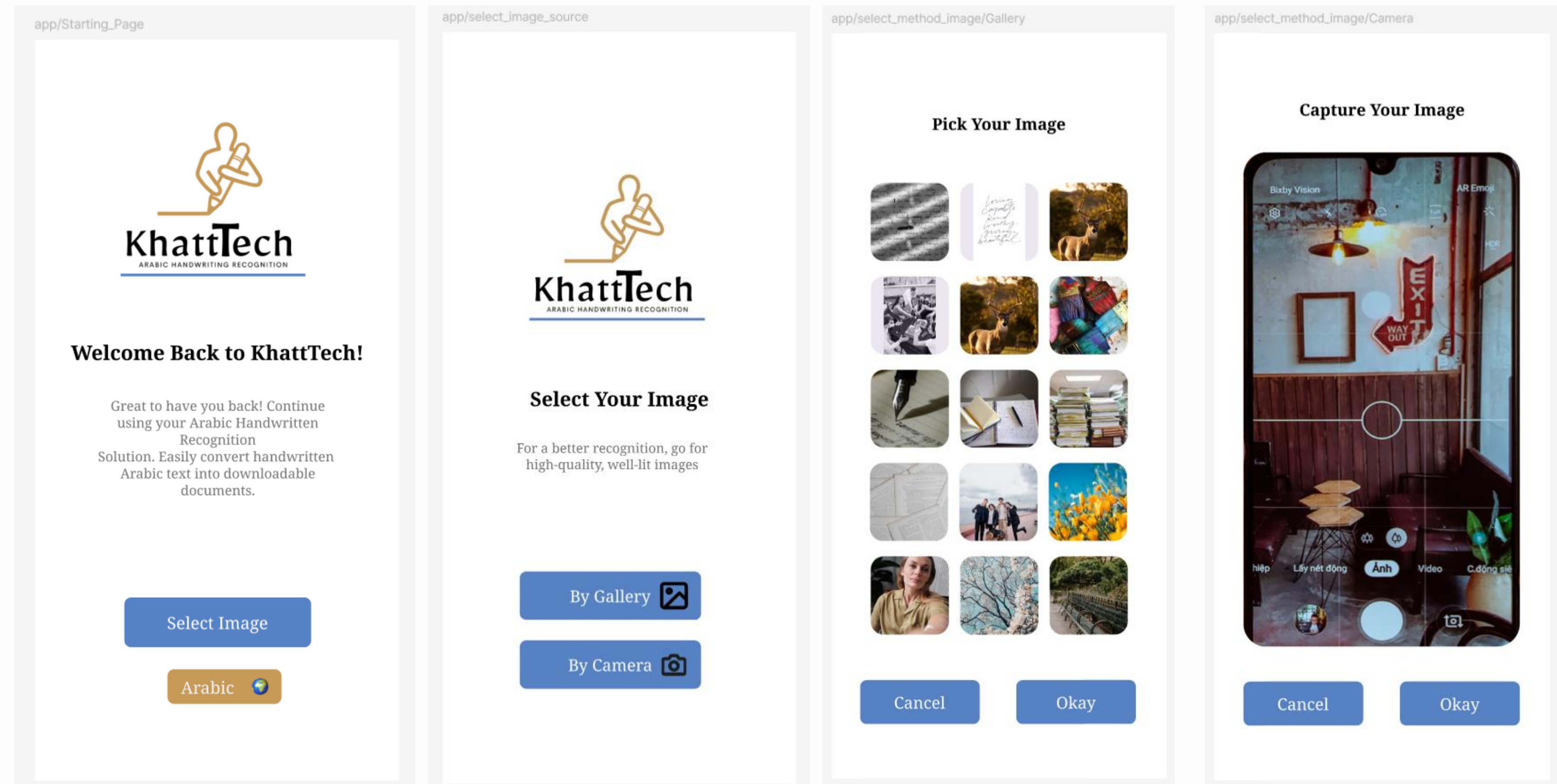


High Fidelity Design

The low fidelity design were converted into a high-fidelity design.

 Want to have a look ?

