

Low-fi Prototype

AC4150E- HUMAN MACHINE INTERACTION

CAIN



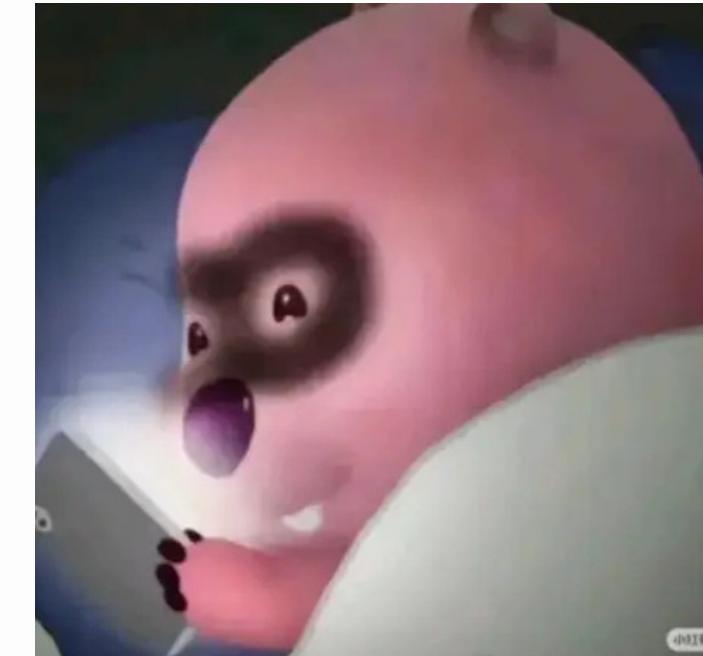
Our Team



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Problem

Many individuals struggle to locate specific information within lengthy or complex documents, often wasting valuable time and effort.

Can CAIN help users instantly find answers by querying uploaded documents?

Solution

CAIN allows users to upload documents and instantly provides accurate answers to their questions, streamlining access to critical information.

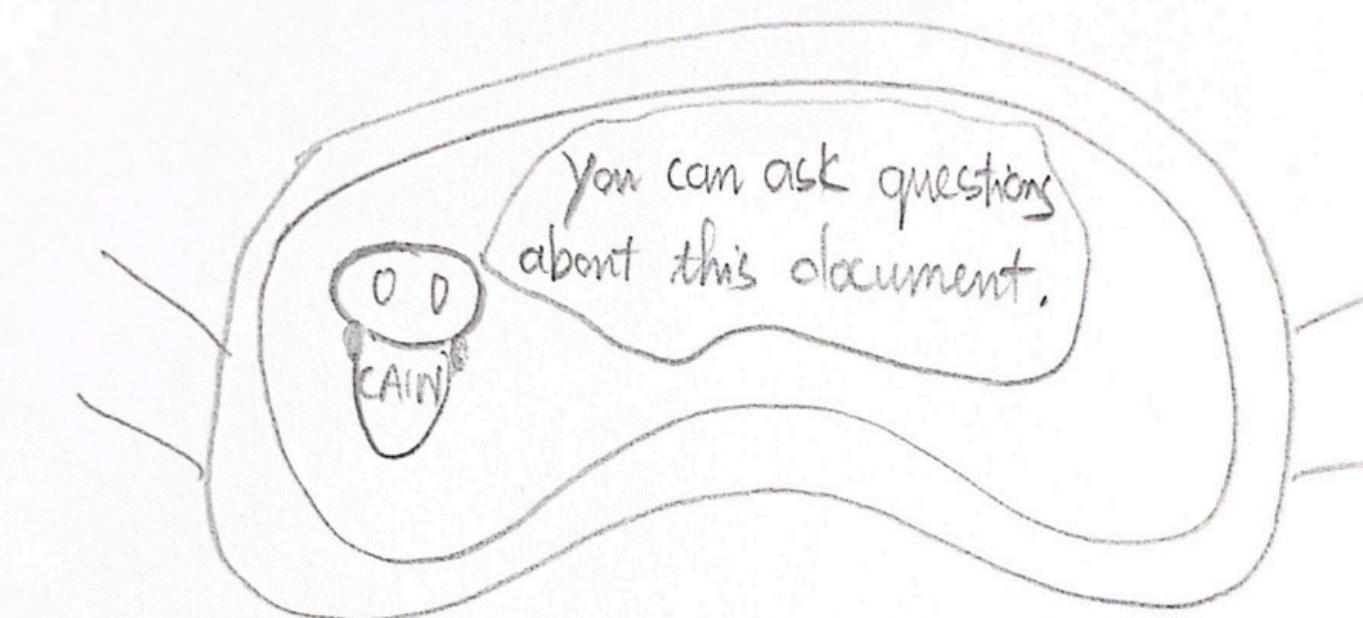
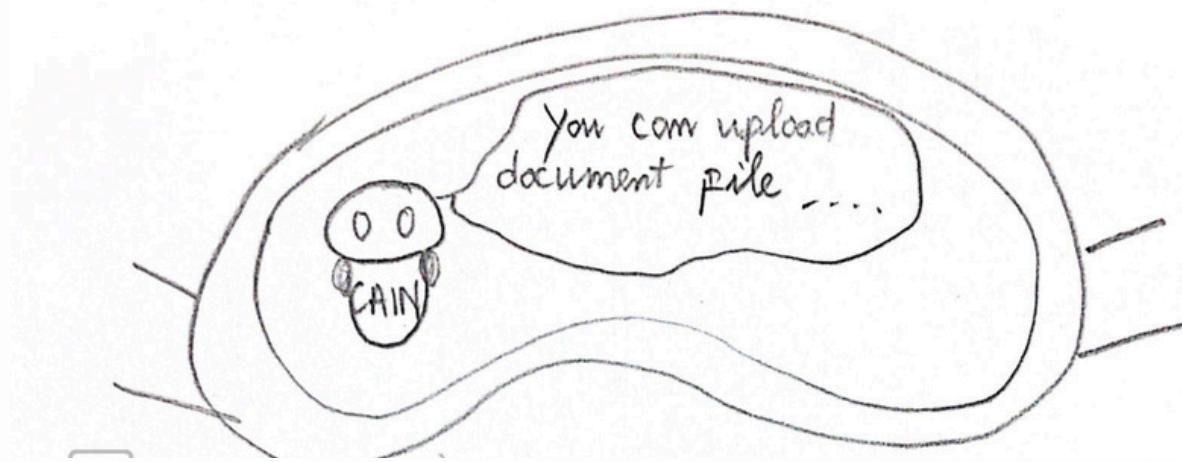
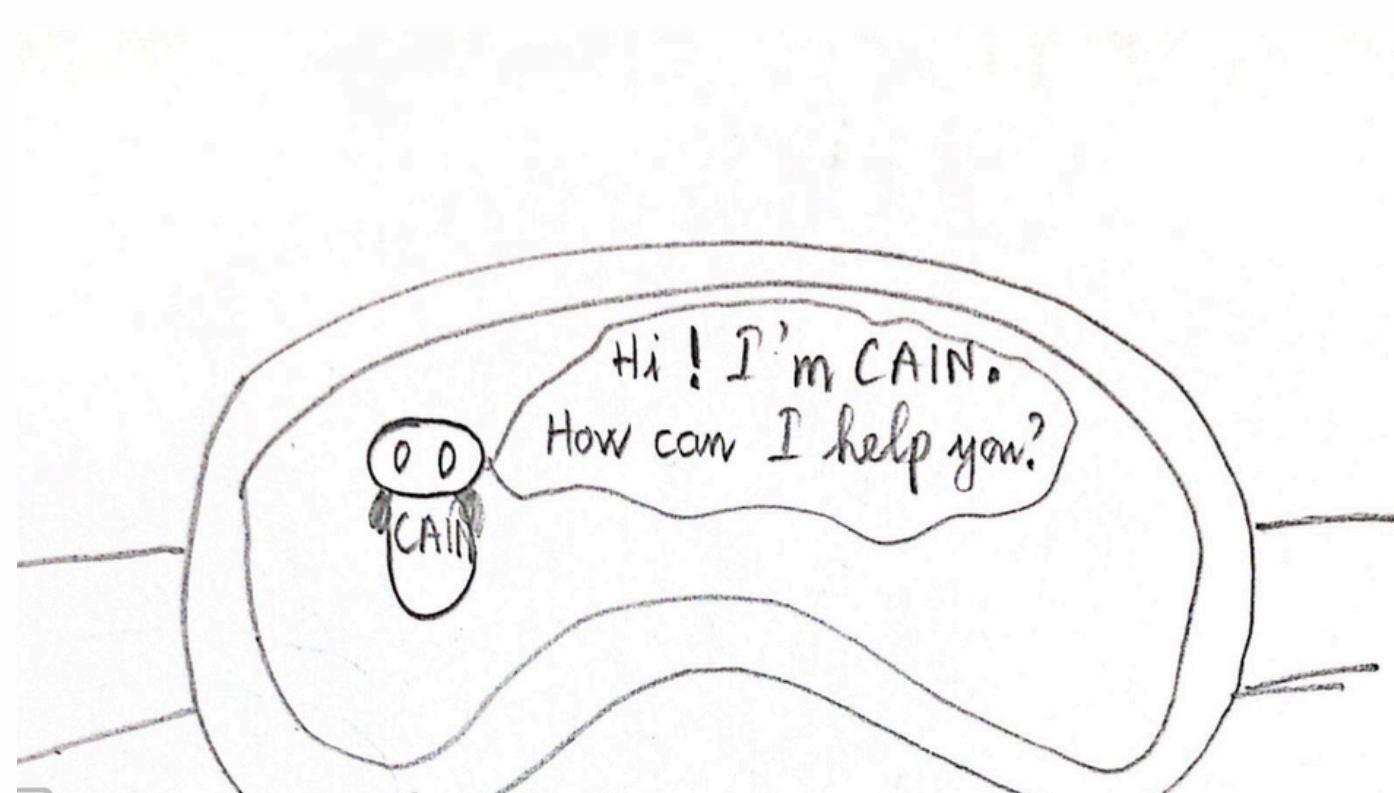
Today, we'll talked about

- Exploring Different Realizations 01
- Selected Interface Design & Rationale 02
- Low-Fidelity Prototype + Testing Methodology 03
- Analyzing the Results 04

