

Attachment First

Helping users browse through email
attachments easily

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Course:

Introduction to Human Computer Interaction

Abstract

We are proposing an attachment browser solution that provides flexibility in accessing attachments. Our proposed user interface supports organization of email attachments through four main categories or tabs – Recents, Tag, Format, and Accounts. The minimalistic look of the interface takes care of reducing users' efforts in recognizing and recalling the attachments they are looking for.

Problem

On the most commonly used email service providers (Gmail, Yahoo! Mail, Outlook Mail, etc.), there is no way to browse just attachments. These services are focused on accessing emails, but not on accessing the email attachments smoothly. Due to this, priority is given to features that help browsing emails smoothly, and not to features that do the same for browsing just attachments. Hence, there is a scope of creating a platform where users get an organized view that enables them to flexibly and smoothly browse just their email attachments.

Solution

Our proposed attachment browser is so organized that it takes away the cognitive load of remembering details about your email attachments. It makes recognition faster by showing big snippets of attachments in the way you desire. Its comprehensive categories, filters, and sorting options allow you to search your attachments smoothly.

The four main ways of organizing the attachments on this platform are Recents, Tag, Format, and Accounts.

Recents

With the recents tab, you can view the recently accessed, received, or sent attachments.

Tag

Tag category allows you to personalize and customize your browsing experience. Machine learning models at the backend tag the documents into various categories (resume, tickets, bills, transcripts, etc.). You can also add your own tag/label to any attachment so you can use that label to search for that attachment later.

Format

With Format, you can view the attachments segregated by its file format (PDF, presentation, document, image, video, etc.).

Accounts

With Accounts, you can bring all your email attachments from multiple email accounts, that too from multiple email service providers, at one place. You can view all these attachments segregated based on which account they belong to.

The minimalistic and organized look of the platform was inspired from Google Photos and from Netflix. The idea was to show preview of the content inside the attachment through big snippets.

Understanding the User

While understanding the requirements of the users, we felt the needs for certain features. We mostly used our own experience with attachment browsing to come up with the following requirements and features while brainstorming:

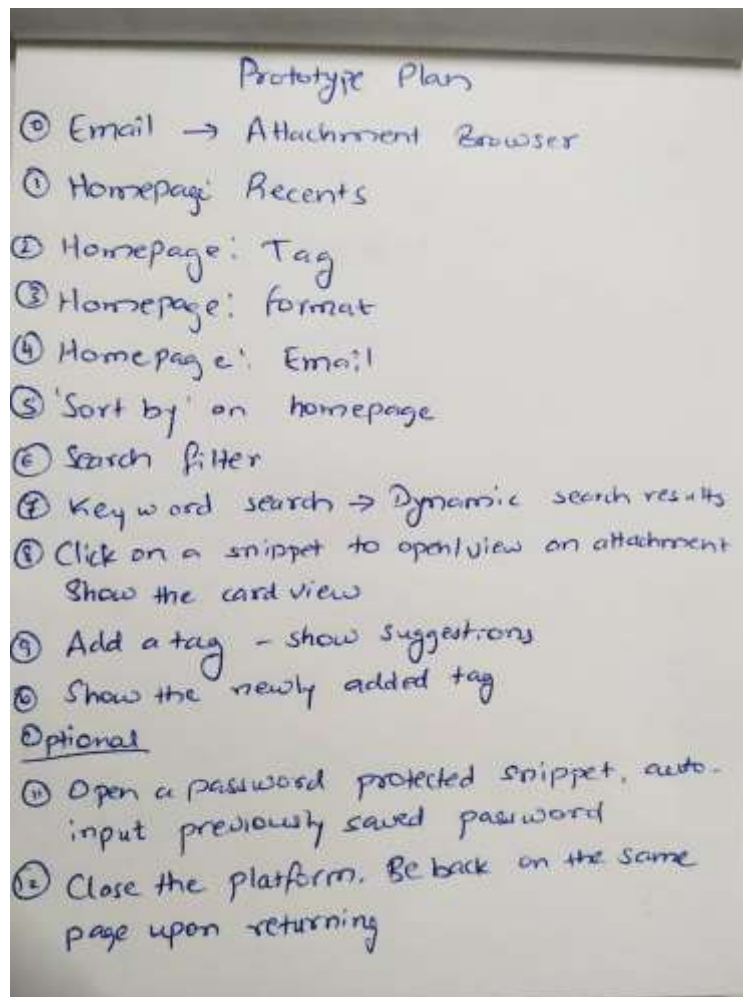
- Dealing with duplicate attachments
- Being able to see the snippets of attachments and viewing that like the format of Google Photos or of Netflix
- Not showing the image of the attachments that are confidential. For example, password protected images would show a lock icon
- Extracting text from all the attachments (PDF, lyrics/transcripts from audio and video files, image captioning) to make it easy to search the attachments by using search keywords