[Figma Design Link](#)

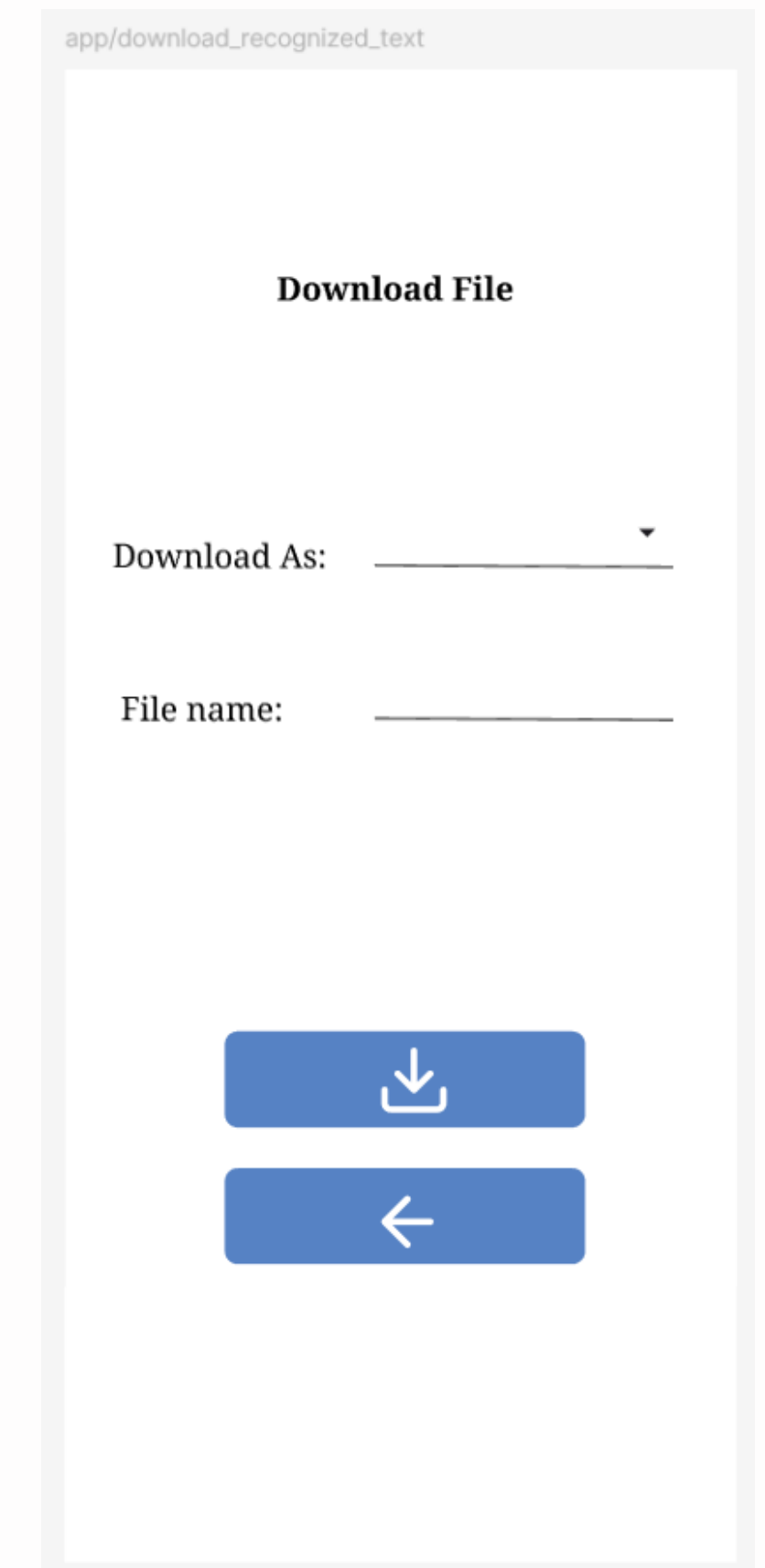