CONCEPT SKETCHES



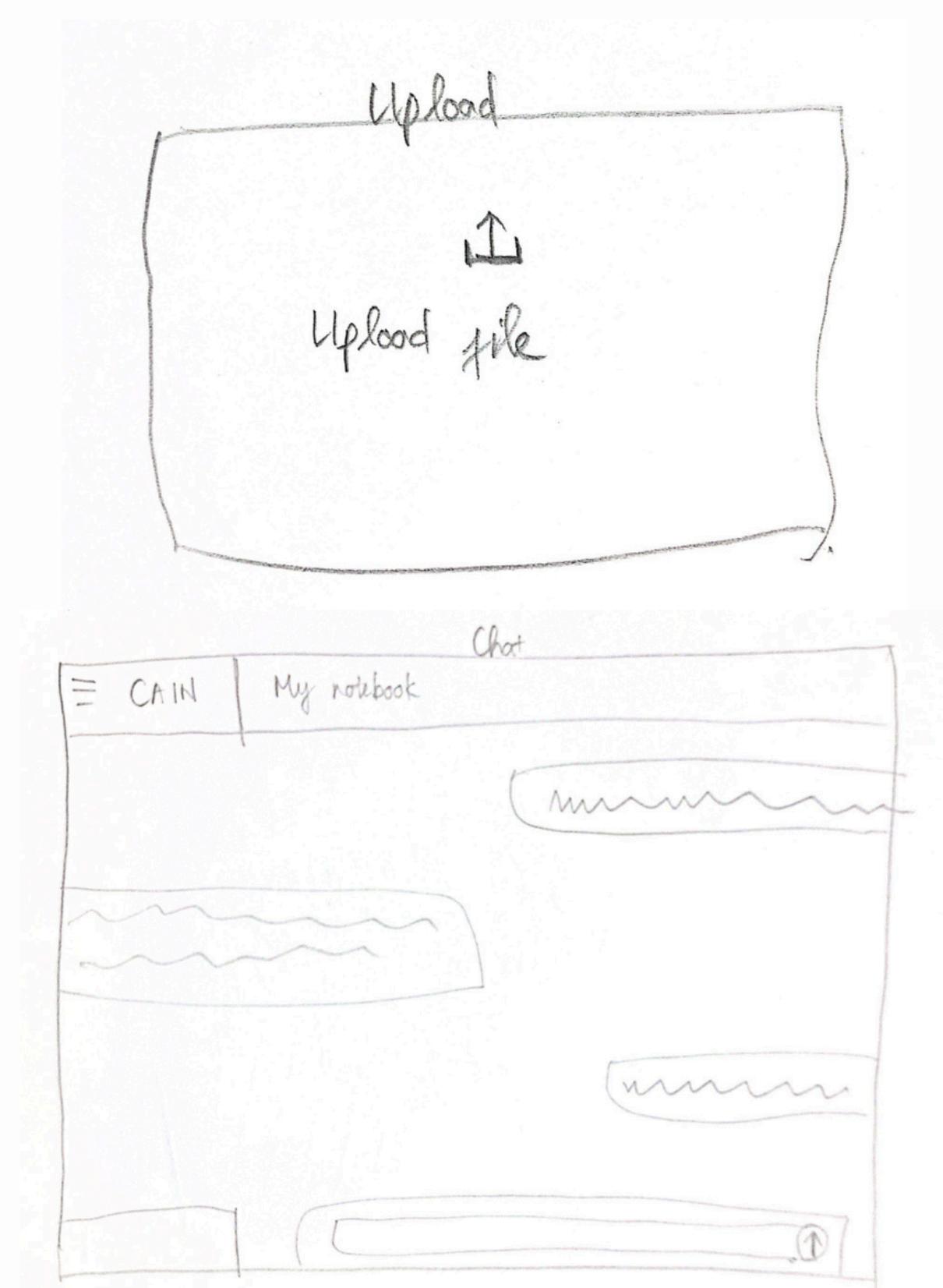
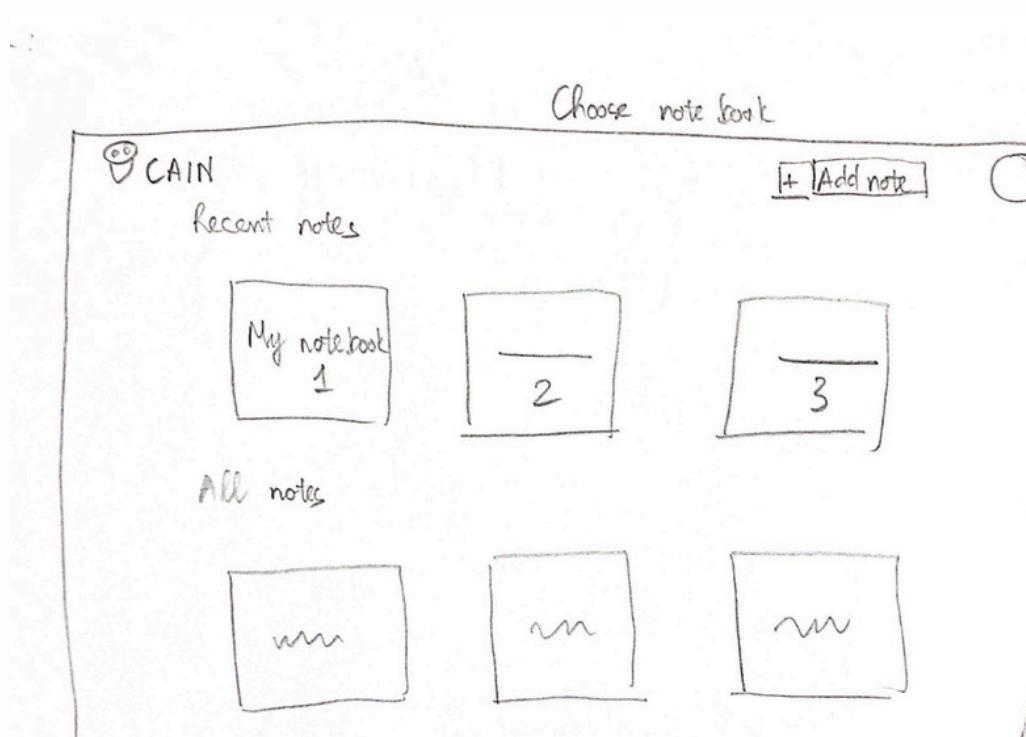
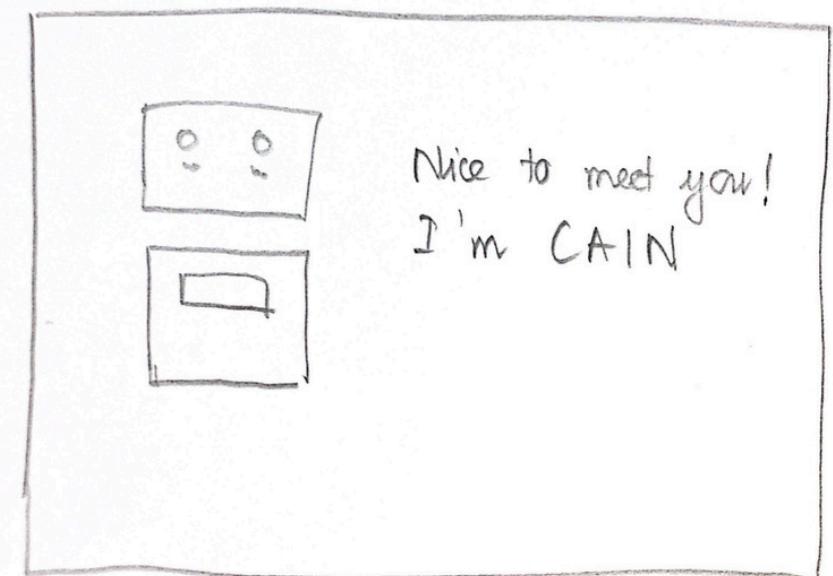
Exploration 1



" Ask about the document ".

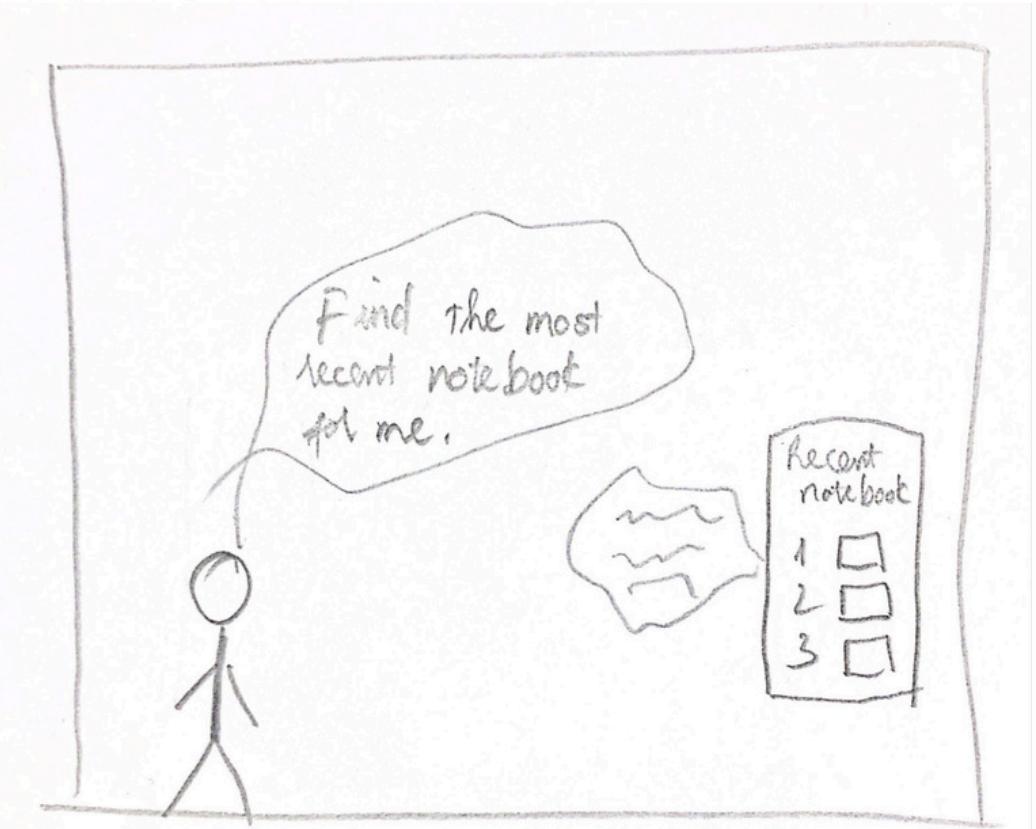
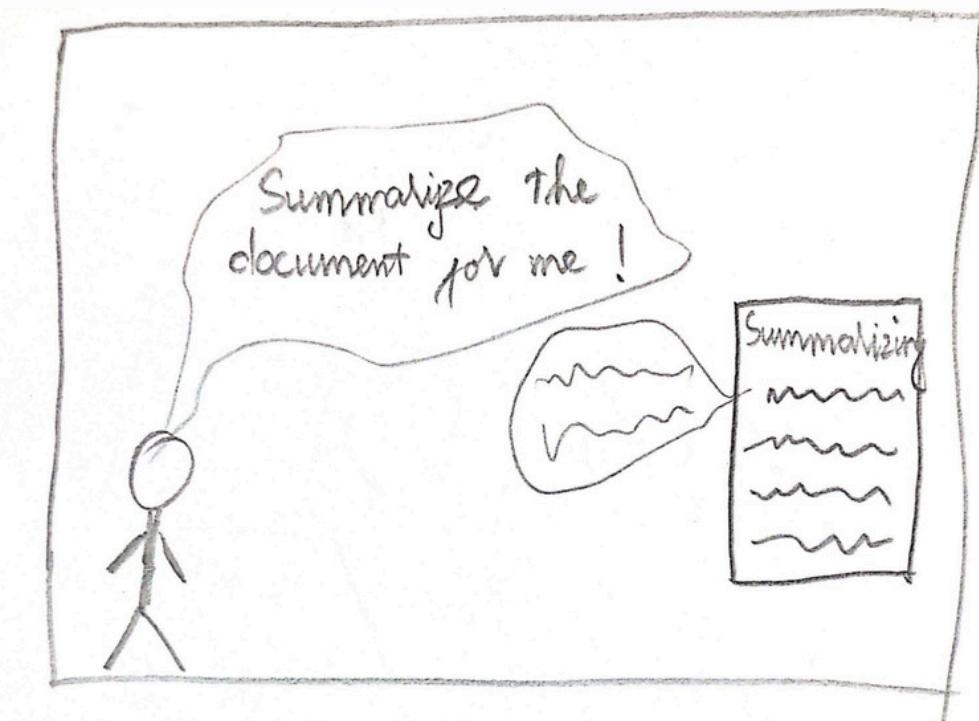
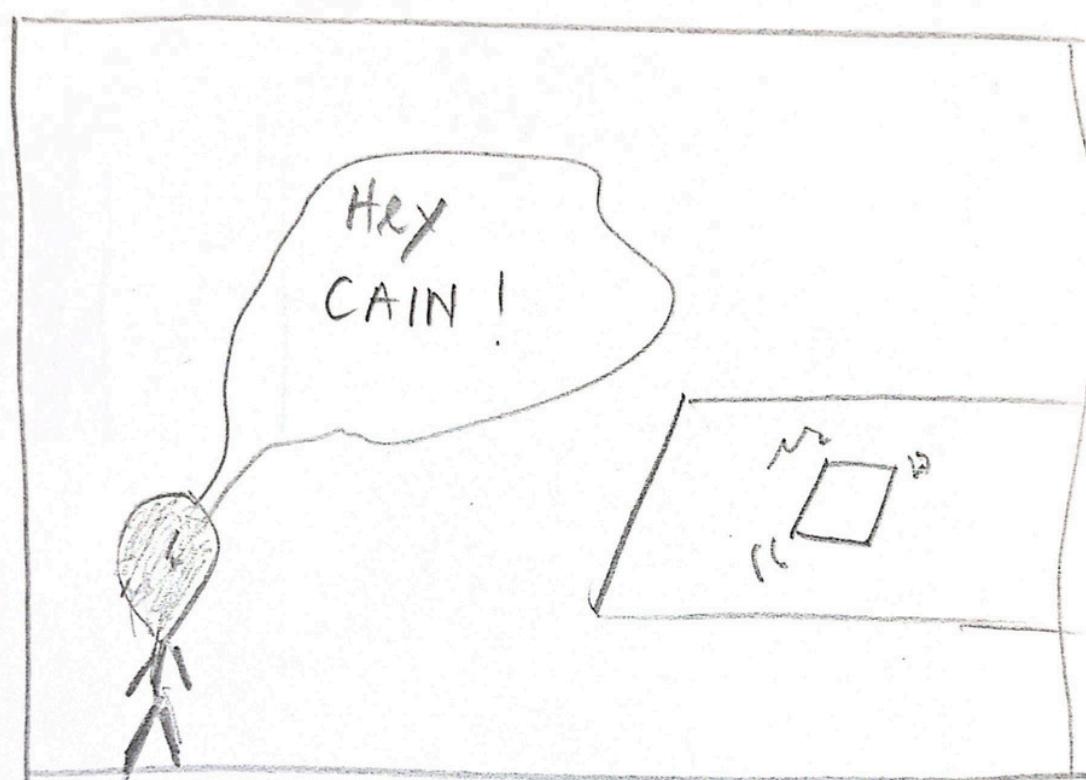
AR/VR Solution