- Using synonyms of keywords entered in search queries
- Accessing documents using NLP, say using sentences such as ‘an attachment that involves a graph/movie’
- Auto-tagging/guessing the attachments into types/categories such as resume, tickets, income tax returns, etc.
- Multi-language voice search
- Filters (date, attachment type, file format, sent by, size)
- Save password feature for attachments for several documents, say from the same sender (e.g. bank).

Some of these features did not move past the brainstorming activity while others were included in the prototypes.

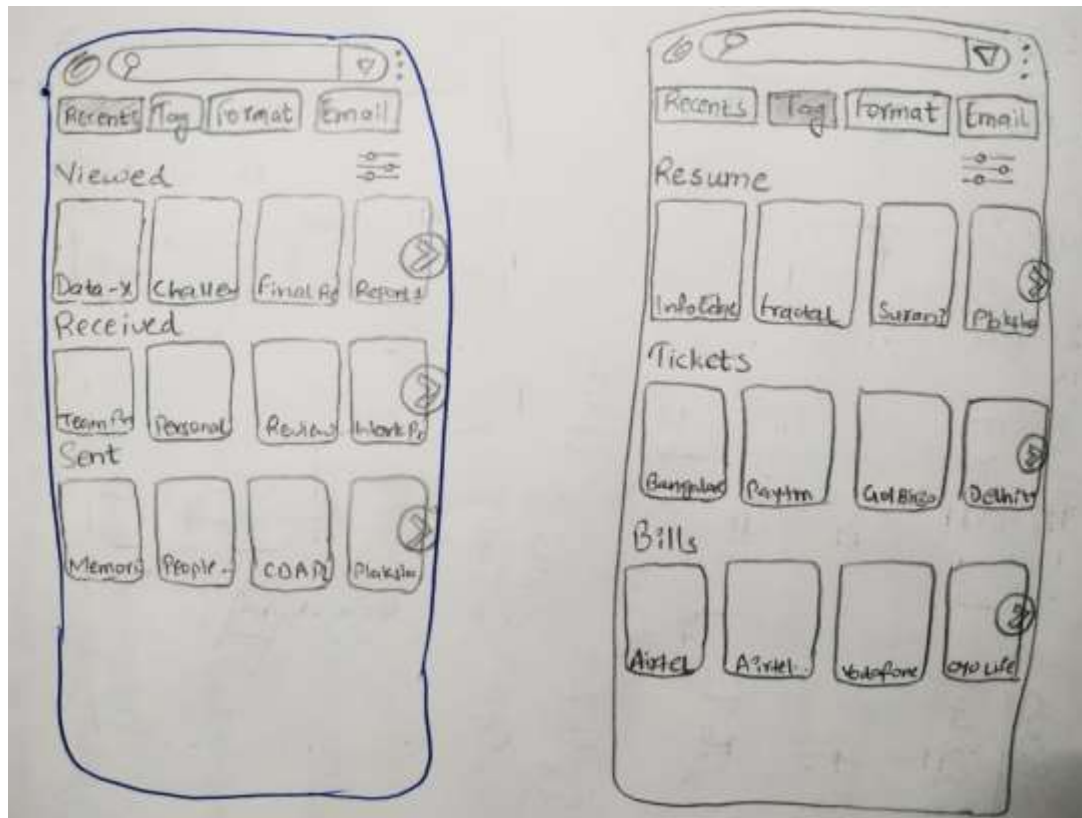
Prototyping

After brainstorming and selecting features, we created a plan of how the paper-pen-based prototype would look like.