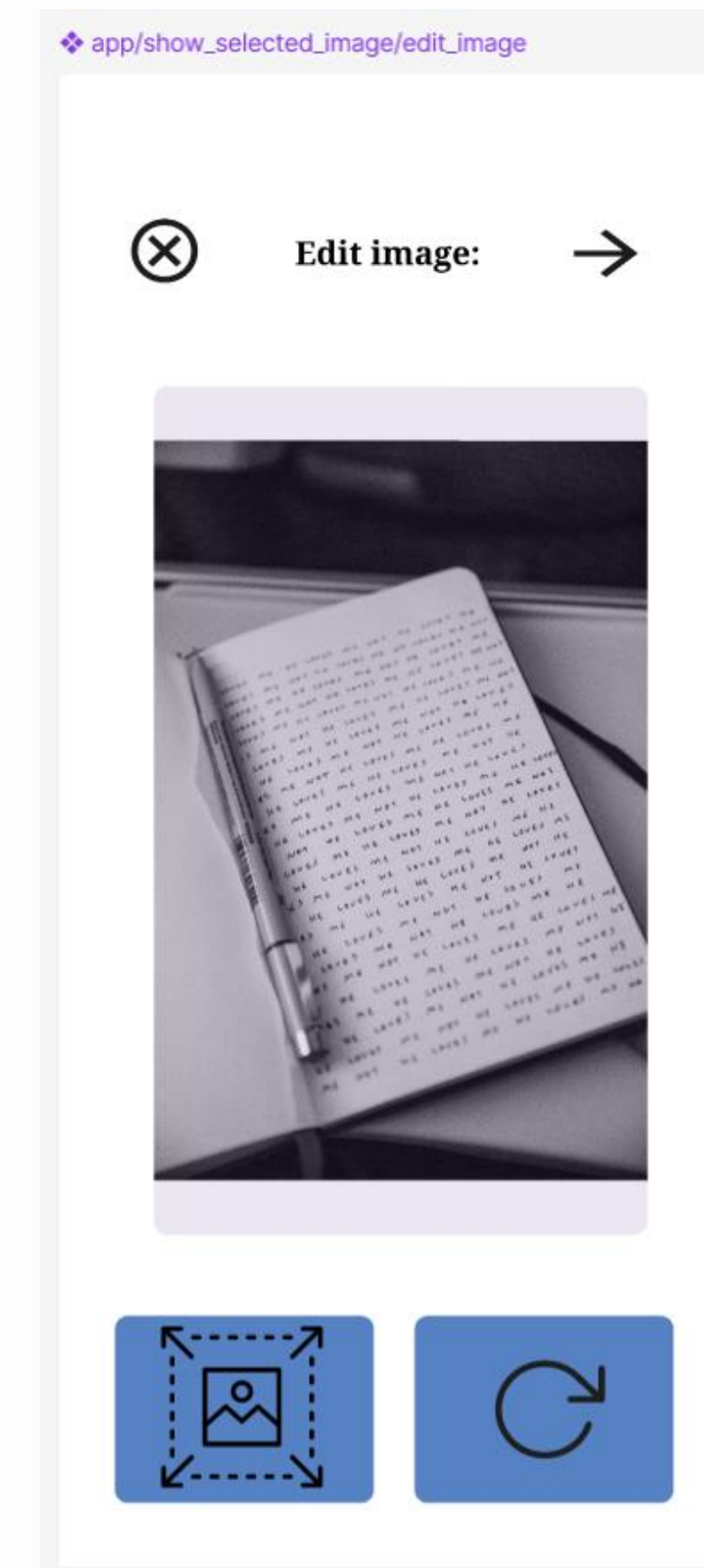