Exploration 2



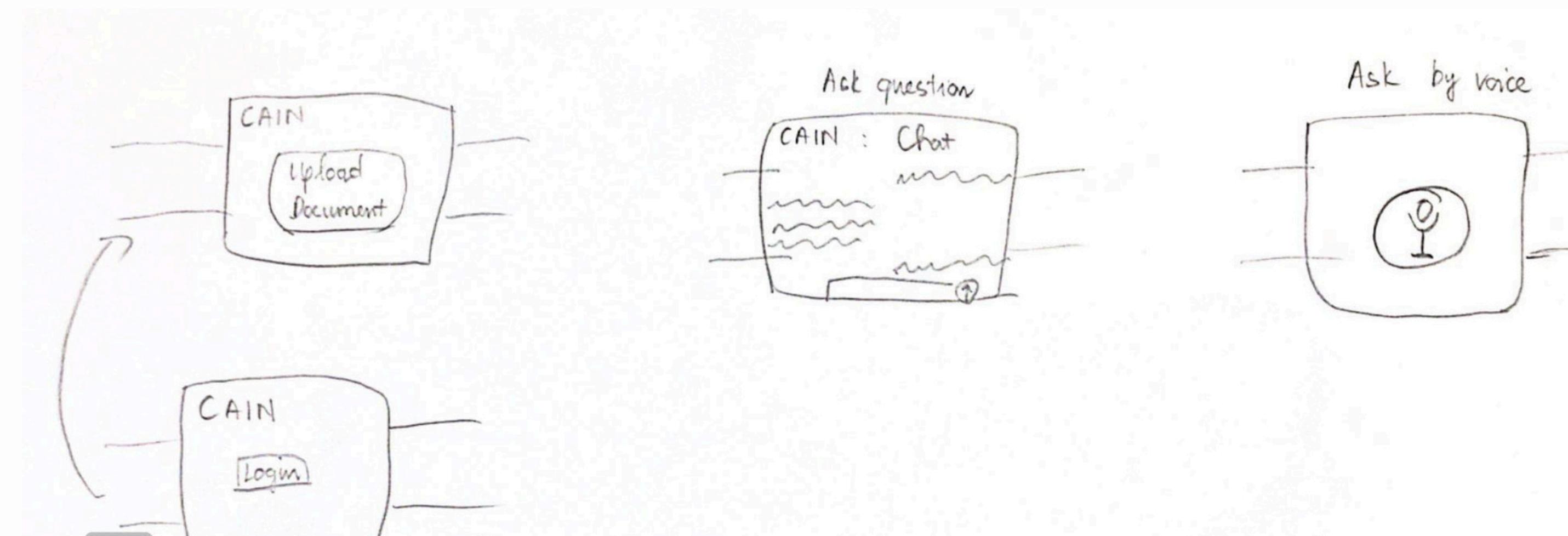
Website

Exploration 3



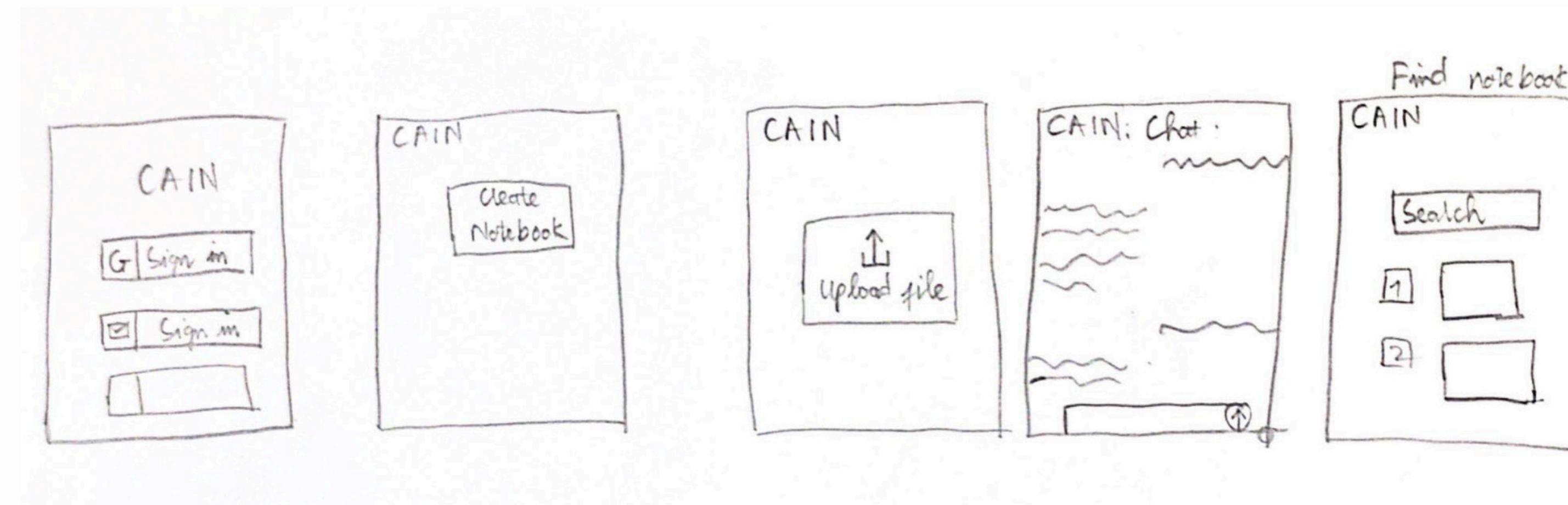
Voice-Activated CAIN

Exploration 4



CAIN as a Wearable

Exploration 5



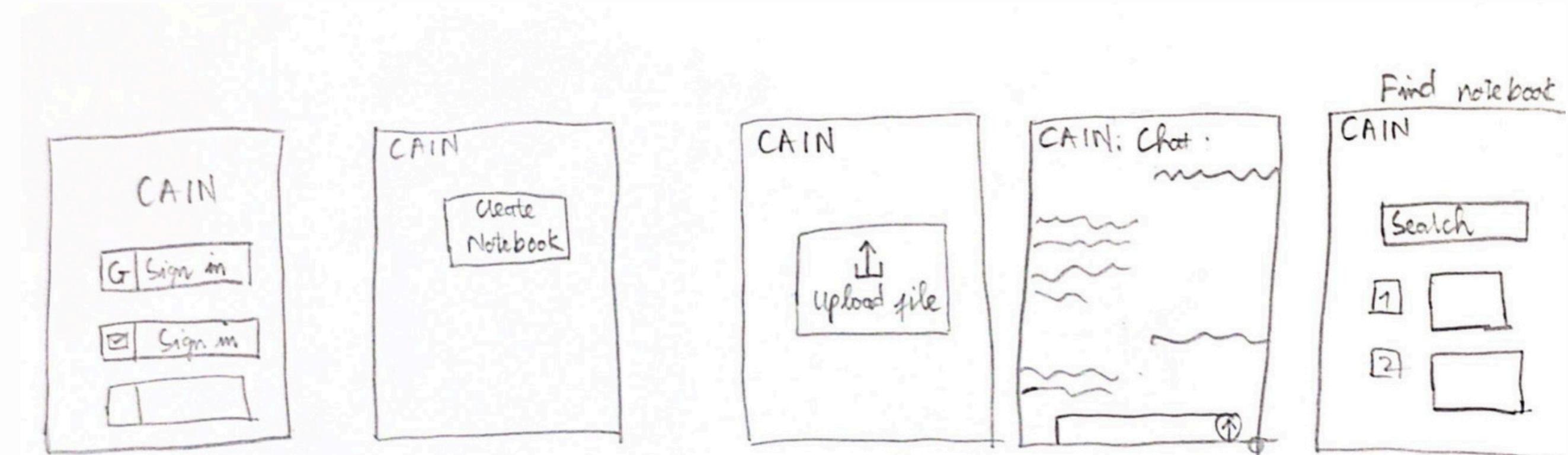
Mobile app

Top 2 Realizations

Realization 1:Mobile app

Workflow

- User logs in
- User creates notebook
- Uploads documents to chatbot
- Selects documents to chat
- Chat with chatbot



Realization 1:Mobile app

Pros

- **Offline access:** Apps can offer offline capabilities, allowing users to access the chatbot and documents even when there's no internet connection.
- **Integration with device features:** Apps can better integrate with phone storage, camera, and other native features, making it easier to upload documents or interact with the chatbot.
- **Improved user experience:** Apps can provide a more seamless, responsive experience, with custom interfaces designed for the device.
-