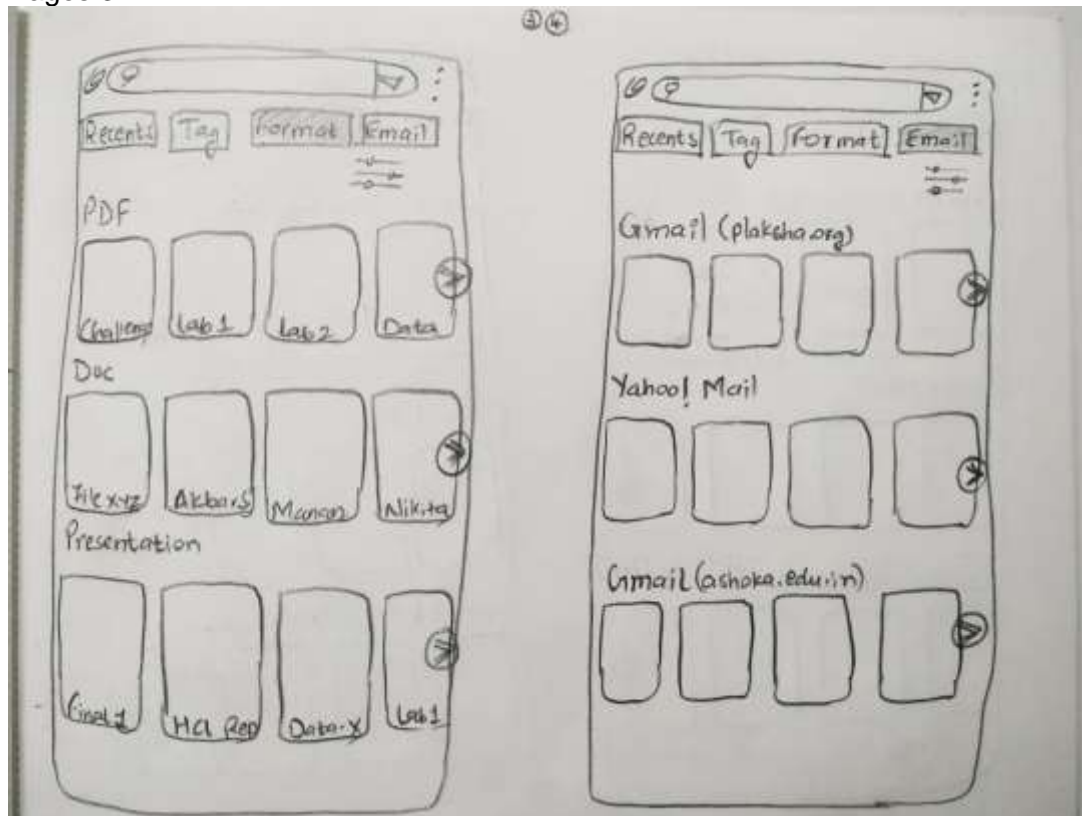


Then we started creating a paper-pencil-based prototype. The idea behind creating a prototype with paper and pencil was that we can erase and rewrite and hence, can do more with minimum efforts. This prototype, while it was being made, was parallelly used as a blueprint to make its digital version. Hence, we ended up with a part of the digital version as well when the paper-pencil prototype was finished. The idea behind doing this parallelly was to save time. Also, we assumed that there would only be minor changes to be made after doing user testing, which will not require us to tweak the digital version majorly.

Pages 1-2:



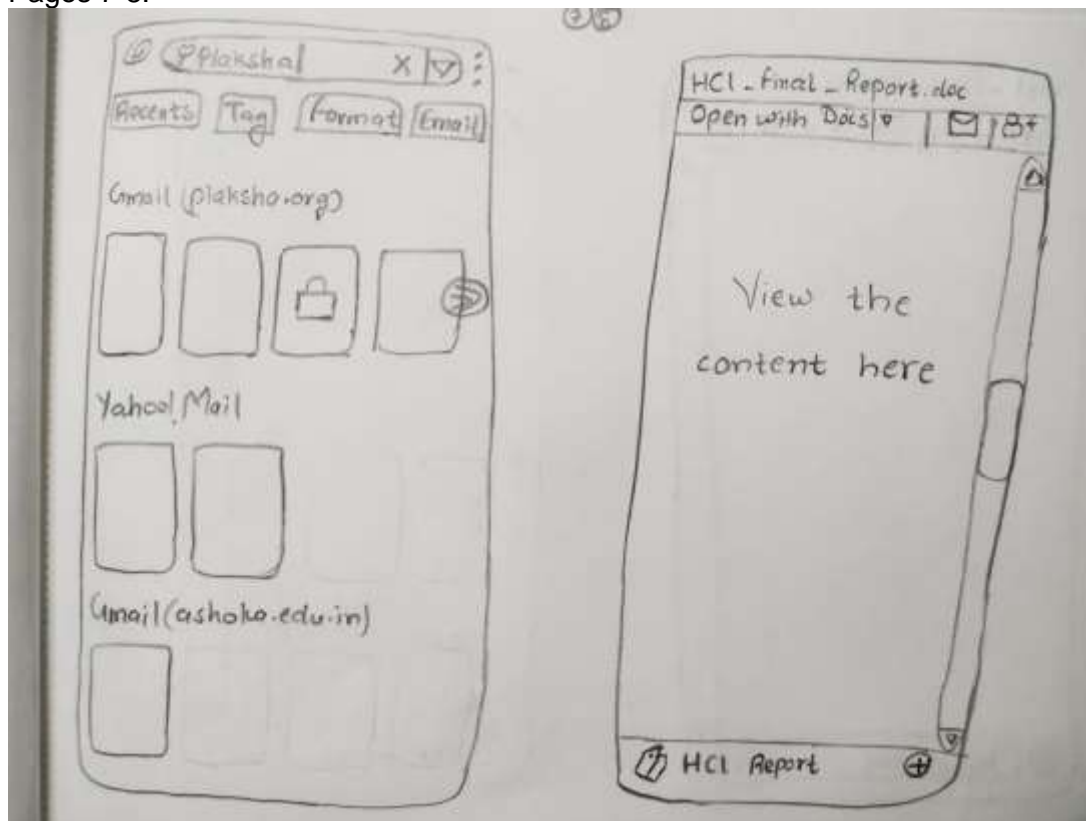
Pages 3-4:



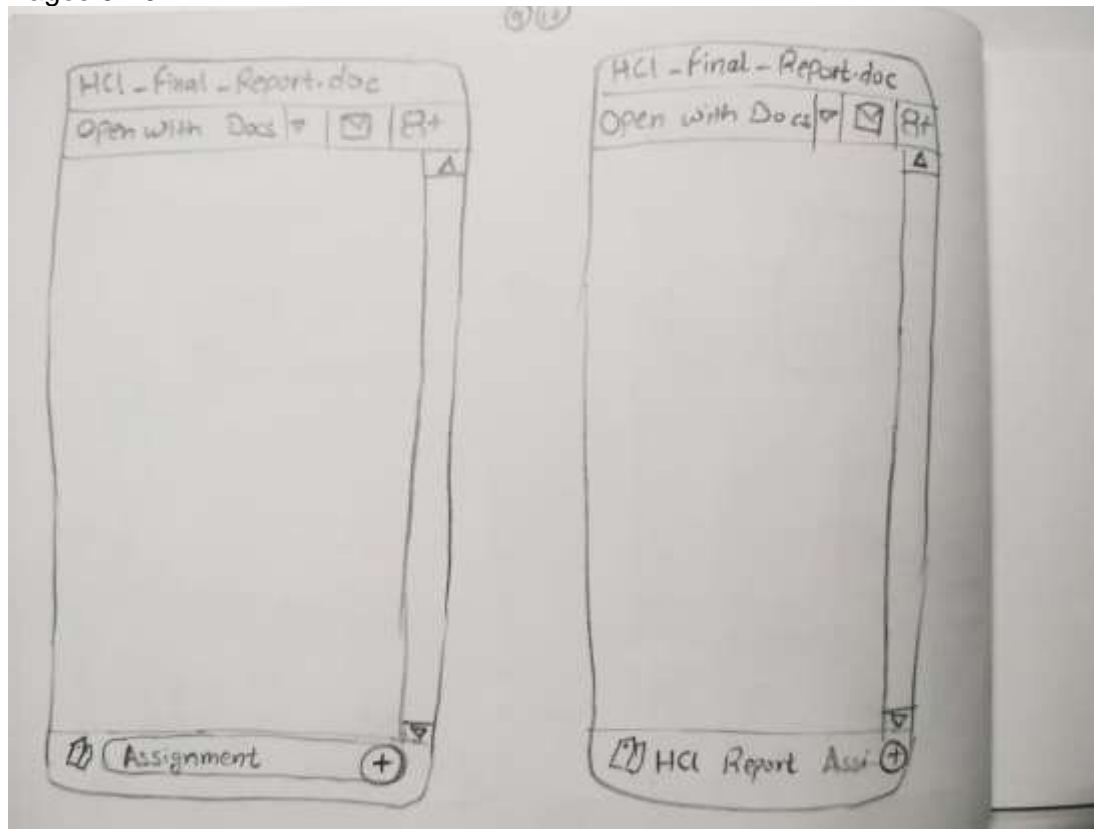
Pages 5 -6:



Pages 7-8:



Pages 9-10:



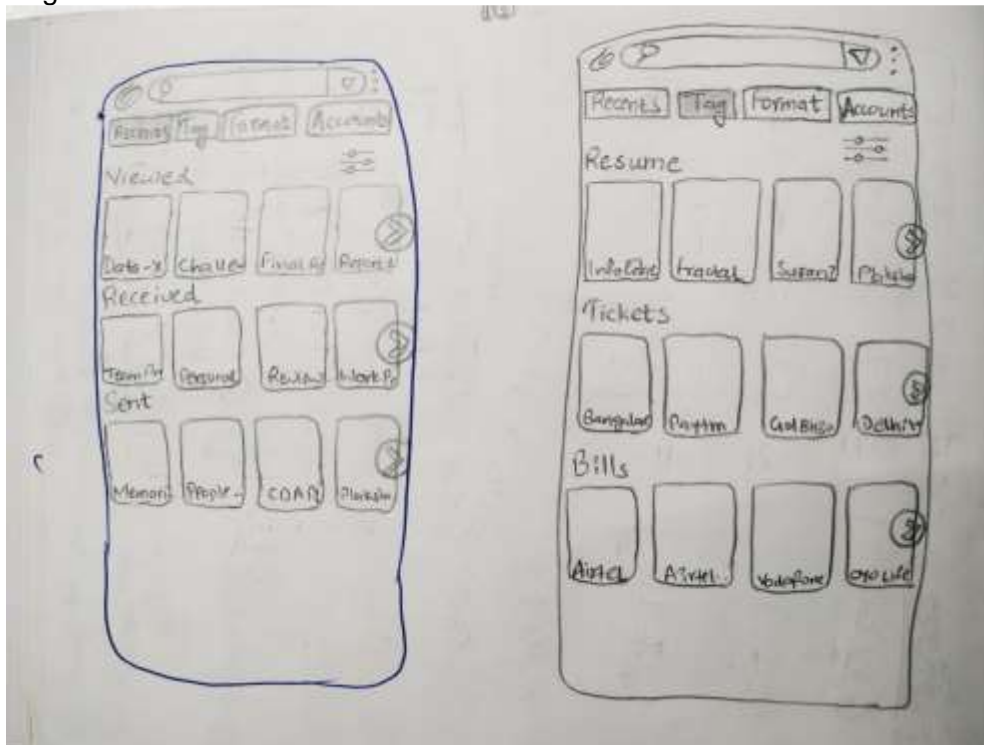
User Testing and Iterations

We showed our paper-pen prototype to 3 users. We asked the users to think out loud while they went through the prototype. As I showed this prototype on paper, I was informing them at each step about the connection between the pages, by telling them which button I am clicking and where it leads me. In the following table is the feedback we received from them and the changes we made in the iterative process to make our prototype better.