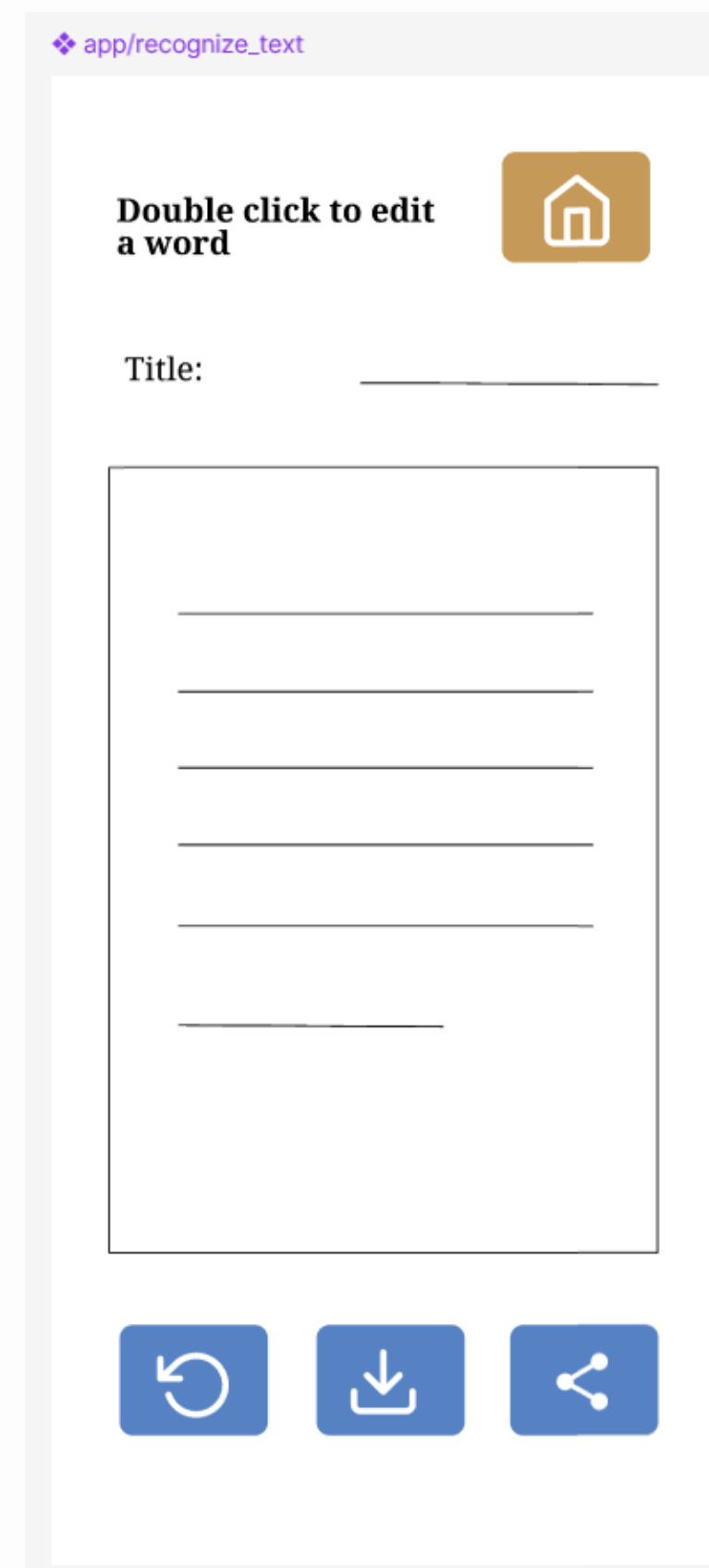