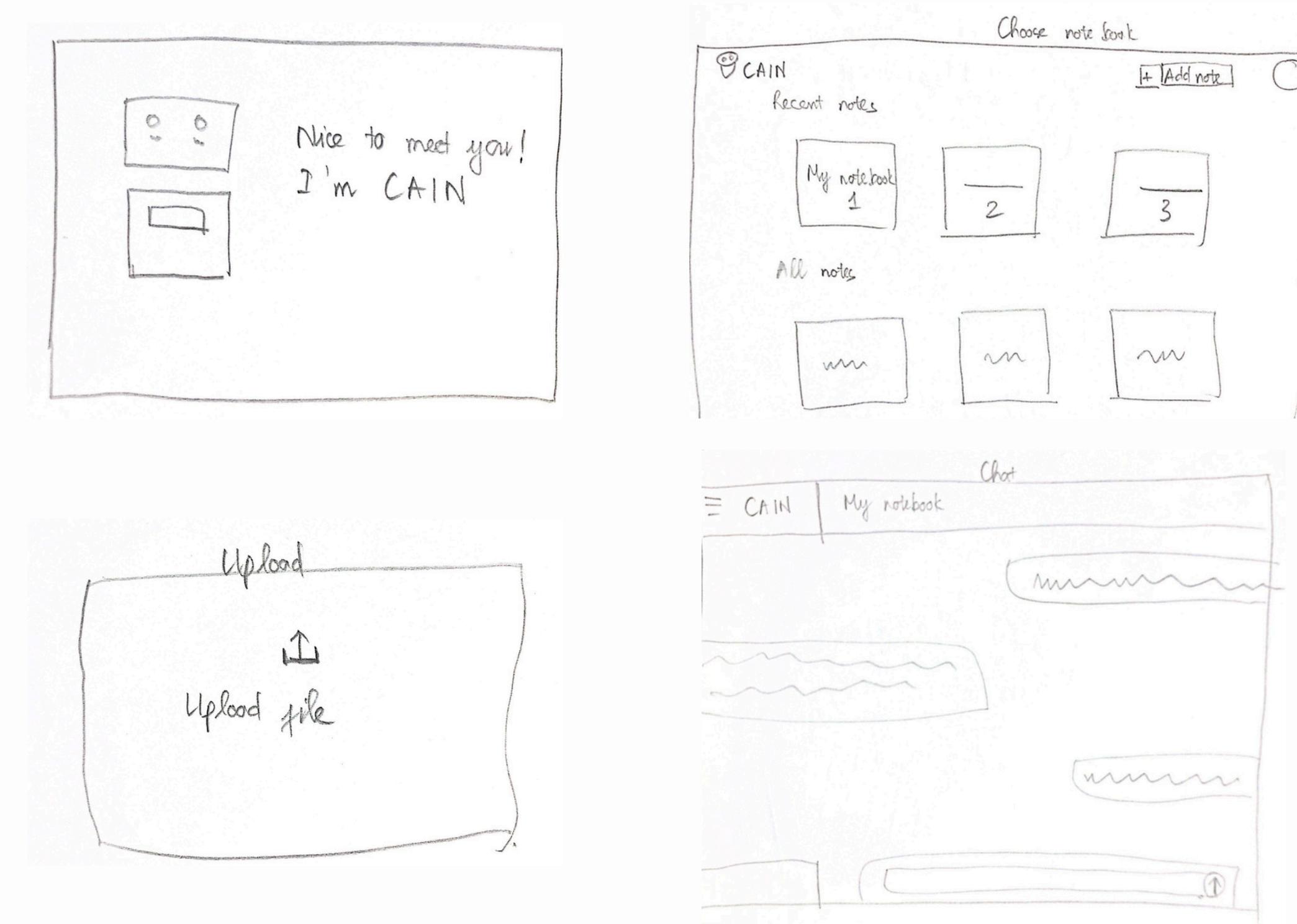
Cons

- **More complex upload process:** Uploading documents can be more complicated on an app, as users might need to navigate through multiple steps, especially for larger files.
- **Installation required:** Users must first download and install the app, which could deter some from using it, especially if they only need occasional access.
- **Higher development costs and updates:** Building and maintaining an app can be more expensive, and it requires regular updates for compatibility with different devices and OS versions.

Realization 2: Website

Workflow

- User logs in
- User creates or choose notebook
- Uploads documents to chatbot
- Selects documents to chat
- Chat with chatbot



Realization 2: Website

Pros

- **Easy document upload:** Users can easily upload documents through a browser, without the need for extra steps or installations. This makes it accessible to a wider audience and is convenient for casual users.
- **Cross-platform compatibility:** Websites work on any device with a browser, making them accessible to users on desktop, tablet, or mobile without restrictions.
- **Lower entry barrier:** Users don't need to install anything, which makes it easier for them to start using the service immediately.

Cons

- **Requires internet access:** Users need a stable internet connection to access the website and upload documents.
- **Mobile optimization issues:** Websites may not be as optimized for mobile devices, leading to potential performance issues or a suboptimal experience on small screens.
- **Potential slow performance:** Depending on the complexity of the site and user's internet connection, there may be delays when uploading large documents.

Selected Interface

Website

A website is the ideal choice because it offers easy accessibility—users only need a browser, with no installation required, making it perfect for both new and occasional users. The document upload process is straightforward and works seamlessly across all devices. Additionally, developing and maintaining a website is more cost-effective compared to an app. With its broad compatibility and ability to reach a wide audience, a website ensures an efficient, user-friendly experience.

Website > Mobile app

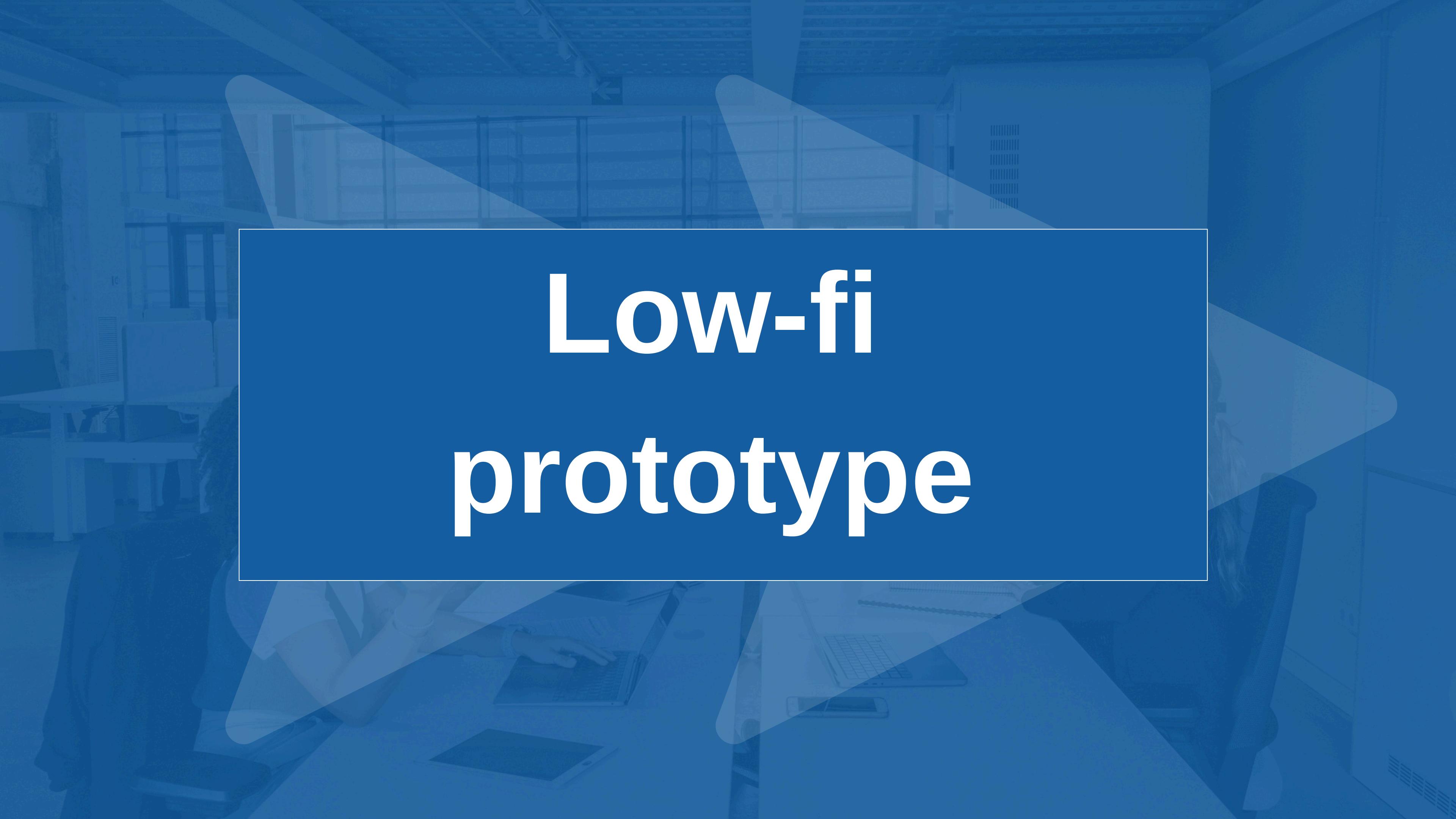


Rationale

A website is the logical choice, supported by data on user behavior. According to a survey by Comscore, 87% of users prefer using browsers over downloading new apps for one-time or infrequent tasks. Additionally, Statista reports that 90% of global internet users access the web via mobile devices, ensuring broad compatibility for a website. From a business perspective, websites are also cost-effective; Clutch.co estimates that developing a website costs 30–40% less than building and maintaining separate apps for iOS and Android. These numbers highlight why a website is the ideal platform for a document-querying chatbot.