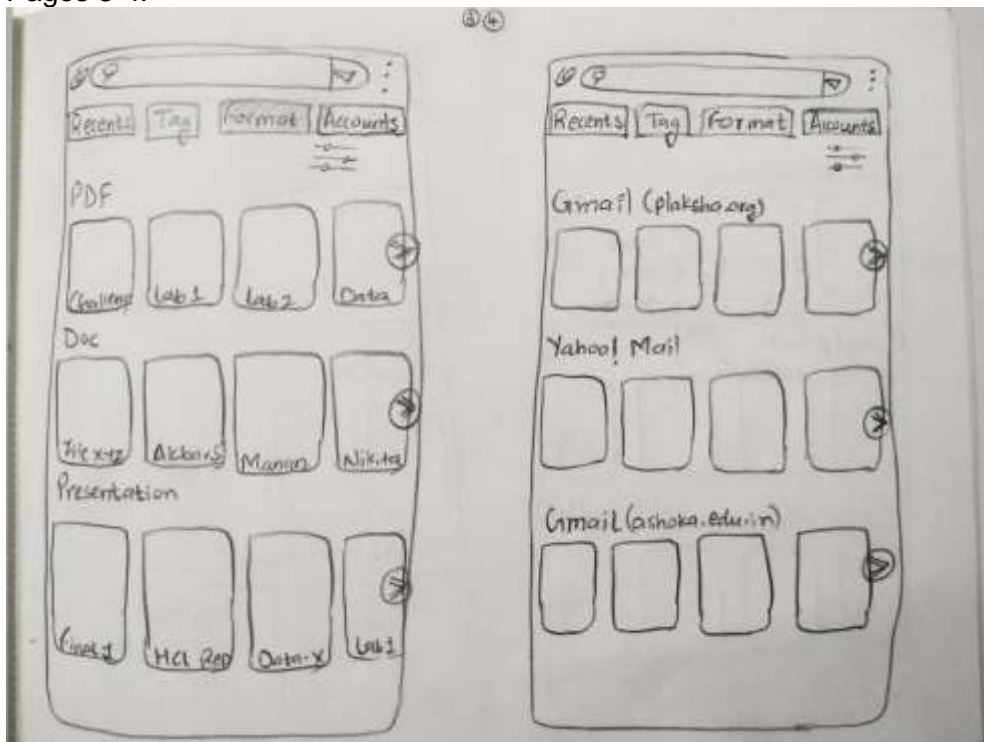
Sr. No.	Feedback + User Reaction	Iterative step (Changes made + Rationale)
1	In page 10, separate HCI and Report. It is not intuitive to see that they are separate tags. The user could not figure out that these were tags.	Tags were separated from each other by using rounded buttons so they are clearly visible as separate entities
2	The email icon on page 9 and 10 looks like it allows the users to send/email this attachment. (This was not our intent. We intended the icon to be a button that, upon clicking, takes the user to the email with which the attachment was sent.) The user was not confused, and was sure and (falsely) convinced about what they think this button does.	Replaced the email icon with 'Open Email' so there is no ambiguity in understanding what this button does
3	Icon for tags is not clear enough, maybe it is not drawn well enough to represent tags. The user was able to guess what this icon stood for, but took 2-3 seconds.	Changed the icon used for tags. Used a clear icon that is more representative of real-world.
4	'Assignment' on page 9 looks like you are submitting an assignment (which is not the case. We are just adding a tag named 'assignment'.)	Changed the whole example. The new example shows tags that are intuitive and similar to the tags shown before (for e.g. tickets).
5	Maybe change the location of the email icon on page 10. Because it is placed beside the share button, it seems like this icon also allows you to share, but through sending an email	Location of the 'Open email' button was changed. The button was shifted to the leftmost end. We did this so there is no context generation from the button beside it.
6	How to add a tag? It is not that clear	Added tag suggestions.
7	Sharing an attachment is possible through which medium?	Changed the share icon to show that sharing across multiple platforms is supported. This allows the attachment to be exported.
8	In page 4, it looks like I am viewing my emails, that the snippets are of my email. If that is the case, please add categories such as Sent, Received, Unread, etc. (That is not the case.)	(The prototype did not involve drawings in the snippets on page 4 and hence it was not clear that they represent attachments. <ol style="list-style-type: none"> 1. Email was changed to Accounts (to not confuse users about whether they are viewing email snippets or snippets of just attachments) 2. Snippets were added in the digital prototype to indicate what they contain within them
9	<u>Positive feedback</u> : The snippets are big enough, so it is helping to clearly view the attachment preview	Maintained the same
10	<u>Positive feedback</u> : The view of the main page is minimalistic and very organized	Maintained the same

Updated Prototypes:

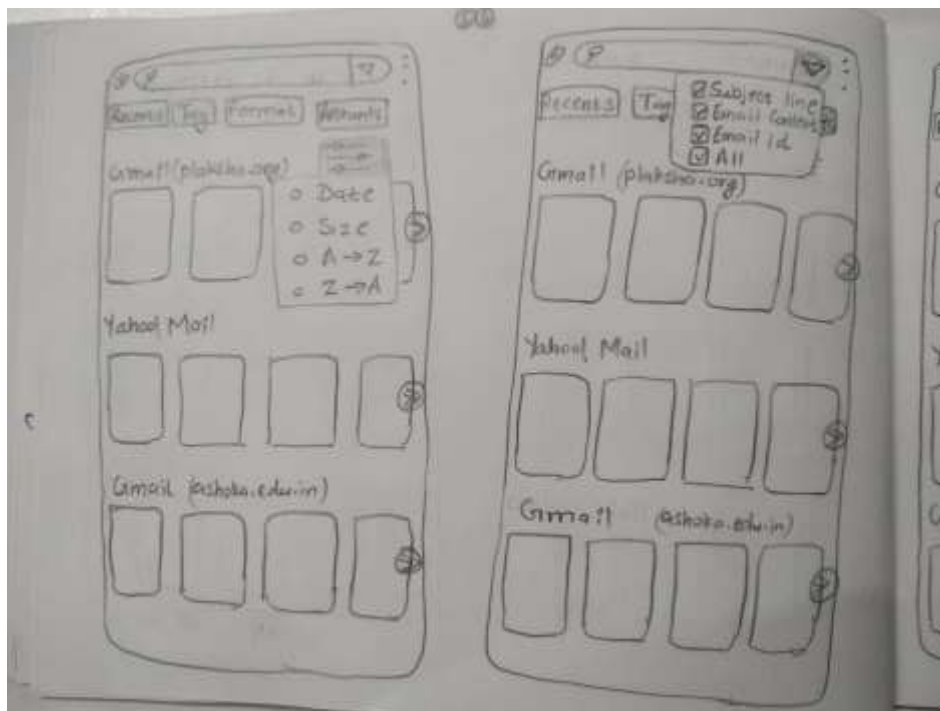
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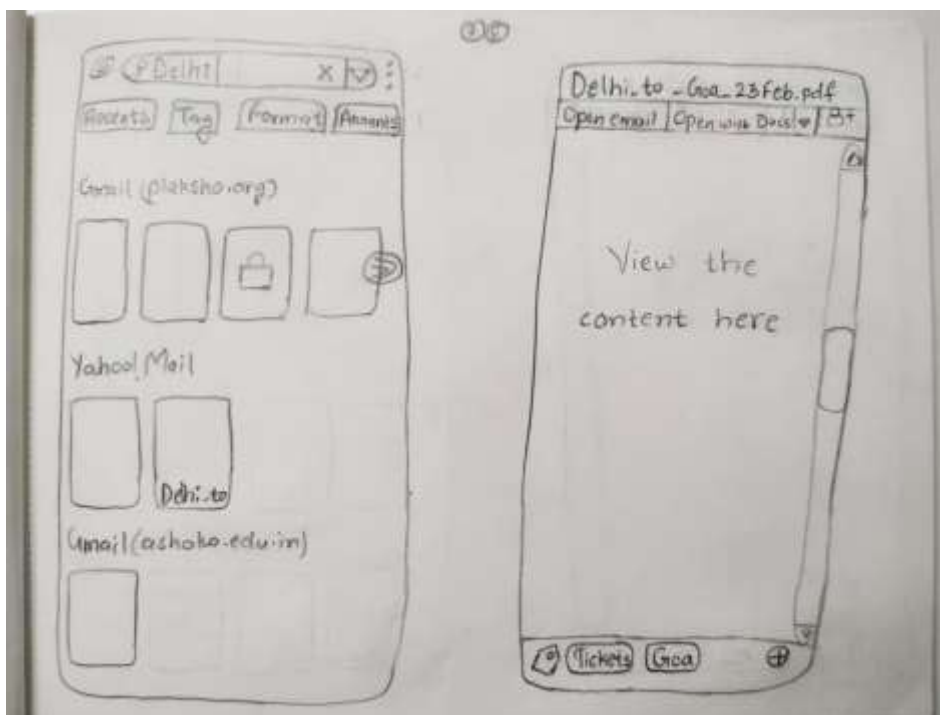
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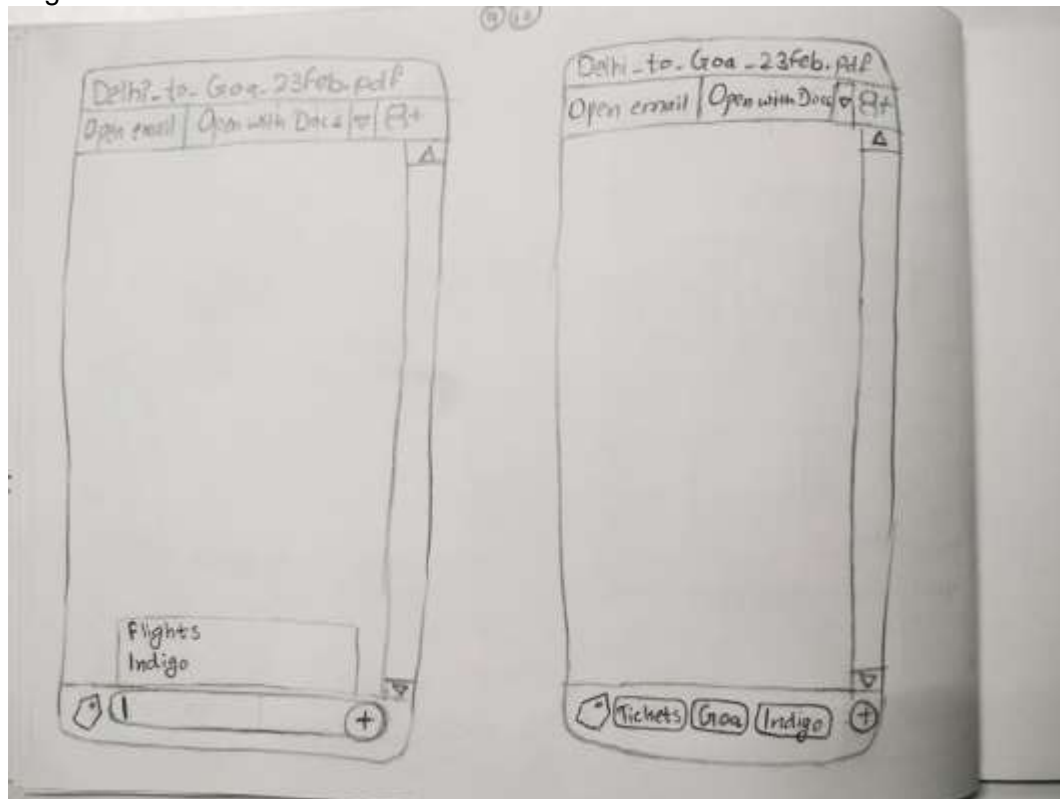
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Pages 9-10:



User Prototype

Using Justinmind, a prototyping tool, we have created the following digital version of the prototype wherein we have implemented the final version of our pen-paper-based prototype. Please view it from here:

[Link Here](#)

We also added some additional features in the digital prototype. This was done in parallel to user testing and iteration. Hence, we haven't tested these new features on the users.

1. People: This tab was added on the main page, which enables users to see an organized view that segregates attachment based on the sender/receiver.
2. Lock: On the page where users can open/view the attachment, a lock option was added that allows users to add a password to that attachment.
3. Bookmark: This option allows the users to bookmark an attachment, which is then visible in the bookmark category under the Recents tab.
4. Password protected view: In this view, the preview of any password protected document is hidden and the snippet shows a lock.

Conclusion and Future Work

While iterating further, we want to make sure that we sustain the existing minimalistic and organized look of the platform. For further iterations, we would want to add features such as saving passwords for attachments, voice search, and improved search based on extracting text from audio and video files, and a bookmarks page.

Team

Manan Arora worked on UX design (digital prototype), iteration, presentation, and formatting. Akbar Surani worked on paper prototypes, user testing, iteration, and report writing. Nikita worked on ideation and sketching and also demonstrated class presentation.

[Link to Presentation](#)