High Fidelity Design Cont.

The low fidelity design were converted into a high-fidelity design.

 Want to have a look ?

[Figma Design Link](#)





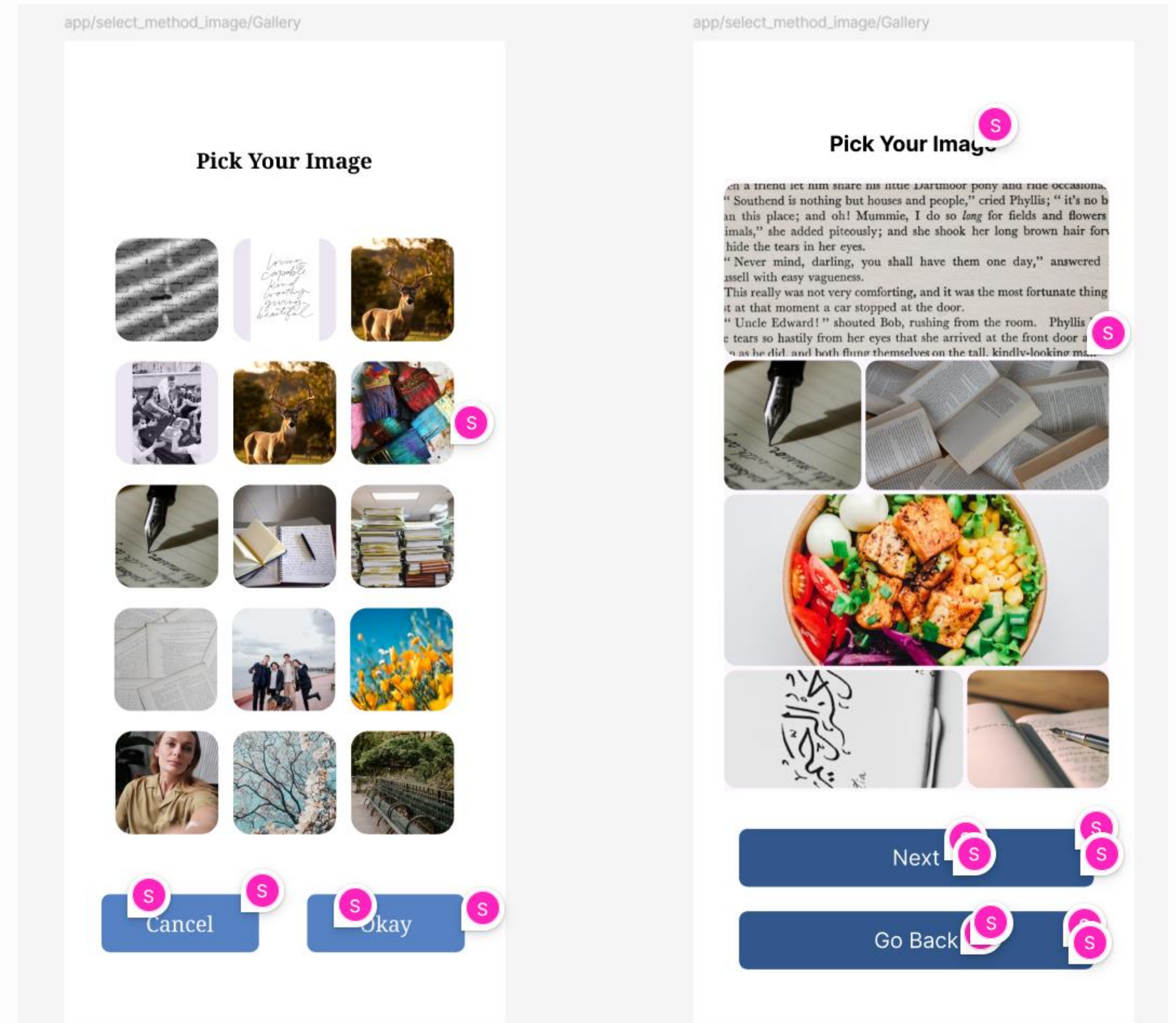
Accessibility Improvement

I reviewed and look for issues and opportunities for improvement in accessibility and annotated the screens accordingly.

Implementing these improvements on a new frame and placed them side by side to demonstrate the improvement.

Finally annotated changes I've made, including changing CTA and color contrasts.

🔍 Want to have a look ? [Figma Design Link](#)