Website > Mobile app





Low-fi prototype

Construction

Materials

Paper + Pencil

Operation

- Upload files
- Ask questions in chatbox

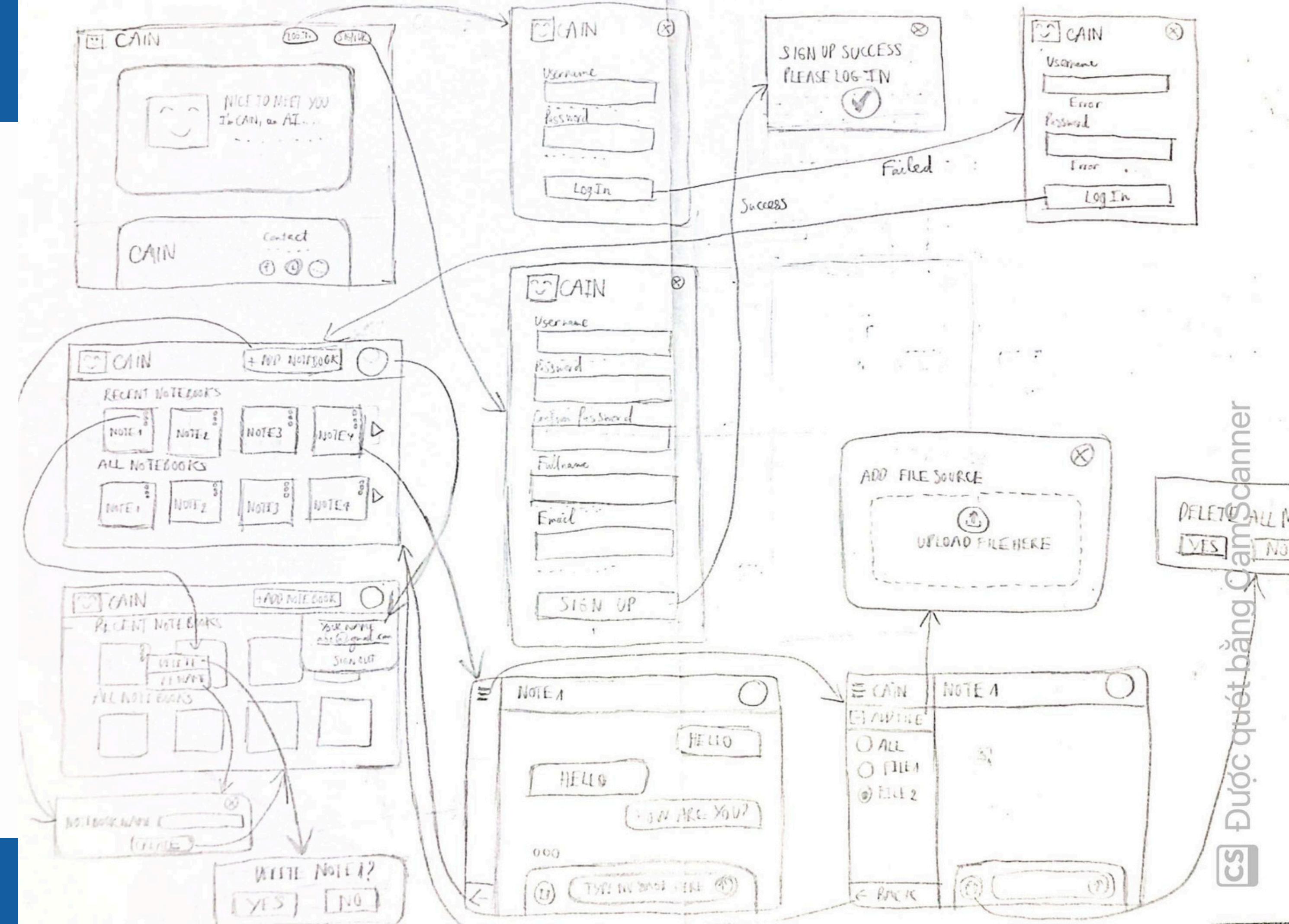
Interactions

- Mouse click
- Mouse scrolling
- Keyboard

Features

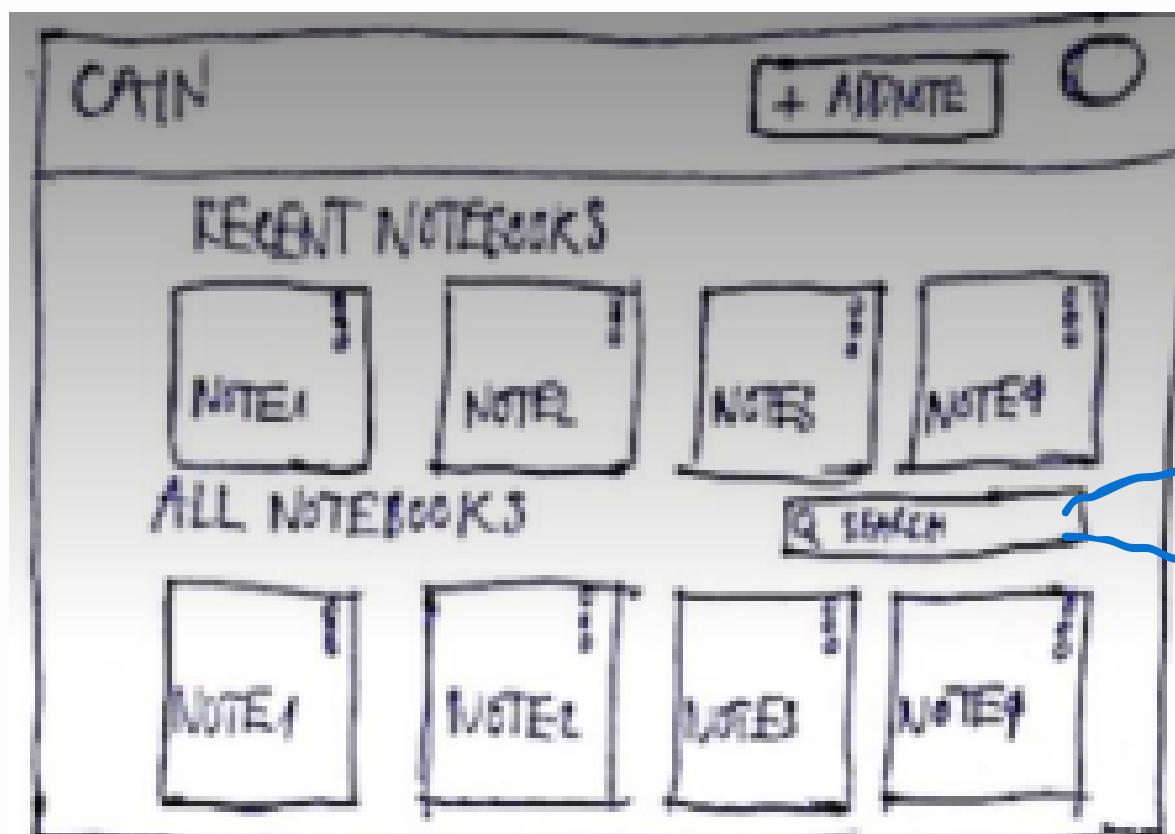
- Use files from your own device
- Choose many files for 1 conversation
- Manage file and conversation using notebooks
- Create, rename, update, delete, spectate notebooks and their components

Low-fi prototype

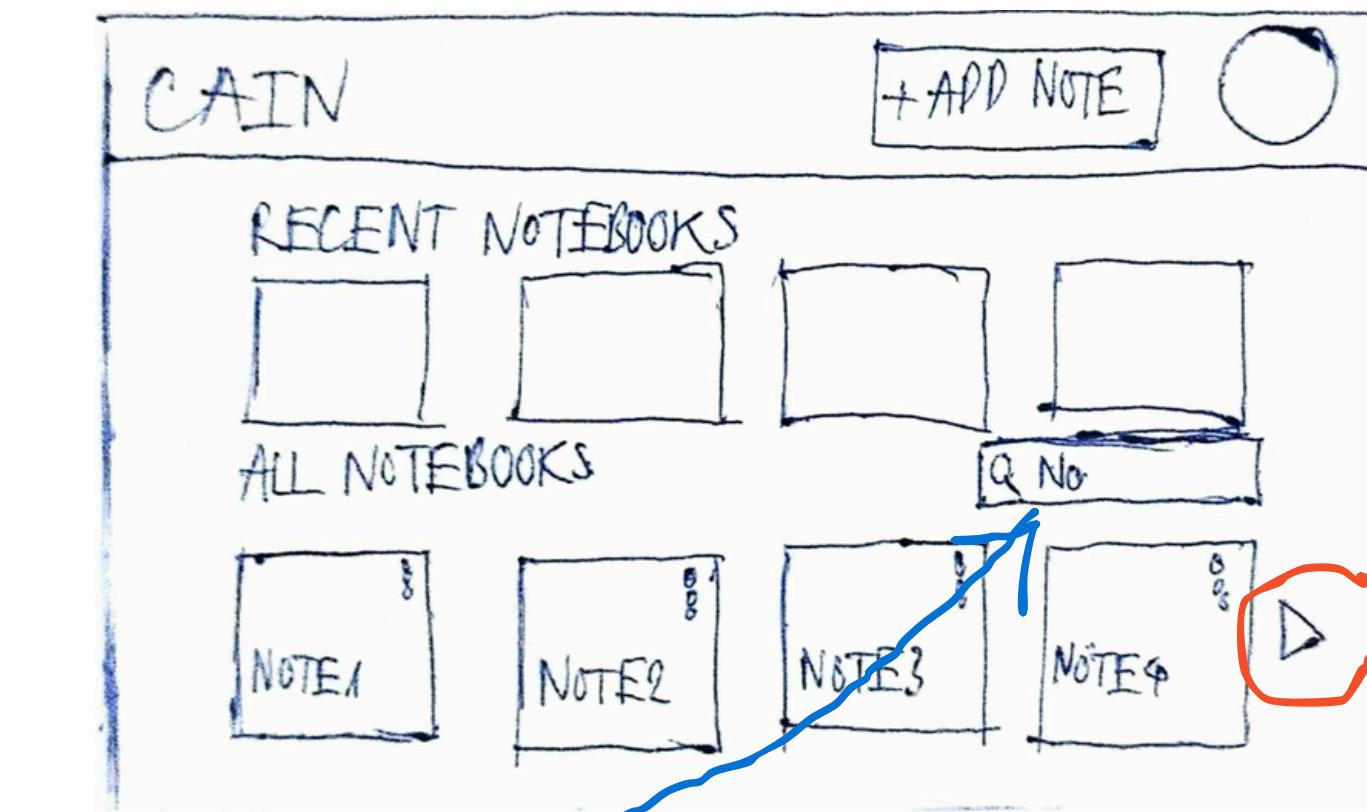


Simple task flow: Search notebook by name

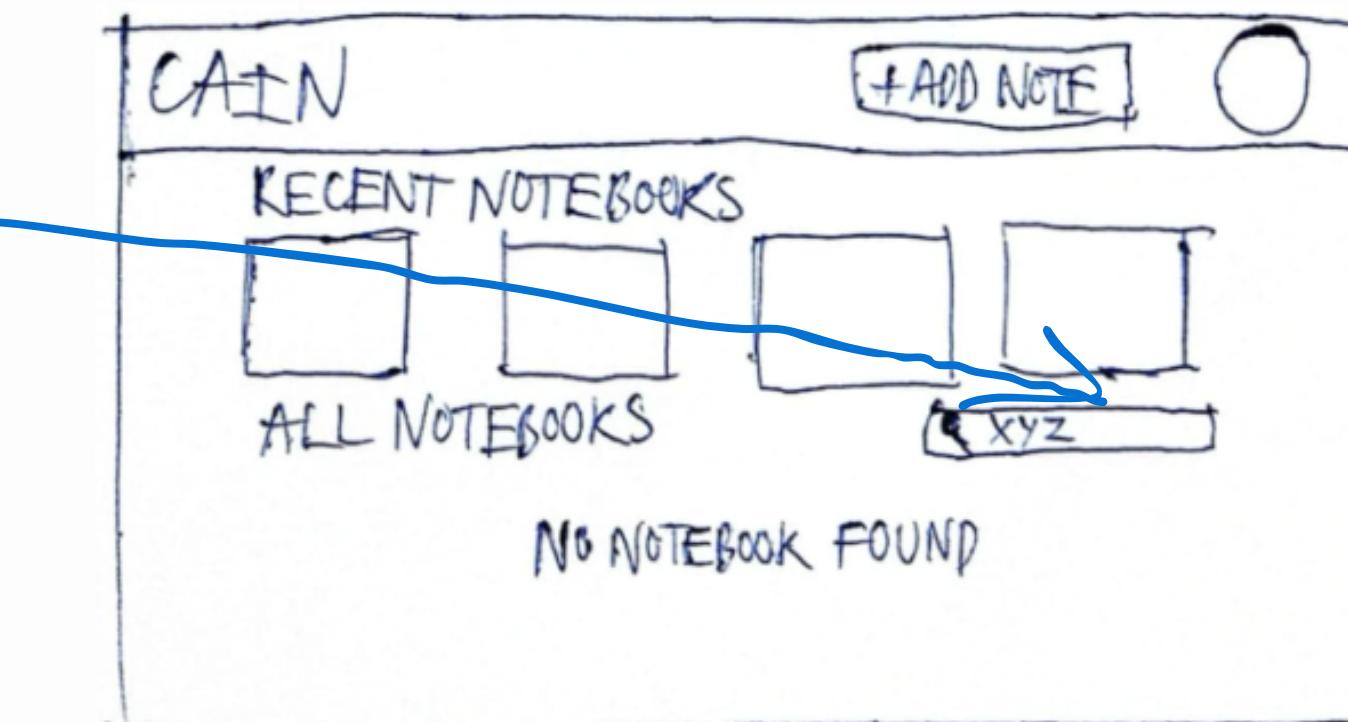
Search notebook by name using search bar



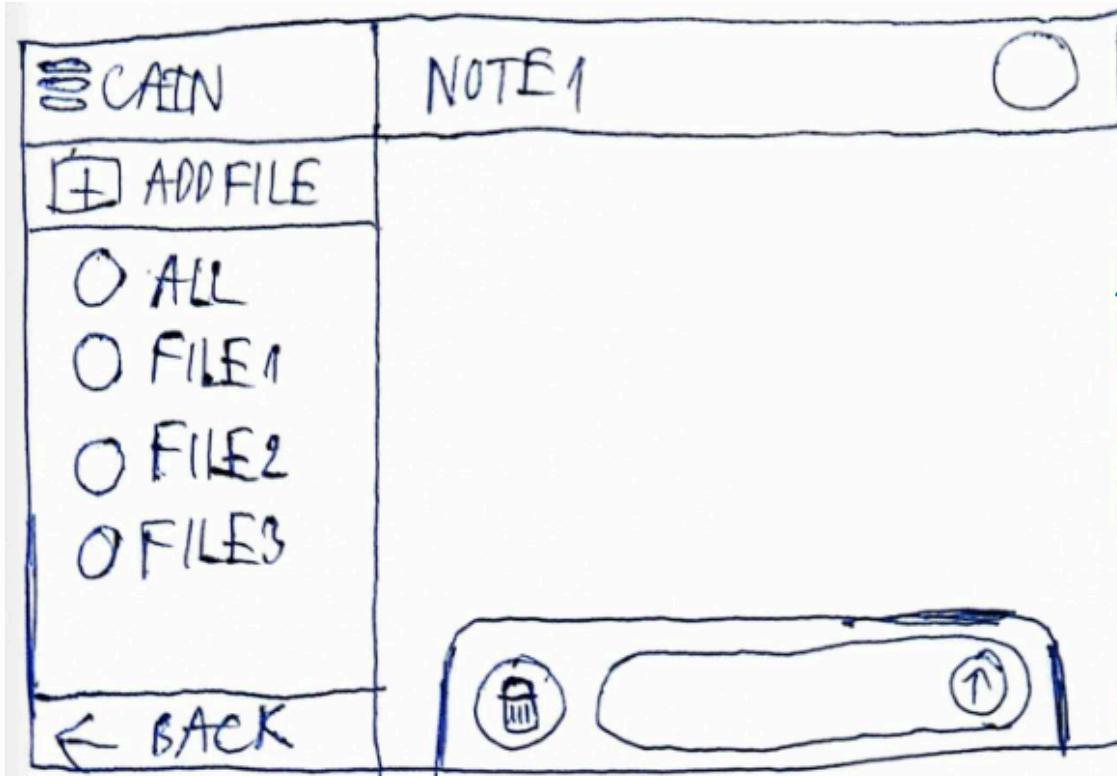
Found



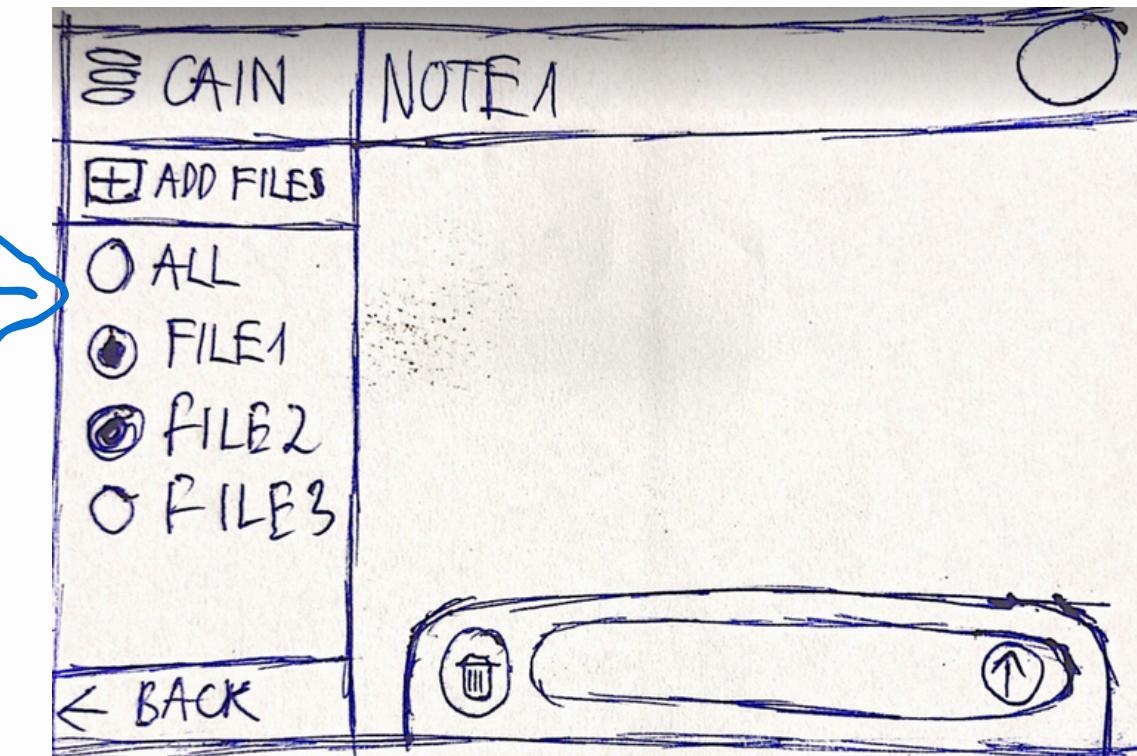
Not found



Moderate task flow: Chat to ask about chosen file

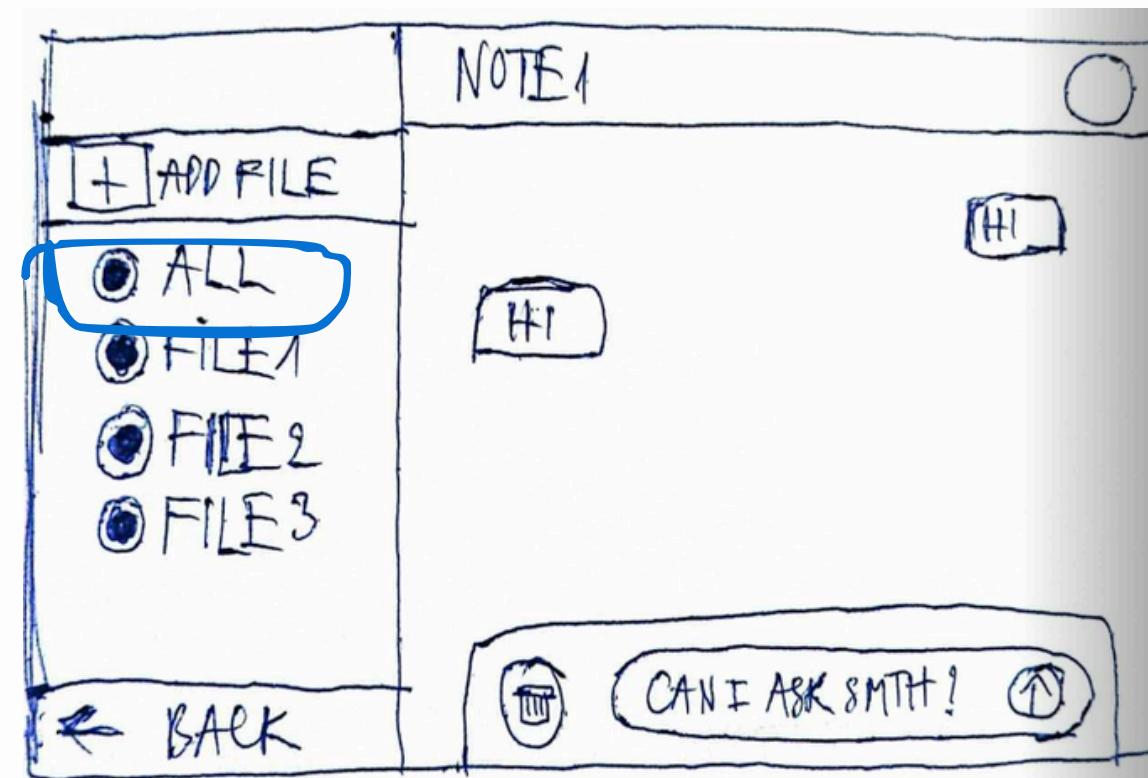


Choose the uploaded file



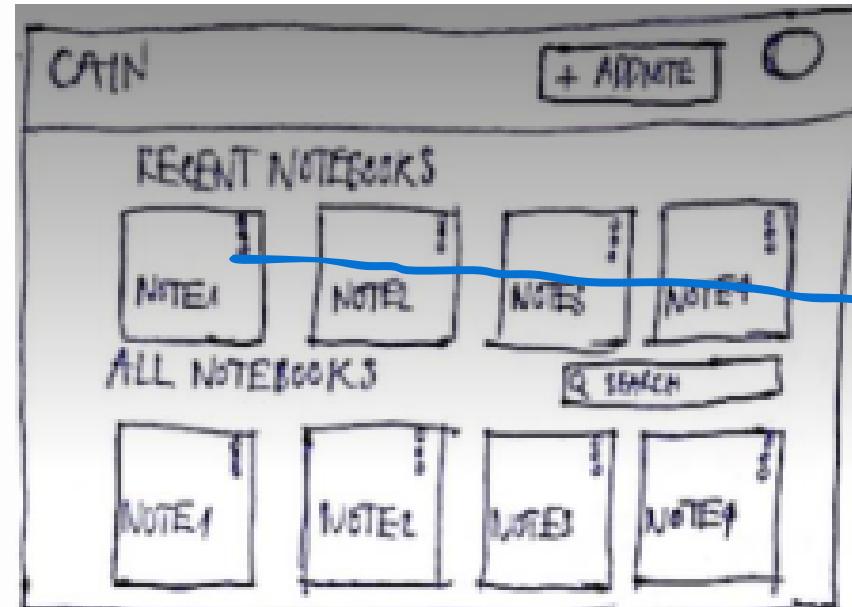
Now you can freely chat with CAIN and ask about chosen files