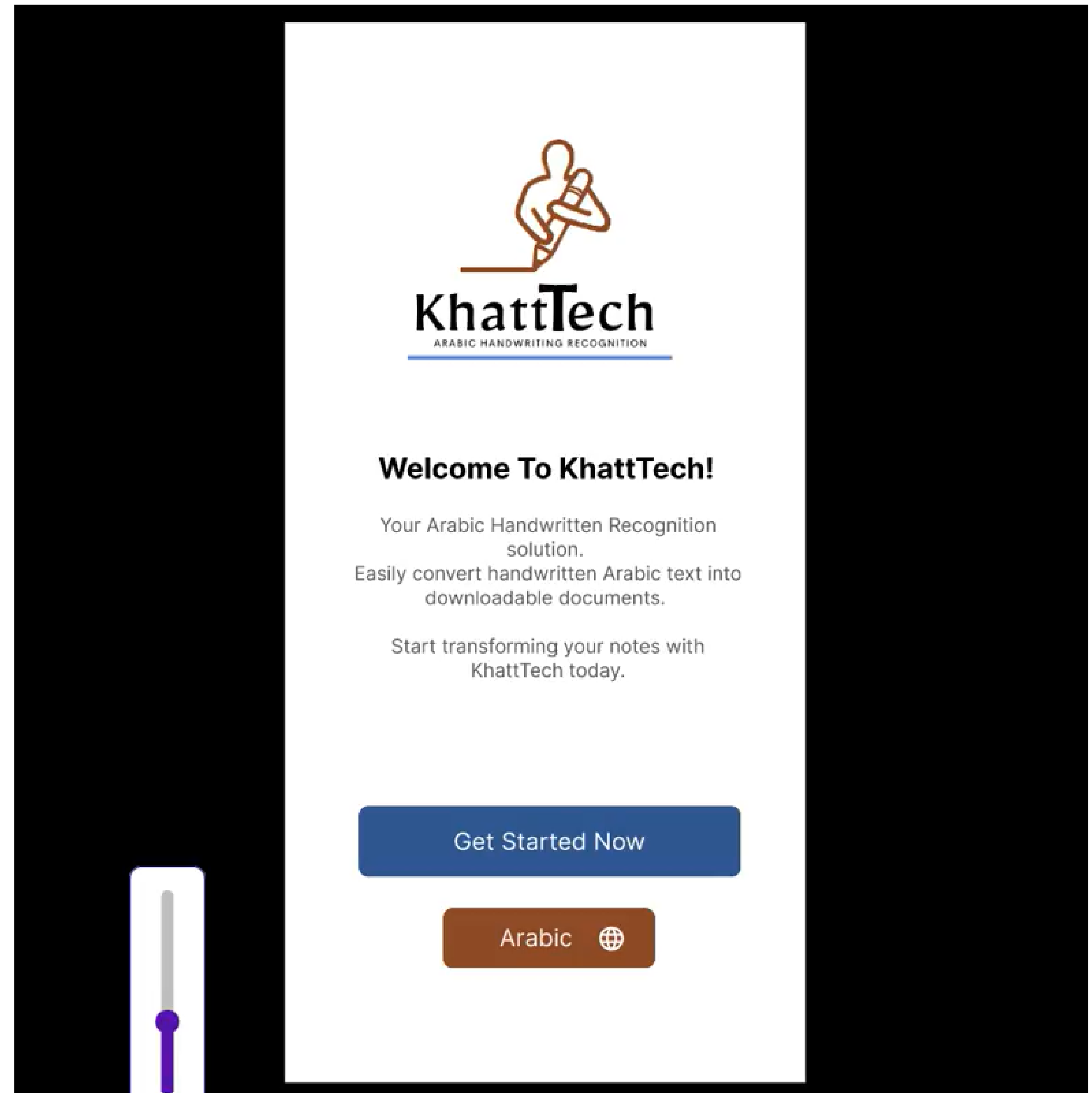


Develop: Prototyping

The enhanced accessibility design were developed into a prototype.

To see more you may visit the below link:

[Prototype Figma Link](#)



Test: Validation, Usability, Feedback

For testing purpose, the lookback tool were used for 6 remote (non moderated) testers. They had to complete 4 tasks.

Key Insights

- ✅ **83% Completion Rate** — One user misunderstood the test; otherwise, 100% success.
- 🕒 **Task 1 = Slowest (Avg. 33.8s)** — Users hesitated or were confused about how to select an image.
- 🚀 **Smoother Flow After Task 1** — Users navigated later tasks faster once the image was selected.
- 🧭 **Task 4 Navigation Issues** — Returning home took longer than expected.
- 💡 **User Feedback** — One participant suggested redesigning the logo for a more professional look.

Design: Focused Iteration Based on KPI

With a 100% task success rate, the KPI I chose to improve was:  Decrease Time on Task

 Target Flow: Task 1 – Image Selection

Pain Point: High variance in time (7s to 74s)

Goal: Reduce average to under 20s

Hypothesis

If the image selection screen is simplified with better instructions and clearer visual affordances, users will complete Task 1 faster and more consistently.

Design Changes

 Added a “Change Selection” Button on the preview screen to allow quick image re-selection.