You can choose "All" radio button to select all the files in notebook

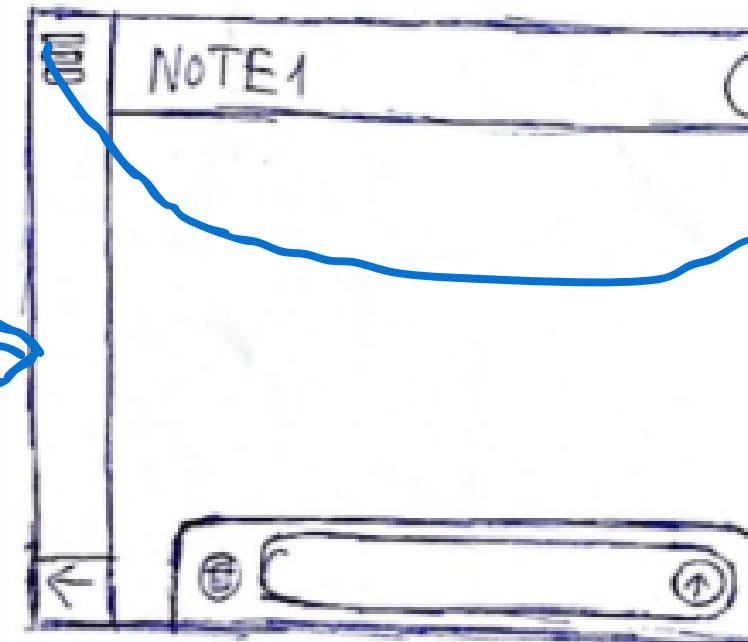


Complex task flow: Upload File to Notebook

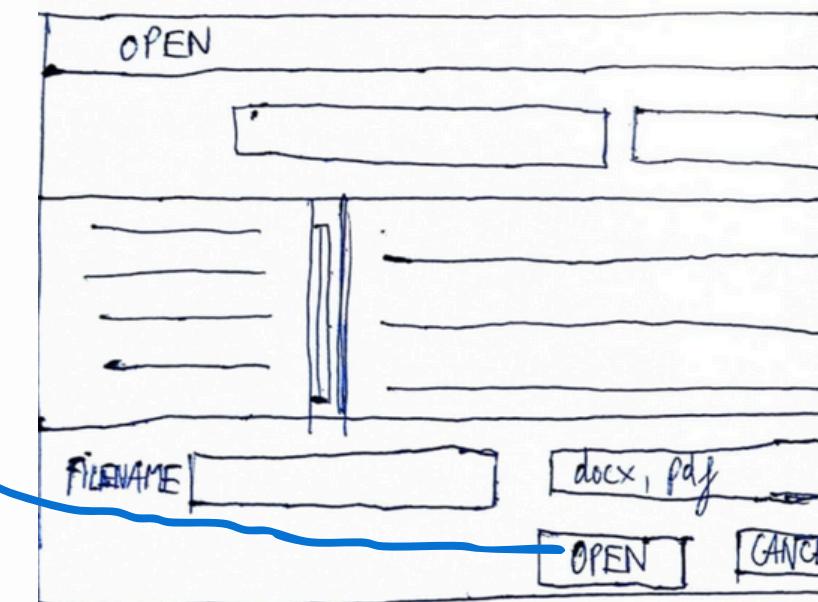
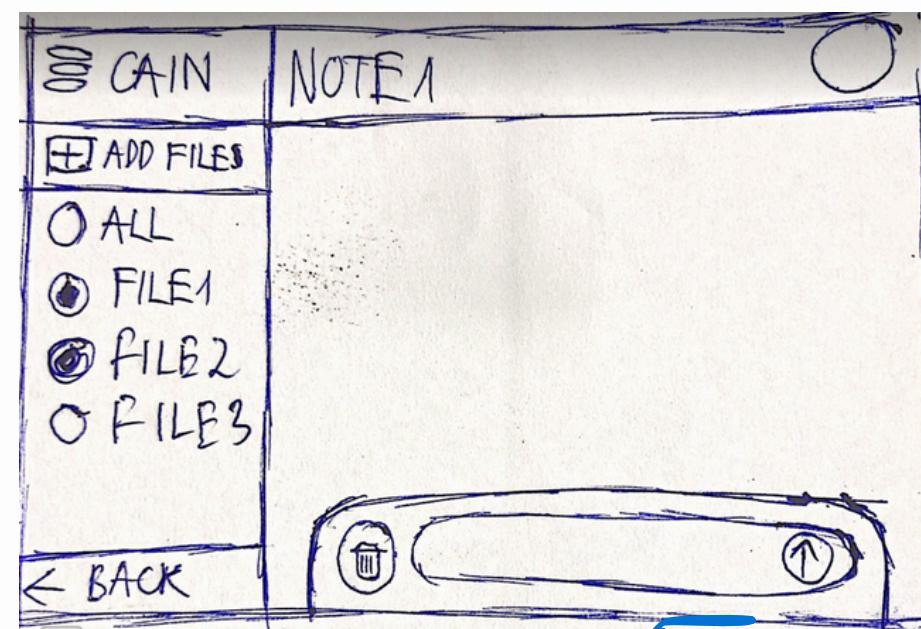
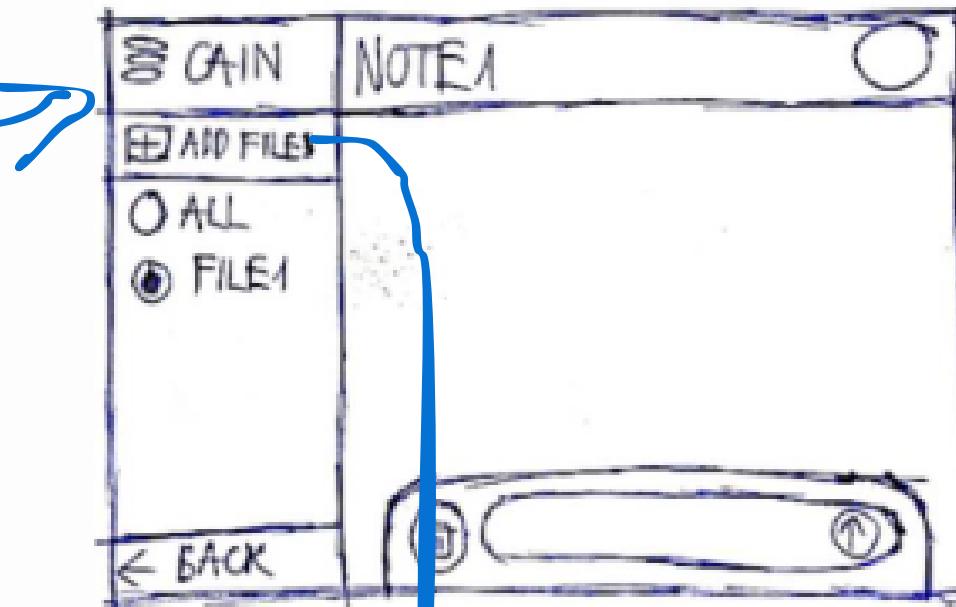
Choose the notebook to contain file