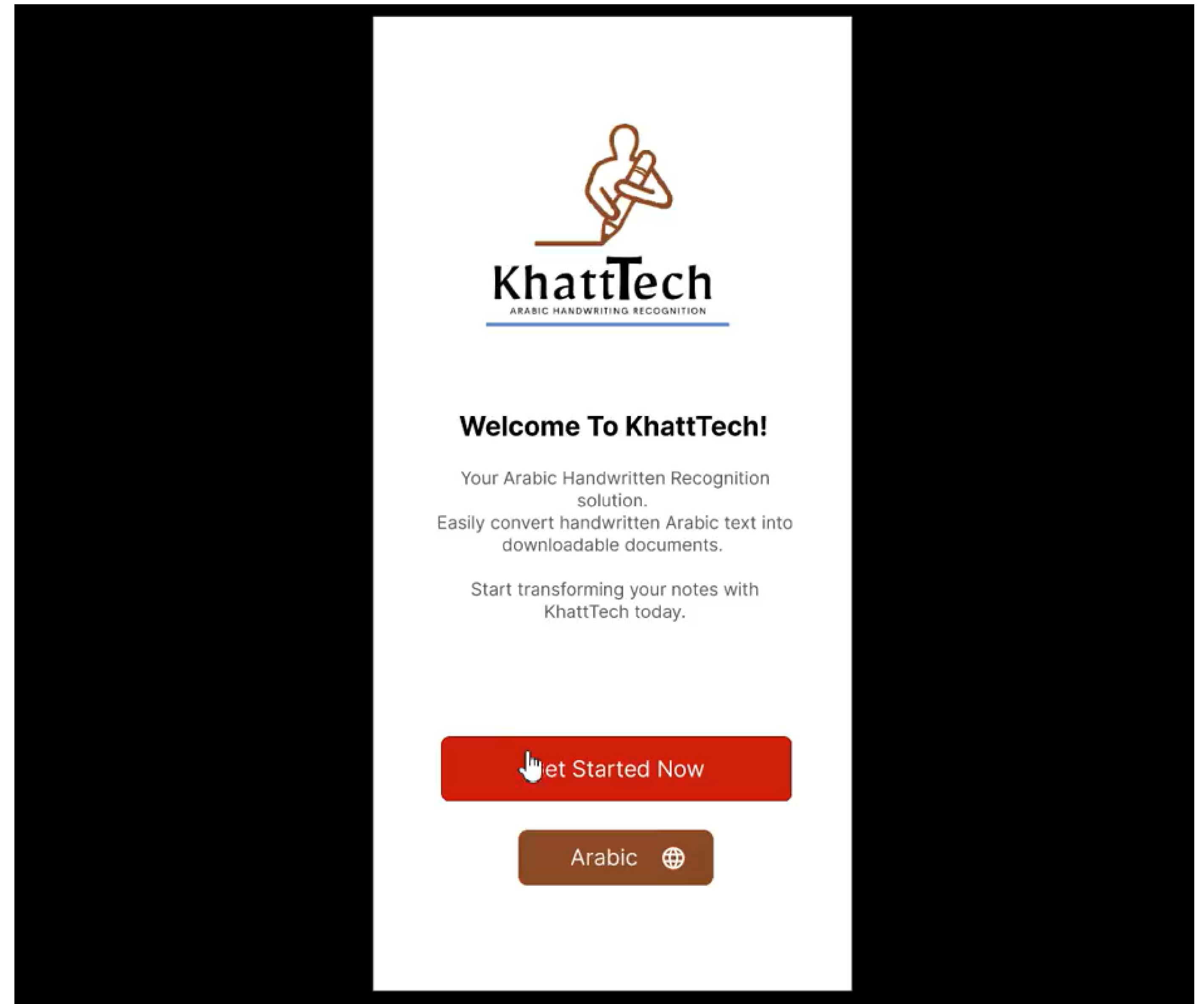
 Updated CTA Text from “Go Back” to “Change Selection” — more intuitive and action-oriented.

Solution & Impact Overview

Here is my final solution is the shown

And the following is a clickable high-fidelity prototype:

[Figma Prototype Link](#)



Outcome Statement

The UX Nanodegree was a transformative journey that sharpened my design thinking and deepened my empathy for users.

I learned to observe, test, and iterate with purpose and discovered how data and human insight come together to shape better experiences.

This experience gave me the confidence for real-world UX challenges with curiosity and intention.



About **Me**, Rooted in **Us**

Hi, I'm Sondos, also Sun Dose 🌻 😊, a procurement specialist with computer science bachelor degree. A passionate for thoughtful design and human connection.

My first inspiration will always be **nature**. its clarity, balance, and quiet brilliance shape with simplicity. This is how I approach both design and life.

I have a background in data analysis and UX research, I love turning complex problems into simple, meaningful solutions. I blend logic with empathy, using tools like Python, Figma, and user interviews to ground every decision in real-world needs.

Outside of tech, I draw, write, learn music and explore the emotional side of human experience.

I believe design should feel honest, kind, and deeply human.