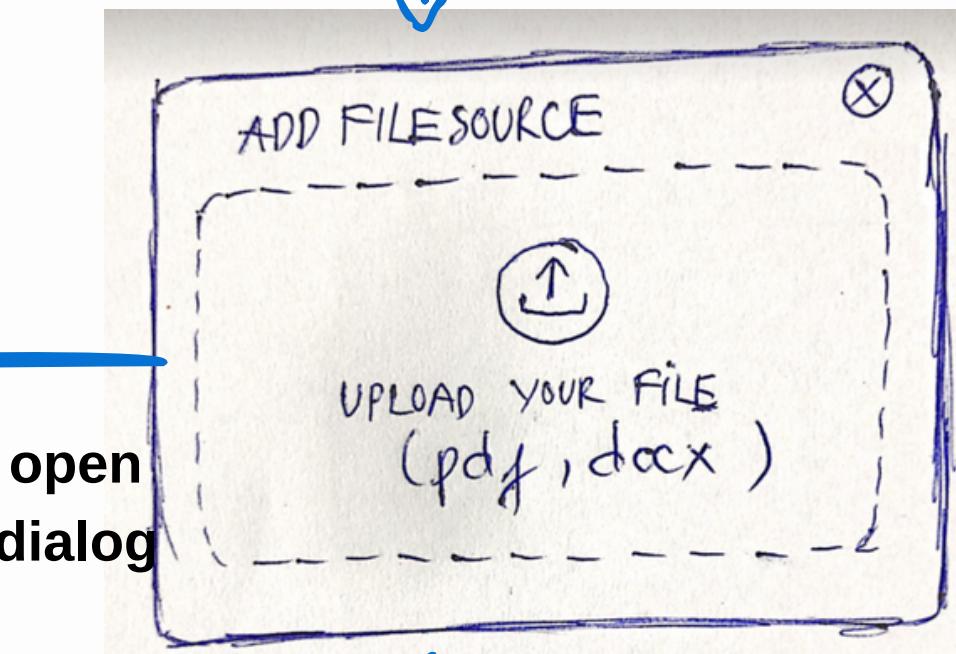
Expand sidebar



click add file to open dialog



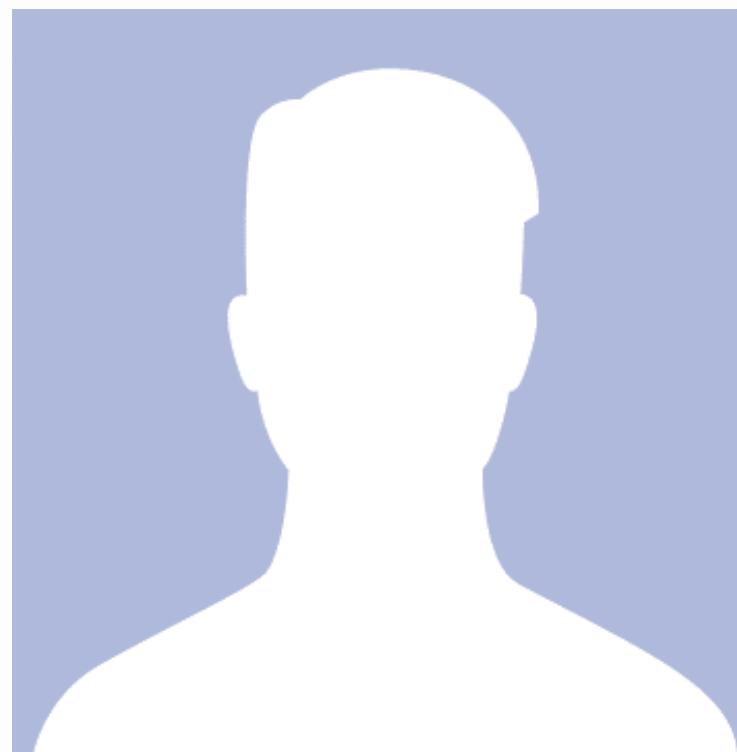
click to open
system dialog



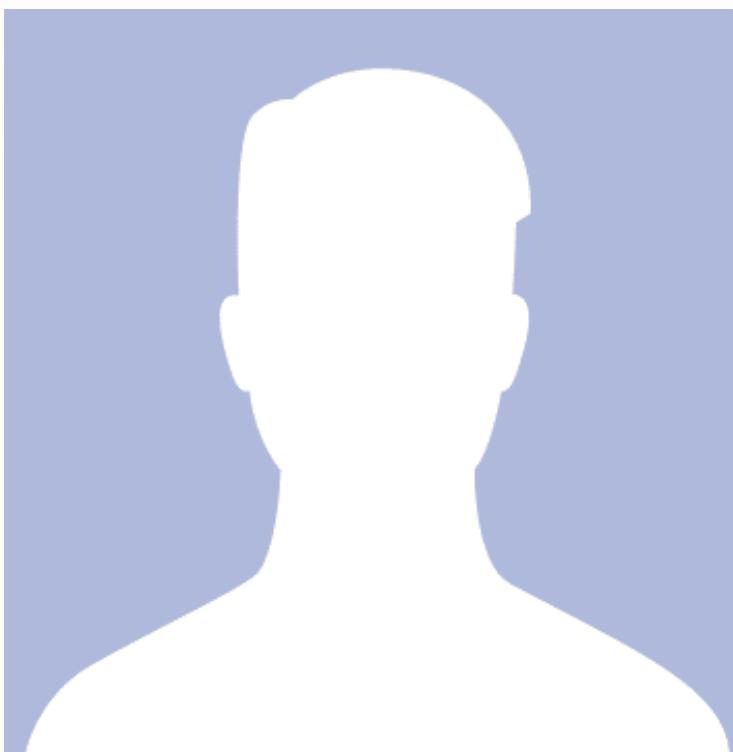
drag and drop file directly

Testing

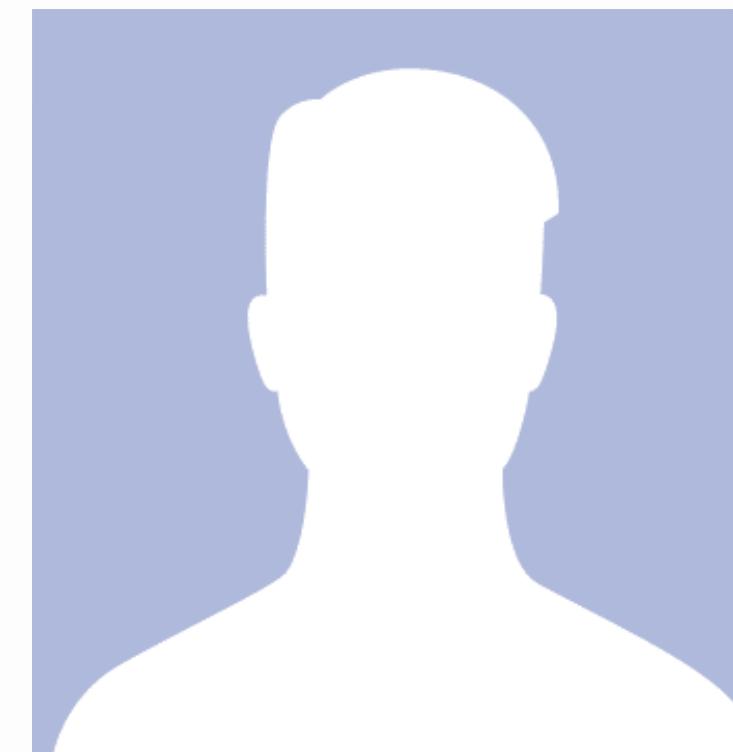
Participants



Nguyen Huu Phong
Age:21
HUST student

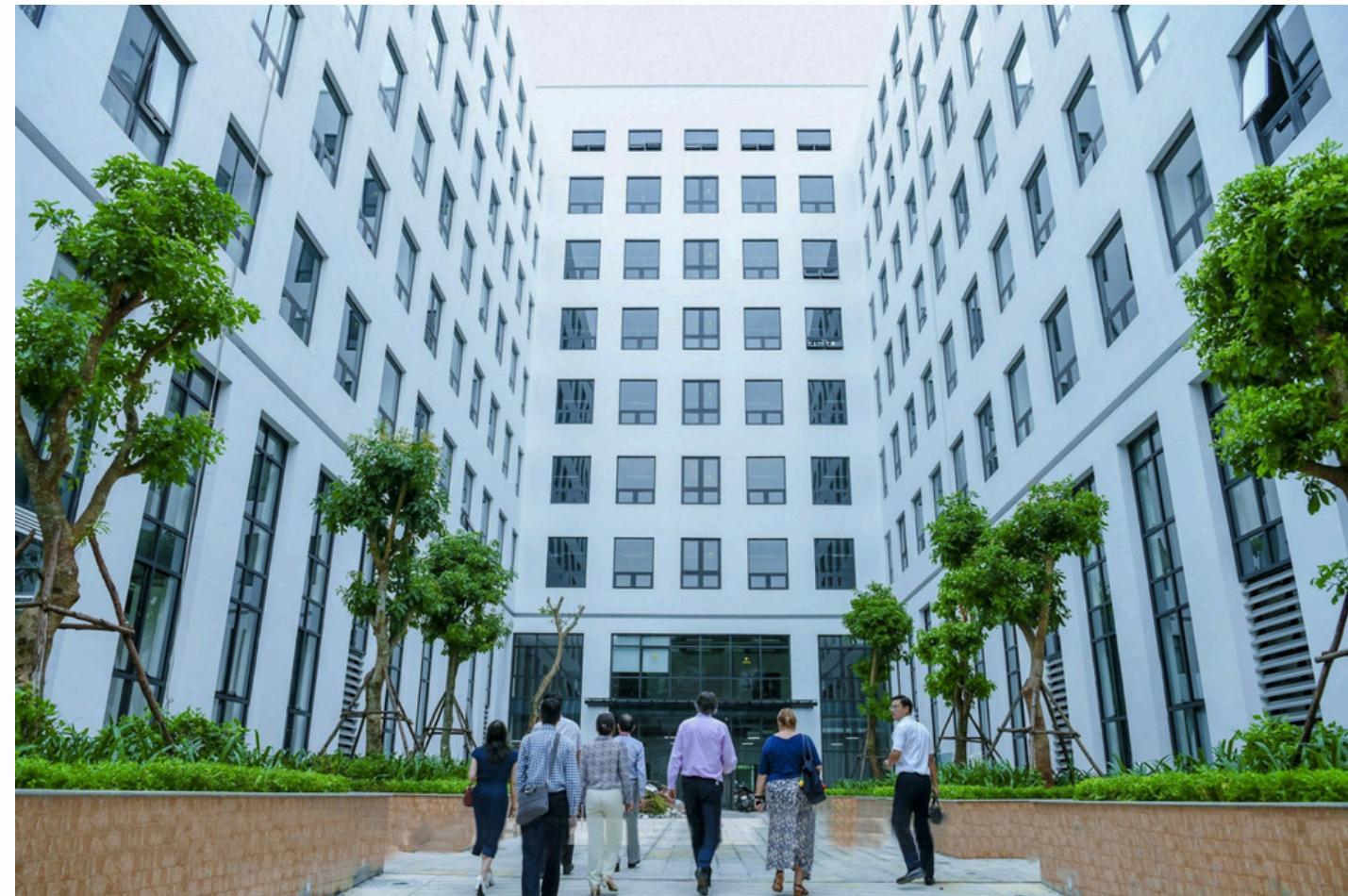


Dinh Cao Sang
Age:21
HUCE student



Nguyen Anh Van
Age:21
DAV student

Environments



C7-826 HUST



HUST campus

Procedure/Apparatus

Apparatus:

A paper prototype consisting of 9 hand-drawn screens was created to represent our three main tasks.

Process:

The paper prototype was divided into groups corresponding to the three primary task flows. Screens were handed to participants manually, one at a time, based on their interactions with the prototype. This process continued, arranging the screens on the table, until all tasks and screens were completed.

TEAM ROLE



Phung Minh Chien

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Ma Khoa Hoc

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Nguyen Danh Huy

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Interviewer, facilitator

Note-taker

Computer, Note-taker

Usability Goals

Intuitive Navigation: Track the number of "mis-clicks" users make while attempting to complete their tasks.

Eagerness to Use: Assess users' likelihood of using various website features by asking them to rate each one on a scale from 1 to 10.

Testing results

Process Data

All participants :

- Found the chatbot easy to use
- Thought it would be better to use a different shaped button (not a circle) to select files to chat with.
- Confused between Searching notebook icon and notebook naming

Process Data

2 participants :

- Found the chatbot easy to interact with and appreciated its user-friendly interface.
- Suggested adding a progress bar to track task completion, making the experience more transparent.

Process Data

1 participant :

- Recommended including a feature to preview selected files before confirming the choice.**

OTHER OBSERVATIONS

Task 1: was simple and quick for users to complete, requiring very few interactions.

Task 2: was also easy to accomplish, though it involved a few "mis-clicks" as users chose files.

Task 3: while still manageable, took the most time to complete compared to the other tasks.

Process Data

Usability Goals:

- We measured 1 “mis-clicks” where users intended to take an action and pressed the wrong button
- Most of our main features including searching notebooks, asking questions about documents, and uploading files to notebooks
- Our participants gave the likelihood of using this website an average of 9/10

Implication

- Chatbot helps users find relevant information in documents quickly.
- Icons make key document details easier to understand.
- Chatbot provides interactive ways to explore and analyze document content.

Changes

- Change file selection icon from round button to square button
- Add a loading animation to track task completion, making the experience more transparent.
- Add a tooltip to preview text .

WHAT TESTING COULDN'T REVEAL

- What would a chatbot look like if there were too many notebooks?
- What would a chatbot look like if there were too many uploaded document files?

Appendix

Script

- Facilitator: "Hi, how are you?"
- Facilitator: "Today, we'll be testing a paper prototype of a chatbot that's designed to help you interact with documents. This prototype is an early version, so we're testing the overall flow and functionality, even though it's not a real digital interface yet."
- Facilitator: "Imagine these pieces of paper in front of you are the chatbot interface on computer screen. You'll interact with it as if you were using a real chatbot. Just tap on the paper where you would imagine tapping on a real screen, and I'll show you what happens."
- Facilitator: "We'll be noting down your thoughts and actions as we go to help us improve the final version, so don't worry about us taking notes."
- Facilitator: "To begin, can you try searching for something specific in your notebook? You can tap on the screen areas where you'd expect the chatbot to allow a search, and let's see what happens."

Script

- Facilitator: "Great! Now, let's try asking the chatbot a question about the document in your notebook. For example, you can ask it to explain a specific section or find certain details."
- Facilitator: "Next, let's see how the chatbot handles file uploads. Imagine you have a document you want to upload to your notebook. Tap on the areas where you'd expect to upload the file, and let's see how the chatbot guides you through that."
- Facilitator: "Awesome! Now that we've tested those tasks, how would you rate your experience searching for information in your notebook using this paper prototype?"
- Facilitator: "How easy was it to ask the chatbot a question about the document? Did the interaction feel intuitive?"
- Facilitator: "How would you rate the file upload feature? Was it clear where and how you would upload files?"
- Facilitator: "Finally, based on this experience with the paper prototype, how likely are you to use this chatbot for managing documents in the future?"

Realization 1:Mobile app

Pros

- **Offline access:** Apps can offer offline capabilities, allowing users to access the chatbot and documents even when there's no internet connection.
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Realization 2: Website

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- **Potential slow performance:** Depending on the complexity of the site and user's internet connection, there may be delays when uploading large documents.

Incident Log:Phong

Incident	Severity
Phong wanted to go back to the menu but accidentally pressed the 3-bar icon	2
Phong got confused between searching notebook and naming notebook	2

Incident Log:Sang

Incident	Severity
First intuition was to log in vs sign up, even though no account had been made	2
When selecting files, he said he wanted to select multiple files but not all and wanted the website to make it clearer.	4

Incident Log:Van

Incident	Severity
“I don't know if it is possible to upload 2 document files at the same time.”	3
Didn't quickly set up a curated itinerary	1

THANK YOU!